

Physical Activity and Recovery Patterns During the COVID-19 Pandemic

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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(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC

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BONAFIDE CERTIFICATE

This is to certify that this project report is the bonafide work of **NEELESH PRATAP SINGH** (Reg. No. 37110497) and **PRADEEP KUMAR** (Reg. No. 37110582) who carried out the project entitled "**Physical Activity and Recovery Patterns During the COVID-19 Pandemic**" under my supervision from **November 2020 to March 2021**.

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DECLARATION

I **NEELESH PRATAP SINGH** hereby declare that the Project Report entitled **“Physical Activity and Recovery Patterns During the COVID-19 Pandemic”** is done by me under the guidance **Dr. Ashok Kumar, B.E., M.TECH**, Department of Computer Science and Engineering at Sathyabama 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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ABSTRACT

A coronavirus is a kind of common virus that causes an infection in your nose, sinuses, or upper throat. Most coronaviruses aren't dangerous. In early 2020, after a December 2019 outbreak in China, the World Health Organization identified SARS-CoV-2 as a new type of coronavirus. It is type of project we are making with the help of python and Jupyter notebook. We are going to Study about the Corona Report of India using the dataset downloaded. We will train our model with the data available.

After studying the report we will produce a visualization of the pandemic and predict the upcoming cases in city or state. The outbreak quickly spread around the world. COVID19 is a disease caused by SARS-CoV-2 that can trigger what doctors call a respiratory tract infection. It can affect your upper respiratory tract (sinuses, nose, and throat) or lower respiratory tract (windpipe and lungs).

To survey the pertinent literature sources, we executed a search on both Kaggle (through the Pubmed search engine) and Scopus Elsevier databases; the inclusion criteria are listed as :Deaths, Recoveries, Total cases and etc.

The structural keywords were selected because they are likely mentioned in either the title or the abstract in papers focusing on any of the above anatomical sub-systems or more particular interventions. Relatedly, the pandemic and accompanying social restrictions may deprive individuals of social support and adaptive coping strategies, thereby potentially elevating ED risk and symptoms by removing protective factors.

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CHAPTER - 1

INTRODUCTION

1.1 INTRODUCTION OF MODEL

The system which we want to produce helps you study the effects of this pandemic throughout the country. I know there are different web sites available on internet which helps you understand the conditions of a particular state or the whole country.

But our system helps in producing a very detailed and a visualized study of the whole corona report. Not only presenting the current scenario, but also capable of predicting the future scenarios of different states and city.

The coronavirus disease 2019 (COVID-19) pandemic has deeply disrupted daily life across the globe, with profound effects on mental and physical health (Holmes et al., 2020). Accordingly, research on the health effects of the COVID-19 pandemic has been identified as an important priority (Holmes et al., 2020).

Eating disorder (ED) behaviors are likely to be exacerbated by the pandemic through multiple pathways, particularly among vulnerable groups, including those with body image and eating concerns. Thus, the pandemic may precipitate the development of ED behaviors among some and exacerbate existing pathology among others.

1.2 Disruptions and restrictions to daily activities and movements

In many countries, the COVID-19 pandemic has incurred restrictions in daily activities and movements with particularly constraining restrictions in areas of Europe such as Italy and France. For example, work and studying activities have been shifted to the home as much as possible, and all non-essential travel put on hold. Limitations have been placed on physical activity, with individuals allowed outside briefly for physical activity or asked to stay indoors at all times. Such constraints may limit access to regular physical activity, which, in combination with disrupted eating patterns, may lead to heightened shape and weight concerns and disordered eating (Haines, Kleinman, Rifas-Shiman, Field, & Austin, **2010**). These restrictions have substantial consequences for eating, physical activity, and sleep patterns, each of which may affect or increase the risk of ED behaviors.

Regarding eating patterns, the absence of clear routines and markers of time and space, such as mealtimes or separations between home and work areas, may increase risk of ED behaviors by removing structures that were supporting eating plans and, in turn, leading to increased snacking and grazing. Examining the ways in which the COVID-19 pandemic may increase ED risk and symptoms by negatively affecting protective or buffering factors would be an important contribution. In addition, however, exploring ways in which resilience and protective factors (e.g., removal from stressful social circumstances or decreased daily hassles due to confinement or practice of mind–body activities) may also successfully buffer individuals from ED risk would be another interesting avenue of investigation.

The restrictions placed on movement and disruption to routines may also negatively impact access to care. The COVID-19 pandemic has the potential to increase need for healthcare services whilst simultaneously reducing capacity for traditional, face-to-face treatment options, resulting in greater reliance on telehealth. These difficulties in access to care may exacerbate existing health inequities, and negatively affect those for whom the pandemic has reduced financial resources.

CHAPTER - 2

Literature Survey

2.1 Literature Survey

The spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has already taken on pandemic proportions, affecting over 100 countries in a matter of weeks. A global response to prepare health systems worldwide is imperative. Although containment measures in China have reduced new cases by more than 90%, this reduction is not the case elsewhere, and Italy has been particularly affected. There is now grave concern regarding the Italian national health system's capacity to effectively respond to the needs of patients who are infected and require intensive care for SARS-CoV-2 pneumonia.

To survey the pertinent literature sources, we executed a search on both Kaggle (through the Pubmed search engine) and Scopus Elsevier databases; the inclusion criteria are listed as : Deaths, Recoveries, Total cases and etc.

