

FERTILIZER VALUE UPDATION TO FARMERS

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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(Roll. No.17SCS0193)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SCHOOL OF COMPUTING

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC
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SALAI, CHENNAI – 600 119

APRIL - 2021



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that this project report is the bonafide work of **KARNATI RAGHAVENDRA REDDY (Roll. No.17SCS0193)** who carried out the project entitled **"FERTILIZER VALUE UPDATION TO FARMERS"** under my supervision from **August 2020 to APRIL 2021.**

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DECLARATION

I **KARNATI RAGHAVENDRA REDDY** hereby declare that the Project Report entitled "**FERTILIZER VALUE UPDATION TO FARMERS**" is done by me under the guidance of **Dr. L. Mary Gladence, M.E.,Ph.D.**, Department of Computer Science and Engineering at Satyabhama Institute of Science and Technology 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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PREDICTION OF CROP YIELD USING MACHINE LEARNING ALGORITHM

ABSTRACT

Fertilizer value updation has a positive practical significance for guiding agricultural production and for notifying the change in market rate of fertilizer to the farmer. In this project the data analysis technology is used to update the rate change through notification. The notifications are send immediately when the rate of the fertilizer is changed in the market. Different types of land condition. So, the quality of the fertilizers is identified using ranking process. By this process the rate of the low quality and high-quality fertilizer is also notified. The usage of ensemble of classifiers paves a path way to make a better decision on predictions due to the usage of multiple classifiers. Further, a ranking process is applied for decision making in order to select the classifiers results. This system is used to predict the cost of the fertilizers for further.

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CHAPTER 1

INTRODUCTION

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INTRODUCTION

In the world of developing technologies, the success of sharing information will help the agriculturists in realizing and developing their potential. The information sharing is that the valuable and timely information is being shared between agriculturists, either formally or informally. The willingness of information sharing refers to the open attitude among agriculturists. This open attitude determines the degree and scope of information sharing. Using web-technologies like html and CSS we build the web application; we create dataset by gathering data from multiple resources and place them in place which is used to predict the price of the fertilizers and results are subjected to non-linear test later priorities are set and rankings are given to the list of fertilizers. Place information in our application and share that information to agriculturists whose data is collected and stored in the MySQL server. we software to automatically send the updated information to the agriculturists in the form of text message.so that agriculturists no need to go to nearby towns and cities to know the updated information. We will be machine learning algorithms to predict the price of the fertilizers for the next two months. For prediction purpose we will be using Support vector machine(SVM), Naïve Bayes' (NB) and K-Nearest Neigh our(KNN) algorithms to predict the cost of the fertilizers for the further usage of the agriculturists. Further, a ranking process is applied for decision making in order to select the classifiers results.

1.1 RESEARCH AND SIGNIFICANCE

To keep up nutrition levels in the soil in case of deficiency, fertilizers are added to

soil. The standard issue existing among the Indian agriculturists choose approximate number of fertilizers and add them manually. Excess or deficient extension of fertilizers can harm the plants life and reduce the yield. This paper gives overview of various data mining frameworks used on cultivating soil dataset for fertilizer recommendation.

Agriculture is the most critical application area especially in the developing nations like India .Use of information technology in agriculture can change the situation of decision making and farmers can yield in better way. Data mining plays an important role in decision making on several aspects with agriculture field. It examines about role of data mining in the farming field and their related work by a few authors in related to agriculture domain. It additionally talks about on various data mining applications in taking care of the several agriculture problems. This paper integrates the work of several authors in a single place so it is valuable for specialists to get data of current situation of data mining systems and applications in context to farming field.

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CHAPTER 2

AIM AND SCOPE

2.1 AIM OF PROJECT

The primary aim of this proposed system i.e., “FERTILIZER VALUE UPDATION TO FARMERS”. to assist the Fertilizers and Crops in such a way that they can get Equal price order placed in a particular area help the Farmers to Get the crops and fertilizers in low cost with any other Mid-User. Farmers can Directly contact to other Farmers to get the Products.

2.1.1 OBJECTIVES

Pages must be activated from the identified link.

The entry screen, messages and responses must not be delayed.

Features to be tested

Verify that the entries are of the correct format

No duplicate entries should be allowed

All links should take the user to the correct page.

2.2 SCOPE

This model will help to farmer to buy a Fertilizers and Crops at low cost with paying any Taxes like SGST,CGST in this Project Fertilizer Value is calculated By the Quality of the fertilizers are identified using ranking process. By this process the rate of the low quality and High-quality fertilizer is also notified.

2.2.1 ADVANTAGES

Useful to people far away from towns/cities.

Better time efficiency.

Reduction of repeated work.

The data analysis technology is used to update the rate change through notification. The notifications are sent immediately when the rate of the fertilizer is changed in the market. Different types of land condition. So, the quality of the fertilizers is identified using ranking process. By this process the rate of the low quality and high-quality fertilizer is also notified. The usage of ensemble of classifiers paves a path way to make a better decision on predictions due to the usage of multiple classifiers. Further, a ranking process is applied for decision making in order to select the classifiers results. This system is used to predict the cost of the fertilizers for further. This project uses Ensemble of classifiers such as SVM, NAÏVE BAYES, KNN or hybrid classifier. In addition, this project uses Ranking technique.

2.2.2 DISADVANTAGES

- Efficiency is low.
- More number of repeated works.

The computational and data demands of structural price forecasting generally far exceed than what is routinely available in developing countries. Consequently, researchers often rely on parsimonious representations of price processes for their forecasting needs. Contemporary parsimonious form of price forecasting relies heavily on time series modelling. In time series modelling, past observations of the same variable are collected and analyzed to develop a model describing the underlying relationship. During the past few decades, much effort has been devoted to the development and improvement of time series forecasting models. Time series modelling requires less onerous data input for regular and up-to date price forecasting. Hence there is a need for better classification which would be an ensemble or hybrid classification model.

Agriculture is a field that has been lacking from adaption of technologies and their advancements. Indian agriculturists should be up to the mark with the universal procedures. Machine learning is a native concept that can be applied to every field on all inputs and outputs. It has effectively settled its ability over ordinary calculations of software engineering and measurements. Machine learning calculations have improved the exactness of artificial intelligence machines including sensor-based frameworks utilized in accuracy farming. This paper has evaluated the different uses of machine learning in the farming area. It additionally gives a knowledge into the inconveniences looked by Indian farmers and how they can be resolved using these procedures.

The idea regarding the making of Agouti an android application that helps in conveying the harvest particular fertilizer amount to be applied. The idea is to calculate the measure of NPK composts to be applied depend on the blanked proposal of the crop of interest. This application works depends on the product chosen by the farmer and that is taken as input, thus providing the farmers. The future scope of the Agouti is that GPRS can be included so that according to location nutrients are suggested. Further this application would be incorporated as a piece of the accuracy agriculture wherein sensors can be utilized to discover the measure of NPK present in the dirt and that sum can be deducted from the suggestion and giving us the exact measure of supplements to be added.

Throughout the following decades humanity will request more food from less land and water assets. This investigation evaluates the food production effects of four elective advancement situations from the Millennium Ecosystem Assessment and the Special Report on Emission Scenarios. partially and jointly considered are land and water supply impacts from population development, and specialized change, and forests and agriculture demand request shifts from population development and economic improvement. The income impacts on nourishment request are registered with dynamic flexibilities. Worldwide farming area increments by up to 14% somewhere in the range of 2010 and 2030. Deforestation restrictions strongly impact the price of land and water resources but have little consequences for the global level of food production and food prices.

While projected income changes have the highest partial impact on per capita food consumption levels, population growth leads to the highest increase in total food production. The impact of technical change is amplified or mitigated by adaptations of land management intensities.

Rural frameworks science creates information that enables analysts to consider complex issues or take educated farming choices. The rich history of this science represents the decent variety of frameworks and scales over which they work and have been contemplated. Demonstrating, a basic apparatus in agrarian frameworks science, has been expert by researchers from an extensive variety of controls, who have contributed ideas and instruments over six decades. As agrarian researchers currently consider the "people to come" models, information, and learning items expected to meet the inexorably mind-boggling frameworks issues looked by society, it is vital to check out this history and its exercises to guarantee that we stay away from re-innovation and endeavor to think about all elements of related difficulties. To this end, we outline here the historical backdrop of rural frameworks demonstrating and distinguish exercises discovered that can help control the structure and advancement of up-and-coming age of farming framework apparatuses and techniques. Various past

occasions joined with generally innovative advancement in different fields have unequivocally added to the

development of farming framework demonstrating, including improvement of process- based bio-physical models of yields and domesticated animals, factual models dependent on verifiable perceptions, and financial streamlining and reproduction models at family unit and local to worldwide scales. Attributes of rural frameworks models have changed broadly relying upon the frameworks included, their scales, and the extensive variety of purposes that spurred their advancement and use by specialists in various controls. Late patterns in more extensive joint effort crosswise over establishments, crosswise over orders, and between people in general and private segments recommend that the stage is set for the significant advances in rural frameworks science that are required for the up-and-coming age of models, databases, learning items and choice emotionally supportive networks. The exercises from history ought to be considered to help stay away from barricades and entanglements as the network builds up this up-and-coming age of horticultural frameworks models.

