

## Model Development Phase Template

Date	15 July 2024
Team ID	739910
Project Title	Forecasting Feasts: A Culinary journey into Restaurant Revenue Prediction
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:

```
[ ] from sklearn.linear_model import LinearRegression
    from sklearn.metrics import mean_squared_error
    from sklearn.metrics import r2_score

    linear_regression = LinearRegression()
    linear_regression.fit(x_train, y_train)
    y_pred = linear_regression.predict(x_test)

    mse_lr = mean_squared_error(y_test, y_pred)
    r2_lr = r2_score(y_test, y_pred)

    print('MSE: ', mse_lr)
    print('R2 score: ', r2_lr)
```

```
from sklearn.ensemble import RandomForestRegressor

random_forest = RandomForestRegressor()
random_forest.fit(x_train, y_train)
y_pred = random_forest.predict(x_test)

mse_rf = mean_squared_error(y_test, y_pred)
r2_rf = r2_score(y_test, y_pred)

print('MSE: ', mse_rf)
print('R2 score: ', r2_rf)
```

```
from sklearn.tree import DecisionTreeRegressor

decision_tree_model = DecisionTreeRegressor()
decision_tree_model.fit(x_train, y_train)
y_pred = decision_tree_model.predict(x_test)

mse_dt = mean_squared_error(y_test, y_pred)
r2_dt = r2_score(y_test, y_pred)

print('MSE: ', mse_dt)
print('R2 score: ', r2_dt)
```

```
from sklearn.tree import DecisionTreeRegressor

decision_tree_model = DecisionTreeRegressor()
decision_tree_model.fit(x_train,y_train)
y_pred = decision_tree_model.predict(x_test)

mse_dt = mean_squared_error(y_test,y_pred)
r2_dt =r2_score(y_test,y_pred)

print('MSE: ',mse_dt)
print('R2 score: ',r2_dt)


from sklearn.ensemble import AdaBoostRegressor

ada_model =AdaBoostRegressor()
ada_model.fit(x_train,y_train)
y_pred = gbr_model.predict(x_test)

mse_ada = mean_squared_error(y_test,y_pred)
r2_ada =r2_score(y_test,y_pred)

print('MSE: ',mse_ada)
print('R2 score: ', r2_ada)


from sklearn.svm import SVR

svm_model =SVR()
svm_model.fit(x_train,y_train)
y_pred = gbr_model.predict(x_test)

mse_svm = mean_squared_error(y_test,y_pred)
r2_svm=r2_score(y_test,y_pred)

print('MSE: ',mse_svm)
print('R2 score: ', r2_svm)


from sklearn.linear_model import Lasso

Lasso_model = Lasso()
Lasso_model.fit(x_train,y_train)
y_pred = Lasso_model.predict(x_test)

mse_lasso= mean_squared_error(y_test,y_pred)
r2_lasso=r2_score(y_test,y_pred)

print('MSE: ',mse_lasso)
print('R2 score: ', r2_lasso)
```

**Model Validation and Evaluation Report:**

Model	Classification Report	Accuracy	Confusion Matrix
Linear Regression	-	-	-
Random Forest	-	-	-