



VIT[®]

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science Engineering

TO PREDICT STUDENT PERFORMANCE

A PROJECT REPORT

for

FOUNDATIONS OF DATA SCIENCE (BCSE206L)

in

B.Tech (Computer Science)

By

NAMAN GUPTA(21BCE0240)

ARVASU GUPTA (21BCE0841)

Under the Guidance of

**Prof.
SHASHANK
MOULI
SATAPATHY**

Associate Professor Sr. SCOPE

INTRODUCTION

Higher education's academic community faces a challenge in raising student's academic performance. Engineering and science students' academic performance in their first year of college is a turning point in their educational path and typically has a significant impact on their General Point Average (GPA). The evaluation criteria for the students, such as midterm and final exams, assignments, and lab work, are examined. Before the final test is given, it is advised that the class teacher be informed of all this related material. The results of this study will assist teachers in raising student achievement and significantly lowering the dropout rate.

In this research, we provide a hybrid method based on Data Munging Data Analysis and Data Exploration that enables academics to forecast students (SGPA, CGPA), and based on that, instructors can take the necessary steps to enhance student's academic performance. A frequently used measure of academic performance is the grade point average (GPA). Many universities have a minimum GPA requirement that must be met. As a result, the academic planners continue to use grade point average as their primary indicator of academic achievement. Throughout their time in college, a student's ability to achieve and maintain a high GPA that accurately reflects their overall academic achievement may be hampered by a variety of issues. As data scientists, we need to ask a variety of questions for the issues we focus on.

The faculty members could focus on these elements while creating methods to enhance student learning and enhance their academic success through tracking the development of their performance.

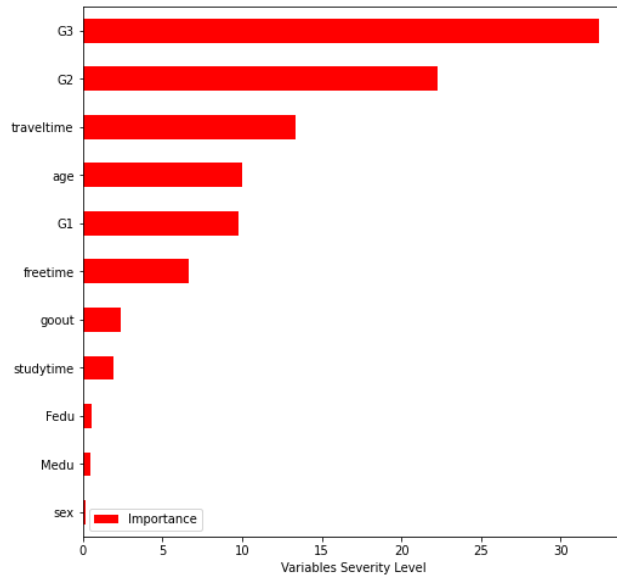
The crucial qualities for future prediction can be found using the data modeling techniques such as SVM, KNN or Random Forest algorithms. The technique of extracting previously undiscovered, reliable, strategically relevant, and concealed patterns from big data sets is known as data clustering which uses decision trees.

Methods like One Hot, 0-1 transformation and suppression methods are used for pre-processing of data and helps to identify the outlier data and also converts the data type of the columns according to the required integer.

We use domain information, statistics, and algorithmic programming together in our project.

UPDATED RESULT

The below graph shows the importance of datasets against output value.



Student Grade Predictor

Age:

Mother's Education:

Father's Education:

Travel Time to School (in hours):

Weekly Study Time (in hours):

Free Time After School (in hours):

Time Spent Going Out with Friends (in hours):

Grade 1:

Grade 2:

Grade 3:

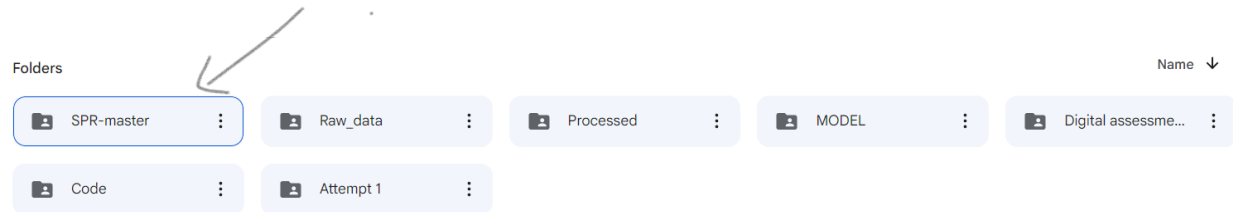
Predict Grade

USER MANUAL

The following steps would act as a manual -

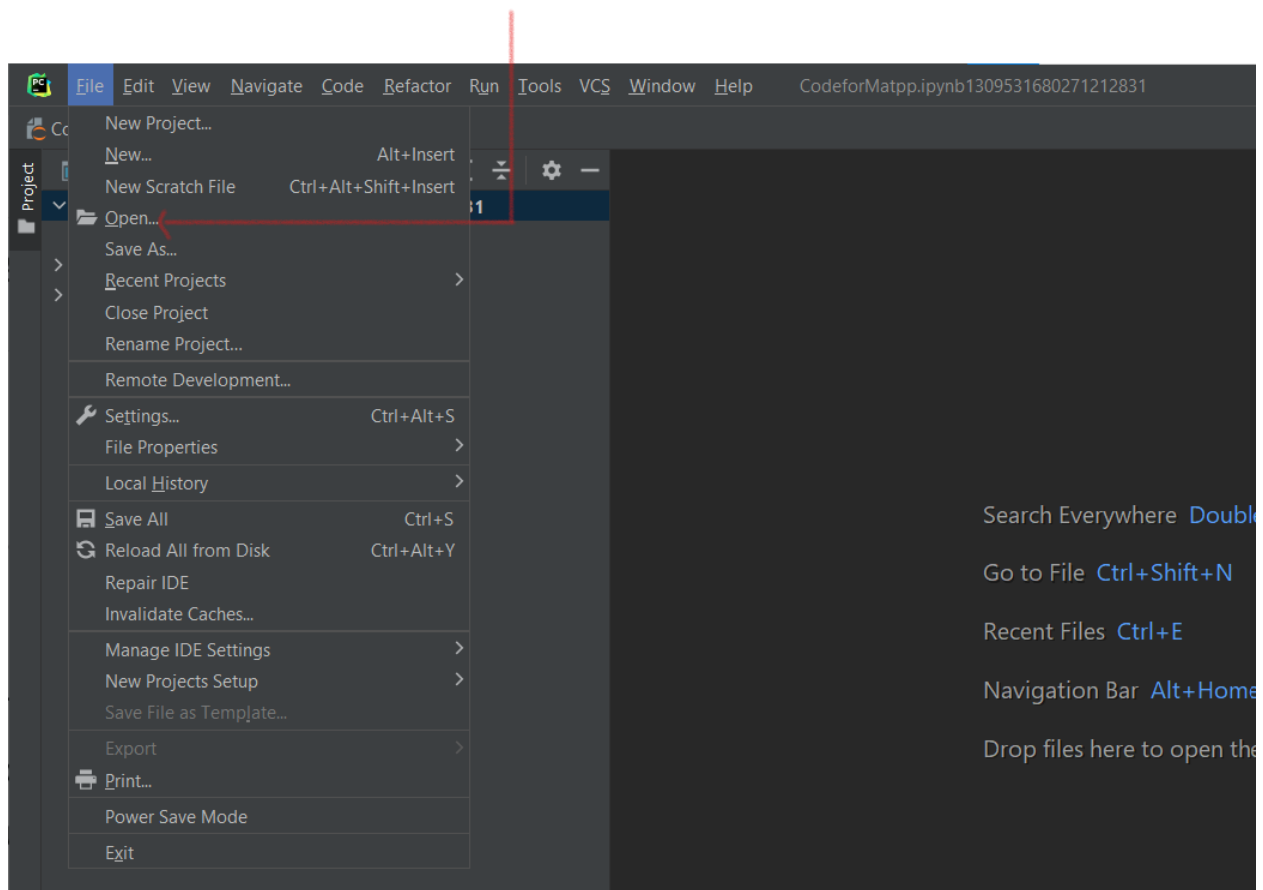
1)Step 1-(Pre-requisite any IDE like Pycharm)

