```
RESTART: C:\Users\Mohic\AppData\Local\Programs\Py
[['sunny' 'warm' 'normal' 'strong' 'warm' 'same']
 ['sunny' 'warm' 'high' 'strong' 'warm' 'same']
 ['rainy' 'cold' 'high' 'strong' 'warm' 'change']
 ['sunny' 'warm' 'high' 'strong' 'cool' 'change']]
['yes' 'yes' 'no' 'yes']
Final Specific_h:
['sunny' 'warm' '?' 'strong' '?' '?']
Final General_h:
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?']]
```

```
[['sunny' 'warm' 'normal' 'strong' 'warm' 'same']
 ['sunny' 'warm' 'high' 'strong' 'warm' 'same']
 ['rainy' 'cold' 'high' 'strong' 'warm' 'change']
 ['sunny' 'warm' 'high' 'strong' 'cool' 'change']]
['yes' 'yes' 'no' 'yes']
Final Specific_h:
['sunny' 'warm' '?' 'strong' '?' '?']
Final General_h:
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?']]
```

Classification Result: yes

```
Input:
[[0.66666667 1.         ]
 [0.33333333 0.55555556]
 [1.         0.66666667]]
Actual Output:
[[0.92]
 [0.86]
 [0.89]]
Predicted Output:
 [[0.81372973]
 [0.79966611]
 [0.80798456]]
```

```
Confusion Matrix
[[12  0  0]
 [ 0 16  1]
 [ 0  1 15]]
Accuracy Metrics
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        12
           1       0.94      0.94      0.94        17
           2       0.94      0.94      0.94        16

