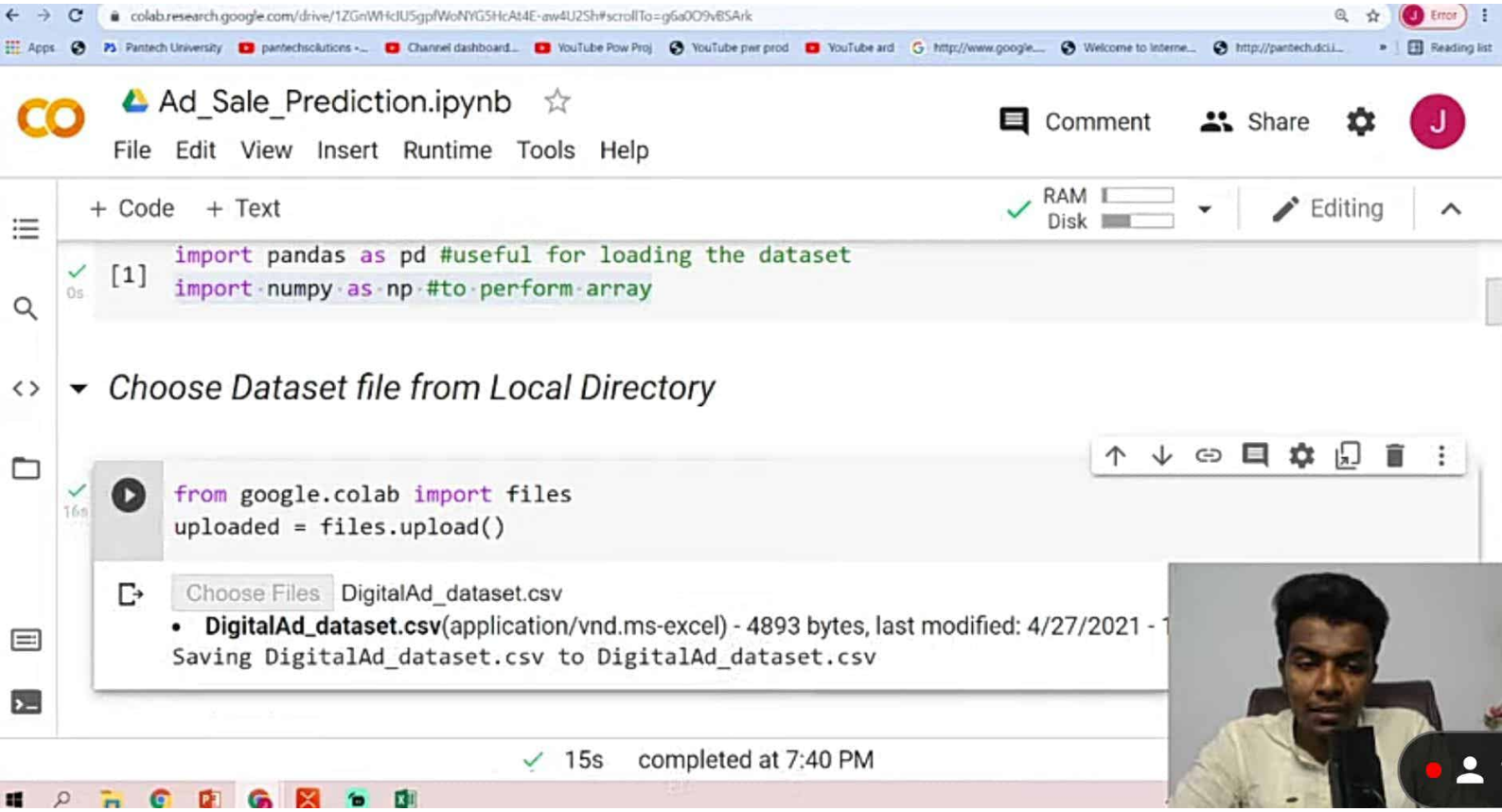
colab.research.google.com/drive/1ZGnWHcIU5gpfWoNYG5HcAt4E-aw4U2Sh#scrollTo=g6a0O9vBSArk
Ad_Sale_Prediction.ipynb
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[1]
import pandas as pd #useful for loading the dataset
import numpy as np #to perform array
Choose Dataset file from Local Directory
from google.colab import files
uploaded = files.upload()
Choose Files
DigitalAd_dataset.csv
DigitalAd_dataset.csv(application/vnd.ms-excel) - 4893 bytes, last modified: 4/27/2021 -
Saving DigitalAd_dataset.csv to DigitalAd_dataset.csv
15s completed at 7:40 PM

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```
[4] dataset = pd.read_csv('DigitalAd_dataset.csv')
```

Summarize Dataset

```
print(dataset.shape)
print(dataset.head(5))
```

Segregate Dataset into X(Input/IndependentVariable) & Y(Output/Depe

```
[ ] X = dataset.iloc[:, :-1].values
```

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```
