SAVITRIBAI PHULE PUNE UNIVERSITY,PUNE

PARTIAL PROJECT REPORT

ON

Visualization of World Wide Vaccination Status

SUBMITTED TOWARDS THE

PARTIAL FULFILLMENT OF REQUIREMENT OF

BACHELOR OF ENGINEERING(Computer Engineering)

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is a bonafide work carried out by students under the supervision of Dr.H.E.Khodke and it is submitted towards the partial fulfillment of the requirement of Bachelor of Engineering(Computer Engineerings)

Visualization of World Wide Vaccination Status

During the academic year 2020-21

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PROJECT APPROVAL SHEET

A Partial Project Report

On

Visualization of World Wide Vaccination Status

Is Sucessfully Completed By

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SAVITRIBAI PHULE PUNE UNIVERSITY

DEPARTMENT OF COMPUTER ENGINEERING

SANJIVANI RURAL EDUCATION SOCIETY'S

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Acknowledgement

It is with the greatest pleasure and pride that we present this report. At this moment of triumph, it would be neglect all those who helped us in the successful partially completion of this project. We are very much thankful to our respected project guide Dr.H.E.Khodke for his ideas and help proved to be valuable and helpful during creation of partial project report and set us in the right path.

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Abstract

The COVID-19 pandemic,Which first spread to the people of Republic of China and then to other Countries in a short time, COVID 19 has affected the whole world by affecting millions of people and have been increasing its impact day to day.Hunderds of Research in many country are in search to end up this pandemic.we decide to built Desktop based Vaccination Status application where we can easily check How much vaccination has done in sppecific country or state,also we can see How much people are partially vaccinated or fully vaccinated,also see vaccination Status by Gender wise and Which one is most used vaccine and effective one.

The aim of our project is to Contribute for the Solution by performing detailed analysis using the Technique of Data Science and Machine Learning Algorithm.

Contents

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Chapter 1 Introduction

1.1 Problem Definition

The COVID-19 pandemic has affected the whole world by infecting millions of people and have been increasing its impact day by day. Hundreds of researchers in many countries are in search of a solution to end up this pandemic. This project aims to contribute to the solution by performing detailed analyses using the techniques of data science and machine learning algorithms to assess the performances of different countries against the COVID-19 outbreak.

1.2 Literature Survey

1. Title: "Assessing countries' performances against COVID-19 via WSIDEA and machine learning algorithms."

The aim of this paper is to determine the factors affect the number of positive and death cases associated with COVID-19 pandemic via new three-stage model. Particularly, firstly, the countries are clustered considering the data provided. Then, analysis is conducted based on the results of clustering algorithms, such as the number of clusters formed, the distinctive features of the clusters etc. Secondly, the efficiency of these clusters is assessed via WSIDEA. As a result of this analysis, the efficiency level of each cluster element is obtained. For both effective and ineffective countries, decision trees and random forest algorithms are utilized to analyze the factors that affect the effectiveness of these countries. Thirdly, used algorithms performances were compared in terms of success criteria and the most successful algorithm was investigated.

2. Title: "Time Series Analysis and Forecast of the COVID-19 Pandemic in INDIA using Genetic Programming."

COVID-19 declared as a global pandemic by WHO, has emerged as the most aggressive disease, impacting more than 90increasing globally at a rate of 3even predict that the virus will stay with us forever. India being the second most populous country of the world, is also not saved, and the virus is spreading as a community level transmitter. Therefore, it become really important to analyse the possible impact of COVID-19 in India and forecast how it will behave in the days to come.

3. Title: Impact of COVID-19 pandemic on the mental health of children in Bangladesh: A cross-sectional study

COVID-19 pandemic poses a significant mental health threat among children in Bangladesh. This study aims to explore the impact of COVID-19 on the mental health of children during the lockdown in Bangladesh. An online cross-sectional study was conducted from 25th April to 9th May 2020 among 384 parents having at least one child aged between 5–15 years using non-probability sampling. K-means clustering used to group children according to mental health score and confirmatory factor analysis (CFA) performed to identify the relationship among the parental behavior and child mental health, and also these associations were assessed through chisquare test.

1.3 Scope

1.To analyse the progress of Vaccination throughout the World.

2.Identify the efficacy rate of Vaccines.

3.Identify the duration that would be taken by the countries for getting completelyVaccinated.

1.4 Objective

1.To perform the analysis of progress of vaccination throughout the world.

2.To analyze the effectiveness of the countries against COVID-19.

3.To present the result of analysis in easy to understand manner using different visualization techniques.

4.To provide a road map for decision makers and authorities to notice the factors that need to be considered in order to increase their effectiveness in response to COVID-19.

5.To learn and implement the Machine Learning algorithms and techniques in order to effectively implement the system.

6.To predict the duration that would be taken by the countries to complete the vaccination of whole country.

Chapter 2 Requirement Analysis

2.1 Requirement Analysis

Requirement analysis is a software engineering task that bridges the gap between system level software description and design model. Requirements Analysis or requirement engineering is a process of determining user expectations for a new software or providing update for previous product. This core points must be measurable, relevant and detailed. In software engineering field this term is also called as functional specications. Requirements analysis mainly deals with communication with users or customers to determine system feature expectations, requirements and reduce conicts as demanded by various software users. Energy should be directed towards ensuring that the final system or product conforms to client needs rather than attempting to turn user expectations to fit the requirements. software requirements specication (SRS) is a comprehensive description of the in- tended purpose and environment for software under development. SRS minimizes the time and effort required by developers to achieve desired goals and also minimizes the development cost.