CHAPTER 3

SYSTEM DESIGN & METHODOLOGY

3.1 EXISTING SYSTEM

The computational and data demands of structural price forecasting generally far exceed than what is routinely available in developing countries. Consequently, researchers often rely on parsimonious representations of price processes for their forecasting needs. Contemporary parsimonious form of price forecasting relies heavily on time series modelling. In time series modelling, past observations of the same variable are collected and analyzed to develop a model describing the underlying relationship. During the past few decades, much effort has been devoted to the development and improvement of time series forecasting models. Time series modelling requires less onerous data input for regular and up-to date price forecasting. Hence there is a need for better classification which would be an ensemble or hybrid classification model.

We have considered pictures of maize edits as the informational index. Separating surface highlights of the picture and applying SVM (support vector machine) to arrange whether the given picture is a weed or a yield brought about a precision of 82%. In this way, picture preparing is a proficient method to group the given picture about whether it is a weed or a yield. A similar classifier can be connected to recognize number of harvests like groundnut, paddy from weeds. The proposed framework gives a chance to investigate more about element extraction methods. Further research and usage may incorporate building up a mechanized equipment framework which could help in removal of weeds in the fields.

A blueprint of Iota and DA in agriculture has been shown in this paper. A couple of zones related to the association of Iota in agribusiness have been discussed in detail. The investigation of composing exhibits that there are clusters of work advancing being produced of Iota development that can be used to increase operational efficiency and gainfulness of plant and creatures. The benefits of Iota and DA, and open troubles have been identified and inspected in this paper. Iota is depended upon to offer a couple of benefits to the agribusiness division. Regardless, there are up 'til now different issues to be steered to make it moderate for close to nothing and medium-scale farmers. The key issues are security and cost. It is typical that as contention increases in the cultivating part .

.,

If every farmer and each average production base will join their optimal conditions in making cooperatives, it will accomplish economies of scale. Furthermore, producers will have an all the more favorable position in the plans with downstream firms (shipper or retailer).Second, the main customers of wholesale market are not inhabitants nearby who buy small quantities products but lower distributors or retailers. More redesigned transportation mode respects intensive attempt of new agrarian things, which prompts bolster the movement of new chain joint logistics and strengthen resource utilize and made logistics advantage quality. Refresh everything considered agrarian things spread. By then, regard the examination of gigantic worth control of standard things and achieve the mind-blowing control to stream process.

Using support vector machine (SVM) is to realize the self-learning of fuzzy inference system (FIS), based on a fast modified varying metric method (MDFP) and a support vector machine identifier (SVMI), an SVM-FIS self-learning controller for the three-phase induction machine adjustable speed system has been designed. The proposed controller is not only of the advantages that FIS does not depend on the plant

model, strong robustness, and adaptive self-learning ability, but also learning ability and generalization performance of SVM. The designed processes of SVM-FIS, MDFP, and

SVM algorithms have been described in details. Simulation results show the feasibility, correctness and effectiveness of the proposed control strategy, such as the excellent static and dynamic performances, and strong anti-interference ability.

In this examination, self-organizing map (SOM) was utilized to group the information relationship between the information factors. After that chi-square test strategy was utilized to set up the level of reliance between the related variable qualities. It was discovered that the day-by-day outrageous climate conditions, for example, most extreme and least fluctuation in temperature, precipitation, dampness and wind speed were the principal drivers of product development, yield and wine quality

3.2 PROPOSED SYSTEM

In proposed system, the data analysis technology is used to update the rate change through notification. The notifications are sent immediately when the rate of the fertilizer is changed in the market. Different types of land condition. So, the quality of the fertilizers is identified using ranking process. By this process the rate of the low quality and high-quality fertilizer is also notified. The usage of ensemble of classifiers paves a path way to make a better decision on predictions due to the usage of multiple classifiers. Further, a ranking process is applied for decision making in order to select the classifiers results. This system is used to predict the cost of the fertilizers for further. This project uses Ensemble of classifiers such as SVM, NAÏVE BAYES, KNN or hybrid classifier. In addition, this project uses Ranking technique.

ADVANTAGES OF PROPOSED SYSTEM

- Useful to people far away from towns/cities.
- Better time efficiency.
- Reduction of repeated work.

3.3 SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS:

- System - Pentium-IV
- Speed - 2.4GHZ
- Hard disk - 40GB
- Monitor - 15VGA color
- RAM - 512MB

SOFTWARE REQUIREMENTS:

- Operating System - Windows XP
- Coding language - Java
- IDE - Net beans
- Database - MYSQL

3.4 MODULES

- User Login
- Registration
- Calculate Fertilizer Value
- SMS sends to farmers

User login

This is the first activity, User needs to provide a correct contact number and a password, which user enters while registering, in order to login into the webpage. If information provided by the user matches with the data in the database table, then user successfully login into the webpage else message of login failed is displayed and user need to re-enter correct information. A link to the register activity is also provided for registration of new users.

Registration Module

A new user who wants to access the website needs to register first before login. By clicking on register button in login activity, the register activity gets open. A new user registers by entering full name, password and contact number. A user needs to enter password again in confirm password textbox for confirmation. When user enters the information in all textboxes, on the click of register button, the data is transferred to database and user is directed to login activity again. Registered user then needs to login in order to access the webpage. Validations are applied on all the textboxes for proper functioning of the webpage. Like information in each textbox is must that is each textbox, either it is of name, contact, password or confirm password, will not be empty while registering. If any such textbox is empty webpage will give message of information is must in each textbox. Also, data in password and confirm password

fields must match for successful registration. Another validation is contact number must be

valid one that is of 10 digits. If any such validation is violated then registration will be unsuccessful and then user needs to register again. Message that webpage will display when one of the fields is empty. If all such information is correct user will be directed to login activity for login into the webpage.

Calculate Fertilizer Value

In this project, Fertilizer value calculated by quality of the fertilizers are identified using ranking process. By this process the rate of the low quality and high-quality fertilizer is also notified.

SMS sends to farmers

In this project the data analysis technology is used to update the rate change through notification. The notifications are sent immediately when the rate of the fertilizer is changed in the market. Different types of land condition.

ALGORITHM USED

K-Nearest Neighbor(KNN) Algorithm

Naïve bayes Algorithm

SVM Algorithm

K-NEAREST NEIGHBOR (KNN) CLASSIFICATION METHOD

K-NN is a type of instance-based learning, or lazy learning, where the function is only approximated locally and all computation is deferred until classification. The k-NN algorithm is among the simplest of all machine learning algorithms. The neighbors are taken from a set of objects for which the class (for k -NN classification) or the object property value (for k -NN regression) is known.

STEP 1: BEGIN

STEP 2: Input: $D = \{(x_1, c_1), \dots, (x_{in}, c_{an})\}$

STEP 3: $x = (x_1, \dots, x_n)$ new instance to be classified

STEP 4: FOR each labelled instance (x_i, c_i) calculate $d(x_i, x)$

STEP 5: Order $d(x_i, x)$ from lowest to highest, $(i = 1 \dots N)$

STEP 6: Select the K nearest instances to x : D_x^k

STEP 7: Assign to x the most frequent class in D_x^k

STEP 8: END

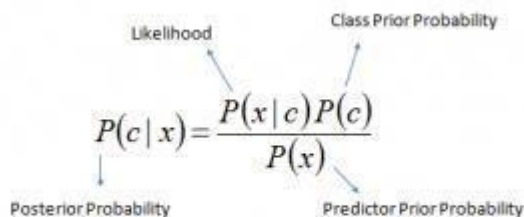
CHAPTER 4

NAIVE BAYES ALGORITHM

It is a classification technique based on Bayes' Theorem with an assumption of independence among predictors. In simple terms, a Naive Bayes classifier assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature. For example, a fruit may be considered to be an apple if it is red, round, and about 3 inches in diameter. Even if these features depend on each other or upon the existence of the other features, all of these properties independently contribute to the probability that this fruit is an apple and that is why it is known as 'Naive'.

Naive Bayes model is easy to build and particularly useful for very large data sets. Along with simplicity, Naive Bayes is known to outperform even highly sophisticated classification methods.

Bayes theorem provides a way of calculating posterior probability $P(\text{six})$ from $P(c)$, $P(x)$ and $P(\text{exec})$. Look at the equation below:



The diagram shows the equation $P(c|x) = \frac{P(x|c)P(c)}{P(x)}$. Arrows point from labels to parts of the equation: 'Likelihood' points to $P(x|c)$, 'Class Prior Probability' points to $P(c)$, 'Posterior Probability' points to $P(c|x)$, and 'Predictor Prior Probability' points to $P(x)$.

$$P(c|X) = P(x_1|c) \times P(x_2|c) \times \dots \times P(x_n|c) \times P(c)$$

Above,

- $P(\text{six})$ is the posterior probability of *class* (c , *target*) given *predictor* (x , *attributes*).
- $P(c)$ is the prior probability of *class*.
- $P(\text{exec})$ is the likelihood which is the probability of *predictor* given *class*.
- $P(x)$ is the prior probability of *predictor*.

4.1 Naive Bayes algorithm works

Let's understand it using an example. Below I have a training data set of weather and corresponding target variable 'Play' (suggesting possibilities of playing). Now, we need to classify whether players will play or not based on weather condition. Let's follow the below steps to perform it.

Step 1: Convert the data set into a frequency table

Step 2: Create Likelihood table by finding the probabilities like Overcast probability = 0.29 and probability of playing is 0.64.