Y = dataset.iloc[:, -1].values
Y
```

```
array([0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 0,
       0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0,
       0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0,
       0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0,
       0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
       0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0,
       1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0,
       1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0,
       0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 1,
       0, 0, 0, 1, 0, 0, 0, 1, 0, 1, 1, 1, 0, 0, 1, 1, 0, 1, 1, 0, 1, 1,
       0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 0, 0, 1, 1, 0, 1,
       0, 0, 1, 1, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 1, 1, 1, 1, 1, 0, 1,
       1, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 1, 0, 0, 0, 1, 1, 0, 1,
```

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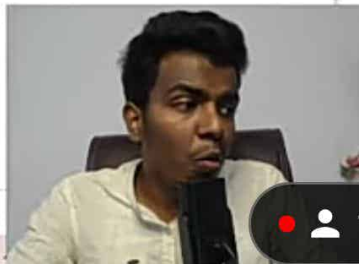

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```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, Y, test_size = 0.25, random_state = 0)
```

Feature Scaling

we scale our data to make all the features contribute equally to the result

Fit_Transform - fit method is calculating the mean and variance of eac
present in our data

Transform - Transform method is transforming all the features using t

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present in our data

Transform - Transform method is transforming all the features using the respective mean and variance,

We want our test data to be a completely new and a surprise set for our model

```
from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X_train = sc.fit_transform(X_train)
X_test = sc.transform(X_test)
```

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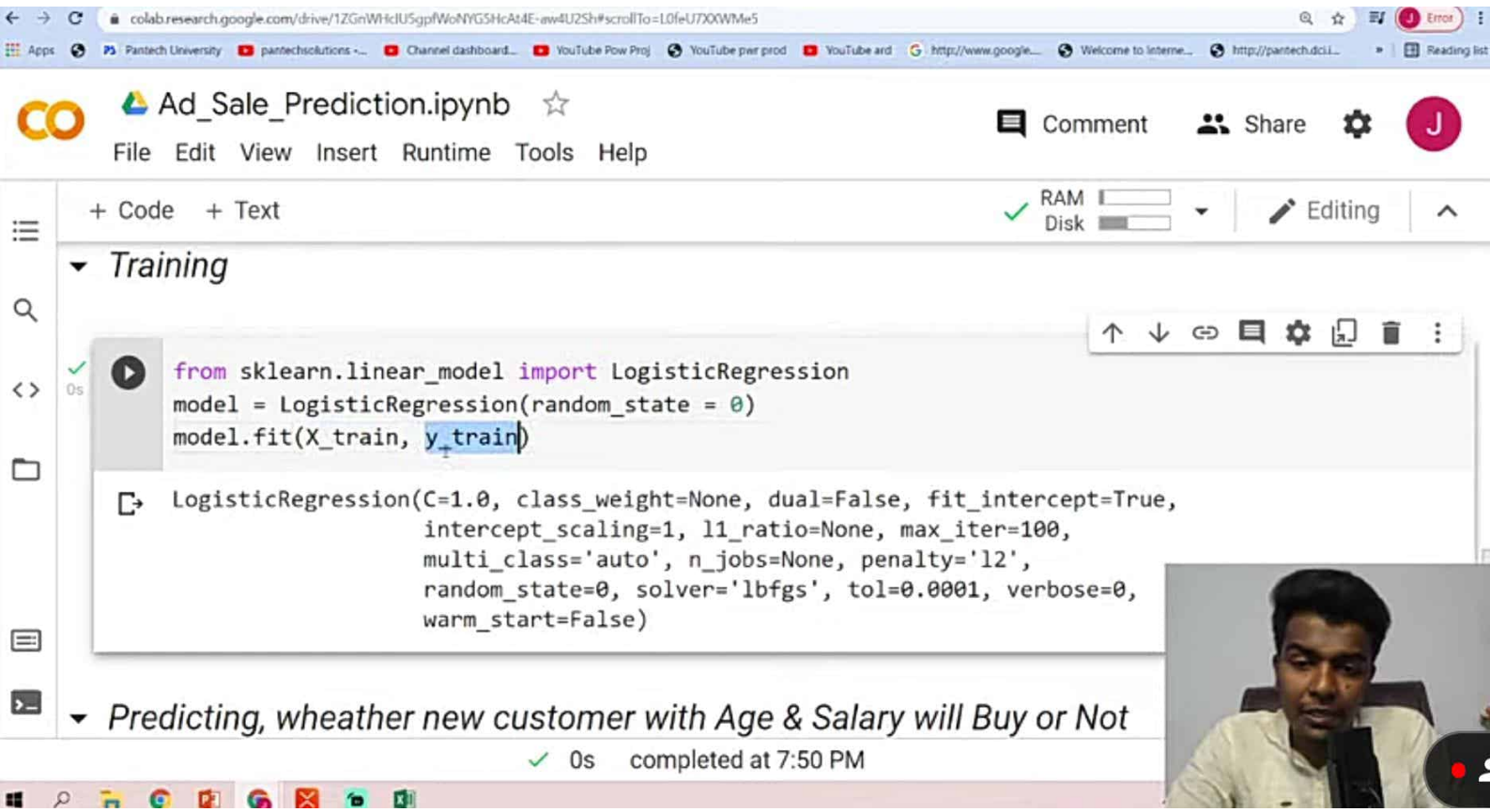
