LEARNING DOMAIN ANALYTICS ON CONTENTS ACADEMIC ASSISTANT USING MACHINE LEARNING TECHNIQUES

Minor project-2 report submitted
in partial fulfillment of the requirement for award of the degree of

Bachelor of Technology
in
Computer Science & Engineering

By

N.CHAITANYA VAMSI	(21UECS0407)	**(VTU19203)**
B.CHANDU	(21UECS0064)	**(VTU19202)**
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Under the guidance of
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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VEL TECH RANGARAJAN DR. SAGUNTHALA R&D INSTITUTE OF SCIENCE & TECHNOLOGY

(Deemed to be University Estd u/s 3 of UGC Act, 1956)
Accredited by NAAC with A++ Grade
CHENNAI 600 062, TAMILNADU, INDIA

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CERTIFICATE

It is certified that the work contained in the project report titled ”LEARNING DOMAIN ANALYTICS ON CONTENTS ACADEMIC ASSISTANT USING MACHINE LEARNING TECHNIQUES” by ”N. CHAITANYA VAMSI (21UECS0407), B. CHANDU (21UECS0064) , Y. LAKSHMI SUMA (21UECS0683)” has been carried out under my supervision and that this work has not been submitted elsewhere for a degree.

Signature of Supervisor
Computer Science & Engineering
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Vel Tech Rangarajan Dr. Sagunthala R&D
Institute of Science & Technology
May, 2024

Signature of Professor In-charge
Computer Science & Engineering
School of Computing
Vel Tech Rangarajan Dr. Sagunthala R&D
Institute of Science & Technology
May, 2024

DECLARATION

We declare that this written submission represents my ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(N.CHAITANYA VAMSI)

Date: / /

(B.CHANDU)

Date: / /

(Y.LAKSHMI SUMA)

Date: / /

APPROVAL SHEET

This project report entitled ”LEARNING DOMAIN ANALYTICS ON CONTENTS ACADEMIC ASSISTANT USING MACHINE LEARNING TECHNIQUES” by B. CHANDU (21UECS0064), N. CHAITANYA VAMSI (21UECS0407), Y. LAKSHMI SUMA (21UECS0683)is approved for the degree of B.Tech in Computer Science & Engineering.

Examiners **Supervisor**

SRI RAMAN KOTHURI, B.E., M.Tech.,

Date: / /

Place:

ACKNOWLEDGEMENT

We express our deepest gratitude to our respected **Founder Chancellor and President Col. Prof. Dr. R. RANGARAJAN B.E. (EEE), B.E. (MECH), M.S (AUTO),D.Sc., Foundress President Dr. R. SAGUNTHALA RANGARAJAN M.B.B.S.** Chairperson Managing Trustee and Vice President.

We are very much grateful to our beloved **Vice Chancellor Prof. S. SALIVAHANAN,** for providing us with an environment to complete our project successfully.

We record indebtedness to our **Professor & Dean, Department of Computer Science & Engineering, School of Computing, Dr. V. SRINIVASA RAO, M.Tech., Ph.D.,** for immense care and encouragement towards us throughout the course of this project.

We are delighted to thank to our **Head, Department of Computer Science & Engineering, Dr.M.S. MURALI DHAR, M.E., Ph.D.,** for providing immense support in all our endeavors.

We also take this opportunity to express a deep sense of gratitude to our **Mr. SRI RAMAN KOTHURI** for his cordial support, valuable information and guidance, he helped us in completing this project through various stages.

A special admissable thanks to our **Project Coordinators Mr. V. ASHOK KUMAR, M.Tech., Ms. C. SHYAMALA KUMARI, M.E., Mr. SHARAD SHANDHI RAVI, M.Tech.,** for their valuable guidance and support throughout the course of the project.

We thank our department faculty, supporting staff and friends for their help and guidance to complete this project.

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ABSTRACT

In conventional education/learning system, which was robust in Indian culture, was alienated due respect to other governing sub-systems like politics, caste, religion, cadre, etc which are not essential parameters to maintain morality in education. To regain the learning ethics in such a scenario, the psychological studies on the Indian education system relocate to self-learning mechanisms with available media technologies like YouTube, Google, Wikipedia, etc.By utilizing the linear regression algorithm, It provide the most relevant top searches and retrieve the corresponding video. To restrict this, several existing works claimed non-trivial like ranking of search results, etc. Through video content, this online platform enables students to look into and understand particular areas of doubt. With this new method, students can input the topics they are worried about, and then watch appropriate videos that provide a thorough explanation of the subject. Students shall ask questions that are directly relevant to the topics of their doubts because of a unique feature that the project presents. Students who submit their questions using an email address can receive individualized support. This portal promotes a smooth learning experience by ensuring that students receive quick, individual responses to their academic issues. The project's main goals are to encourage independent learning and provide students with an engaging learning environment. The project aims to meet a variety of methods of learning by improving understanding and giving theoretical topics a visual dimension through the use of video materials. Easy access and privacy are given priority with the creation of an email-based question-and-answer system. To accommodate different schedules and learning speeds, students can get their questions answered without having to interact in real-time. This work's main goal is to provide students with the tools they need to successfully negotiate their academic problems. The goal is to establish an efficient and user-friendly academic assistance tool by combining email-driven inquiry answers with video-based information delivery. With the help of this project, students will have access to a full learning environment that responds to their individual needs and encourages independent learning.

Keywords: Students, Teachers, Learning System, Video materials, Education, YouTube, Google, Wikipedia, Machine Learning

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

BMI	Body Mass Index
CSS	Cascading Style Sheets
FSLSM	Felder Silverman Learning style
LR	Linear Regression
LMS	Learning Management System
LO	Learning Object
ML	Machine Learning
PHP	Hypertext pre Processor
SQL	Structured Query Language

TABLE OF CONTENTS

Chapter 1

INTRODUCTION

1.1 Introduction

The minor project offers an inspired by students platform with an efficient doubt resolution focus in the attempt to deal with the changing nature of education. Through video content, the project helps students navigate to understand difficult issues with a primary focus on free will in learning. The platform uses digital resources to accommodate a range of learning styles and preferences. It offers students an engaging and dynamic environment where they may obtain useful data presented in a visual manner.

The project also has a special function that lets students submit questions that are closely relevant to the topics of their doubts. Students can receive customized answers at their convenience by including their email address with their questions. In addition to protecting students' privacy, this email-based inquiry resolution system provides a flexible, reactive communication method that can be adjusted to suit different schedules and learning styles. Essentially, the initiative aims to provide students the ability to take charge of their education by providing them with an innovative tool that mixes question-and-answer sessions with video-based content delivery to create a more personalized and engaging learning environment

1.2 Aim of the Project

The goal of this minor project is to create a platform that is focused on students and helps them solve academic questions in an effective manner. Students can use the system to look up certain topics that they are unsure about, and the system will show them the relevant videos so they can learn the material thoroughly. The project also has a function that lets students ask inquiries about the subjects of their doubts. Students that send in their email addresses with their questions can get customized responses through email, creating an easy-to-use.By utilizing the linear regression algorithm, It provide the most relevant top searches and retrieve the corresponding

video. To allow students to take control of their academic obstacles by providing an intuitive interface that goes video instruction with an efficient email-based question answering system

1.3 Project Domain

The project topic is to improve students' academic support system by creating a user-friendly online platform. This small initiative uses an innovative method to meet the unique demands of students who are looking for clarity on a wide range of academic subjects. The main feature is a search option that lets students enter worries they're uncertain about and get related video content. By displaying instructional content in a visual style, this innovative system aims to meet a variety of learning preferences. The project aims to provide students with a thorough understanding of their favorite topics by utilizing video materials, hence encouraging self-directed study.

The idea also presents a simplified method for students to request personalized help. Students can email their questions and answers to the system using a questionand-answer format. With the help of this new technology, students can communicate online and get thorough email responses to their inquiries. Convenience is increased by the addition of an email-based support system, which lets students ask questions and get answers on their own time. By placing a strong focus on privacy and providing personalized replies, the goal is to establish a nurturing environment that meets each student's unique needs and promotes a more effective and enjoyable learning process.

1.4 Scope of the Project

The minor project try to meet students' educational requirements by creating a simple system that makes effective doubt resolution possible. The project's scope includes developing an innovative platform that allows students to look up topics they're unsure about and watch related videos to learn more. The project aims to accommodate a range of learning styles and give theoretical topics a dynamic aspect by integrating video materials. Additionally, the project improves its scope by including a special function that enables students to directly ask questions on the subjects of their doubts. Students can start this process by entering their questions and an email

address, which opens up a customized, interactive channel. The email-based query resolution system guarantees prompt and customized responses for students, enhancing their learning experience. The incorporation of this feature prioritizes privacy and convenience for students looking for answers to specific academic questions, while also encouraging active participation with educational content.