The structural keywords were selected because they are likely mentioned in either the title or the abstract in papers focusing on any of the above anatomical sub-systems or more particular interventions.

2.2 COVID-19 and Italy: what next ?:

Spread of coronavirus disease 2019 (COVID-19) is becoming unstoppable and has already reached the necessary epidemiological criteria for it to be declared a pandemic, having infected more than 100 000 people in 100 countries.¹ Therefore, a coordinated global response is desperately needed to prepare health systems to meet this unprecedented challenge. Countries that have been unfortunate enough to have been exposed to this disease already have, paradoxically, very valuable lessons to pass on. Although the containment measures implemented in China have—at least for the moment—reduced new cases by more than 90%, this reduction is not the case in other countries, including Italy and Iran. We present the following predictions to prepare our political leaders—those who bear the greatest responsibility for national health systems and the government at the regional level, as well as local health

authorities—for what is predicted to happen in the days and weeks to come. They can then implement measures regarding staff resources and hospital beds to meet the challenges of this difficult time.

The most difficult prediction is the maximum number of infected patients that will be reached in Italy and, most importantly, the maximum number of patients who will require intensive care unit admission

2.2.1 What are the symptoms of the coronavirus (COVID-19) infection?

The CDC says you may have coronavirus if you have these symptoms or combination of symptoms:

Fever or chills.

Cough.

Shortness of breath or difficulty breathing.

Tiredness.

Muscle or body aches.

Headaches.

New loss of taste or smell.

Sore throat.

Congestion or runny nose.

Nausea or vomiting.

Diarrhea.

Additional symptoms are possible.

Symptoms may appear between two and 14 days after exposure to the virus. Children have similar, but usually milder, symptoms than adults. Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes are at higher risk of more serious complication from COVID-19.

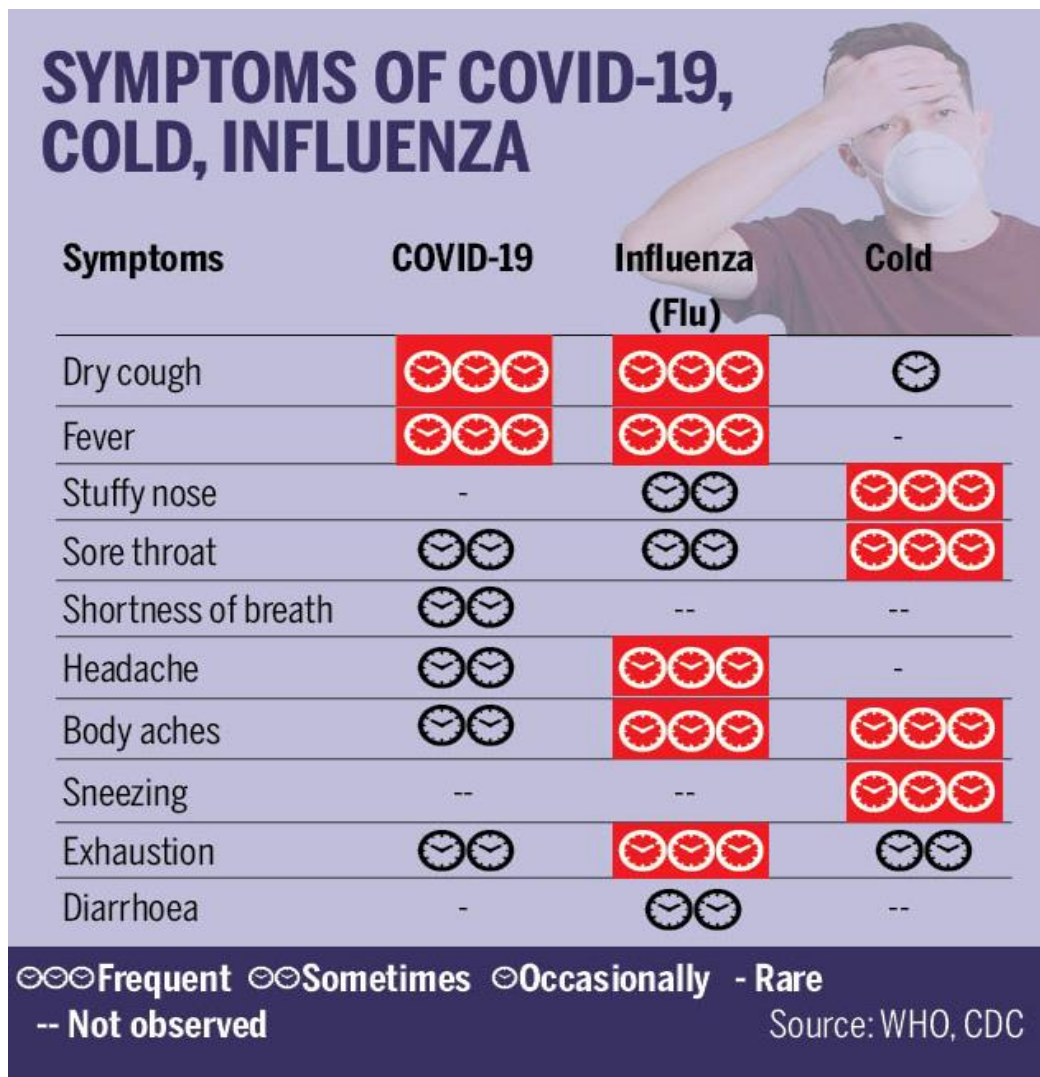


Fig 2.1 -: Symptoms of covid-19

2.3 Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case

Epidemic outbreaks are a special case of supply chain (SC) risks which is distinctively characterized by a long-term disruption existence, disruption propagations (i.e., the ripple effect), and high uncertainty. We present the results of a simulation study that opens some new research tensions on the impact of COVID-19 (SARS-CoV-2) on the global SCs.

