

# **Students Performance in exam(Grade Analysis) using Watson Auto AI:**

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## **1.INTRODUCTION:**

**Problem statement:** Student performance in Exam(Grade Analysis)

- Overview:

It is a platform chosen for predictive modeling and analysis. Here we provide the organisation with a machine learning model which simplifies the work of the company in various aspects.

- Purpose:

To build a machine learning model that helps the universities or teachers to easily analyse the grade of students.

## **2.LITERATURE SURVEY:**

- Existing problem:

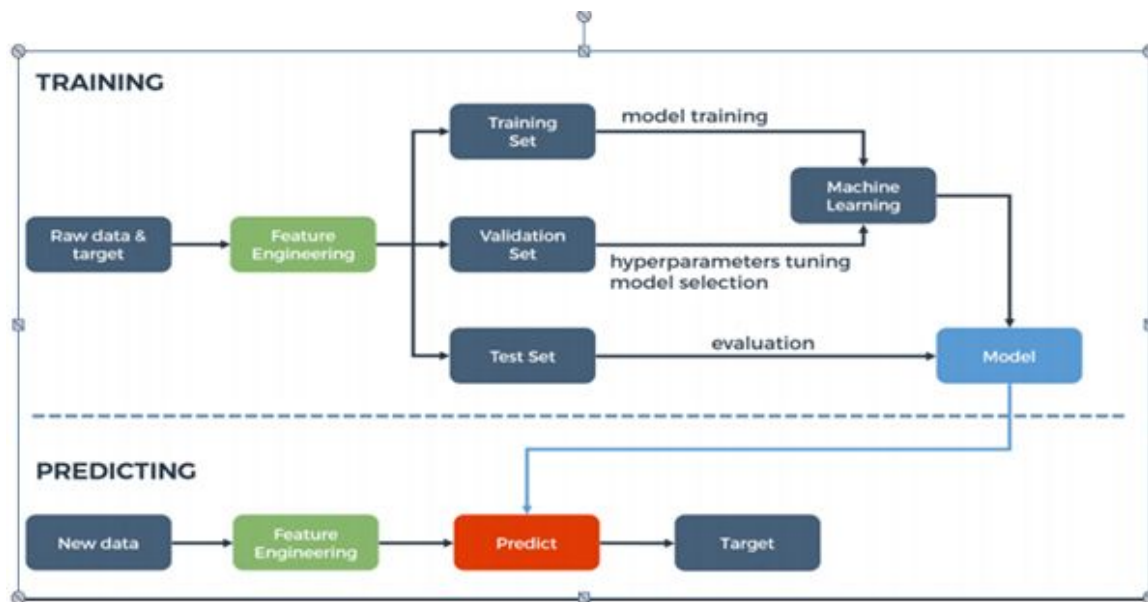
Universities and teachers facing problems in analysing the grade of the student they need to do a lot of paper work. They need a trained model which stores all the data and by giving some information about student it will give the grade. Inorder to achieve grade the teachers need not search all the dataset they can get the grade only by providing information.

- Proposed Solution:

The main moto of the project is to provide the universities and teachers with a machine learning model using the IBM WATSON AI platform that can predict the grade based on certain factors like gender,race/ethnicity,scores in exams etc. The model is tested based on the accuracy and performance of the model.

## **3.THEORETICAL ANALYSIS:**

- Block diagram:



- Hardware Software designing:

Python based computer vision and knowledge about various machine learning algorithm and how to implement them. Knowledge of how to use IBM WATSON Studio for the deployment of the project.

## **4.EXPERIMENTAL INVESTIGATIONS:**

- **Step 1:** Collection of data set.
- **Step 2:** On the IBM Watson studio platform use the auto AI to build a model that predicts the grade of the student based on the given details.

a.For the first we need to create an account on the IBM Watson studio.

b.Using add to project choose auto AI.

c.Then upload the dataset into the assets.

The screenshot shows the IBM Watson Studio interface. The top navigation bar includes 'My projects / studentproject', 'Upgrade', and the user account 'Musini Sai Supriya's Account'. The 'Assets' tab is selected, displaying a search bar and three sections: 'Data assets', 'AutoAI experiments', and 'Deep learning experiments'.

**Data assets:** 0 assets selected. A table lists one asset:

Name	Type	Created by	Last modified
csv main.csv	Data Asset	Musini Sai Supriya	Jul 30, 2020, 11:56 PM

**AutoAI experiments:** A table lists one experiment:

Name	Status	Model type	Last modified
student	Completed	Multiclass Classification	Jul 31, 2020, 12:04 AM

**Deep learning experiments:** A table with headers 'Name' and 'Last Modified' is partially visible.

On the right, a 'Data' panel shows a 'Load' tab with a message: 'Drop files here or browse for files to upload.'

d. Choose the best machine learning learning model to predict the grade.

e. Deploy the model.

