```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.neural_network import MLPClassifier
from sklearn.metrics import accuracy_score, classification_report
```

```
df = pd.read_csv("suv_data.csv")
```

```
X = df[['Age', 'EstimatedSalary']].values
y = df['Purchased'].values
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

```
scaler = StandardScaler()
X_train = scaler.fit_transform(X_train)
X_test = scaler.transform(X_test)
```

```
mlp = MLPClassifier(hidden_layer_sizes=(10, 10), activation='relu',
                    solver='adam', max_iter=1000, random_state=42)
```

```
mlp.fit(X_train, y_train)
```

```
MLPClassifier(hidden_layer_sizes=(10, 10), max_iter=1000, random_state=42)
```

```
y_pred = mlp.predict(X_test)
```

```
accuracy = accuracy_score(y_test, y_pred)
print("\nAccuracy:", accuracy)
```

```
Accuracy: 0.9375
```

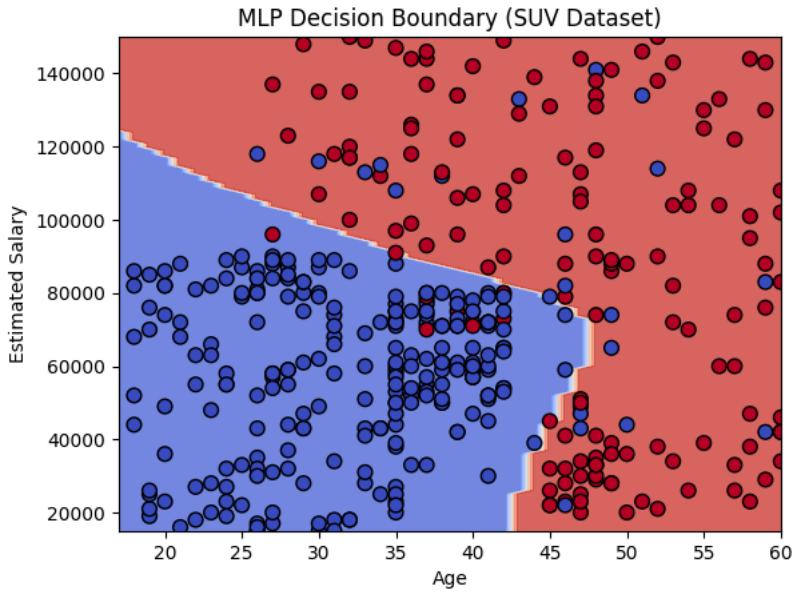
```
print("\nClassification Report:")
print(classification_report(y_test, y_pred))
```

```
Classification Report:
              precision    recall  f1-score   support

           0       0.98      0.92      0.95        52
           1       0.87      0.96      0.92        28

    accuracy                           0.94        80
   macro avg       0.93      0.94      0.93        80
weighted avg       0.94      0.94      0.94        80
```

```
age = df['Age']
salary = df['EstimatedSalary']
```

```
x_min, x_max = X[:, 0].min() - 1, X[:, 0].max() + 1
y_min, y_max = X[:, 1].min() - 1, X[:, 1].max() + 1
xx, yy = np.meshgrid(np.arange(x_min, x_max, 1),
                     np.arange(y_min, y_max, 1000))

Z = mlp.predict(scaler.transform(np.c_[xx.ravel(), yy.ravel()]))
Z = Z.reshape(xx.shape)
```

```
plt.contourf(xx, yy, Z, alpha=0.8, cmap=plt.cm.coolwarm)
plt.scatter(X[:, 0], X[:, 1], c=y, edgecolors='k', marker='o', s=60, cmap=plt.cm.coolwarm)
plt.title("MLP Decision Boundary (SUV Dataset)")
plt.xlabel("Age")
plt.ylabel("Estimated Salary")
plt.show()
```


MLP Decision Boundary (SUV Dataset)
Estimated Salary
140000
120000
100000
80000
60000
40000
20000
20
25
30
35
40
45
50
55
60
Age