A

MINI PROJECT REPORT

ON

EQ Based Student Performance Analysis: Linear Regression An Estimation Model

Submitted in partial fulfillment of the requirements for the degree of

Bachelor of Technology
In
Information Technology

By

Kavita Vijay Jagtap (1954491246077)

Dhiraj Vinod Patil (1954491246036)

Under the guidance
of
Prof. Rubi Mandal

DEPARTMENT OF INFORMATION TECHNOLOGY

SHRI VILE PARLE KELAWANI MANDAL'S

INSTITUTE OF TECHNOLOGY, DHULE

Survey No. 499, Plot No. 02, Behind Gurudwara, Mumbai-Agra National Highway, Dhule- 424001, Maharashtra, India.

Academic Year 2021-22

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CERTIFICATE

This is to certify that the TY B.TECH. Mini Project Report Entitled

"EQ Based Student Performance Analysis: Linear Regression An Estimation Model"

Submitted by

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Dhiraj Vinod Patil (1954491246036)

is a record of bonafide work carried out by him/her, under our guidance, in partial fulfillment of the requirement for the award of Degree of Bachelors of Technology (Information Technology) at Shri Vile Parle Kelawani Mandal's Institute Of Technology, Dhule under the Dr. Babasaheb Ambedkar Technological University, Lonere, Maharashtra. This work is done during semester VIII of Academic year 2021-22.

Date:
Place: SVKM's IOT, Dhule

Prof. Rubi Mandal	Prof. Sachin Kamble	Dr. Bhushan Chaudhari	Dr. Nilesh Salunke
(Project Guide)	**(Project Coordinator)**	**(HOD)**	**(Principal)**
Dept. of IT, SVKM-IOT	Dept. of IT, SVKM-IOT	Dept. of IT, SVKM-IOT	SVKM-IOT, Dhule

Name and Sign with date
Examiner-1

Name and Sign with date
Examiner-2

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 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 cause 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.

Signatures

Kavita Vijay Jagtap (1954491246077) _____

Dhiraj Vinod Patil (1954491246036) _____

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Names of Team Members:

1) Kavita Vijay Jagtap.
2) Dhiraj Vinod Patil.

ABSTRACT

In today's highly competitive world, where most students have an equal level of IQ, the Emotional Quotient isone of the most distinguishing aspects, aside from cognitive skills, that drives a student's development and progress. As a result, both EQ and IQ are required to evaluate student achievement. Research done so far has focused on IQ, but EQ is also important for a student's overall development and progress. Students can managetheir emotions and avoid major problems by understanding their EQ level. As a result, this research primarily focuses on EQ and assists students to analyze their performance and teachers in analyzing their overall class performance via a platform that uses data analysis for visualization and machine learning to forecast student evaluation based on past records that include not only grades but also personal life, behavioral skills, and other factors using linear regression for superintend learning using the Sci-kit learn library is used for prediction.

Keywords: EQ, website, Data analysis, Data visualization, Machine learning, Sci-kit learn.

LIST OF ABBREVIATIONS

IQ	Imotional Quotient
EQ	Emotional Quotient
LASSI	Learning And Study Strategies Inventory
MAE	Mean Average Error
LR	Linear Regression

LIST OF FIGURES

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CHAPTER 1

1.1 Introduction to Project:

Student performance is a major concern in educational institutions, where a variety of factors can influence student performance. Predicting and analysing student academic performance is a long-standing research topic in many academic disciplines. Based on the results of a predictive model, the instructor can take proactive steps to improve student learning, particularly for students who perform poorly [10].

Today's scenario is that the performance of students gets judged only by their grades or intelligence quotient(IQ), but emotional quotient(EQ), which includes personal and non-educational factors, must also be considered. The proposed New Education Policy is primarily concerned with improving the quality of education that can be produced by making students emotionally intelligent [3]. Based on this the question arises, how emotional quotient can affect academic performance and overall development of the student? Emotional intelligence is measured by the emotional quotient. An emotional quotient is the ability to recognise and regulate one's own and others' emotions, as well as the ability to communicate effectively which helps to solve problems and live a more productive life [5,6]. There are five factors on which emotional quotient is based on, that are [9]-

- Self-Awareness - Self-awareness refers to a person's ability to comprehend their own emotions, feelings, behaviour, strengths, and weaknesses. A student with a high sense of self-awareness has a good sense of humour and confidence.
- Self-Regulation - The next step is to regulate yourself and your emotions once you have become self-aware and understand them. Self-regulation entails taking control of your emotions and managing them as needed.
- Self-Motivation: When there is tension, there is motivation to resolve the tension and achieve the goal. Self-motivation is critical when working toward a goal. It is critical to maintaining focus and attention.
- Empathy - Understanding the emotions of others is what empathy entails. It is critical because the world is becoming too self-centred. People with empathy can understand the needs and desires of others.
- Social Skills - The ability to interact with and maintain relationships with others is referred to as social skills.

Emotions and learning occur in the brain. Receiving knowledge or skills is referred to as learning. Learning necessitates thought. Our thoughts influence how we feel, and how we feel influences how we think. The links between emotion and learning are bidirectional and complex. Sensations serve as relay stations between sensory input and thought. When the input is positively replicated, we are motivated to act and achieve a goal. We do not act or learn when the input is negative. Learning is influenced as much by a person's sensitive awareness of an educational environment as it is by the instructional method. Emotionally intelligent students are healthier, more employable, and have better relationships with their peers, also emotional knowledge helps students achieve higher levels of achievement and provides them with skills for their personal and professional lives [2]. Some students are academically brilliant but socially and personally incapable of managing their lives due to low EQ. As a result, they become depressed and must deal with serious health issues, as well as commit suicide or engage in illegal activities [1]. Therefore it is necessary to predict and analyse students' performance by considering both intelligence and emotional quotient. Thus, there is a need for a model or a system that can judge the EQ level and thereby judge the overall performance of a student. Research done till now uses a set of

questionnaires, data mining tools, meta-analysis, Artificial intelligence etc. The proposed work gives a solution using data analysis and machine learning that uses python as a programming language.

Data analysis and machine learning have proven to be very efficient and decisive in many sectors, including education, over the years. Data analysis is an interdisciplinary field that deals with structured and unstructured data and employs scientific methods, processes, algorithms, and systems to extract knowledge and insights from the data [4]. Machine learning is a branch of AI in which a computer system can learn from data and make decisions. One of the most important fields today is machine learning [7]. Machine learning has emerged as one of the most important fields within development organisations seeking innovative ways to grasp data assets to help the business achieve a new level of understanding. Machine learning applications include, but are not limited to, fraud detection, equipment failure prediction, pattern and image recognition, and so on [8].

By considering the above scenario, to provide a solution, the proposed methodology contains a performance analyser website for students and teachers (which is based on psychological, personal, and environmental factors that use data analysis for showing the cumulative analysis of student performance in the form of different types of plot like box-plot, pie chart, line chart, Bar-chart etc., and machine learning to predict the grades based on currently available data using linear regression algorithm. Some dataset parameters have given scaling, such As-Study time (4 - Greater than 10 hours, 3- 4 to 10 hours, 2 - up to 5 hours,1 - Less than 2 hours), Mother Education (4 - Higher(Degree) Education,3 - up to 12th Standard, 2 - unto 10th Standard, 1 – up to 4th Standard) Father education (4 - Higher(Degree) Education, 3 - up to 12th Standard, 2 - unto 10th Standard, 1 – up to 4th Standard).

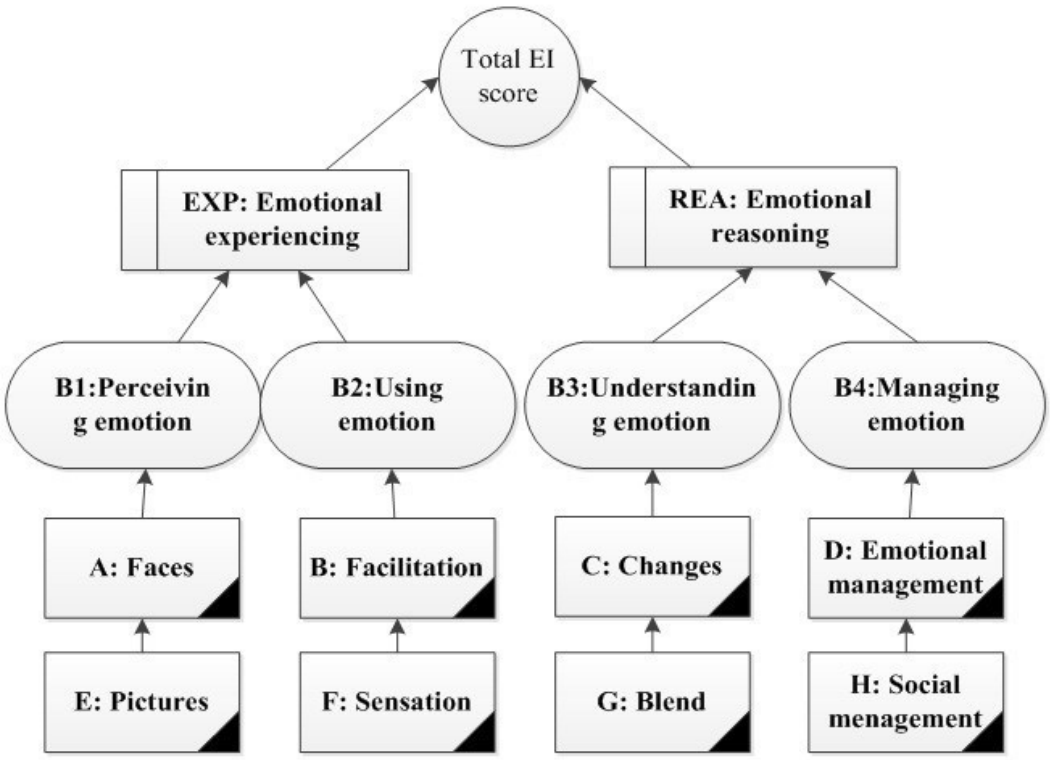


Fig 1.1 Parameters of EI score

1.2 Motivation:

In the highly competitive world today where most of the students have an equal level of IQ, but one of the most distinguishing factor is the Emotional Quotient. Therefore, both EQ and IQ are necessary to evaluate the student performance.

Today's scenario is that the performance of students gets judged only by their grades or intelligence quotient(IQ), but emotional quotient(EQ), which includes personal and non-educational factors, must also be considered. The proposed New Education Policy is primarily concerned with improving the quality of education that can be produced by making students emotionally intelligent.

"It's not enough to be smart and hardworking. Students must also be able to understand and manage their emotions to succeed" - Carolyn MacCan.

1.3 Problem Statement

There are students who are academically brilliant and yet are socially and inter-personally inept due to their low EQ level.

EQ is the ability to understand our owns and others emotions to succeed. If students unable to manage their emotions, they are probably not managing their stress level, this can lead to serious health problems.

Therefore, we develop a performance analyzer website for students and teachers that uses data analysis and machine learning to analyze and predict student performance which is not only based on grades but also on other non-educational factors including their personal life and their behavioral skills, which help student to analyze his EQ and develop it accordingly. Knowing the EQ level, students are able to express how they feel. This allows them to communicate more effectively and form stronger relationships, both at college/school and in their personal life.

CHAPTER 2

2. Literature Survey

2.1 Survey of Existing System

Emotional intelligence is defined as the ability to recognize and distinguish one's own and other people's emotions, as well as to use emotional information to guide one's thinking and behavior [1].

The most complicated organ of the human body is the mind, which may be linked to intelligence. As a result, this work was an attempt to quantify the function of the mind through the calculation of the EQ and IQ using the K-means clustering approach, as well as the quantification of the intelligent index (combining EQ with IQ in varying proportions.) [2].

Emotional intelligence (EI) is an important attribute in today's world. In this regard, determining and normalizing the measures used to explore and recognize dimension levels assists educators in having an effective intervention and raising students' academic accomplishment levels. This research aimed to see if there is a relationship between emotional intelligence (EI) and academic achievement among Arabic primary school pupils in China. It also attempted to assess the student's emotional intelligence and desire to learn. The research's intention is met with the use of an instrument that investigates emotional intelligence and motivation. The instrument is s pilot testing. It is used to evaluate the psychometric features of a 60-item initial emotional intelligence scale [3].

Emotions can either boost or depress a person who is confronted with various events at any one time. The major goal of this research project is to deliver emotional-based learning and analyze the results using data mining methods. This research investigates how emotions affect a learner's learning and the success of performance improvement of various learners in diverse environments, which leads to a learner's success. This research examines emotional intelligence (EI) and its relationship to academic achievement [4].

Schools and institutions dedicate a lot of effort and resources to developing students' social and emotional skills. The goals of such programs are to help students develop their personalities and to improve their academic performance. This paper is based on a meta-analysis, which examines the correlation between student EI and academic performance. An extensive meta-analysis shows that students who have higher levels of emotional intelligence receive higher grades and achievement results. The association between skill-based emotional intelligence and academic performance gets stronger [5].