Basically, the program aims to create an extensive system that gives students the autonomy to overcome their academic obstacles. A personalized and focused on users approach to doubt resolution is made possible by the combination of email-driven question-and-answer systems with video-based material distribution. Through providing a tailored and effective academic support tool, the project hopes to make students' educational journeys more successful and enjoyable

Chapter 2

LITERATURE REVIEW

Buder and Schwind(2019) specified to overcome the information overload problem by filtering out irrelevant learning resources and providing more personalized content to the learner.Learners have different individual needs, objectives, and preferences that affect their learning processes.

Zhong et al (2019) published a review paper based on five assessment aspects of e-learning recommender systems.They are the metrics for the e-learning system, the evaluation metrics for the recommendation algorithms, the recommendation filtering technology, the phases of the recommendation process, and the system's learning outcomes .

Pariserum Perumal (2019) proposes a novel recommendation system which provides suitable contents by refining the final frequent item patterns evolving from frequent pattern mining technique and then classifying the final contents using fuzzy logic into three levels. This is achieved by generating frequent item patterns after consolidating the user interest changes with an extended error margin quotient. Moreover, fuzzy rules are used in this work to enable the rule mining constraints for accommodating all types of learners while applying rules on the pattern tables. This method aims at mining the data stream preferences into equal-sized windows and caters to the varying user interest ratings over time.

Jeevamol and Renumol (2021) stated learner models play a vital role in the personalization of e-learning systems . The learner profile is a standard representation of learner's data that can be gathered in two ways: directly from the learner or by analyzing his/her behavior through a Learning Management System (LMS). If the details are gathered straight from the learner, the profile is called an explicit or static profile. Whereas if this information is collected by observing the learner's behavior in an LMS, the profile created is known as the implicit or dynamic profile. A good learner profile can be effortlessly adjusted for every learner according to his/her preferences.

Polsani et al (2019) projected that any entity, digital or non-digital that may be used for learning, education, or training is defined as a learning object (LO). The

learning objects should be kept in a standardized format so that they can be easily stored, accessed, and retrieved in e-learning systems. LOs are widely purposed and/or reused as a meaningful and effective way of creating content for e-learning, especially within learning and course management systems.

Tarus (2018) proposed a hybrid based on sequential pattern mining, context awareness, and CF algorithms for recommending learning resources in an e-learning environment.The learner preferences and behavior are data analyzed using this algorithm

Srivastav and Kant (2019) conducted a comparative study on deep learning-based e-learning . They have tried to exploit how the significant challenges in e-learning , such as cold-start and sparsity problems, can be addressed using deep learning-based techniques Nafeas (2019) developed an e-learning to recommend course learning objects based on Felder Silverman Learning Style Model (FSLSM) (Felder and Silverman, 1988). In their recommendation framework, the k-means clustering algorithm is applied to improve the recommendation accuracy and computational efficiency by efficient learner grouping

Chapter 3

PROJECT DESCRIPTION

3.1 Existing System

There doesn't seem a specific, streamlined procedure in the current system that allows students to effectively resolve their academic issues.This small decisions seems as a means to close this gap in this context. Before This project was put into action, students had trouble finding certain issues of doubt using video content. In lack of a centralized platform, search results were sometimes fragmented, which made it challenging for students to find in-depth video resources relevant to their academic questions.

In addition, students were not able to send their questions to the old system and receive personalized responses. This communication channel restriction made it more difficult to quickly fix academic doubts. In the absence of a well-organized system for asking questions and receiving answers, students encountered difficulties in successfully managing their academic problems.

The project works on uses PHP, HTML, CSS, and MySQL to construct an effective and user-friendly platform in order to address these issues. The smooth use of video content made possible by this technology platform makes it simple for students to look up and obtain appropriate materials based on the subjects of their doubts. Also, the addition of an email-based enquiry system guarantees a direct and confidential gateway for students to ask inquiries, promoting a more efficient and customized method of resolving doubts. By using these technologies, the system's entire functionality is improved, and a strong platform that solves the weaknesses of the current system and improves the educational experience for students is created.

3.2 Proposed System

The minor project's suggested system is an engaging online platform made to effectively meet the academic needs of students. The core of this system is a search

function that enables students to look up and get video content about particular topics they are worried about. The platform gives a smooth and attractive experience for users.

This program's main advantage is that it's able to offer specific video resources, which improves students' understanding of challenging academic subjects. Students can input concerns about uncertainty by using the search tool, which will cause the system to retrieve and show pertinent video content. This methodology not only promotes independent study but also takes into account a range of learning styles, acknowledging the importance of visual tools in understanding academic content.

The system includes an email-based question-and-answer system. Students can email their questions and email addresses to be answered if they have any specific questions about the content of the videos or would like more explanation. The system then uses email to reply to the questions, establishing a customized, reactive communication channel that values users' convenience and privacy.

Put it up, the suggested system makes use of the linear regression algorithm, It provide the most relevant top searches and retrieve the corresponding to produce an engaging and interactive web portal. It meets students' academic demands by providing a blend of email-based question resolution and video-based instruction. By giving students everything they need to handle their academic problems on their own, this project hopes to support efficient learning in an innovative place.

3.3 Feasibility Study

3.3.1 Economic Feasibility

The implementation of the project is planned to be economically sustainable, guaranteeing that funds are distributed effectively over the phases of development and maintenance can improve efficiency and save costs. considerably improves the project's economic viability. This thoughtful selection of technology reduces development costs from the outset while also facilitating long-term affordability through easier maintenance and scalability. Also, by utilizing the current messaging system at no additional cost, the project's reliance on email communication for query resolution is consistent with economic viability. The idea guarantees a cheap, easily accessible, and user-friendly way for students to get their questions answered by making use of widely available email services. This practical approach enhances the

project's overall economic viability, making it a wise financial investment in offering students invaluable academic help.

3.3.2 Technical Feasibility

The minor project's technological feasility is based on the efficient to produce a stable interface that allows students to navigate and solve their academic questions. The project's that makes it easy to create dynamic content and maintain smooth communication between the user interface and the database as follows.

The project's user interface is made possible with HTML and CSS, providing students with an engaging and easy-to-use platform. While CSS improves presentation and makes the site more user-friendly, HTML, as a markup language, organizes the material. By combining these technologies, the platform hopes to offer students a smooth and interesting experience when they search for areas of confusion and interact with it.A relational database management system called MySQL is essential for effectively maintaining and accessing data. This technology ensures an efficient and well-organized system by enabling the structured organization of user data, video content, and doubt ideas. A linked and connected database is made possible by the relational architecture of MySQL, which makes it easier to establish relationships between various data items.

3.3.3 Social Feasibility

There is a good chance that the minor project, which focuses on a doubt resolution mechanism for students, will be implemented. The project responds to the changing learning styles and technological proclivities of the student body by giving them the opportunity to investigate and understand themes related to doubt through video content. The project's social viability is improved with the addition of a feature that lets students send in questions on topics related to their doubts and get answers. This system encourages communication, taking into account the various schedules and time restrictions that students could experience. By doing this, the project supports the societal tendency toward convenience and flexibility in educational relationships.Essentially, the small project solves the social structure of simplicity and privacy in addition to adapting to modern learning preferences. The platform's inventive methodology and technological foundations allow it to adapt to evolving needs of the student class and make a constructive impact on the social framework

of educational support systems.

3.4 System Specification

3.4.1 Hardware Specification

For this work, the following specifications of the system used.
Processor:Intel i5 @2.4GHz clock speed
RAM:8 GB
HDD:1 TB

3.4.2 Software Specification

• HTML for structuring web pages, CSS for styling and layout,By utilizing the linear regression algorithm, It provide the most relevant top searches and retrieve the corresponding video. This combination of technologies forms the backbone of the system, enabling students to efficiently search for doubt topics and access relevant video content. • The web pages are structured and giving user an easy-to-use and well-organized layout. It makes sure that search results and getting the recommended video, question submission forms, and video content are displayed correctly.

