Model Development Phase Template

Date	09 JULY 2024
Team ID	740660
Project Title	Evolving efficient classification patterns in Lymphography
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:

```
[74]
y_pred = svr.predict(x_test)
print("Prediction Evaluation using SVR Regression")
print('Mean Absolute Error:', mean_absolute_error(y_test, y_pred))
print('Mean Squared Error:', mean_squared_error(y_test, y_pred))
print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test, y_pred)))
print('R-squared:', r2_score(y_test, y_pred))
```

```
[73]
y_pred = lassoReg.predict(x_test)
print("Prediction Evaluation using lasso Regression")
print('Mean Absolute Error:', mean_absolute_error(y_test, y_pred))
print('Mean Squared Error:', mean_squared_error(y_test, y_pred))
print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test, y_pred)))
print('R-squared:', r2_score(y_test, y_pred))
```

```python
# Assuming 'x_test' is available in the environment and is a pandas DataFrame or a NumPy array.
y_pred = linReg.predict(x_test)  # Predict on the entire x_test dataset

print("Prediction Evaluation using Linear Regression")
print('Mean Absolute Error:', mean_absolute_error(y_test, y_pred))
print('Mean Squared Error:', mean_squared_error(y_test, y_pred))
print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test, y_pred)))
print('R-squared:', r2_score(y_test, y_pred))
```

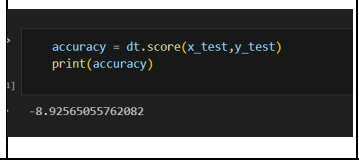
```python
y_pred = dt.predict(x_test)
print("Prediction Evaluation using Random Regression")
print('Mean Absolute Error:', mean_absolute_error(y_test, y_pred))
print('Mean Squared Error:', mean_squared_error(y_test, y_pred))
print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test, y_pred)))
print('R-squared:', r2_score(y_test, y_pred))
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy
Random Forest	`accuracy_score(y_test,prediction)` `0.8666666666666667`	0.86

Linear regression	`accuracy = linReg.score(x_test,y_test)`
	`print(accuracy)`
	`0.30857468451341064`
		0.30

Lasso regression	`y_pred = lassoReg.predict(x_test)`
	`(variable) accuracy: Float`
	`accuracy = lassoReg.score(x_test,y_test)`
	`print(accuracy)`
	`-1.342112025894211 4`
		-1.42

Decision tree		-8.92