First, we articulate the specific features that frame epidemic outbreaks as a unique type of SC disruption risks. Second, we demonstrate how simulation-

based methodology can be used to examine and predict the impacts of epidemic outbreaks on the SC performance using the example of coronavirus COVID-19 and anyLogistix simulation and optimization software.

2.4 The forecasting of dynamical Ross River virus outbreaks: Victoria, Australia

Ross River virus (RRV) is Australia's most epidemiologically important mosquito-borne disease. During RRV epidemics in the State of Victoria (such as 2010/11 and 2016/17) notifications can account for up to 30% of national RRV notifications. However, little is known about factors which can forecast RRV transmission in Victoria. We aimed to understand factors associated with RRV transmission in epidemiologically important regions of Victoria and establish an early warning forecast system. Furthermore, we highlight in certain regions the complexity of RRV transmission where additional epidemiological information is needed to accurately predict RRV activity. Our findings have been applied to produce a Ross River virus Outbreak Surveillance System (ROSS) to aid in public health decision making in Victoria.

2.4.1 Assessing Risk Factors for Severe COVID-19 Illness

COVID-19 can affect anyone, and the disease can cause symptoms ranging from mild to very severe. For some other illnesses caused by respiratory viruses (such as influenza), some people may be more likely to have severe illness than others because they have characteristics or medical conditions that increase their risk. These are commonly called "risk factors." Examples include older age or having certain underlying medical conditions. Potential risk factors that have been identified to date include:

Age

Race/ethnicity

Gender

Some medical conditions

Use of certain medications

Poverty and crowding

Certain occupations

Pregnancy

CDC is working to identify risk factors for severe COVID-19 illness through a variety of investigations, some of which are described below. These investigations include adults and children and examine severe illness resulting in hospitalizations and intensive care unit (ICU) admissions. As we continue to investigate risk factors for severe illness, we will update this webpage with new findings and new investigations.

2.4.2 How to Protect Yourself & Others

Wear a mask

Everyone 2 and older should wear masks in public.

Masks should be worn in addition to staying at least 6 feet apart, especially around people who don't live with you.

If someone in your household is infected, people in the household should take precautions including wearing masks to avoid spread to others.

Wash your hands or use hand sanitizer before putting on your mask.

Wear your mask over your nose and mouth and secure it under your chin.

Stay 6 feet away from others

Inside your home: Avoid close contact with people who are sick.

If possible, maintain 6 feet between the person who is sick and other household members.

Outside your home: Put 6 feet of distance between yourself and people who don't live in your household.

Remember that some people without symptoms may be able to spread virus.

Stay at least 6 feet (about 2 arm lengths) from other people.

Keeping distance from others is especially important for people who are at higher risk of getting very sick.

Avoid crowds

Being in crowds like in restaurants, bars, fitness centers, or movie theaters put you at higher risk for COVID-19.

Avoid poorly ventilated spaces

Avoid indoor spaces that do not offer fresh air from the outdoors as much as possible. If indoors, bring in fresh air by opening windows and doors, if possible. Hands wash light icon

Wash your hands often

Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.

It's especially important to wash:

Before eating or preparing food

Before touching your face

After using the restroom

After leaving a public place

After blowing your nose, coughing, or sneezing

After handling your mask

If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.

Avoid touching your eyes, nose, and mouth with unwashed hands.

box tissue light icon

Cover coughs and sneezes

Always cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow and do not spit.

Throw used tissues in the trash.

Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

Spray bottle icon

Clean and disinfect

Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.

If surfaces are dirty, clean them. Use detergent or soap and water prior to disinfection.

Monitor Your Health Daily

Be alert for symptoms. Watch for fever, cough, shortness of breath, or other symptoms of COVID-19.

Especially important if you are running essential errands, going into the office or workplace, and in settings where it may be difficult to keep a physical distance of 6 feet.

Take your temperature if symptoms develop.

Don't take your temperature within 30 minutes of exercising or after taking medications that could lower your temperature, like acetaminophen.



Fig 2.2 -: Precautions to be taken

CHAPTER 3

Experimental or materials and methods; Algorithms used

3.1 EXISTING SYSTEM

It is type of project we are making with the help of python and Jupyter notebook. We are going to Study about the Corona Report of India using the dataset downloaded. We will train our model with the data available.

After studying the report we will produce a visualization of the pandemic and predict the upcoming cases in city or state.

Kaggle website is being used to get the daily updated data of area which we want. Key components are Python, Jupyter notebook, Machine learning models.

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

Python is an interpreted, high-level and general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming. Python is often described as a "batteries included" language due to its comprehensive standard library.

3.2 AIM OF PROJECT

The system which we want to produce helps you study the effects of this pandemic throughout the country.

I know there are different web sites available on internet which helps you understand the conditions of a particular state or the whole country.

