

MONITORING HUMAN HEALTH ISSUES DUE TO PESTICIDES

Submitted in partial fulfillment of the
requirements for the award of
Bachelor of Engineering degree in Computer Science and Engineering
By

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SCHOOL OF COMPUTING**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

CATEGORY -1 UNIVERSITY BY UGC

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APRIL - 2024

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **Vusa Vamsi Krishna (40111453)** and **Vudatala Dinesh (40111451)** who carried out the Project entitled “**MONITORING HUMAN HEALTH ISSUES DUE TO PESTICIDES**” under my supervision from November 2023 to April 2024.

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I, **VUSA VAMSI KRISHNA (40111453)**, hereby declare that the Project Report entitled “**MONITORING HUMAN HEALTH ISSUES DUE TO PESTICIDES**” done by me under the guidance of **Dr. L. K. Joshila Grace, M.E., Ph.D** is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in **Computer Science and Engineering**.

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ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management of Sathyabama Institute Of Science and Technology** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. T. Sasikala M.E., Ph.D**, Dean, School of Computing, **Dr. L. Lakshmanan M.E., Ph.D.**, Head of the Department of Computer Science and Engineering for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr. L. K. Joshila Grace, M.E., Ph.D** for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Computer Science and Engineering** who were helpful in many ways for the completion of the project.

ABSTRACT

The rise in pesticide usage in agriculture has raised concerns about its potential impact on human health. To protect the well-being and safety of those affected, effective monitoring systems must be established. These systems should include regular health assessments, medical check-ups, blood tests, and diagnostic tools to identify pesticide-related health problems. They should also extend to vulnerable populations, such as pregnant women, children, and those with pre-existing health conditions. Comprehensive monitoring should include data collection and analysis on pesticide use, including types, concentrations, and application frequency. This data can provide valuable insights into the relationship between pesticide exposure and health outcomes, enabling policymakers and health professionals to implement appropriate preventive measures and interventions. Regular monitoring programs also offer the advantage of early detection of potential health risks, enabling prompt medical intervention and treatment. Long-term exposure to pesticides has been associated with various health problems, including cancer, neurological disorders, reproductive issues, and respiratory conditions. Therefore, vigilant monitoring is essential to assess and mitigate the risks associated with pesticide exposure. Vulnerable populations, such as pregnant women, children, and those with pre-existing health conditions, are at heightened risk of adverse effects from pesticide exposure. In conclusion, robust monitoring systems are crucial for protecting human health. Regular health assessments, data collection and analysis, and a focus on vulnerable populations are essential components of these systems. The platform is monitored by administrators who examine user comments and data patterns to guarantee efficient monitoring. After registering, doctors use the system to diagnose patients, prescribe medications, and access user information. In the end, the system seeks to protect public health and improve agricultural practices by offering a strong framework for the early diagnosis, intervention, and management of pesticide-related health issues. These symptoms are then evaluated by advanced machine learning algorithms such as random regression, which forecast potential diseases based on reported symptoms and past data.

TABLE OF CONTENTS

Chapter No	Title	Page No
	ABSTRACT	v
	LIST OF FIGURES	ix
	LIST OF ABBREVIATIONS	x
1	INTRODUCTION	1
	1.1 Scope and Objective	2
2	LITERATURE SURVEY	3
	2.1 Problem with the Current System	6
	2.2 Proposed System	6
3	REQUIREMENT ANALYSIS	7
	3.1 Feasibility/Risk Analysis of the Project	7
	3.1.1 Technical Feasibility	7
	3.1.2 Economic Feasibility	8
	3.1.3 Operational Feasibility	8
	3.1.4 Features	8
	3.2 Description of Software for Implementation	9
	3.2.1 Software Requirement	9
	3.2.2 Hardware Requirement	10
4	DESCRIPTION OF PROPOSED SYSTEM	11
	4.1 System Architecture	11
	4.2 Project Module Description and Selected Methodology	12
	4.3 Project Lifecycle	13

	Description of Software for Implementation of the	14
4.4	Proposed Model/System	
4.4.1	Python	14
4.4.2	Django	17
4.4.3	WAMP Server	17
4.4.4	PHP Admin	17
4.4.5	Features of MySQL	18
4.4.6	SQL Server and Database System	18
4.4.7	PHP Configuration	20
4.4.8	Features of PHP	21
4.5	Description of Proposed Model	21
5	IMPLEMENTATION DETAILS	25
5.1	Development and Deployment Setup	25
5.2	Testing	25
5.2.1	Levels of Testing	25
5.3	Validation Criteria	27
5.4	Algorithm	28
6	RESULTS AND DISCUSSIONS	30
6.1	Results and Discussions	30
6.2	Advantages	31
6.3	Future Work	31
7	CONCLUSION	32
7.1	Conclusion	32
7.2	Research Issues	32
7.3	Implementation Issues	33
	REFERENCES	34
	APPENDIX	36

A. SOURCE CODE	37
B. SCREENSHOTS	54
C. RESEARCH PAPER	60
D. CERTIFICATE	67

LIST OF FIGURES

FIGURE NO	FIGURE NAME	PAGE NO
4.1	System Architecture	11
4.3	Project Life Cycle	13
4.4	SQL Server	19
B.1	Home Page	54
B.2	Disease Prediction by Selecting Symptoms	54
B.3	Admin Login Page	55
B.4	Manage Doctors	55
B.5	Doctors List	56
B.6	Doctor Login Page	56
B.7	Doctor Registration	57
B.8	View Users Admin Panel	57
B.9	Appointment Details	58
B.10	View Appointments	58
B.11	User Appointment Booking Details	59
B.12	User Login	59

LIST OF ABBREVIATIONS

ABBREVIATION	EXPANSION
SSL	Secure Sockets Layer
SQL	Structured Query Language
GS	Gateway server
HTML	Hyper Text Markup Language
LR	Logistic Regression
TLS	Transport Layer Security

CHAPTER 1

INTRODUCTION

Pesticides encompass both naturally derived and synthetically manufactured compounds employed to manage pests across diverse sectors such as agriculture, forestry, food production, and aquaculture. These compounds exhibit varying degrees of toxicity towards living organisms. The World Health Organization classifies pesticides according to their harmful impacts, underscoring their significance to public health. Minimizing their usage to the lowest feasible extent, while comprehensively understanding their categorization, proves advantageous for human health and environmental preservation.

The monitoring system for human health issues related to pesticides in agriculture, integrated within the provided module, encompasses several key functionalities. Users, upon registration, can report symptoms possibly linked to pesticide exposure, utilizing machine learning algorithms and Random Regression to predict potential health concerns. Admins can oversee this process, viewing user data and feedback to identify trends or anomalies. Doctors once registered and approved, can access user information and appointments, providing treatments and prescriptions as necessary. This system enables continuous surveillance of pesticide-related health issues, facilitating timely interventions and feedback loops to mitigate risks and enhance public health outcomes. In addition to active surveillance, research must be conducted to explore the long-term effects of pesticide exposure on human health. This includes conducting epidemiological studies to determine the prevalence of chronic diseases among individuals exposed to pesticides. Moreover, toxicological studies can help elucidate the mechanisms through which pesticides exert their harmful effects on various biological systems. Such research is essential for the development of evidence-based recommendations and guidelines to mitigate the health risks associated with pesticide use.

In conclusion, the increased usage of pesticides in agriculture poses significant health risks to human beings. This necessitates the urgent establishment of monitoring systems to track cases of acute pesticide poisoning and study the long-term effects of chronic exposure. Through active surveillance, education, and

research, we can effectively mitigate the potential health issues arising from increased pesticide usage, ensuring the well-being of both agricultural workers and consumers. The protection of human health should be prioritised alongside the pursuit of agricultural productivity to establish sustainable and safe agricultural practices for the benefit of all.

1.1 SCOPE AND OBJECTIVE:

The scope of the system encompasses the comprehensive monitoring and management of human health issues arising from pesticide use in agriculture. Through a user-friendly interface, individuals can register and report symptoms, initiating a process where machine learning algorithms predict potential diseases based on reported symptoms and historical data. Admins oversee the platform, analyzing user feedback and data trends to ensure effective surveillance. Doctors, once registered, play a pivotal role in the system by accessing user information, diagnosing ailments, and prescribing treatments.

The objective is to provide a robust framework for early detection, intervention, and management of pesticide-related health issues, ultimately aiming to safeguard public health and enhance agricultural practices. By leveraging technology and collaboration among stakeholders, the system seeks to minimize the adverse impacts of pesticide exposure while promoting sustainable agricultural practices.

CHAPTER 2

LITERATURE SURVEY

[1] Omeje, J. S., Asegbeloyin, J. N., Ihedioha, J. N., Ekere, N. R., Ochonogor, A. E., Abugu, H. O., & Alum, O. L. (2022). Monitoring of pesticide residues in fresh fruits and vegetables available in Nigerian markets and assessment of their associated health risks. *Environmental Monitoring and Assessment*, 194(7), 516. The study conducted by Omeje et al. (2022) focused on monitoring pesticide residues in fresh fruits and vegetables sold in Nigerian markets. They aimed to assess the associated health risks posed by these residues. Through their research, they provided crucial insights into the potential impact of increased pesticide usage in agriculture on human health. The findings from this study serve as an important resource for policymakers and stakeholders in developing strategies to mitigate the risks and ensure the safety of consumers.

[2] Jacquet, F., Jeuffroy, M. H., Jouan, J., Le Cadre, E., Litrico, I., Malausa, T., ... & Huyghe, C. (2022). Pesticide-free agriculture as a new paradigm for research. *Agronomy for Sustainable Development*, 42(1), 8. In their research article, Jacquet et al. (2022) explore the shift towards pesticide-free agriculture as a new paradigm for research. They highlight the need to monitor human health issues arising from the increased usage of pesticides in agriculture. By emphasizing the importance of pesticide-free practices, the authors advocate for a more sustainable approach to farming that prioritizes public health and environmental preservation. This article serves as a valuable resource for scientists, policymakers, and stakeholders seeking innovative solutions to minimize the negative impacts of pesticides on human health.

[3] Coria, J., & Elgueta, S. (2022). Towards safer use of pesticides in Chile. *Environmental Science and Pollution Research*, 29(16), 22785-22797. Coria and Elgueta (2022) conducted a study titled "Towards safer use of pesticides in Chile" published in *Environmental Science and Pollution Research*. The research aimed to address the growing concern of human health issues due to the increased usage of pesticides in agriculture. Through their investigation, the authors focused on

monitoring the effects of pesticide use on human health in Chile, providing valuable insights and recommendations to promote safer practices in pesticide application. The study's findings contribute to the ongoing efforts towards mitigating the potential risks associated with pesticide usage and ensuring a healthier environment for the population.

[4] Zahoor, I., & Mushtaq, A. (2023). Water pollution from agricultural activities: A critical global review. *Int. J. Chem. Biochem. Sci*, 23, 164-176. In their review, Zahoor and Mushtaq (2023) focus on the critical issue of water pollution from agricultural activities. Specifically, they highlight the detrimental effects of increased pesticide usage on human health. The authors provide a global perspective, examining the impacts of this pollution on various regions. With their comprehensive assessment, they aim to shed light on the urgent need for monitoring human health issues associated with pesticide use in agriculture.

[5] Raj, E. F. I., Appadurai, M., and Athiappan, K. (2022) explore the topic of precision farming in modern agriculture in their book chapter titled "Precision Farming in Modern Agriculture" in "Smart Agriculture Automation Using Advanced Technologies: Data Analytics and Machine Learning, Cloud Architecture, Automation and IoT." Specifically, they discuss the monitoring of human health issues stemming from the increased usage of pesticides in agriculture. Their chapter provides insights and analysis on how advanced technologies, such as data analytics, machine learning, and IoT, can be utilized to address and mitigate these health concerns effectively.

[6] In their study titled "A worldwide review of currently used pesticides' monitoring in agricultural soils," Sabzevari and Hofman (2022) provide a comprehensive assessment of the monitoring practices used for pesticides in agricultural soils globally. The authors highlight the necessity of monitoring for the protection of human health as pesticide usage in agriculture continues to increase. The review discusses various monitoring approaches and highlights the importance of comprehensive surveillance systems to identify potential risks and mitigate adverse health effects associated with pesticide exposure. This study serves as a valuable resource for policymakers and researchers in their efforts to address the challenges

posed by the increased usage of pesticides in agriculture and its impact on human health.

[7] Miller, S. A., Ferreira, J. P., & LeJeune, J. T. (2022). Antimicrobial use and resistance in plant agriculture: A one health perspective. *Agriculture*, 12(2), 289. In their article titled "Antimicrobial use and resistance in plant agriculture: A one health perspective," Miller, Ferreira, and LeJeune (2022) provide insights into the impact of increased pesticide usage in plant agriculture on human health. Taking a one health perspective, the authors delve into the connection between antimicrobial use, resistance, and the potential risks for human health. Through their research, they shed light on the importance of monitoring human health issues in response to the escalating use of pesticides in agriculture.

[8] The study conducted by Rodríguez-Bolaña et al. (2023) explores the multicompartimental monitoring of legacy and currently used pesticides in a subtropical lake in Uruguay, specifically Laguna del Cisne. The lake serves as a vital source of drinking water for the region. The researchers aim to understand the health risks posed by increased pesticide usage in agricultural practices. By investigating different compartments of the lake, such as water, sediment, and biota, the study provides valuable insights into the presence and potential impacts of pesticides on human health. This research contributes to the identification and implementation of necessary measures to mitigate the risks associated with pesticide use in the region.

[9] Gagneten et al. (2023) provide an updated assessment on the characterization of atrazine, a widely used herbicide, with a focus on its uses, monitoring, effects, and environmental impact. The study specifically aims to support the development of regulatory policies in Argentina in order to address the potential health issues associated with the increased usage of pesticides in agriculture. By synthesizing current information, the authors aim to assist in monitoring human health impacts and provide valuable insights for informed decision-making and the implementation of effective regulations in the country.

[10] In their review article titled "Implementation of drone technology for farm monitoring & pesticide spraying," Hafeez et al. (2022) explore the use of drone technology in agriculture for monitoring and pesticide spraying. The authors discuss

the potential of drones in addressing the health issues arising from increased pesticide usage. By providing real-time data on pesticide application and monitoring, drones can help track and manage human health risks associated with pesticide exposure. The review emphasizes the importance of implementing drone technology to mitigate health issues and improve agricultural practices.