3.4.3 Standards and Policies

Anaconda Prompt

Anaconda prompt is a type of command line interface which explicitly deals with the ML(MachineLearning) modules.And navigator is available in all the Windows,Linux and MacOS.The anaconda prompt has many number of IDE's which make the coding easier. The UI can also be implemented in python. Standard Used: ISO/IEC 27001

Jupyter It's like an open source web application that allows us to share and create the documents which contains the live code, equations, visualizations and narrative text.It is used for data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning. Standard Used: ISO/IEC 27001

Chapter 4

METHODOLOGY

4.1 Learning Analytics using supervised Machine Learning

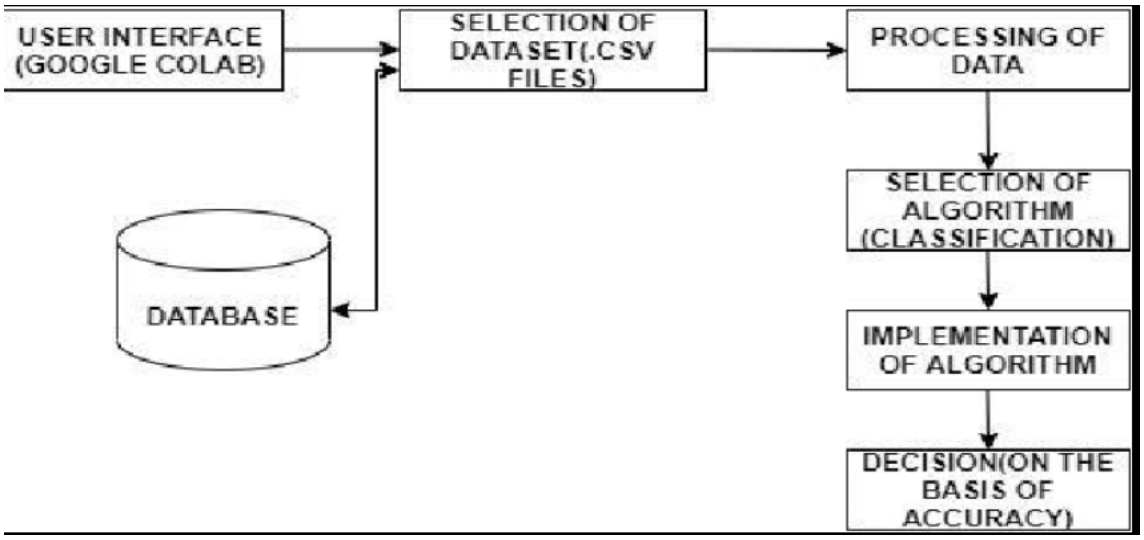

Figure 4.1: Architecture Diagram

Represents firstly collect the Data then the data is processed then it will select the algorithm and then the implementation of that algorithm will be done.Atlast the decision is taken based on the accuracy.

4.2 Design Phase

4.2.1 Data Flow Diagram

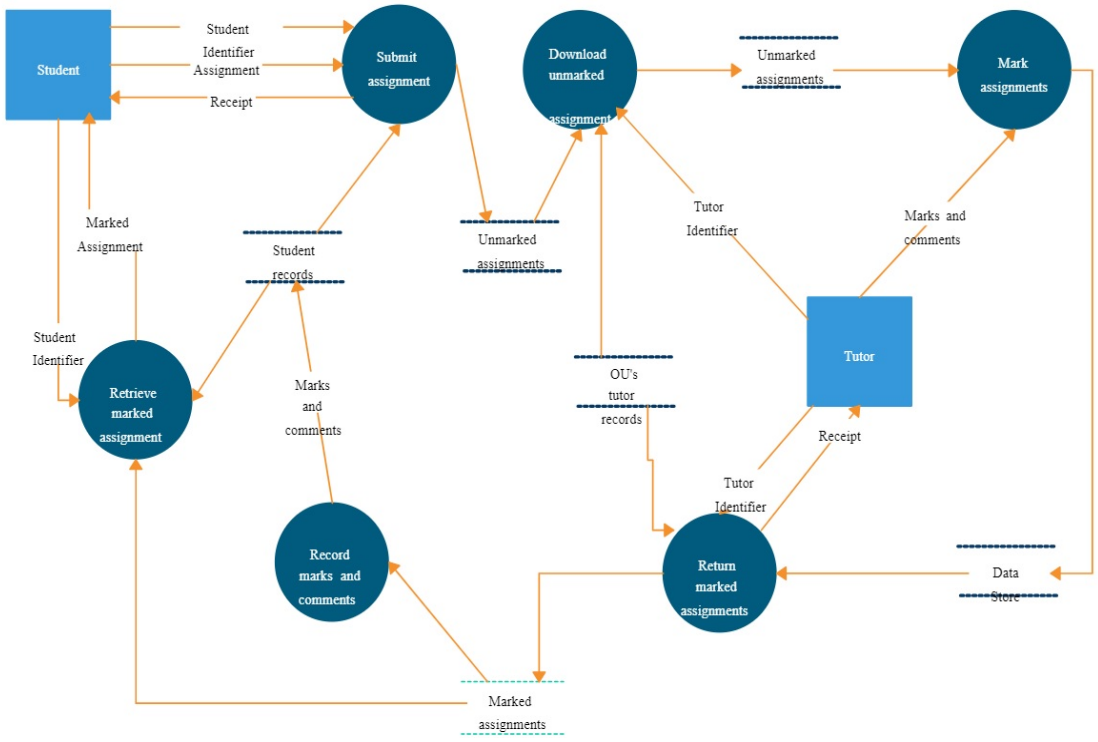

Figure 4.2: Data Flow

Represents that which is divided into several modules. Firstly it will collect the data and then the data is pre-processed and verified then it will create a data table. Then apply the machine learning technique on the data for training phase and then test the data and get the result or output.

4.2.2 Class Diagram

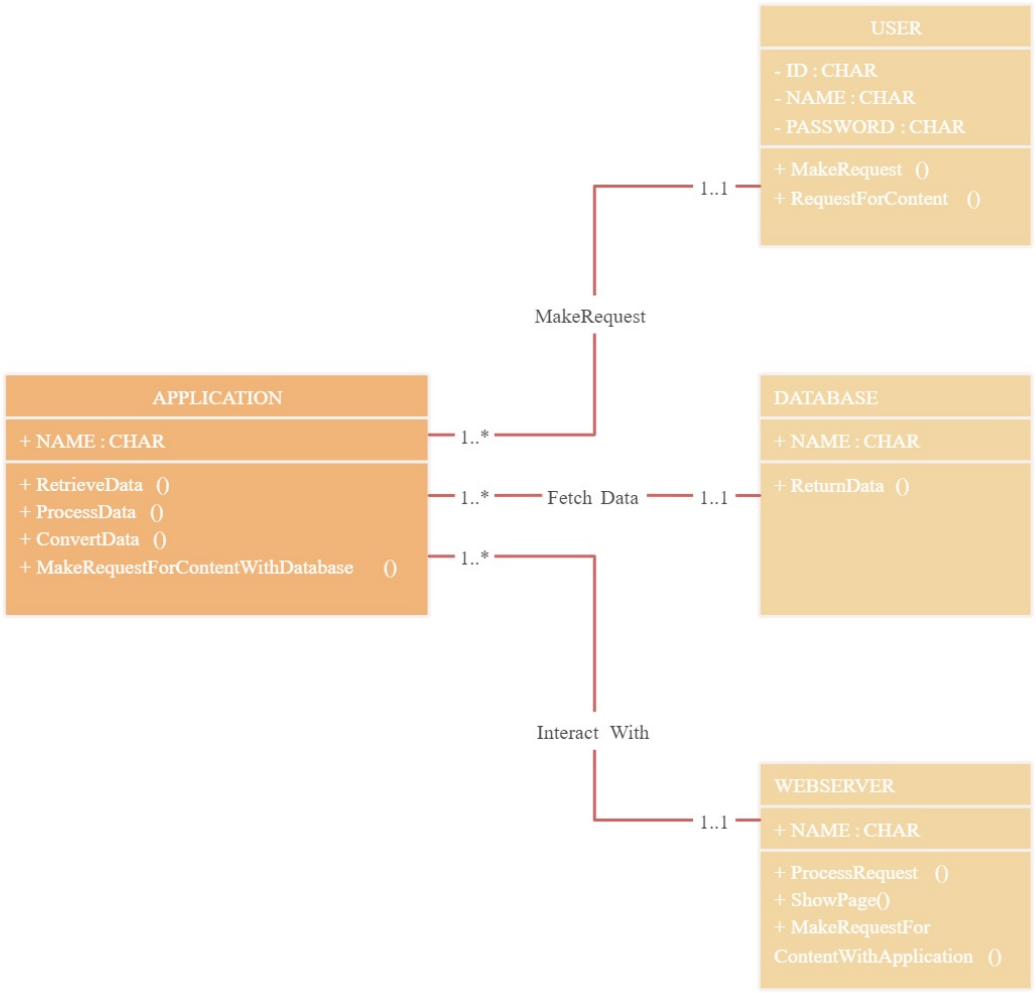

Figure 4.3: Class Diagram

The web portal/website comprises a search engine where a student user interacts with the portal about his query on his course. The Tutor/faculty as an expert will find the solution as a video-based result and store it in video storage as a record. Hence any time the student user tries to ask doubt, the default search engine aka Meta search engine will be automated from the data sheet and shown as results. All the data collected will be served for further processing after the removal of duplicate content