Weather	Play
Sunny	No
Overcast	Yes
Rainy	Yes
Sunny	Yes
Sunny	Yes
Overcast	Yes
Rainy	No
Rainy	No
Sunny	Yes
Rainy	Yes
Sunny	No
Overcast	Yes
Overcast	Yes
Rainy	No

Frequency Table		
Weather	No	Yes
Overcast		4
Rainy	3	2
Sunny	2	3
Grand Total	5	9

Likelihood table		
Weather	No	Yes
Overcast		4
Rainy	3	2
Sunny	2	3
All	5	9
	=5/14	=9/14
	0.36	0.64

Step 3: Now, use Naive Bayesian equation to calculate the posterior probability for each class. The class with the highest posterior probability is the outcome of prediction.

Problem: Players will play if weather is sunny. Is this statement being

correct? We can solve it using above discussed method of posterior probability.

$$P(\text{Yes} \mid \text{Sunny}) = P(\text{Sunny} \mid \text{Yes}) * P(\text{Yes}) / P(\text{Sunny})$$

Here we have $P(\text{Sunny} \mid \text{Yes}) = 3/9 = 0.33$, $P(\text{Sunny}) = 5/14 = 0.36$, $P(\text{Yes}) = 9/14 = 0.64$

Now, $P(\text{Yes} \mid \text{Sunny}) = 0.33 * 0.64 / 0.36 = 0.60$, which has higher probability.

Naive Bayes uses a similar method to predict the probability of different class based on various attributes. This algorithm is mostly used in text classification and with problems having multiple classes.

4.2 Pros and Cons of Naive Bayes

Pros:

- It is easy and fast to predict class of test data set. It also performs well in multi class prediction
- When assumption of independence holds, a Naive Bayes classifier performs better compare to other models like logistic regression and you need less training data.
- It performs well in case of categorical input variables compared to numerical variable(s). For numerical variable, normal distribution is assumed (bell curve, which is a strong assumption).

Cons:

- If categorical variable has a category (in test data set), which was not observed in training data set, then model will assign a 0 (zero) probability and will be unable to make a prediction. This is often known as “Zero Frequency”. To solve this, we can use the

smoothing technique. One of the simplest smoothing techniques is called Laplace estimation.

- On the other side naive Bayes is also known as a bad estimator, so the probability outputs from `performs` are not to be taken too seriously.

- Another limitation of Naive Bayes is the assumption of independent predictors. In real life, it is almost impossible that we get a set of predictors which are completely independent.

4.3 Applications of Naive Bayes Algorithms

- **Real time Prediction:** Naive Bayes is an eager learning classifier and it is sure fast. Thus, it could be used for making predictions in real time.
- **Multi class Prediction:** This algorithm is also well known for multi class prediction feature. Here we can predict the probability of multiple classes of target variable.
- **Text classification/ Spam Filtering/ Sentiment Analysis:** Naive Bayes classifiers mostly used in text classification (due to better result in multi class problems and independence rule) have higher success rate as compared to other algorithms. As a result, it is widely used in Spam filtering (identify spam e-mail) and Sentiment Analysis (in social media analysis, to identify positive and negative customer sentiments)
- **Recommendation System:** Naive Bayes Classifier and Collaborative Filtering together builds a Recommendation System that uses machine learning and data mining techniques to filter unseen information and predict whether a user would like a given resource or not

SVM(support vector machine):

- For a dataset consisting of features set and labels set, an SVM classifier builds a model to predict classes for new examples. It assigns new example/data points to one of the classes. If there are only 2 classes then it can be called as a Binary SVM Classifier.
- There are 2 kinds of SVM classifiers:
- Linear SVM Classifier
- Non-Linear SVM Classifier

CHAPTER 5

SVM LINEAR CLASSIFIER

- In the linear classifier model, we assumed that training examples plotted in space. These data points are expected to be separated by an apparent gap. It predicts a straight hyperplane dividing 2 classes. The primary focus while drawing the hyperplane is on maximizing the distance from hyperplane to the

nearest data point of either class. The drawn hyperplane called as a maximum-margin hyperplane.

SVM Non-Linear Classifier:

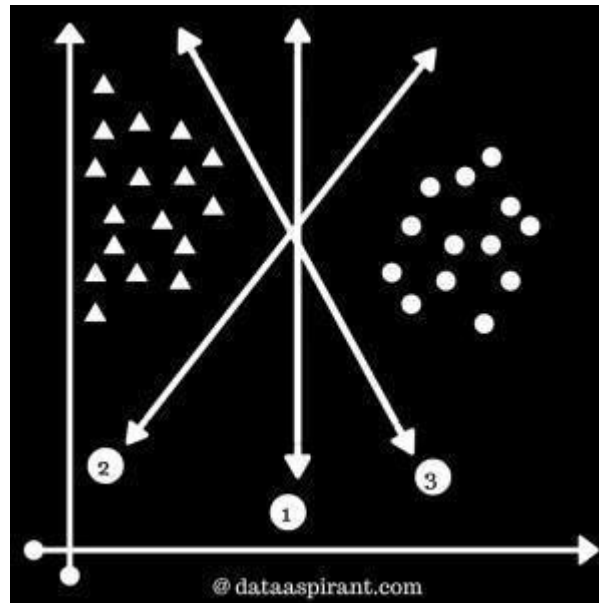
- In the real world, our dataset is generally dispersed up to some extent. To solve this problem separation of data into different classes on the basis of a straight linear hyperplane can't be considered a good choice. For this Vapnik suggested creating Non-Linear Classifiers by applying the kernel trick to maximum-margin hyperplanes. In Non-Linear SVM Classification, data points plotted in a higher dimensional space.

5.1 Examples of SVM boundaries

- In this section, we will learn about selecting best hyperplane for our classification. We will show data from 2 classes. The classes represented by triangle and circle.

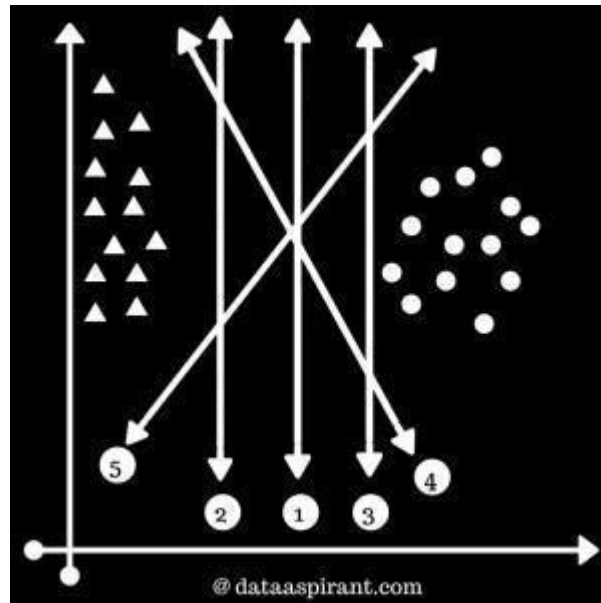
Case 1:

- Consider the case in Fig 2, with data from 2 different classes. Now, we wish to find the best hyperplane which can separate the two classes.
- Please check Fig 1. on the right to find which hyperplane best suit this use case. In SVM, we try to maximize the distance between hyperplane & nearest data point. This is known as margin.
- Since 1st decision boundary is maximizing the distance between classes on left and right. So, our maximum margin hyperplane will be "1st".

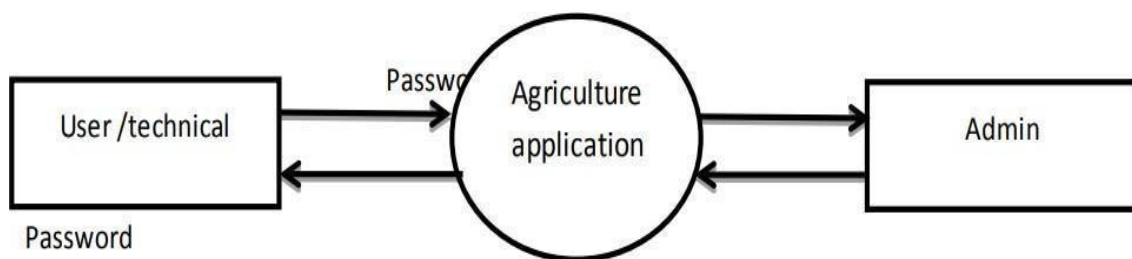


Case 2:

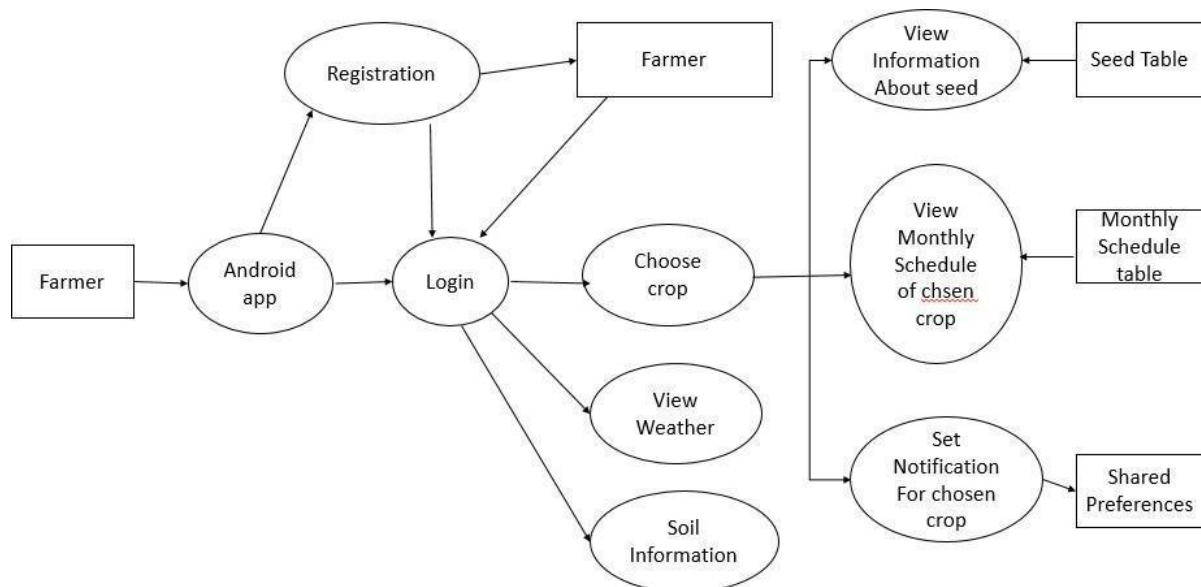
- Consider the case in Fig 2, with data from 2 different classes. Now, we wish to find the best hyperplane which can separate the two classes.
- As data of each class is distributed either on left or right. Our motive is to select hyperplane which can separate the classes with maximum margin.
- In this case, all the decision boundaries are separating classes but only 1st decision boundary is showing maximum margin between \classes. Now & \begird .