Emotional knowledge helps to enhance students' accomplishments and offers them skills for their personal and professional lives. This paper mainly studies the emotional intelligence of high-school students. A total of 300 students from higher secondary schools were included in the study. Data was collected using the Reuven baron's emotional intelligence scale, which he designed and standardized. The data were analyzed using statistical approaches such as mean, percentiles, standard deviation, and t-value. The findings reveal that emotional intelligence is unaffected by gender, subject, school location, family

type, father's occupation, or family income. In terms of emotional intelligence, female students are better than male students [6].

Machine learning (ML) gives the ability to transmit massive amounts of data rapidly and easily. Due to the Pandemic, only stress-free human capital can compete in the market and survive. Through the use of various machine learning algorithms, this study aims to re-discover the role of emotional intelligence in regulating stress and also discusses how HR practitioners can utilize Machine Learning to forecast all workers' emotional quotients and thereby stress levels, at the time of their induction into the company [7].

Emotional intelligence, self-esteem, and academic success are examined in a descriptive-correlative fashion. The study includes 2000 students from Kahnooj Payam-e Nour University as its statistical population. The group sample of 300 students was chosen at random. Data was collected using Bar-emotional Ann's intelligence assessment and Pop's self-esteem scale. Data from descriptive statistic indices such as frequency, average, and standard deviation, Pearson's correlation coefficient, and independent T-test were analyzed using SPSS. The findings revealed that students' emotional intelligence and self-esteem had little bearing on their academic performance. Female students had stronger self-esteem than male students, according to the findings [8].

The purpose of this study is to look into the link between Emotional Intelligence and Learning Strategies. The statistical sample for the study includes 100 academic students from various fields. Two questionnaires have been used to collect information: The learning and Study Strategies Inventory (LASSI) and The Bar-On questionnaire and the. According to the findings, 1. Both females and males have a substantial association between total emotional intelligence and learning strategies2. Academic subjects and Emotional Intelligence are not correlated. 3. There is no identifiable relationship between students' learning styles and their academic fields. 4. The usage of learning tactics differs significantly between females and males [9].

For predicting student performance, three models were tested using test and train data: linear regression for supervised learning, linear regression with deep learning, and neural network, with linear regression for supervised learning having the best mean average error (MAE)[10].

2.2 Limitation Existing System or research gap

The result could be better if the dataset was much bigger, let say having thousands more entries or more. Machine learning algorithms try to find patterns in data that make them efficient in the use of huge datasets. This does not mean machine learning can’t be effective on small datasets.

CHAPTER 3

3. Proposed System

3.1 Analysis/ Framework/ Algorithm / UML diagrams

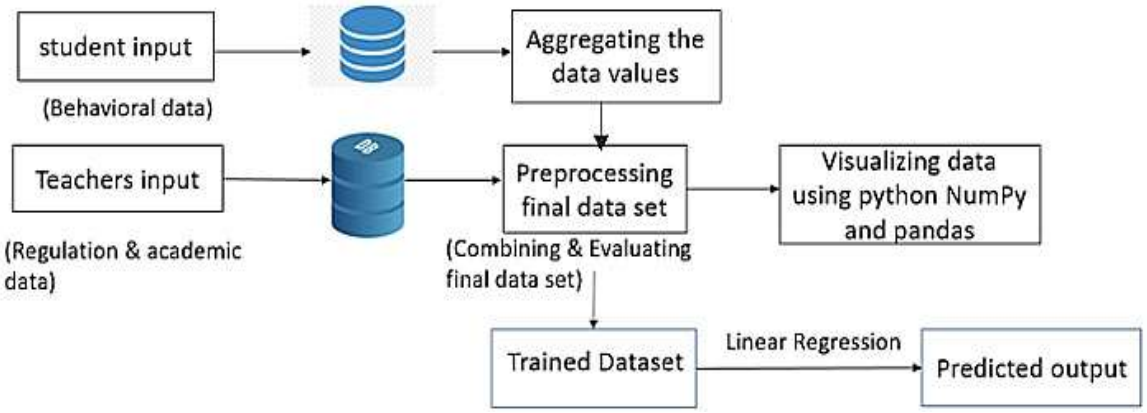


Fig. 3.1. Internal Architecture of the system

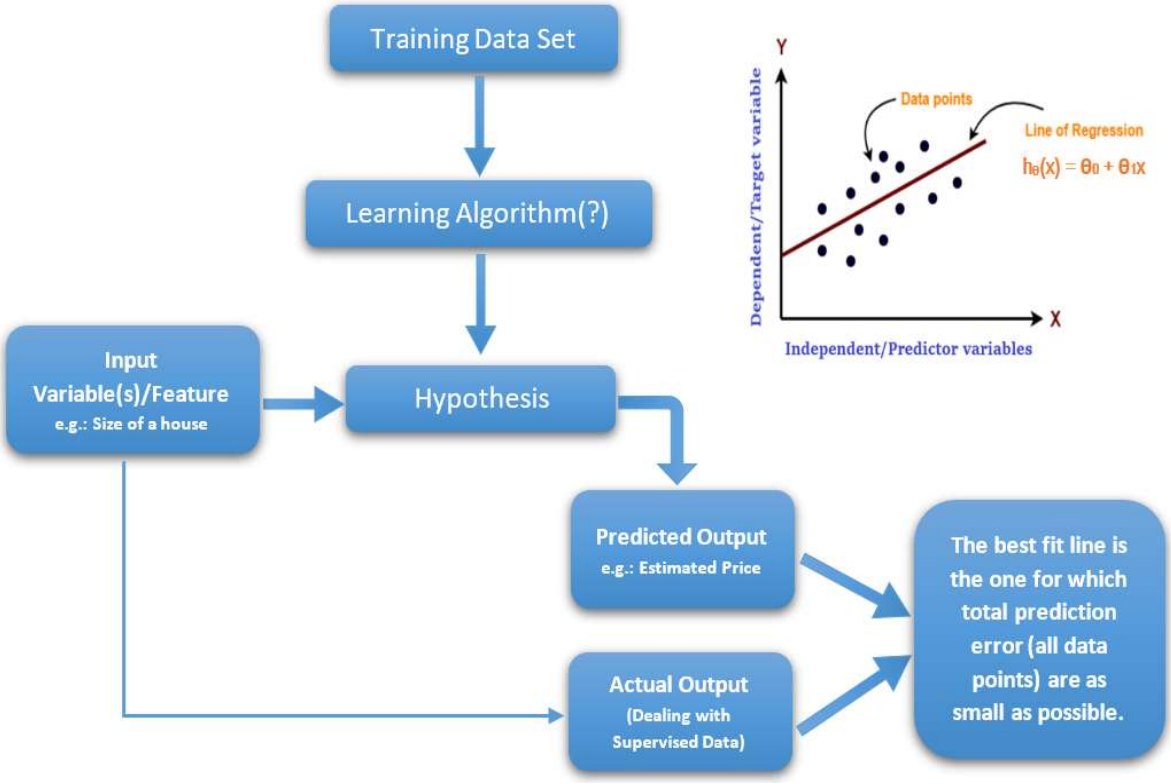


Fig 3.2. Working of LR model

Relationship of a linear Regression is defined by equation of straight line –

$$\mathbf{y = mx + c}$$

h(x) = w0 + w1*x1 or hθ(x) = θ1*x1 + θ0 – this equation used in machine learning which help to relate a dependent and a independent variable.

Where,

1. y or h(x) = the dependent or the target variable.
2. m or w1 or x1= the gradient or slope.
3. x or x1= the dependent or predictor variable.
4. c or w0 or θ0= the intercept on the y-axis.

