Model Development Phase Template

Date	**5th July 2024**
Team ID	**739920**
Project Title	**Workforce Retention System.**
Maximum Marks	**4 Marks**

Initial Model Training Code, Model Validation and Evaluation Report

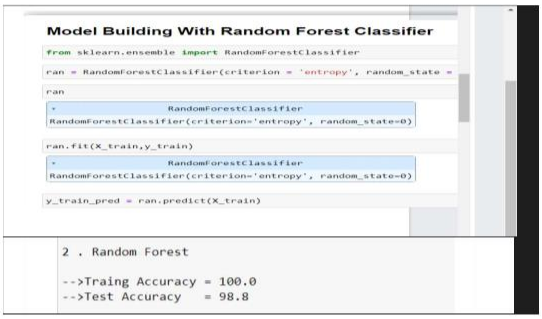
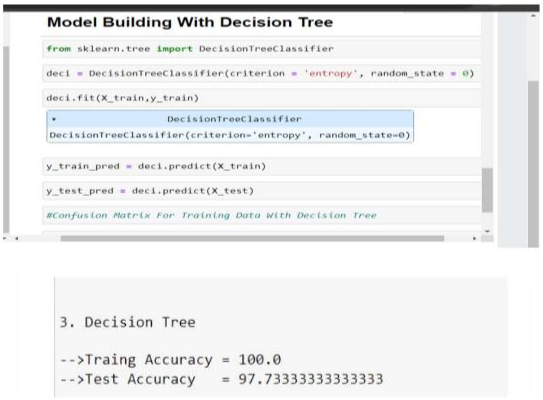
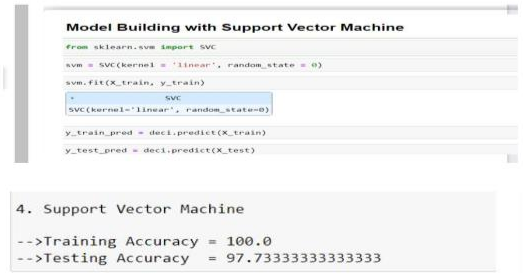
The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

```
RandomForest Classifier::

Model Building With Random Forest Classifier

from sklearn.ensemble import Random ForestClassifier

ran = Random ForestClassifier (criterion = 'entropy', random_state = 0)

ran

▼

Random ForestClassifier

RandomForestClassifier (criterion='entropy', random_state=0)

ran.fit(X_train,y_train)

Random ForestClassifier

RandomForestClassifier (criterion='entropy', random_state=0)

y_train_pred ran.predict(X_train)

DecisionTree Classifier:
```

```
Model Building With Decision Tree

from sklearn.tree import DecisionTreeClassifier

deci = DecisionTreeClassifier (criterion = 'entropy', random_state = 0)

deci.fit(X_train, y_train)

DecisionTreeClassifier

DecisionTreeClassifier (criterion='entropy', random_state=0)

y_train_pred deci.predict(X_train)

y_test_pred deci.predict(X_test)

#Confusion Matrix For Training Data With Decision Tree

confusion_matrix(y_train, y_train_pred) array([[9134, 0],


[ 0, 2865]], dtype=int64)

Model Building with Support Vector Machine::

from sklearn.svm import SVC

svm = SVC(kernel = 'linear', random_state = 0)

svm.fit(X_train, y_train)

SVC

SVC(kernel='linear', random_state=0)

y_train_pred deci.predict(X_train)

y_test_pred deci.predict(X_test)
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Random Forest Regressor		98%	-
Decision Tree Regressor		97%	-
Gradient Boosting Regressor		97%	-