But our system helps in producing a very detailed and a visualized study of the whole corona report. Not only presenting the current scenario, but also capable of predicting the future scenarios of different states and city.

3.3 OBJECTIVES

The proposed model related to “Covid” is based on the new technologies which makes the whole process efficient. It is going to be very important and profitable for the whole society especially for the victim and for the corona affected person. This system will provide more accurate information like information of the incident, cases going in state or city etc. Which will be very helpful for the persons get rid of corona and take precautions.

3.4 SCOPE

The system will help to produce to study the effects of this pandemic throughout the country. It will keep a Graphical Representation and predict about the coming future cases. Our system helps in producing a very detailed and a visualized study of the whole corona report. Not only presenting the current scenario, but also capable of predicting the future scenarios of different states and city.

3.5 ADVANTAGES

- Inform about the future cases.
- Keep us alert and give us about the current situation going on.
- Preventions and steps to be safe.

3.6 REQUIREMENT SPECIFICATION

This proposed software runs effectively on a computing system that has the minimum requirements. Undertaking all the equipment necessities are not satisfied but rather exist in their systems administration between the customer's

machines already. So the main need is to introduce appropriate equipment for the product.

The requirements are split into two categories, namely:

Software Requirements

The basic software requirements to run the program are:

- i. Microsoft Windows XP, Windows 7, Windows 10
- ii. MySQL
- iii. PHP/HTML, CSS, JavaScript
- iv. Browser e.g. Mozilla Firefox, Safari, chrome, etc.
- v. Local Server e.g. WAMP Server, XAMPP.

Hardware Requirements

The basic hardware required to run the program are:

- i. Hard disk of 20 GB
- ii. System memory (RAM) of 512 MB
- iii. I3 processor-based computer or higher.

3.7 A comparative study on predicting influenza outbreaks using different feature spaces

An accurate forecasting of outbreaks of influenza-like illness (ILI) could support public health officials to suggest public health actions earlier. We investigated the performance of three different feature spaces in different models to forecast the weekly ILI rate in Syria using EWARS data from World Health Organization (WHO). Time series feature space was first used and we applied the seven models which are Naïve, Average, Seasonal naïve, drift, dynamic harmonic regression (Dhr), seasonal and trend decomposition using loess (STL) and TBATS. The Second feature space is like some state-of-the-art, which we named

53-weeks-before_52-first-order-difference feature space. The Existing researches on modeling influenza epidemic falls into two categories: Mechanistic and Statistical models.

3.7.1 COVID-19 lockdown

On 24 March 2020, the Government of India under Prime Minister Narendra Modi ordered a nationwide lockdown for 21 days, limiting movement of the entire 1.38 billion or 138 Crore population of India as a preventive measure against the COVID-19 pandemic in India. It was ordered after a 14 hour voluntary public curfew on 22 March, followed by enforcement of a series of regulations in the country's COVID-19 affected regions. The lockdown was placed when the number of confirmed positive coronavirus cases in India was approximately 500.

As the end of the first lockdown period approached, state governments and other advisory committees recommended extending the lockdown. The governments of Odisha and Punjab extended the state lockdowns to 1 May. Maharashtra, Karnataka, West Bengal and Telangana followed suit. On 1 May, the Government of India extended the nationwide lockdown further by two weeks until 17 May. The Government divided all the districts into three zones based on the spread of the virus green, red and orange with relaxations applied accordingly.



Fig 3.1 -:Covid Impact

3.8 ML Models

3.8.1 Binary Classification Model

ML models for binary classification problems predict a binary outcome (one of two possible classes). To train binary classification models, Amazon ML uses the industry-standard learning algorithm known as logistic regression. There are many metrics that can be used to measure the performance of a classifier or predictor; different fields have different preferences for specific metrics due to different goals. An important distinction is between metrics that are independent of how often each category occurs in the population (the prevalence), and metrics that depend on the prevalence – both types are useful, but they have very different properties.

Examples of Binary Classification Problems

"Is this email spam or not spam?"

"Will the customer buy this product?"

Popular algorithms that can be used for binary classification include:

Logistic Regression

k-Nearest Neighbors

Decision Trees

Support Vector Machine

Naive Bayes

3.8.2 Multiclass Classification Model

ML models for multiclass classification problems allow you to generate predictions for multiple classes (predict one of more than two outcomes). For training multiclass models, Amazon ML uses the industry-standard learning algorithm known as multinomial logistic regression. A classification task with more than two classes; e.g., classify a set of images of fruits which may be oranges, apples, or pears. Multi-class classification makes the assumption that each sample is

assigned to one and only one label: a fruit can be either an apple or a pear but not both at the same time.

Examples of Multiclass Problems

"Is this product a book, movie, or clothing?"

"Is this movie a romantic comedy, documentary, or thriller?"

3.8.3 Regression Model

ML models for regression problems predict a numeric value. For training regression models, Amazon ML uses the industry-standard learning algorithm known as linear regression. In statistical modeling, regression analysis is a set of statistical processes for estimating the relationships between a dependent variable (often called the 'outcome variable') and one or more independent variables (often called 'predictors', 'covariates', or 'features'). The most common form of regression analysis is linear regression, in which one finds the line (or a more complex linear combination) that most closely fits the data according to a specific mathematical criterion. For example, the method of ordinary least squares computes the unique line (or hyperplane) that minimizes the sum of squared differences between the true data and that line (or hyperplane).

