

American International University-Bangladesh (AIUB)  
**Department of Computer Science and Engineering   
Faculty of Science &Technology (FST)  
Spring 24-25  
 PROGRAMMING IN PYTHON**

**Section: A**

**Group NO: 11**

**HOME LOAN APPROVAL**

**Submitted by:**

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**Submitted to:**

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**Dataset Name:** Home Loan Approval

**Dataset Link:** https://www.kaggle.com/datasets/rishikeshkonapure/home-loan-approval/data?select=loan\_sanction\_train.csv

**Task 1:** Read/Load the dataset file in your program. Use Pandas library to complete this task.

**Task 2:** Apply appropriate data cleaning techniques to the dataset. In this step, replace bad data using proper methods and do not delete any record except duplicate records. Use Pandas library to complete this task.

**Task 3:** Draw graphs to analyze the frequency distributions of the features. Use Matplotlib library to complete this task. Draw all the plots in a single figure so that all plots can be seen in one diagram (use subplot () function).

**Task 4:** Perform scaling to the features of the dataset. Remember that you will need to apply data conversion before performing scaling whenever necessary.

**Task 5:** Split your data into two parts: Training dataset and Testing dataset. You must use the function train\_test\_split() to complete this task and use value 3241 as the value of the random state parameter of this function.

**Task 6:** Apply Support Vector Machine (SVM) Classifier to the dataset. Build (train) your prediction model in this step.

**Task 7:** Calculate the confusion matrix for your model. Interpret it in detail in the report.

**Taks 8:** Calculate the train and test accuracy of your model and compare them.