2.2 Requirement Specification

A software requirement specification(SRS) is a description of software system to be developed. It lays out functional and non-functional requirements, and may include a set of use cases that describe user interactions that the software must provide.

2.2.1 Normal Requirements

These are the requirement which are clearly state by the customer so all these requirements will be present in project for customer satisfaction.

N1: It should provide the facility to upload the dataset.

N2: It should handle the inconsistencies in dataset.

N3: System should predict the satisfaction of learners with web based online learning system.

N4: System should be able to identify the quality attributes related to satisfaction of students with web based learning system.

N5: We should be able to find the limitations of the existing learning system.

N6: System should recommend the new teaching/learning system.

2.2.2 Expected Requirements

These requirements are implicit type of requirements. These requirements are not clearly stated by the customer but implicitly comes during system design.

E1: System must be user friendly.

E2: The system must work in a reasonable time.

E3: The system should also handle the missing data.

N4: The system should perform analysis of other factors also which extracts more knowledge about student's satisfaction.

2.2.3 Excited Requirements

These requirements are neither stated by the customer nor expected. But to achieve total customer satisfaction the developer may include certain requirements which enhance the functionality of the product.

X1: Graphical results should contain more details for better understanding.

X2: Graphical User Interface should be pleasing in nature.

2.3 Validation Requirements

Requirement validation examines that all system requirements have been stated unambiguously and inconsistencies and errors have been detected and corrected. It ensures that the work products conformed to the standards established for the process, project and product. The work products produced as a consequence of requirement engineering are assessed during validation.

2.3.1 Normal Requirements

VN1: Proper and simple GUI can be implemented in the selected programming language and tools.

VN2: The data should be preprocessed before its use for analysis.

VN3: The system should be implemented with proper techniques to get the results.

VN4: The results obtained from the models should be properly analysed so as to get the limitations of the existing learning system.

2.3.2 Expected Requirements

VE1: The selected algorithm should be more efficient in terms of time complexity and space complexity. The developed code should be optimized to execute in less time.

VE2: : The code should handle the inconsistencies in data using standard preprocessing techniques.

VE3: It is needed to dive deep into the data to know more insights about data.

2.3.3 Excited Requirements

VX1: Visualizations should include more details about analysis.

VX2:GUI tools like tkinter should be used with standard procedures of GUI creation

2.4 System Requirements

System requirements are divided into software and hardware requirements as follows:

2.4.1 Hardware Requirements

- Intel i5 Processor
- 4 GB RAM

2.4.2 Software Requirements

- Operating system :Windows/Linux Programming

- Application: Visual Studio
- Database: MySQL
- Language: Python 3.9
- Python Packages: Tkinter, matplotlib, numpy, pandas, csv etc.

Chapter 3 Software Model

3.1 Process Model

Software process model is an abstract representation of a process. The goal of process model is to provide guidance for systematically coordinating and controlling the tasks that must be performed in order to achieve the end product and the project objective. Waterfall Model is used as the process model in our system.