Examples of Regression Problems

"What will the temperature be in Seattle tomorrow?"

"For this product, how many units will sell?"

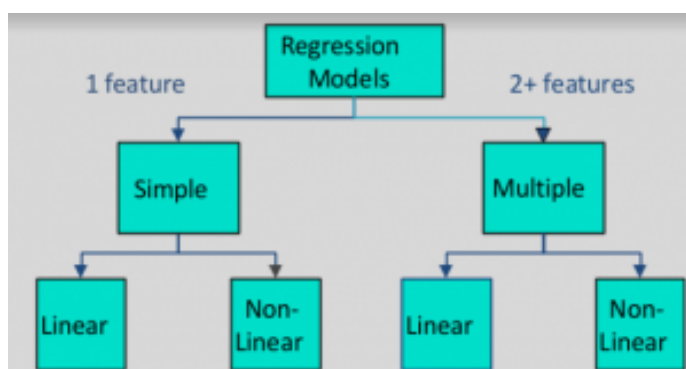


Fig 3.2 -: Regression Model

CHAPTER 4

SYSTEM ARCHITECTURE

4.1 DESCRIPTION OF DIAGRAM

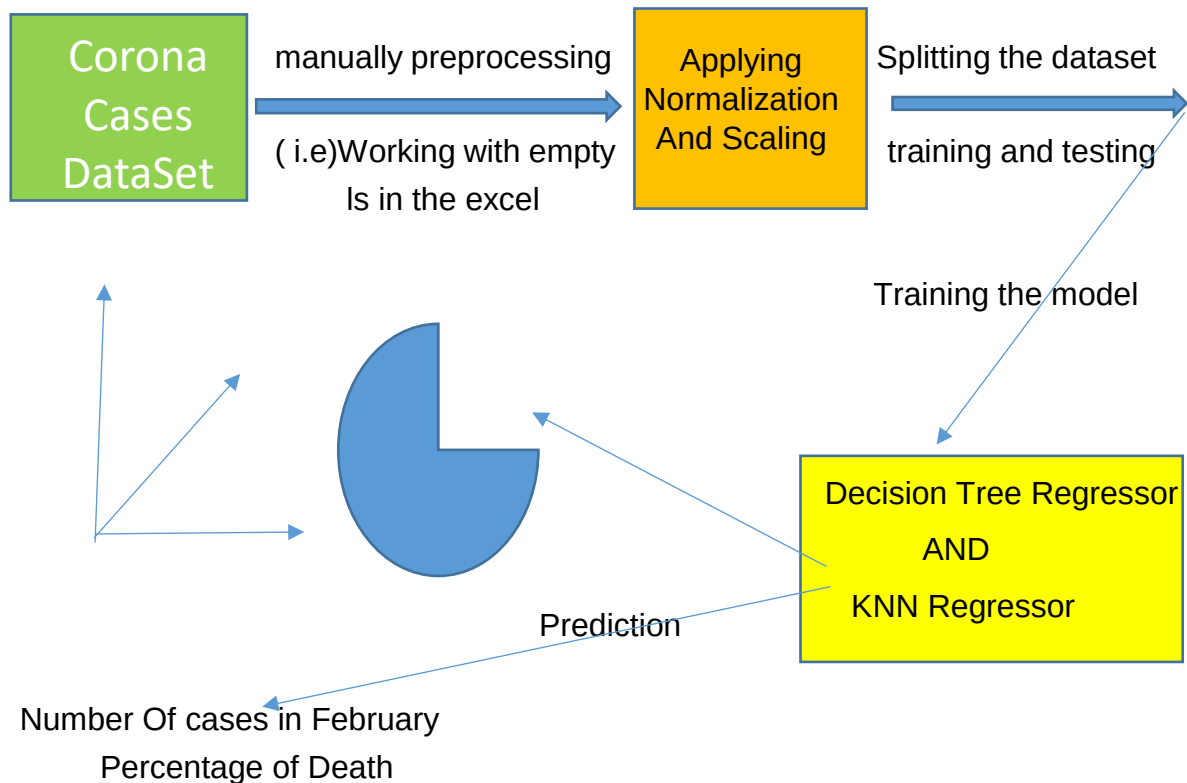


Fig 4.1: BLOCK DIAGRAM

Here the corona cases dataset is being given which is then manually processing in applying Normalization and scaling. The corona datasets is working with empty is in the excel. From Normalization and Scaling the data is being splitting in the dataset, here it will also train and test the model. After training the model it will go on Decision Tree Regressor and KNN Regressor. The KNN Regressor predicts the data in a bar graph. After making the graph with the help of graph It will tell the number of total cases in upcoming years, weeks or days.

By this our concept model will tell about the current corona cases and the future case prediction also.

4.2 Relevant Work -:

4.2.1 COVID-19 Impact PREVENTION, CONTROL, AND MANAGEMENT -:

INTRODUCTION

Over the past two decades, coronaviruses (CoVs) have been associated with significant disease outbreaks in East Asia and the Middle East. The severe acute respiratory syndrome (SARS) and the Middle East respiratory syndromes (MERS) began to emerge in 2002 and 2012, respectively.