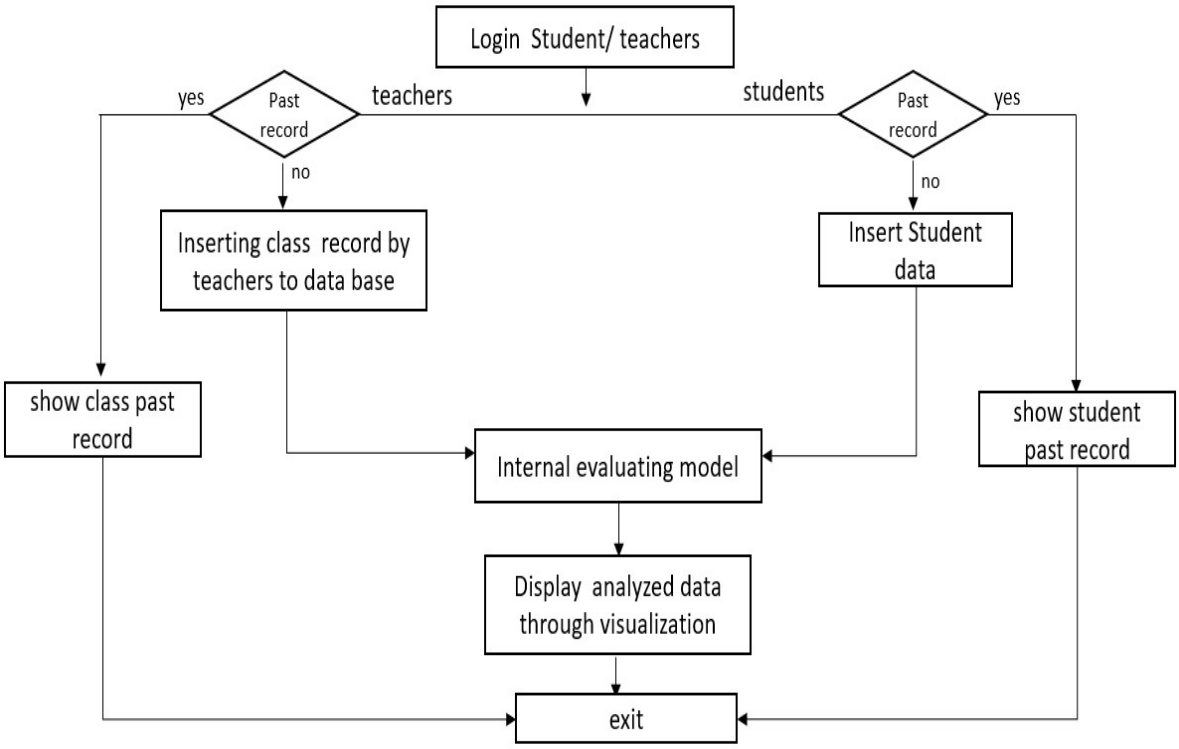


Fig. 3.3. Internal Architecture of the system

3.1 UML diagrams:

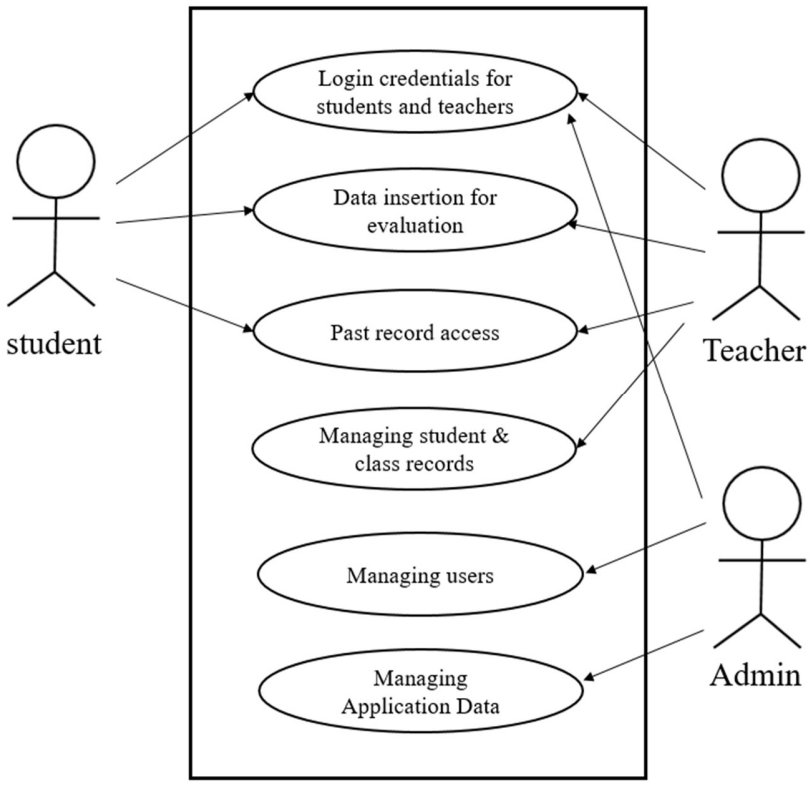


Fig 3.4 Use – Case Diagram of the System

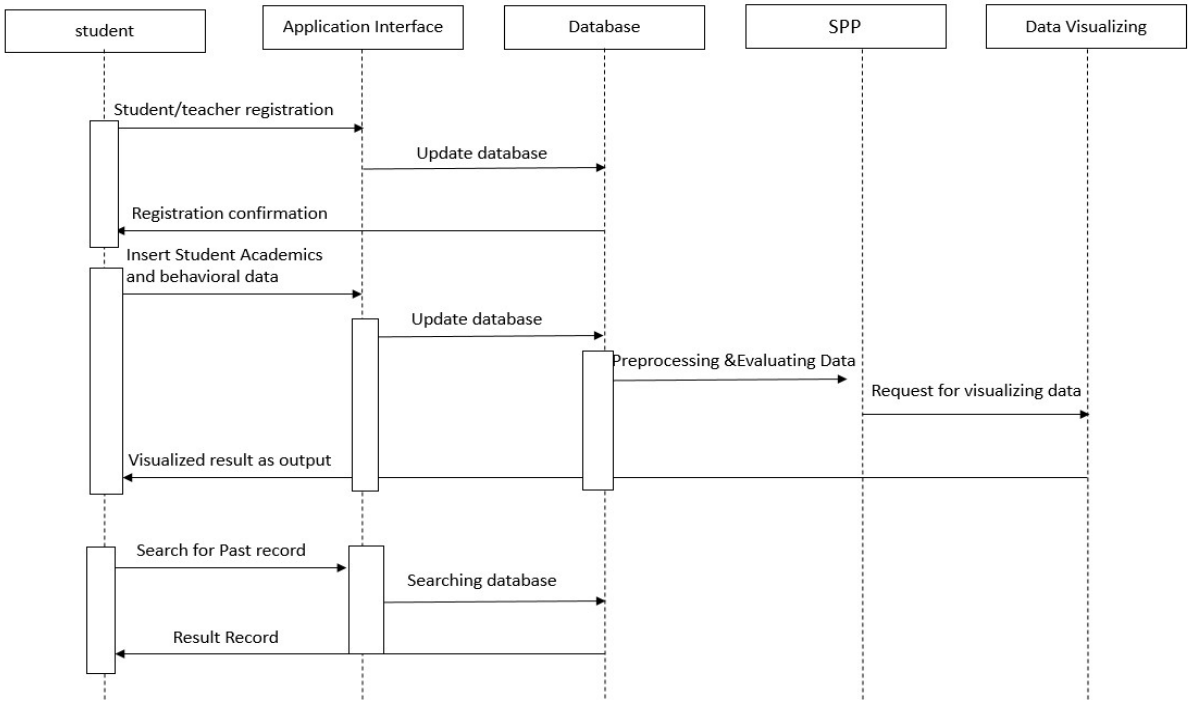


Fig 3.5 Sequence Diagram of the System

3.2 Details of Hardware &Software:

This Project is totally Software based project. It has basically two modules: Visualization and prediction.

For Data Visualization Purpose we have used Jupiter notebook and python Pandas, NumPy. Matplotelib, Seaborn, Sci-kit Learn libraries. Visualization shown in the form of Box plot, Line chart and Bar chart.

Box plot -

Box plot used in explanatory data analysis. It visually shows the distribution of numerical data and skewness through displaying the data quartiles (or percentiles) and averages.

Box plots show the five-number summary of a set of data: including the minimum score, first (lower) quartile, median, third (upper) quartile, and maximum score.

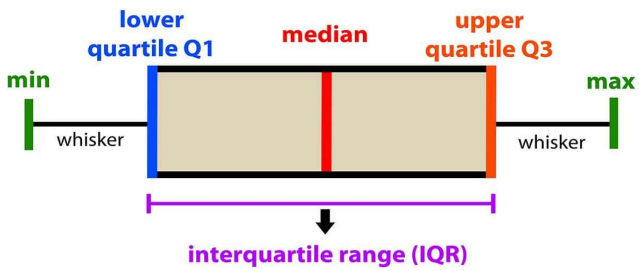


Fig. 3.6. Box Plot Analysis

For prediction purpose, Linear Regression Algorithm of Machine Learning is used.

Stack Used –

Front-End:

1. HTML
2. CSS
3. JavaScript
4. Bootstrap

Backend:

1. Django
2. Python Libraries (NumPy, Pandas)
3. Sci-kit learn Python (for linear regression)

3.3 Methodology:

The proposed methodology is based on EQ and it is related to three main parameters necessary to analyze student's performance in terms of attendance, marks, and behavioral skills. (The proposed system considers these parameters.) This system is composed of two architectures Internal and External.

Internal Architecture –

The internal architecture of the system collects behavioral data from the student through the form having a questionnaire created based on five EQ parameters (Self Awareness, Self-Regulation, Self-Motivation, Empathy, and Social Skills) from the student. This data gets aggregated and stored in the database, and then the system collects regulation and academic data of the student from teachers and stores it in the database. This collected data from teachers and students get combined and processed. Based on this dataset, visualization of the student performance is done using Python NumPy and Pandas. This system also predicts the marks of the student in the coming semester based on their current EQ parameters and this is done using a Linear regression algorithm. Linear regression is a basic statistical machine learning model used for predictive analysis. It makes predictions for continuous/real or numeric variables. Here the model is trained depending on the provided student's previous dataset. And this trained model was likely used to predict the future marks.

It divides the dataset into two parts:

1. Set of Independent Variables
2. Dependent Variable

Here in this data set attendance and behavioral are considered independent variables
and grades are considered as the dependent variable.

The whole system works on the basis of this formula:

$$Y = a + \sum_{i=0}^{n} WiXi$$

Where,

Y – Dependent Variable,

a - Intercept,

n - list of an independent variable,

Wi - is a regression Coefficient,

Xi – independent variable.

Regression coefficient means the importance or the impact of the independent variable with which it is associated with the dependent variable. Calculating this coefficient and intercept is called training the model.

Internally all this is calculated while training the model. More the independent attributes the more the time it will take to train the model. The larger the training dataset more the accurate prediction. This visualization and prediction are shown on the website as output.

External Architecture:

The external architecture of the system starts from the login page, where teacher and student login is created. If the teacher logins, he/she has an option either to see past records of the class or insert a new record. If student logins, then he/she also has an option either to see past records or insert their behavioral data. This data gets evaluated internally as shown in the internal architecture of the system (fig. 3.1) then analyzed and predicted student performance gets displayed in the form of visualization. For a teacher, it is in the cumulative form, if they want to see the performance of individual students then it could also be displayed. For students, it is particularly for that student only.

CHAPTER 4

4.1 Experimentation and Results:

Firstly, we have taken large data set (649 rows, 33 columns) from kaggle with has parameters with respect to student's personal lifestyle, family background, educational environment etc. and applied visualization on it.

```
In [1]: import pandas as pd
        import numpy as np
        import seaborn as sns
        import matplotlib.pyplot as plt
        %matplotlib inline

In [2]: df_por = pd.read_csv("student-por.csv",sep=';')

In [3]: df_por.head()
```

Out[3]:

	school	sex	age	address	famsize	Pstatus	Medu	Fedu	Mjob	Fjob	...	famrel	freetime	goout	Dalc	Walc	health	absences	G1	G2	G3
0	GP	F	18	U	GT3	A	4	4	at_home	teacher	...	4	3	4	1	1	3	4	0	11	11
1	GP	F	17	U	GT3	T	1	1	at_home	other	...	5	3	3	1	1	3	2	9	11	11
2	GP	F	15	U	LE3	T	1	1	at_home	other	...	4	3	2	2	3	3	6	12	13	12
3	GP	F	15	U	GT3	T	4	2	health	services	...	3	2	2	1	1	5	0	14	14	14
4	GP	F	16	U	GT3	T	3	3	other	other	...	4	3	2	1	2	5	0	11	13	13

5 rows × 33 columns

```
In [4]: df_por.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 649 entries, 0 to 648
Data columns (total 33 columns):
school        649 non-null object
sex           649 non-null object
age           649 non-null int64
address       649 non-null object
famsize       649 non-null object
Pstatus       649 non-null object
Medu          649 non-null int64
Fedu          649 non-null int64
```

Fig 4.1 large dataset

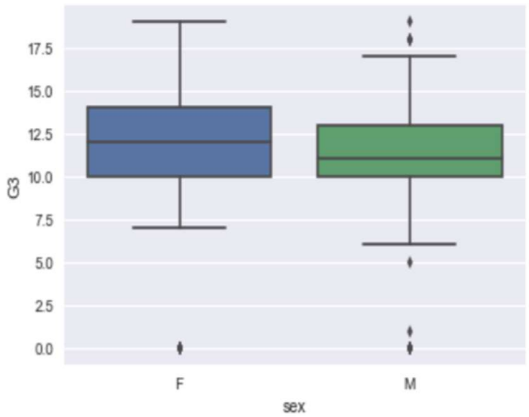


Fig 4.2 Students of age (19-20) mostly have a score around 10.0

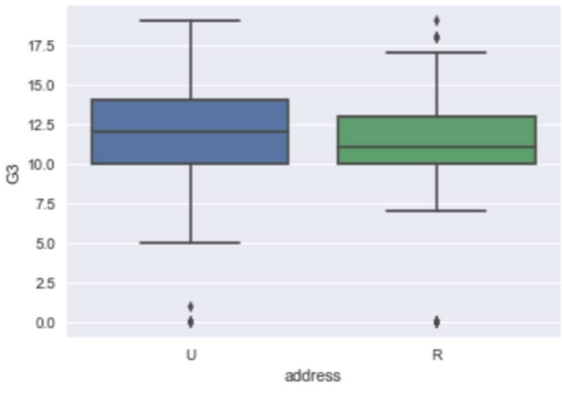


Fig 4.3 Urban students are distributed widely in terms of scores, whereas rural students are clustered between 7 and 17.

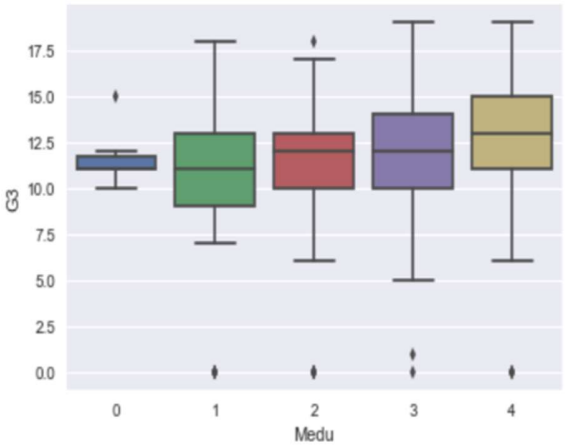


Fig 4.4 Students whose mother have completed higher education tend to score more than others.

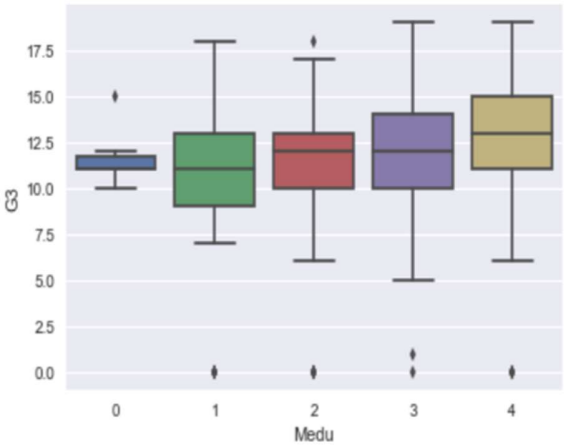


Fig 4.5 It's pretty clear that if you study for more time, your result will improve. But we see a little downfall in students who study more than 10 hours, maybe because they are not resting.

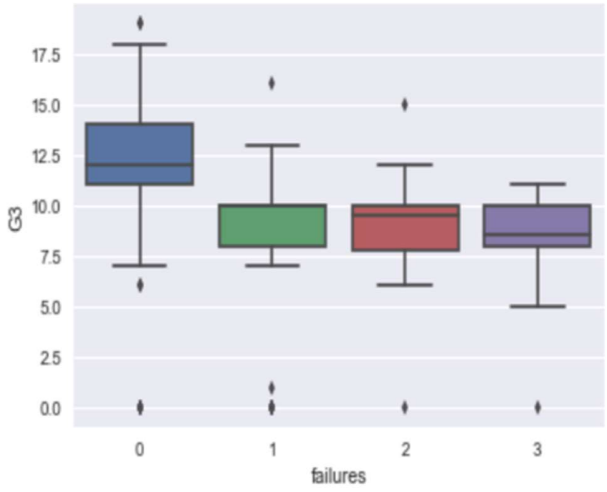


Fig 4.6 Students who do not have any past failures record score more

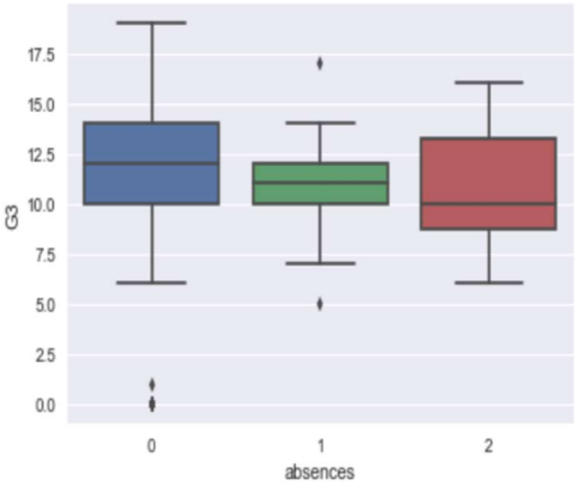


Fig 4.7 With increase in absences, the performance of the students decrease

Similar way, Visualization done on Real time dataset and similar results are obtained.

```
In [43]: import pandas as pd
         import numpy as np
         import seaborn as sns
         import matplotlib.pyplot as plt
         %matplotlib inline

In [44]: df = pd.read_csv(r'Visualization1.csv')

In [45]: df.head()
```

