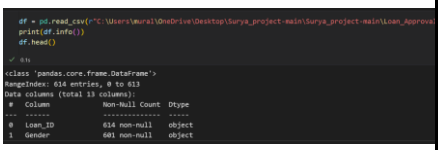
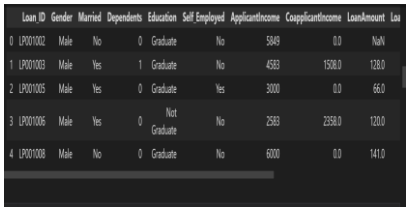
Project Development Phase
Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID07028
Project Name	Smart Lender - Applicant Credibility Prediction for Loan Approval
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S. No.	Parameter	Values	Screenshot
1.	Metrics	**Classification Model:** **Accuracy Score-** Xgboost Model Testing Accuracy 0.905135135135135 Xgboost Model Training Accuracy 0.905135135135135 **Classification Report -** Model XGB. accuracy_score: 0.8211382113821138 classification_report: precision recall f1-score support 0 0.70 0.58 0.63 33 1 0.85 0.91 0.88 90 accuracy 0.82 123 macro avg 0.78 0.74 0.76 123 weighted avg 0.81 0.82 0.82 123 cross_val_score: [0.74796748 0.73170732 0.75609756 0.78861789 0.78688525] mean of scores: 0.7622550979608156 **********	Loan_ID 614 Gender 2 Married 2 Dependents 4 Education 2 Self_Employed 2 Property_Area 3 Loan_Status 2 ('XGB', XGBClassifier(learning_rate=0.1, n_estimators=100, max_depth=6, min_child_weight = 1, gamma=0., subsample=0.8, scale_pos_weight=1, random_state=27)),] for model_name, model in models: print('\nModel %s.' % model_name) full_pipeline = Pipeline(steps=[('preprocessor', preprocessor), ('model', model) Model XGB. accuracy_score: 0.8211382113821138 classification_report: precision recall f1-score support 0 0.70 0.58 0.63 33 1 0.85 0.91 0.88 90 accuracy 0.82 123 macro avg 0.78 0.74 0.76 123 weighted avg 0.81 0.82 0.82 123 cross_val_score: [0.74796748 0.73170732 0.75609756 0.78861789 0.78688525] mean of scores: 0.7622550979608156 **********

2.	Tune the Model	**Hyperparameter Tuning** - No tunning is performed as we have got 91% accuracy **Parameters used-** n_estimators=5000,max_depth=80,max_features='log2' **Validation Method** - In-sample validation	 

```
df = pd.read_csv("C:\Users\murali\OneDrive\Desktop\Surya_project-main\Surya_project-main\Loan_Approval
print(df.info())
df.head()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 614 entries, 0 to 613
Data columns (total 13 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   Loan_ID            614 non-null    object
 1   Gender             601 non-null    object
```

	Loan ID	Gender	Married	Dependents	Education	Self Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loa
0	LP001002	Male	No	0	Graduate	No	5849	0.0	NaN	
1	LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128.0	
2	LP001005	Male	Yes	0	Graduate	Yes	3000	0.0	66.0	
3	LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120.0	
4	LP001008	Male	No	0	Graduate	No	6000	0.0	141.0	