2.1 PROBLEM WITH THE CURRENT SYSTEM

In the current scenario, the monitoring of human health issues due to pesticides often lacks a centralized and efficient system. There may be fragmented approaches to data collection and analysis, leading to delays in identifying and addressing health concerns. Traditional systems for monitoring human health issues due to pesticides in agriculture are often characterized by manual and paper-based processes. This can result in delays and errors in data collection, analysis, and communication.

2.2 PROPOSED SYSTEM

Users accessing the platform can register by providing the necessary information and subsequently log in using their credentials. Upon login, users are directed to a dashboard offering various functionalities. They can input symptoms to predict potential diseases and locate doctors available in their area based on the predicted disease. Additionally, users can book appointments with doctors for identified diseases and view appointment details, including status and treatment prescriptions. The platform allows users to edit their profiles and provide feedback or ask queries related to the service. Admins, on the other hand, access an administrative panel upon login, where they can view details of registered users, manage doctor requests, and respond to user feedback or queries. Doctors, upon registration approval by the admin, can log in to view user details, and appointments, and provide treatments and prescriptions. They also can edit their profiles and engage in feedback or queries. The system employs machine learning algorithms and Random Regression for predicting diseases based on symptoms, contributing to its functionality. Technologies used for the platform include HTML, CSS, JavaScript.

CHAPTER - 3

REQUIREMENT ANALYSIS

3.1 FEASIBILITY STUDIES/RISK ANALYSIS OF THE PROJECT

A Feasibility Study is a high-level capsule version of the entire process intended to answer several questions: What is the problem? Is there any feasible solution to the given problem? Is the problem even worth solving? A feasibility study is conducted once the problem is clearly understood. A feasibility study is necessary to determine that the proposed system is Feasible by considering the technical, Operational, and Economic factors. By having a detailed feasibility study the management will have a clear-cut view of the proposed system. The following feasibilities are considered for the project to ensure that the project is variable and it does not have any major obstructions. Feasibility study encompasses the following things:

- Technical Feasibility
- Economic Feasibility
- Operational Feasibility

In this phase, we study the feasibility of all proposed systems and pick the best feasible solution for the problem. The feasibility is studied based on three main factors as follows.

3.1.1 TECHNICAL FEASIBILITY:

In this step, we verify whether the proposed systems are technically feasible or not. i.e., all the technologies required to develop the system are available readily or not. Technical Feasibility determines whether the organization has the technology and skills necessary to carry out the project and how this should be obtained. The system can be feasible because of the following grounds:

- All necessary technology exists to develop the system.
- This system is too flexible and it can be expanded further.
- This system can give guarantees of accuracy, ease of use, reliability and data security.

- This system can give instant responses to inquiries. Our project is technically feasible because all the technology needed for our project is readily available.

3.1.2 ECONOMIC FEASIBILITY:

Economically, this project is completely feasible because it requires no extra financial investment and concerning time, it's completely possible to complete this project in 6 months. In this step, we verify which proposal is more economical. We compare the financial benefits of the new system with the investment. The new system is economically feasible only when the financial benefits are more than the investments and expenditures. Economic Feasibility determines whether the project goal can be within the resource limits allocated to it or not. It must determine whether it is worthwhile to process the entire project or whether the benefits obtained from the new system are not worth the costs. Financial benefits must be equal to or exceed the costs. In this issue, we should consider:

- The cost to conduct a full system investigation.
- The cost of h/w and s/w for the class of application being considered.
- The development tools.
- The cost of maintenance etc...

Our project is economically feasible because the cost of development is very minimal when compared to the financial benefits of the application.

3.1.3 OPERATIONAL FEASIBILITY:

In this step, we verify different operational factors of the proposed systems like manpower, time etc., and whichever solution uses less operational resources, is the best operationally feasible solution. The solution should also be operationally possible to implement. Operational Feasibility determines if the proposed system satisfies user objectives and could be fitted into the current system operation.

- The methods of processing and presentation are completely accepted by the clients since they can meet all user requirements.
- The clients have been involved in the planning and development of the system.
- The proposed system will not cause any problems under any circumstances.

Our project is operationally feasible because the time requirements and personnel requirements are satisfied.

3.1.4 FEATURES

- **Load Balancing:** Since the system will be available only after the admin logs in the amount of load on the server will be limited to the period of admin access.
- **Easy Accessibility:** Records can be easily accessed and stored and other information respectively.
- **User-Friendly:** The website/application will give a very user-friendly approach for all users.
- **Efficient and reliable:** Maintaining the secured database on the server which will be accessible according to the user requirement without any maintenance cost will be very efficient as compared to storing all the customer data on the spreadsheet or physically in the record books.
- **Easy maintenance:** Monitoring System of Human Health Issues Due to Pesticides is designed as an easy way. So, maintenance is also easy.

3.2 Description Of Software for Implementation

3.2.1 Software Requirement

- Python, Django
- Sublime Text Editor
- XAMP Server, Visual Studio Code

3.2.2 Hardware Requirement

- Windows 7 or higher
- I3 processor system or higher
- 4 GB RAM or higher
- 10 GB ROM or higher

CHAPTER 4

DESCRIPTION OF PROPOSED SYSTEM

4.1 SYSTEM ARCHITECTURE:

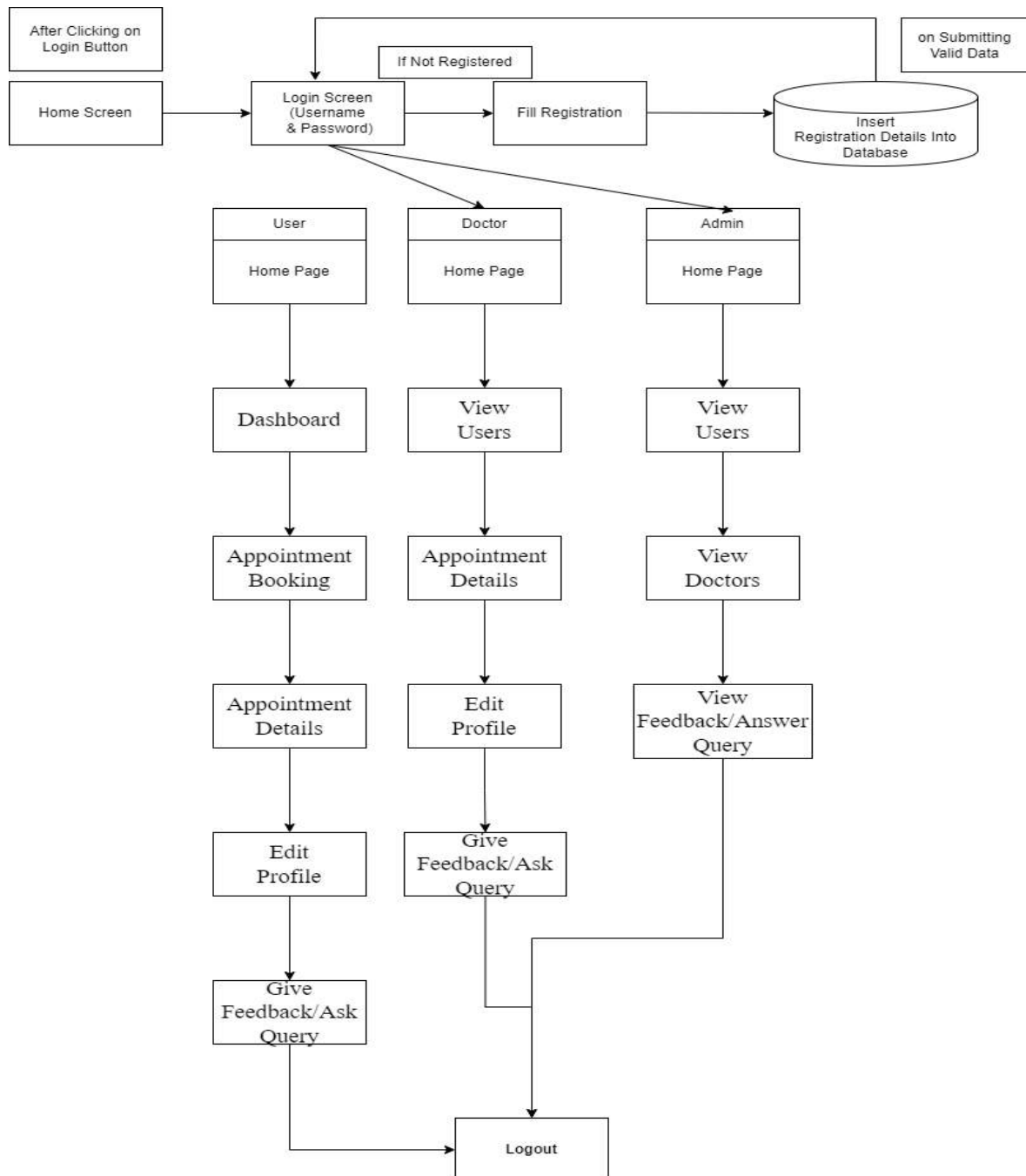


Fig No 4.1 System Architecture

4.2 PROJECT MODULES AND DESCRIPTION:

The system comprises 1 major module with their sub-modules as follows:

USER:

- **Registration:**
 - Users can create an account by providing necessary information.
- **Login:**
 - Registered users can access their accounts by logging in with their credentials.
- **Dashboard:**
 - Users can utilize the dashboard for various functionalities:
 - Users can input their symptoms, and the system will predict potential diseases.
 - Based on the predicted disease, users can find doctors available in their area.
- **Appointment Booking:**
 - Users can book appointments with doctors for the identified disease.
- **Appointment Details:**
 - Users can view the status of their appointments (accepted or rejected) and access treatment details such as prescriptions.
- **Edit Profile:**
 - Users have the option to modify their profile information.
- **Give Feedback/Ask Query:**
 - Users can provide feedback or ask questions related to the service.

ADMIN:

- **Login:** Admins can access the administrative panel by logging in.
- **View Users:** Admins can see details of registered users.
- **View Doctors:** Admins can manage doctor requests and view doctor details.
- **View Feedback/Answer Query:** Admins can view user feedback and respond to queries.

DOCTOR:

- **Registration:**
 - Doctors can register by providing the necessary information.
- **Login:**
 - Once the admin accepts their registration request, doctors can log in.
- **View Users:**
 - Doctors can view the details of users, including their appointments.
- **Appointment Details:**
 - Doctors can view users' appointment requests and accept them, as well as provide treatment and prescribe medicines.
- **Edit Profile:**
 - Doctors can edit their profile information.
- **Give Feedback/Ask Query:** Like users, doctors can also give feedback or ask questions.

4.3 PROJECT LIFECYCLE:

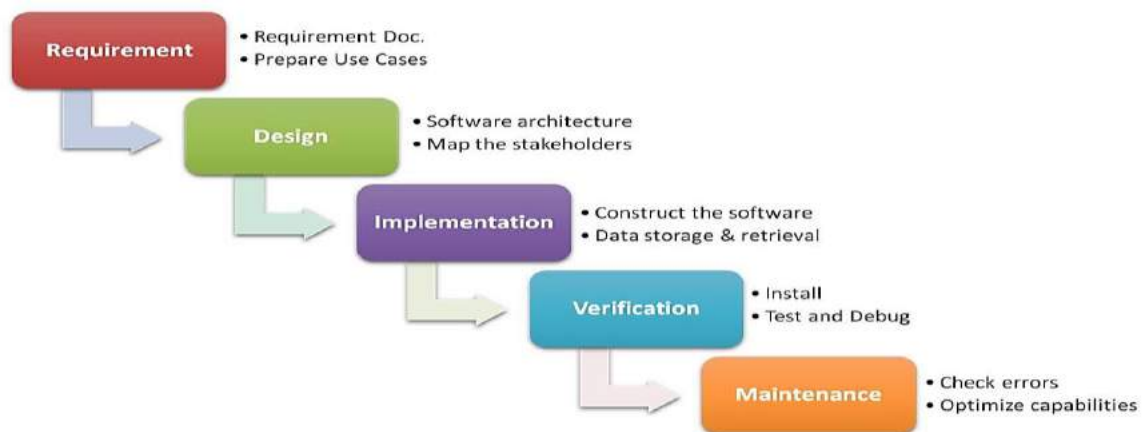


Fig No 4.3 Project Life Cycle

4.4 DESCRIPTION OF SOFTWARE IMPLEMENTATION AND TESTING PLAN:

4.4.1 PYTHON:

Python is a powerful multi-purpose programming language created by Guido van Rossum. It has simple easy-to-use syntax, making it the perfect language for someone trying to learn computer programming for the first time. This is a comprehensive guide on how to get started in Python, why you should learn it and how you can learn it. However, if you know other programming languages and want to quickly get started with Python. Python is a general-purpose language. It has a wide range of applications from Web development (like Django and Bottle), scientific and mathematical computing (Orange, SymPy, NumPy) to desktop graphical user Interfaces (Pygame, Panda3D). The syntax of the language is clean and the length of the code is relatively short. It's fun to work in Python because it allows you to think about the problem rather than focusing on the syntax.

FEATURES OF PYTHON PROGRAMMING:

- **Easy to learn** - Python has a very simple and elegant syntax. It's much easier to read and write Python programs compared to other languages like C++, Java, and C#. Python makes programming fun and allows you to focus on the solution rather than syntax. If you are a newbie, it's a great choice to start your journey with Python.
- **Free and open-source** - You can freely use and distribute Python, even for commercial use. Not only can you use and distribute software written in it, but you can also make changes to Python's source code. Python has a large community constantly improving it in each iteration.
- **Portability** - You can move Python programs from one platform to another, and run them without any changes. It runs seamlessly on almost all platforms including Windows, Mac OS X and Linux.

