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| **EX.NO: 1 REGRESSION & CLASSIFICATION USING DECISSION TREES** | |
| **IN [1]:** | **import** numpy **as** np  **import** matplotlib.pyplot **as** plt  **import** pandas **as** pd |
| **IN [2]:** | dataset **=** pd**.**read\_csv('../input/IceCreamData.csv')  X **=** dataset['Temperature']**.**values  y **=** dataset['Revenue']**.**values |
| **IN [3]:** | **from** sklearn.model\_selection **import** train\_test\_split  X\_train, X\_test, y\_train, y\_test **=** train\_test\_split(X, y, test\_size **=** 0.05) |
| **IN [4]:** | *# Fitting Decision Tree Regression to the dataset*  **from** sklearn.tree **import** DecisionTreeRegressor  regressor **=** DecisionTreeRegressor()  regressor**.**fit(X\_train**.**reshape(**-**1,1), y\_train**.**reshape(**-**1,1)) |
| **IN [5]:** | y\_pred **=** regressor**.**predict(X\_test**.**reshape(**-**1,1)) |
| **IN [6]:** | df **=** pd**.**DataFrame({'Real Values':y\_test**.**reshape(**-**1), 'Predicted Values':y\_pred**.**reshape(**-**1)}) |
| **IN [7]:** | *# Visualising the Decision Tree Regression Results*  X\_grid **=** np**.**arange(min(X), max(X), 0.01)  X\_grid **=** X\_grid**.**reshape((len(X\_grid), 1))  plt**.**scatter(X\_test, y\_test, color **=** 'red')  plt**.**scatter(X\_test, y\_pred, color **=** 'green')  plt**.**title('Decision Tree Regression')  plt**.**xlabel('Temperature')  plt**.**ylabel('Revenue')  plt**.**show() |
| **IN [8]:** | plt**.**plot(X\_grid, regressor**.**predict(X\_grid), color **=** 'black')  plt**.**title('Decision Tree Regression')  plt**.**xlabel('Temperature')  plt**.**ylabel('Revenue')  plt**.**show() |

**OUTPUT**

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| OUT [2]: |  |
| OUT [4]: | DecisionTreeRegressor() |
| OUT [7]: |  |
| OUT [8]: |  |