Out[45]:

	Roll no	Name	Attendence	Marks Avg	Behavioral Avg	Medu	Fedu	Study_time	Pstatus	Gender
0	1	Kavita Jagtap	89.98%	88%	75%	3	2	3	1	F
1	2	Pranav lohar	72.06%	77%	85%	2	4	4	1	M
2	3	Umakant Sawant	77.30%	70%	87%	4	4	1	1	M
3	4	Vinod Kharinar	76.19%	65%	75%	3	4	1	0	M
4	5	Sanika Patil	81.38%	68%	70%	4	4	1	1	F

```
In [46]: df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 13 entries, 0 to 12
Data columns (total 10 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
 0   Roll no         13 non-null     int64
 1   Name            13 non-null     object
 2   Attendence      13 non-null     object
 3   Marks Avg       13 non-null     object
 4   Behavioral Avg  13 non-null     object
 5   Medu            13 non-null     int64
 6   Fedu            13 non-null     int64
 7   Study_time      13 non-null     int64
 8   Pstatus         13 non-null     int64
```

Fig 4.8 Collected Dummy Dataset

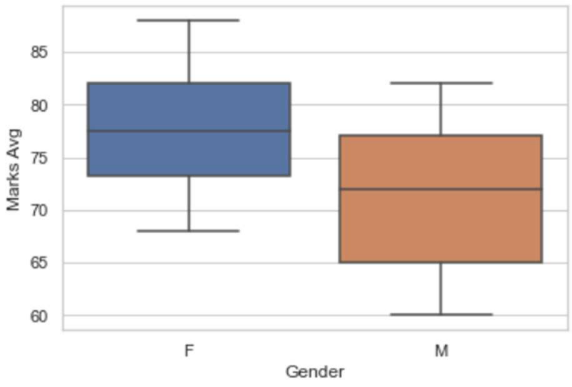


Fig 4. 9

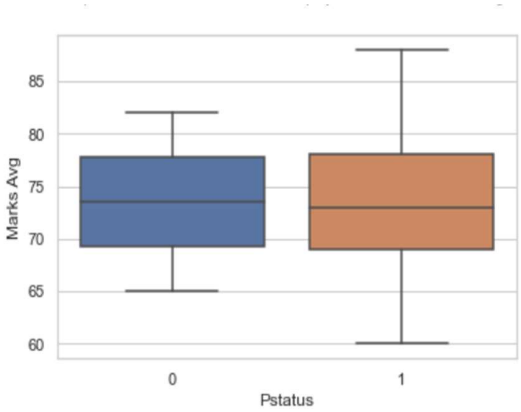


Fig 4. 10

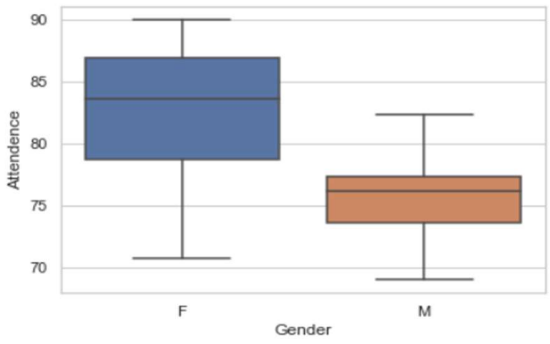


Fig 4. 11

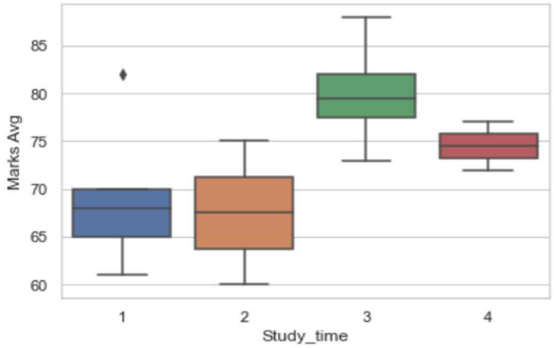


Fig 4. 12

This visualization we have shown on website. For teacher it is in cumulative form and for student it is only its own.

Prediction Part:

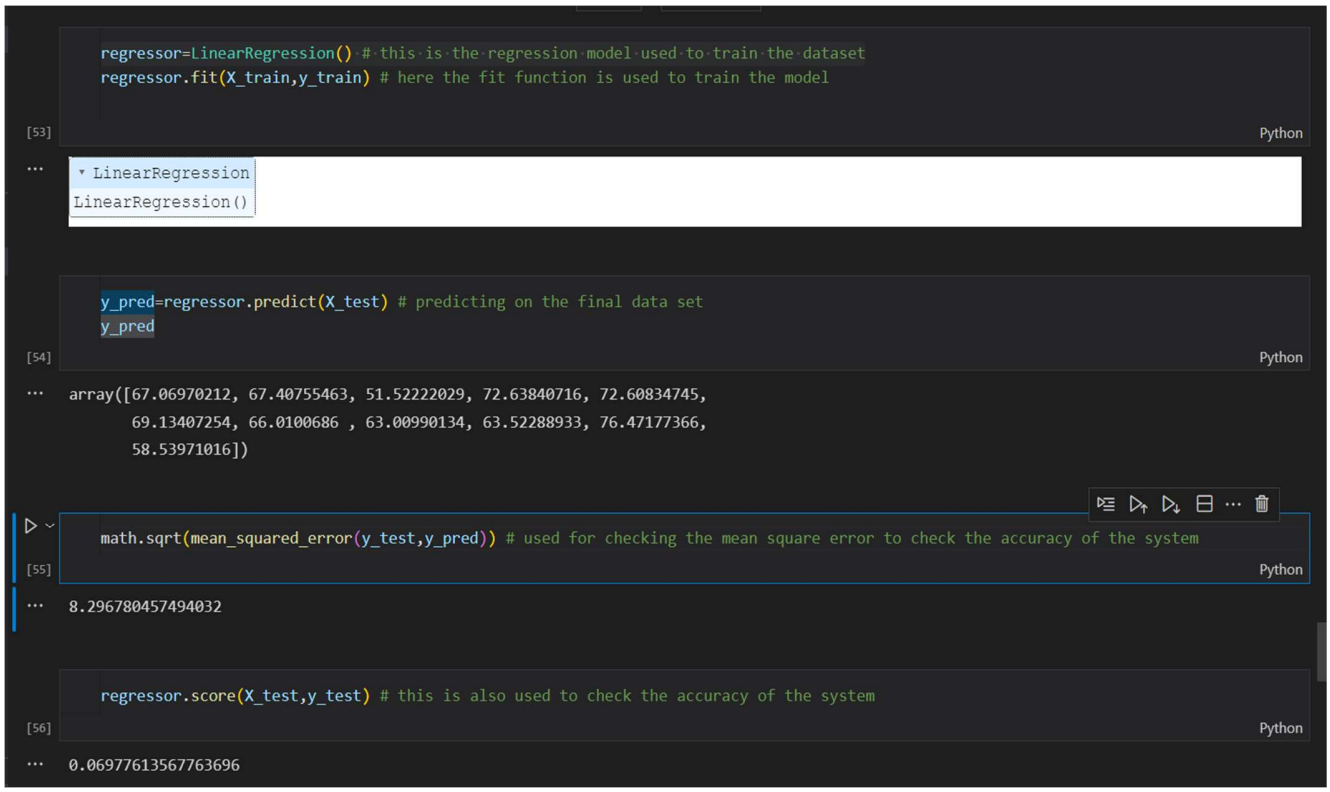


Fig 4.12 Prediction Model

Here we have used Linear regression to predict the student's marks.

In first line fit function is used to train the model using our real time collected dataset, to train our model we divided our dataset into two parts, Train data and Test data

Train data is used to train our model and Test data is used to test the model the for predicting the result

In this Diagram array consisting numbers are the predicted marks of the students

Here the accuracy of the model is calculated in using repressor. score function and MSE (Mean Square Root error) used to check the percentage of error in predicting the result.

Results:

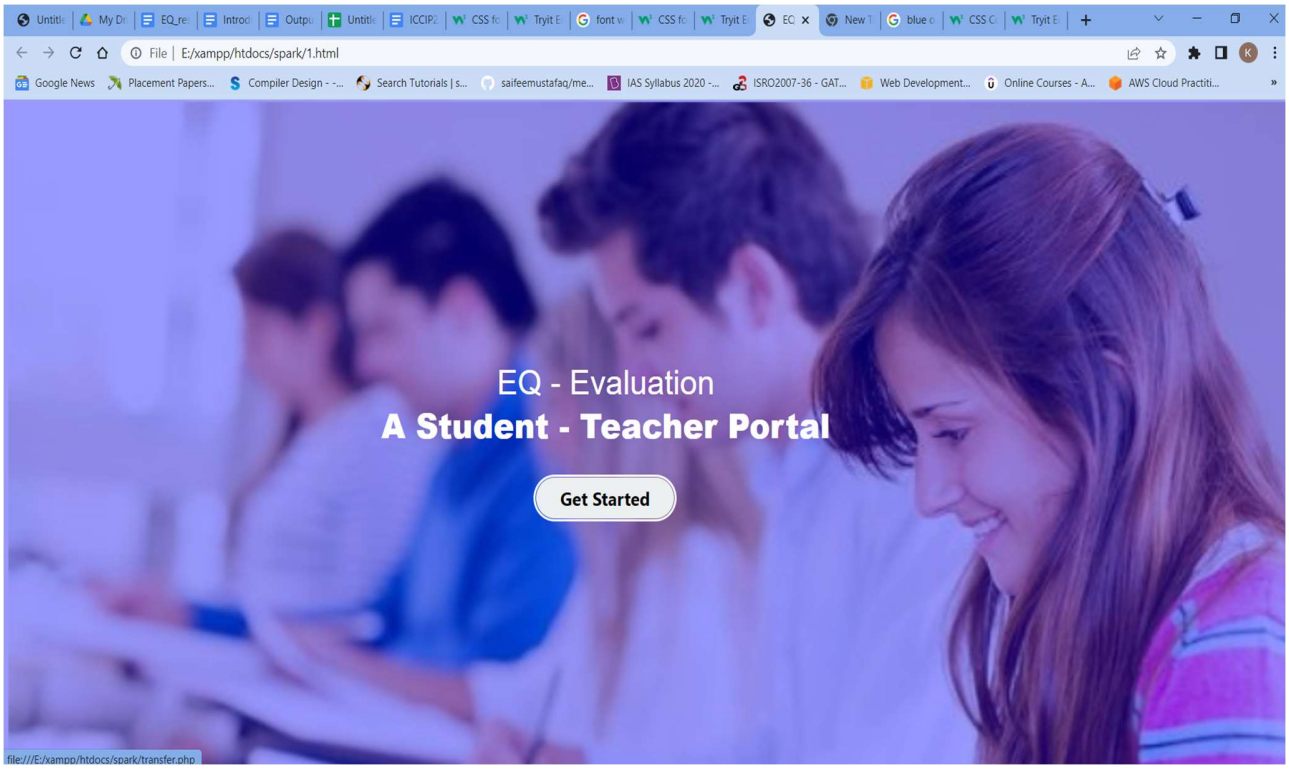


Fig 4.13 Home Page

This is the first page of the website after clicking on the “Get Started” button user will be redirected on to the login/Register page.

Student Teacher Credential Page

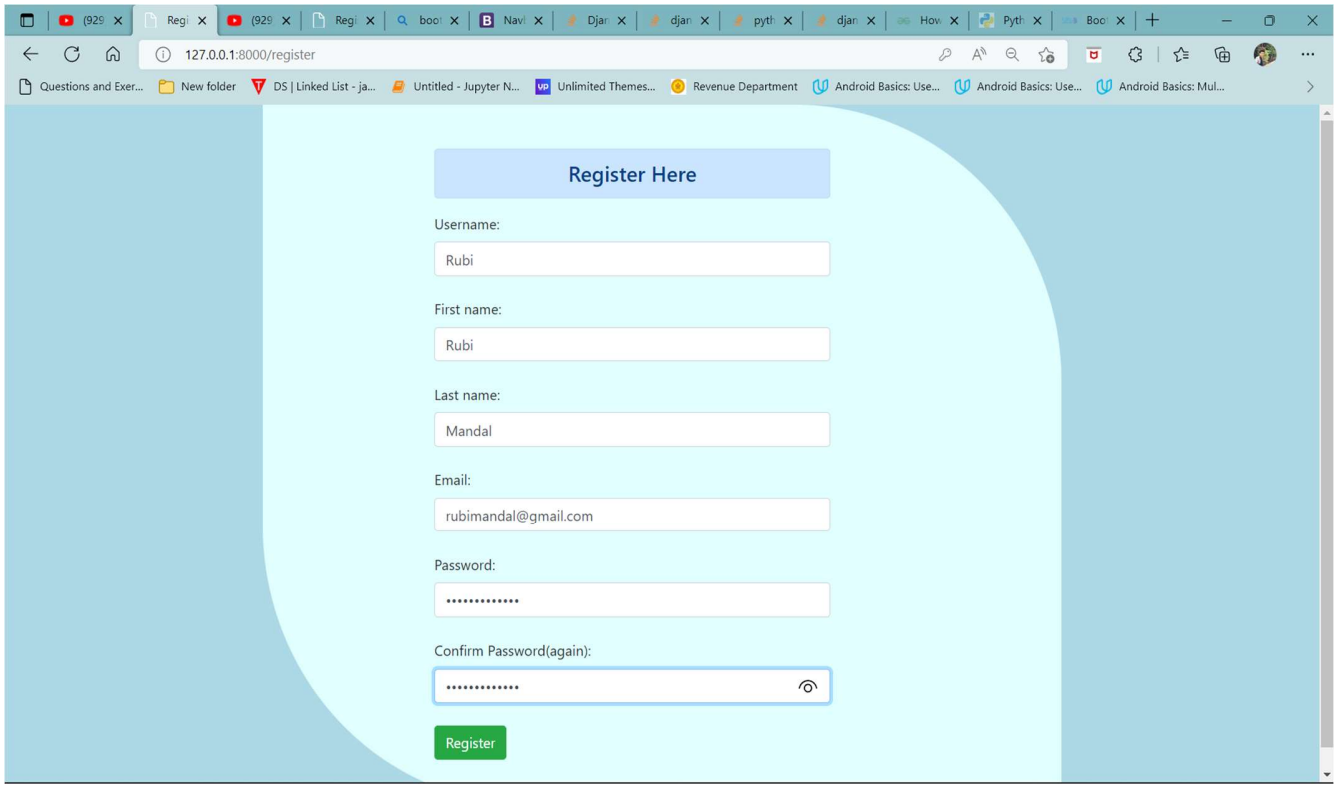


Fig 4.14 Registration Form

before getting into this application, user have to register through this form if he/she don't have an account on this site.