The screenshot shows the 'Deployments' tab for the 'student - P1 XGBClassifierEstimator' model. A table lists one deployment:

NAME	STATUS	TYPE	ACTIONS
student	Ready	Web Service	

f. Test the model against various values.

The screenshot shows the 'Test' tab for the 'student' model. On the left, 'Enter input data' fields are filled with:

- P
- OverAll\_PassStatus: P
- Total\_Marks: 222
- Percentage: 74

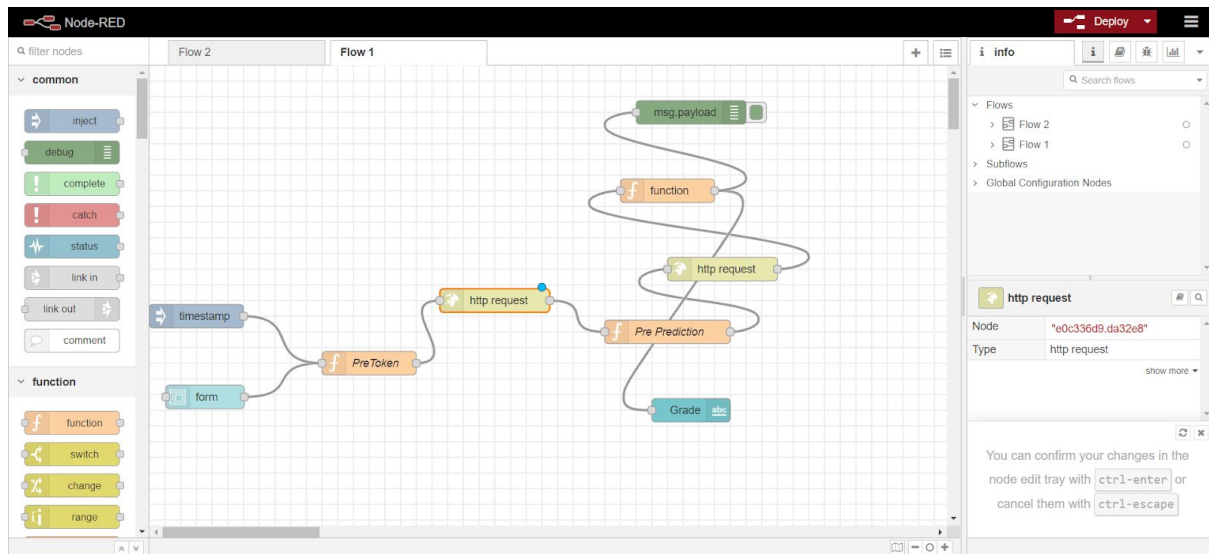
A 'Predict' button is at the bottom left. On the right, the JSON output is displayed:

```
{
  "predictions": [
    {
      "fields": [
        "prediction",
        "probability"
      ],
      "values": [
        "B",
        [
          0.00035133937490172684,
          0.99964866062509827315,
          0.0005399208166636527,
          0.00027972867246717215,
          0.00028019698220305145,
          0.0003288323641754687
        ]
      ]
    }
  ]
}
```

g. Then create a service credential and also cloud foundry app.

▼ Devices (0)							
▼ VPC infrastructure (0)							
▼ Clusters (0)							
☑ Cloud Foundry apps (1)							
🔥 Node RED UJNXL 2020-07-31	msaisupriya05@gmail.com / dev	London	SDK for Node.js™	Started	—		⋮
▼ Cloud Foundry services (1)							

h. Make a node-RED flow.