PREVENTION, CONTROL, AND MANAGEMENT

In contrast to China's response to the 2002 SARS outbreak, they have shown immense political openness in reporting the COVID-19 outbreak promptly. They have also performed rapid sequencing of COVID-19 at multiple levels and shared the findings globally within days of identifying the novel virus. Personal protective equipments (PPE) like face masks will help to prevent the spread of respiratory infections like COVID-19. Face masks not only protect from infectious aerosols but also prevent the transmission of disease to other susceptible individuals while traveling through public transport systems.

The human-to-human transmission reported in SARS-CoV-2 infection occurs mainly through droplet or direct contact.

CONCLUDING REMARKS

Several years after the global SARS epidemic, the current SARS-CoV-2/COVID-19 pandemic has served as a reminder of how novel pathogens can rapidly emerge and spread through the human population, which may eventually cause severe public health crises. Further research should be conducted to establish animal models for SARS-CoV-2 to investigate replication, transmission dynamics, and pathogenesis in humans.

4.2.2 How Can Vaccines Be Used to Fight Outbreaks?

Abstract

Stopping a viral outbreak like COVID-19 takes more than luck, it takes public health tools. Vaccines are considered to be one of the best public health tools, which is why there is often a rush to develop good vaccines for newly discovered viruses, particularly those that have the potential to infect lots of people. Recent examples

include COVID-19, Zika virus, and Ebola. If enough people are vaccinated, an effective vaccine can help stop outbreaks or even eradicate (completely get rid of).

Experimental Procedure

For this science project you will need to develop your own experimental procedure.

- Research what fraction of the population is willing to take a new COVID-19 vaccine. Given this information, how effective would a vaccine have to be in order to effectively fight the COVID-19 epidemic?
- Vaccination rates vary from community to community and country to country. Research vaccination rates for a virus that interests you like measles, polio, or rubella. Are the current vaccination rates high enough to prevent an outbreak?

4.2.2.1 Coronavirus Will Change the World Permanently. Here's How.

1. Less (or more) Individualism
2. More Unified (lifestyles can't differ as much)
3. Change in how we view "health"
4. More value in Science and data
5. Closer-ties with Family
6. More Interaction Online
7. Less Privacy
8. Rules and Social Norms are Changing

4.3 RESULTS AND DISCUSSIONS

Learning model which helps you visualize and summarise the corona report for a state or the country. It also helps us to understand the basic working of a machine learning model. It not just allows you to present the current scenario of corona in various states but also to predict their future scenario

4.3.1 COVID CASE TABLES

State	Confirmed	Recovered	Active	Migrated	Delta	Delta	Delta
			Other		Confirmed	Recovered	Deaths
Total	2025409	1377384	605933	454	0	0	0
Maharashtra	479779	316375	146305	307	0	0	0
Tamil Nadu	279144	221087	53486	0	0	0	0
Delhi	141531	127124	10348	0	0	0	0
Karnataka	158254	80281	75067	0	0	0	0
Andhra Pradesh	196789	112870	82166	0	0	0	0
Uttar Pradesh	108974	63402	43654	0	0	0	0
Gujarat	67811	50524	14708	0	0	0	0
West Bengal	86754	61023	23829	0	0	0	0
Telangana	73050	52103	20358	0	0	0	0
Rajasthan	48996	35131	13108	0	0	0	0
Bihar	68148	43820	23939	1	0	0	0
Haryana	39303	32640	6205	0	0	0	0
Assam	52818	37225	15464	3	0	0	0
Madhya Pradesh	36564	26902	8716	0	0	0	0
Odisha	40717	26888	13549	0	0	0	0
Jammu and Kashmir	23454	15708	7310	0	0	0	0
Kerala	30449	18333	11983	35	0	0	0
Punjab	20891	13659	6715	0	0	0	0

Jharkhand	15756	6594	9017	0	0	0	0
Chhattisgarh	11020	8088	2855	38	0	0	0
Uttarakhand	8623	5427	3056	0	0	0	0
Goa	7614	5453	2095	18	0	0	0
Tripura	5740	3793	1898	0	0	0	0
Puducherry	4621	2808	1743	0	0	0	0
Manipur	3217	1905	1304	28	0	0	0
Himachal Pradesh	3047	1865	1141	0	0	0	0
Ladakh	1595	1177	411	3	0	0	0
Nagaland	2580	819	1752	0	0	0	0
Arunachal Pradesh	1948	1245	700	1	0	0	0
Chandigarh	1327	777	529	10	0	0	0
Dadra and Nagar Haveli & Daman and Diu	1415	997	406	0	0	0	0
Meghalaya	990	345	640	0	0	0	0
Sikkim	829	353	475	1	0	0	0
Mizoram	538	288	249	0	0	0	0
Andaman and Nicobar	1123	355	752	0	0	0	0
State Unassigned	0	0	0	0	0	0	0
Lakshadweep	0	0	0	0	0	0	0