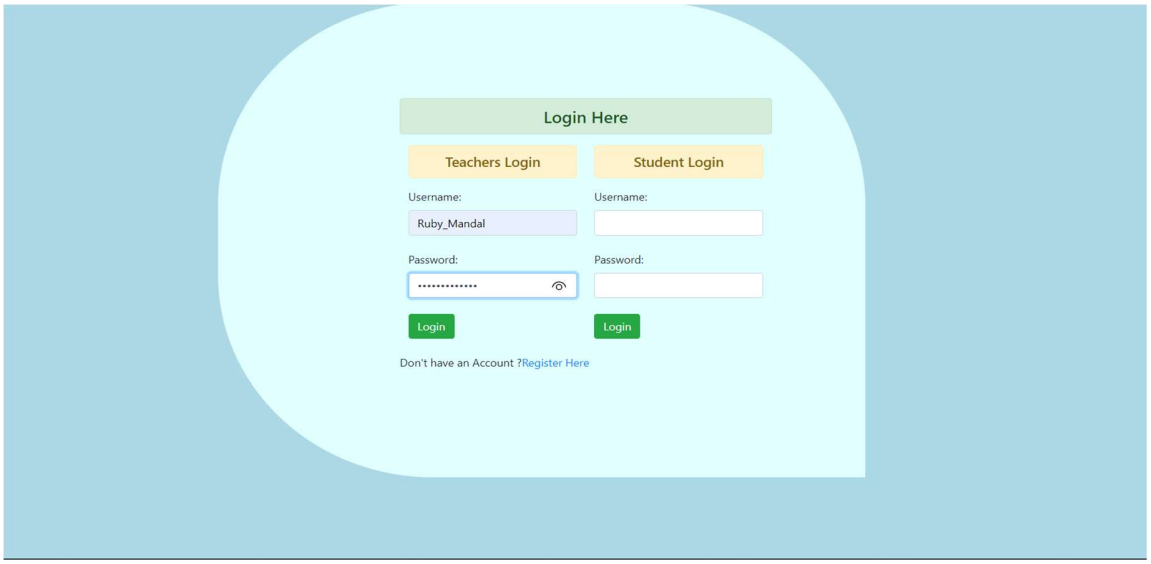
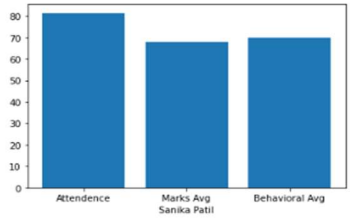


Fig 4. 15 Login Form

before getting into this application, user have to Login through this form they have an account.

```
In [ ]: i = int(input("Enter Roll no: "))

        s = df.iloc[i-1]

In [13]: s.to_dict()

Out[13]: {'Roll no': 5,
          'Name': 'Sanika Patil',
          'Attendence': 81.38,
          'Marks Avg': 68.0,
          'Behavioral Avg': 70.0,
          'Medu': 4,
          'Fedu': 4,
          'Study_time': 1,
          'Pstatus': 1,
          'Gender': 'F'}

In [14]: d = ['Attendence','Marks Avg','Behavioral Avg']

In [15]: p = {k:s[k] for k in s.to_dict() if k in d}

In [16]: new_list = list(p.items())
         print(new_list)

         [('Attendence', 81.38), ('Marks Avg', 68.0), ('Behavioral Avg', 70.0)]

In [17]: df.iloc[i-1,1]

Out[17]: 'Sanika Patil'

In [18]: plt.bar(range(len(p)), list(p.values()), align='center')
         plt.xticks(range(len(p)), list(p.keys()))

         plt.xlabel(str(df.iloc[i-1,1]))
         plt.show()
```




```
In [19]: print([i for i in p.values()])

         [81.38, 68.0, 70.0]

In [20]: labels = [i for i in p]
         sizes = [i for i in p.values()]

         fig1, ax1 = plt.subplots()
         explode = (0, 0, 0)
         ax1.pie(sizes, explode=explode, labels=labels,autopct='%1.1f%%',
                 shadow=True)
         plt.xlabel(str(df.iloc[i-1,1]))
         plt.show()
```

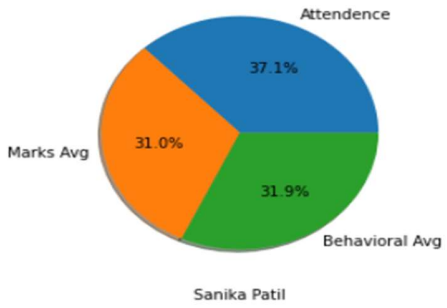


Fig 4.16 Individual Analysis

Individual analysis of roll number 5 (Sanika Patil) is firstly done through jupyter notebook.

