Model Development Phase Template

Date	15 July 2024
Team ID	739756
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
```
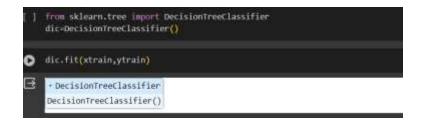
```python
y_train_pred = lo.predict(xtrain)
ypred = lo.predict(xtest)

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:	81%	confusion_matrix:

```
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:	79%	confusion_matrix:

```
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]]
```