1. Load the automobile_data.csv from https://bit.ly/3CIkrcW. **25 Marks**
    a. Convert all the '?' values to NaN. Clean the data as per further requirement. (2 Marks)
    b. Which company manufactured the most expensive car and at what price? (3 Marks)
    c. Calculate the maximum horsepower for each company. (3 Marks)
    d. What is the total count of cars manufactured by each company? (3 Marks)
    e. Based on new regulations, companies decided to change the prices of the car. The new update price is calculated as - if the engine is in front, price will be same else if the engine is in rear, price will be doubled. Add a new column with the updated prices. (4 Marks)
    f. Sort the dataframe according to car and price combined. (2 Marks)
    g. Create a new column which stores the number of doors in a car as integers. (2 Marks)
    h. Calculate which variable/feature/attribute is impacting the price of the car the most. (2 Marks)
    i. Concatenate the two data frames given below firstly row wise and secondly column wise. (3 Marks)
    GermanCars = {'Company': ['Ford', 'Mercedes', 'BMV', 'Audi'], 'Price': [23845, 171995, 135925 , 71400]}
    japaneseCars = {'Company': ['Toyota', 'Honda', 'Nissan', 'Mitsubishi '], 'Price': [29995, 23600, 61500 , 58900]}
    j. Save the first and last 15 records of the dataframe in a separate excel sheet. (1 Mark)

Show and explain the working at each step and submit the detailed solution in jupyter notebook. (Bonus Marks for detailing of the solution).

2. Use this dataset for this question. https://bit.ly/3KEPrxc **(20 Marks)**
    a. Perform outlier removal in the duration column in the given dataset. Explain the factors to be considered while outlier treatment. (5 Marks)
    b. Plot the BoxPlot and DistPlot post outlier removal. (5 Marks)
    c. Draw important inferences and conclusions from the created Plots and explain them as a Data Analyst. (5 Marks)
    d. Give a Five-number summary of every column on the dataset. (5 Marks)

3. Guesstimate: Estimate the number of AC's (Used in household only) being used in India. Use a proper method analysing different factors on which the sales of AC's is dependent. **(10 Marks)**

4. The average IQ of a sample of 50 university students was found to be 105. It is known from previous studies that the Standard Deviation of IQs among students is approximately 20. Carry out a statistical test to determine whether the average IQ of university students is greater than 100 assuming that IQs are normally distributed. Hint: Use Hypothesis Concepts. **(5 Marks)**