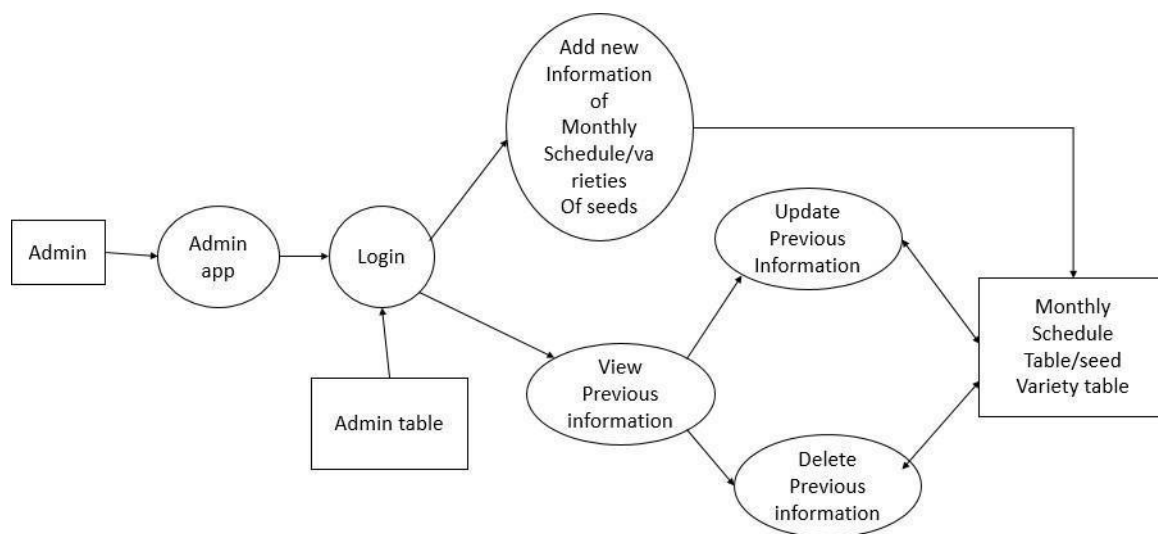
5.2 Data Flow Diagram



LEVEL-1



LEVEL-2



CHAPTER 6

UML DIAGRAM

UML is simply another graphical representation of a common semantic model. UML provides a comprehensive notation for the full lifecycle of object-oriented development.

ADVANTAGES

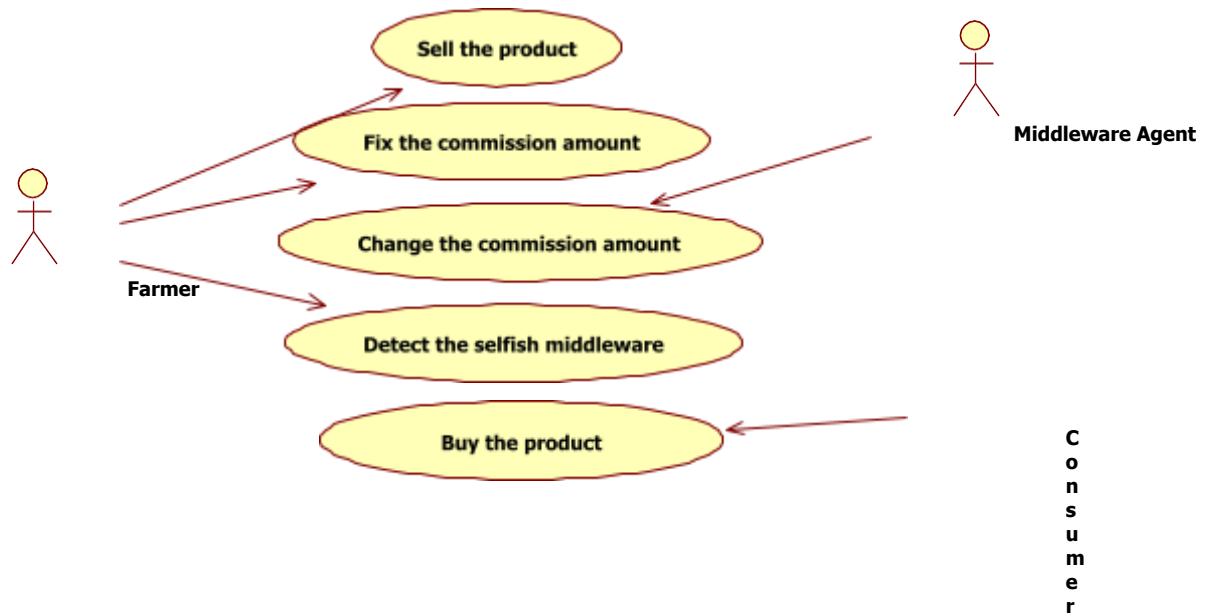
- To represent complete systems (instead of only the software portion) using object-oriented concepts
- To establish an explicit coupling between concepts and executable code
- To take into account the scaling factors that are inherent to complex and critical systems
- To creating a modeling language usable by both humans and machines

UML defines several models for representing systems

- The class model captures the static structure
- The state model expresses the dynamic behavior of objects
- The use case model describes the requirements of the user
- The interaction model represents the scenarios and messages flows
- The implementation model shows the work units
- The deployment model provides details that pertain to process allocation

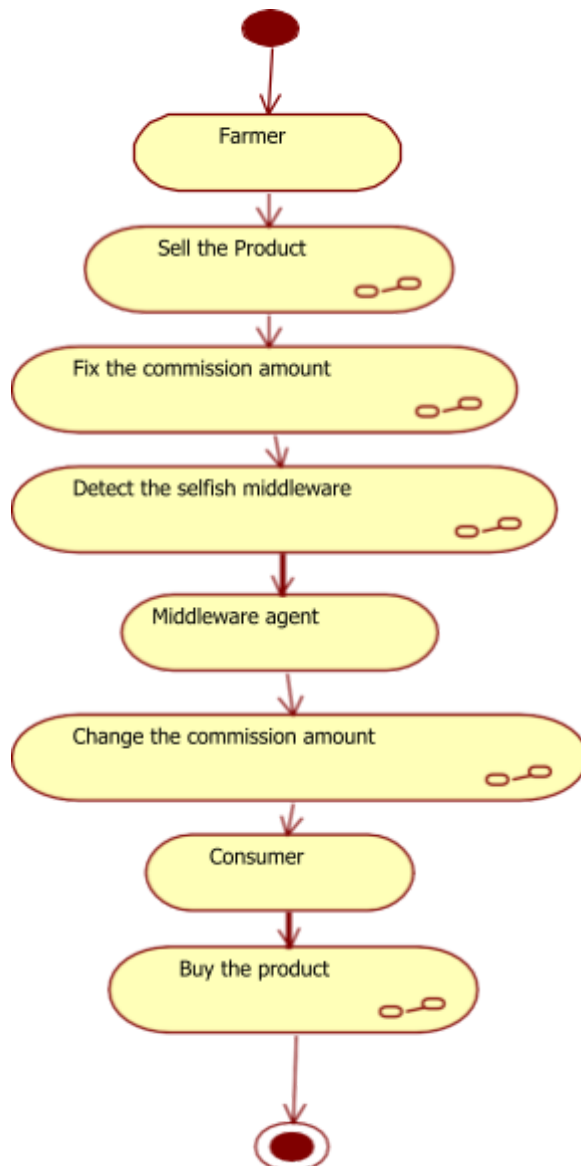
6.1 USECASE DIAGRAM

Use case diagrams overview the usage requirement for system. They are useful for presentations to management and/or project stakeholders, but for actual development you will find that use cases provide significantly more value because they describe “the meant” of the actual requirements. A use case describes a sequence of action that provides something of measurable value to an action and is drawn as a horizontal ellipse.



6.2 ACTIVITY DIAGRAM

Activity diagram are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. The activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. Activity diagram consist of Initial node, activity final node and activities in between.



6.3 SEQUENCE DIAGRAM

Sequence diagram model the flow of logic within your system in a visual manner, enabling you both to document and validate your logic, and commonly used for both analysis and design purpose. Sequence diagram are the most popular UML artifact for dynamic modeling, which focuses on identifying the behavior within your system.

