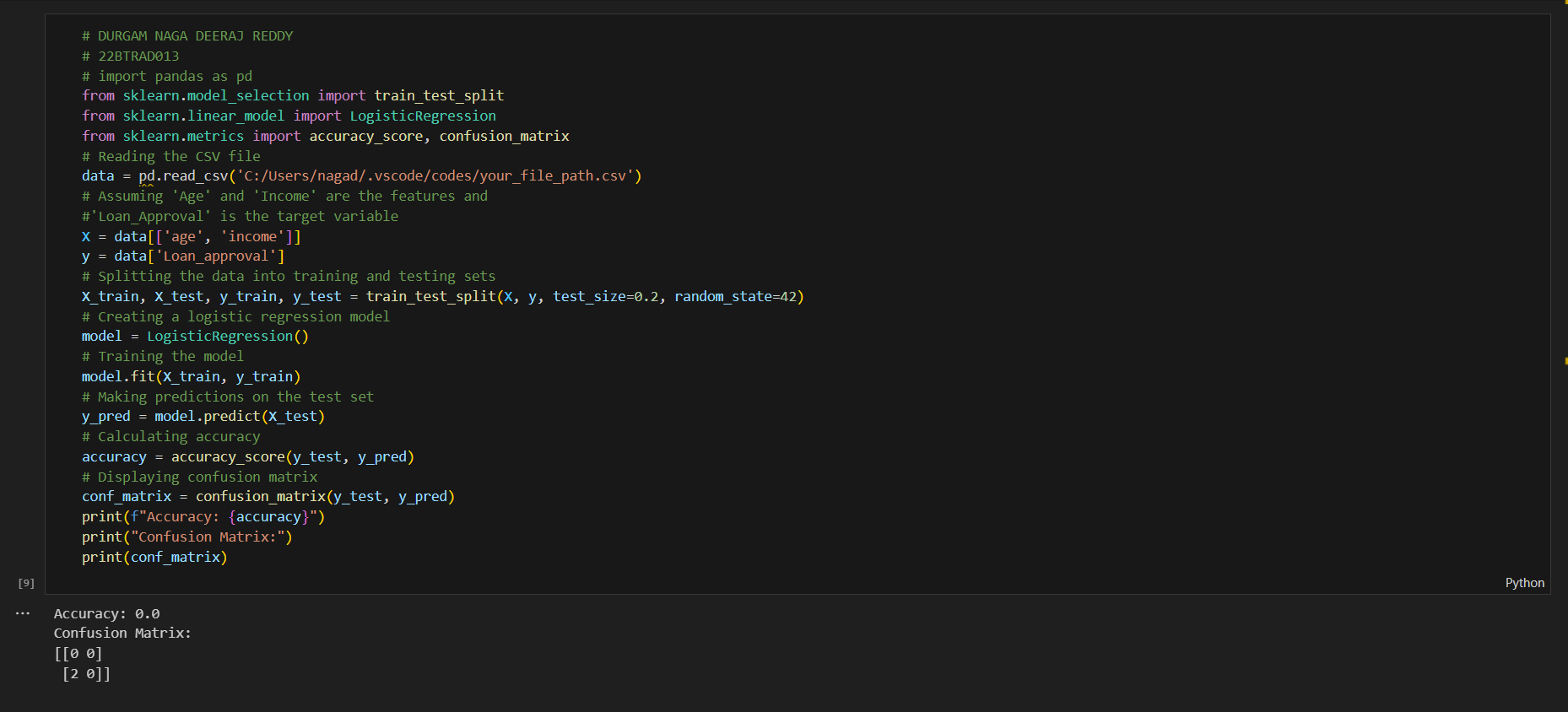
MACHINE LEARNING

LAB-5

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Q. Implementing Logistic Regression.



**CODE:**

# DURGAM NAGA DEERAJ REDDY

# 22BTRAD013

# import pandas as pd

from sklearn.model\_selection import train\_test\_split

from sklearn.linear\_model import LogisticRegression

from sklearn.metrics import accuracy\_score, confusion\_matrix

# Reading the CSV file

data = pd.read\_csv('C:/Users/nagad/.vscode/codes/your\_file\_path.csv')

# Assuming 'Age' and 'Income' are the features and

#'Loan\_Approval' is the target variable

X = data[['age', 'income']]

y = data['Loan\_approval']

# Splitting the data into training and testing sets

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.2, random\_state=42)

# Creating a logistic regression model

model = LogisticRegression()

# Training the model

model.fit(X\_train, y\_train)

# Making predictions on the test set

y\_pred = model.predict(X\_test)

# Calculating accuracy

accuracy = accuracy\_score(y\_test, y\_pred)

# Displaying confusion matrix

conf\_matrix = confusion\_matrix(y\_test, y\_pred)

print(f"Accuracy: {accuracy}")

print("Confusion Matrix:")

print(conf\_matrix)

**RESEARCH ON LOGISTIC REGRESSION:**

Logistic Regression is a statistical method used for modelling the probability of a binary outcome. Despite its name, it's commonly employed for classification tasks rather than regression.

The algorithm predicts the probability that an instance belongs to a particular category. Logistic Regression is a foundational algorithm in machine learning and is particularly useful when dealing with binary classification problems.

**REQUIRED MODULES FOR LOGISTIC REGRESSION:**

We import necessary libraries:

• pandas: For data manipulation and analysis.

• train\_test\_split: To split the dataset into training and testing sets.

• LogisticRegression: Implementation of logistic regression from scikit-learn.

• accuracy\_score and confusion\_matrix: Metrics to evaluate the performance of the model

**GITHUB LINK:**

https://github.com/DeeruReddy/Machine\_learning