4.2.3 Sequence Diagram

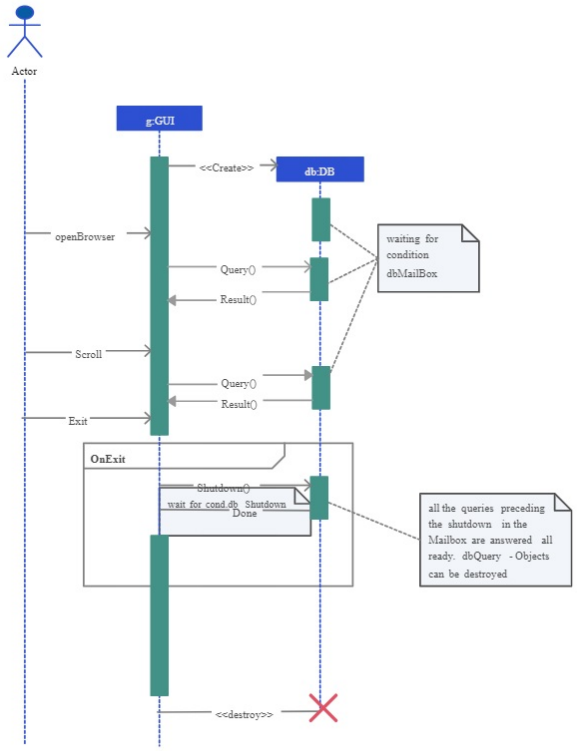

Figure 4.4: Sequence Diagram

The web portal of the website comprises a search engine where a student user interacts with the portal about his query on his course. The Tutor/faculty as an expert will find the solution as a video-based result and store it in video storage as a record. Hence any time the student user tries to ask doubt, the default search engine aka Meta search engine will be automated from the data sheet and shown as results

4.3 Algorithm & Pseudo Code

4.3.1 Enhanced Linear Regression Algorithm

Step 1: First data split onto 'X' array that contains the features and a 'y' array with the target variable.
Step 2: Next split dataset into a training set and a testing set. Train the model on the training set and then use the test set to evaluate the model(Predict 'y' variable). Please note that compare the testing set predicted results with actual results.
Step 3: Train and Test the model Now that with the train and test datasets, evaluate the model using Linear regression as below
Step 4: Predictions from the Model
predictions = model.predict(X-test)
Step 5: Compare the results.

4.3.2 Pseudo Code

```
import pandas as pd
from sklearn.model_selection import
train_test_split
from sklearn.linear_model import
Linear Regression
from sklearn.metrices import mean_squared_error
from sklearn.preprocessing import
standardscaler
data=pd.read_csv("health_insurance_dataset.csv")
x=data.drop("insurance_cost",axis=1)
y=data["insurance_cost"]
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.2,random_state=42)
scaler=standard scaler()
x_train_scaled=scaler.fit_transform(X_train)
X_test_scaled=scaler.transform(X_test)

model=LinearRegression()
model.fit(X_train_scaled,y_train)
predictions=model.predict(X_test_scaled)
mse=mean_squared_error(y_test,predictions)
printf("mean squared error:{mse}")
new_data=pd.dataframe({'age':[30],
'bmi:[25],
'children':[2],
'smoker':[0],
'region_southwest':[0],
```

```
'region_southeast':[1],
'region_northwest':[0],
'region_northeast':[0]

})
new_data_scaled=scaler.transform(new_data)
predicated_cost=model.predict(new_data_scalede)
printf("predicted insurance cost:{predicted_cost[0]}")
```

4.4 Module Description

4.4.1 Data Analysis using Supervised Machine Learning Module:

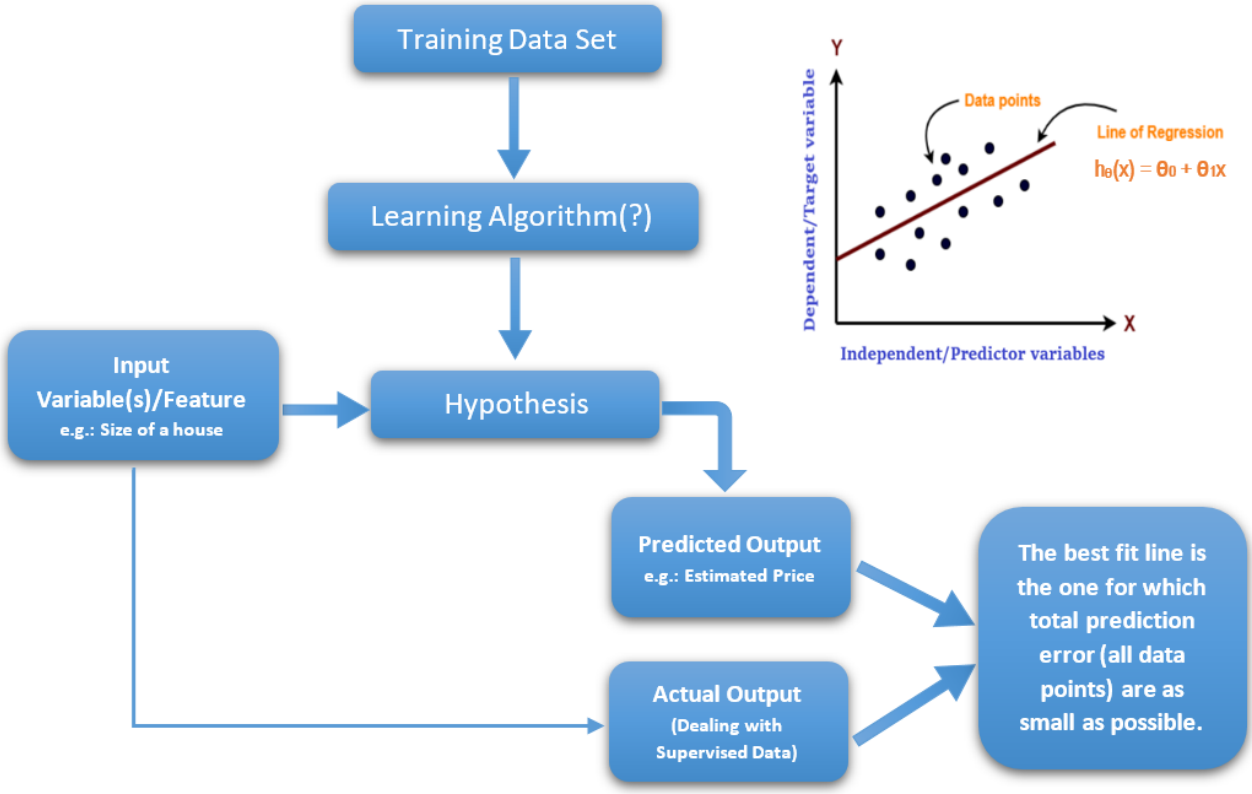

Figure 4.5: Data Analysis of Linear Regression

The data collected through the google form are pre-processed/ filtered/ transformed with features like subject/course, course faculty, expertise, recommendation result, result link, rating etc. These features are classified using linear regression algorithm where best fit out of predicted and actual output will be compared and normalized skew analysis will be done in the so called process.

