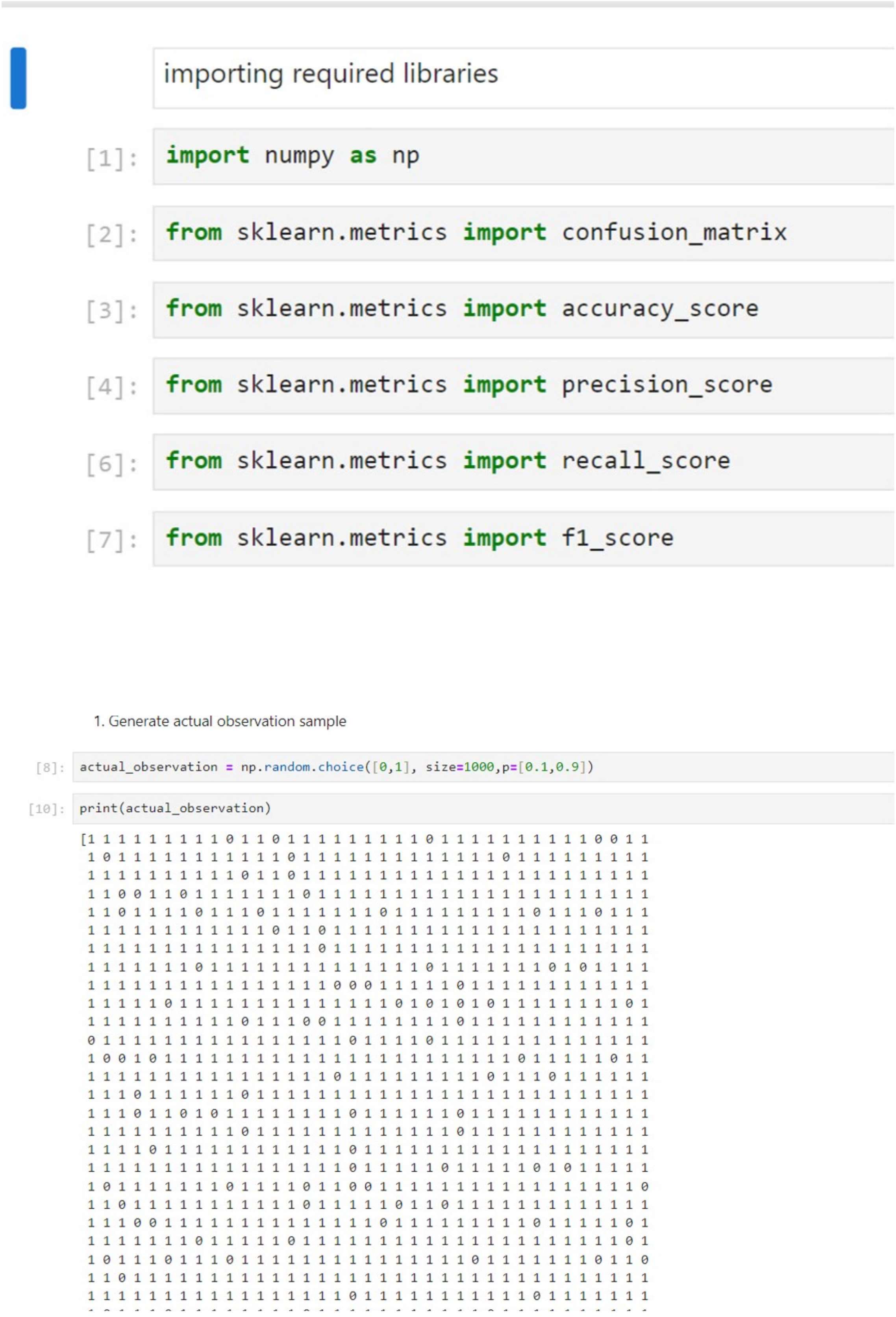

importing required libraries

```
[1]: import numpy as np
```

```
[2]: from sklearn.metrics import confusion_matrix
```

```
[3]: from sklearn.metrics import accuracy_score
```

```
[4]: from sklearn.metrics import precision_score
```

```
[6]: from sklearn.metrics import recall_score
```

```
[7]: from sklearn.metrics import f1_score
```

1. Generate actual observation sample

```
[8]: actual_observation = np.random.choice([0,1], size=1000,p=[0.1,0.9])
```

```
[10]: print(actual_observation)
```

```
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```

[11]:

```
predicted_observation = np.random.choice([0,1],size = 1000,p=[0.1,0.9])
```

[12]:

```
print(predicted_observation)
```

```
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```

[13]:

```
conf_matrix = confusion_matrix(actual_observation,predicted_observation)
```

[15]:

```
print(conf_matrix)
```

```
[[  6  92]
 [ 89 813]]
```

4.Convert the matrix to display matrix format

[16]:

```
display_matrix = np.array([['True Negative','False Positive'],
                           ['False Negative','True Positive']])
```

[17]:

```
print(display_matrix)
```

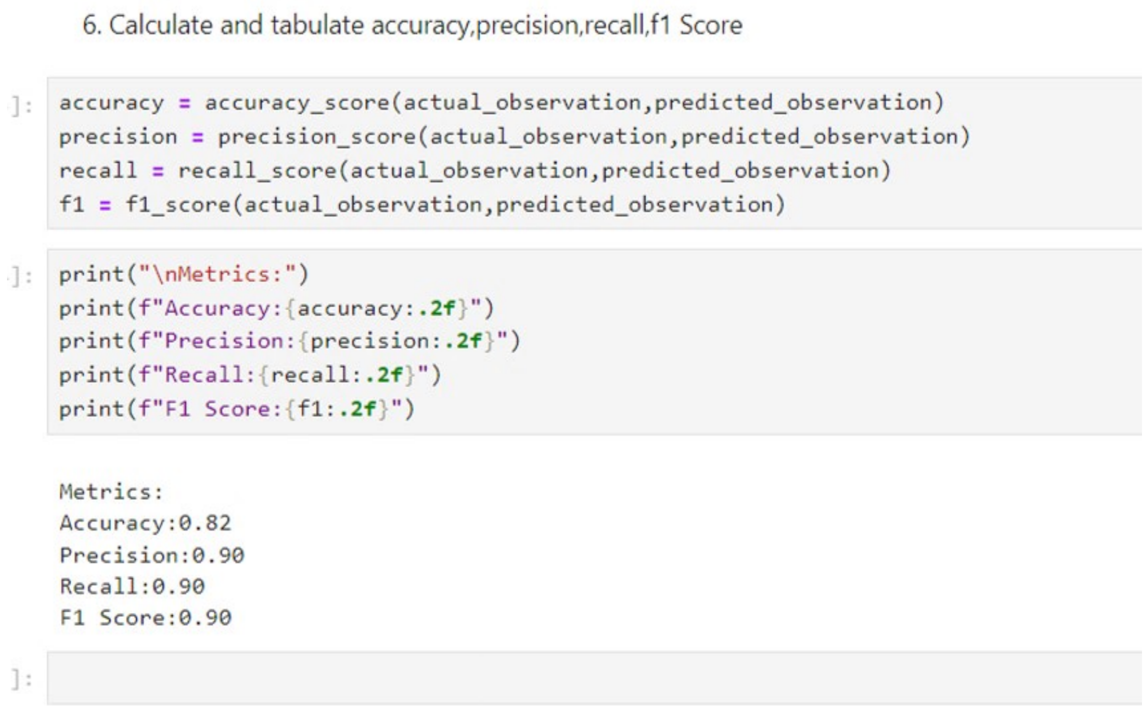
```
[['True Negative' 'False Positive']
 ['False Negative' 'True Positive']]
```

5. Display confusion matrix with labels Actual and Predicted

[18]:

```
print("confusion Matrix:")
print(display_matrix)
print(conf_matrix)
```

```
confusion Matrix:
[['True Negative' 'False Positive']
 ['False Negative' 'True Positive']]
```



6. Calculate and tabulate accuracy,precision,recall,f1 Score

```
]: accuracy = accuracy_score(actual_observation,predicted_observation)
   precision = precision_score(actual_observation,predicted_observation)
   recall = recall_score(actual_observation,predicted_observation)
   f1 = f1_score(actual_observation,predicted_observation)
```

```
]: print("\nMetrics:")
   print(f"Accuracy:{accuracy:.2f}")
   print(f"Precision:{precision:.2f}")
   print(f"Recall:{recall:.2f}")
   print(f"F1 Score:{f1:.2f}")
```

```

   Metrics:
   Accuracy:0.82
   Precision:0.90
   Recall:0.90
   F1 Score:0.90
```

```
]:
```