    accuracy                           0.96        45
   macro avg       0.96      0.96      0.96        45
weighted avg       0.96      0.96      0.96        45
```
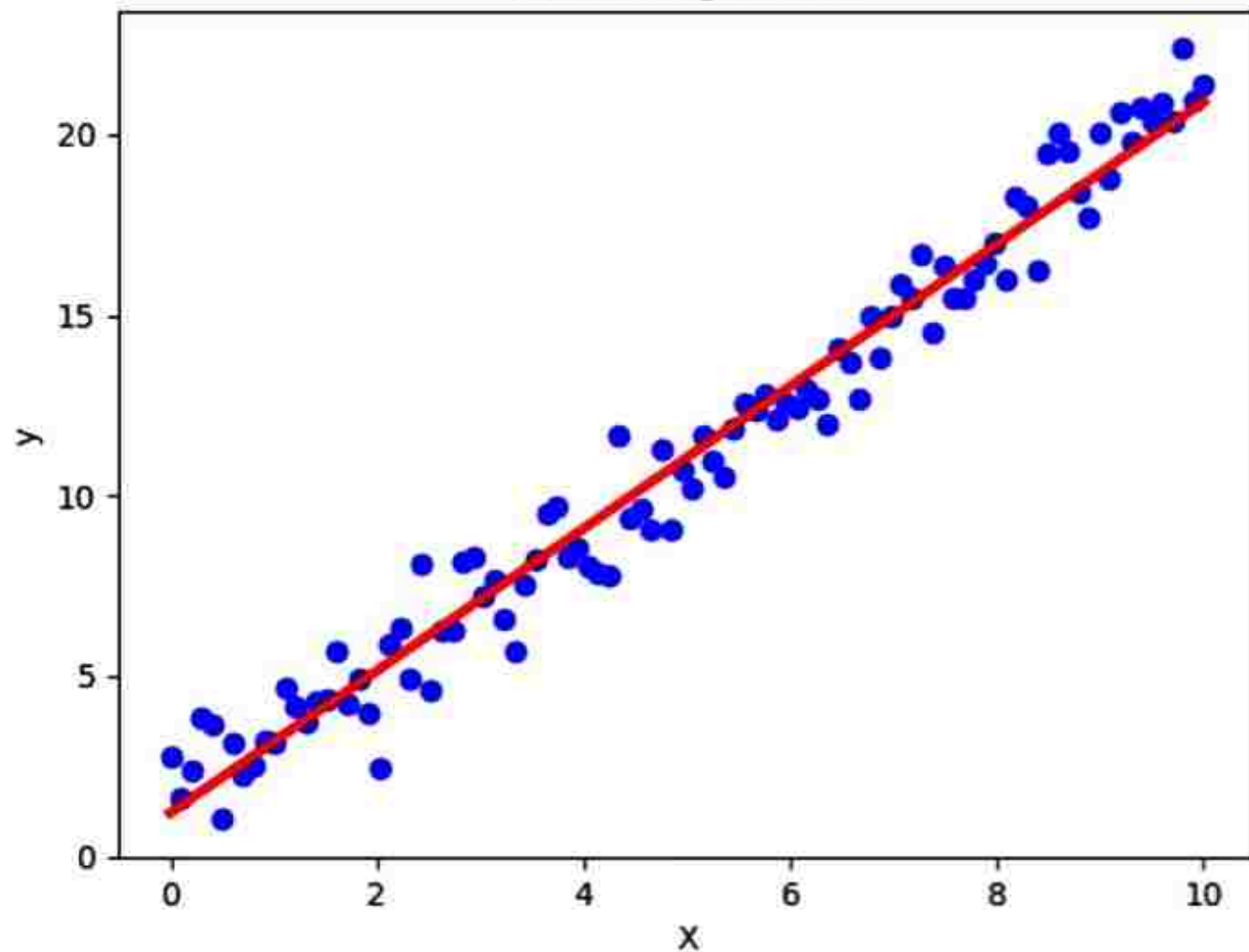
```
Confusion Matrix:
[[16   0   0]
 [ 0  18   0]
 [ 0   0  11]]
Accuracy Score: 1.0
```
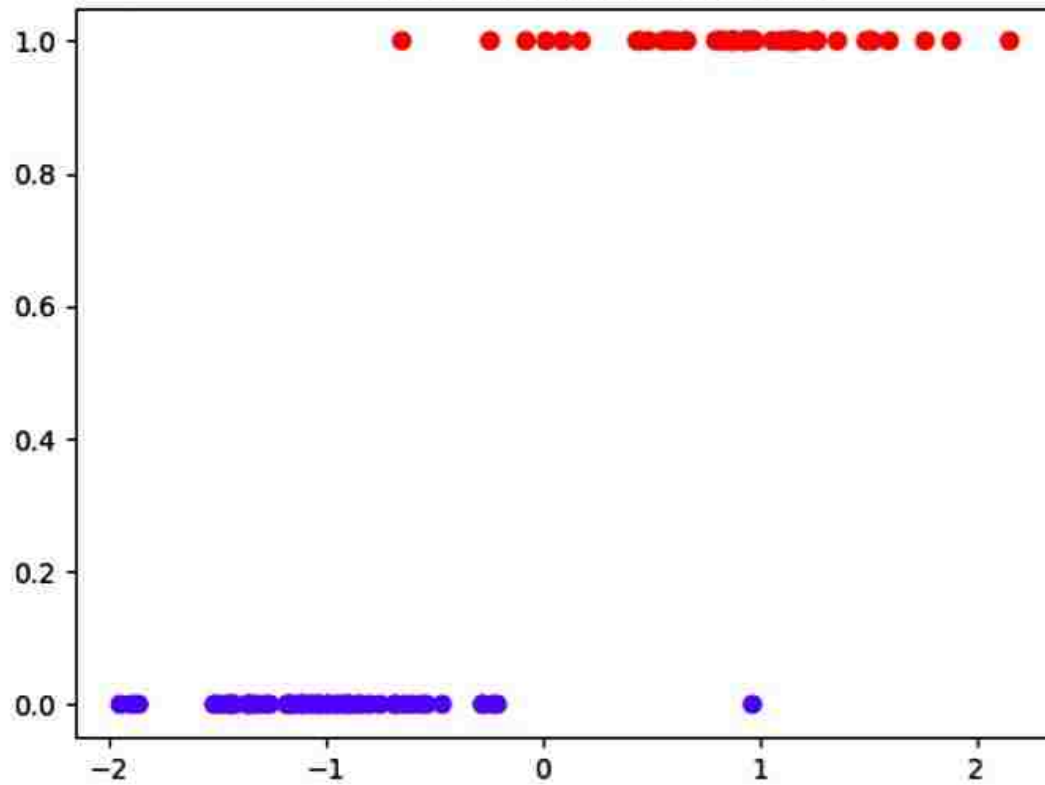
Linear Regression

```
===================== RESTART: C:\Users\mohit\AppData\Local
Coefficients:  [[1.97026731]]
Intercept:  [1.20847145]
```

Scatter Plot of Logistic Regression

rams\Python

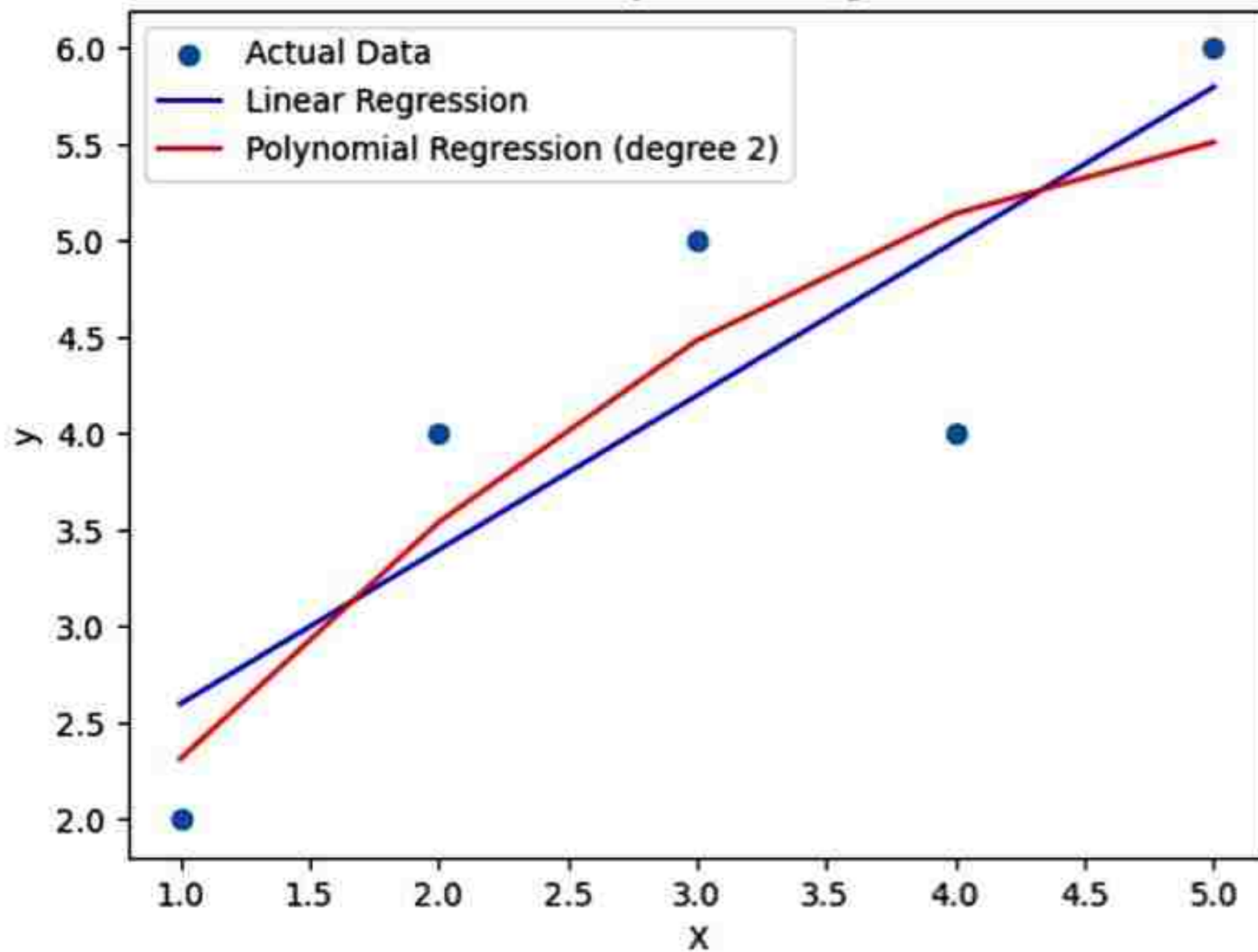rams\Python

rams\Python

========================= RESTART: C:/Users/mohit/AppData/Local/Programs/Python
1 1 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 0 0 1 1 0 0 0 0 0 0 0 1 0 1 1 1 1 0 1 0
1 0 1 1 1 0 0 0 1 0 0 0 1 1 1 1 1 1 0 0 1 0 1 1 0 1 1 1 1 1 1 0 0 0 1 0 0
1 0 1 0 1 0 0 1 1 0 1 1 1 1 0 0 1 0 0 1 0 0 1 1 0 0]

Linear vs Polynomial Regression

```
mu1: 0.9545902456963998
mu2: 1.7595212637782114
sigma1: 0.19986282179149245
sigma2: 0.47713642731204714
p1: 0.3534728534331289
p2: 0.6465271465668712
```

```
        ID   Customer_ID          Name   Credit_Score
0     5634          3392  Aaron Maashoh    6101.154667
1     5635          3392  Aaron Maashoh    6101.154667
