School of Computer Science, Engineering and Technology

Course-BTech
Course Code - CSET211
Year - Second

Type - AI Core-1
Course Name - Statistical Machine Learning
Semester - ODD
Batch - CSE 3rd Semester

Lab Assignment - 9: Classification using Support Vector Machines (SVM)

CO- Mapping

Section	CO1	CO2	CO3	CO4
Section 1: Q1-Q8	√	√		
Section 2: Q1-Q6	√	√	√	

Section 1: Data Preprocessing

1. Import the required libraries.
2. Load the given dataset - 'Loan.csv'.
3. Check the first and last 5 rows of the data.
4. Drop the column 'loan_id'.
5. As a part of sanity checks, check for any missing values in the data. If there are missing values, handle it accordingly before moving to the next step.
6. For the prediction task, Y would be the target column, ie, "loan_status" and X would be the other feature columns
7. Label encode the categorical columns and standardize the feature columns before data splitting.
8. To prepare for the prediction task, split the dataset into 80% train and 20% test set.

Section 2: Support Vector Machines (SVM)

1. To utilize the svm classifier function, use the sklearn package.
2. Train the svm machine learning model on the train data using the default 'rbf' kernel.
3. Print the parameter values of 'C' and 'gamma' used in training the model.
4. After training the svm model, evaluate your model on the test data.
5. Plot the confusion matrix using heatmap.
6. Print the accuracy, precision, recall, f1 score for each class on the test data.

Submission Instructions:

- Submit .ipynb file only