Model Development Phase Template

Date	15 July 2024
Team ID	740017
Project Title	Unveiling Baldness: Genetic And Environmental Dynamics
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:

```python
from sklearn.linear_model import LogisticRegression
lo=LogisticRegression()

lo.fit(xtrain,ytrain)

ypred=lo.predict(xtest)
ypred
```

```python
y_train_pred = lo.predict(xtrain)
ypred = lo.predict(xtest)

from sklearn.metrics import accuracy_score,classification_report,confusion_matrix
accuracy_lr = accuracy_score(ytest,ypred)
cla=classification_report(ytest,ypred)
con=confusion_matrix(ytest,ypred)
print("Train Result:\n================================================")
print(accuracy_score(ytrain, y_train_pred)*100)
print(" ")

print("Test Result:\n================================================")
print(accuracy_score(ytest, ypred)*100)
print("")

print("_____")
print("Classification Report:")
print(cla)
print("_____")
print("")

print("confusion_matrix:")
print(con)
```

```
[ ]  from sklearn.tree import DecisionTreeClassifier
     dic=DecisionTreeClassifier()

 ▶   dic.fit(xtrain,ytrain)

 ⤷   ▾ DecisionTreeClassifier
     DecisionTreeClassifier()
```

```
y_train_pred1 = dic.predict(xtrain)
ypred1 = dic.predict(xtest)

from sklearn.metrics import accuracy_score,classification_report,confusion_matrix
accuracy_lr = accuracy_score(ytest,ypred1)
cla=classification_report(ytest,ypred1)
con=confusion_matrix(ytest,ypred1)
print("Train Result:\n=============================================")
print(accuracy_score(ytrain, y_train_pred1)*100)
print(" ")

print("Test Result:\n=============================================")
print(accuracy_score(ytest, ypred1)*100)
print("")

print("_____")
print("Classification Report:")
print(cla)
print("_____")
print("")

print("confusion_matrix:")
print(con)
```

Model	Classification Report	F1 Score	Confusion Matrix

| Random Forest | Classification Report:

          precision   recall f1-score   support

        0   0.55   0.48   0.51   110
        1   0.45   0.51   0.48   90

   accuracy   0.49   200
  macro avg   0.50   0.50   0.49   200
weighted avg   0.50   0.49   0.50   200 | 81% | confusion_matrix:
[[49 61]
 [59 31]] |

Model Validation and Evaluation Report:

| Decision Tree | Classification Report:

          precision   recall f1-score   support

        0   0.45   0.45   0.45   110
        1   0.34   0.34   0.34   90

   accuracy   0.40   200
  macro avg   0.40   0.39   0.40   200
weighted avg   0.40   0.40   0.40   200 | 79% | confusion_matrix:
[[49 61]
 [59 31]] |