4.4.2 Video Content Module:

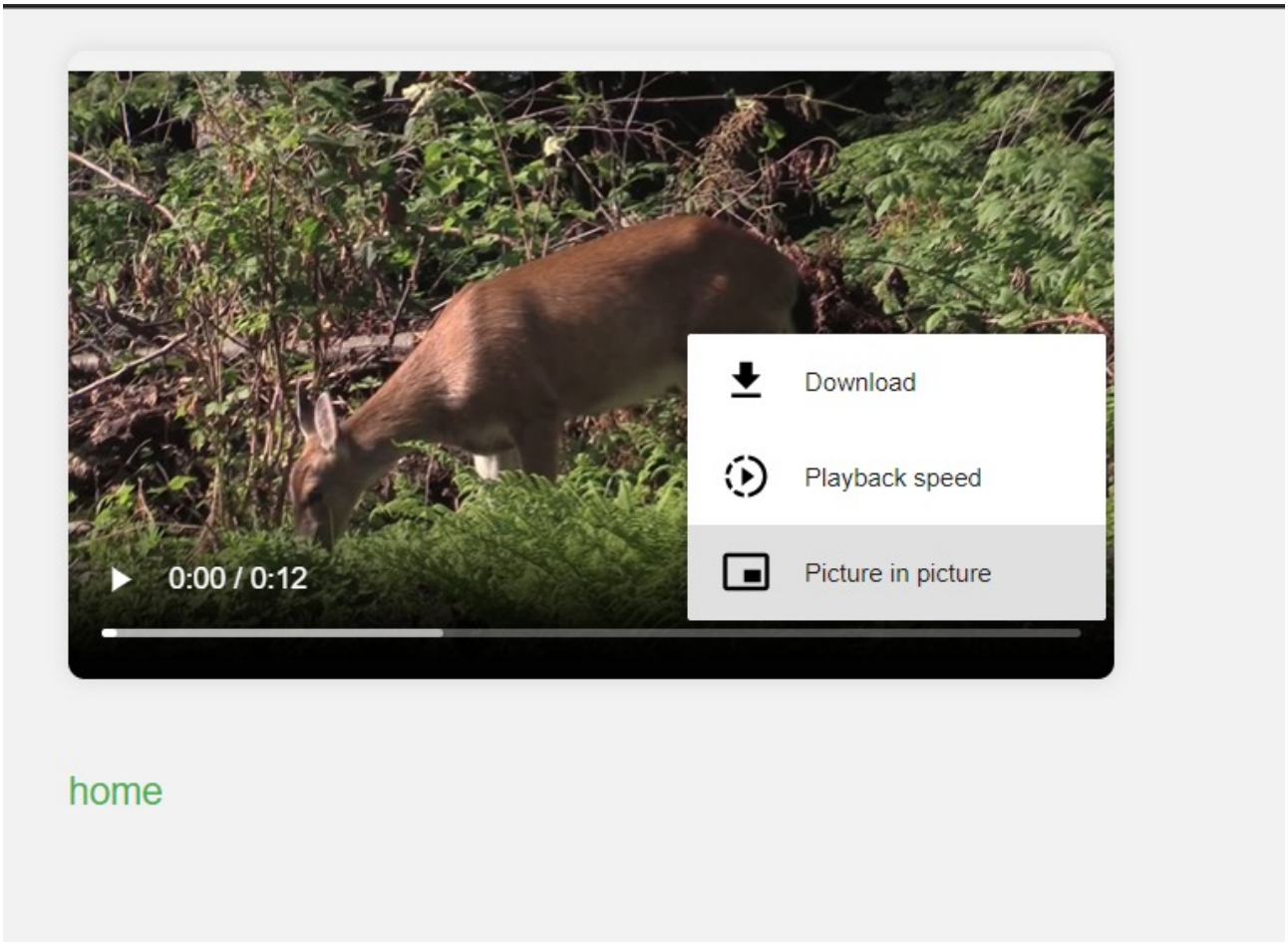

Figure 4.6: Video Content Module

The system searches its database for relevant video content and dynamically processes user queries when a doubt subject search is initiated. The videos that are retrieved are meticulously selected to clarify and enhance comprehension of the particular topic related to the user's query.

The platform tries to offer an extensive education that supports a range of learning preferences through the use of visual explanations and demonstrations. The video material not only covers the particular topic that has been discovered, but also aims to improve the general understanding of related ideas, promoting a deeper understanding of the topic.

4.4.3 Question Submission Module:

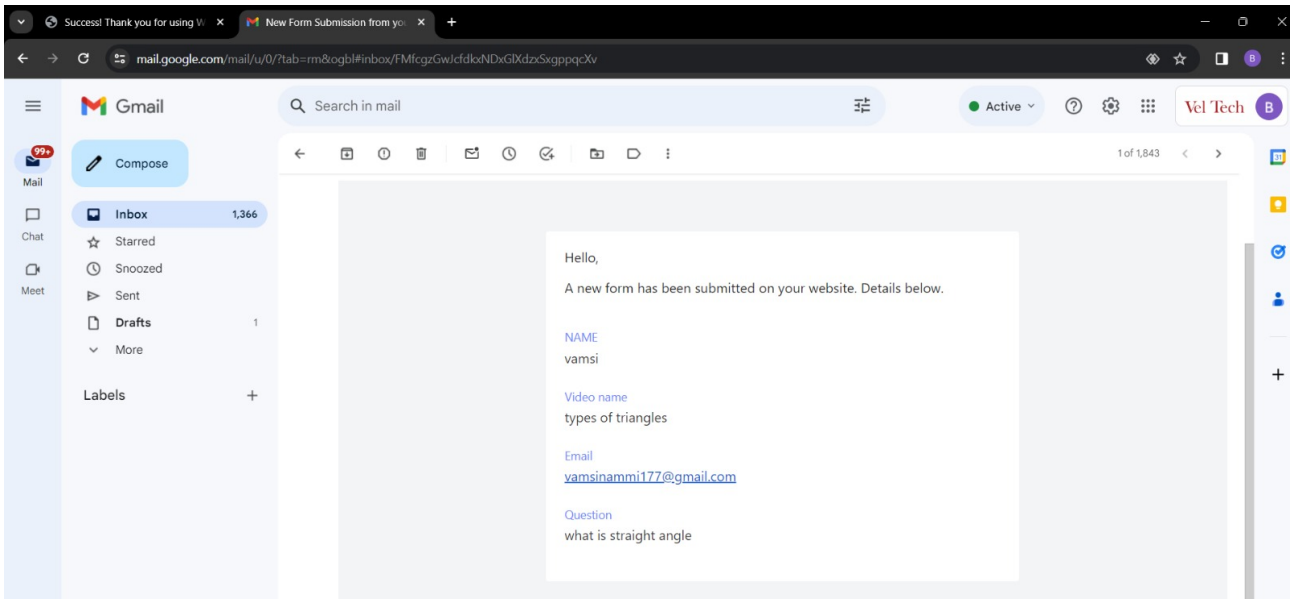

Figure 4.7: Question Submission Module

When users send in inquiries and their email addresses, the admin responds by providing a quick and customized answer procedure. The platform allows simple and asynchronous contact by employing an email-based communication channel. This allows students to receive customized responses at their own pace. This methodology recognizes the varied timetables and learning patterns of users, permitting them to request academic support without the limitations of immediate contact. The email responses provide comprehensive answers, elucidations, and supplementary materials, which enhance comprehension of the questions students asked. This approach not only guarantees confidentiality and personalized help but also fosters an ongoing and easily available channel for academic support.

4.5 Steps to execute/run/implement the project

The steps involved in the execution of this work is as follows.
Take input data
Changing input data to a numpy array
Reshape the array
It will predict the charges of the given data

Chapter 5

IMPLEMENTATION AND TESTING

5.1 Input and Output

5.1.1 Input Design

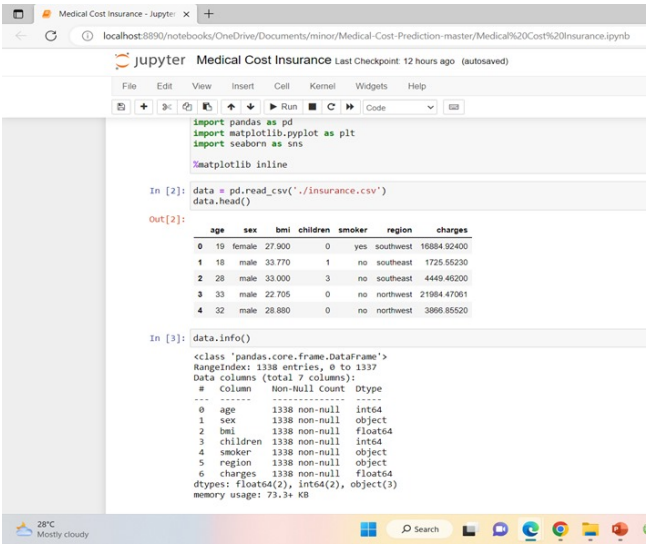

Figure 5.1: Input Design

Import all libraries to support the code logically, analyse the data set, there after identify the missing value.questions and questions belongs to which subject like we collected the data

