
Experiment No: 02

Code :-

```
import matplotlib.pyplot as plt

from sklearn.metrics import confusion_matrix

x_true = [1, 0, 2, 2, 1, 0]

x_pred = [2, 0, 2, 2, 0, 0]

print(confusion_matrix(x_true, x_pred))


y_true = ["cat", "ant", "cat", "ant", "cat", "bird"]

y_pred = ["cat", "ant", "ant", "cat", "ant", "cat"]

print(confusion_matrix(y_true, y_pred, labels = ["ant", "cat", "bird"]))


from sklearn.datasets import load_breast_cancer

from sklearn.ensemble import RandomForestClassifier

from sklearn.model_selection import train_test_split


# Loading the breast cancer data set

diabetes_data = load_breast_cancer()


# Creating independent and dependent variables

X = diabetes_data.data

y = diabetes_data.target


# Splitting the data into training and testing set

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



```
random_state=24)

print(f"Train Data: {X_train.shape}, {y_train.shape}")

print(f"Test Data: {X_test.shape}, {y_test.shape}")

# Training a binary classifier using Random Forest Algorithm with default hyperparameters
classifier = RandomForestClassifier(random_state=18)

classifier.fit(X_train, y_train)

# Here X_test, y_test are the test data points
predictions = classifier.predict(X_test)

#Importing all necessary libraries
from sklearn.metrics import accuracy_score

# Calculating the accuracy of classifier
print(f"Accuracy of the classifier is: {accuracy_score(y_test, predictions)}")

import matplotlib.pyplot as plt

from sklearn.metrics import confusion_matrix

from sklearn.metrics import ConfusionMatrixDisplay

# Compute and print the confusion matrix
cm = confusion_matrix(y_test, predictions)

# Plot the confusion matrix
```

```
disp = ConfusionMatrixDisplay(confusion_matrix=cm,  
display_labels=diabetes_data.target_names)
```

```
disp.plot()
```

```
plt.show()
```

Output :-

```
[[2 0 0]  
 [1 0 1]  
 [0 0 2]]  
[[1 1 0]  
 [2 1 0]  
 [0 1 0]]  
Train Data: (455, 30), (455,)  
Test Data: (114, 30), (114,)  
Accuracy of the classifier is: 0.9473684210526315
```