Download Necessary files,from the link below->

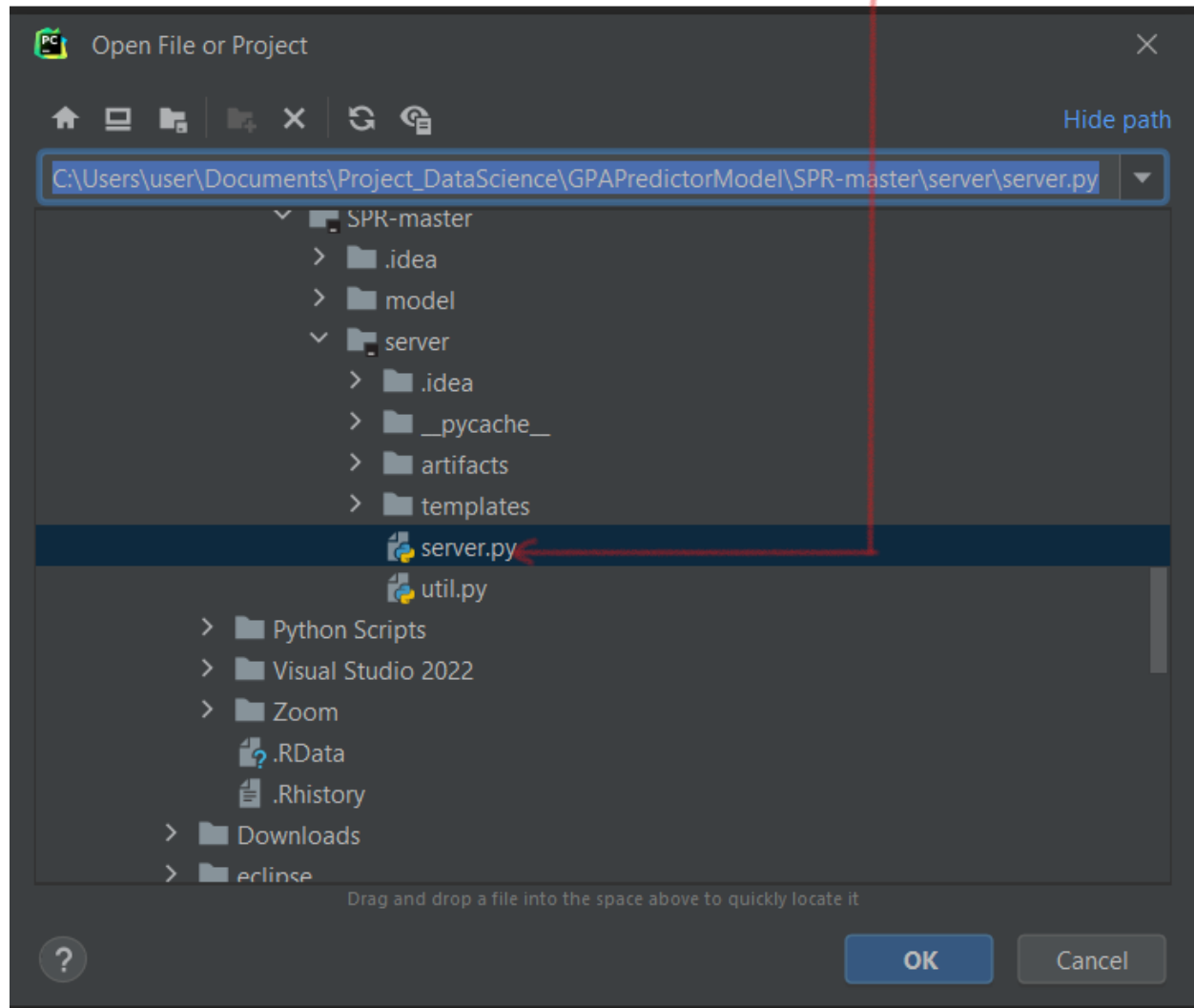


2)Step 2-

Open the downloaded file using Pycharm

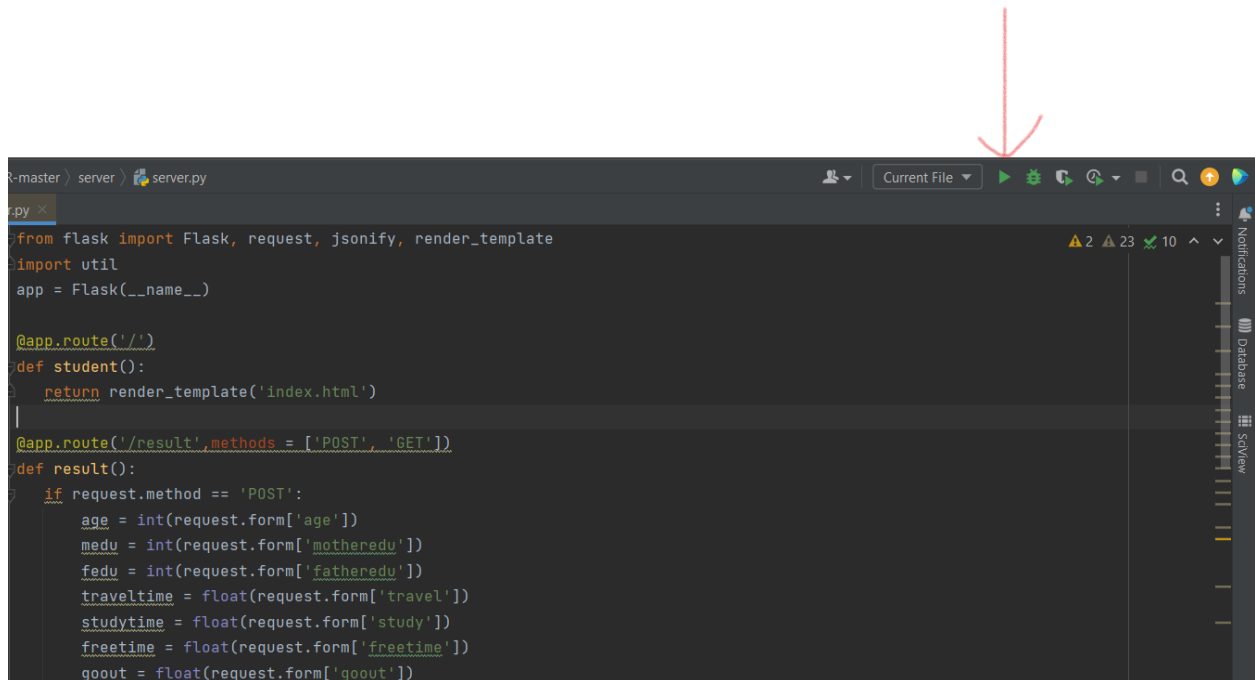


3)Step 3-
Open Server.py in your IDE.



4)Step 4-

Press Run



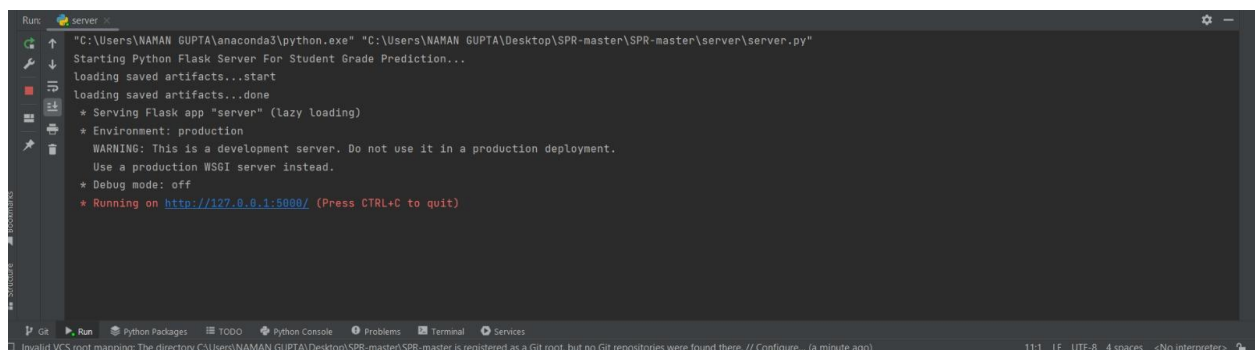
```
server.py
from flask import Flask, request, jsonify, render_template
import util
app = Flask(__name__)

@app.route('/')
def student():
    return render_template('index.html')

@app.route('/result', methods = ['POST', 'GET'])
def result():
    if request.method == 'POST':
        age = int(request.form['age'])
        medu = int(request.form['motheredu'])
        fedu = int(request.form['fatheredu'])
        traveltime = float(request.form['travel'])
        studytime = float(request.form['study'])
        freetime = float(request.form['freetime'])
        goout = float(request.form['goout'])
```

5)Step 5-

Click on the Local host net



```
Run: server
"C:\Users\NAMAN GUPTA\anaconda3\python.exe" "C:\Users\NAMAN GUPTA\Desktop\SPR-master\SPR-master\server\server.py"
Starting Python Flask Server For Student Grade Prediction...
loading saved artifacts...start
loading saved artifacts...done
* Serving Flask app "server" (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Debug mode: off
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

6)Step 6-

Enter the values from the given result

Student Grade Predictor

Age:

Mother's Education: ← Higher Education

Father's Education: ← Secondary Education

Travel Time to School (in hours): ← Between 0 -24 Hours

Weekly Study Time (in hours): ← Between 0 -24 Hours

Free Time After School (in hours): ← Between 0 -24 Hours

Time Spent Going Out with Friends (in hours): ← Between 0 -24 Hours

Grade 1: ← Between 0 -20 Marks scored in latest exam given

Grade 2: ← Between 0 -20 Marks scored in latest exam given

Grade 3: ← Between 0 -20 Marks scored in latest exam given

Higher Education 4

Senior Secondary Education 3

Secondary Education 2

Primary Education 1

None 0

Result

Your Predicted Grade is: ['A']

Inputed Value :

Feature	Value
Age	16
Mother's Education	4
Father's Education	2
Travel Time	1
Study Time	5
Free Time	4
Go-Out Time	1
Grade 1	19
Grade 2	15
Grade 3	18

Here we can see that the predicted Grade comes to be ['A']

Here we can see the input variables to cross verify

Appendix

Link to PPT-

Link to Pre-Recorded Demonstration Video-

Link to access source files and file containing steps to execute the project-