3.1.1 Waterfall Model

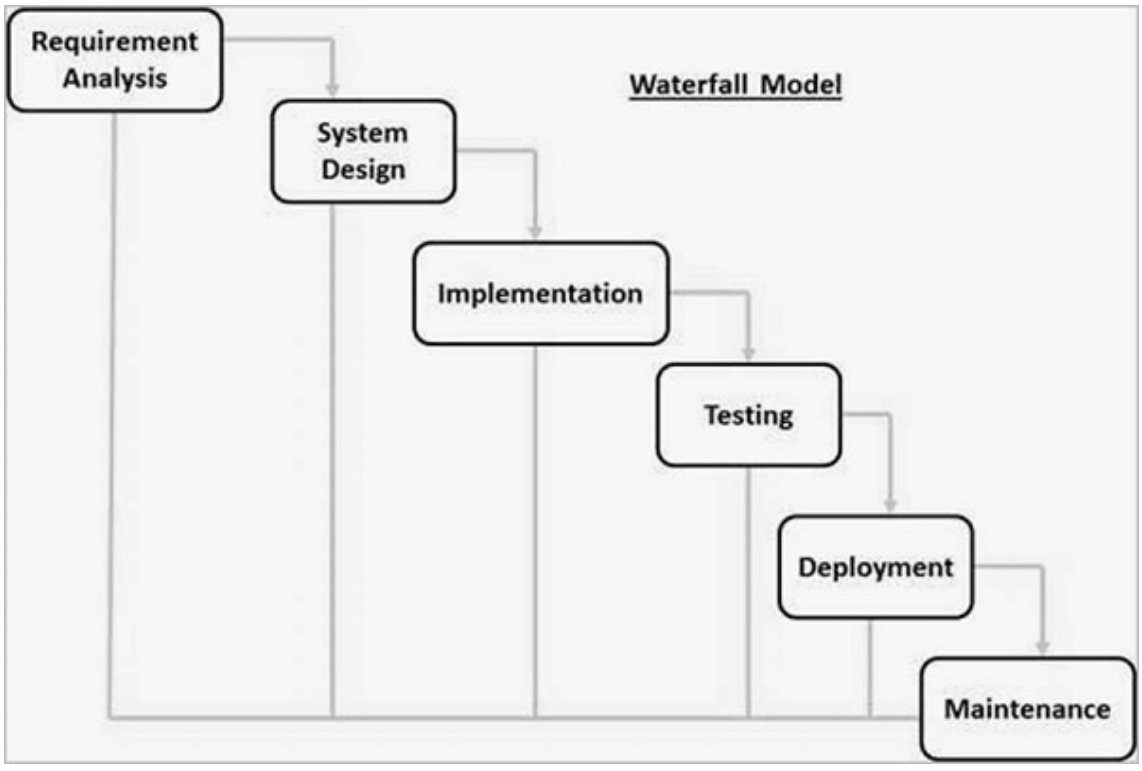

Figure 3.1: **Waterfall Model**

In "The Waterfall" approach, the whole process of software development is divided into separate phases. The outcome of one phase acts as the input for the next phase sequentially. This means that any phase in the development

process begins only if the previous phase is complete. The waterfall model is a sequential design process in which progress is seen as flowing steadilydownwards (like a waterfall) through the phases of Conception, Initiation, Analysis, Design, Construction, Testing, Production/Implementation and Maintenance. As the Waterfall Model illustrates the software development process in a linear sequential flow; hence it is also referred to as a Linear-Sequential Life Cycle Model The waterfall model progresses through easily understandable and explainable phases and thus it is easy to use. It is easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.

In this model, phases are processed and completed one at a time and they do not overlap. Waterfall model works well for smaller projects where requirements are very well understood. The outcome of one phase acts as the input for the next phase sequentially. This means that any phase in the development process begins only if the previous phase is complete.

Phases of Waterfall Model

1. Requirement Gathering and Analysis: In this phase the requirements are gathered by the business analyst and they are analyzed by the team. Requirements are documented during this phase and clarifications can be sought.The Business Analysts document the requirement based on their discussion with the customer.

2. Design : The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware Requirements and system requirements which helps in defining the overall system architecture.The architect creates the Architecture diagrams and high level / low level design documents.

3. Implementation: The inputs from the system design, the system is first developed in small programs called units.These units are integrated in the next phase. Each unit is developed and tested for its own functionality, which is referred to as Unit Testing.

4. Integration and Testing: In this phase SDLC the units developed in the implementation phase are integrated into a system after testing of each unit.After the integration the entire system is tested for any faults and failures.

5. Deployment: Deployment phase is carried out when functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.

6. Maintenance: Maintenance phase looks into the issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

3.2 System Breakdown Structure

3.2.1 Module Details

Following are the modules that will be implemented in this system:

1. GUI
2. Load preprocess Data
3. Data Analysis Recommendation
4. Clustering Prediction

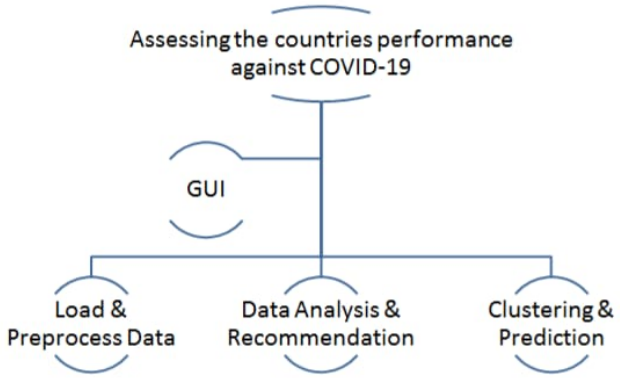

Figure 3.2: **System Breakdown Structure**

Module 1: GUI

The proposed system uses a custom data set consisting of face images with different types of face masks which are labeled and used for the training of our models. The dataset used to train our proposed face mask detector. Before the custom face mask image dataset is labelled, the data set is divided into the training data set and the testing data set. So, the data or images needed to be a preprocessed. The images in the training data collection are classified into two categories: mask and no mask.

Module 2 :Load preprocess Data

Module 3: Data Analysis Recommendation

This sub-module performs the basic analysis of data at abstract level which gives the basic insights of data.

Analysis of Total Vaccinations

Country-wise total vaccinations are analyzed and compared in this module.

Country-wise daily vaccinations

Country-wise daily vaccinations are analyzed and compared in this module

Vaccinated Vs Fully Vaccinated

This module analyzes the people of different countries who are vaccinated and not vaccinated.

Analysis for most used Vaccine

At every moment of time, the choice of people about choosing vaccine company changes. Considering that, this module performs a study on which is the most used vaccine in the world and in a particular country.

Daily Vaccination Trend

The trend of vaccination changes daily based on availability, holidays etc. This module performs daily analysis trends of vaccination.

Module 4: Clustering Prediction

3.3 Project Estimation:

3.3.1 Estimation of KLOC:

Estimation is the process of finding an estimate, or approximation, which is a value that can be used for some purpose even if input data may be incomplete, uncertain, or unstable. Estimation determines how much money, effort, resources, and time it will take to build a specific system or product.

3.3.2 Efforts(E)

Effort estimation is the process of forecasting how much effort is required to develop or maintain a software application. This effort is traditionally measured in the hours worked by a person, or the money needed to pay for this work.

