**Python for Data Science**

1. **a)**Load the ‘Student Performance’ dataset into one of the data structures (NumPy or Pandas).

**b)**Display header rows and description of the loaded dataset.

**c)** Remove unnecessary features (E.g. drop unwanted columns) from the dataset such as ‘lunch’ and ‘test preparation course’ .

**d)** Manipulate data by replacing empty column values in ‘parental level of education’ with a default value.

**e)** Convert theattribute‘race/ethnicity’to have ‘groupA’ to be ‘Asian Students’, ‘groupB’ to be ‘African Students’ , ‘groupC’ to be ‘Afro-Asian Students’, ‘groupD’ to be ‘American Students’ and ‘groupE’ to be ‘European Students’.

**f)** Perform the following visualizations on the loaded dataset:

**i)** Tally of the Number of Male & Female students who took up the ‘test

preparation course’ and those who did not.

**ii)** Total Number of Male & Female Students belonging to each student group

**iii**) No of students who ‘failed’(less than 40), ‘second class’(between 40 & 50).

‘first class’(between 60 & 75) and ‘distinction’(above 75) in ‘Maths’,

‘Reading’ and ‘Writing’.

1. **a)**Load the ‘Black Friday’ dataset into one of the data structures (NumPy or Pandas).

**b)**Display header rows and description of the loaded dataset.

**c)** Remove unnecessary features (E.g. drop unwanted columns) from the dataset such as ‘User\_ID’, ‘Product\_ID ‘ ‘Stay\_In\_Current\_City\_Years’ .

**d)** Manipulate data by replacing empty column values in ‘City\_Category’ with a default value for the city.

**e)** Convert theattribute‘City\_Category’to have ‘A’ to be ‘Metro Cities’, ‘B’ to be ‘Small Towns’ , ‘C’ to be ‘Villages’.

**f)** Convert theattribute‘Product\_Category\_1’to have ‘Baseball Caps’, ‘Product\_Category\_2’to have ‘Wine Tumblers’ and ‘Product\_Category\_3’to have ‘Pet Raincoats’

**g)** Convert theattribute‘Marital\_Status’to have ‘1:Married’ and ‘0:Un-Married’

**h)** Perform the following visualizations on the loaded dataset:

**i)** Tally of the Number of Male & Female persons who bought

‘Product\_Category\_1’ and ‘Product\_Category\_2’.

**ii)** Total Number of Male & Female persons belonging to each city category