2     5636          3392  Aaron Maashoh    6101.154667
3     5637          3392  Aaron Maashoh    6101.154667
4     5638          3392  Aaron Maashoh    6101.154667
..     ...           ...            ...            ...
994   7124         43430     Henry Foyi   20139.393667
995   7125         43430     Henry Foyi   20139.393667
996   7126         43430     Henry Foyi   20139.393667
997   7127         43430     Henry Foyi   20139.393667
998   7128         43430     Henry Foyi   20139.393667

[999 rows x 4 columns]
```

```
Accuracy: 1.0
Predicted Species: ['setosa']
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 205 entries, 0 to 204
Data columns (total 26 columns):
 #    Column            Non-Null Count   Dtype
---   ------            --------------   -----
 0    car_ID            205 non-null     int64
 1    symboling         205 non-null     int64
 2    CarName           205 non-null     object
 3    fueltype          205 non-null     object
 4    aspiration        205 non-null     object
 5    doornumber        205 non-null     object
 6    carbody           205 non-null     object
 7    drivewheel        205 non-null     object
 8    enginelocation    205 non-null     object
 9    wheelbase         205 non-null     float64
 10   carlength         205 non-null     float64
 11   carwidth          205 non-null     float64
 12   carheight         205 non-null     float64
 13   curbweight        205 non-null     int64
 14   enginetype        205 non-null     object
 15   cylindernumber    205 non-null     object
 16   enginesize        205 non-null     int64
 17   fuelsystem        205 non-null     object
 18   boreratio         205 non-null     float64
 19   stroke            205 non-null     float64
 20   compressionratio  205 non-null     float64
 21   horsepower        205 non-null     int64
 22   peakrpm           205 non-null     int64
 23   citympg           205 non-null     int64
 24   highwaympg        205 non-null     int64
 25   price             205 non-null     float64
dtypes: float64(8), int64(8), object(10)
memory usage: 41.8+ KB
Mean Absolute Error: 1765.4187073170733
Predicted Price for the new car: 13495.0
|
```

```
Mean Absolute Error (MAE): $31936.04
      Actual Prices    Predicted Prices
892        154500.0       166244.680053
1105       325000.0       261263.012995
413        115000.0       107843.739200
522        159000.0       169308.632795
1036       315500.0       246405.866809
...            ...                 ...