Admin Panel

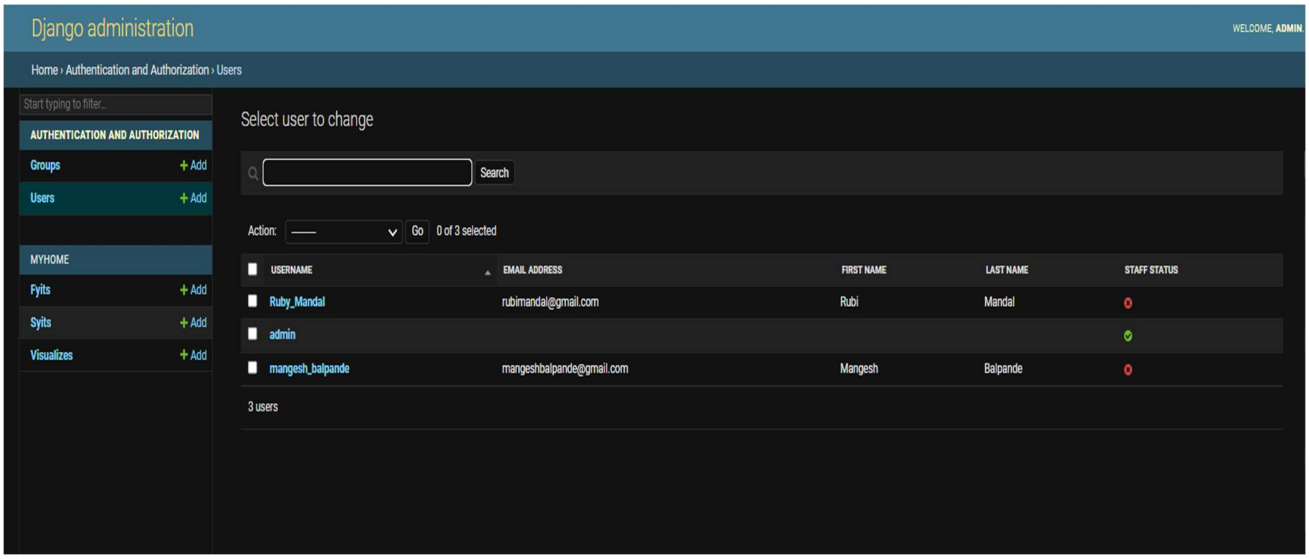


Fig 4.17 Users of the website

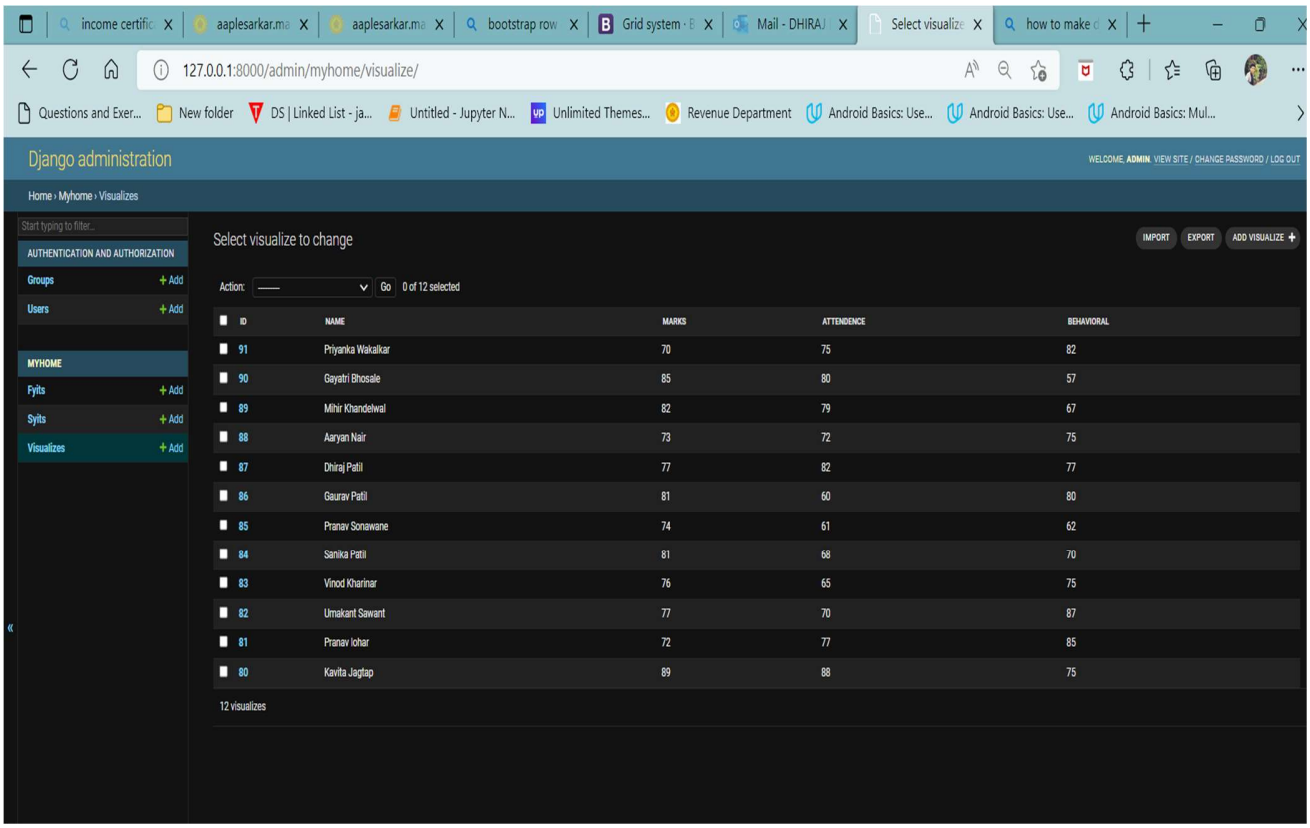


Fig 4.18 Data of selected class students

Overall class performance

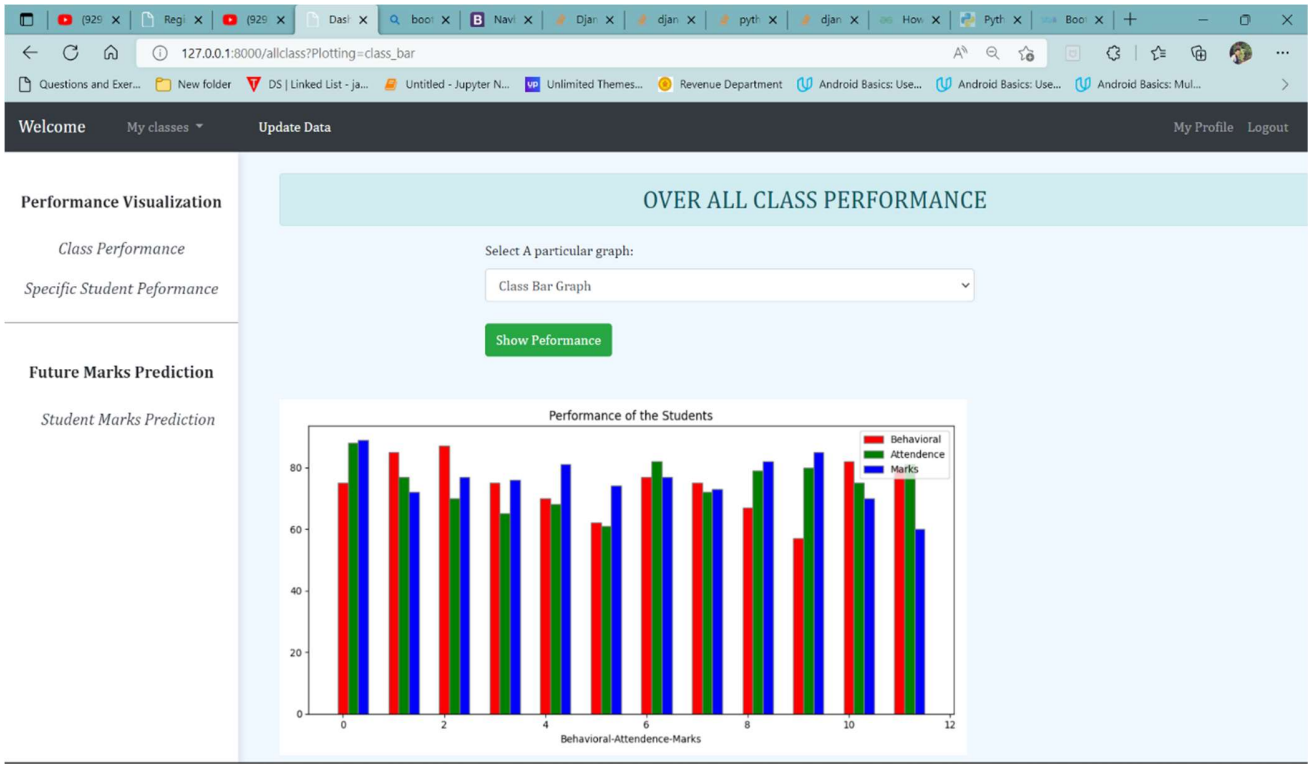


Fig 4.19 Comparision of all the parameters of EQ

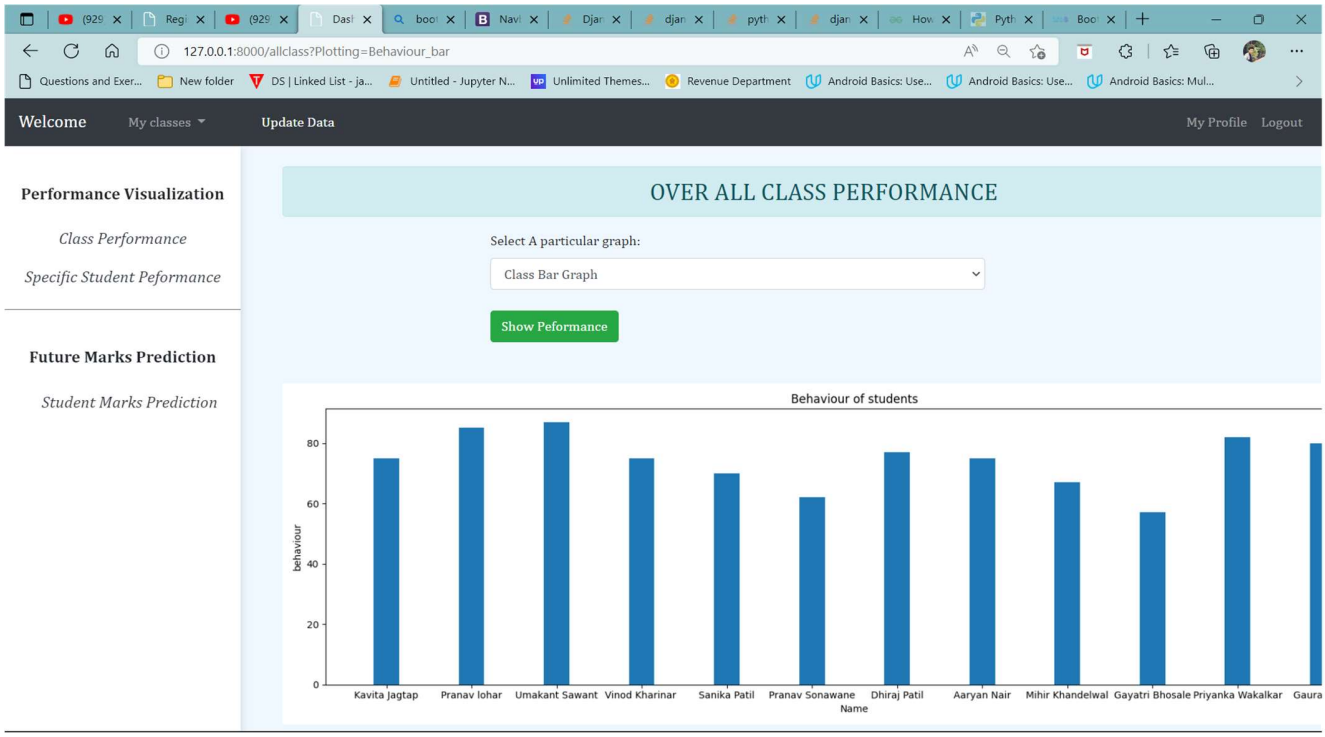


Fig 4.20 Class Behavioral Analysis

Specific Student Performace

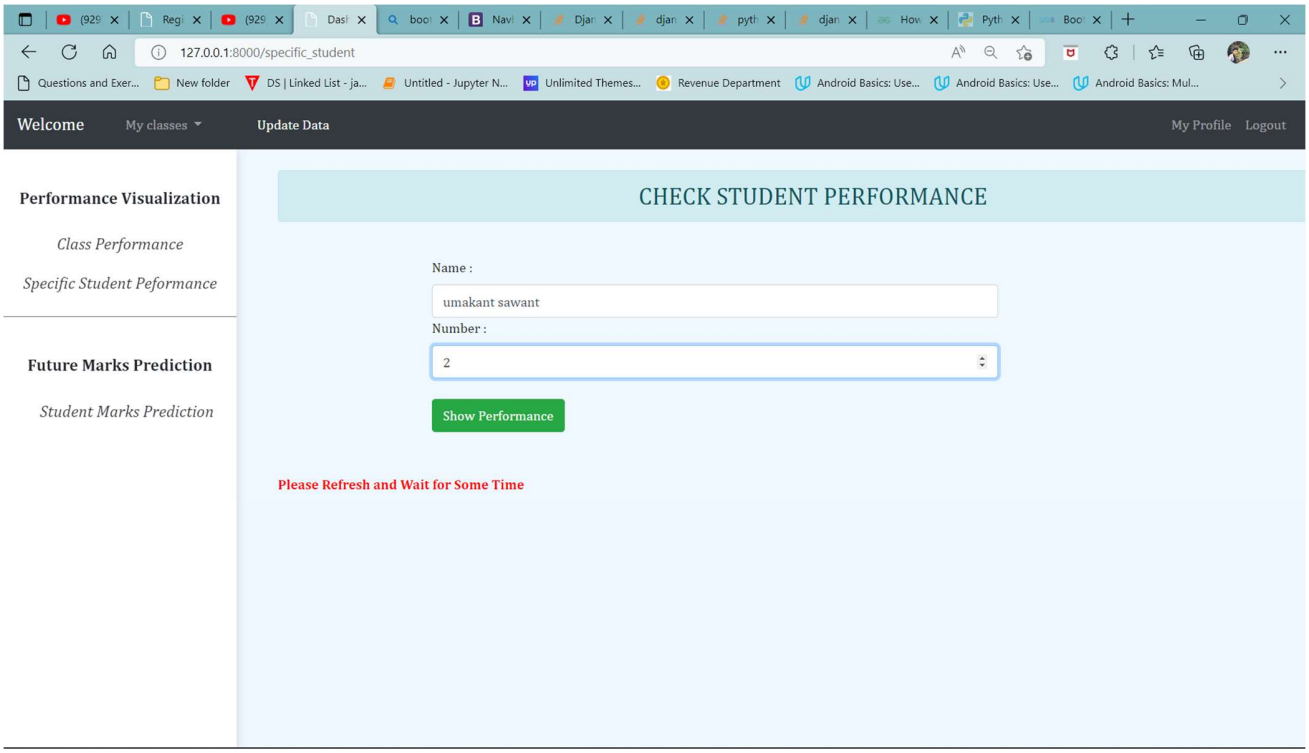


Fig 4.21 Student have to enter his/her Roll number, Name for performance analysis