5.1.2 Output Design

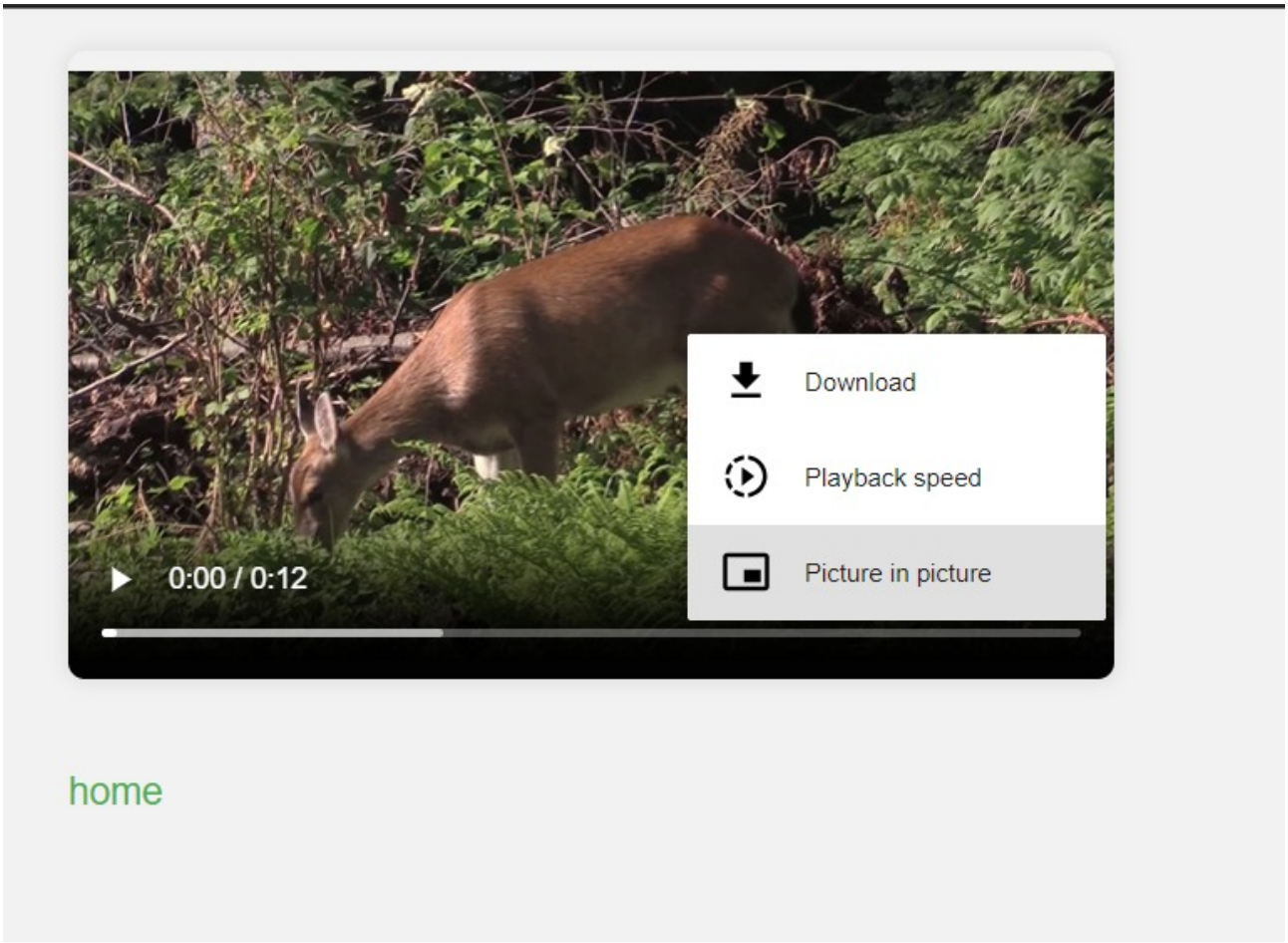

Figure 5.2: Output Design

The system searches its database for relevant video content and dynamically processes user queries when a doubt subject search is initiated. The videos that are retrieved are meticulously selected to clarify and enhance comprehension of the particular topic related to the user's query.

5.2 Testing

5.2.1 Unit Testing

Unit testing focuses verification efforts on the littlest unit of the soft- ware design, the module. This is also known as "Module Testing". The modules are tested separately. This testing carried out during programming stage itself. During this testing each section is found to be working satisfactorily as wanted to the expected output from the module.

5.2.2 Integration Testing

Integration testing is systematic testing for construction the program structure while at an equivalent time conducting tests to uncover errors related to within the interface. The objective is to require unit tested modules and build a program structure. All the modules are combined and tested as an entire

5.2.3 System Testing

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

Chapter 6

RESULTS AND DISCUSSIONS

6.1 Efficiency of the Proposed System

Random Forest Regression may be a supervised learning algorithmic rule that uses ensemble learning technique for regression. Ensemble learning technique may be a technique that mixes predictions from multiple machine learning algorithms to form a a lot of correct prediction than one model. Pick every which way k knowledge points from the coaching set. The accuracy of our thought is 90 percent. Build a call tree associated to those k knowledge points. Choose the quantity N of trees you would like to create and repeat steps for a brand new information, create every one of your N-tree trees predict the worth of y for the information purpose in question and assign the new information to the common across all of the anticipated y values. A Random Forest Regression model is powerful and correct. It always performs nice on several issues, together with options with non-linear relationships. Disadvantages, however, embrace the following: there's no interpretability, over fitting might simply occur, we have a tendency to should select the quantity of trees to incorporate within the model.

6.2 Comparison of Existing and Proposed System

Existing system:
Multiple statistical regression is one among the vital regression algorithms that models the linear relationship between one dependent continuous variable and over one experimental variable.Multiple statistical regression (MLR), conjointly illustrious merely as multiple correlation, could be a applied mathematics technique that uses many instructive variables to predict the end result of a response variable. multiple correlation analysis is an extension of linear regression that uses only 1 instructive variable.

Proposed system:

Random Forest Regression is a supervised learning formula that uses ensemble learning technique for regression. Ensemble learning technique may be a technique that mixes predictions from multiple machine learning algorithms to form a a lot of correct prediction than one modelRandom forests are created from subsets of information and also the final output is predicated on the average or majority ranking and thus the matter of overfitting is taken care of. it's relatively slower.Random forest haphazardly selects observations, builds a call tree and also the average result's taken.

6.3 Sample Code

```
\begin{lstlisting}
#import neccessary libraries
import pandas as pd
 from sklearn.linear model import linear regression
 from sklean .metrics import means squarederor
 # Load data
 data = pd . read csv (    medicalinsurance     data . csv    )

 # Splitdatain to features and target variable
X = d a t a [ [     age     ,     gender     ,     bmi     ,     children     ,     do you smoke ?
        ,     which region     ] ] # Input features
 y = data [     charges     ] # Target variable

 # Split data in to training and  testingsets
 from sklearn . model selection import train test t split
 X train , X test , y train , y testt = train test split (X,y , test size= 0 . 2 , randomstate =42)

 # Create an instance of the linearRegression model
 model = Linear Regression ( )

 # Train the model on the  trainingdata

 model . fit ( X train , y train )

 # Evaluate the performance of the model on the testing data
 y pred = model . predict ( X test )
 mse = mean squaredrror ( y test , y pred )
\subsubsection{Output}

<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
    <meta charset="utf-8">
```

```
    <title>Search Bar Page</title>
    <link rel="stylesheet" href="style.css">
</head>
<body>
    <form method="post">
        <label>Search here</label>
        <input type="text" name="search">
        <input type="submit" name="submit">
    </form>
</body>
</html>

<?php
// Set the connection
$con = new PDO("mysql:host=localhost; dbname=videosearch", 'root', '');

// Check the connection
if (!$con) {
    die("Connection Failed: " . mysqli_connect_error());
}

// Submit the search and select from the database
if (isset($_POST["submit"])) {
    $searchQuery = $_POST["search"];
    // Insert search query into search history table
    $insertQuery = $con->prepare("INSERT INTO search_history (search_query) VALUES (:search_query)")
        ;
    $insertQuery->bindParam(':search_query', $searchQuery);
    $insertQuery->execute();

    $str = $_POST["search"];
    $sth = $con->prepare("SELECT * FROM `videos` WHERE name LIKE '%$str%'");

    $sth->setFetchMode(PDO::FETCH_OBJ);
    $sth->execute();

    if ($sth->rowCount() > 0) {
        ?>
        <br>
        <table>
            <tr>
                <th>Name</th>
            </tr>
            <?php
            while ($row = $sth->fetch()) {
                ?>
                <tr>
                    <td><a href="play.php?location=<?php echo $row->location; ?>"><?php echo $row->
                        location; ?></a></td>
                </tr>
```

```
                <?php
            }
            ?>
        </table>
        <?php
    } else {
        echo "<p>No videos found for the given search criteria.</p>";
    }
}
?>

<?php
$host = "localhost";
$user = "root";
$password = "";
$dbname = "videosearch";

//Create connection

$con = mysqli_connect($host, $user, $password, $dbname);

//check connection
if(!$con){
    die ("Connection failed:" .mysqli_connect_error());
}
?>

<?php
include("config.php");
?>

<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
    <meta charset="utf-8">
    <title>Play Videos Page</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <div class="video-container">
        <?php
        if (isset($_GET['location'])) {
            $location = $_GET['location'];
            echo "<div class='video-player'>";
            echo "<video>
            <a href="index.php" class="button">Home</a>
            <a href="email.html
```

