CUSTOMER CASE STUDY

PROBLEM STATEMENT

1. Determine the count of customers whose 'CreditScore' is greater than or equal to 800.
2. Display the 'CustomerId's of all female customers from Spain with a 'CreditScore' greater than 650.
3. Display the surnames of customers who chose to exit(1) from credit card usage without clearing their balance amount.
4. Display the surnames of male customers who opted to exit(1) from credit card usage, had a salary greater than 100000, and cleared their balance.
5. Determine whether male or female customers, who possess credit cards issued from France, exhibit higher activity levels.
6. Identify the geography with the highest count of customers under 30 years old, using credit cards and earning less than $100,000.

STEPS TO SOLVE THE PROBLEM

Step 1: Load csv file into dataframe using pandas.read_csv() method

Step 2: Remove all null valued rows from dataframe using dropna() method

Step 3: Find how many customers have a credit score of 800 or higher.

Step 4: Show the IDs of female customers from Spain with a credit score above 650.

Step 5: List the last names of customers who quit using their credit cards without paying off their balance.

Step 6: Show the last names of male customers who quit using their credit cards, had a salary over $100,000, and paid off their balance

Step 7: Decide if male or female customers with credit cards from France are more active.

Step 8: Identify the location with the most customers under 30, using credit cards, and earning less than $100,000.

CODE

```
import pandas as pd
df=pd.read_csv("/content/Customer.csv")

#'CreditScore' is greater than or equal to 800.
c=0
for i in df.index:
 if df.loc[i,'CreditScore']>=800:
  c+=1
print("\nCredit score:",c)
print("\n*********************************************************************************")

#'CustomerId's of all female customers from Spain with a 'CreditScore' greater than 650.
df1=df[(df['CreditScore']>650) & (df['Gender']=='Female') & (df['Geography']=='Spain')]
print(df1['CustomerId'])
print("\n*********************************************************************************")

#surnames of customers who chose to exit(1) from credit card usage without clearing their balance amount.
df1=df[(df['Exited']==1) & (df['Balance']!=0)]
print(df1['Surname'])
print("\n*********************************************************************************")

#the surnames of male customers who opted to exit(1) from credit card usage, had a salary greater than 100000, and cleared their balance
df1=df[(df['Exited']==1) & (df['Balance']==0) & (df['EstimatedSalary']>100000) & (df['Gender']=='Male') & (df['HasCrCard'])==1]
print(df1['Surname'])
print("\n*********************************************************************************")

#male or female customers, who possess credit cards issued from France, exhibit higher activity levels
df1=df[(df['Geography']=='France') & (df['HasCrCard']==1) & (df['IsActiveMember']==1) ]
g=df1.groupby(df1['Gender']).size()
if g['Male']!=g['Female']:
  print(g.idxmax(),"are active members")
else:
  print("Both Male and Female are active members")
print("\n*********************************************************************************")

#the geography with the highest count of customers under 30 years old, using credit cards and earning less than $100,000.
df1=df[(df['Age']<30) & (df['HasCrCard']==1) & (df['EstimatedSalary']<100000)]
g=df1.groupby(df1['Geography']).size()
print(g.idxmax())
print("\n*********************************************************************************")
```

```
Credit score: 655

********************************************************************************
4       15737888
34      15732963
44      15684171
72      15812518
85      15805254
          ...
9897    15810563
9899    15811594
9904    15722532
9912    15655903
9939    15808971
Name: CustomerId, Length: 558, dtype: int64

********************************************************************************
2              Onio
5               Chu
7            Obinna
16            Romeo
35         Lombardo
           ...
9975          Smith
9981       Burbidge
9982        Griffin
9991    Ajuluchukwu
9998      Sabbatini
Name: Surname, Length: 1537, dtype: object

********************************************************************************
11       Andrews
143      Greeves
208      Hackett
279        K'ung
306       Hewitt
          ...
9210       Watts
9220    Trentino
9276     Griffin
9466      Clarke
9784      Zhirov
Name: Surname, Length: 82, dtype: object

********************************************************************************
Male are active members

********************************************************************************
France

********************************************************************************
```

TITANIC CASE STUDY

PROBLEM STATEMENT

1. Remove all null valued rows from DataFrame.
2. Determine the count of customers who survived the Titanic accident.
3. Count the customers who survived the Titanic accident and embarked (boarded) from "Q": Queenstown (now known as Cobh), Ireland.
4. Count the customers who did not survive the Titanic accident and were less than 20 years old.
5. Count the total number of male and female passengers, aged over 50, who did not survive and embarked from "S": Southampton, England, as well as "C": Cherbourg, France.
6. Count the passengers who boarded the Titanic from "S": Southampton, England, and "Q": Queenstown (now known as Cobh), Ireland, with family members and did not survive the accident. "C": Cherbourg, France.

   (*If 'Parch' > 0 indicates that the passenger boarded the ship with family members).