- **Extensible and Embeddable** - Suppose an application requires high performance. You can easily combine pieces of C/C++ or other languages with Python code. This will give your application high performance as well as scripting capabilities that other languages may not provide out of the box. A high-level, interpreted language Unlike C/C++, you don't have to worry about daunting tasks like memory management, garbage collection and so on. Likewise, when you run Python code, it automatically converts your code to the language your computer understands. You don't need to worry about any lower-level operations.
- **Large standard libraries to solve common tasks** - Python has several standard libraries which makes life of a programmer much easier since you don't have to write all the code yourself. For example: Need to connect MySQL database on a Web server? You can use the MySQLdb library using `import MySQLdb`. Standard libraries in Python are well-tested and used by hundreds of people. So, you can be sure that it won't break your application.
- **Object-oriented** - Everything in Python is an object. Object-oriented programming (OOP) helps you solve complex problems intuitively. With OOP, you can divide these complex problems into smaller sets by creating objects.
- **Web Applications** - You can create scalable Web Apps using frameworks and CMS (Content Management Systems) that are built on Python. Some of the popular platforms for creating Web Apps are Django, Flask, Pyramid, Plone, and Django CMS. Sites like Mozilla, Reddit, Instagram and PBS are written in Python. Scientific and Numeric Computing There are numerous libraries available in Python for scientific and numeric computing. There are libraries like SciPy and NumPy that are used in general-purpose computing. And, there are specific libraries like EarthPy for earth science, AstroPy for Astronomy and so on. Also, the language is heavily used in machine learning, data mining and deep learning. Creating software Prototypes Python is slow compared to compiled languages like C++ and Java. It might not be a good choice if resources are limited and efficiency is a must.

However, Python is a great language for creating prototypes. For example, You can use Pygame (a library for creating games) to create your game's prototype first. If you like the prototype, you can use language like C++ to create the actual game.

Good Language to Teach Programming

Python is used by many companies to teach programming to kids and newbies.

It is a good language with a lot of features and capabilities. Yet, it's one of the easiest languages to learn because of its simple easy-to-use syntax.

Syntax Overview

Simple Elegant Syntax

Programming in Python is fun. It's easier to understand and write Python code.

Why? The syntax feels natural. Take this source code for an example:

```
a = 2
b = 3
sum = a + b
print(sum)
```

Even if you have never programmed before, you can easily guess that this program adds two numbers and prints them.

Not overly strict. You don't need to define the type of a variable in Python. Also, it's not necessary to add a semicolon at the end of the statement. Python forces you to follow good practices (like proper indentation). These small things can make learning much easier for beginners.

The expressiveness of the language. Python allows you to write programs having greater functionality with fewer lines of code. Here's a link to the source code of the Tic-tac-toe game with a graphical interface and a smart computer opponent in less than 500 lines of code. This is just an example. You will be amazed at how much you can do with Python once you learn the basics.

Great Community and Support

Python has a large supporting community. There are numerous active forums online which can be handy if you are stuck. Some of them are:

Learn Python subreddit

Google Forum for Python

Python Questions - Stack Overflow

4.4.2 DJANGO:

Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source.

4.4.3 WAMP SERVER:

WAMP is a Windows OS-based program that installs and configures Apache web server, MySQL database server, PHP scripting language, phpMyAdmin (to manage MySQL databases), and SQLiteManager (to manage SQLite databases). WAMP is designed to offer an easy way to install Apache, PHP and MySQL packages with an easy-to-use installation program instead of having to install and configure everything yourself. WAMP is so easy because once it is installed it is ready to go. You don't have to do any additional configuring or tweaking of any configuration files to get it running.

There are usually two reasons why someone chooses to install WAMP. They are looking to install WAMP for development purposes or to run their server. WAMP Server Contains

4.4.4 PHP ADMIN

Allows you to change or add users and for making new databases phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the World Wide Web. phpMyAdmin supports a wide range of operations with MySQL. The most frequently used operations are supported by the user interface (managing databases, tables, fields, relations, indexes, users, permissions, etc.), while you still can directly execute any SQL statement.

4.4.5 FEATURES OF MYSQL

- Intuitive web interface
- Support for most MySQL features:
 - Browse and drop databases, tables, views, fields and indexes.
 - Create, copy, drop, rename and alter databases, tables, fields and indexes.
 - Maintenance server, databases and tables, with proposals on server configuration.
 - Execute, edit and bookmark any SQL statement, even batch queries.
 - Manage MySQL users and privileges
 - Manage stored procedures and triggers.
- Import data from CSV and SQL
- Export data to various formats: CSV, SQL, XML, PDF, ISO/IEC 26300 - OpenDocument Text and Spreadsheet, Word, LATEX and others
- Administering multiple servers
- Creating PDF graphics of your database layout
- Creating complex queries using Query-by-example (QBE)
- Searching globally in a database or a subset of it
- Transforming stored data into any format using a set of predefined functions, like displaying BLOB-data as an image or download-link.

4.4.6 SQL SERVER AND DATABASE SYSTEM

SQL Server is a relational database management system from Microsoft that's designed for the enterprise environment. SQL Server runs on T-SQL (Transact-SQL), a set of programming extensions from Sybase and Microsoft that add several features to standard SQL, including transaction control, exception and error handling, row processing, and declared variables.

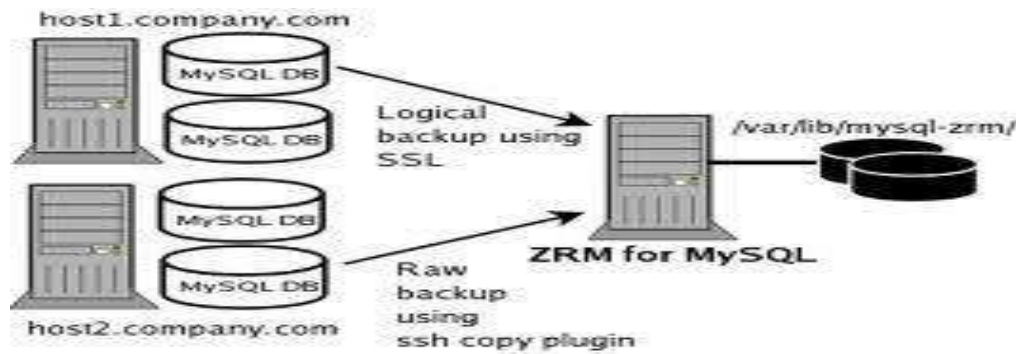


Fig No 4.4 SQL Server

Generically, any database management system (DBMS) can respond to queries from client machines formatted in the SQL language. When capitalized, the term generally refers to either of the two database management products from Sybase and Microsoft. Both companies offer client-server DBMS products called SQL Server.

Using WAMP as a Development Server

You can use WAMP to develop and test websites locally on your computer instead of having to get a web hosting account to develop with. Most people will be using WAMP for development purposes such as learning how to create websites with HTML, PHP, and MySQL.

Using WAMP as a Production Server **WARNING:** WAMP was designed to be a testing and development server, not an actual production server. WAMP does not come with any real security in place so it offers no protection from any kind of attack. Any 10-year-old with access to the internet can easily hack your WAMP server.

If your website(s) have highly sensitive data (such as credit card numbers, social security numbers, user IDs, passwords, etc.), you need to consider this before you put this information online. Unless you are an experienced system administrator and can configure WAMP to be more secure, you should never use WAMP for a production server.

MySQL Configuration To begin MySQL installation, first download the latest version of Essentials as an MSI package.

During MySQL installation, select Typical installation and use default configuration values except for Sign-Up where you probably want to select Skip Sign-Up. When the Setup Wizard is completed, make sure the option Configure the MySQL Server

now is set. For MySQL Server Instance Configuration, select Standard Configuration. Next, you must set the option Include Bin Directory in Windows PATH. This setting is crucial, otherwise, a required library, libMySQL.dll, will not be found later during Apache startup.

Finally, enter a proper root password. There is no need to neither enable remote root access nor create an Anonymous Account.

Please inspect messages during MySQL startup and verify that MySQL has been started successfully. Then, you must reboot the system. Otherwise, the required library libMySQL.dll will not be found during Apache startup when Apache is trying to load Apache's PHP module and Apache will, perhaps a bit confusingly, complain that it is unable to load the PHP's MySQL library, php_mysql.dll. Therefore, it is necessary to reboot the system at this stage and then continue to the PHP configuration.

4.4.7 PHP CONFIGURATION:

PHP for Windows must be installed from the zip package, *not* using the installer because the installer does not work correctly when setting up the configuration files. Download the latest Windows binary version from the 5.x release series.

Create folder C:\Program Files\PHP5 and unzip the downloaded package there.

That is all that is needed for PHP configuration. Additionally, however, if you wish to run PHP from the command line it would be useful to add its installation directory to Windows PATH but for WAMP to operate it is not required. After Apache is installed and configured, also PHP configuration can be tested.

4.4.8 FEATURES OF PHP

- **Load Balancing:** Since the system will be available only after the admin logs in the amount of load on the server will be limited to the period of admin access.
- **Easy Accessibility:** Records can be easily accessed and stored and other information respectively.
- **User-Friendly:** The website/application will give a very user-friendly approach for all users.
- **Efficient and reliable:** Maintaining the secured database on the server which will be accessible according to the user requirement without any maintenance cost will be very efficient as compared to storing all the customer data on the spreadsheet or physically in the record books.
- **Easy maintenance:** Monitoring System of Human Health Issues Due to Pesticides is designed as an easy way. So, maintenance is also easy.

4.5 DESCRIPTION OF PROPOSED MODEL:

The Waterfall Model is a linear sequential flow in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of software implementation. This means that any phase in the development process begins only if the previous phase is complete. The waterfall approach does not define the process of going back to the previous phase to handle requirement changes. The waterfall approach is the earliest approach that was used for software development. Data collection for monitoring human health issues resulting from increased pesticide usage in agriculture is crucial for effective risk management. Various methods can be employed for data collection, including systematic reviews of existing studies, surveillance systems, and field investigations. Gathering information on the types and amounts of pesticides used, along with monitoring their residues in food and water, is vital. Additionally, conducting biomonitoring studies to

assess pesticide exposure levels among individuals can provide valuable insights. Collaboration between government agencies, researchers, and healthcare professionals is imperative to ensure comprehensive and accurate data collection. Such data can facilitate evidence-based decision-making, policy development, and implementation of preventive measures to protect human health from the adverse effects of pesticides in agriculture.

Data cleaning and filtering are crucial steps in monitoring human health issues caused by the increased use of pesticides in agriculture. This process involves removing any inaccuracies, inconsistencies, or outliers in the collected data to ensure its reliability and usefulness. By carefully cleaning and filtering the data, researchers can identify patterns and trends related to pesticide exposure and its impact on human health. This information can then be used to develop effective strategies for mitigating the health risks associated with pesticide usage and implementing necessary interventions. Additionally, data cleaning and filtering help in identifying data gaps that need further investigation or collection, thus facilitating the monitoring and management of human health issues in the context of pesticide use in agriculture.

Data analysis and visualization play a crucial role in monitoring human health issues caused by the increased usage of pesticides in agriculture. By analyzing large datasets, researchers can identify patterns and correlations between pesticide exposure and health outcomes. This allows them to understand the potential risks and develop effective prevention strategies. Through visualizations such as graphs and charts, complex data can be presented in a clear and accessible way, enabling policymakers, healthcare professionals, and the general public to comprehend the impact of pesticide use on human health. Such analysis and visualization help to inform decision-making processes, promote awareness, and ultimately contribute to the creation of healthier and safer agricultural practices. Model improvisation and training are crucial for monitoring human health issues resulting from increased pesticide usage in agriculture. By continuously refining and improving models, researchers can accurately predict the potential risks associated with pesticide exposure and identify preventive measures. Regular training ensures that health professionals and policymakers are equipped with up-to-date knowledge and skills to detect and address these health issues promptly.

Moreover, these models and training help in creating policies and guidelines to

mitigate the adverse effects of pesticides, protecting human health and promoting sustainable agricultural practices. Overall, model improvisation and training play a vital role in effectively monitoring and addressing the health concerns arising from pesticide use in agriculture. Monitoring human health issues due to increased usage of pesticides in agriculture is of utmost importance. Pesticides, though essential for crop protection, can have potential adverse effects on human health. Therefore, it becomes crucial to closely monitor and assess the impact of pesticide residues on individuals and communities. Regular health screenings, including blood tests and medical check-ups, can help identify any health issues associated with pesticide exposure.

Furthermore, collecting data on pesticide usage and conducting research studies can provide valuable insights into the long-term health effects of pesticide exposure. By continuously monitoring human health issues related to pesticide use, we can take timely measures to mitigate any potential risks and ensure the well-being of individuals working in or residing near agricultural areas. The increased usage of pesticides in agriculture has led to growing concerns regarding its potential impact on human health. Pesticides are widely used to protect crops against pests and diseases, but their residues can accumulate in the environment and food chain, posing risks to human health. Monitoring the health issues associated with the increased usage of pesticides is crucial for understanding the extent of these risks. Through regular monitoring, researchers can assess the levels of pesticide exposure in the population and identify any adverse effects. This information can support the development of regulations and guidelines to minimize the potential health impacts of pesticides and ensure the safety of agricultural practices for both consumers and farmers. The web user interface for monitoring human health issues related to increased pesticide usage in agriculture is a comprehensive tool designed to provide accurate and real-time information. This interface allows users to easily access data on pesticide-related illnesses and symptoms, as well as track trends and patterns in different regions. Users can input their location and receive localized health advisories, ensuring that they stay informed about potential risks. The interface also offers resources such as educational materials and guidelines on how to minimize exposure to pesticides. With its user-friendly design and up-to-date information, this interface serves as a valuable resource for individuals and communities concerned about the health impacts of pesticide use in agriculture.

A comprehensive database for monitoring human health issues related to increased pesticide usage in agriculture is essential for identifying and addressing potential risks. The database should include detailed information on pesticide types, their application methods, and the specific crops on which they are used. It should also record the geographical locations where pesticides are applied, the frequency and quantity of their usage, and any reported health incidents. Additionally, the database should contain data on the demographic characteristics of affected individuals, the symptoms and diagnoses associated with pesticide exposure, and the long-term health outcomes. By establishing such a database, researchers and policymakers can better understand the impacts of pesticides on human health and implement targeted interventions to mitigate risks. With the increased usage of pesticides in agriculture, it is crucial to have security measures in place to monitor human health issues. This can be done through regular monitoring of pesticide residue levels in food and water sources, as well as conducting health screenings for individuals working in the agricultural sector and those living in close proximity to agricultural areas. Implementing strict regulations and guidelines for pesticide usage, including mandatory protective gear for workers, can also enhance safety. Additionally, creating awareness campaigns about the potential health risks.

CHAPTER 5

IMPLEMENTATION DETAILS

5.1 DEVELOPMENT AND DEPLOYMENT SETUP

To develop and deploy a Human Health issues prediction with the symptoms using logistic regression, Data Collection and Pre-processing is the to collect data from various sources and pre-process it to make it suitable for machine learning. You can use various techniques for data pre-processing, such as normalization, data augmentation, and feature extraction. The Project is designed and developed in Django Framework. We used Django Framework for coding of the project. Created and maintained all databases in MySQL Server, in that we create tables, and write queries for store data or records of the project.

