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## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSSET)

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# Student Performance Prediction Using Django

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**ABSTRACT:** An online live examination system is a software solution, that allows a selected institute to rearrange, conduct and manage examinations via a web environment. This can be done through the web, Intranet, and/or native space Network environment. delivery the live observation feature was the key challenge accumulating into the system

### I. INTRODUCTION

The online examination system could be a Multiple- choice question (MCQ) pri-primarily based examination system. It provides a simple to use environment for each test Conductor and Student showing Examination.

Online examinations are directed online or offline. It tends to be directed either disconnected or on the web. it's the latest strategy for taking the test.

online Examination System could be a technology- driven thanks to changing examination nation activities like process exam patterns with question banks, defining exam timers, objective/ subjective question sections, and conducting exams on the pc or mobile devices in an exceedingly paperless manner

### II. ALGORITHM USED

**Supervised learning** is a type of Machine learning in which the machine needs external supervision to learn. The supervised learning models are trained using the labeled dataset. Once the training and processing are done, the model is tested by providing a sample test data to check whether it predicts the correct output.

The goal of supervised learning is to map input data with the output data. Supervised learning is based on supervision, and it is the same as when a student learns things in the teacher's supervision. The example of supervised learning is spam filtering

In **Reinforcement learning**, an agent interacts with its environment by producing actions, and learn with the help of feedback. The feedback is given to the agent in the form of rewards, such as for each good action, he gets a positive reward, and for each bad action, he gets a negative reward. There is no supervision provided to the agent. **Q-Learning algorithm** is used in reinforcement learning.

**Linear regression** is one of the most popular and simple machine learning algorithms that is used for predictive analysis. Here, predictive analysis defines prediction of something, and linear regression makes predictions for continuous numbers such as salary, age, etc.

It shows the linear relationship between the dependent and independent variables, and shows how the dependent variable(y) changes according to the independent variable (x).

### III. SCOPE

This can be used in educational institutions as well as in corporate world. Can be used anywhere any time as it is a web based application No restriction that examiner has to be present when the candidate takes the test.





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### IV. PROPOSED SYSTEM

This application is used to conduct on-line examinations. the students will sit at in- dividual terminals and log in to put in writing the test within the given period. The questions have to be compelled to need to the students. This application canper- form correction, show the result instantly and additionally store it within the database. This application provides the administrator with a facility to feature new exams. This application provides the trainer to feature questions to the test and modify questions in the test during a specific test.

#### 1. Implementation

##### A. SYSTEM REQUIREMENTS

Many implementations may exist for a given Specifications:

Hardware Requirements:

RAM: minimum 4GB. Processor:i3 and higher.

##### 1) Software Requirements:

- Vscode
- Python (3.8 and above)
- Windows (7 and above)

##### B. TECHNOLOGY

##### 1) FRONTEND:

- Html.
- Css.
- Bootstrap

##### 1) BACKEND:

- PYTHON.
- DJANGO Framework

##### 2) Database:

- db-SQLite

##### C. Registration in Website

- Step 1: Start.
- Step 2: Register to the website.
- Step 3: If already register then login to the website.
- Step 4: New users can register on the register page.
- Step 5: Once the user registered, provide the user nameand password on the Login page.

##### D. Conduct the Exam

- Step 1: Start.
- Step 2: Click on the start button
- Step 3: The student will wait for the exam and duringthe exam, he can exit.
- Step 4: Then click to end exam.

##### E. Figure

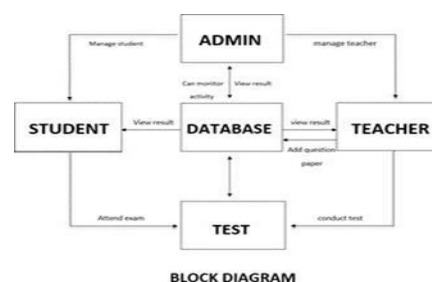


Fig. 1. Block diagram



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In this project students can participate in examinations from a remote location and get their results instantly after finishing the exam. To participate in the exam they should have proper access to the internet or local area network. They can even use their tablet, or smartphones to participate in the examination using this system. At the same time teachers or controllers can create questions and can conduct exams without going to an exam hall and as well as can monitor exam progress in live mode.

### V. ACCURACY

Clusters were identified based on final result classes, allowing for a deeper understanding of the distribution of student performance across different categories. This analysis enabled the identification of distinct clusters and their characteristics, aiding in targeted interventions and support strategies.

Feature final result	C0 (grades A) (%)	C1 (grades B) (%)	C2 (grades C)
Pass	0	0	77.34
Fail	0	100	8.54
Distinction	100	0	5.09
Withdrawn	0	0	9.03

### VI. METHODOLOGY

To develop a student performance prediction system using Django, first, gather and preprocess relevant data, such as student grades, attendance, and participation. Next, select an appropriate machine learning model (like linear regression for continuous outcomes or classification algorithms for pass/fail predictions), and train it using historical student data. After training, serialize the model using tools like pickle or joblib to integrate it into the Django application. Design a Django app with models to store student data and prediction results, and use forms to collect user input. In the view logic, load the trained model, pass the input data to the model for prediction, and display the results on a web interface. Finally, deploy the application to a web server, ensuring the system can be accessed for real-time student performance predictions, with periodic retraining of the model as new data becomes available.

### VII. IMPLEMENTATION

To implement a student performance prediction system in Django, first create a Django project and app, define models to store student data (e.g., grades, attendance), and set up a form to collect input data. Then, collect and preprocess historical data, training a machine learning model (e.g., linear regression or decision trees) to predict student performance based on the features like previous grades, attendance, and participation. Serialize the trained model using pickle or joblib, and integrate this model into the Django views. In the view, when the user submits the form, extract the input data, use the model to predict performance, and store the prediction result in the database. Render the result on a results page to display the predicted grade or performance status (e.g., pass/fail). Finally, deploy the Django application to a web server and ensure the system can predict student performance for new data, with updates and model retraining over time.

### VIII. CONNECTION

In a student performance prediction system using Django, the connection is established through a seamless flow between the database, frontend, machine learning model, and backend. First, Django models define the structure of the database, storing student data and prediction results. The user interacts with the system via a form that captures student input (e.g., grades, attendance), which is processed in Django views. The backend loads a pre-trained machine learning model (using pickle or joblib) and passes the form data as features to the model for prediction. The prediction result is then stored in the database, and the outcome is rendered on a results page via Django's templating system. The entire process is orchestrated by Django's routing, handling requests, and ensuring that the user receives real-time performance predictions.



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based on the input data.

### **IX. CONCLUSION**

This web application provides the facility to conduct on- line examinations world- wide. It saves time because it allows several students to provide the exam at a time and displays the results as the test gets over, therefore is no need to await the result. it's automatically generated by the server. The teacher should create, modify and delete the test paper and its particular question. The user will register, log in, and give the exam along with his specific id, and can see the result also.

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