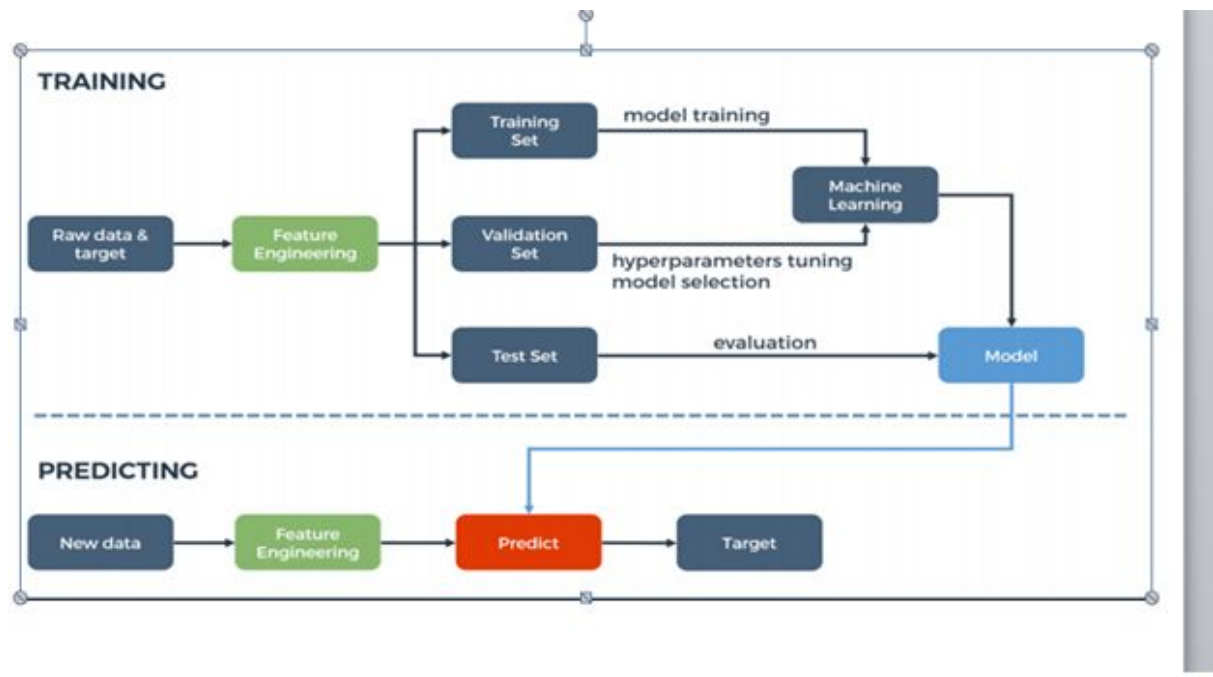


i. After the deployment of the model UI can be seen.

The screenshot shows the deployed model UI. The header is 'Home'. The main content area is titled 'Default' and contains a form with the following input fields: 'gender' (female), 'race/ethnicity' (group D), 'parental level of education' (associate's degree), 'lunch' (standard), 'test preparation course' (none), 'math score' (72), 'reading score' (72), 'writing score' (74), 'Math\_PassStatus' (p), 'Reading\_PassStatus' (p), and 'Writing\_PassStatus' (p). The 'Grade' field is labeled 'B'. The bottom of the page shows a 'flows.json' file icon and a 'Show all' button.

Reading_PassStatus	P
Writing_PassStatus	P
OverAll_PassStatus	P
Total_Marks	218
Percentage	72.66666667

## 5.FLOW CHART:



## 6.RESULT:

The machine learning model predicts the grade of the student based on the details of the student.

IBM Watson Studio

My projects / studentproject / student - P1 XGBClassifierEstim... / student

student

Overview Implementation **Test**

Enter input data

P

OverAll\_PassStatus

P

Total\_Marks

222

Percentage

74

```

{
  "predictions": [
    {
      "fields": [
        "prediction",
        "probability"
      ],
      "values": [
        "B",
        [
          0.00035133937490172684,
          0.998219907283783,
          0.0005399208166636527,
          0.00027972867246717215,
          0.00028019698220305145,
          0.0003288323641754687
        ]
      ]
    }
  ]
}
  
```

## **7.ADVANTAGES AND DISADVANTAGES:**

### **ADVANTAGES:**

This model helps the Universities and Teachers to predict the grade of the student based on the factors like gender,race/ethnicity,scores etc.

### **DISADVANTAGES:**

Sometimes the grade may not be depend on gender,race/ethnicity,score.

## **8.APPLICATIONS:**

This model that predicts the grades of the student used by the Universities and colleges inorder to reduce the paperwork and time.

## **9.CONCLUSIONS:**

This was a great experience with Smartbridge learning new and interesting things and also applying them in invocation field. Related to my project I can say that the machine learning model that is created to predict the grade of the student has a wide range of applications and makes the work of Universities and Colleges more simpler. This gives all the predictions just by giving basic details of the student.

I learnt a lot from this project and also thank all the mentors and the bootcamp that was very supportive and helpful at every point of work.

## **10.FUTURE SCORE:**

This can be implemented more efficiently by adding some more factors depending on which the model predicts the grade of the student that can be provided.

## **11.BIBLIOGRAPHY:**

-Kaggle for downloading the dataset.

- Smartbridge bootcamp to learn how to work on IBM Watson studio.