5.2 TESTING

As the project is on a bit large scale, we always need testing to make it successful. If each component works properly in all respects and gives the desired output for all kinds of inputs then the project is said to be successful. So, the conclusion is to make the project successful, it needs to be tested. The testing done here was System Testing checking whether the user requirements were satisfied. The code for the new system has been written completely using Python as the coding language, and Django as the interface for front-end designing. The new system has been tested well with the help of the users and all the applications have been verified from every nook and corner of the user. Although some applications were found to be erroneous these applications have been corrected before being implemented. The flow of the forms is very much by the actual flow of data.

5.2.1 LEVELS OF TESTING:

To uncover the errors, present in different phases we have the concept of levels of testing. The basic levels of testing are:

A series of tests is done for the proposed system before the system is ready for user acceptance testing. The steps involved in Testing are:

- **Unit Testing**

Unit testing focuses verification efforts on the smallest unit of the software design, the module. This is also known as “Module Testing”. The modules are tested separately. This testing is carried out during the programming stage itself. In this testing, each module is found to be working satisfactorily as regards the expected output from the module.

- **Integration Testing**

Data can be grossed across an interface; one module can have adverse effects on another. Integration testing is systematic testing for the construction of the program structure while at the same time conducting tests to uncover errors associated with the interface. The objective is to take unit-tested modules and build a program structure. All the modules are combined and tested as a whole. Here correction is difficult because the isolation of cause is complicated by the vast expense of the entire program. Thus, in the integration testing stop, all the errors uncovered are corrected for the text testing steps.

- **System testing**

System testing is the stage of implementation that is aimed at ensuring that the system works accurately and efficiently for live operation commences. Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct, then the goal will be successfully achieved.

- **Validation Testing**

After integration testing software is completely assembled as a package, interfacing errors have been uncovered and corrected and a final series of software tests begins, validation test begins. Validation tests can be defined in many ways. However, the simple definition is that validation succeeds when the software functions in a manner that can reasonably be expected by the customer. After the validation test has been conducted one of two possible conditions exists. One is the function or performance characteristics confirmed to specifications and are

accepted and the other is a deviation from the specification is uncovered and a deficiency list is created. The proposed system under consideration has been tested by using validation testing and found to be working satisfactorily.

- **Output Testing**

After performing validation testing, the next step is output testing of the proposed system since no system could be useful if it does not produce the required output in the specified format. Asking the users about the format required by them tests the outputs generated by the system under consideration. Here the output format is considered in two ways, one is on the screen and the other is the printed format. The output format on the screen is found to be correct as the format was designed in the system design phase according to the user's needs. For the hard copy, the output comes as the specified requirements by the users. Hence output testing does not result in any corrections in the system.

- **User Acceptance Testing**

User acceptance of a system is the key factor to the success of any system. The system under study is tested for user acceptance by constantly keeping in touch with the prospective system users at the time of development and making changes wherever required.

- **Registration:** To begin with login, users need to register by filling up basic registration details. There are multiple fields on the registration page and every field has to be filled by the user. The user cannot use characters in the login id field.
- **Login:** - Login ID and password are kept compulsory fields, and if the ID or password doesn't match then it will show an error message.

5.3 VALIDATION CRITERIA

In each form, no field which is not nullable should be left blank. All numeric fields should be checked for non-numeric values. Similarly, text fields like names should not contain any numeric characters. All primary keys should be automatically generated to prevent the user from entering any existing key. Use of error handling

for each Save, Edit, delete and other important operations. Whenever the user Tabs out or Enter from a text box, the data should be validated and if it is invalid, focus should again be sent to the text box with the proper message.

The development and deployment of a system for monitoring human health issues due to pesticide demand a meticulous approach. Beginning with thorough requirements gathering through collaboration with health experts and agricultural researchers, the project aims to identify key health indicators affected by pesticide exposure and relevant data sources. Selecting an appropriate technology stack, including Python for backend development and HTML, CSS for frontend, ensures a robust and scalable system. The database design involves creating a structured schema to store health records, and agricultural practices, with an emphasis on efficient data retrieval. Integration modules are developed to consolidate data from medical institutions, agricultural sources, and other relevant databases. Health monitoring algorithms, potentially employing machine learning models, are implemented to analyse and identify patterns associated with pesticide exposure. The deployment setup includes configuring servers, deploying the backend and frontend applications, and implementing security measures such as SSL/TLS encryption and continuous monitoring for optimal performance and data integrity. The user interface is designed to be intuitive for health professionals, farmers, and researchers, while a secure login system ensures controlled access. Regular collaboration with stakeholders, training programs, and compliance with healthcare data regulations contribute to the successful deployment of a comprehensive monitoring system, facilitating early detection and intervention in health issues arising from increased pesticide usage in agriculture.

5.4 ALGORITHM

The algorithm used is logistic regression for monitoring human health issues due to pesticide involves a multi-faceted approach. Initially, health and pesticide usage data are collected from various sources and integrated into a centralized database. The system employs algorithms to preprocess and analyze the symptoms, identifying patterns or anomalies that may indicate adverse effects associated with the effect and predict what disease is occurred. Machine learning models, trained

on historical data, can be incorporated to predict potential health risks. The algorithm considers factors such as the type of symptoms the user get. Real-time monitoring ensures timely identification of health issues, triggering alerts and notifications for healthcare professionals and relevant authorities. Continuous refinement of the algorithm is essential, incorporating feedback from healthcare experts and adapting to evolving agricultural practices and pesticide formulations. This iterative process aims to enhance the system's predictive accuracy and contribute to proactive measures in mitigating health risks associated with pesticide exposure.

CHAPTER 6

RESULTS AND DISCUSSIONS

6.1 RESULTS AND DISCUSSIONS

- **Health Monitoring and Symptom Reporting:** The system successfully collects health-related data from users, including symptoms, medical history, and pesticide exposure. Users can report symptoms through the dashboard, which triggers health assessments and predictions. The discussion should focus on the accuracy of symptom prediction algorithms and the effectiveness of early detection.
- **Predictive Algorithms and Disease Identification:** The system employs machine learning or rule-based algorithms to predict potential diseases based on reported symptoms. Discuss the algorithm's performance, false positives/negatives, and any ongoing improvements. Consider the balance between sensitivity (catching all cases) and specificity (minimizing false alarms).
- **Doctor Recommendations and Appointments:** Users receive recommendations for doctors specializing in pesticide-related health issues. Discuss the process of matching users with relevant doctors and the availability of appointments. Highlight the importance of timely consultations.
- **Data Collection and Privacy:** The system collects data on pesticide exposure, types of pesticides used, and health outcomes. Discuss the privacy measures in place (anonymization, secure storage) to protect user data. Address any ethical concerns related to data sharing and informed consent.
- **User Experience and Accessibility:** Evaluate the user interface, ease of use, and accessibility for different user groups. Discuss feedback from users and any improvements made based on their input.
- **Challenges and Future Directions:** Discuss challenges faced during system development and deployment. Propose future enhancements, such as integrating wearable health sensors, expanding to other regions, or collaborating with health agencies.

6.2 ADVANTAGES:

- The system provides a centralized platform for monitoring human health issues due to pesticides in agriculture, enabling timely detection and intervention.
- It facilitates proactive healthcare interventions.
- The system promotes standardization in reporting pesticide-related symptoms, leading to more accurate diagnosis and treatment.
- Healthcare services and expertise in pesticide-related health issues become more accessible.

6.3 FUTURE WORK

The development of a system for monitoring human health issues associated with increased pesticide usage in agriculture opens avenues for future work and refinement. Further research could delve into enhancing the system's predictive capabilities by exploring advanced machine learning techniques and incorporating additional environmental and genetic factors that may influence health outcomes. Collaborations with agricultural experts and policy-makers can help refine the system's understanding of regional agricultural practices and pesticide formulations, enabling more accurate assessments of health risks. Additionally, expanding the system's capabilities to include real-time environmental monitoring, such as air and water quality assessments, could provide a more holistic view of the factors contributing to health issues. Continuous engagement with healthcare professionals and farmers will be crucial for incorporating their domain expertise and tailoring the system to their evolving needs. Future iterations could also focus on developing mobile applications or wearable technologies for farmers to facilitate real-time data collection and reporting. Moreover, exploring partnerships with public health agencies and global organizations can contribute to the standardization of data formats and interoperability, fostering a more comprehensive and globally applicable monitoring solution. Expanding the system's capabilities to include real-time environmental monitoring, such as air and water quality assessments, could provide a more holistic view of the factors contributing to health issues. Overall, future work should concentrate on refining predictive models, expanding data sources, and ensuring the system remains adaptable and responsive.

CHAPTER 7

CONCLUSION

7.1 CONCLUSION

In our project of System Design about “Monitoring System of Human Health Issues Due to Pesticides” developed in Django in Python programming language. The Development of this system takes a lot of effort from us. In conclusion, the system developed for monitoring human health issues due to pesticide usage in agriculture represents a significant advancement in addressing the complex intersection of public health. The results demonstrate the system's ability to proactively identify and analyses potential health risks associated with the symptoms exposure, providing a valuable tool for healthcare professionals, farmers, and researchers. The integration of machine learning algorithms and real-time monitoring has enhanced the system's predictive capabilities, contributing to early intervention strategies. The user-friendly interface fosters accessibility and collaboration among diverse stakeholders, emphasizing the importance of data-driven decision-making. Ongoing discussions and feedback loops with stakeholders are integral for refining the system and ensuring its adaptability to evolving agricultural practices and health standards. While the system has showcased its potential, continued research and improvements will be necessary to address emerging challenges and optimize its impact on safeguarding human health. Overall, the developed monitoring system signifies a positive step towards a more comprehensive and proactive approach to mitigating health issues related to pesticide.

7.2 RESEARCH ISSUES

The development of a system for monitoring human health issues related to increased pesticide usage in agriculture raises pertinent research issues that merit exploration. Firstly, investigating the long-term health impacts of chronic pesticide exposure is crucial to comprehensively understand the risks associated with different agricultural practices. Addressing the complex interplay of multiple environmental factors, such as climate and soil conditions, in conjunction with pesticide usage, poses a challenging research problem. Additionally, exploring the feasibility and ethical implications of incorporating genetic and individual health data

into the monitoring system requires careful consideration to balance personalized insights with privacy concerns. Research efforts should also focus on developing adaptive algorithms capable of learning and evolving with changing agricultural practices and pesticide formulations. The system's effectiveness in diverse geographical regions and among various demographic groups should be thoroughly investigated to ensure its applicability and equity. Lastly, establishing robust methodologies for validating the accuracy and reliability of the predictive models, especially considering the dynamic nature of health and environmental data, remains a critical research challenge. Addressing these research issues will contribute to the refinement and advancement of the monitoring system, fostering a more nuanced understanding of the complex relationship between pesticide usage in agriculture and human health outcomes.

7.3 IMPLEMENTATION ISSUES

Implementing a system for monitoring human health issues associated with increased pesticide usage in agriculture involves addressing several complex issues. Firstly, ensuring seamless integration of diverse data sources, including health records and real-time pesticide usage data, requires overcoming interoperability challenges. Standardizing data formats and protocols across various sources is crucial but often intricate due to variations in data structures and systems. The scalability of the system, especially concerning the increasing volume and velocity of health and agricultural data, poses a significant implementation challenge. Balancing real-time monitoring with resource efficiency is imperative to maintain optimal system performance. Security concerns demand robust measures to safeguard sensitive health information, necessitating encryption, secure authentication mechanisms, and compliance with data protection regulations. User adoption and acceptance are critical implementation factors, requiring a user-friendly interface and effective training programs for healthcare professionals, farmers, and researchers. Continuous system updates and adaptations to accommodate evolving agricultural practices and health standards also contribute to the complexity of implementation. Addressing these issues ensures a robust and effective implementation of the monitoring system, fostering its acceptance and utility in the dynamic context of agriculture and public health.

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APPENDIX

A. SOURCE CODE

```
from django.shortcuts import render,redirect
from .models import*
from django.contrib import messages
from django.contrib.sessions.models import Session
from django.db import connection
import pickle
import numpy as np
from sklearn.preprocessing import StandardScaler
from sklearn.pipeline import Pipeline
from sklearn.preprocessing import LabelEncoder
from sklearn.linear_model import LogisticRegression
from django.db.models import Q
from django.utils import timezone
from datetime import date
from django.db.models import Sum
import time
import datetime

# Create your views here.
def Home(request):
    return render(request,"Home.html",{ })
def Admin_Login(request):
    if request.method == "POST":
        A_username = request.POST['aname']
        A_password = request.POST['apass']
        if AdminDetails.objects.filter(username = A_username,password =
A_password).exists():
            ad = AdminDetails.objects.get(username=A_username,
password=A_password)
```

```

        print('d')
        messages.info(request, 'Admin login is Sucessfull')
        request.session['type_id'] = 'Admin'
        request.session['UserType'] = 'Admin'
        request.session['login'] = "Yes"
        return redirect("/")
    else:
        print('y')
        messages.error(request, 'Error wrong username/password')
        return render(request, "Admin_Login.html", {})

    else:
        return render(request, "Admin_Login.html", {})

def User_Login(request):
    if request.method == "POST":
        A_username = request.POST['aname']
        A_password = request.POST['apass']
        if UserDetails.objects.filter(username=A_username,
password=A_password).exists():
            users = UserDetails.objects.all().filter(username=A_username,
password=A_password)
            messages.info(request, A_username+ ' logged in')
            request.session['UserId'] = users[0].id
            request.session['type_id'] = 'User'
            request.session['UserType'] = A_username
            request.session['login'] = "Yes"
            request.session['Area'] = users[0].Area
            return redirect("/")
        else:
            messages.error(request, 'Not Registered')
            return redirect("/User_Registration/")
    else:

```

```

        return render(request, 'User_Login.html', {})
def Doctor_Login(request):
    if request.method == "POST":
        C_name = request.POST['aname']
        C_password = request.POST['apass']
        if Doctor.objects.filter(username=C_name,
password=C_password, Permission="Accepted").exists():
            users = Doctor.objects.all().filter(username=C_name,
password=C_password)
            messages.info(request, 'Dr. ' + C_name + ' logged in')
            request.session['UserId'] = users[0].id
            request.session['type_id'] = 'Doctor'
            request.session['UserType'] = C_name
            request.session['login'] = "Yes"
            return redirect("/")
        else:
            messages.error(request, 'Admin has not Accepted your
request')

            return redirect("/Add_Doctor/")
    else:
        return render(request, 'Doctor_Login.html', {})
        return render(request, 'Doctor_Login.html', {})
def Accept(request, id):
    print("Hello")
    Doctor.objects.filter(id=id).update(Permission="Accepted")
    return redirect('/Manage_Doctor/')
def User_Registration(request):
    if request.method == 'POST':
        # Process the form data
        full_name = request.POST.get('full_name')
        email = request.POST.get('email')

```

```

address = request.POST.get('address')
phone = request.POST.get('phone')
birth_date = request.POST.get('birth_date')
gender = request.POST.get('gender')
username = request.POST.get('username')
password = request.POST.get('password')
area = request.POST.get('area')
if UserDetails.objects.filter(username=username).exists():
    messages.info(request,"Username already exists")
    return redirect('/User_Registration/')
employee = UserDetails(
    full_name=full_name,
    email=email,
    phone=phone,
    birth_date=birth_date,
    Address=address,
    gender=gender,
    username=username,
    password=password,
    Area = area
)
employee.save()
messages.info(request,"User Added successfully")
return redirect('/User_Login/')
else:
    return render(request,"User_Registration.html")

```

with open("C:/Python
Projects/Monitoring_human_health_issues_due_to_pesticides_in_agriculture/logis
tic_regression_model.pkl", 'rb') as file:

```

model = pickle.load(file)

def Prediction(request):
    if request.method == "POST":
        options = request.POST['options']
        print(options)

        symptoms = ['itching', 'skin_rash', 'nodal_skin_eruptions',
'continuous_sneezing', 'shivering', 'chills', 'joint_pain', 'stomach_pain', 'acidity',
'ulcers_on_tongue', 'muscle_wasting', 'vomiting', 'burning_micturition', 'spotting_
urination', 'fatigue', 'weight_gain', 'anxiety', 'cold_hands_and_feets',
'mood_swings', 'weight_loss', 'restlessness', 'lethargy', 'patches_in_throat',
'irregular_sugar_level', 'cough', 'high_fever', 'sunken_eyes', 'breathlessness',
'sweating', 'dehydration', 'indigestion', 'headache', 'yellowish_skin', 'dark_urine',
'nausea', 'loss_of_appetite', 'pain_behind_the_eyes', 'back_pain', 'constipation',
'abdominal_pain', 'diarrhoea', 'mild_fever', 'yellow_urine', 'yellowing_of_eyes',
'acute_liver_failure', 'fluid_overload', 'swelling_of_stomach',
'swelled_lymph_nodes', 'malaise', 'blurred_and_distorted_vision', 'phlegm',
'throat_irritation', 'redness_of_eyes', 'sinus_pressure', 'runny_nose', 'congestion',
'chest_pain', 'weakness_in_limbs', 'fast_heart_rate',
'pain_during_bowel_movements', 'pain_in_anal_region', 'bloody_stool',
'irritation_in_anus', 'neck_pain', 'dizziness', 'cramps', 'bruising', 'obesity',
'swollen_legs', 'swollen_blood_vessels', 'puffy_face_and_eyes', 'enlarged_thyroid',
'brittle_nails', 'swollen_extremeties', 'excessive_hunger', 'extra_marital_contacts',
'drying_and_tingling_lips', 'slurred_speech', 'knee_pain', 'hip_joint_pain',
'muscle_weakness', 'stiff_neck', 'swelling_joints', 'movement_stiffness',
'spinning_movements', 'loss_of_balance', 'unsteadiness',
'weakness_of_one_body_side', 'loss_of_smell', 'bladder_discomfort',
'foul_smell_of_urine', 'continuous_feel_of_urine', 'passage_of_gases',
'internal_itching', 'toxic_look_(typhos)', 'depression', 'irritability', 'muscle_pain',
'altered_sensorium', 'red_spots_over_body', 'belly_pain', 'abnormal_menstruation',
'dischromic_patches', 'watering_from_eyes', 'increased_appetite', 'polyuria',
'family_history', 'mucoid_sputum', 'rusty_sputum', 'lack_of_concentration',
'visual_disturbances', 'receiving_blood_transfusion',
'receiving_unsterile_injections', 'coma', 'stomach_bleeding',

```

```
'distention_of_abdomen', 'history_of_alcohol_consumption', 'fluid_overload.1',  
'blood_in_sputum', 'prominent_veins_on_calf', 'palpitations', 'painful_walking',  
'pus_filled_pimples', 'blackheads', 'scurring', 'skin_peeling', 'silver_like_dusting',  
'small_dents_in_nails', 'inflammatory_nails', 'blister', 'red_sore_around_nose',  
'yellow_crust_ooze']
```

```
result_list = [1 if element in options else 0 for element in symptoms]  
print(result_list)
```

```
z_reshaped = np.array(result_list).reshape(1, -1) # Reshape z to  
have the same number of features as the training data
```

```
logreg_confidence = model.predict_proba(z_reshaped)  
print(logreg_confidence)
```

```
logreg_pred = model.predict(z_reshaped)  
print(logreg_pred[0])
```

```
doctors = Doctor.objects.all().filter(Speciality = logreg_pred[0])  
print(doctors)
```

```
disease = logreg_pred[0]
```

```
max_confidence = max(logreg_confidence[0])
```

```
print("Maximum confidence:", max_confidence)
```

```
#disease_name = "Your Disease"
```

```
google_link = "https://www.google.com/search?q=" + disease
```

```
return
```

```
render(request, "Prediction.html", {'symptoms': symptoms, 'disease': disease, 'google_  
link': google_link})
```

```
else:
```

```
symptoms = ['itching', 'skin_rash', 'nodal_skin_eruptions',  
'continuous_sneezing', 'shivering', 'chills', 'joint_pain', 'stomach_pain', 'acidity',  
'ulcers_on_tongue', 'muscle_wasting', 'vomiting', 'burning_micturition', 'spotting_  
urination', 'fatigue', 'weight_gain', 'anxiety', 'cold_hands_and_feets',  
'mood_swings', 'weight_loss', 'restlessness', 'lethargy', 'patches_in_throat',  
'irregular_sugar_level', 'cough', 'high_fever', 'sunken_eyes', 'breathlessness',  
'sweating', 'dehydration', 'indigestion', 'headache', 'yellowish_skin', 'dark_urine',  
'nausea', 'loss_of_appetite', 'pain_behind_the_eyes', 'back_pain', 'constipation',
```

'abdominal_pain', 'diarrhoea', 'mild_fever', 'yellow_urine', 'yellowing_of_eyes',
'acute_liver_failure', 'fluid_overload', 'swelling_of_stomach',
'swelled_lymph_nodes', 'malaise', 'blurred_and_distorted_vision', 'phlegm',
'throat_irritation', 'redness_of_eyes', 'sinus_pressure', 'runny_nose', 'congestion',
'chest_pain', 'weakness_in_limbs', 'fast_heart_rate',
'pain_during_bowel_movements', 'pain_in_anal_region', 'bloody_stool',
'irritation_in_anus', 'neck_pain', 'dizziness', 'cramps', 'bruising', 'obesity',
'swollen_legs', 'swollen_blood_vessels', 'puffy_face_and_eyes', 'enlarged_thyroid',
'brittle_nails', 'swollen_extremeties', 'excessive_hunger', 'extra_marital_contacts',
'drying_and_tingling_lips', 'slurred_speech', 'knee_pain', 'hip_joint_pain',
'muscle_weakness', 'stiff_neck', 'swelling_joints', 'movement_stiffness',
'spinning_movements', 'loss_of_balance', 'unsteadiness',
'weakness_of_one_body_side', 'loss_of_smell', 'bladder_discomfort',
'foul_smell_of_urine', 'continuous_feel_of_urine', 'passage_of_gases',
'internal_itching', 'toxic_look_(typhos)', 'depression', 'irritability', 'muscle_pain',
'altered_sensorium', 'red_spots_over_body', 'belly_pain', 'abnormal_menstruation',
'dischromic_patches', 'watering_from_eyes', 'increased_appetite', 'polyuria',
'family_history', 'mucoid_sputum', 'rusty_sputum', 'lack_of_concentration',
'visual_disturbances', 'receiving_blood_transfusion',
'receiving_unsterile_injections', 'coma', 'stomach_bleeding',
'distention_of_abdomen', 'history_of_alcohol_consumption', 'fluid_overload.1',
'blood_in_sputum', 'prominent_veins_on_calf', 'palpitations', 'painful_walking',
'pus_filled_pimples', 'blackheads', 'scurring', 'skin_peeling', 'silver_like_dusting',
'small_dents_in_nails', 'inflammatory_nails', 'blister', 'red_sore_around_nose',
'yellow_crust_ooze']

```
        return render(request,"Prediction.html",{ 'symptoms':symptoms})  
  
def Manage_Doctor(request):  
    details = Doctor.objects.all()  
    return render(request,"Manage_Doctor.html",{ 'details':details})  
  
def Add_Doctor(request):
```

symptoms = [
"Fungal infection",
"Hepatitis C",
"Hepatitis E",
"Alcoholic hepatitis",
"Tuberculosis",
"Common Cold",
"Pneumonia",
"Dimorphic hemmorhoids(piles)",
"Heart attack",
"Varicose veins",
"Hypothyroidism",
"Hyperthyroidism",
"Hypoglycemia",
"Osteoarthritis",
"Arthritis",
"(vertigo) Paroxysmal Positional Vertigo",
"Acne",
"Urinary tract infection",
"Psoriasis",
"Hepatitis D",
"Hepatitis B",
"Allergy",
"hepatitis A",
"GERD",
"Chronic cholestasis",
"Drug Reaction",
"Peptic ulcer disease",
"AIDS",
"Diabetes",
"Gastroenteritis",

```
"Bronchial Asthma",  
"Hypertension",  
"Migraine",  
"Cervical spondylosis",  
"Paralysis (brain hemorrhage)",  
"Jaundice",  
"Malaria",  
"Chicken pox",  
"Dengue",  
"Typhoid",  
"Impetigo"]
```

```
return render(request,"Add_Doctor.html",{ 'symptoms':symptoms})
```

```
def Doctor_Registration(request):  
    if request.method == "POST":  
        registeratio_number = request.POST['registeratio_number']  
        Name = request.POST['Name']  
        Picture = request.FILES['Picture']  
        Age= request.POST['Age']  
        Gender= request.POST['Gender']  
        Phone= request.POST['phone']  
        State= request.POST['State']  
        City= request.POST['City']  
        Area= request.POST['Area']  
        Address= request.POST['Address']  
        Speciality= request.POST['Speciality']  
        Type_of_medicine = request.POST['Type_of_medicine']  
        Username= request.POST['Username']  
        Password= request.POST['Password']  
        College= request.POST['College']
```

```

Year= request.POST['Year']
Disease_treated = request.POST['options']
obj = Doctor(registeratio_number = registeratio_number,
              Name = Name,
              Year = Year,
              College = College,
              Picture = Picture,
              username = Username,
              password = Password,
              Age = Age,
              Gender = Gender,
              Phone = Phone,
              Area = Area,
              State = State,
              City = City,
              Address = Address,
              Speciality = Speciality,
              Type_of_medicine = Type_of_medicine,
              Disease_treated = Disease_treated,
              Permission="Rejected")

obj.save()
messages.info(request,Name +" Registered")
return redirect("/Manage_Doctor/")

```

```

def Doctor_Edit_Profile(request):
    user_id =request.session['UserId']

    if request.method == "POST":
        Name = request.POST['Name'] # Corrected field name
        Age = request.POST['Age']

```

```

Gender = request.POST['Gender']
Phone = request.POST['phone']
Address = request.POST['Address']
Speciality = request.POST['Speciality']
Type_of_medicine = request.POST['Type_of_medicine']
Disease_treated = request.POST['Disease']

doctor = Doctor.objects.get(id=user_id)

# Handle image upload
new_image = request.FILES.get('Picture')
if new_image:
    doctor.Picture = new_image

doctor.Name = Name
doctor.Age = Age
doctor.Gender = Gender
doctor.Phone = Phone
doctor.Address = Address
doctor.Speciality = Speciality
doctor.Type_of_medicine = Type_of_medicine
doctor.Disease_treated = Disease_treated

doctor.save()

messages.info(request, "Doctor Details Updated")
return redirect("/Doctor_Edit_Profile/")
else:
    user_id = request.session['UserId']
    details = Doctor.objects.filter(id=user_id)
    data = Doctor.objects.get(id=user_id)

```

```
        return render(request, "Doctor_Edit_Profile.html", {'details':
details,'user_id':user_id,'data':data})
```

```
def View_Doctor(request,id):
    details = Doctor.objects.filter(id=id)
    data = Doctor.objects.get(id=id)
    return render(request, "View_Doctor.html", {'details': details,'data':data})
```

```
def BookAppointment(request,name):
    print(name)
    # First, filter doctors based on their specialty
    specialty_doctors = Doctor.objects.filter(Disease_treated__contains=name)
    print(specialty_doctors)
    area = request.session['Area']
    print(area)
    #
    # Combine the two querysets and ord Next, filter doctors based on the area
    area_doctors = Doctor.objects.filter(Q(Area=area) & Q(Speciality=name))
    print(area_doctors)
    doctors = specialty_doctors.union(area_doctors).order_by('-Area')
    print(doctors)

    return render(request,"BookAppointment.html",{ 'doctors':doctors})
```

```
def Book_doctor(request,id):
    if Appointment.objects.exists():
        last_id = Appointment.objects.latest('id').id
        print(last_id)
```

```

        next_id = last_id + 1
    else:
        next_id = 1
        print('next id :',next_id)
    print(id)

    data = Doctor.objects.all().filter(id = id)
    d_id = data[0].id
    print(d_id)
    doctor_name = data[0].Name
    doctor_start = data[0].Start_time
    doctor_end = data[0].End_Time
    print(doctor_name)
    print(doctor_start)
    print(doctor_end)

    return
    render(request,"Book_doctor.html",{
'next_id':next_id,'d_id':d_id,'doctor_name':doctor_name,
'doctor_start':doctor_start,'doctor_end':doctor_end})

def BookAppointments(request):
    if request.method == "POST":
        Appointment_id = request.POST['b_id']
        Patient_id = request.session['UserId']
        Doctor_name = request.POST['d_name']
        Doctor_id = request.POST['d_id']
        Booking_Date_Time = datetime.datetime.now()
        print(Booking_Date_Time)
        Start_time = request.POST['start_time']
        End_Time = request.POST['end_time']