Effort estimation is used to help draft project plans and budgets in the early stages of the software development life cycle. This practice enables a project manager or product owner to accurately predict costs and allocate resources accordingly.

3.3.3 Development Time(In Months)

To Estimate Project Time Accurately
Step 1. Understand What Exactly Is Required

Step 2. Make Time Estimations For Each Of These Activities

Step 3. Decide Who Should Be Involved

Step 4: Review the Estimates after the Launch

A project's duration = overall task time estimation (E) + E*risk buffer + E*time eaters. So, if a project's overall task time estimation is 7,200 hours.

The total project duration will be: 7,200 + 7,200*0.25 + 7,200*0.20 = 10,440 hours.

Chapter 4 System Design

4.1 System Architecture

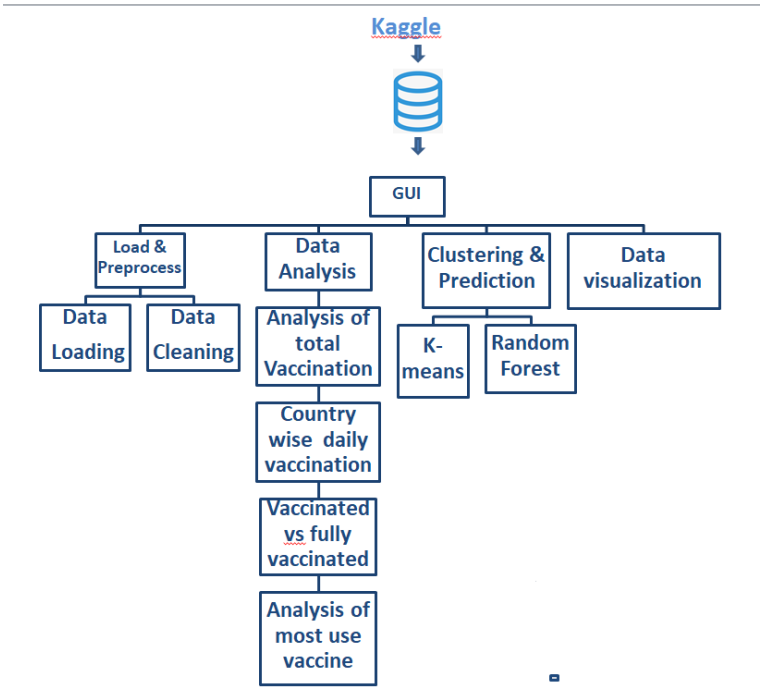

Figure 4.1: **System Architecture**

4.2 Project Scheduling and Tracking

Project Scheduling and Tracking is important because in order to build a complex system, many software engineering tasks occurs in parallel, and the result of work performed during one task may have a profound effect on work to be conducted in another task. These inter dependencies are very difficult to understand without detailed schedule.

4.3 Methodology/possible algorithms

4.3.1 Task Identification :-

Following Analysis and design task can be carried out in the process of analysis and design of project

T1 : Searching of Project Defination.
T2 : Literature Collection.
T3 : Presentation of topic.
T4 : Allocation of Responsibility.
T5 : Synopsis preparation submission.
T6 : Literature Review.
T7 : Requirement gathering Validation.
T8 : SRS project Estimation.
T9 : UML Modelling.
T10 : Risk analysis and project Estimation.
T11 : Completion of partial project.
T12 : Training of dataset using classification Algorithm.
T13 : Input of image.
T14 : Preproceesing of image.
T15 : Extract key features from a match.
T16 : Implementation of K-means algorithm.
T17 : Training of deployed.
T18 : Testing of trained module by giving input as a real time dataset.
T19 : Data visualization
T20 : Report Generation.
T21 : Deployment.

Each of the above task is assigned to one or more member of the group. Following are the names of the group members:

D1 : Bora Sejal
D2 : Take Vaishnavi
D3 : Pachore Sneha
D4 : More Abhishek

4.3.2 Project Schedule Phase

The Table 4.1 describes the schedule for project development and also highlights all the tasks to be carried out along with their duration, dependency and developer(s) assigned to accomplish the task.
Project phase schedule:

task	days	Dependency	Developer	Task
T1	20		D1,D2,D3,D4	Completed
T2	04	T1	D1,D2,D3,D4	Completed
T3	00	T1,T2	D1,D2,D3,D4	Completed
T4	05	T3	D1	Completed
T5	20	T3,T4	D1,D2,D3,D4	Completed
T6	05	T3,T5	D1,D2,D3,D4	Completed
T7	02	T6	D2,D4	Completed
T8	05	T6,T7	D1,D3	Completed
T9	04	T7,T8	D1,D2	Completed
T10	03	T7,T8	D3,D4	Completed
T11	03	T7.T8	D2,D4	Completed
T12	05	T7,T8	D1,D3	Completed
T13	03	T12	D1,D2,D3	Pending
T14	02	T12,T13	D4	Pending
T15	01	T13,T14	D1,D2,D3,D4	Pending
T16	16	T12	D1,D4	Pending
T17	06	T16	D2,D3,D4	Pending
T18	17	T16,T17	D1,D2,D3,D14	Pending
T19	06	T16,T17,T18	D1,D2,D3	Pending
T20	03	T17,T18,T19	D2,D4	Pending

4.3.3 Project Table and Time-line Chart

Following table contains the schedule of all the activities which are used in development process of this project.