CHAPTER 7

LANGUAGE OVERVIEW

7.1 Introduction to Java

Java is one of the world's most important and widely used computer languages, and it has held this distinction for many years. Unlike some other computer languages whose influence has wearied with passage of time, while Java's has grown.

Application of Java

Java is widely used in every corner of world and of human life. Java is not only used in software but is also widely used in designing hardware controlling software components. There are more than 930 million JRE downloads each year and 3 billion mobile phones run java.

Following are some other usages of Java:

- Developing Desktop Applications

- Web Applications like Linkedin.com, Snapdeal.com etc.

- Mobile Operating System like Android

- Embedded Systems

- Robotics and games etc.

7.2 Features of Java

The prime reason behind creation of Java was to bring portability and security feature into a computer language. Beside these two major features, there were many other features that played an important role in molding out the final form of this outstanding language. Those features are;

1) Simple

Java is easy to learn and its syntax is quite simple, clean and easy to understand. The confusing and ambiguous concepts of C++ are either left out in Java or they have

been re-implemented in a cleaner way.

2) Object Oriented

In java everything is Object which has some data and behavior. Java can be easily extended as it is based on Object Model.

3) Robust

Java makes an effort to eliminate error prone codes by emphasizing mainly on compile time error checking and runtime checking. But the main areas which Java improved were Memory Management and mishandled Exceptions by introducing automatic Garbage Collector and Exception Handling.

4) Platform Independent

Unlike other programming languages such as C, C++ etc. which are compiled into platform specific machines. Java is guaranteed to be write-once, run-anywhere language.

On compilation Java program is compiled into byte code. This byte code is platform independent and can be run on any machine, plus this byte code format also provide security. Any machine with Java Runtime Environment can run Java Programs.

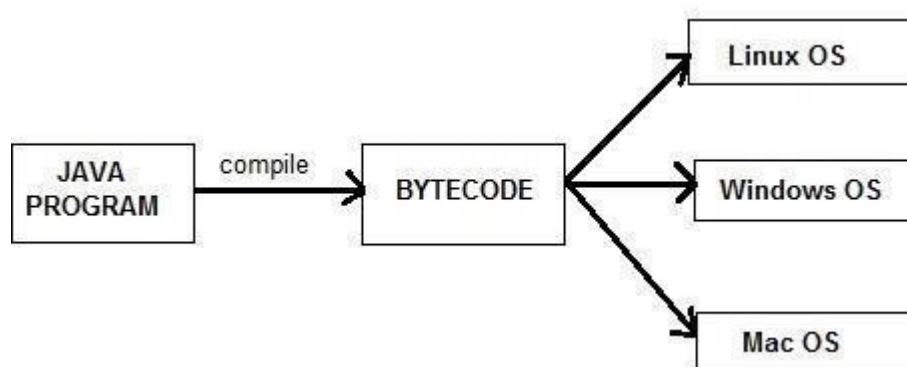


Fig 6.1 Java Compilation

5) Secure

When it comes to security, Java is always the first choice. With java secure features it enables us to develop virus free, temper free system. Java program always runs in Java runtime environment with almost null interaction with system OS, hence it is more secure.

6) Multi-Threading

Java multithreading feature makes it possible to write program that can do many tasks simultaneously. Benefit of multithreading is that it utilizes same memory and other resources to execute multiple threads at the same time, like While typing, grammatical errors are checked along.

7) Architectural Neutral

Compiler generates byte codes, which have nothing to do with a particular computer architecture, hence a Java program is easy to interpret on any machine.

8) Portable

Java Byte code can be carried to any platform. No implementation dependent features. Everything related to storage is predefined, example: size of primitive data types.

10) High Performance

Java is an interpreted language, so it will never be as fast as a compiled language like C or C++. But Java enables high performance with the use of just-in-time compiler.

Collection Framework

Collection framework was not part of original Java release. Collections was added to J2SE 1.2. Prior to Java 2, Java provided ado classes such as Dictionary, Vector, Stack and Properties to store and manipulate groups of objects. Collection framework provides many important classes and interfaces to collect and organize

group of alike objects.

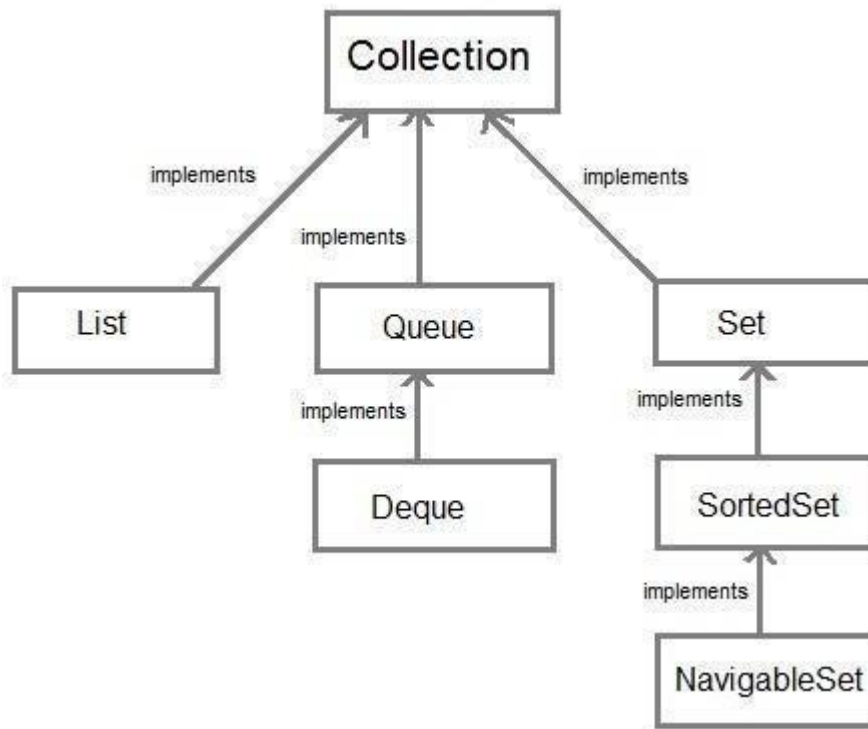


Fig 6.2 Collection Framework

7.2 Java Networking

The term network programming refers to writing programs that execute across multiple devices (computers), in which the devices are all connected to each other using a network.

The `java.net` package provides support for the two common network protocols:

- **TCP:** TCP stands for Transmission Control Protocol, which allows for reliable communication between two applications. TCP is typically used over the Internet Protocol, which is referred to as TCP/IP.
- **UDP:** UDP stands for User Datagram Protocol, a connection-less protocol that allows for packets of data to be transmitted between applications.

This tutorial gives good understanding on the following two subjects:

- **Socket Programming:** This is most widely used concept in Networking and it has been explained in very detail.
- **URL Processing:** This would be covered separately. [Click here to learn about URL Processing in Java language.](#)

7.3 REQUIREMENT ANALYSIS

Requirement analysis, also called requirement engineering, is the process of determining user expectations for a new modified product. It encompasses the tasks that determine the need for analyzing, documenting, validating and managing software or system requirements. The requirements should be documentable, actionable, measurable, testable and traceable related to identified business needs or opportunities and define to a level of detail, sufficient for system design.

1.FUNCTIONAL REQUIREMENTS

It is a technical specification requirement for the software products. It is the first step in the requirement analysis process which lists the requirements of particular software systems including functional, performance and security requirements. The function of the system depends mainly on the quality hardware used to run the software with given functionality.

Usability

It specifies how easy the system must be use. It is easy to ask queries in any format which is short or long, porter stemming algorithm stimulates the desired response for user.

Robustness

It refers to a program that performs well not only under ordinary conditions but

also, under unusual conditions. It is the ability of the user to cope with errors for irrelevant queries during execution.

Security

The state of providing protected access to resource is security. The system provides good security and unauthorized users cannot access the system there by providing high security.

Reliability

It is the probability of how often the software fails. The measurement is often expressed in MTBF (Mean Time Between Failures). The requirement is needed in order to ensure that the processes work correctly and completely without being aborted. It can handle any load and survive and even capable of working around any failure.

Compatibility

It is supported by version above all web browsers. Using any web servers like localhost makes the system real-time experience.

Flexibility

The flexibility of the project is provided in such a way that is has the ability to run on different environments being executed by different users.

Safety

Safety is a measure taken to prevent trouble. Every query is processed in a secured manner without letting others to know one's personal information.

2. NON- FUNCTIONAL REQUIREMENTS

Portability

It is the usability of the same software in different environments. The project can be run in any operating system.

Performance

These requirements determine the resources required, time interval, throughput and everything that deals with the performance of the system.

Accuracy

The result of the requesting query is very accurate and high speed of retrieving information. The degree of security provided by the system is high and effective.

Maintainability

Project is simple as further updates can be easily done without affecting its stability. Maintainability basically defines that how easy it is to maintain the system. It means that how easy it is to maintain the system, analyses, change and test the application. Maintainability of this project is simple as further updates can be easily done without affecting its stability.

