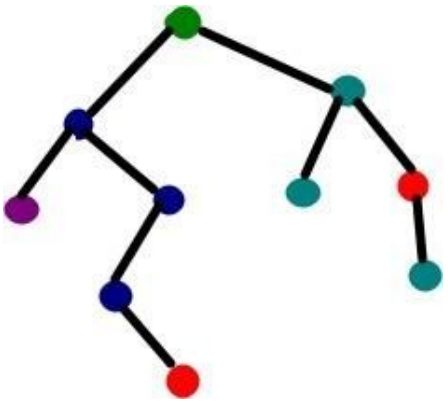
EX.NO:7 **DATE:25/9/2024**
Reg.no:220701013

IMPLEMENTATION OF DECISION TREE CLASSIFICATION TECHNIQUES

Decision Tree is one of the most powerful and popular algorithms. Decision-tree algorithm falls under the category of supervised learning algorithms. It works for both continuous as well as categorical output variables.



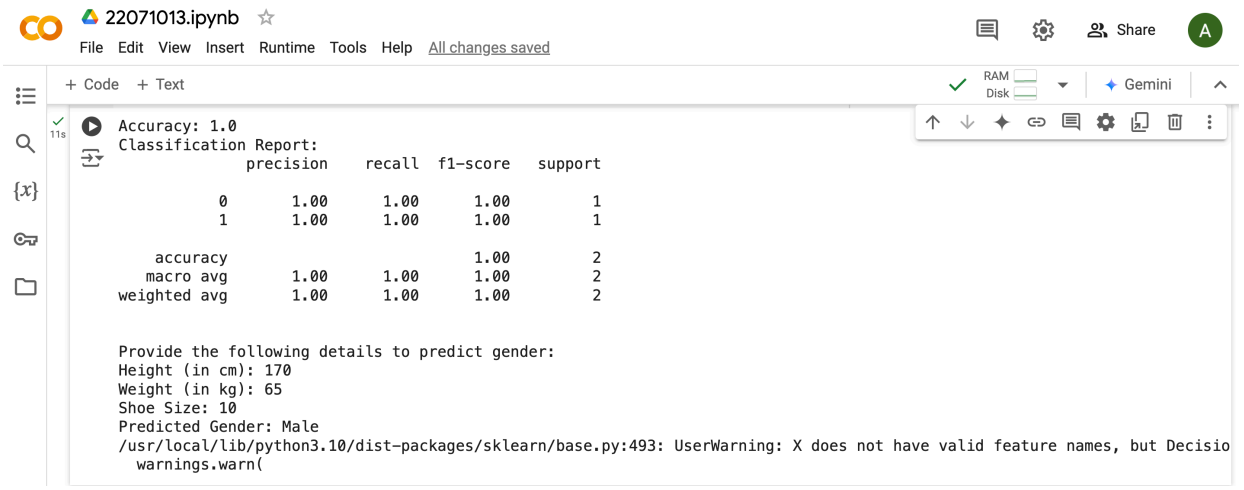
AIM:
To implement a decision tree classification technique for gender classification using python.

EXPLANATION:
- Import tree from sklearn.
- Call the function DecisionTreeClassifier() from tree
- Assign values for X and Y.
- Call the function predict for Predicting on the basis of given randomvalues for each given feature.
- Display the output.

CODE:

```
import pandas as pd
from sklearn.tree import DecisionTreeClassifier

data = {
    'Height': [152, 155, 172, 185, 167, 180, 157, 180, 164, 177],
    'Weight': [45, 57, 72, 85, 68, 78, 22, 90, 66, 88],
    'Gender': ['Female', 'Female', 'Male', 'Male', 'Female', 'Male', 'Female', 'Male', 'Female', 'Male']
}

df = pd.DataFrame(data)
X = df[['Height', 'Weight']]
Y = df['Gender']

classifier = DecisionTreeClassifier()
classifier.fit(X, Y)

height = float(input("Enter height (in cm) for prediction: "))
weight = float(input("Enter weight (in kg) for prediction: "))
random_values = pd.DataFrame([[height, weight]], columns=['Height', 'Weight'])
predicted_gender = classifier.predict(random_values)

print(f"Predicted gender for height {height} cm and weight {weight} kg: {predicted_gender[0]}")
```

OUTPUT:



RESULT:

Thus, the decision tree classification has been implemented successfully.