Project table and time line chart:

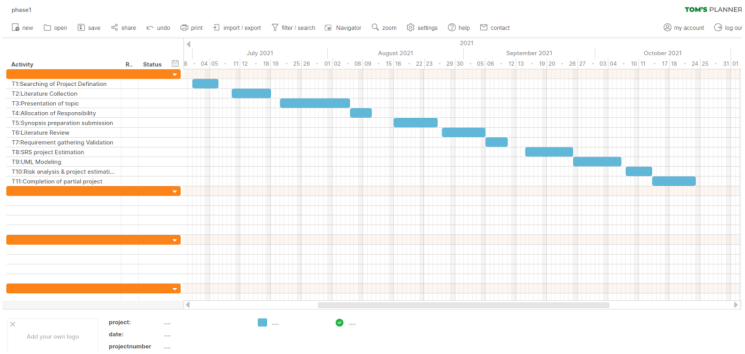

Figure 4.2: **Timeline Chart Expected(Phase-1)**

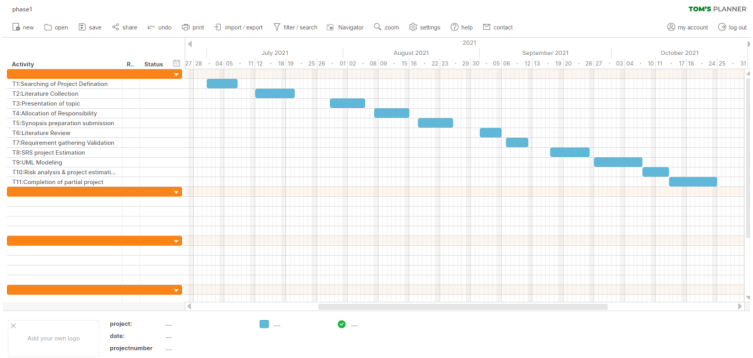

Figure 4.3: **Timeline Chart Actual (Phase-1)**

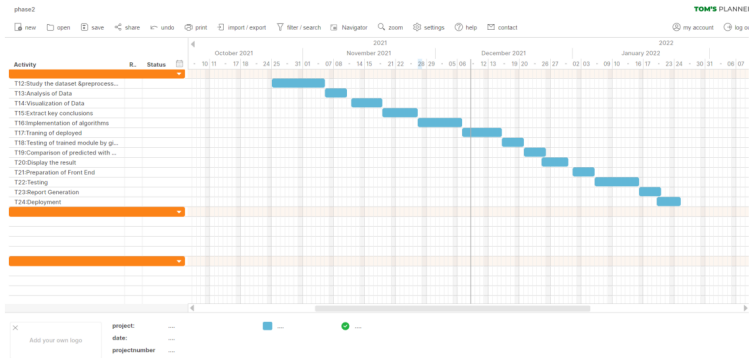

Figure 4.4: **Timeline Chart Expected(Phase-2)**

4.4 Analysis Modeling

The system analysis model is made up of class diagram, sequence or collaboration diagrams and state-chart diagrams. Between them they constitute a logical, implementation-free view of computer system that includes a detail definition of every aspect of functionality. Analysis model contains following modelling:

1. Behavioural modelling.
2. Functional modelling.
3. Architectural modelling.

Analysis modelling uses a combination of text and diagrammatic form to depict requirement for data, function and behaviour in a way that is relatively easy to understand and more important, straightforward to review for correctness, completeness and consistency

4.4.1 Behavioral Modeling

Behavioural diagrams depict the behavioural features of a system or business process. Behavioural diagrams include the following diagram types:

1. Class Diagram :

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the sys-

tem's classes, their attributes, operations (or methods), and the relationships among objects. I design specification it can be used to specify interfaces and classes that will be implemented in an object oriented program.The class diagram is the main building block of object oriented modeling Class diagrams can also be used for data modeling.The classes in a class diagram represent both the main objects,interactions in the application and the classes to be programmed.

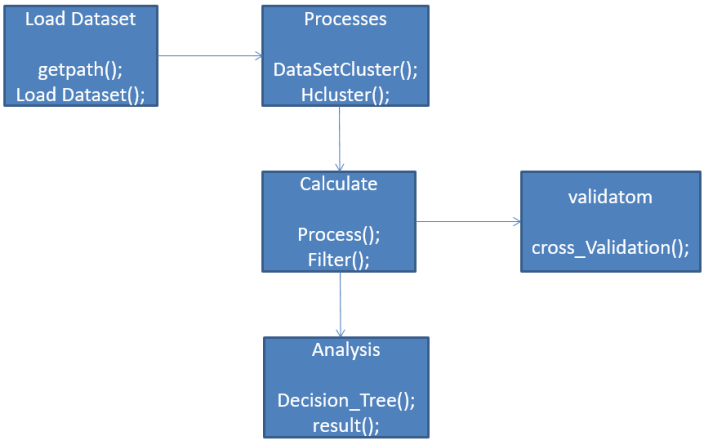

Figure 4.5: **Class Diagram**

3. Sequence Diagram :

A Sequence diagram is an interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios. A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple run time scenarios in a graphical manner.

