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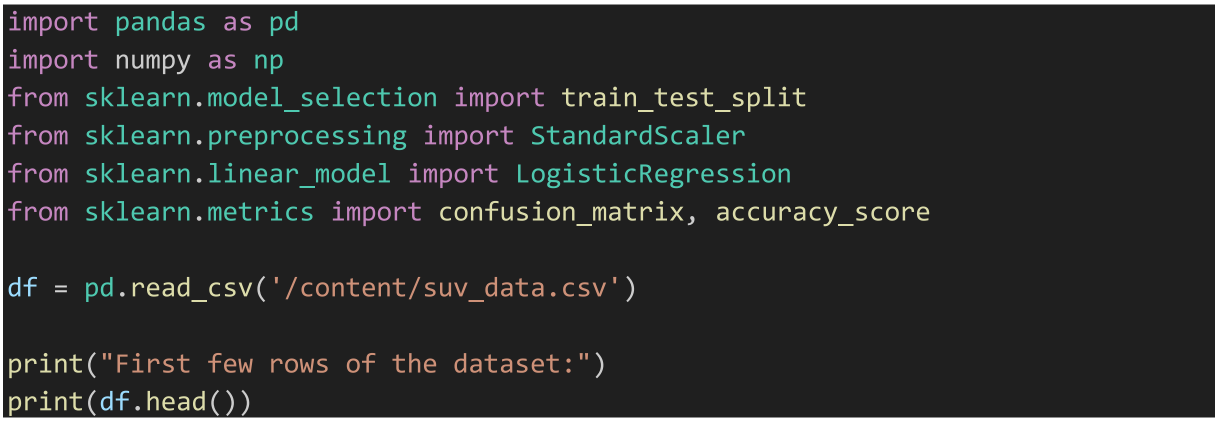
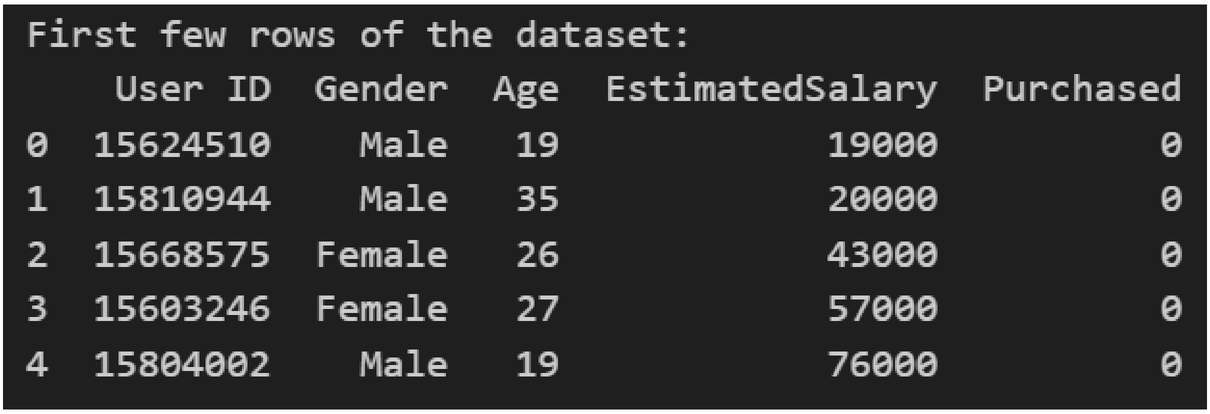
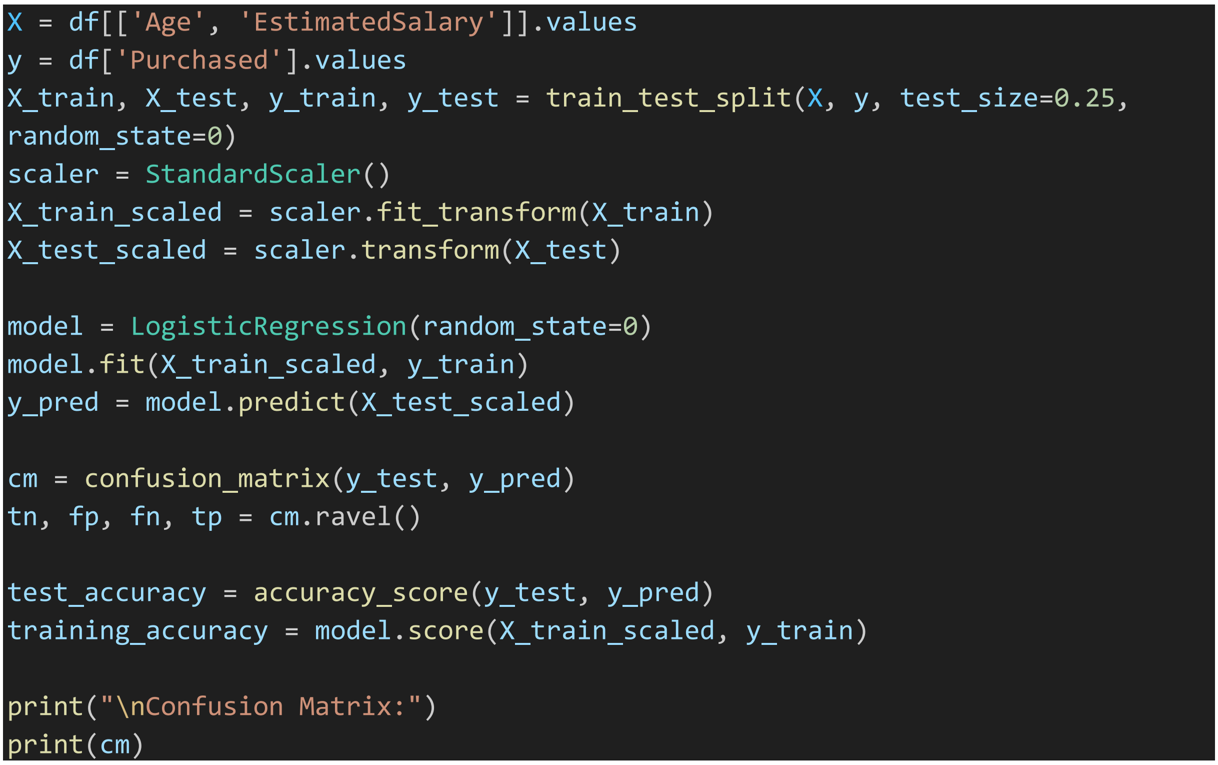
3. A PYTHON PROGRAM TO IMPLEMENT LOGISTIC MODEL