```

```

Reason = request.POST['Reason']
Appointment_Status = "Pending"
#Updated_Date_Time = request.POST['options']
Speciality_Type = Doctor.objects.get(id=Doctor_id)
Speciality_Type = Speciality_Type.Speciality
print(Speciality_Type)
Medical_History = request.POST['Medical_History']

data = Appointment(id =Appointment_id, Doctor = Doctor_id ,
Patient = Patient_id ,
Booking_Date_Time =Booking_Date_Time ,
Start_time =Start_time ,
End_Time = End_Time,
Reason = Reason,
Appointment_Status = Appointment_Status,
Speciality_Type =Speciality_Type ,
Medical_History = Medical_History)
data.save()

return redirect('/User_Appointments')

```

```

def User_Appointments(request):
    user = request.session['UserId']
    data = Appointment.objects.all().filter(Patient = user)
    return render(request,'User_Appointments.html',{'data':data})

```

```

def View_Appointments(request):
    Doctor_id = request.session['UserId']
    data = Appointment.objects.all().filter(Doctor = Doctor_id)
    print(data)

```

```

return render(request,'View_Appointments.html',{'data':data})

def Booking_status(request,id):
    Appointment.objects.all().filter(id = id).update(Appointment_Status =
"Accepted")

    Doctor_id = request.session['UserId']
    data = Appointment.objects.all().filter(Doctor = Doctor_id)
    print(data)

    return render(request,'View_Appointments.html',{'data':data})

def Booking_status1(request,id):
    Doctor_id = request.session['UserId']
    Appointment.objects.all().filter(id = id).update(Appointment_Status =
"Rejected")

    data = Appointment.objects.all().filter(Doctor = Doctor_id)
    print(data)

    return render(request,'View_Appointments.html',{'data':data})
def Give_Treatment(request,id):
    print(id)
    data = Appointment.objects.all().filter(id = id)

    return render(request,"Give_Treatment.html",{'data':data})
def Treatment(request):
    if request.method == "POST":
        b_id = request.POST['b_id']

```

```

        d_name = request.POST['d_name']
        Reason = request.POST['Reason']
        Medical_History = request.POST['Medical_History']
        Reason = request.POST['Reason']
        Medical_History = request.POST['Medical_History']
        Prescription = request.POST['Prescription']
        Diagnosis = request.POST['Diagnosis']
        Follow_Up_Instructions = request.POST['Follow_Up_Instructions']
        Lab_Tests = request.POST['Lab_Tests']
        Billing_and_Payment = request.POST['Billing_and_Payment']
        Appointment.objects.all().filter(id = b_id).update(Prescription =
Prescription,Diagnosis =Diagnosis ,Follow_Up_Instructions =
Follow_Up_Instructions,Lab_Tests = Lab_Tests,Billing_and_Payment =
Billing_and_Payment,Treatment_Status = "Given")
        return redirect('/View_Appointments')
    else:
        return redirect('/View_Appointments')

def pay_doctor(request):
    if request.method == 'POST':
        appointment_id = request.POST.get('modalid')
        doctor_fee = request.POST.get('modalfee')
        card_number = request.POST.get('cardNumber')
        expiration_date = request.POST.get('expirationDate')
        cvv = request.POST.get('cvv')

        # Update the payment status in the appointment table
        appointment = Appointment.objects.get(id=appointment_id)
        appointment.Fee_status = 'Paid'
        appointment.save()
        messages.success(request, 'Payment Done Successfully')

```

```

        # Redirect to a success page or any other relevant page
        return redirect('/User_Appointments') # Update 'success_page' to the desired
URL
    else:
        return redirect('/User_Appointments')
def View_User(request):
    details = UserDetails.objects.all()
    return render(request, "View_User.html", {'details': details})
def Submit_User_Feedback(request):
    if request.method == "POST":
        user = request.session['UserId']
        feedback = request.POST['feedback']

        obj = User_Feedback(user=user, feedback=feedback)
        obj.save()
        messages.info(request, "Feedback Submitted")
        return redirect('/Submit_User_Feedback/')
    else:
        user = request.session['UserId']
        details = User_Feedback.objects.filter(user=user)
        return
render(request, "Submit_User_Feedback.html", {'details': details})
def Feedback(request):
    if request.method == "POST":
        user = request.session['UserId']
        feedback = request.POST['feedback']

        obj = Doctor_Feedback(doctor=user, feedback=feedback)
        obj.save()
        messages.info(request, "Feedback Submitted")
        return redirect('/Feedback/')

```

```

else:
    user = request.session['UserId']
    details = Doctor_Feedback.objects.filter(doctor=user)
    return render(request,"Feedback.html",{ 'details':details})

def View_Doctor_Feedback(request):
    details = Doctor_Feedback.objects.all()
    return render(request,"View_Doctor_Feedback.html",{ 'details':details})

def View_User_Feedback(request):
    details = User_Feedback.objects.all()
    return render(request,"View_User_Feedback.html",{ 'details':details})

def Reply_Doctor(request,id):
    if request.method == "POST":
        reply = request.POST['reply']
        Doctor_Feedback.objects.filter(id=id).update(response=reply)
        messages.info(request,"Replied")
        return redirect('/View_Doctor_Feedback/')

def Reply_User(request,id):
    if request.method == "POST":
        reply = request.POST['reply']
        User_Feedback.objects.filter(id=id).update(response=reply)
        messages.info(request,"Replied")
        return redirect('/View_User_Feedback/')

def Logout(request):
    Session.objects.all().delete()
    return redirect("/")