CHAPTER 8

RESULTS

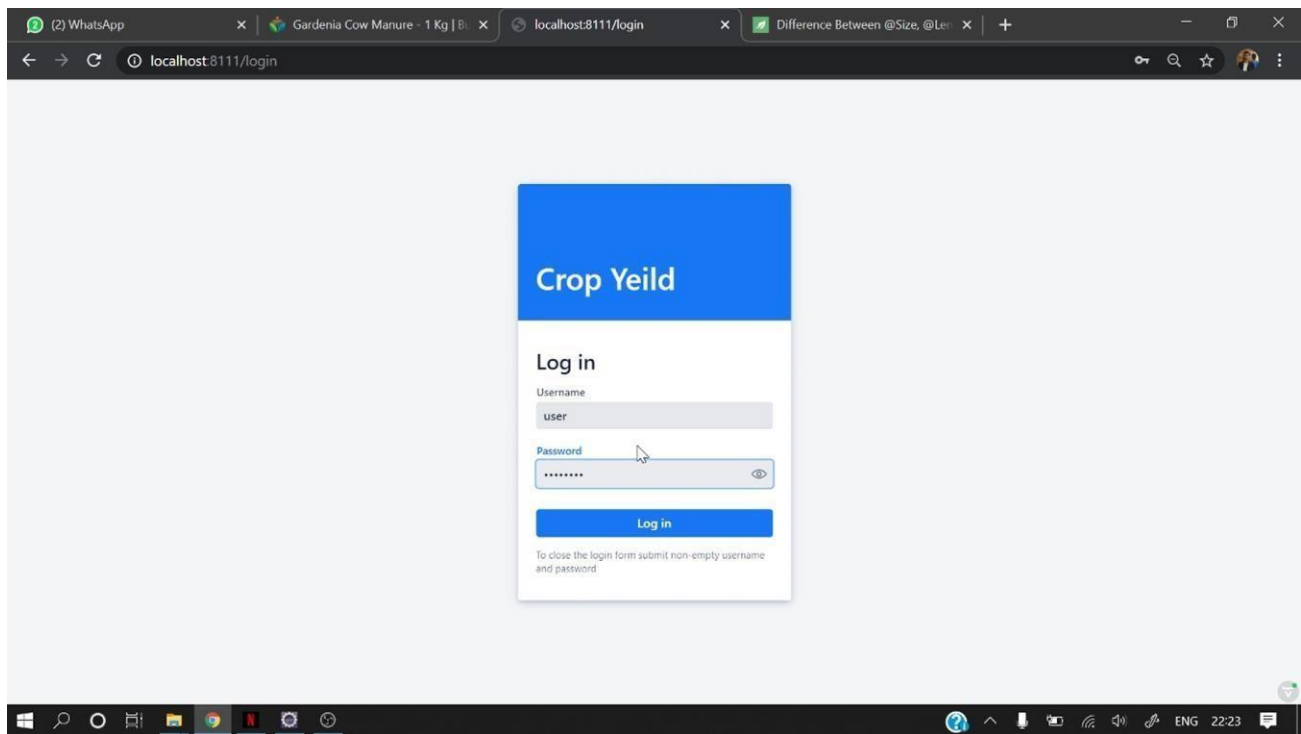


FIG:9.1 login Page

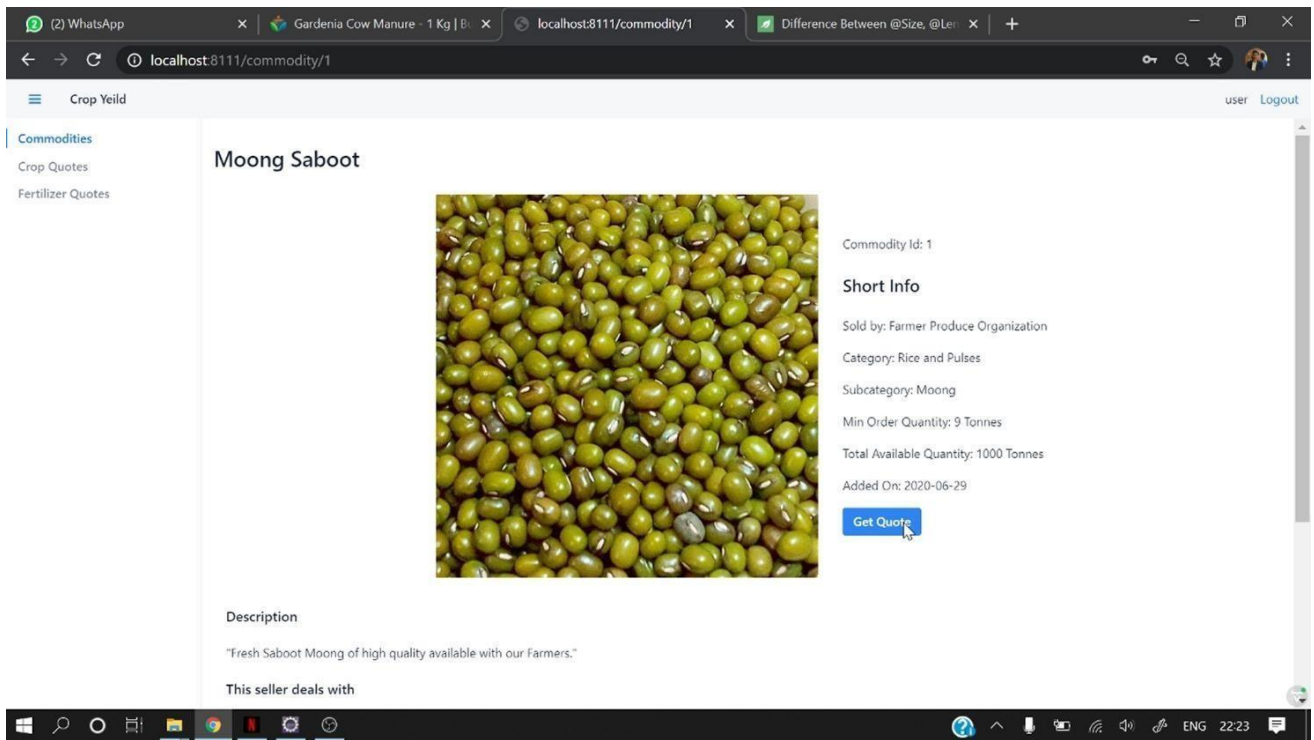


FIG: 9.2 product page

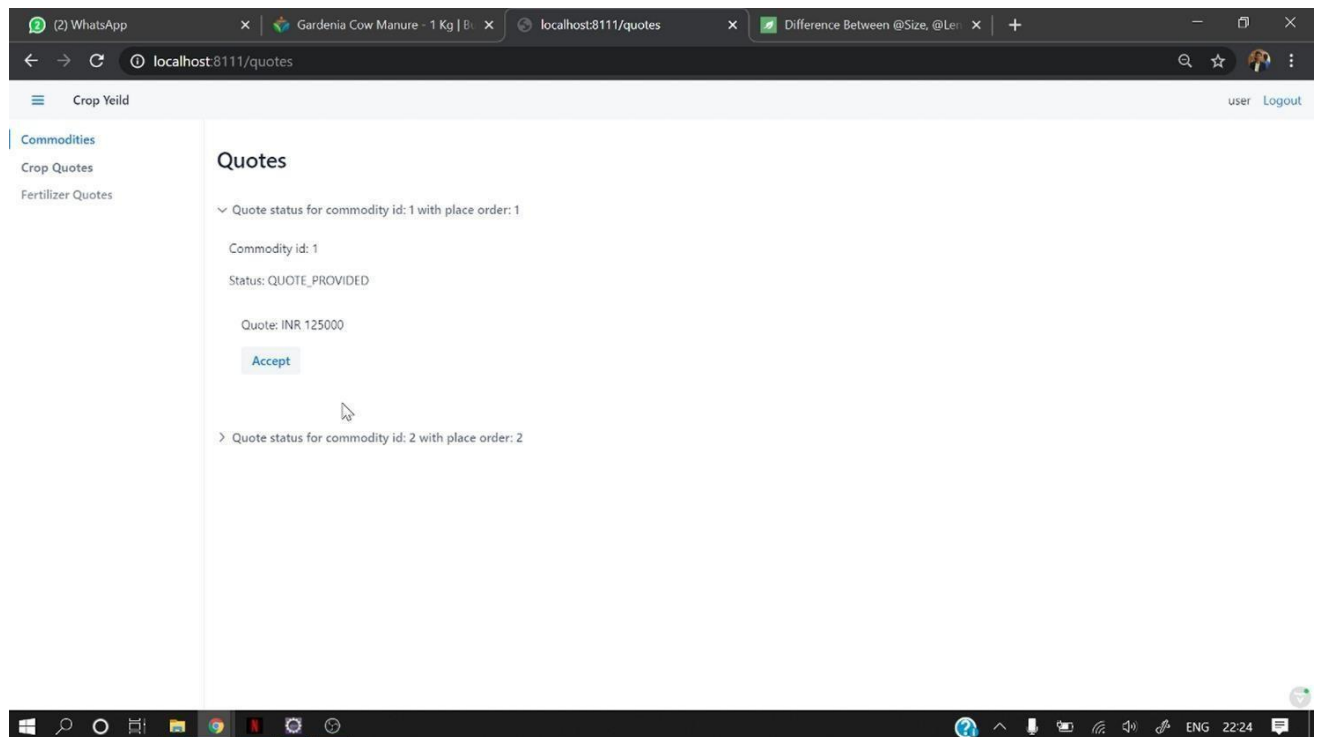


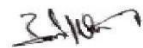
FIG:9.3 quotes page

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APPENDIX

A. Paper Acceptance Mail

 ICOEI 2021	5th International Conference on Trends in Electronics and Informatics (ICOEI 2021) 3-5, June 2021 icoei.com/2021 icoei.conf@gmail.com
<u>Letter of Acceptance</u>	
To M. Prudhvidhar Reddy, K. Raghavendra Reddy, L.Mary Gladence, Mercy Paul Selvan, Refonaa, UG Student, School of Computing, Sathyabama Institute of Science and Technology, Chennai.	
Greetings!!	
On behalf of the SCAD College of Engineering and Technology Tirunelveli, we take great pleasure in inviting you to attend the “5th International Conference on Trends in Electronics and Informatics (ICOEI 2021)” which is going to be held during 3-5, June 2021 at Tirunelveli, India.	
We are glad to inform you that your submitted article entitled “PREDICTION OF CROP YIELD USING MACHINE LEARNING ALGORITHM” [Paper id: ICOEI-0141] has been accepted for publication at ICOEI 2021. We welcome you to join us and share your research and views. This conference will offer you an unforgettable experience in exploring new opportunities.	
We look forward to seeing you at Tirunelveli, India.	
With Thanks,	
Yours’ Sincerely	
	