4.4 PROCESS

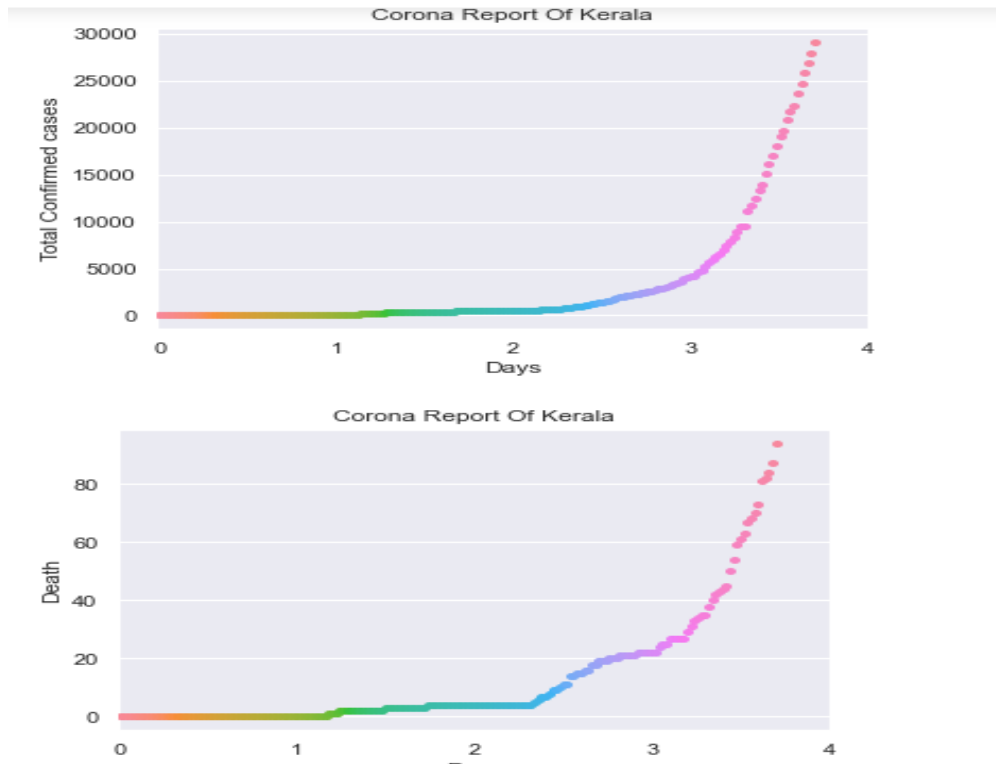


Fig 5.1 -: Corona report of Kerala

Here, is the steps being taken about the project, This is graphical representation of Corona cases in Kerala. The graph below show the progress of the disease in a country once the number of total infected persons crosses the 100 mark. Since the epidemic started in different countries at different times, it is difficult to compare them.

For six States/UTs - Andaman and Nicobar Islands, Assam, Goa, Manipur, Sikkim and Telangana, the district wise data taken from government sources has some discrepancies. For instance, for Active Cases in a particular State, the separate district-wise data does not add up to the figure provided for the entire State. Cases of coronavirus disease 2019 (Covid-19) in India is increasing day by day. Severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) is a new virus of coronavirus family therefore not much information available, thus making it very difficult task to make medicine or vaccine for this virus as early as possible.

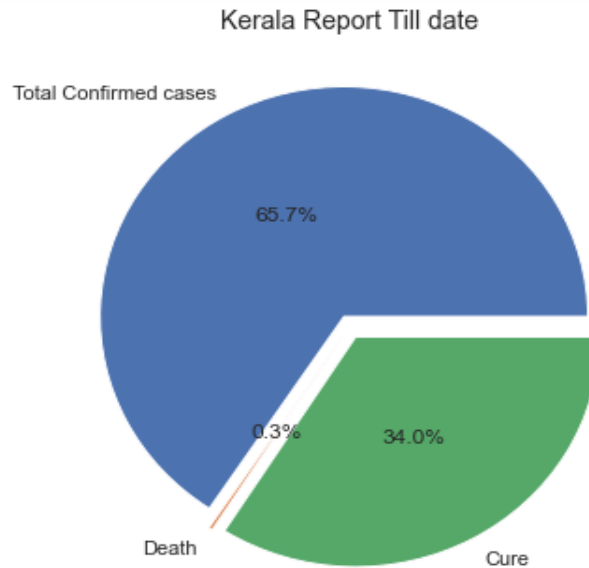


Fig 5.2 -: Kerala Report till date

In the last some hours, India recorded 16,752 cases and 113 deaths, bringing the total Covid count to 1,10,96,731 with the number of deaths reaching 1,57,051, according to the Union Health Ministry. Total active cases stand at 1,64,511 and the number of people vaccinated have amounted to 1,43,01,266.

Kerala's rise in COVID-19 cases first began in mid-May when both inbound and interstate travel resumed, initially to facilitate return of stranded citizens. On May 7, the first repatriation flight arrived in Kochi. A week later, the first post-lockdown passenger train from Delhi arrived in Thiruvananthapuram. We can see out 100 percentage of population in Kerala, 65.7 percent are the total cases confirmed, 0.3 percentage are the deaths occurred in state whereas only 34.0 percentage are being cured from disease.