```

B. SCREENSHOTS

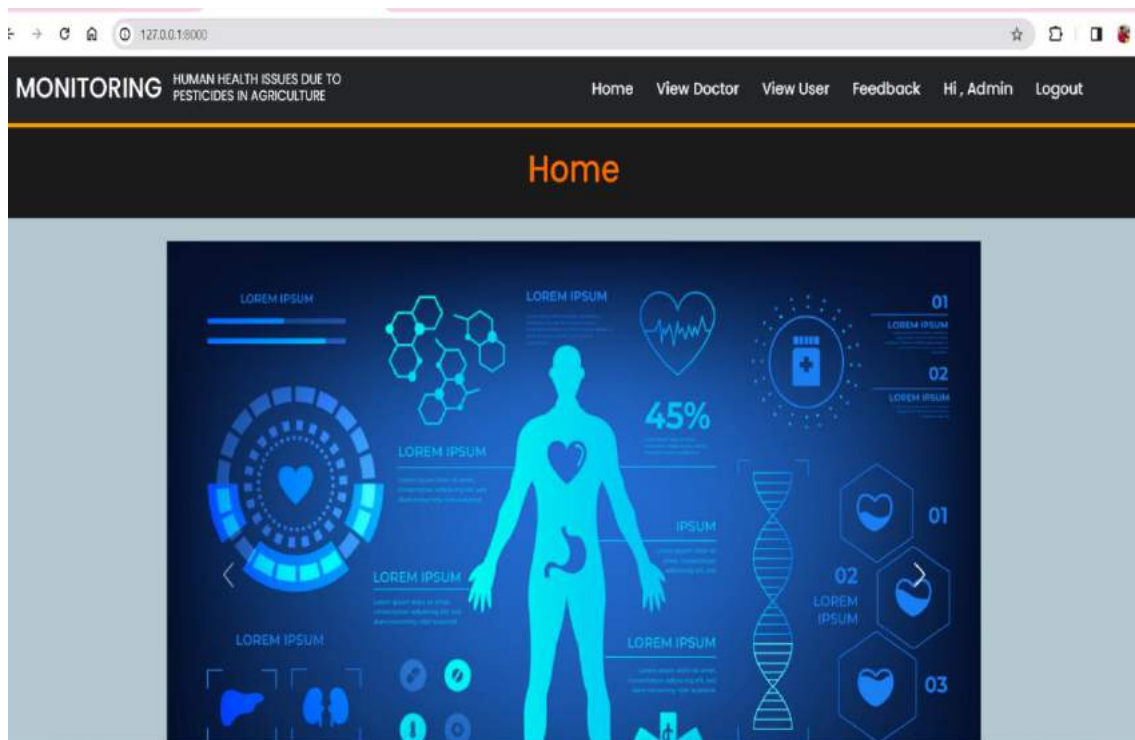


Fig. B.1: Home Page

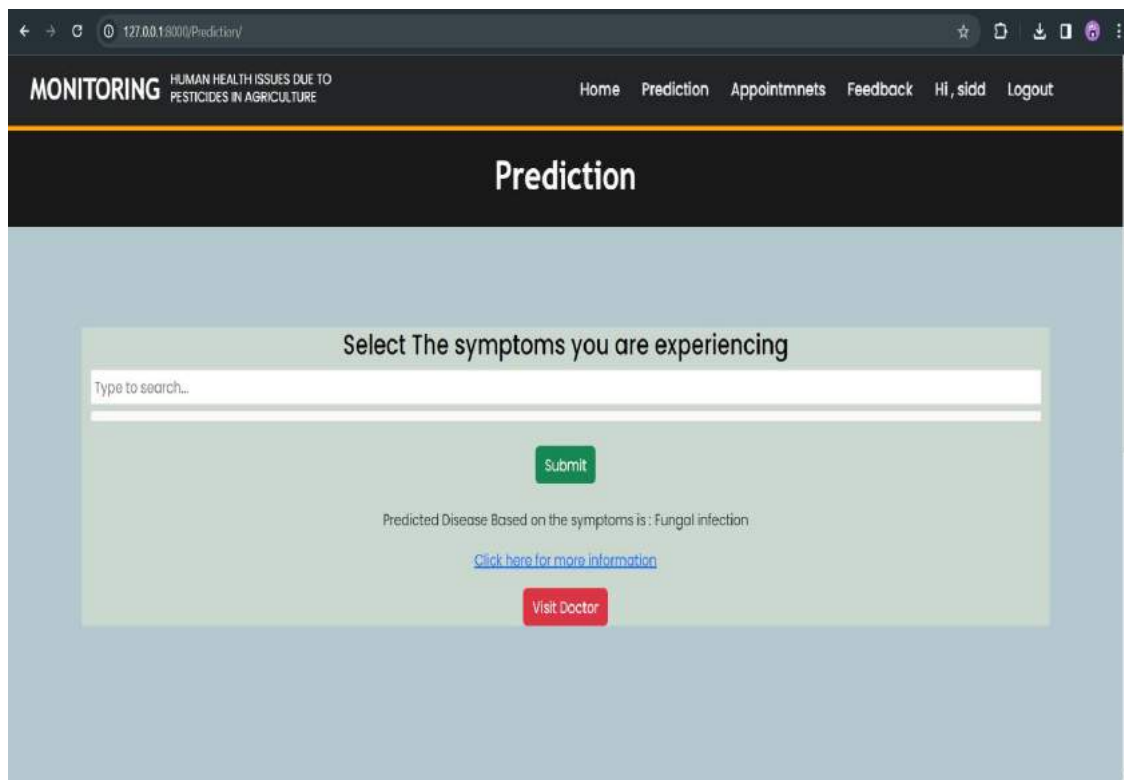


Fig. B.2: Disease Prediction by Selecting Symptoms

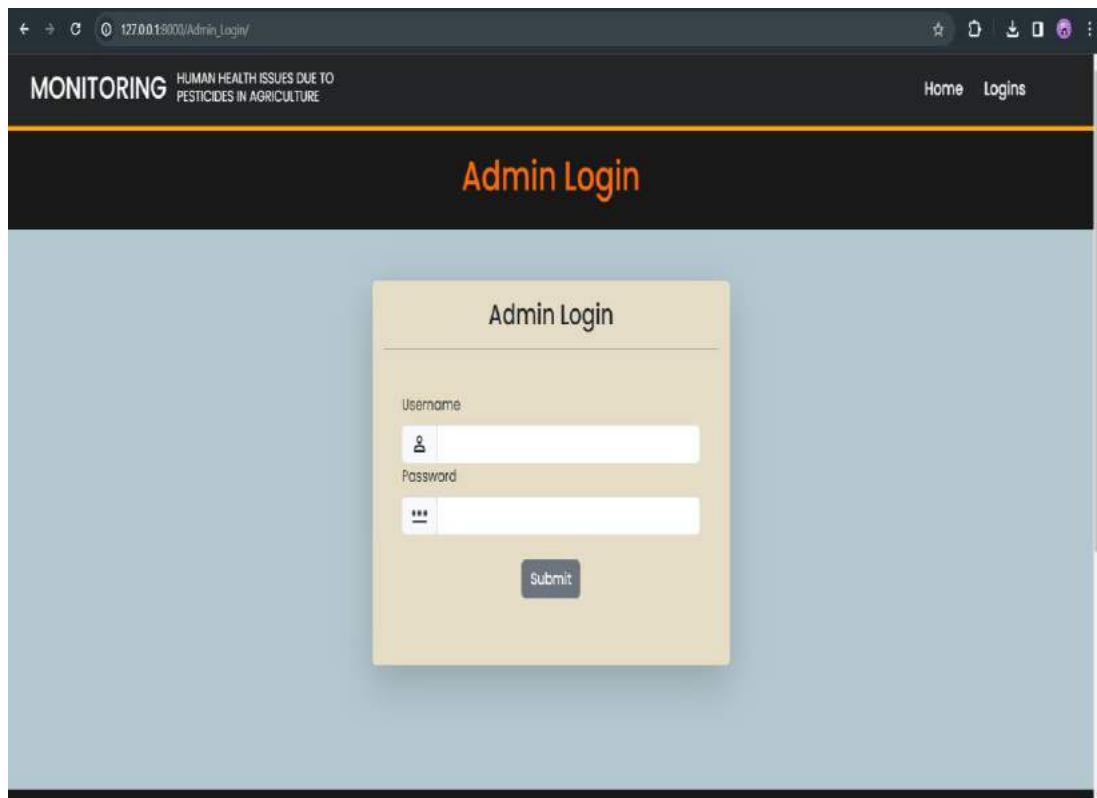


Fig. B.3: Admin Login Page

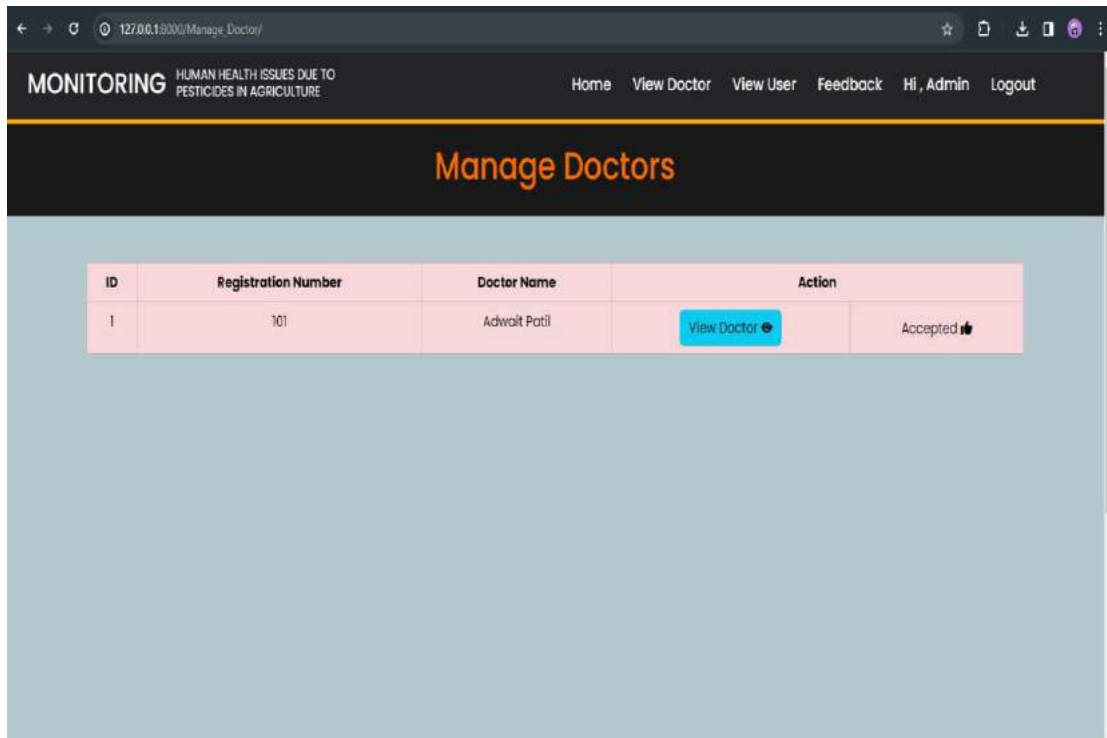


Fig. B.4: Mange Doctors

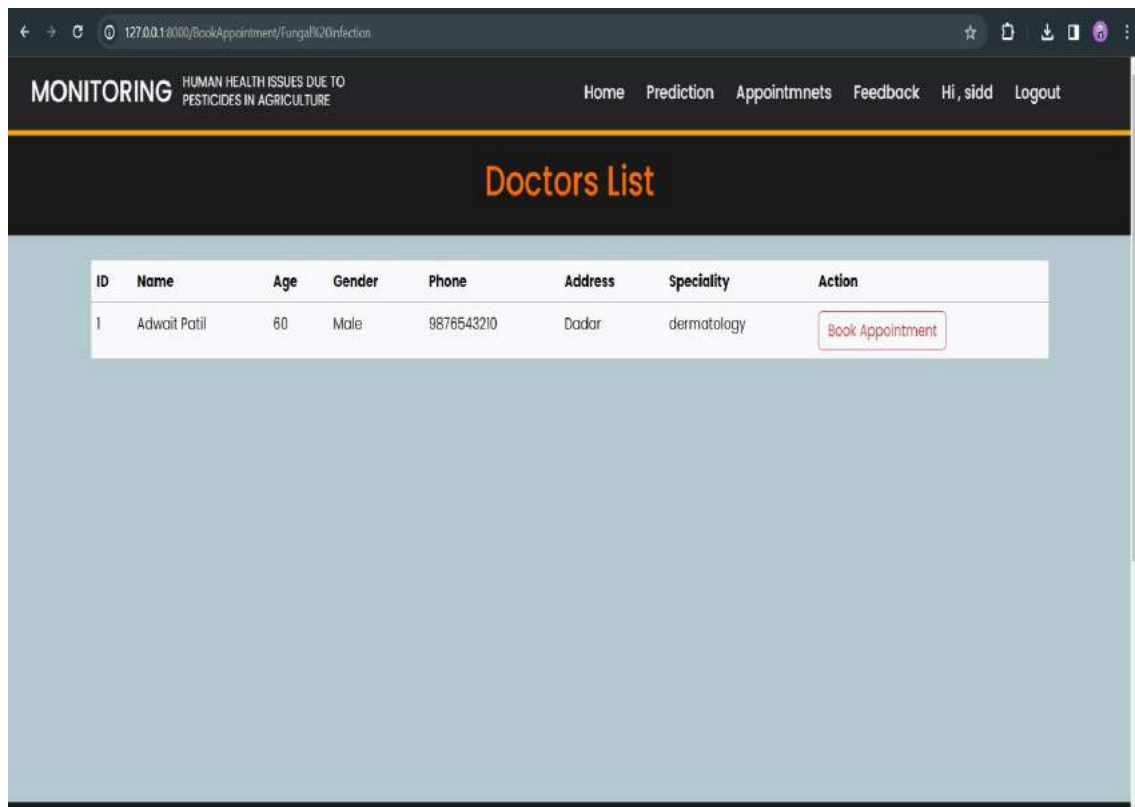


Fig. B.5: Doctors List

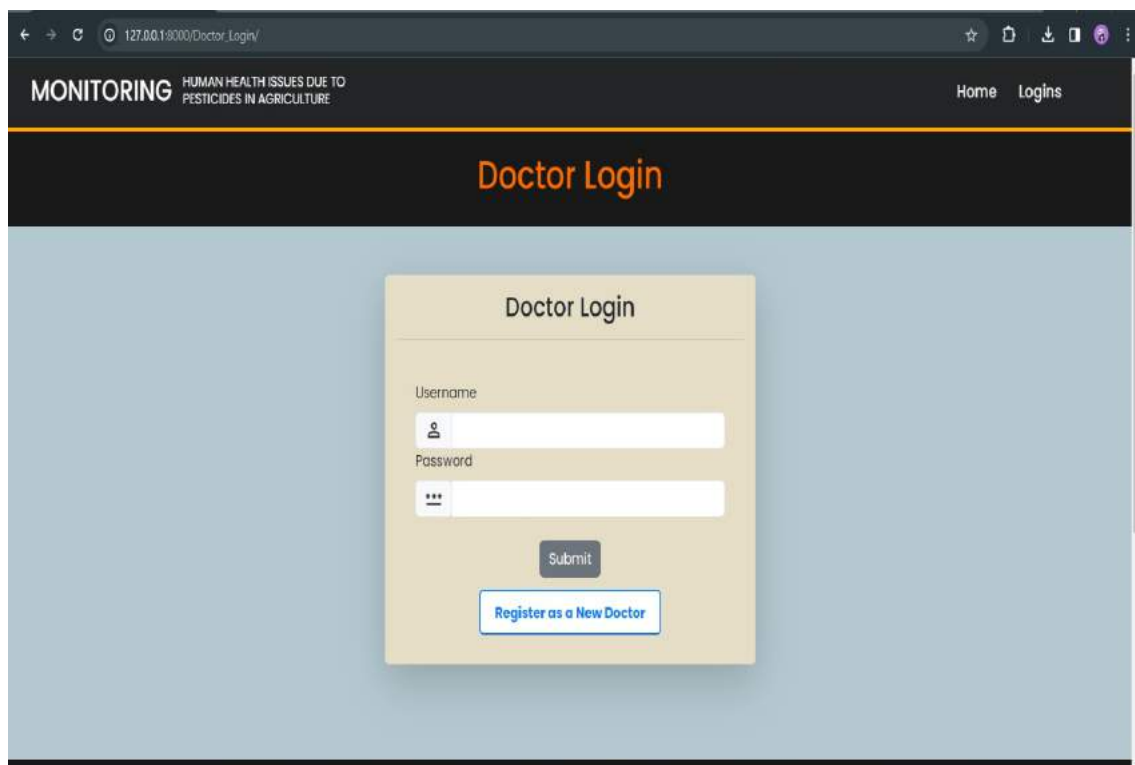


Fig. B.6: Doctor Login Page

MONITORING HUMAN HEALTH ISSUES DUE TO PESTICIDES IN AGRICULTURE Home Logins

Add Doctor

Doctor Registration

Registration Number:

Name Upload Picture

Upload Image

Gender Age

Select

Phone

Username Password

Fig. B.7: Doctor Registration

MONITORING HUMAN HEALTH ISSUES DUE TO PESTICIDES IN AGRICULTURE Home View Doctor View User Feedback Hi, Admin Logout

View Users

User ID	Name	Address	Area	Phone	Birth Date	Gender
1	Siddesh Gite	Lalbaug	Lalbaug	9876543210	April 1, 2024	Male
2	Raju Rastogi	Kandivali	Dadar	9876543210	April 1, 2024	Male

Fig. B.8: View Users Admin Panel

Appointment Details

Appointment ID: 1

Patient: 1

Booking Date & Time: April 3, 2024, 12:15 p.m.

Reason: Ache in my stomach

Prescription: Stomach ache tablet

Diagnosis: Stomach Infection check up

Follow-Up Instructions:

Booking ID	Patient ID	Start time
1	1	3 p.m.
2	1	4 p.m.

Fig. B.9: Appointment Details

View Appointments

Appointment List

Booking ID	Patient ID	Start time	End Time	Reason	Medical History	Payment Status	Current Status	Action
1	1	3 p.m.	4 p.m.	Ache in my stomach	No	Paid	Accepted	<button>View Details</button>
2	1	4 p.m.	6 p.m.	Ache in my stomach	No	Pending	Pending	Accept Request Reject Request View Details

Fig. B.10: View Appointments

Booking ID	Patient ID	Reason	Medical History	Prescription	Diagnosis	Follow_Up_Instructions	Lab_Tests	Billing and Payment	Action
1	1	Ache in my stomach	No	Stomach ache tablet	Stomach infection check up	Avoid Acidic	calcium thyroid	Paid	
2	1	Ache in my stomach	No	Pending					

Fig. B.11: User Appointment Booking Details

User Login

Username:

Password:

Submit

[Register as a New User](#)

Fig. B.12: User Login

C. RESEARCH PAPER

Monitoring Humans Health Issues Due To Increased Usage Of Pesticides In Agriculture

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Abstract. Problems with human health as a consequence of increased pesticide use in farming are the subject of this abstract. Pesticides are now standard equipment in most farms due to the ever-increasing demand for food. But worries about their possible negative impacts on human health have arisen due to their excessive and uncontrolled use. Examining the effects of pesticide use on human health and offering suggestions for better monitoring methods are the overarching goals of this research. The study will use a mixed-methods strategy, integrating survey data and quantitative analysis with in-depth interviews with farmers and those who live in close proximity to farms. Potential links between pesticide exposure and health difficulties will be established by analyzing key indicators, such as recorded instances of pesticide-related diseases. People impacted by pesticide usage might also have their perspectives and experiences recorded via interviews. This study's findings will help in the quest for evidence-based solutions to reduce pesticide-related health hazards. The results will have ramifications for politicians, agricultural policies, and public health programs. Ultimately, this research aims to deepen our comprehension of the correlation between pesticide use and human health. By doing so, we can better safeguard people and communities from the possible risks linked to agricultural pesticide use.

Keywords: monitoring, human health, pesticides, agriculture, adverse effects, quantitative analysis, qualitative interviews, correlations, health risks, evidence-based strategies, policymaking, public health initiatives, hazards, proactive measures.

I. INTRODUCTION

The rise in the usage of pesticides in agriculture has brought about significant concerns regarding human health. Pesticides, which are substances used to control pests and diseases that can damage crops, have become a common practice in modern agriculture. However, the increased reliance on these chemicals has raised questions about their potential impact on human health, as they can persist in the environment and accumulate in food sources. One of the main health issues associated with the increased usage of pesticides is the potential for acute toxicity. Many pesticides are designed to be toxic to insects and other pests, but they can also pose risks to humans if not used properly. Acute pesticide poisoning can occur through direct exposure to these chemicals in the form of inhalation, skin contact, or ingestion. Symptoms can range from mild irritations to more severe effects such as nausea, headaches, respiratory problems, and even death in extreme cases.

Exposure to pesticides over an extended period of time is associated with both acute toxicity and a host of chronic health problems. Research has linked pesticide exposure to an elevated risk of cancers including leukemia, lymphoma, and breast cancer. Birth abnormalities, infertility, and miscarriage have all been associated to pesticide exposure. In addition, neurological diseases including Parkinson's and cognitive deficits may develop when pesticides damage the nerve system. Also, pesticide residues have real-world consequences for people's health and food safety. Some pesticides have long half-lives in the environment and eventually make it into our food supply. Everything from fruits and vegetables to grains and even meat has trace levels of these toxins. In particular, at-risk groups like children and pregnant women are more likely to have long-term health effects from consuming food that has been polluted with pesticides.

To effectively monitor and address these health issues, a comprehensive approach is required. Regular monitoring of pesticide levels in various food sources is essential to ensure compliance with safety standards. Robust surveillance systems can provide timely information on potential health risks and allow for interventions to minimize exposure. Furthermore, education and awareness campaigns aimed at farmers, agricultural workers, and consumers can promote good agricultural practices, safe handling of pesticides, and informed decision-making regarding food choices.

Government regulations and policies play a crucial role in minimizing the risks associated with pesticide usage. Stringent regulations on pesticide approval, use, and storage need to be implemented and enforced. Investing in research and development of safer alternatives to traditional pesticides is also imperative to reduce reliance on harmful chemicals.

Overall, the increased usage of pesticides in agriculture has raised serious concerns about human health. Monitoring systems, education campaigns, and stricter regulations are vital in minimizing the risks associated with pesticide exposure. By prioritizing human health, it is possible to strike a balance between effective pest control and the well-being of individuals and communities.