colab.research.google.com/drive/1ZGnWHclU5gpfWoNYG5HcAt4E-aw4U2Sh#scrollTo=L0feU7XXWMe5
Ad_Sale_Prediction.ipynb
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Training
from sklearn.linear_model import LogisticRegression
model = LogisticRegression(random_state = 0)
model.fit(X_train, y_train)
LogisticRegression(C=1.0, class_weight=None, dual=False, fit_intercept=True,
intercept_scaling=1, l1_ratio=None, max_iter=100,
multi_class='auto', n_jobs=None, penalty='l2',
random_state=0, solver='lbfgs', tol=0.0001, verbose=0,
warm_start=False)
Predicting, wheather new customer with Age & Salary will Buy or Not
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colab.research.google.com/drive/1ZGnWHclU5gpfWoNYG5HcAt4E-aw4U2Sh#scrollTo=L0feU7XXWMe5

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Predicting, wheather new customer with Age & Salary will Buy or Not

```
age = int(input("Enter New Customer Age: "))
sal = int(input("Enter New Customer Salary: "))
newCust = [[age,sal]]
result = model.predict(sc.transform(newCust))
print(result)
if result == 1:
  print("Customer will Buy")
else:
  print("Customer won't Buy")
```

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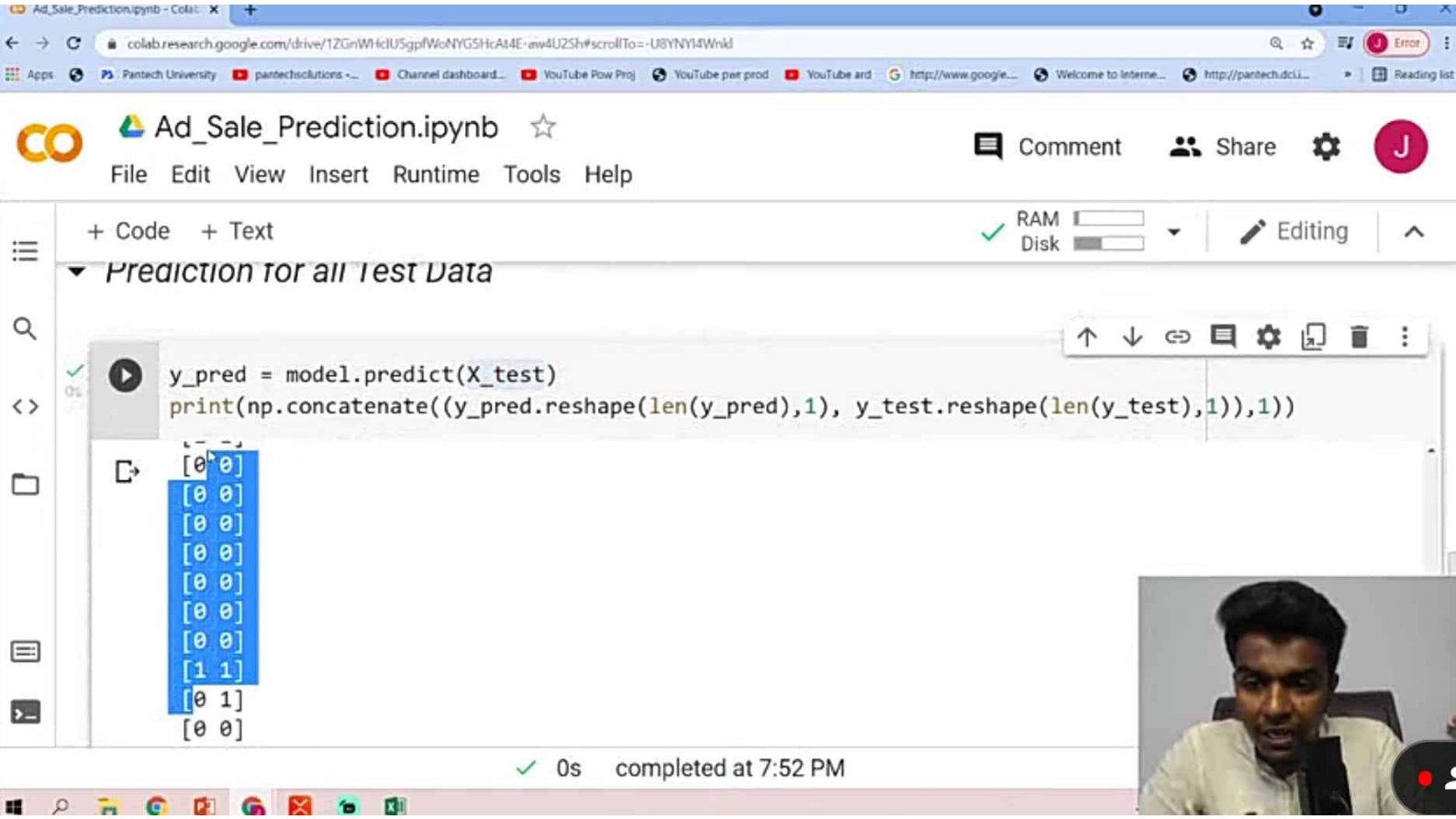
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Prediction for all Test Data
y_pred = model.predict(X_test)
print(np.concatenate((y_pred.reshape(len(y_pred),1), y_test.reshape(len(y_test),1)),1))
[0 0]
[0 0]
[0 0]
[0 0]
[0 0]
[0 0]
[0 0]
[1 1]
[0 1]
[0 0]
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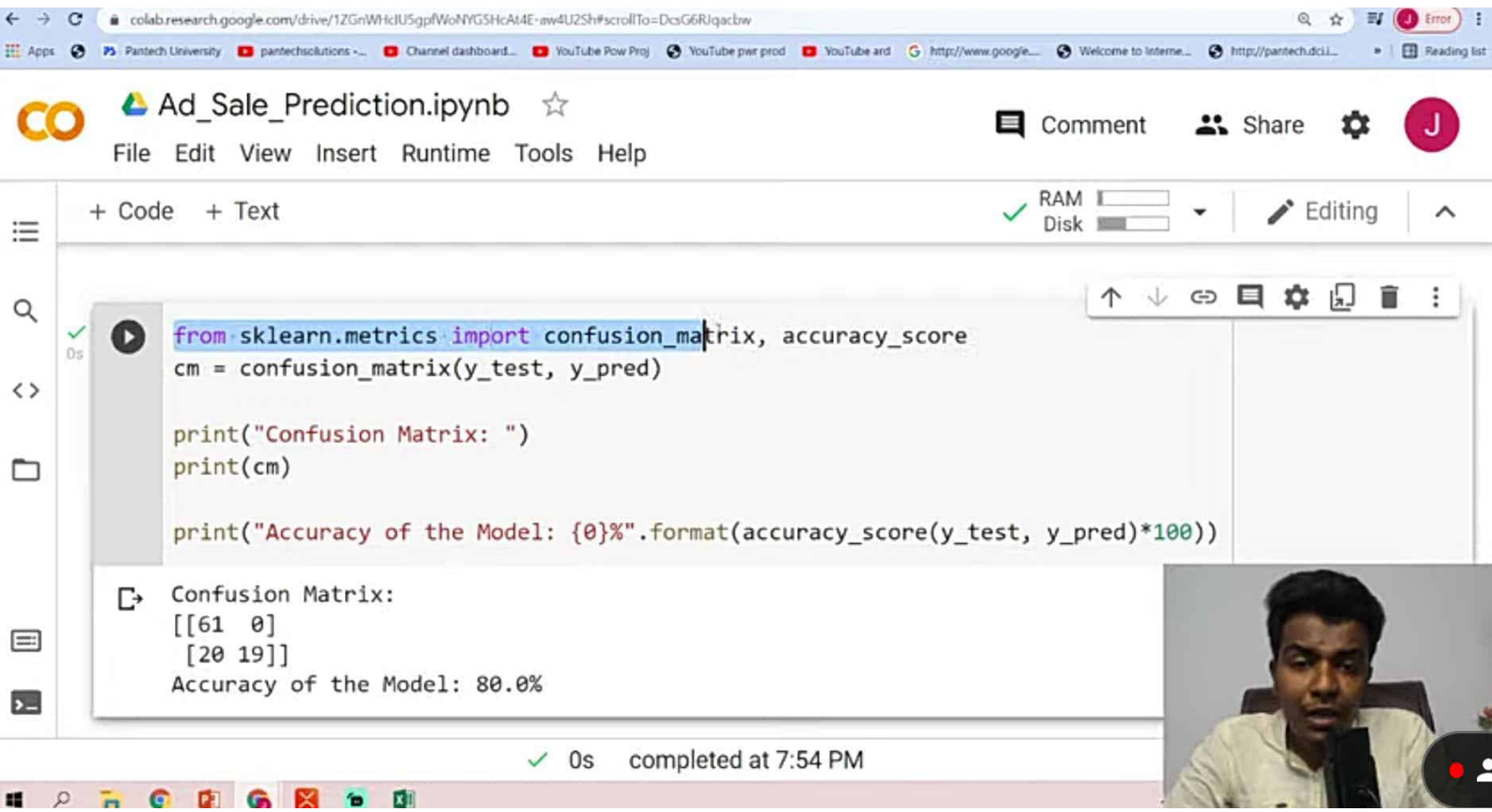
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from sklearn.metrics import confusion_matrix, accuracy_score
cm = confusion_matrix(y_test, y_pred)
print("Confusion Matrix: ")
print(cm)
print("Accuracy of the Model: {0}%".format(accuracy_score(y_test, y_pred)*100))
Confusion Matrix:
[[61 0]
[20 19]]
Accuracy of the Model: 80.0%
0s completed at 7:54 PM