

Model Development Phase Template

Date	15 June 2024
Team ID	739802
Project Title	Disease Prediction Using Machine Learning
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:

Paste the screenshot of the model training code

```
[71] # Split the new data into training, validation, and testing sets
      x1_train, x1_val, y1_train, y1_val = train_test_split(x_new, y, test_size=0.3, random_state=42)
      x1_test=x_test.drop(to_drop,axis=1)
```

```
[89] from sklearn.svm import SVC
      svm1=SVC(C=1)
      svm1.fit(x1_train,y1_train)
      y_pred_svc = svm1.predict(x1_val)
      y_pred = svm1.predict(x1_val)
      yt_pred = svm1.predict(x1_train)
      y_pred1 = svm1.predict(x1_test)
      print('the Training Accuracy of the algorithm is',accuracy_score(y1_train,yt_pred))
      print('the Validation Accuracy of the algorithm is',accuracy_score(y1_val,y_pred))
      print('the Testing Accuracy of the algorithm is',accuracy_score(y_test,y_pred1))
```

```
[73] # Train a Random Forest Classifier and calculate accuracy
rfc = RandomForestClassifier(random_state=42)
rfc.fit(X1_train, y1_train)
y_pred_rfc = rfc.predict(X1_val)
```



```
[74] y_pred = rfc.predict(X1_val)
yt_pred = rfc.predict(X1_train)
y_pred1 = rfc.predict(x1_test)
```

```
[75] knn=KNeighborsClassifier()
knn.fit(X1_train, y1_train)
y_pred_knn = knn.predict(X1_val)
```

```
▶ y_pred = rfc.predict(X1_val)
yt_pred = rfc.predict(X1_train)
y_pred1 = rfc.predict(x1_test)
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
SVM	<div> the Training Accuracy of the algorithm is 0.9930313588850174 the Validation Accuracy of the algorithm is 0.9959349593495935 the Testing Accuracy of the algorithm is 1.0 </div>	100%	<div> [[32 0 0 ... 0 0 0] [0 39 0 ... 0 0 0] [0 0 41 ... 0 0 0] ... [0 0 0 ... 36 0 0] [0 0 0 ... 0 37 0] [0 0 0 ... 0 0 39]] </div>
Random Forest	<div> the Training Accuracy of the algorithm is 0.9930313588850174 the Validation Accuracy of the algorithm is 0.9959349593495935 the Testing Accuracy of the algorithm is 1.0 </div>	100%	<div> [[32 0 0 ... 0 0 0] [0 39 0 ... 0 0 0] [0 0 41 ... 0 0 0] ... [0 0 0 ... 36 0 0] [0 0 0 ... 0 37 0] [0 0 0 ... 0 0 39]] </div>

knn	<div> the Training Accuracy of the algorithm is 0.9930313588850174 the Validation Accuracy of the algorithm is 0.9959349593495935 the Testing Accuracy of the algorithm is 1.0</div>	100%	<div><pre>[[32 0 0 ... 0 0 0] [0 39 0 ... 0 0 0] [0 0 41 ... 0 0 0] ... [0 0 0 ... 36 0 0] [0 0 0 ... 0 37 0] [0 0 0 ... 0 0 39]]</pre></div>
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