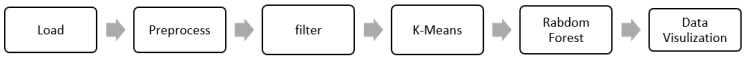

Figure 4.6: **Sequence Diagram**

4. State Machine Diagram :

A finite-state machine (FSM) or finite-state automation or simply state machine is a mathematical model of computation used to design both computer programs and sequential logic circuits. It is conceived as an abstract machine that can be in one of a finite number of states. The machine is in only one state at a time; the state it is in at any given time is called the current state. It can change from one state to another when initiated by a triggering event or condition; this is called a transition.

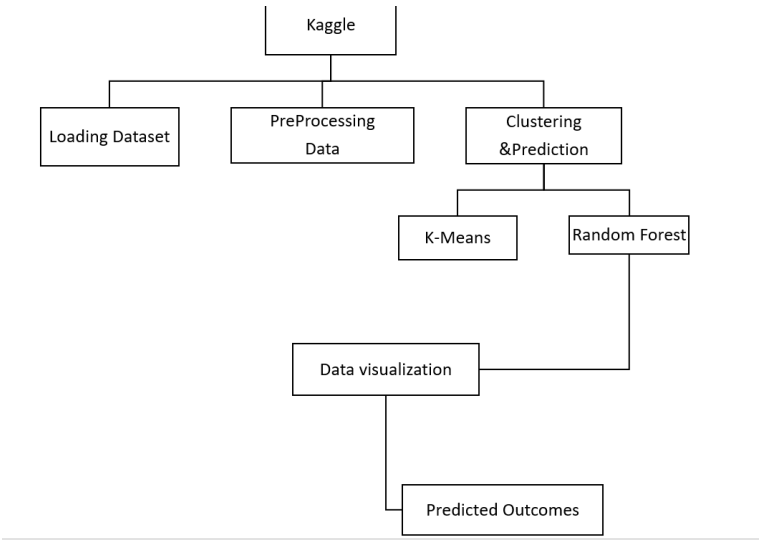

Figure 4.7: **State Machine Diagram**

4.4.2 Functional Modeling

A function model or functional model in system engineering and software engineering is a structured representation of the functions(activities, actions, processes, operations) within the modelled system or subject area.
1. Data Flow Diagram
2. Control Flow Diagram

1. Data Flow Diagram :

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of processes, or information about whether processes will operate in sequence or in parallel. Data flow diagram (DFD) is also called as Bubble Chart is a graphical technique, which is used to represent information flow, and transformers those are applied when data moves from input to output. DFD represents system requirements clearly and identify transformers those becomes programs in design. DFD may further partitioned into different levels

to show detailed information flow e.g. level 0, level 1,level 2 etc.

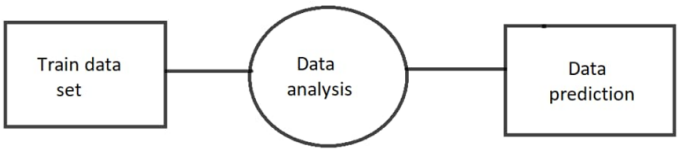

Figure 4.8: **Data Flow Diagram-1**

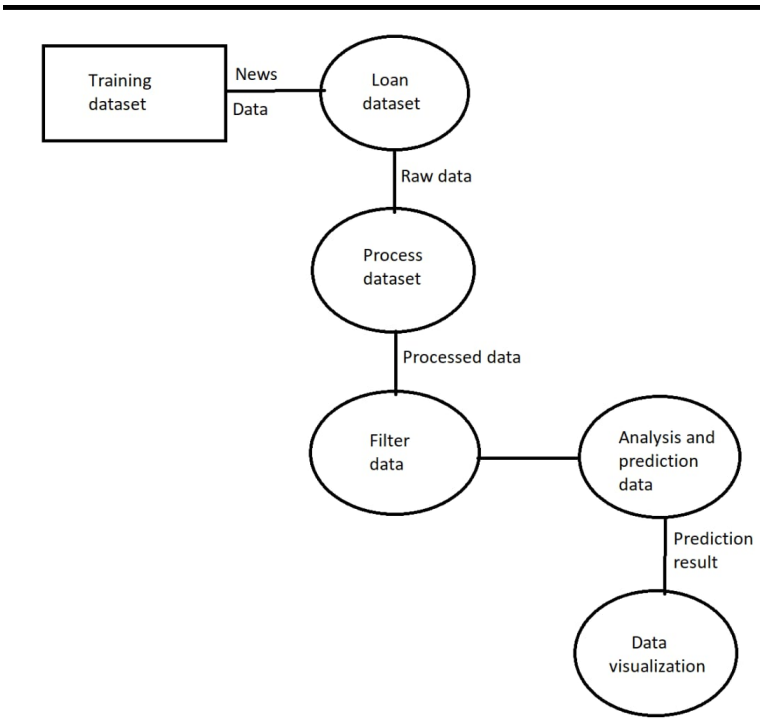

Figure 4.9: **Data Flow Diagram-2**

Control Flow Diagram

A control flow diagram can consist of a subdivision to show sequential steps, with if-then- else conditions, repetition, and/or case conditions. Suitably annotated geometrical figures are used to represent operations, data, or equipment, and arrows are used to indicate the sequential flow from one to another.In software and systems development control flow diagrams can be used in control flow analysis, data flow analysis, algorithm analysis, and simulation. Control and data are most applicable for real time and data driven systems. These flow analysis transform logic and data requirements text into graphic flows which are easier to analyse than the text.