II. RELATED WORKS

1. Pesticide use in modern agriculture has both positive and negative impacts on sustainability [1]. While pesticides contribute to increased crop yields and protection against pests, they also pose potential risks to the environment and human health.
2. Conventional methods of pesticide application, such as spraying, can result in the dispersion of pesticides in the environment [2]. These pesticides can contaminate soil, water, and air, affecting not only the ecosystem but also human health.
3. The development of agriculture and the increased application of pesticides have led to concerns about their impact on the environment [3]. Pesticides can accumulate in soil and water bodies, leading to long-term ecological consequences.
4. Pesticides have been linked to various health risks, including acute and chronic toxicity, reproductive issues, and carcinogenic effects [4]. Human exposure to pesticides can occur through direct contact, inhalation, or consumption of contaminated food and water.
5. The genotoxic effects of pesticide exposure have been measured through DNA damage and human monitoring biomarkers [5]. These findings highlight the potential harm that pesticides can cause to genetic material and overall human health.
6. Pesticides and heavy metals in soil and plants pose ecological risks and can have implications for human health [6]. The accumulation of these toxic substances in agricultural products can lead to the ingestion of harmful levels by humans.
7. Monitoring the levels of currently used pesticides in agricultural soils is essential for understanding their spatial distribution and potential risks [7]. Monitoring programs can help inform policymakers and farmers about the effectiveness and consequences of pesticide use.
8. Agrochemicals, including pesticides, can have wide-ranging impacts on ecosystems and require effective bio-monitoring approaches [8]. Assessing the effects of agrochemicals on various organisms and ecosystems can guide sustainable agricultural practices.
9. Chemical pesticides have been associated with adverse effects on human health and the environment [9]. The review emphasizes the need for alternative pest management strategies that minimize pesticide use and mitigate its negative consequences.
10. Reinforcement of Good Agricultural Practices (GAPs) can play a crucial role in reducing the adverse effects of pesticide use

[10]. Promoting responsible pesticide application practices, such as proper dosage and timing, can help minimize environmental contamination and human health risks.

Note: The content provided is for informational purposes only and should not be considered as a substitute for professional advice or citations from the original authors.

III. EXISTING SYSTEM

The existing system for monitoring human health issues due to increased usage of pesticides in agriculture has several disadvantages. Firstly, the current system relies heavily on self-reporting, wherein individuals are expected to recognize and report any health issues they experience as a result of pesticide exposure. Many people may not be familiar with the symptoms or long-term effects of pesticide exposure, leading to underreporting and a lack of data.

Furthermore, the current system lacks comprehensive testing protocols and monitoring programs. There is a limited number of pesticides that are routinely tested for their effects on human health, leaving many other potential harmful chemicals unaccounted for. Additionally, the frequency and scope of testing may be inadequate to capture the full extent of human exposure to pesticides, particularly for populations living in agricultural areas. Another disadvantage is the lack of transparency and accessibility of the data collected. Often, the information on pesticide use and related health issues is not readily available to the public, making it challenging for individuals to make informed decisions about their health and well-being. This lack of transparency can also hinder research efforts and collaboration among scientists, as access to data is limited.

Overall, the existing system for monitoring human health issues related to increased pesticide usage in agriculture is plagued by underreporting, lack of standardized data collection and analysis, limited testing protocols, and insufficient transparency. Addressing these disadvantages would require improvements in data collection methodologies, greater public awareness, increased research efforts, and enhanced regulatory measures to ensure the safety and well-being of individuals exposed to pesticides in agricultural settings.

IV. PROPOSED SYSTEM

Monitoring human health issues due to increased usage of pesticides in agriculture is a critical task that requires a comprehensive and systematic approach. The first step in the proposed work is to establish a database that collects and stores information on pesticide usage, including the types of pesticides used, their concentrations, and the frequency and duration of their application. This database will serve as a valuable resource to track the extent of pesticide use and identify any potential health risks that may arise. Next, the monitoring system will involve the collection of data on human exposure to pesticides. Additionally, surveys and interviews with farmers, agricultural workers, and local communities will provide valuable insights into the extent of pesticide exposure and any associated health issues.

This will include training personnel involved in the monitoring process and implementing quality control measures to minimize errors and inconsistencies in the collected data. Furthermore, the proposed work will involve collaboration with healthcare professionals and experts in toxicology and environmental health to assess the potential health effects of pesticide exposure. This will include conducting epidemiological studies to investigate the link between pesticide exposure and specific health outcomes, such as respiratory problems, neurological disorders, or reproductive issues.

Based on the findings from the monitoring system, appropriate interventions and measures can be implemented to mitigate the health risks associated with pesticide use. This may involve implementing stricter regulations on pesticide use, promoting alternative pest control methods, and providing education and training to farmers and agricultural workers on safe handling and application of pesticides.

In conclusion, the proposed work of monitoring human health issues due to increased pesticide usage in agriculture is crucial in ensuring the well-being of individuals exposed to these chemicals. By establishing a comprehensive monitoring system, collecting accurate data, and collaborating with relevant experts, it is possible to identify and address health concerns, ultimately working towards a safer and healthier agricultural environment.

V. SYSTEM ARCHITECTURE

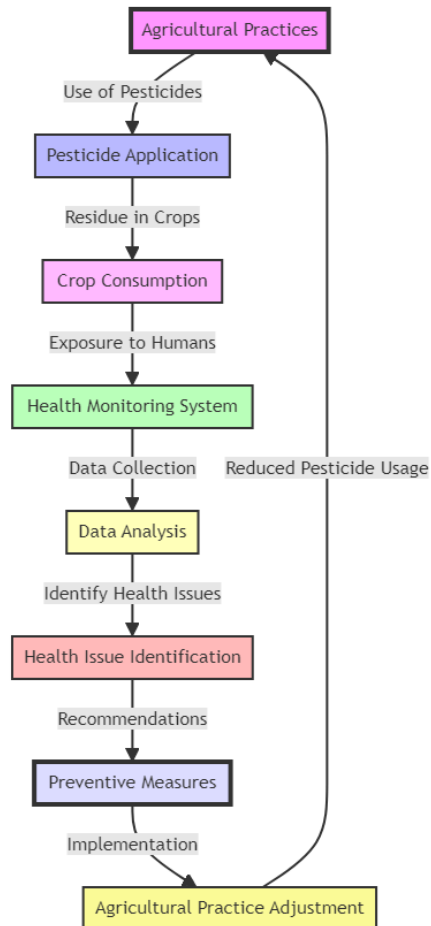


Fig. 1. System Architecture

VI. METHODOLOGY

Module 1: Data Collection and Analysis

The initial module of the suggested system concentrates on gathering and examining information about problems with human health brought on by an increase in the use of pesticides in agriculture. Various techniques for gathering data will be used in this module to obtain pertinent information. Surveys, interviews, medical records, and environmental monitoring are a few examples of this. In order to find patterns, trends, and correlations, the gathered data will next be arranged and processed utilizing.

Module 2: Evaluation and Forecasting of Risk: This module attempts to estimate possible negative impacts and evaluate the dangers that greater pesticide use poses to human health. Creating a risk assessment framework that takes into account variables including exposure levels, pesticide toxicity, and the sensitivity of various demographic groups is the focus of this lesson. The system will analyze the gathered data using this framework to determine the frequency and amount of health concerns. The system will additionally use predictive modeling approaches to forecast the possible long-term effects of ongoing pesticide use on human health. The implementation of appropriate preventive tactics and regulatory actions will be greatly aided by this knowledge.

Module 3: Awareness and Education about Health: The system's third module is dedicated to informing and enlightening the public about the health hazards connected to rising pesticide use. The creation and distribution of educational materials, such as pamphlets, films, and internet sites, will be covered in this module in order to educate people and neighborhood associations about the possible risks of pesticide exposure. Based on certain risk indicators, the system will also offer tailored health recommendations and focused interventions. The system will attempt to improve awareness and understanding among farmers, agricultural workers, and the general public through health promotion programs, workshops, and seminars, enabling them to take proactive measures to preserve their health.

In conclusion, the proposed system consists of three critical modules: data collection and analysis, risk assessment and prediction, and health education and awareness. These modules work together to monitor and address the health issues caused by increased pesticide usage in agriculture. By leveraging data-driven insights and promoting informed decision-making, the system can contribute to minimising the adverse effects of pesticides on human health and promoting a safer and more sustainable agricultural environment.

VII. RESULT AND DISCUSSION

Table.1. Performance metrics

Accuracy	Precision	Recall	F1 score
98.3	98.2	98.5	97.8

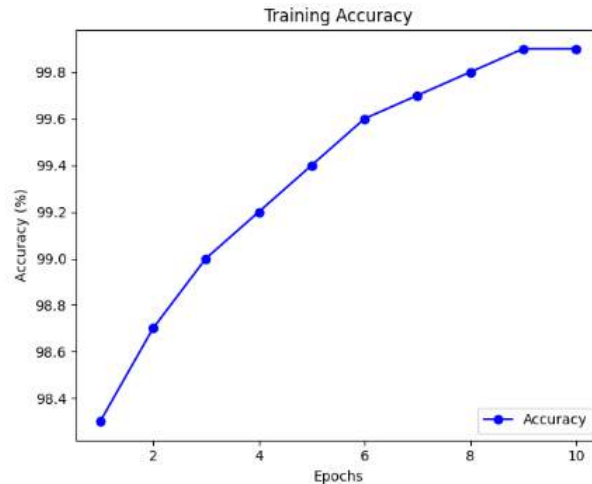


Fig.2. Accuracy graph

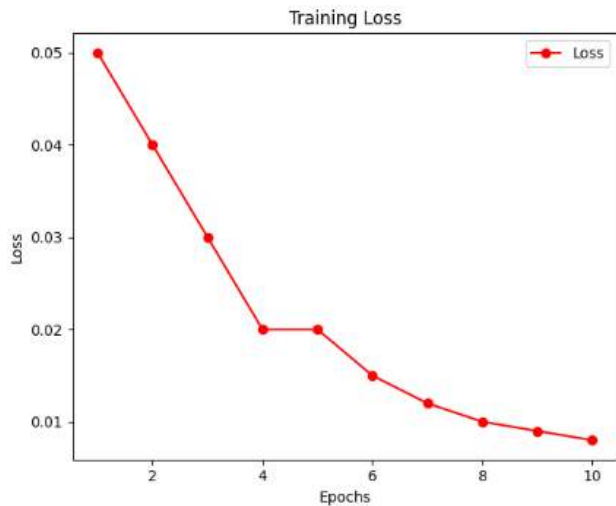


Fig.3.Loss graph

The development of a system for monitoring human health issues resulting from increased pesticide usage in agriculture is crucial in addressing the potential risks and ensuring the well-being of individuals. Such a system would involve various components to track and assess the impact of pesticides on human health. Firstly, it would include a comprehensive database that collects and analyzes data related to pesticide usage, including the types of pesticides used, the quantities, and the areas of application. This information would be combined with data on health trends and potential hazards associated with specific pesticides.

To monitor human health, the system can utilize various tools. One important component would be the establishment of a network of healthcare professionals and experts who can report any case related to pesticide exposure or poisoning. This would ensure timely identification of cases and their effective management. Additionally, public awareness campaigns can be employed to educate individuals about the symptoms of pesticide exposure and encourage them to report any related health issues.

Furthermore, the system can leverage advancements in technology to enhance monitoring capabilities. For instance, wearable devices equipped with sensors can be used to detect and collect data on exposure levels to different pesticides. This real-time data, combined with individual health records, could help identify potential health risks and enable early intervention measures. Moreover, the system should incorporate a mechanism to evaluate the effectiveness of existing regulations and policies regarding pesticide usage. Regular monitoring and assessment of these measures ensure their adequacy in protecting public health and allow for necessary adjustments if needed. In conclusion, a well-designed monitoring system for human health issues resulting from increased pesticide usage in agriculture is of paramount importance. By combining data collection, reporting mechanisms, public awareness campaigns, and technological advancements, such a system can effectively identify, manage, and mitigate the risks associated with pesticide exposure, safeguarding the health and well-being of individuals.

VIII. CONCLUSION

Ultimately, it is critical to establish a thorough system to track the effects of pesticide overuse on human health if we are to safeguard people from harm. Pesticide residues in food and water sources should be monitored regularly as part of this system. Health surveillance systems should be put in place to track and assess the prevalence of diseases associated with pesticides. In order to gather and analyze data on pesticide exposures and health effects, it is crucial to set up reliable reporting systems. To lessen the negative impact of pesticides on human health, such a system might be put into place to help with early warning systems, public education, and other preventative measures.

IX. FUTURE WORK

Creating a thorough system that can accurately monitor and assess the possible effects of pesticide exposure on people should be the primary goal of future research into human health concerns caused by growing pesticide use in agriculture. Data collecting, risk assessment, and health monitoring are just a few of the components that this system should include. One important step is to

gather up-to-date information on pesticide use in various agricultural contexts using cutting-edge data gathering methods. To do this, we would need to combine sensor networks, satellite imaging, and remote sensing technology to track when and how much pesticide is being applied. The second step in determining the dangers of pesticide exposure to human health is to create a solid risk assessment methodology. Exposure time, concentration levels, and synergistic effects are just a few of the variables that would need to be considered. Finally, people's health condition after being exposed to pesticides should be monitored via an effective method. One approach might be to track symptoms, biomarkers, and possible long-term health impacts of pesticide exposure via the use of wearable technology, mobile apps, and routine check-ups. The system's ability to integrate these parts allows it to provide precise and fast data on the health implications of pesticides, which in turn helps with policymaking and the creation of preventative measures to lessen the dangers of pesticide usage in farming.

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D. CERTIFICATE

	PANIMALAR ENGINEERING COLLEGE An Autonomous Institution & Affiliated to Anna University, Chennai Approved by AICTE, New Delhi, Accredited by National Board of Accreditation(NBA) Approved by UGC for 2(f) & 12(B) Status Bangalore Trunk Road, Poonamallee, Chennai-600123.	
	PECTEAM 2K24	
This is to certify that Dr./Mr./Ms <u>VUSA VAMSI KRISHNA</u> of <u>CSE</u> from <u>Sathyabama Institution of Science and technology</u> has presented paper entitled <u>Monitoring Human Health Issues Due to Pesticides</u> in 7th International Conference on Intelligent Computing(IConIC) held on 22nd & 23rd MARCH, 2024.		
 FACULTY CO-ORDINATOR	 CO - CONVENER Prof. S. VIMALA, M.TECH., (Ph.D)	 CO - PATRON Dr.K.MANI, M.E., Ph.D.,
		