479         89471.0       137272.473842
1361       260000.0       237404.064682
802        189000.0       236465.722566
651        108000.0       158471.518979
722        124500.0       143109.432403

[292 rows x 2 columns]
```

```
Accuracy: 0.9777777777777777

Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       1.00      0.92      0.96        13
           2       0.93      1.00      0.96        13

    accuracy                           0.98        45
   macro avg       0.98      0.97      0.97        45
weighted avg       0.98      0.98      0.98        45
```

```
Model: Logistic Regression
Accuracy: 1.0
Classification Report:
              precision     recall   f1-score    support

           0       1.00       1.00       1.00         19
           1       1.00       1.00       1.00         13
           2       1.00       1.00       1.00         13

    accuracy                              1.00         45
   macro avg       1.00       1.00       1.00         45
weighted avg       1.00       1.00       1.00         45

------------------------------------------------------------
Model: K-Nearest Neighbors
Accuracy: 1.0
Classification Report:
              precision     recall   f1-score    support

           0       1.00       1.00       1.00         19
           1       1.00       1.00       1.00         13
           2       1.00       1.00       1.00         13

    accuracy                              1.00         45
   macro avg       1.00       1.00       1.00         45
weighted avg       1.00       1.00       1.00         45
```

```
Model: Logistic Regression
Accuracy: 1.0
Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       1.00      1.00      1.00        13
           2       1.00      1.00      1.00        13

    accuracy                           1.00        45
   macro avg       1.00      1.00      1.00        45
weighted avg       1.00      1.00      1.00        45

------------------------------------------------------------
Model: K-Nearest Neighbors
Accuracy: 1.0
Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       1.00      1.00      1.00        13
           2       1.00      1.00      1.00        13

    accuracy                           1.00        45
   macro avg       1.00      1.00      1.00        45
weighted avg       1.00      1.00      1.00        45
```

```
Model: Support Vector Machine
Accuracy: 1.0
Classification Report:
              precision    recall   f1-score   support

           0       1.00      1.00       1.00        19
           1       1.00      1.00       1.00        13
           2       1.00      1.00       1.00        13

    accuracy                            1.00        45
