

Model Development Phase Template

Date	July 2024
Team ID	739675
Project Title	Drug classification 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:

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Decision tree classifier	<pre> Classification report precision recall f1-score support DrugY 1.00 1.00 1.00 25 DrugA 0.78 1.00 0.88 7 DrugB 1.00 0.67 0.80 6 DrugC 1.00 1.00 1.00 7 DrugX 1.00 1.00 1.00 15 </pre>	<pre> accuracy 0.97 60 macro avg 0.96 0.93 0.93 60 weighted avg 0.97 0.97 0.97 60 </pre>	<pre> ***DecisionTreeClassifier*** Confusion matrix [[25 0 0 0 0] [0 7 0 0 0] [0 2 4 0 0] [0 0 0 7 0] [0 0 0 0 15]] </pre>
Random forrest classifier	<pre> Classification report precision recall f1-score support DrugY 1.00 1.00 1.00 25 DrugA 0.78 1.00 0.88 7 DrugB 1.00 0.67 0.80 6 DrugC 1.00 1.00 1.00 7 DrugX 1.00 1.00 1.00 15 </pre>	<pre> accuracy 0.97 60 macro avg 0.96 0.93 0.93 60 weighted avg 0.97 0.97 0.97 60 </pre>	<pre> ***RandomForestClassifier*** Confusion matrix [[25 0 0 0 0] [0 7 0 0 0] [0 2 4 0 0] [0 0 0 7 0] [0 0 0 0 15]] </pre>

Gradient boosting classifier	<pre> Classification report precision recall f1-score support DrugY 1.00 1.00 1.00 25 DrugA 0.78 1.00 0.88 7 DrugB 1.00 0.50 0.67 6 DrugC 1.00 0.86 0.92 7 DrugX 0.88 1.00 0.94 15 </pre>	<pre> accuracy 0.93 60 macro avg 0.93 0.87 0.88 60 weighted avg 0.94 0.93 0.93 60 </pre>	<pre> ***Gradient BoostingClassifier*** Confusion matrix [[25 0 0 0 0] [0 7 0 0 0] [0 2 3 0 1] [0 0 0 6 1] [0 0 0 0 15]] </pre>
Kneighbors classifier	<pre> Classification report precision recall f1-score support DrugY 0.43 0.72 0.54 25 DrugA 0.00 0.00 0.00 7 DrugB 0.50 0.33 0.40 6 DrugC 0.00 0.00 0.00 7 DrugX 0.20 0.13 0.16 15 </pre>	<pre> accuracy 0.37 60 macro avg 0.23 0.24 0.22 60 weighted avg 0.28 0.37 0.30 60 </pre>	<pre> ***KNeighborsClassifier*** Confusion matrix [[18 2 1 0 4] [6 0 0 0 1] [3 0 2 0 1] [5 0 0 0 2] [10 1 1 1 2]] </pre>