

# Module 4: Introduction to NumPy, Pandas & Matplotlib

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## Case Study

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## Case Study

### Domain – Education

focus – Data analysis

#### Business challenge/requirement

You are a data analyst with University of Cal USA (Not a machine learning expert yet as you still have not completed ML with Python Course :-)). The University has data of Math, Physics and Data Structure score of sophomore students. This data is stored in different files. The University has hired a data science company to do analysis of scores and find if there is any correlation of score with age, ethnicity etc. Before the data is given to the company you have to do data wrangling.

#### Key issues

Ensure students identify is not revealed to the agency and only relevant data is shared

#### Considerations

NONE

#### Data volume

- In thousands, but only around 1800 records are shared in files MathScoreTerm1.csv  
DSScoreTerm1.csv, PhysicsScoreTerm1.csv

#### Additional information

- NA

#### Business benefits

University can get more students enrollment by improving its international ranking through personalized course/curriculum for students

#### Approach to Solve

You have to use fundamentals of Numpy and Pandas covered in module 4.

1. Read the three csv files which contains the score of same students in term1 for each Subject
2. Remove the name and ethnicity column (to ensure confidentiality)

3. Fill missing score data with zero
4. Merge the three files
5. Change Sex(M/F) Column to 1/2 for further analysis
6. Store the data in new file – ScoreFinal.csv

#### Enhancements for code

You can try these enhancements in code

1. Convert ethnicity to numerical value
2. Fill the missing score for a student to the average of the class

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