Assignment on Bank Marketing Campaign

A Portuguese banking institution wants to understand the factors that influence customers to subscribe to term deposits. They have provided us with their direct marketing campaign data, which includes customer demographics, previous interactions with the bank, and whether or not the customer subscribed to a term deposit. Our task is to analyze this data and provide insights into customer behavior and campaign outcomes, which will help the bank improve its future marketing strategies. The dataset contains 45,211 instances and 16 attributes, including customer demographics, previous interactions with the bank, and whether or not the customer subscribed to a term deposit.

Here are the details of the attributes in the dataset:

- age: The age of the customer (numeric).
- job: The type of job the customer has (categorical: 'admin.', 'blue-collar', 'entrepreneur', 'housemaid', 'management', 'retired', 'self-employed', 'services', 'student', 'technician', 'unemployed', 'unknown').
- marital: The marital status of the customer (categorical: 'divorced', 'married', 'single', 'unknown').
- education: The level of education of the customer (categorical: 'basic.4y', 'basic.6y', 'basic.9y', 'high.school', 'illiterate', 'professional.course', 'university.degree', 'unknown').
- default: Whether or not the customer has credit in default (categorical: 'no', 'yes', 'unknown').
- balance: The current balance of the customer (numeric).
- housing: Whether or not the customer has a housing loan (categorical: 'no', 'yes', 'unknown').
- loan: Whether or not the customer has a personal loan (categorical: 'no', 'yes', 'unknown').
- contact: The type of contact the customer was reached through (categorical: 'cellular', 'telephone').
- day: The day of the month the customer was last contacted (numeric).
- month: The month the customer was last contacted (categorical: 'jan', 'feb', 'mar', ..., 'nov', 'dec').
- duration: The duration of the last contact with the customer, in seconds (numeric).
- campaign: The number of contacts performed during this campaign for this customer (numeric).
- pdays: The number of days that passed by after the customer was last contacted from a previous campaign (numeric).
- previous: The number of contacts performed before this campaign and for this customer (numeric).
- y (target variable): Whether or not the customer subscribed to a term deposit (binary: 'yes', 'no').

Analysis:

- What is the proportion of customers who subscribed to a term deposit, broken down by Job? Create a pie chart to display the same. You can create using the drag-and-drop option of power bi or u can make use of `python visual` and write the python code for the same in power bi. **(5 Marks)**
- What is the most common education level among customers in the dataset? Create a bar chart to show the number of customers by education level. **(5 Marks)**
- Create a box plot for detecting outliers in the age column using python visual (hint: make sure you add a unique identifier as well along with the age column while working with python visual as it will delete the value of age where the age is same, considering its duplicate). **(5 Marks)**

- Create a Line chart showing the total number of campaigns done in different month with respect to contact type(i.e contact column).**(5 Marks)**