Experiment – 1 (B)

from sklearn.datasets import load\_breast\_cancer

from sklearn.model\_selection import train\_test\_split

from sklearn.tree import DecisionTreeClassifier

from sklearn.metrics import confusion\_matrix

import seaborn as sns

import matplotlib.pyplot as plt

from sklearn.metrics import accuracy\_score, precision\_score, recall\_score, f1\_score

X, y= load\_breast\_cancer(return\_X\_y=True)

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y,test\_size=0.25)

tree = DecisionTreeClassifier(random\_state=23)

tree.fit(X\_train, y\_train)

y\_pred = tree.predict(X\_test)

cm = confusion\_matrix(y\_test,y\_pred)

sns.heatmap(cm,

annot=True,

fmt='g',

xticklabels=['malignant', 'benign'],

yticklabels=['malignant', 'benign'])

plt.ylabel('Prediction',fontsize=13)

plt.xlabel('Actual',fontsize=13)

plt.title('Confusion Matrix',fontsize=17)

plt.show()

accuracy = accuracy\_score(y\_test, y\_pred)

print("Accuracy :", accuracy)

precision = precision\_score(y\_test, y\_pred)

print("Precision :", precision)

recall = recall\_score(y\_test, y\_pred)

print("Recall :", recall)

F1\_score = f1\_score(y\_test, y\_pred)

print("F1-score :", F1\_score)