6.4 Output:

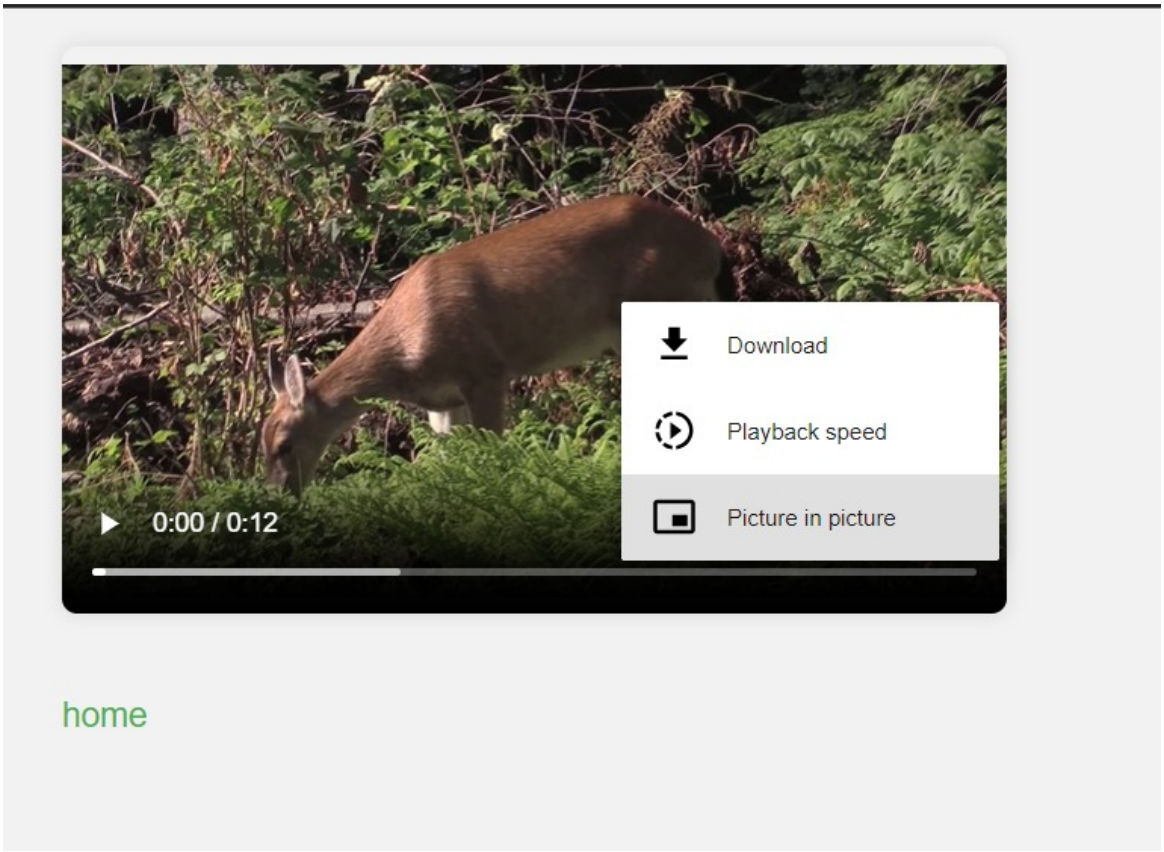

Figure 6.1: Final Output after analytical work

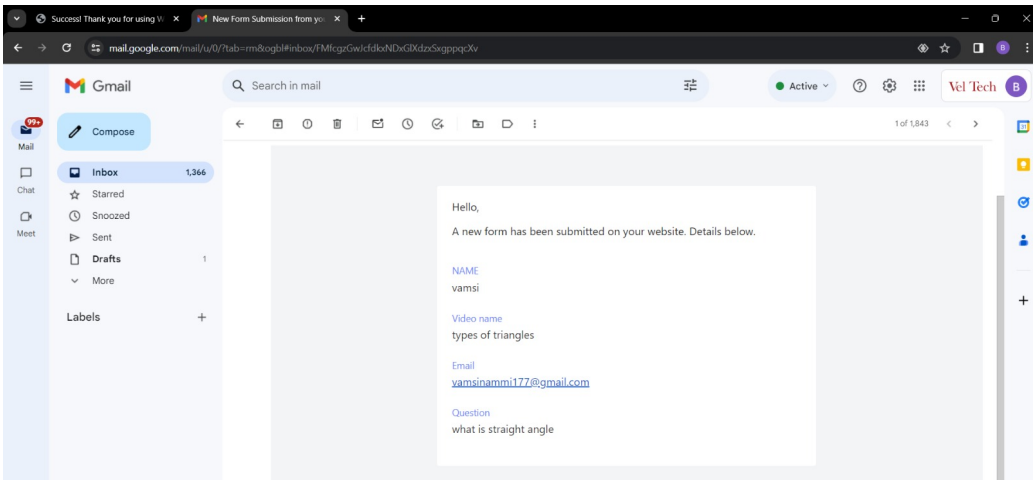

Figure 6.2: Alternative Output as an E-mail to user/learner

6.5 Outcome Analysis:

After the linear regression analysis of the predicted and actual output, the best fit recommendation og better rating topic will be fit in search module outcome as

ranked one result.This analysis is shown in Figure 6.3.

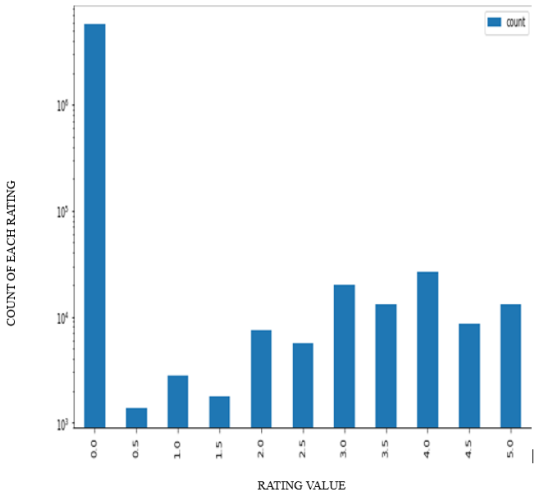

Figure 6.3: Data Analysis Graph- Rating and Rating Recommendation

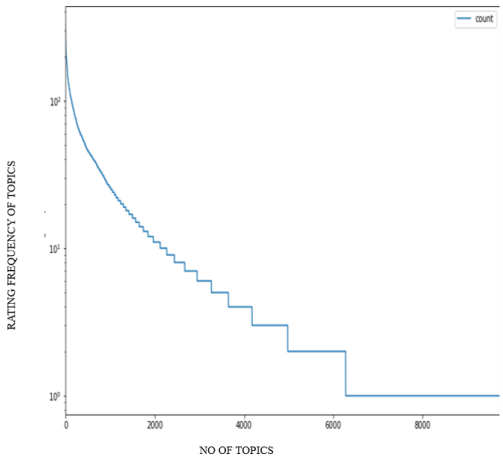

Figure 6.4: Data Analysis Graph: Count Analysis versus Topics

The Count analysis with topics supplied fed till then is shown in figure6.4. Where as the topic Rating and Count also analyzed for the better performance count in figure 6.5.

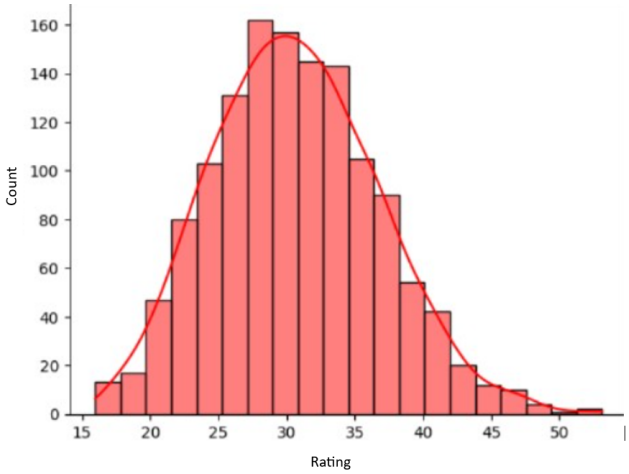

Figure 6.5: Rating vs Count

Chapter 7

CONCLUSION AND FUTURE ENHANCEMENTS

7.1 Conclusion

This project work highlights the effective use of an innovative system designed to reduce students' doubts about their academic performance. With the help of this framework, students may easily look up topics of confusion and view related videos. The main aspect of the project allows students to ask questions about the subjects of their doubts to receive personalized help. By providing an email address, students start a problem-resolution process that results in customized email responses. This E-mail communication structure provides a flexible and accommodating learning environment by meeting students' various schedules and goals

The project's ability to empower students in their learning process is what makes it effective overall. The technology provides a full answer to academic uncertainties by combining email-driven question-and-answer systems with video-based information distribution. This method supports independent learning as well as allowing various learning styles, all in line with current education.The project offers students a useful tool to improve their comprehension and engagement with academic subject, demonstrating the practical application of technology in education.