   macro avg       1.00      1.00       1.00        45
weighted avg       1.00      1.00       1.00        45

---------------------------------------------------------------

Model: Decision Tree
Accuracy: 1.0
Classification Report:
              precision    recall   f1-score   support

           0       1.00      1.00       1.00        19
           1       1.00      1.00       1.00        13
           2       1.00      1.00       1.00        13

    accuracy                            1.00        45
   macro avg       1.00      1.00       1.00        45
weighted avg       1.00      1.00       1.00        45
```

```
Model: Random Forest
Accuracy: 1.0
Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       1.00      1.00      1.00        13
           2       1.00      1.00      1.00        13

    accuracy                           1.00        45
   macro avg       1.00      1.00      1.00        45
weighted avg       1.00      1.00      1.00        45

--------------------------------------------------------------
Model: Naive Bayes
Accuracy: 0.9777777777777777
Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       1.00      0.92      0.96        13
           2       0.93      1.00      0.96        13

    accuracy                           0.98        45
   macro avg       0.98      0.97      0.97        45
weighted avg       0.98      0.98      0.98        45

--------------------------------------------------------------
```
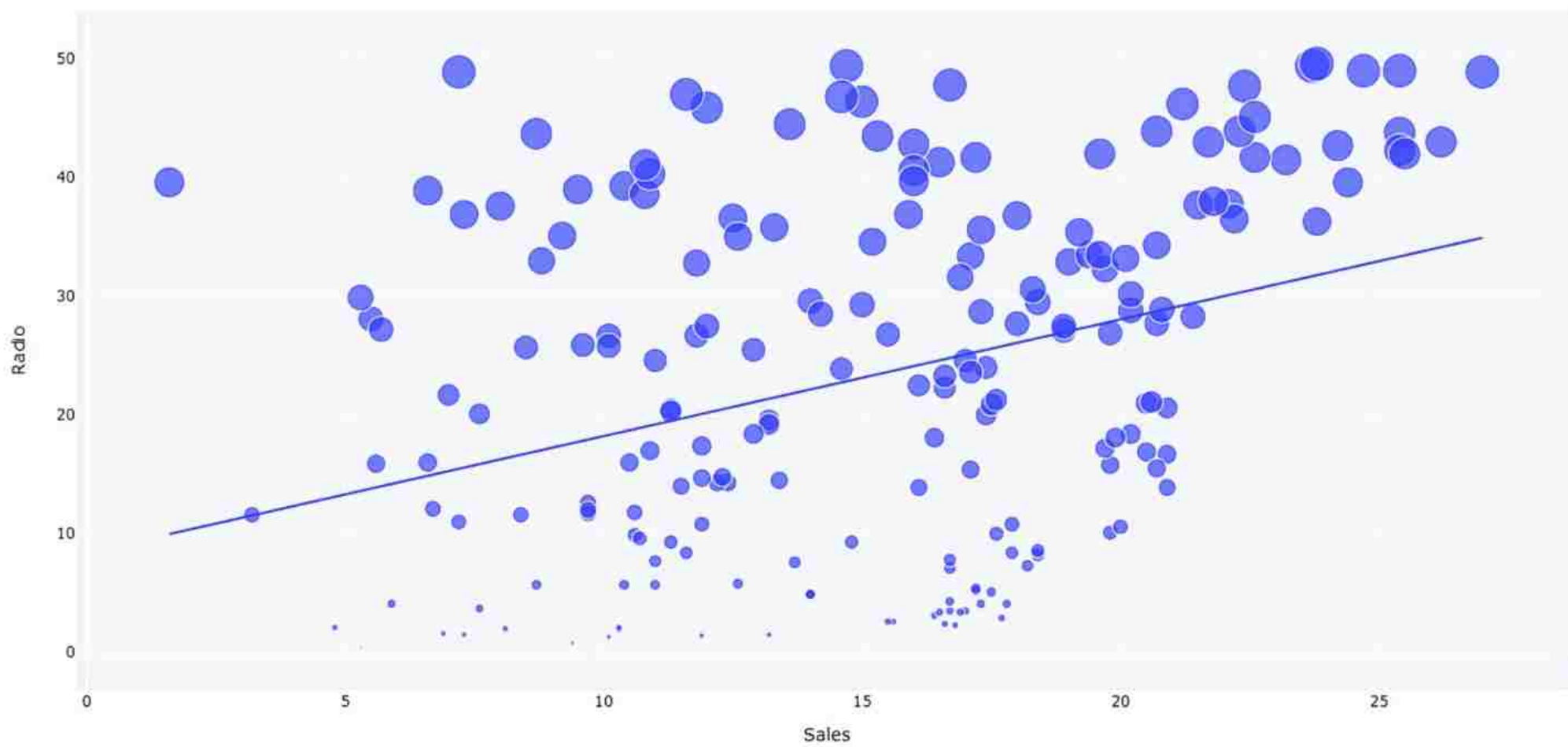
Predicted Price Range for the New Mobile: 3.00

```
Accuracy: 0.37
Predicted Species: Iris-setosa
```

```
confusion matrix is [[99  8]
 [ 2 62]]
```
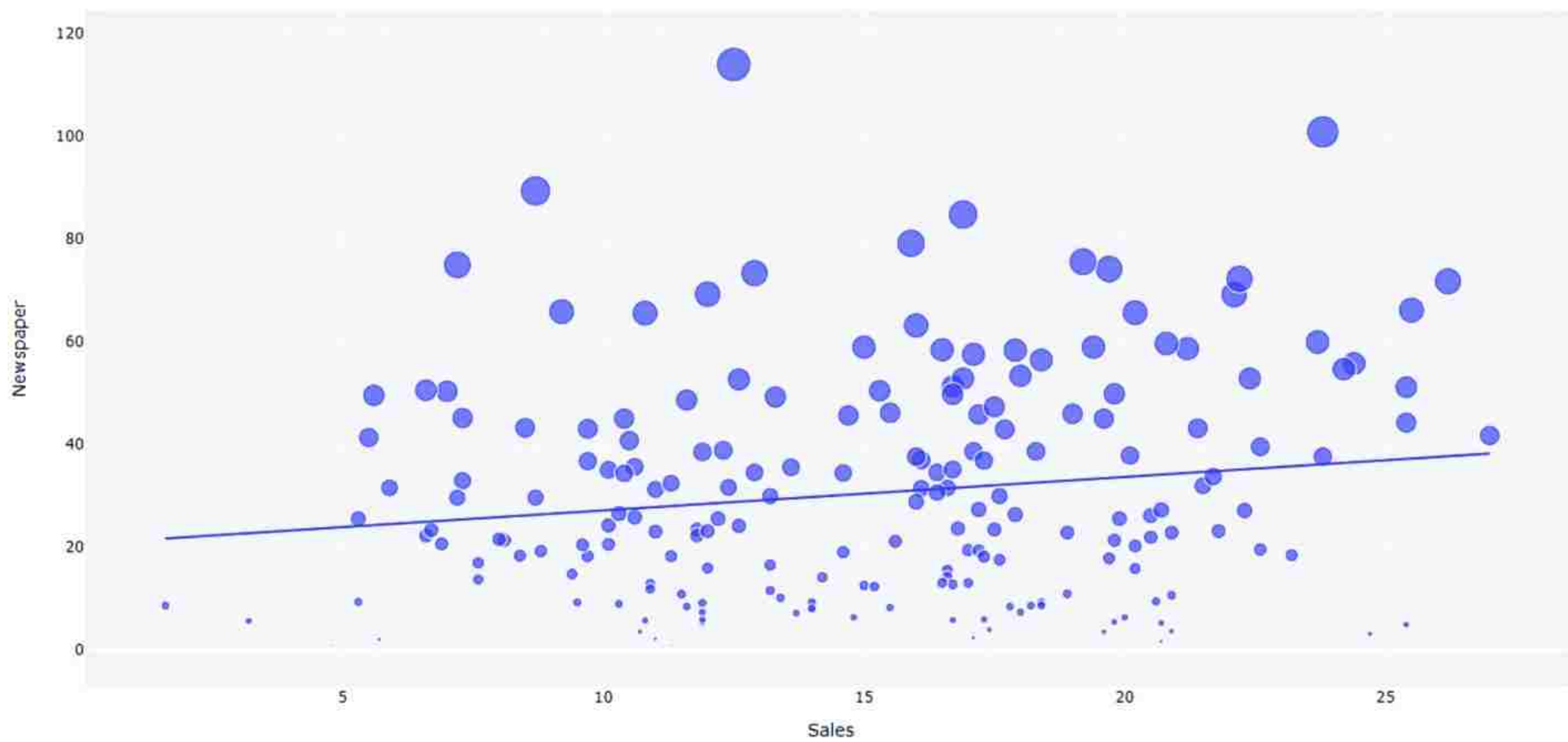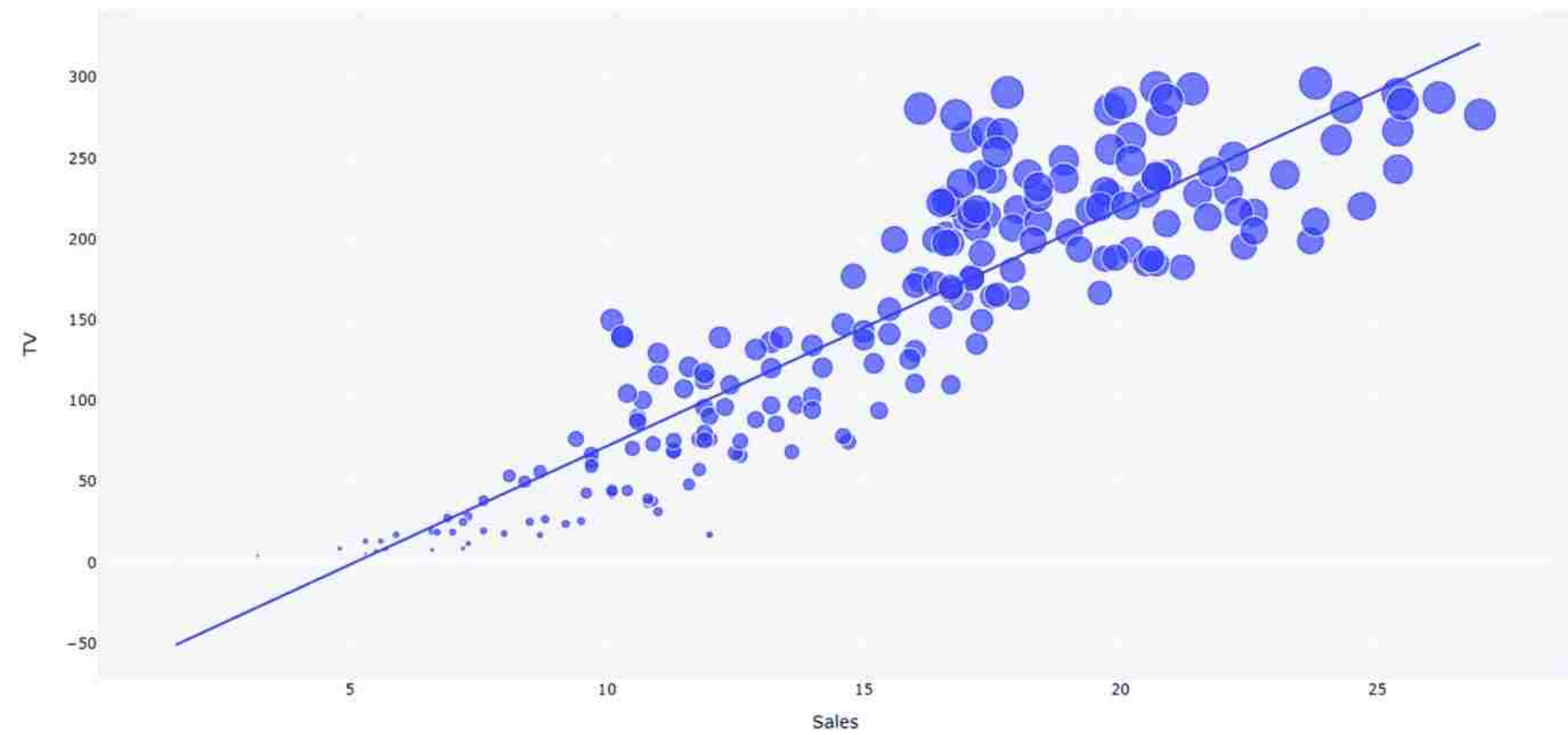
```
[['sky', 'airtemp', 'humidity', 'wind', 'water', 'forcast', 'enjoysport'], ['sunny', 'warm', 'normal', 'strong', 'warm', 'same',
'yes'], ['sunny', 'warm', 'high', 'strong', 'warm', 'same', 'yes'], ['rainy', 'cold', 'high', 'strong', 'warm', 'change', 'no'],
['sunny', 'warm', 'high', 'strong', 'cool', 'change', 'yes']]

The total number of training instances are :  5

The initial hypothesis is :
['0', '0', '0', '0', '0', '0']

The hypothesis for the training instance 1 is :
['0', '0', '0', '0', '0', '0']

The hypothesis for the training instance 2 is :
['sunny', 'warm', 'normal', 'strong', 'warm', 'same']

The hypothesis for the training instance 3 is :
['sunny', 'warm', '?', 'strong', 'warm', 'same']

The hypothesis for the training instance 4 is :
['sunny', 'warm', '?', 'strong', 'warm', 'same']

The hypothesis for the training instance 5 is :
['sunny', 'warm', '?', 'strong', '?', '?']

The Maximally specific hypothesis for the training instance is
['sunny', 'warm', '?', 'strong', '?', '?']
```