SCE Title:-Airline Satisfaction Prediction.

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Code:

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import accuracy_score, classification_report
from sklearn.preprocessing import LabelEncoder

# Load dataset
df = pd.read_csv('Airline_random.csv')
df = df.dropna()

# Convert labels to numerical values
le = LabelEncoder()
df['Satisfaction'] = le.fit_transform(df['Satisfaction'])

# Split data
X = df.drop('Satisfaction', axis=1)
y = df['Satisfaction']
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
random_state=42)
```

```
# Create Random Forest Classifier
clf = RandomForestClassifier(random_state=42)
clf.fit(X_train, y_train)

# Evaluate model
predictions = clf.predict(X_test)
accuracy = accuracy_score(y_test, predictions)
report = classification_report(y_test, predictions, target_names=le.classes_)

print(f'Accuracy: {accuracy * 100:.2f}%')
print('Classification Report:\n', report)

# Predict satisfaction for a new instance
new_instance = [[25, 1, 4, 5, 1]]
new_prediction = clf.predict(new_instance)
print(f'Predicted Satisfaction: {le.inverse_transform(new_prediction)[0]}')
```

Output:

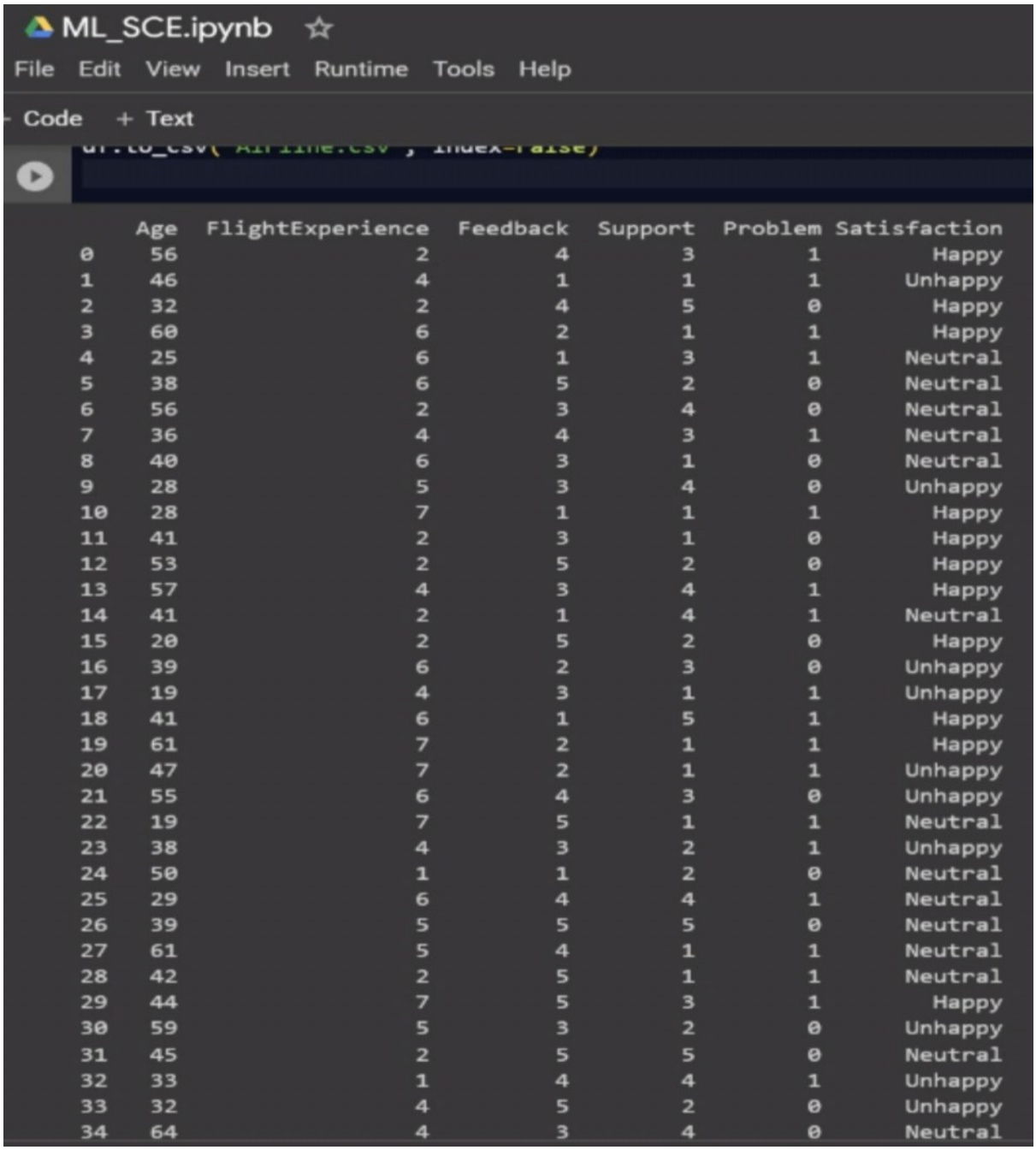
```
Accuracy: 41.67%
Classification Report:
              precision    recall  f1-score   support

       Happy       0.50      0.50      0.50         6
     Neutral       0.50      0.40      0.44         5
     Unhappy       0.00      0.00      0.00         1

    accuracy                           0.42        12
   macro avg       0.33      0.30      0.31        12
weighted avg       0.46      0.42      0.44        12

Predicted Satisfaction: Unhappy
```

DataSet



	Age	FlightExperience	Feedback	Support	Problem	Satisfaction
0	56	2	4	3	1	Happy
1	46	4	1	1	1	Unhappy
2	32	2	4	5	0	Happy
3	60	6	2	1	1	Happy
4	25	6	1	3	1	Neutral
5	38	6	5	2	0	Neutral
6	56	2	3	4	0	Neutral
7	36	4	4	3	1	Neutral
8	40	6	3	1	0	Neutral
9	28	5	3	4	0	Unhappy
10	28	7	1	1	1	Happy
11	41	2	3	1	0	Happy
12	53	2	5	2	0	Happy
13	57	4	3	4	1	Happy
14	41	2	1	4	1	Neutral
15	20	2	5	2	0	Happy
16	39	6	2	3	0	Unhappy
17	19	4	3	1	1	Unhappy
18	41	6	1	5	1	Happy
19	61	7	2	1	1	Happy
20	47	7	2	1	1	Unhappy
21	55	6	4	3	0	Unhappy
22	19	7	5	1	1	Neutral
23	38	4	3	2	1	Unhappy
24	50	1	1	2	0	Neutral
25	29	6	4	4	1	Neutral
26	39	5	5	5	0	Neutral
27	61	5	4	1	1	Neutral
28	42	2	5	1	1	Neutral
29	44	7	5	3	1	Happy
30	59	5	3	2	0	Unhappy
31	45	2	5	5	0	Neutral
32	33	1	4	4	1	Unhappy
33	32	4	5	2	0	Unhappy
34	64	4	3	4	0	Neutral