Project Development Phase Model Performance Test

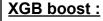
Date	21 November 2023
Team ID Team-593059	
Project Name	The Sleep Oracle Anticipating Health and
_	Lifestyle Through Data
Maximum Marks	10 Marks

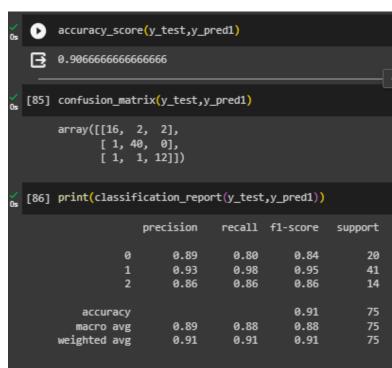
Model Performance Testing:

In the project , The Sleep Oracle Anticipating Health and Lifestyle Through Data we are using 4 Classification Model which are

- 1. Logistic Regression
- 2. XGB boost
- 3. Decision Tree
- 4. Random Forest
- 5. Random forest (Hyper Parameter Tuning)

S.No.	Parameter	Values	Screenshot
1.	1 A 2 A 4	Classification Model (Confusion Matrix, Accuracy Score, and Classification Report): 1. Logistic Regression: Accuracy Score: 0.66666 2. XGB boost: Accuracy Score: 0.90666 3. Decision Tree: Accuracy Score: 0.90666 4. Random Forest: Accuracy Score: 0.90666	Logistic Regression: [74] accuracy = accuracy_score(y_test, y_pred)
			<pre>(cs [75] accuracy 0.6666666666666666666666666666666</pre>
			print(classification_rep) precision recall f1-score support 0 0.70 0.35 0.47 20 1 0.64 0.90 0.75 41 2 0.86 0.43 0.57 14 accuracy 0.67 75 macro avg 0.73 0.56 0.60 75 weighted avg 0.70 0.67 0.64 75





Decision Tree:

```
[89] accuracy_tree = accuracy_score(y_test, y_pred_tree)
      print("Decision Tree Accuracy:", accuracy_tree)
      Decision Tree Accuracy: 0.9066666666666666
  classification_report_tree = classification_report(y_test, y_pred_tree)
      print("Decision Tree Classification Report:\n", classification_report_tree)
  Decision Tree Classification Report:
                   precision recall f1-score support
                0
                       0.89 0.80
                                          0.84
                                                      20
                       0.93
                              0.98
0.86
                                          0.95
                                                     41
                       0.86
                                          0.86
                                           0.91
          accuracy
                   0.89 0.88
0.91 0.91
                                          0.88
         macro avg
      weighted avg
                                          0.91
 [91] confusion_matrix(y_test,y_pred_tree)
      array([[16, 2, 2],
[ 1, 40, 0],
            [ 1, 1, 12]])
```

Random Forest:



Hyperparameter Tuning -Tune the 2. [109] print(f"Accuracy: {accuracy}") Model **Random Forest (Hyper** Accuracy: 0.9066666666666666 Parameter Tuning): Accuracy Score: 0.90666 print("Confusion Matrix:") print(conf_matrix) Confusion Matrix: [[16 2 2] [1 40 0] [1 1 12]] [111] print("Classification Report:") print(classification_rep) Classification Report: precision recall f1-score support 0.89 0.80 0.84 20 0.93 0.98 0.95 41 0.86 0.86 0.86 14 0.91 accuracy 75 0.89 0.88 0.88 macro avg 0.91 weighted avg 0.91 0.91