

Project Module 3

Group Members:

1. Abdullah Baig - 231485698
2. Sameed Gillani - 231488347
3. Haseeb Asif - 231492733

Project Title:

Attend College Model

Project Description:

This model aims to predict whether students will continue their studies and attend college or not. With machine learning explainability, school counselors can help students that will not go to college by finding the factor and helping them.

Input Variables:

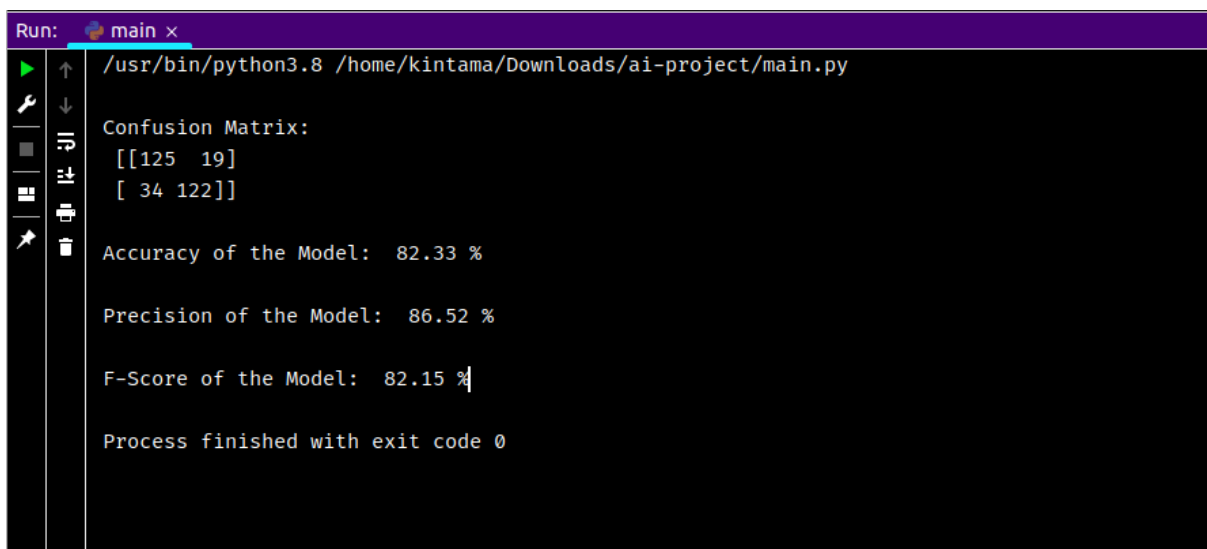
1. **type_school:** Type of school the student attends (Academic or Vocational)
2. **school_accreditation:** Quality of school (A or B)
3. **gender:** Male or Female
4. **interest:** How interested are students in going to college
5. **residence:** Type of residence (Urban or Rural)
6. **guardian_age:** Age of guardian parent
7. **guardian_salary:** Salary of the guardian per month

8. **house_area:** Area of the house the student lives in
9. **average_grades:** Average grades of the student in percentage
10. **guardian_attend_college:** Did the guardian attend college? (True or False)

Output Variables:

1. **in_college:** Is a student currently in college? (True or False)

Model Evaluation:



```
Run: main x
/usr/bin/python3.8 /home/kintama/Downloads/ai-project/main.py

Confusion Matrix:
[[125  19]
 [ 34 122]]

Accuracy of the Model: 82.33 %

Precision of the Model: 86.52 %

F-Score of the Model: 82.15 %

Process finished with exit code 0
```

We used Euclidean Distance, Jaccard Distance & Cosine Distance to calculate the distance to all training points while the number of neighbors k was set to **3**. Euclidean Distance gave the best accuracy of **82.15%** while $k=3$.

Steps to run the code:

1. Please use the terminal to make a new virtual environment by using:

```
python3 -m venv venv
```

2. Then install the dependencies in requirements.txt file:

```
pip install -r requirements.txt
```

3. Run main.py:

```
python3 main.py
```