Model Development Phase Template

Date	8 July 2024
Team ID	SWTID1720104754
Project Title	Cereal Analysis Based On Rating By Using Machine Learning Techniques
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

```
[37]: from sklearn.model_selection import train_test_split
      x_train, x_test, y_train, y_test = train_test_split(x,y, test_size = 0.2,random_state = 0)
      #random_state acts as the seed for the random number generator during the split
```

```
[38]: from sklearn.linear_model import LinearRegression
      lr = LinearRegression()
      lr.fit(x_train, y_train)
```

```
[38]: LinearRegression
      LinearRegression()
```

[39]:
```
lr_pred = lr.predict(x_test)
lr_pred
```

[39]:
```
array([[29.92428543],
       [49.78744497],
       [39.70339961],
       [60.75611146],
       [45.81171595],
       [58.3451415 ],
       [59.36399367],
       [53.3710073 ],
       [34.13976436],
       [38.83974536],
       [40.91704684],
       [55.33314224],
       [93.70491166],
       [26.73451543],
       [54.85091723],
       [37.03856128]])
```

[49]:
```
y_p = lr.predict([[0,0,0,0,1,0,0,0,70,4,1,130,10,5,6,280,25,3,1,0.33,0]])
y_p
```

[49]:
```
array([[219.57384538]])
```

[46]:
```
from sklearn.metrics import r2_score
r2_score(y_test,lr_pred)
```

[46]:
```
0.9999999999999992
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Decision Tree