STEPS TO SOLVE

Step 1: Load csv file into dataframe using pandas.read_csv() method

Step 2: Remove all null valued rows from dataframe using dropna() method

Step 3: Find the count of customers who survived the Titanic accident.

Step 4: Count the customers who survived the Titanic accident and boarded from Queenstown, Ireland.

Step 5: Count the customers who did not survive the Titanic accident and were less than 20 years old.

Step 6: Count the total number of male and female passengers, aged over 50, who did not survive and boarded from Southampton, England, and Cherbourg, France.

Step 7: Count the passengers who boarded from Southampton, England, and Queenstown, Ireland, with family members and did not survive the accident.

CODE

```
import pandas as pd
df=pd.read_csv("/content/titanic.csv")

#Remove all null valued rows from DataFrame.
df1=df.dropna()
print(df1)
print("\n*********************************************************************************")

#The count of customers who survived the Titanic accident.
c=0
for i in df1.index:
 if df1.loc[i,'Survived']==1:
  c+=1
print("Customers who survived the Titanic accident: ",end="")
print(c)
print("\n*********************************************************************************")

#The customers who survived the Titanic accident and embarked (boarded) from "Q": Queenstown (now known as Cobh), Ireland.
c=0
for i in df1.index:
 if df1.loc[i,'Survived']==1:
   if df1.loc[i,'Embarked']=='Q':
      c+=1
print("Customers who survived the Titanic accident and boarded from 'Q': ",end="")
print(c)

print("\n*********************************************************************************")

#The customers who did not survive the Titanic accident and were less than 20 years old.
c=0
for i in df1.index:
 if df1.loc[i,'Survived']==0:
   if df1.loc[i,'Age']<20:
      c+=1
print("customers who did not survive the Titanic accident and were less than 20 years old: ",end="")
print(c)
print("\n*********************************************************************************")

# The total number of male and female passengers, aged over 50, who did not survive and embarked from "S": Southampton, England, as well
c=0
for i in df1.index:
 if df1.loc[i,'Survived']==0:
   if df1.loc[i,'Age']>50:
    if df1.loc[i,'Embarked']=='S' or 'C':
           c+=1
print("number of male and female passengers, aged over 50, who did not survive and embarked from 'S' , 'C': ",end="")
print(c)
print("\n*********************************************************************************")

#The passengers who boarded the Titanic from "S": Southampton, England, and "Q": Queenstown (now known as Cobh), Ireland, with family mem
c=0
for i in df1.index:
 if df1.loc[i,'Survived']==0:
   if df1.loc[i,'Parch']>0:
    if df1.loc[i,'Embarked']=='S' or df1.loc[i,'Embarked']=='Q':
           c+=1
print("passengers who boarded the Titanic from 'S','Q' and did not survive the accident: ",end="")
print(c)
print("\n*********************************************************************************")
```

```
          PassengerId  Survived  Pclass  \
     1              2         1       1
     3              4         1       1
     6              7         0       1
     10            11         1       3
     11            12         1       1
     ..           ...       ...     ...
     871          872         1       1
     872          873         0       1
     879          880         1       1
     887          888         1       1
     889          890         1       1
```

```
                                                 Name     Sex   Age  SibSp  \
1    Cumings, Mrs. John Bradley (Florence Briggs Th...  female  38.0      1
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
6                              McCarthy, Mr. Timothy J    male  54.0      0
10                    Sandstrom, Miss. Marguerite Rut  female   4.0      1
11                           Bonnell, Miss. Elizabeth  female  58.0      0
..                                                ...     ...   ...    ...
871   Beckwith, Mrs. Richard Leonard (Sallie Monypeny)  female  47.0      1
872                           Carlsson, Mr. Frans Olof    male  33.0      0
879      Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)  female  56.0      0
887                      Graham, Miss. Margaret Edith  female  19.0      0
889                             Behr, Mr. Karl Howell    male  26.0      0

     Parch    Ticket     Fare        Cabin Embarked
1        0  PC 17599  71.2833          C85        C
3        0    113803  53.1000         C123        S
6        0     17463  51.8625          E46        S
10       1   PP 9549  16.7000           G6        S
11       0    113783  26.5500         C103        S
..     ...       ...      ...          ...      ...
871      1     11751  52.5542          D35        S
872      0       695   5.0000  B51 B53 B55        S
879      1     11767  83.1583          C50        C
887      0    112053  30.0000          B42        S
889      0    111369  30.0000         C148        C

[183 rows x 12 columns]

*******************************************************************************
Customers who survived the Titanic accident: 123

*******************************************************************************
Customers who survived the Titanic accident and boarded from 'Q': 1

*******************************************************************************
customers who did not survive the Titanic accident and were less than 20 years old: 6

*******************************************************************************
number of male and female passengers, aged over 50, who did not survive and embarked from 'S' , 'C': 16

*******************************************************************************
passengers who boarded the Titanic from 'S','Q' and did not survive the accident: 12

*******************************************************************************
```