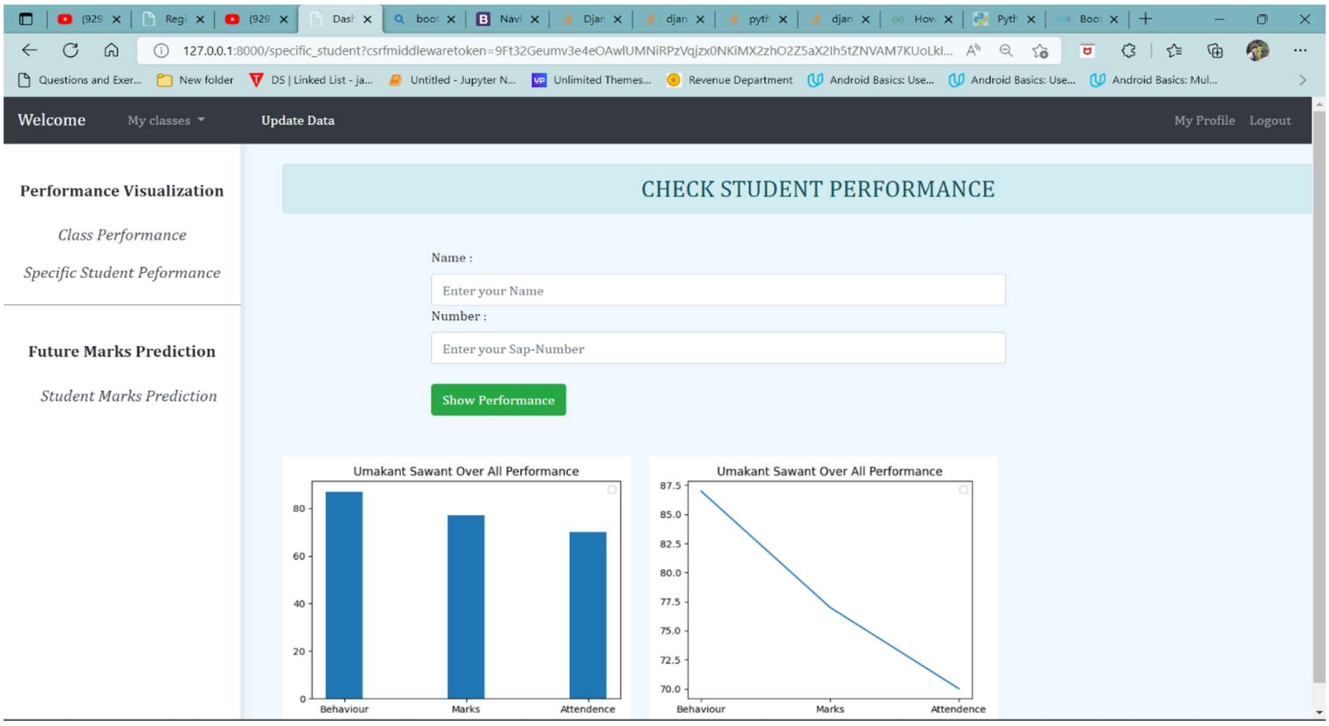


Fig 4. 22 Student Performance Result

Prediction Corner

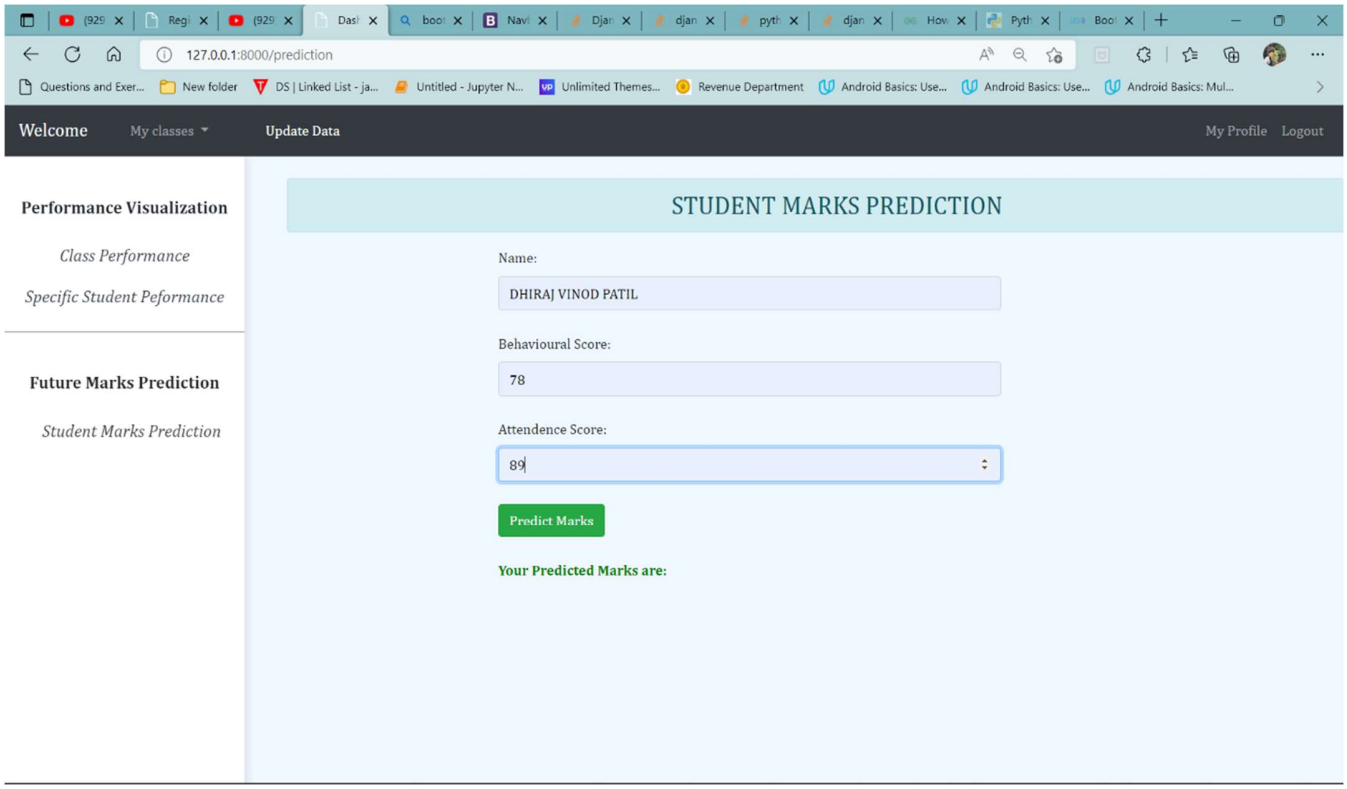


Fig 4.23 Performance Prediction Input

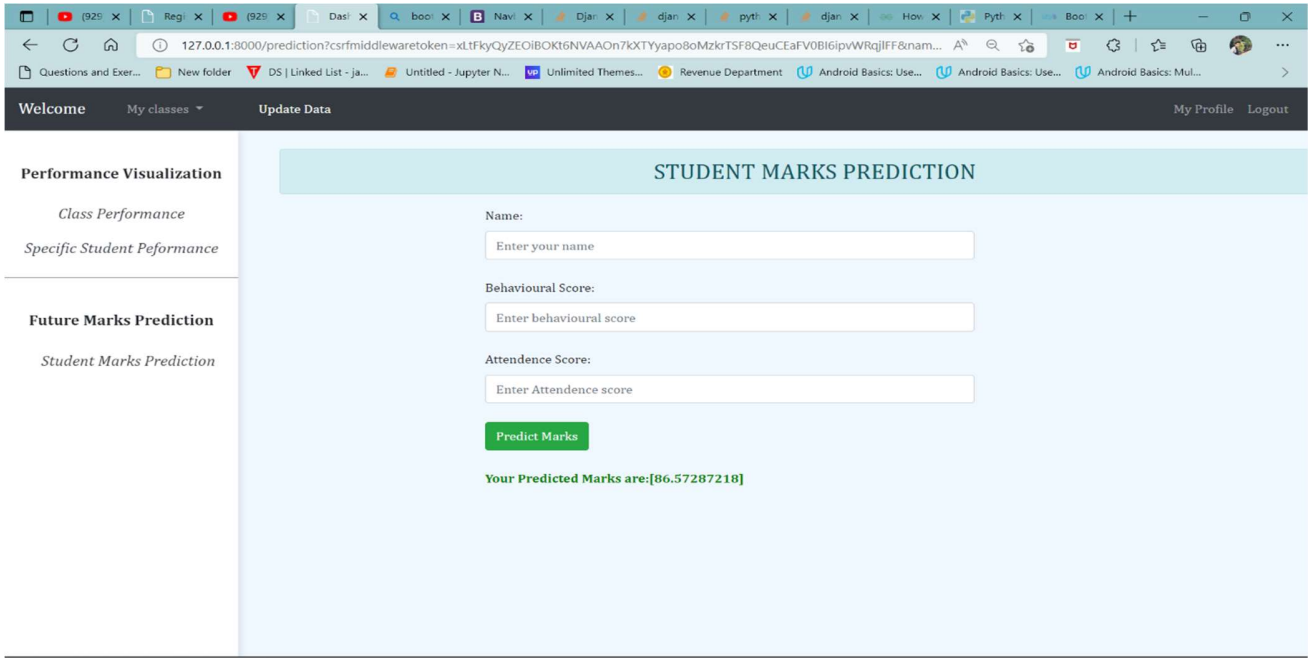


Fig 4.24 Performance Prediction Output

Record Updaton Through UI

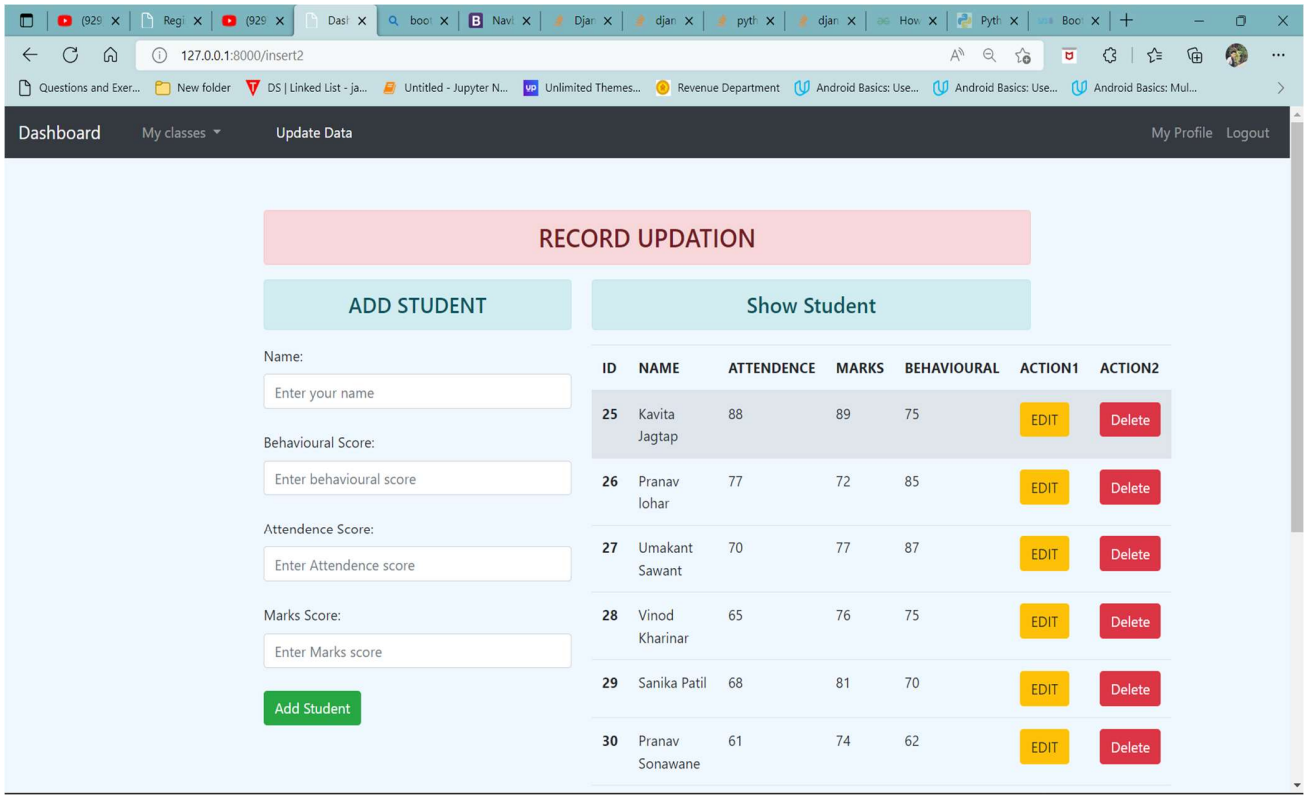


Fig 4.25 Add new student into Rcord

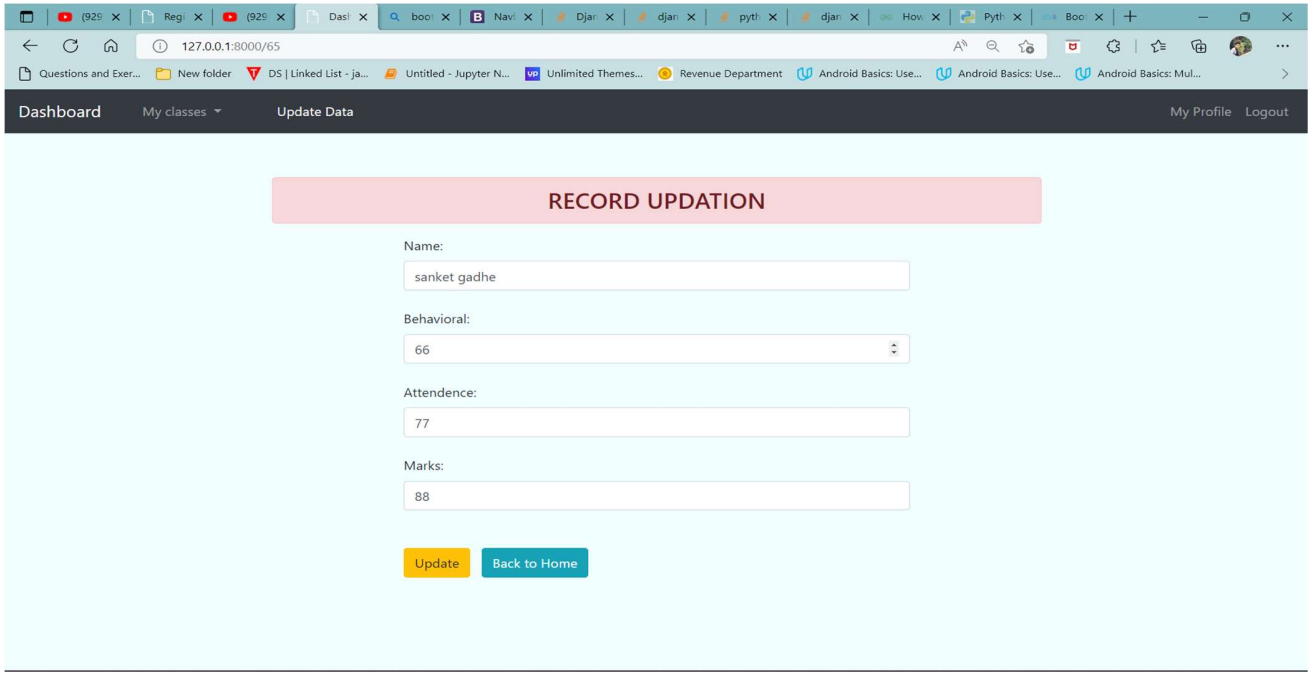


Fig 4.26 Update Existing Record

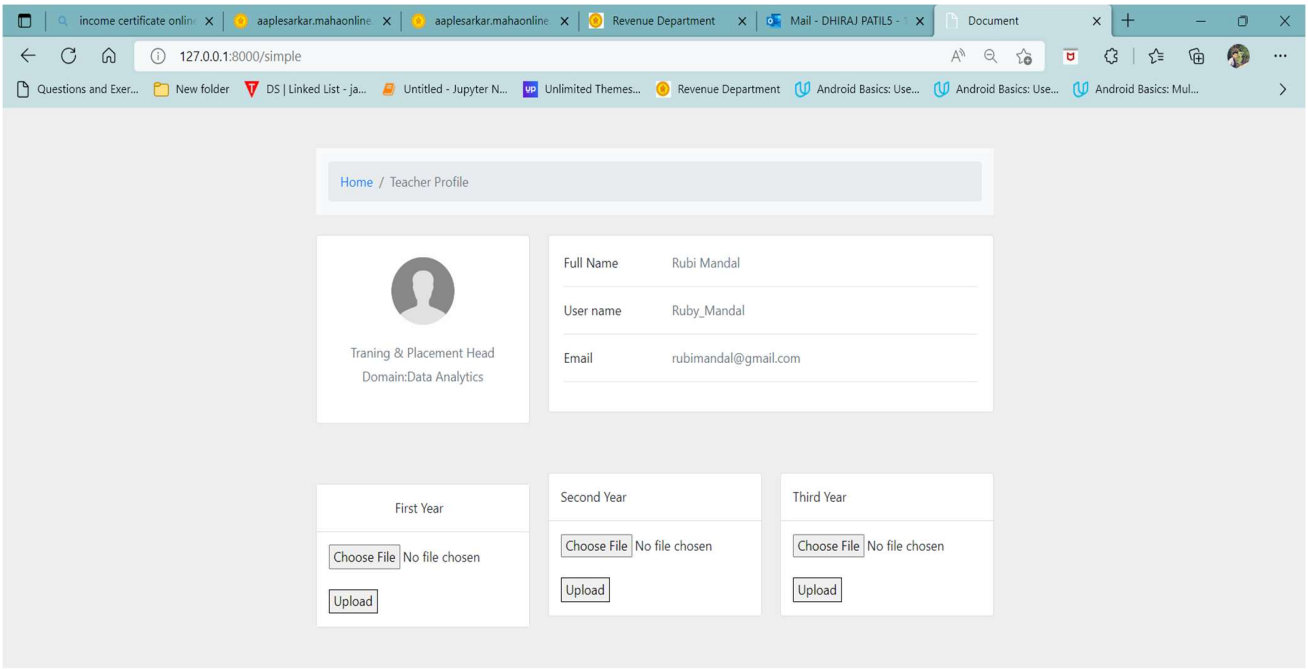


Fig 4.27 Teacher Profile

Here teacher can choose his/her class (First Year, Second Year, third year, …) and upload validated data.