7.2 Future Enhancements

This work is designed to facilitate student query resolution through a online platform. While the current implementation allows students to search doubt topics and receive relevant video content, there are potential future enhancements that can further optimize the platform. Firstly, the integration of an advanced recommendation system could be explored. By analyzing user interactions and preferences, the platform could suggest additional video resources related to the searched doubt topic.

This enhancement aims to enhance the depth and breadth of the learning experience by providing a more comprehensive array of relevant content.

Additionally, incorporating a community-driven feature may contribute to a collaborative learning environment. Students could engage in discussions, share insights, and collectively address common doubts. Implementing user-generated content and collaborative problem-solving functionalities could foster a sense of community and knowledge-sharing among users. The expansion of the platform's multimedia capabilities is another potential enhancement. While video content is a valuable medium, incorporating supplementary materials such as interactive quizzes, simulations, or downloadable resources could offer a more diverse and engaging learning experience.

Chapter 8

PLAGIARISM REPORT

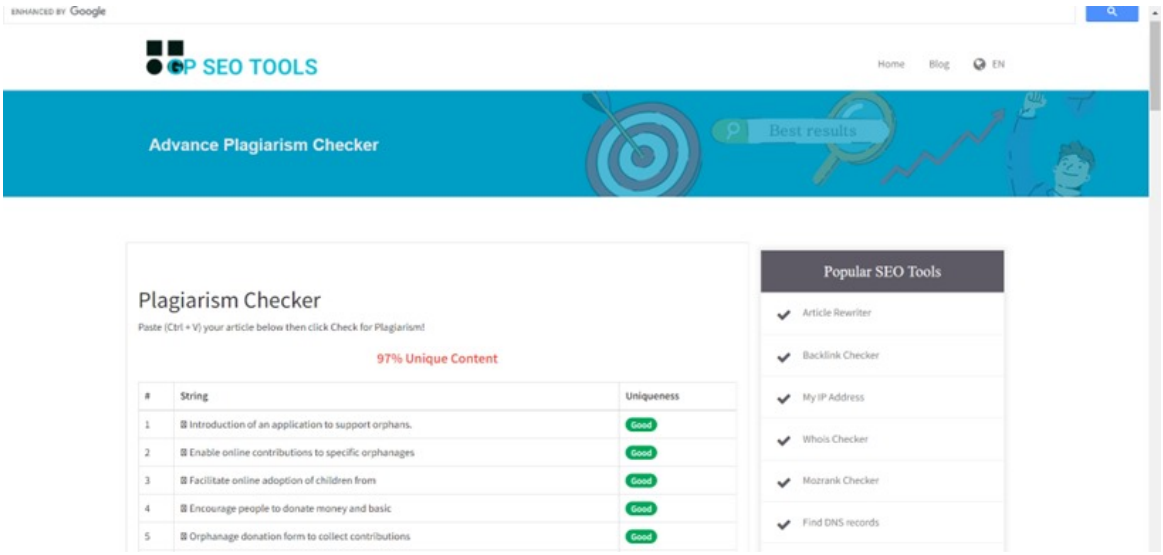

Figure 8.1: plagarism report

Chapter 9

SOURCE CODE & POSTER PRESENTATION

9.1 Source Code

```
#import neccessary libraries
import pandas as pd
 from sklearn.linear model import linear regression
 from sklean .metrics import means squarederor
 # Load data
 data = pd . read csv (    medicalinsurance     data . csv    )

 # Splitdatain to features and target variable
X = d a t a [ [     age     ,     gender     ,     bmi     ,     children     ,     do you smoke ?
        ,     which region     ] ] # Input features
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 X train , X test , y train , y testt = train test split (X,y , test size= 0 . 2 , randomstate =42)

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 # Evaluate the performance of the model on the testing data
 y pred = model . predict ( X test )
 mse = mean squaredrror ( y test , y pred )
\subsubsection{Output}

<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
    <meta charset="utf-8">
    <title>Search Bar Page</title>
    <link rel="stylesheet" href="style.css">
</head>
```

```
<body>
    <form method="post">
        <label>Search here</label>
        <input type="text" name="search">
        <input type="submit" name="submit">
    </form>
</body>
</html>

<?php
// Set the connection
$con = new PDO("mysql:host=localhost; dbname=videosearch", 'root', '');

// Check the connection
if (!$con) {
    die("Connection Failed: " . mysqli_connect_error());
}

// Submit the search and select from the database
if (isset($_POST["submit"])) {
    $searchQuery = $_POST["search"];
    // Insert search query into search history table
    $insertQuery = $con->prepare("INSERT INTO search_history (search_query) VALUES (:search_query)")
        ;
    $insertQuery->bindParam(':search_query', $searchQuery);
    $insertQuery->execute();

    $str = $_POST["search"];
    $sth = $con->prepare("SELECT * FROM `videos` WHERE name LIKE '%$str%'");

    $sth->setFetchMode(PDO::FETCH_OBJ);
    $sth->execute();

    if ($sth->rowCount() > 0) {
        ?>
        <br>
        <table>
            <tr>
                <th>Name</th>
            </tr>
            <?php
            while ($row = $sth->fetch()) {
                ?>
                <tr>
                    <td><a href="play.php?location=<?php echo $row->location; ?>"><?php echo $row->
                        location; ?></a></td>
                </tr>
                <?php
            }
            ?>
```

```
        </table>
        <?php
    } else {
        echo "<p>No videos found for the given search criteria.</p>";
    }
}
?>

<?php
$host = "localhost";
$user = "root";
$password = "";
$dbname = "videosearch";

//Create connection

$con = mysqli_connect($host, $user, $password, $dbname);

//check connection
if(!$con){
    die ("Connection failed:" .mysqli_connect_error());
}
?>

<?php
include("config.php");
?>

<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
    <meta charset="utf-8">
    <title>Play Videos Page</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
```

9.2 Poster Presentation

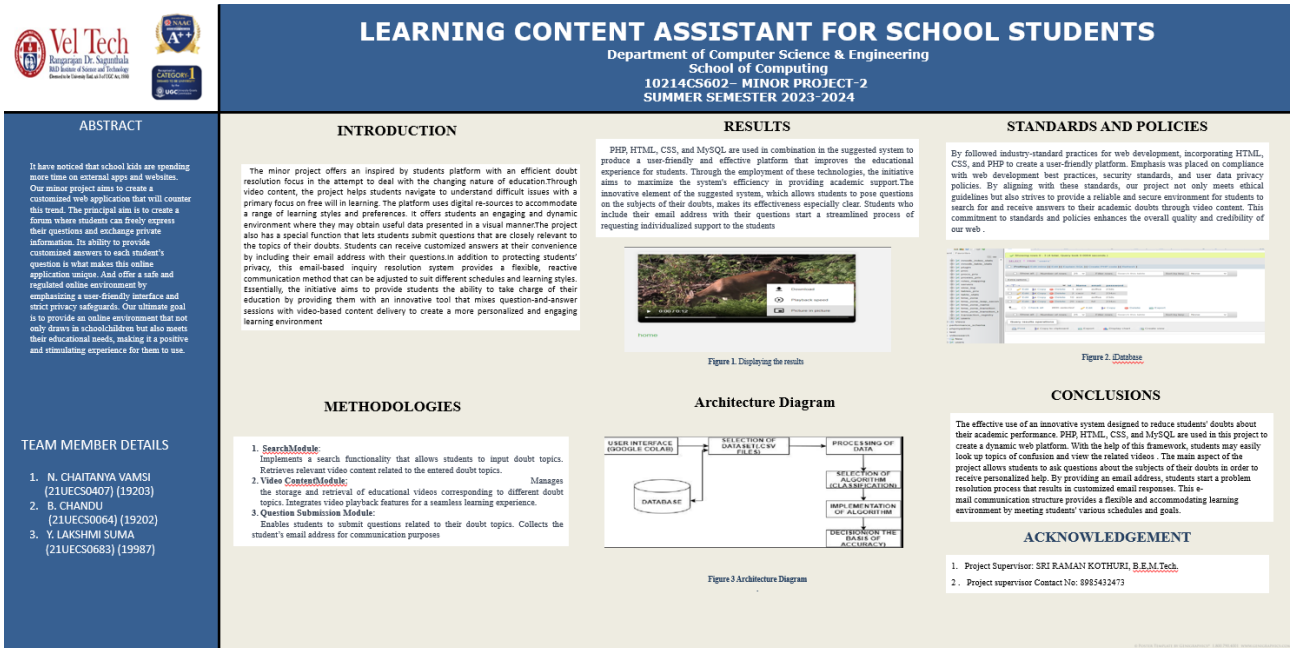

Figure 9.1: Poster

Appendix A

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