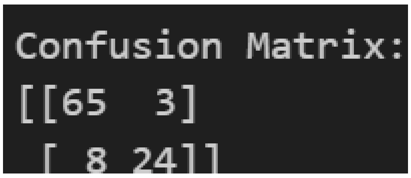
```python
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import confusion_matrix, accuracy_score

df = pd.read_csv('/content/suv_data.csv')

print("First few rows of the dataset:")
print(df.head())
```



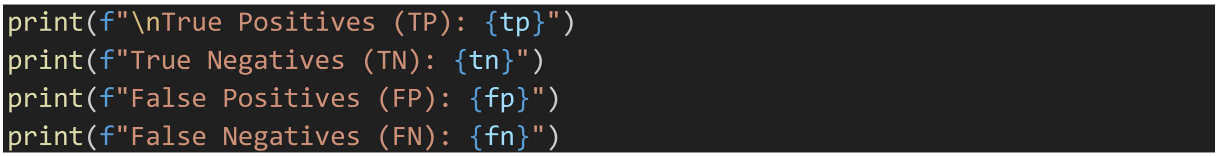
```
First few rows of the dataset:
    User ID  Gender  Age  EstimatedSalary  Purchased
0  15624510    Male   19            19000          0
1  15810944    Male   35            20000          0
2  15668575  Female   26            43000          0
3  15603246  Female   27            57000          0
4  15804002    Male   19            76000          0
```



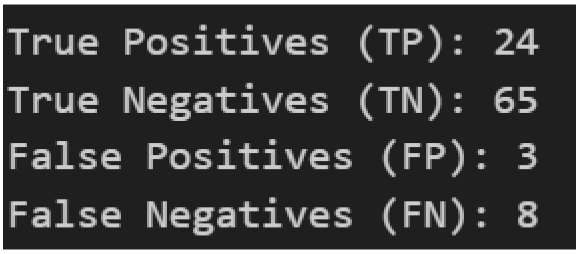
```python
X = df[['Age', 'EstimatedSalary']].values
y = df['Purchased'].values
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25,
random_state=0)
scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)

model = LogisticRegression(random_state=0)
model.fit(X_train_scaled, y_train)
y_pred = model.predict(X_test_scaled)

cm = confusion_matrix(y_test, y_pred)
tn, fp, fn, tp = cm.ravel()

test_accuracy = accuracy_score(y_test, y_pred)
training_accuracy = model.score(X_train_scaled, y_train)

print("\nConfusion Matrix:")
print(cm)
```



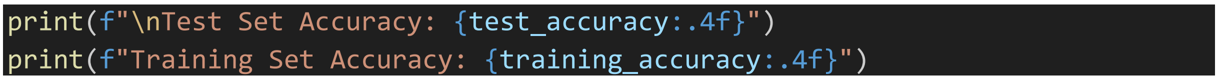
```
Confusion Matrix:
[[65  3]
 [ 8 24]]
```



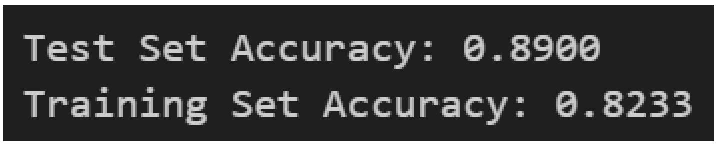
```
print(f"\nTrue Positives (TP): {tp}")
print(f"True Negatives (TN): {tn}")
print(f"False Positives (FP): {fp}")
print(f"False Negatives (FN): {fn}")
```



```
True Positives (TP): 24
True Negatives (TN): 65
False Positives (FP): 3
False Negatives (FN): 8
```



```
print(f"\nTest Set Accuracy: {test_accuracy:.4f}")
print(f"Training Set Accuracy: {training_accuracy:.4f}")
```



```
Test Set Accuracy: 0.8900
Training Set Accuracy: 0.8233
```