4.2. Testing

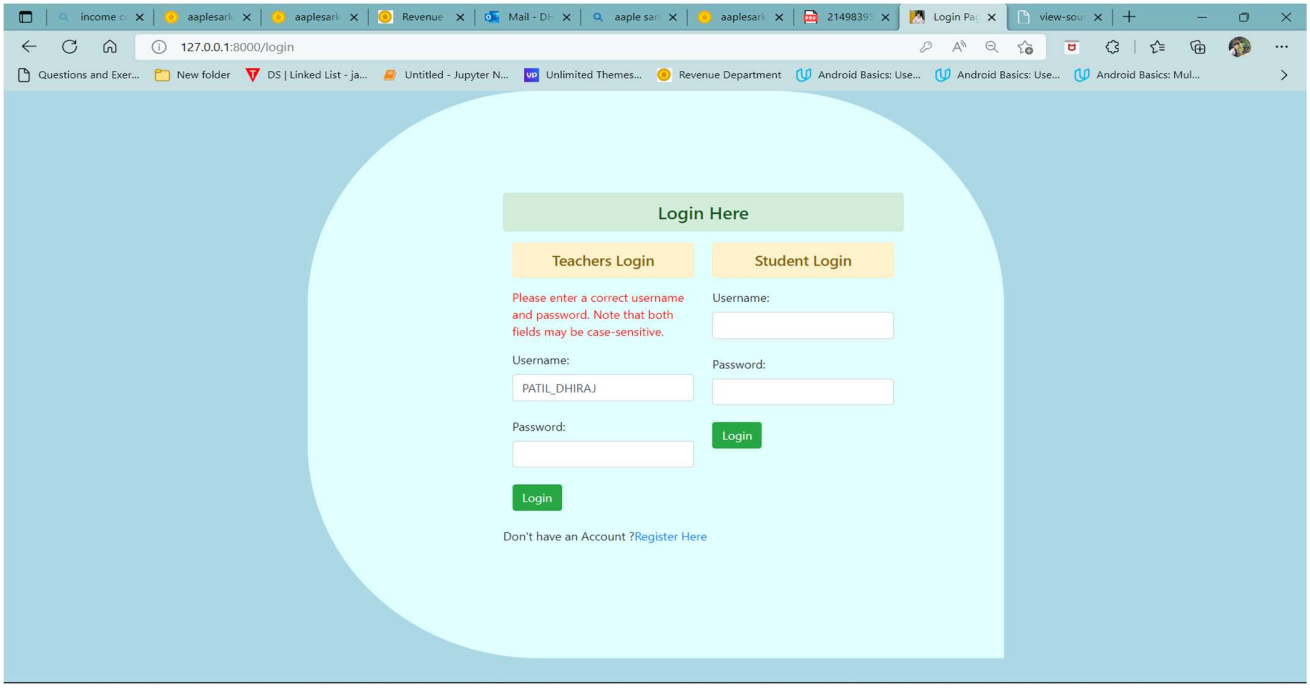


Fig 4. 28 Validation is applied on login Credentials, if user credential gets wrong it will display a message to enter a valid credential.

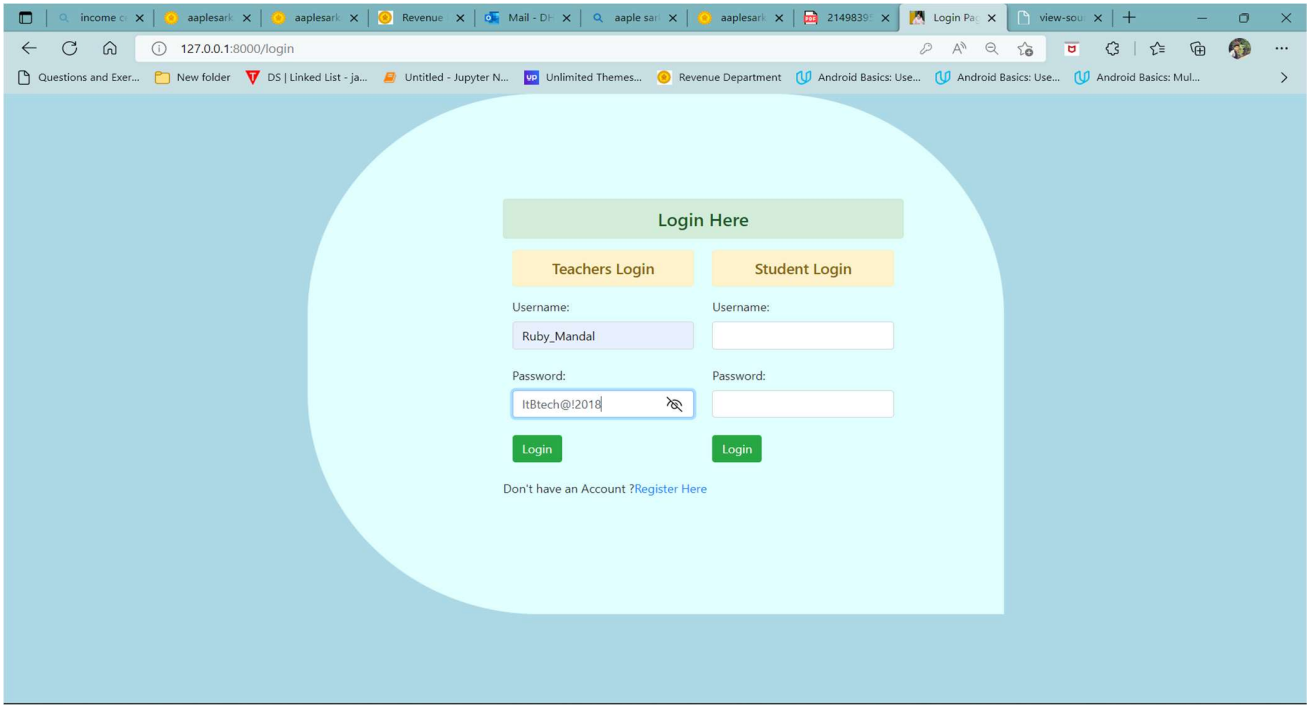


Fig 4.29 After varifying the credential, process procceds futher.

CHAPTER 5

5.1 Conclusion

The project's goal is to demonstrate student performance based on EQ, a crucial component in today's society. For predicting student grades depending on inputs, the system uses a real-time database on which a linear regression algorithm utilizing the Sci-kit Learn module is used. Some of the best regression algorithms were used to solve this problem. Linear regression for supervised learning with Sci-kit learn gave us the most preferable model with a Mean Absolute Error of 3.26. Data visualization is done successfully through data analysis, and the desired outcome is shown to the appropriate user. Students who are aware of their EQ level can better control their stress levels and emotions, preventing major health issues. Students can build stronger relationships and communicate more effectively. It assists in improving their performance and achieving their objectives. A teacher can increase the EQ of their students by taking the best possible action by being aware of the cumulative analysis and higher EQ leads to happiness, which is needed for a successful career.

5.3 Limitations:

Limitation of this project is it doesn't give solution for improving EQ level to the user, as EQ it leads to performance of the student.

The result could be better if the dataset was much bigger. Machine learning algorithms try to find patterns in data that make them efficient in the use of huge datasets.

5.2 Future Scope:

The future scope of this research is taking inspiration from our new education policy which focuses on the 360-degree development of a student, and to achieve this, it is very important to measure their EQ level, therefore this platform helps to analyse the EQ level and develop it accordingly. Additionally, social quotient, which is analogous to IQ, will be calculated using emotional quotient and self-awareness. The social quotient is the measure of social intelligence which includes knowing when to talk or listen, what to say, and what to do.

CHAPTER 6

6.1 References:

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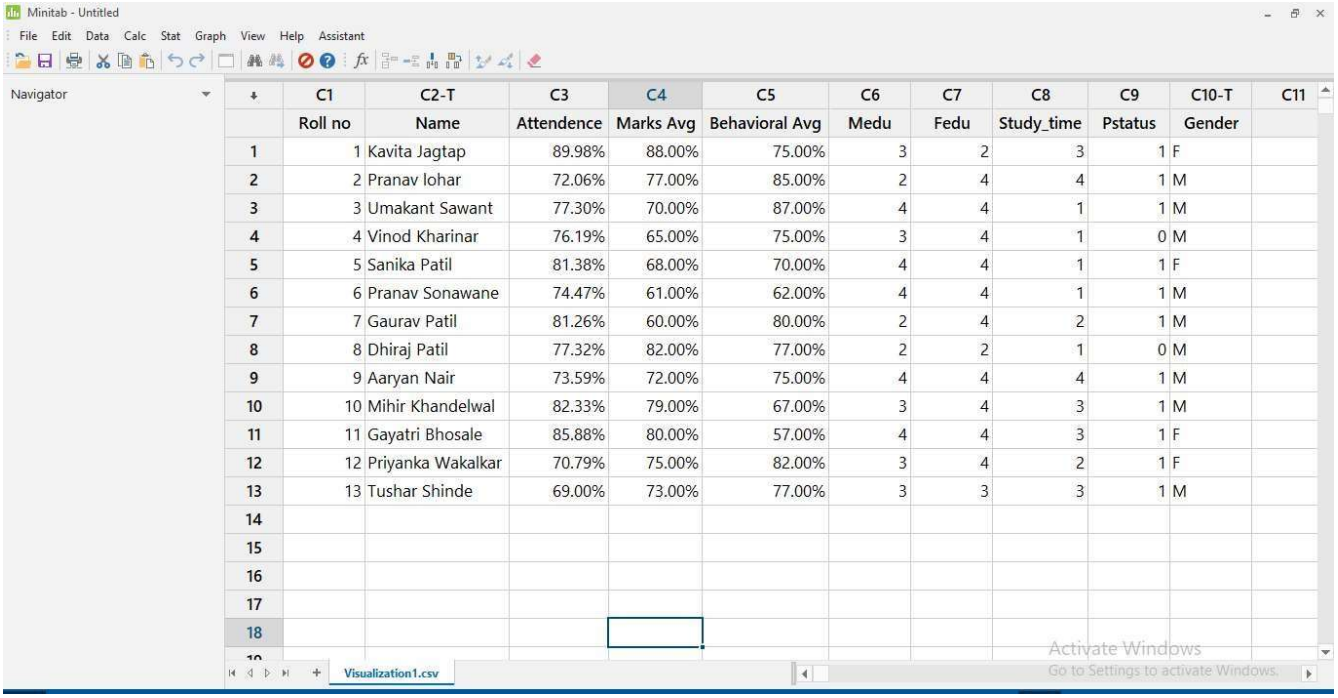
6.2 Appendix:



	C1	C2-T	C3	C4	C5	C6	C7	C8	C9	C10-T	C11
	Roll no	Name	Attendence	Marks Avg	Behavioral Avg	Medu	Fedu	Study_time	Pstatus	Gender	
1	1	Kavita Jagtap	89.98%	88.00%	75.00%	3	2	3	1	F	
2	2	Pranav lohar	72.06%	77.00%	85.00%	2	4	4	1	M	
3	3	Umakant Sawant	77.30%	70.00%	87.00%	4	4	1	1	M	
4	4	Vinod Kharinar	76.19%	65.00%	75.00%	3	4	1	0	M	
5	5	Sanika Patil	81.38%	68.00%	70.00%	4	4	1	1	F	
6	6	Pranav Sonawane	74.47%	61.00%	62.00%	4	4	1	1	M	
7	7	Gaurav Patil	81.26%	60.00%	80.00%	2	4	2	1	M	
8	8	Dhiraj Patil	77.32%	82.00%	77.00%	2	2	1	0	M	
9	9	Aaryan Nair	73.59%	72.00%	75.00%	4	4	4	1	M	
10	10	Mihir Khandelwal	82.33%	79.00%	67.00%	3	4	3	1	M	
11	11	Gayatri Bhosale	85.88%	80.00%	57.00%	4	4	3	1	F	
12	12	Priyanka Wakalkar	70.79%	75.00%	82.00%	3	4	2	1	F	
13	13	Tushar Shinde	69.00%	73.00%	77.00%	3	3	3	1	M	
14											
15											
16											
17											
18											

Fig 6.1 Datasheets for all components used in the design

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