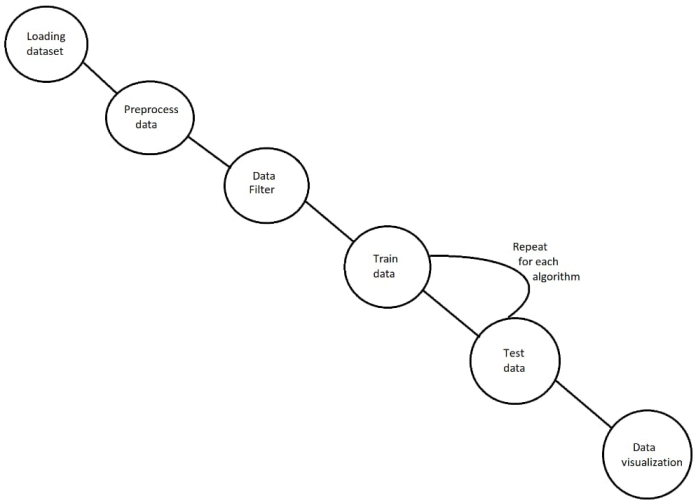

Figure 4.10: **Control flow Diagram**

4.4.3 Architectural Modeling

It represents the overall framework of the system. It contains both structural and behavioural element of the system. Architectural model can be defined as the blue print of entire system.

1. Component Diagram
2. Deployment Diagram

1. Component Diagram

A component diagram is used show the internal structure of a component, the provided and required interfaces of the encompassing component can delegate to the corresponding interfaces of the contained components.

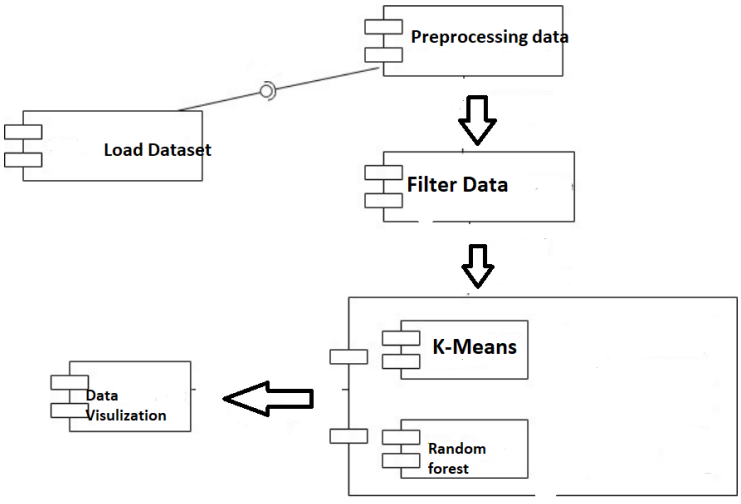

Figure 4.11: **component Diagram**

2. Deployment Diagram

The Deployment Diagram also helps to model the physical aspect of an Object-Oriented software system. It models the run-time configuration in a static view and visualizes the distribution of components in an application. In most cases, it involves modelling the hardware configurations together with the software components that lived on.

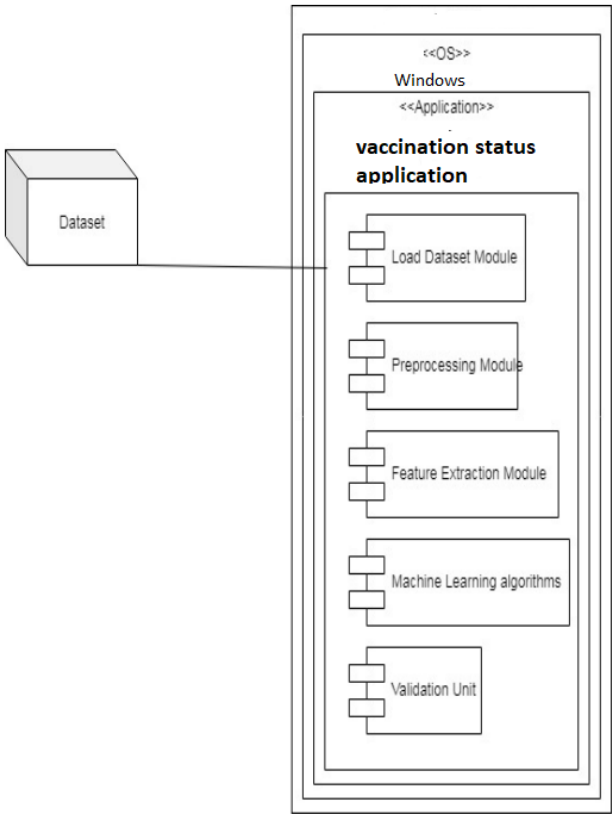

Figure 4.12: **deployment Diagram**

4.5 Mathematical Modeling

When solving problems we have to decide the difficulty level of our problem. There are three types of classes provided for that. These are as follows :

1. P Class
2. NP-hard Class
3. NP-Complete Class

1. P Class:

Informally the class P is the class of decision solvable by some algorithm within a number of steps bounded by some fixed polynomial in the length of the input. Turing was not concerned with the efficiency of his machines, but

rather his concern was whether they can simulate arbitrary algorithms given sufficient time. However it turns out Turing machines can generally simulate more efficient computer models by at most squaring or cubing the computation time.Thus P is a robust class and has equivalent definitions over a large class of computer models.