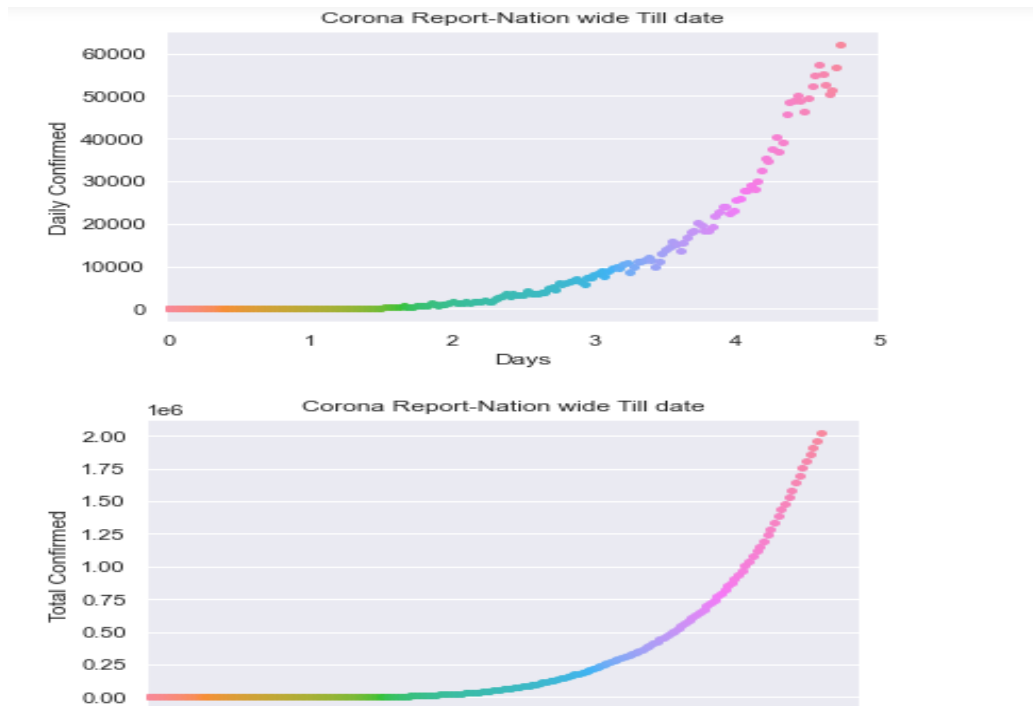


Fig 5.3 -: Corona Report Nation wise

Source: Ministry of Health and Family Welfare and Testing Data from ICMR

- Confirmed Cases: 10,937,320
- Recovered Cases: 10,644,858
- Deaths: 155,913
- New Cases in Last 24hrs:20,731
- New Recoverd in Last 24hrs:23,638
- New Deaths in Last 24hrs:181
- Samples Tested: 207,977,229

Total Corona Report in maharashtra after 200 days:

```
['Total Confirmed cases', 'Death', 'Cured', 'New cases', 'New deaths', 'New recovered']
[[468265. 16476. 305521. 10309. 0. 6165.]]
```

Fig 5.4 -: Corona cases in Maharashtra

This is the way the final result and data of the cases and data will be represented in the model. Here it is showing corona cases for Maharashtra.

CHAPTER 5

CONCLUSION AND FUTURE WORK

CONCLUSION -:

Hence an application, which lets you better understand the corona scenario in your state is made.

In Future there are things that can be added such as:-

- a) Rather than just states and the whole country we can also train the model for a particular location, city or district.
- b) The model could also be trained for some other diseases rather than just corona with some more attributes in it.

FUTURE WORK

We know in Future the Covid vaccine are coming, there are time when covid will go and normal life will return. So, in future this type of projects will help to get the information about the past report and able to get the information if it appears again. This is also a type of disease which will not go from world completely.

It will have impact in our body always. So this project will tell us about the cases and future reports.

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APPENDIX

CODE

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      "import numpy as np\n",  
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      "from sklearn.model_selection import train_test_split\n",  
      "import matplotlib.pyplot as plt\n",  
      "%matplotlib inline\n",  
      "import csv"  
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]
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```

```

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        "    plots = csv.reader(csv_file, delimiter=',')\n",

```

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"    y=[]\n",
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"    for row in plots:\n",
"        if linecount!=0:\n",
"            x.append(int(row[7]))\n",
"            y.append(list(row[1:7]))\n",
"            dates.append(row[0])\n",
"        else:\n",
"            linecount+=1\n",
"import datetime\n",
"""datetimeFormat = '%m/%d/%Y'\n",
"date1 = \"04/16/2016\"\n",
"date2=str(train_date[0])\n",
"diff=datetime.datetime.strptime(date1, datetimeFormat)\\n",
"    - datetime.datetime.strptime(date2, datetimeFormat)\n",
"print(diff)""\n",
"x1=[]\n",
"y1=[]\n",
"l1=[]\n",
"#print(y.shape)\n",
"for i in x:\n",
"    i=int(i)\n",
"    x1.append(i)\n",
"x1=np.array(x1)\n",

```

```

"for i in y:\n",
"    l1=[]\n",
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"        j=int(j)\n",
"        l1.append(j)\n",
"    y1.append(l1)\n",
"y1=np.array(y1)\n",
"#print(x1)\n",
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"#y_train_scaled=scaler.fit_transform(y_train)\n",
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```

```

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    "    for i in range(190):\n",
    "        y3.append(int(y2[i][j]))\n",
    "    sns.set(style=\"darkgrid\")\n",
    "    ax = sns.stripplot(x2,y3)\n",
    "    # giving labels to x-axis and y-axis\n",
    "    ax.set(xlabel ='Days', ylabel =target[j])\n",
    "    # giving title to the plot\n",
    "    plt.title(\"Corona Report-%d \"%%(j+1))\n",
    "    plt.xticks(ticks=[0,40,80,120,160,200]) \n",
    "    # function to show plot\n",
    "    plt.show()"
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