Dr.P. Ebby Darney, Principal, SCAD College of Engineering and Technology, Tirunelveli, TamilNadu, India.	
Proceedings by  ICOEI Previous Publications 2020 2019 2018 2017	

B. Plagiarism Report

Prudvidhar REPORT

ORIGINALITY REPORT

7 %	6 %	2 %	5 %
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	docplayer.net Internet Source	2 %
2	Submitted to University of Kent at Canterbury Student Paper	1 %
3	www.dezyre.com Internet Source	1 %
4	faculty.kutztown.edu Internet Source	1 %
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6	Submitted to Liverpool John Moores University Student Paper	<1 %
7	en.wikipedia.org Internet Source	<1 %
8	www.slideshare.net Internet Source	<1 %

PREDICTION OF CROP YIELD

USING MACHINE LEARNING ALGORITHM

Abstract— Fertilizer value features a positive practical significance for guiding agricultural production and for notifying the change in market rate of fertilizer to the farmer. This Work is the information analysis technology is employed to update the speed change through notification. The notifications are sent immediately when the speed of the fertilizers modified within the market. Types of land condition. So, the standard of the fertilizers is identified using ranking process. By this process the speed of the inferiority and high-quality fertilizer is additionally notified. The usage of ensemble of classifiers paves a path thanks to make a stronger decision on predictions because of the usage of multiple classifiers.

Computer and information prerequisites for structural gauging are typically a lot higher than those

I. INTRODUCTION

In the world of developing technologies, the success of sharing information will help the agriculturists in realizing and developing their potential. Information sharing is significant and convenient among horticultural specialists authoritatively or casually. Ability to share data implies a receptive outlook among farming specialists. This liberality decides the degree and extent of data sharing. Using web- technologies like html and CSS we build the web application, we create dataset by gathering data from multiple resources and place them in place which is used to predict the price of the fertilizers and results are subjected to non-linear test later priorities are set and rankings are given to the list of fertilizers. Place fertilizers. Place information in our application and share that information to agriculturists whose data is collected and stored in the server. we software to automatically send the updated information to the agriculturists in the form of text message. so that agriculturists no need to go to near-by towns and cities to know the updated information. We will be machine learning algorithms to predict the price of the fertilizers for the next two months. For prediction purpose we will be using Support vector machine (SVM), Naïve Bayes (NB) and K-Nearest Neighbor

(KNN) algorithms to predict the cost of the fertilizers for the further usage of the agriculturists. Further, a ranking process is applied for decision making in order to select the classifiers results.

EXISTING SYSTEM :

in non- industrial nations. and the price of it as much as you can on the calculation of forecast descriptions, as the fact that it is available in the sorrow of the depths of the night, he asks. And so, the process researchers often rely on stingy elementary standards for the purposes of price prediction. The modern form of a price forecast series relies heavily on Ling. Subject to the engravings of description of a series of lakes in the form of the past are removed, and their offices are similarly scattered. Over the past decades, much effort has gone into developing better time series forecasting models. Modelling seasonal series of input data should be less expensive than the price of up-to-date regular consumption. So, it is not the work of the division, which better be, whether it is using the copy of the partition of the hybrid.

Draw Backs:

- Efficiency is low.
- More number of repeated works.

II. LITERATURE REVIEW

[1] To keep up nutrition levels in the soil in case of deficiency, fertilizers are added to soil. The standard issue existing among the Indian agriculturists choose approximate of fertilizers and add them manually. A typical issue among Indian art is that they pick the perfect measure of manure and apply it physically. Extreme or no treatment can harm plant wellbeing and diminish yield. This paper gives overview of various data mining frameworks used on cultivating soil dataset for fertilizer recommendation. It shows how mix the fertilizers with soil to increase the production. All soils are not same so sometimes this technique will decrease the production.

In [2] Agriculture is the most critical application area especially in the developing nations like India. Use of information technology in agriculture can change the situation of decision making and farmers can yield in better way. Data mining plays an important role in decision making on several aspects with agriculture field. It examines about role of data mining in the farming field and their related work but few authors in related to agriculture domain. This archive covers crafted by numerous creators in a single spot, so it is vital for the

applications in taking care of the several agriculture problems. This archive covers crafted by numerous creators in a single spot, so it is vital for specialists to get the current information of the data mining system and its application in the horticultural area.

In [3]The idea is to calculate the measure to be applied depend on the blanked proposal of the crop of interest. This application works depends on the product chosen by the farmer and that is taken as input, thus providing the farmers. Farming lands will increase and food production will be increase due to this we can produce food to everyone in world. It leads to lack of growth and there will be no land to construct buildings due to restriction on deforestation.

Here the [4] Represent an Agriculture is a field that has been lacking from adaption of technologies and their advancements. Indian agriculturists should be up to the mark with the universal procedures. Machine learning is a native concept that can be applied to every field on all inputs and outputs. It has effectively settled its ability over ordinary calculations of software engineering and measurements. Machine learning calculations have improved the exactness of artificial intelligence machines including sensor frameworks utilized in farming. This paper has evaluated the different uses of machine learning in the farming area. It additionally gives a knowledge into the inconveniences looked by Indian farmers and how they can be resolved using these procedures. The development of technology in agriculture it will take less time to produce more crop. The technology will give more crop but there in-equality in crop.

In [5] Throughout the following decades humanity will request more food from less land and water assets. This investigation evaluates the food production effects of four elective advancement situations from the Millennium Ecosystem Assessment. Farming lands will increase and food production will be increase due to this we can produce food to in world. It leads to lack of development. And there will be no land to construct buildings due to restriction on deforestation.

In [6] Rural structure creates information that enables the research to consider complex issues or take educated farming choices. The rich history of this science represents the decent variety of frameworks and scales over which they work and have been contemplated.

III. PROPOSED WORK

In proposed system, the data analysis technology is used to update the rate change through notification. The Notifications are sent immediately when the rate of the

fertilizer is changed in the market. Different types of land condition. The quality of the fertilizers is identified using ranking process. By this process the rate of the low quality and high-quality fertilizer is also notified. The usage of e of Groups of classifiers to lay a path way to make a better decision on predictions due to the usage of multiple classifiers. Further, a ranking process is applied for decision making in order to select the classifiers results. This system is used to predict the cost of the fertilizers for further. This project uses Ensemble of classifiers such as SVM, NAÏVE BAYES, KNN or hybrid classifier. In addition, this project uses Ranking techniques.

Advantages :

- o Useful to people far away from towns/cities.
- o Better time efficiency.
- o Reduction of repeated work.

IV. ALGORITHMUSED

1) K-Nearest Neighbor (KNN) Algorithm:

Mainly is used for to solve the problems for understanding easily. Bayes theorem provides a way of calculating posterior probability $P(A/B)$ from $P(B)$, $P(A)$ and $P(B/A)$. K-NN is a type of instance-based learning, or lazy learning, where the function is only approximated locally and all computation is deferred until classification. Shows the size of product and about the index of product. The values are taken from a set of objects for which the class (for k -NN classification) or the object property value (for k -NN regression) is known. Regression Means predicting the Quantity.

- Classification Means See a discrete Product label.
- This algorithm can be used in Speech, Detection, Image, Video
- It can be used as both classifications and regression.

2) NAIVE BAYES ALGORITHM :

Bayes Theorem is used for checking the probability of Prediction value for Crops and Fertilizers. That User from Admin. It is an additional evidence and also for

Updating the prediction and Feedback.

Naïve Bayes model is easy to build and particularly and $P(B/A)$

$$P(A/B) = P(B/A) P(A)/P(B)$$

- $p(a/b)$ = posterior i.e., giving a chance to given class.
- $p(b/a)$ likelihood predictor given a chance from training.
- $p(a)$ =likelihood class(quantity).
- $p(b)$ = remains constant. i.e.,chance of evidence.

3) SVM-SUPPORT-VECTOR-MACHINE

- It is used to solve the problems in prediction value.
- It solves Both Regression and Classification Problems.
- There are 2 kinds of SVM classifiers:
 - Linear SVM Classifier
 - non-linear SVM classifier

A. LINEAR CLASSIFIER:

It is a Decision-Making Classifier. To identify the Products Either crops and Fertilizers. Belongs to a class or a group of Products.

- Used for classified for the two classes by using a single line.
- It can be solved practical problems between ADMIN AND USER
- It is termed as the separate table data

B. NON-LINEAR CLASSIFIER:

It is Continuous predicted value. That gives imbalance data to user from Admin. And also gives the available stock Prediction either the stock is available or not. Solves the Errors in Linear Classification and in prediction Period.