2. NP-hard Class

A problem is NP-hard if solving it in polynomial time would make it possible to solve all problems in class NP in polynomial time. Some NP-hard problems are also in NP some are not.If you could reduce an NP problem to an NP-hard problem and then solve it in polynomial time,you could solve all NP problem. Also, there are decision problem s in NP-hard but are not NP complete,such as the halting problems

3. NP-Complete Class

The complexity class NP-complete is the set of problems that are the hardest problems in NP, in the sense that they are the ones most likely not to be in P. If you can find a way to solve an NP complete problem quick,then you can use that algorithm to solve all NP problems quickly.

Summary:

As we have seen all the classes of problems. The algorithms used in our system works in polynomial time. So the Digital Image Forgery Detection System is of P class and the problem can be solved in polynomial time.

Set S = I , P , R , O

Where,

I is set of all inputs giving to system. P is set of all processes in system. R is set of rules that drives your input set. O is set of output expected from system. **Input (I) :**

I = f I1g Where, **I1 :** Any image of person . – Process (P) : P = f P1, P2, P3, P4,P5,P6,P7,P8

Chapter 5 Risk Management

5.1 What is Risk Management?

Risk Management involves different kind of risks that might affect the project schedule or quality of the software being develop and monitoring the actions to avoid the risk. Basically risk management is the process of identifying, assessing, responding to, monitoring, and reporting risks. This Risk Management Plan defines how risks associated with the project will be identified, analysed and managed. Risk management is an ongoing process that continues through the life of a project. Effective risk management makes easier to deals with the problem which occurs while development of process.

5.2 Risk Identification

Following types of risk are to be identified :

5.2.1 Product Size Risk

R1 : At the start it is difficult to predict the quantity of data set should be used for training the system.

R2 : Are there enough development team members available relative to the size of the project?

Business Impact :
R3 : Delay in highlight generation cause bad impact on user. R4:If System is not efficient than the existing system, it will cause loss.
R4 : If System is not efficient than the existing system, it will cause loss.

5.2.2 Customer Related Risk

R5 : Client is a non technical person, if proper guidelines were not mention then it will create ambiguity.

R6 : If user don't get proper highlight generation as output then user might get confused.

5.2.3 Process Risk

R7 : Selection of Software Process Model if not followed according to the defined degree can lead to confusion midway.

5.2.4 Technical Risk

R8 : Lack of training on tools and inexperience.

R9 : If input video is not divided into the short video then it takes more processing time.

R10 : If user want any modifications that leads to modify the system which will be quite difficult. Development Environment related Risks.

R11 : Lack of proper training and less knowledge of programming leads a moderate risk. It will delay product development and deployment.

R12 : If developer is not clear about system requirements.

Other risk :
R13 : Product should earn revenue more than investment

5.3 Strategies Used To Reduce Risk

S1 : Make certain that each one the members are taking part inside the design.

S2 : Formulation and follow up of the project plan on regular basis.

S3 : Each and every module must be tested for its functioning. S5:Brief guidelines as well as proper instructions for using this system should be given to the end user for better understanding.

S4 : Design system with flexibility and maintain necessary documentation for the same.

S5 : Re-defined software process at higher degree.

S6 : Proper training on required technical tools for development of project reduce risk.

S7 : Parallel processing on input video/photo.

S8 : Detailed study of required system and proper selection of Software process model.

S9 : Learn programming and take proper training.

S10 : Study and understanding of project definition, programming language.

S11 : Each and every module must be tested for its functioning.

5.4 Risk Projection

5.5 Feasibility Study

A feasibility analysis involves a detailed assessment of the need, value and practicality of a proposed enterprise, such as systems development. The process of designing and implementing record keeping systems has significant accountability and resource implications for an organization. Feasibility will help to make informed and transparent decisions at crucial points during the developmental process to determine whether it is operationally, economically and technically realistic to proceed with a particular course of action.

5.5.1 Cost Feasibility

Economic analysis is the most frequently used method for evaluating the effectiveness of a candidate system. More commonly known as cost benefit analysis, the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with costs. If benefits overweigh costs, then the decision is made to design and implement the system. Otherwise, further justification or alterations in the proposed system will have to be made if it is to have a chance of being approved. This is an ongoing effort that improves in accuracy at each phase in the system life cycle.

5.5.2 Technical Feasibility

Technical feasibility study is the complete study of the project in terms of input, processes, output, fields, programs and procedures. It is a very effective tool for long term planning and trouble shooting. The technical feasibility study should most essentially support the financial information of an organization.The project is technically feasible as input,processes and outputs of the project are verified.

Chapter 6 Conclusion

Our system is a GUI based desktop application that will run on desktop systems. The user will be able to upload data and analyze the different aspects of COVID vaccination and the performance of different countries with respect to progress of vaccination. Also there will be features to draw the conclusions and thus recommendations from the system, which may be very useful to take strategic decisions for government and concerned authorities. The system can also predict the future values of important parameters related to Vaccination.

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