Model Development Phase Template

Date	15 March 2024
Team ID	SWTID1720000747
Project Title	Detection Of Autistic Spectrum Disorder: Classification
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
SVM	It finds the optimal hyperplane that best separates the data into different classes. It is particularly effective in high-dimensional spaces and is known for its robustness against overfitting, especially in cases where the number of dimensions exceeds the number of samples.		97.54%
KNN	Classifies based on nearest neighbors; adapts well to data patterns, effective for local variations in loan approval criteria.		96.72%

Logistic Regression	Logistic regression is a statistical model used for binary classification that predicts the probability of an outcome by fitting data to a logistic curve.		98.3%
Decision Tress	Simple tree structure; interpretable, captures non-linear relationships, suitable for initial insights into loan approval patterns.		95.3%
Random Forest	Ensemble of decision trees; robust, handles complex relationships, reduces overfitting, and provides feature importance for loan approval prediction.		96.2%

```
#Create a table to compare the accuracies of each model

accuracy_df = pd.DataFrame({
    'Model' : ['Logistic Regression' , 'SVM' , 'Decision Tree' , 'Random Forest' , 'KNN'],
    'Accuracy' : [accuracy_lr*100, accuracy_SVM*100, accuracy_dt*100, accuracy_RF*100, accuracy_KNN*100]})
print(accuracy_df)
```

```
models = ['Logistic Regression' , 'SVM' , 'Decision Tree' , 'Random Forest' , 'KNN']

accuracies = [accuracy_lr*100, accuracy_SVM*100, accuracy_dt*100, accuracy_RF*100, accuracy_KNN*100]
plt.bar(models, accuracies, color = 'blue')

#Add title and axis labels
plt.title('Comparison of Model Accuracies')
plt.xlabel('models')
plt.ylabel('Accuracy')
```