Fig 2: User login

- User should Register before login and choose the product (Fertilizer or Crops) As shown in Fig:2
- Products should equal to weather and for soil
- SDR Get the data on chosen product
- To know economic rate of product
- Send Request to Admin

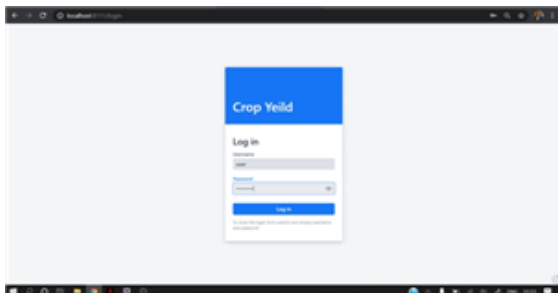
Fig 2.1: Admin Login

- Admin login in Application.
- View the previous information of Product
- Update the information on Product as shown in the Fig:2.1
- Delete The previous information
- Update the product to User

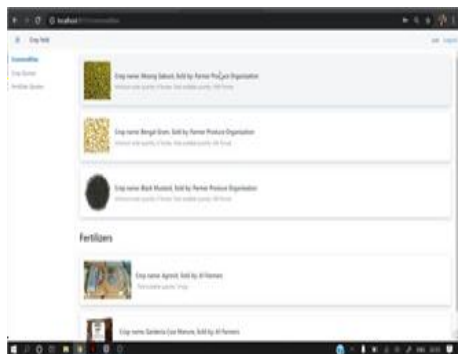
- Only Application is Interface between the User and Admin

V. RESULTS AND DISCUSSION

- Here in this project, we are going to build a platform between a farmer who want to sell his crop and the farmer who want to buy the crop.
- So that there will be no interface in between them. And in the same way they can also sell the fertilizers which is already opened and which cannot be returned to the shop.
- So, if there is another farmer who wants to buy only half packet of the fertilizer these will be more helpful.
- And due to this we can save time and journey cost to the farmer who wants to buy the fertilizer and at the same time the farmer who is selling the fertilizer will be saving the money.
- By selling the remaining fertilizer which will be not use full for him and cannot return it to the shop.



Here in this image is showing the login page where both the buyers and sellers can create their own. By this they can communicate with each other and make a business among them.



This is the page they will be going when the customer login to their account and here they will be seeing the fertilizers and the crops which on the list to be sell and whatever the fertilizer or the crop they want just click on the Manures or crop and can talk to another farmer and can make the business between them.

This is how the communication between one farmer to another will take place. They sell and buy the fertilizers and the crop by arrange with each other.

VI. CONCLUSION

- This open attitude determines the degree and scope of information sharing. Big data analysis technology can effectively improve the performance of fertilizer value updation.
- This project proposes a novel intelligent system for agricultural fertilizer price prediction based on fertilizer cost. The key idea is to use ensemble of classifiers for prediction.
- The usage of ensemble of classifiers paves a path way to make a better decision on predictions due to the usage of multiple classifiers.
- Further, a ranking process is applied for decision making in order to select the classifiers results. This system is used to predict the cost of the fertilizers for further.
- Big data analysis technology can effectively Improve the performance of fertilizer value updation.
- This project proposes a novel intelligent system for agricultural fertilizer price prediction based on fertilizer cost
- The idea is to use group of classifiers for prediction
- The usage of assemble of classifiers paves a path way to make a better decision on prediction due to the usage multiple classifiers. Further a ranking process is applied for decision making in order to select the classifier results. This system is used to predict the cost of the fertilizers for further.

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D.SOURCE CODE

```
package in.crop.yeild.views;

import static in.crop.yeild.constants.PlaceOrderStatus.SUBMITTED;

import java.util.Optional;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.security.core.context.SecurityContextHolder;

import com.vaadin.flow.component.UI;
import com.vaadin.flow.component.button.Button;
import com.vaadin.flow.component.button.ButtonVariant;
import com.vaadin.flow.component.formlayout.FormLayout;
import com.vaadin.flow.component.notification.Notification;
import com.vaadin.flow.component.orderedlayout.VerticalLayout;
import com.vaadin.flow.component.textfield.EmailField;
import com.vaadin.flow.component.textfield.IntegerField;
import com.vaadin.flow.component.textfield.TextArea;
import com.vaadin.flow.component.textfield.TextField;
import com.vaadin.flow.data.binder.Binder;
import com.vaadin.flow.data.binder.ValidationException;
import com.vaadin.flow.data.validator.EmailValidator;
import com.vaadin.flow.router.BeforeEvent;
import com.vaadin.flow.router.HasUrlParameter;
import com.vaadin.flow.router.Route;

import in.crop.yeild.domain.FertilizerDetails;
import in.crop.yeild.domain.FertilizerPlaceOrder;
import in.crop.yeild.repository.FertilizerPlaceOrderRepository;
import in.crop.yeild.repository.FertilizerRepository;
import lombok.extern.slf4j.Slf4j;

@SuppressWarnings("serial")
@Route(value = "fertilizer-place-order", layout = AppView.class)
@Slf4j
public class FertilizerPlaceOrderView extends VerticalLayout implements
HasUrlParameter<Integer> {

    @Autowired
    private FertilizerRepository cropDetailsRepository;

    @Autowired
    private FertilizerPlaceOrderRepository placeOrderRepository;

    final IntegerField commodityId = new IntegerField("Commodity Id");
    final TextField quantity = new TextField("Please specify the quantity you
wish to order upto tonnes:");
    final TextField location = new TextField("Please specify the city and state
where you want to unload:");
```

```

final TextField name = new TextField("Please write your name: ");
final TextField mobileNumber = new TextField("Your Mobile number: ");
final EmailField email = new EmailField("Your email id:");
final TextArea additionalInfo = new TextArea("Please add any additional
note if you wish to:");

```

```

@Override
public void setParameter(BeforeEvent event, Integer idValue) {
    log.info("The id is {}", idValue);
    final Optional<FertilizerDetails> cropDetails =
cropDetailsRepository.findById(idValue);
    if (cropDetails.isPresent()) {
        final FertilizerDetails commodity = cropDetails.get();

        final FormLayout form Layout = new FormLayout();
        final Binder<FertilizerPlaceOrder> binder = new
Binder<>(FertilizerPlaceOrder.class);
        binder.bindInstanceFields(this);

        commodityId.setValue(commodity.getId());
        commodityId.setRequiredIndicatorVisible(true);
        binder.forField(commodityId)
            .asRequired()
            .bind(FertilizerPlaceOrder::getCommodityId,
FertilizerPlaceOrder::setCommodityId);

        quantity.setPlaceholder("Ex: 1000 tonnes");
        quantity.setRequiredIndicatorVisible(true);
        binder.forField(quantity)
            .asRequired()
            .bind(FertilizerPlaceOrder::getQuantity,
FertilizerPlaceOrder::setQuantity);

        location.setPlaceholder("Ex: Agra, Uttar Pradesh");
        location.setRequiredIndicatorVisible(true);
        binder.forField(location)
            .asRequired()
            .bind(FertilizerPlaceOrder::getLocation,
FertilizerPlaceOrder::setLocation);

        name.setPlaceholder("Ex: John Doe");
        name.setRequiredIndicatorVisible(true);
        binder.forField(name)
            .asRequired()
            .bind(FertilizerPlaceOrder::getName,
FertilizerPlaceOrder::setName);

        mobileNumber.setPlaceholder("Ex: 00000000");
        mobileNumber.setRequiredIndicatorVisible(true);
        binder.forField(mobileNumber)

```

```

        .asRequired()
        .bind(FertilizerPlaceOrder::getMobileNumber,
FertilizerPlaceOrder::setMobileNumber);

        email.setPlaceholder("Ex: abc@cropeyild.com");
        email.setRequiredIndicatorVisible(true);
        binder.forField(email)
            .withValidator(new EmailValidator("Invalid Email"))
            .asRequired()
            .bind(FertilizerPlaceOrder::getEmail,
FertilizerPlaceOrder::setEmail);

        additionalInfo.setPlaceholder("Ex: Please let me know the
delivery time..");
        additionalInfo.setRequiredIndicatorVisible(true);
        binder.forField(additionalInfo)
            .asRequired()
            .bind(FertilizerPlaceOrder::getAdditionalInfo,
FertilizerPlaceOrder::setAdditionalInfo);

        formLayout.add(
            commodityId,
            quantity,
            location,
            name,
            mobileNumber,
            email,
            additionalInfo
        );

        formLayout.getStyle().set("max-width", "80%");

        final Button submit = new Button("Submit");

        submit.addThemeVariants(ButtonVariant.LUMO_PRIMARY);
        submit.addClickListener(listner -> {
            log.info("Submit button clicked");
            final FertilizerPlaceOrder placeOrder = new
FertilizerPlaceOrder();
            try {
                binder.writeBean(placeOrder);
                log.info(placeOrder.toString());

                placeOrder.setUser(SecurityContextHolder.getContext().getAuthentication().get
Name());

                placeOrder.setPlaceOrderStatus(SUBMITTED);
                log.info("Saved data: " +
placeOrderRepository.save(placeOrder));
                Notification.show("Submitted successfully");
                UI.getCurrent().navigate("commodities");
            }
        });
    }
}

```

```
        } catch (ValidationException e) {
            e.printStackTrace();
        }
    });

    add(formLayout, submit);

    setAlignSelf(Alignment.CENTER, formLayout, submit);
}
}
```