from google.colab import files uploaded = files.upload() Choose Files | Social\_Network\_Ads.csv Social\_Network\_Ads.csv(text/csv) - 4903 bytes, last modified: 5/29/2023 - 100% done Saving Social\_Network\_Ads.csv to Social\_Network\_Ads.csv import numpy as np import pandas as pd df = pd.read\_csv('Social\_Network\_Ads.csv') Age EstimatedSalary Purchased

df.isnull().sum()

Age EstimatedSalary Purchased dtype: int64

x = df.iloc[:,0:2]

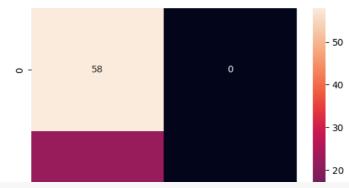
	Age	EstimatedSalar	у 🥇
0	19	1900	0
1	35	2000	0
2	26	4300	0
3	27	5700	0
4	19	7600	0
395	46	4100	0
396	51	2300	0
397	50	2000	0
398	36	3300	0
399	49	3600	0
400 rd	ws ×	2 columns	

y = df.iloc[:,-1]

```
395
           1
     396
     397
            1
     398
            0
     399
     Name: Purchased, Length: 400, dtype: int64
from \ sklearn.model\_selection \ import \ train\_test\_split
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.2)
x\_train
                                  1
          Age EstimatedSalary
      319 36
                         60000
                        146000
      253
           37
                         76000
      152
           31
      309
           38
                         50000
      286
           37
                         62000
      294
           35
                         57000
           33
                         51000
      41
      73
           33
                         113000
      201
           49
                         74000
      162 37
                         33000
     320 rows × 2 columns
x\_test
          Age EstimatedSalary
                                  1
      364
           42
                        104000
                         43000
      183
           33
      128
           30
                         17000
      32
           21
                         16000
           35
                         38000
      163
      ...
      74
           32
                         18000
      119
           41
                         59000
                         53000
      225
           37
      271
                         76000
           59
      103
                         149000
     80 rows × 2 columns
y_train
     319
     253
            1
     152
     309
     286
           0
     294
           0
     41
            0
     73
            0
     201
     162
     Name: Purchased, Length: 320, dtype: int64
```

y\_test

```
364
    183
         0
    128
         0
         0
    32
    163
        0
    74
         0
    119
    225
         0
    271
    103
         1
    Name: Purchased, Length: 80, dtype: int64
from sklearn.linear_model import LogisticRegression
lr = LogisticRegression()
model = lr.fit(x_train,y_train)
y_pred = model.predict(x_test)
y_test
    364
    183
         0
    128
         0
    32
         0
    163
        0
    74
         0
    119
    225
    271
         1
    103
    Name: Purchased, Length: 80, dtype: int64
y_pred
    0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0])
from sklearn.metrics import mean_squared_error
mse = mean_squared_error(y_test,y_pred)
mse
   0.275
from sklearn.metrics import accuracy_score
accuracy = accuracy_score(y_test,y_pred)
accuracy
    0.725
from sklearn.metrics import confusion_matrix
cm = confusion_matrix(y_test,y_pred)
cm
    array([[58, 0],
         [22, 0]])
import seaborn as sns
sns.heatmap(cm,annot=True)
```



from sklearn.metrics import precision\_score
ps = precision\_score(y\_test,y\_pred,average="micro")

ps

0.725

from sklearn.metrics import recall\_score rs = recall\_score(y\_test,y\_pred,average="micro")

rs

0.725