



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A’ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING-IoT Including CS & BCT

**COURSE NAME :19SB701 PATTERN RECOGNITION TECHNIQUES IN
CYBER CRIME**

IV YEAR / VII SEMESTER

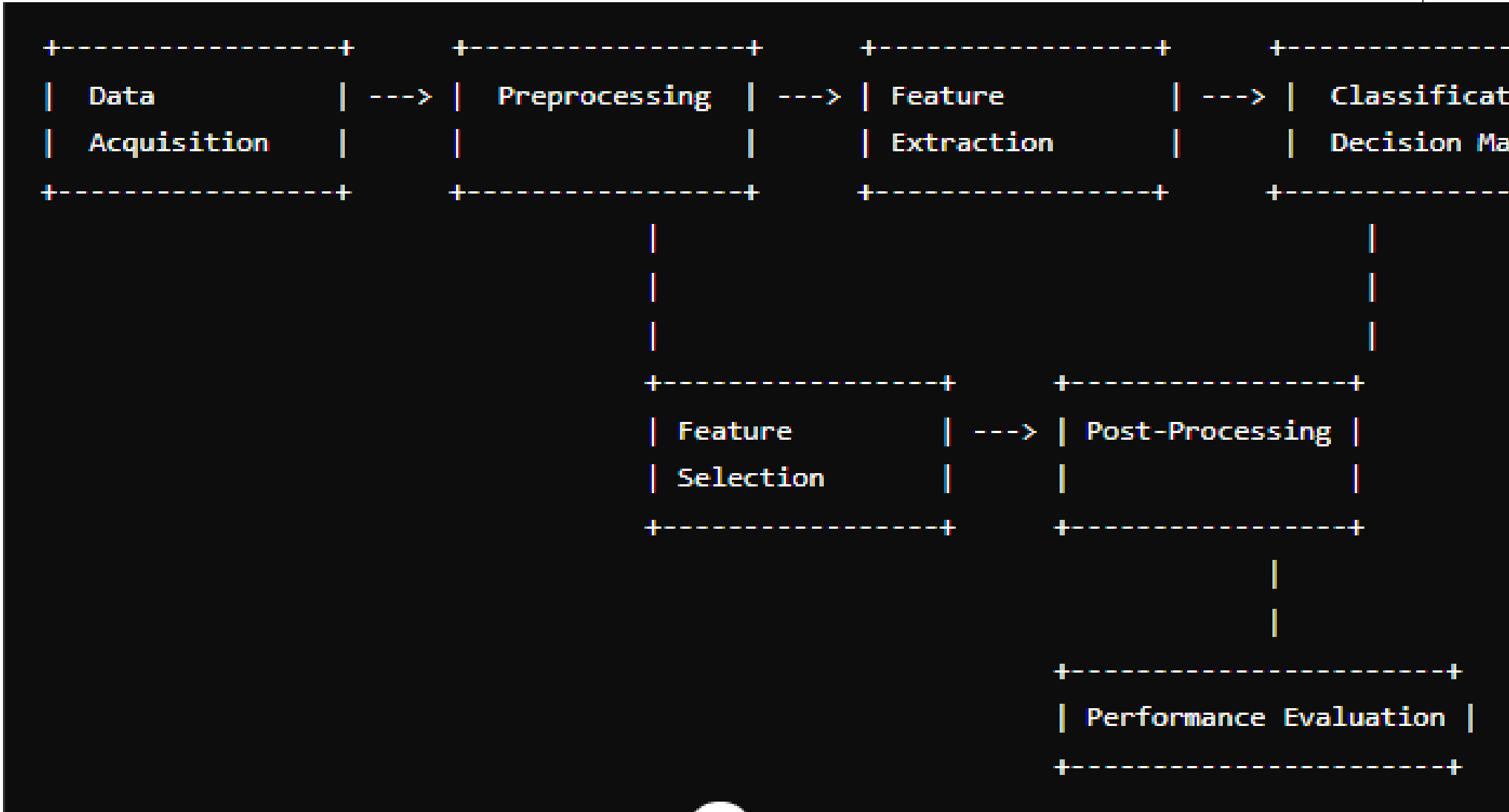
Unit I- INTRODUCTION

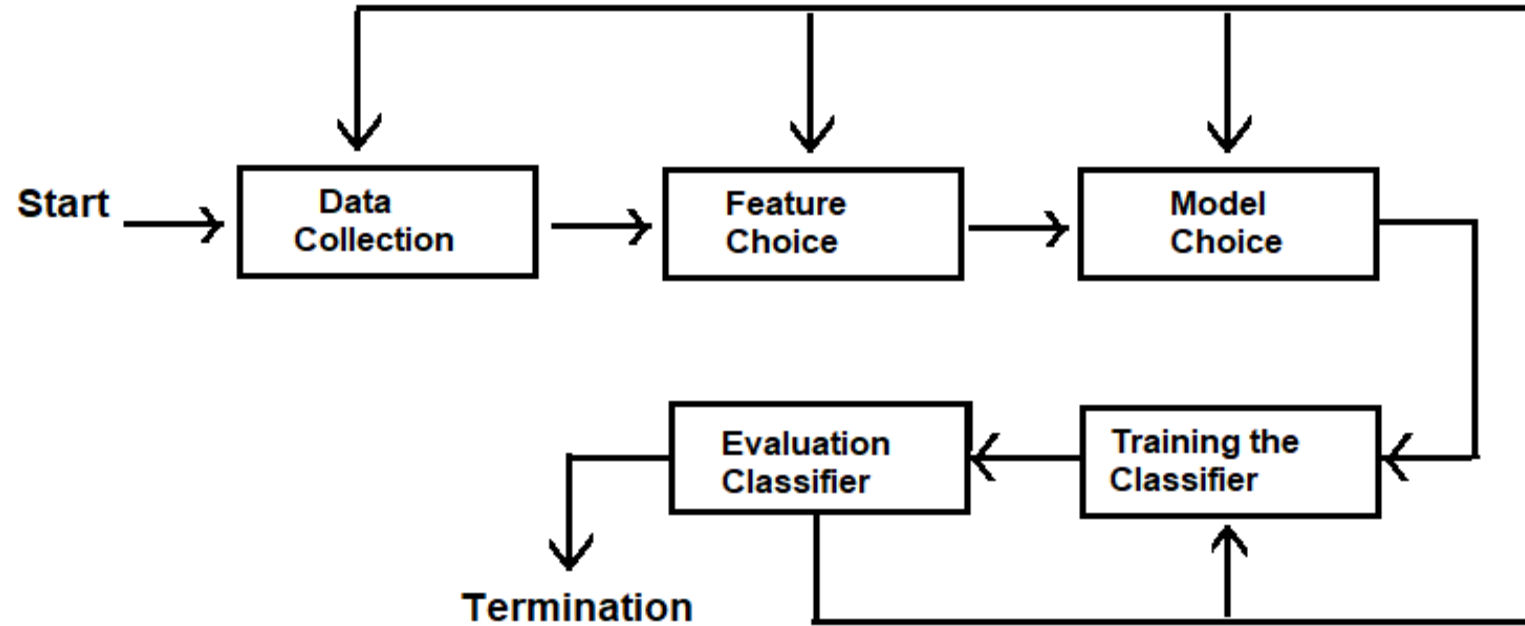
**Topic :Design principles of pattern recognition
system**



Pattern recognition systems are designed to identify and classify patterns (objects, signals, or data) in input data.

The design of a pattern recognition system involves several key principles, which guide how data is processed, analyzed, and classified.





Activity Cycle



Data Acquisition

The process of collecting raw data from various sources (e.g., sensors, databases, images, or signals).

Purpose : Ensure data is collected with high quality and relevance to the problem domain.



Preprocessing

Preparing the raw data for analysis by cleaning, normalizing, and transforming it.

Purpose: Improve the quality of the data by reducing noise, handling missing values, and normalizing feature scales.



Feature Extraction

Extracting meaningful information (features) from the raw data to reduce its dimensionality while preserving its essential characteristics.

Purpose: Identify and select features that best represent the underlying structure of the data, improving the accuracy and efficiency of the system.



Feature Selection

Selecting a subset of relevant features to improve model performance and reduce complexity.

Purpose: Minimize the risk of overfitting by eliminating irrelevant or redundant features.



Classification/Decision Making

Applying a classification algorithm to assign input data to predefined classes or categories.

Purpose: Choose an appropriate classifier (e.g., neural networks, decision trees, SVM) based on the nature of the problem, data size, and required accuracy.



Post-Processing

Refining the results obtained from the classification step, which may involve combining outputs or applying further analysis.

Purpose: Enhance the accuracy and reliability of the final decision by filtering or combining results.



Performance Evaluation

Assessing the effectiveness of the pattern recognition system using metrics like accuracy, precision, recall, and F1-score.

Purpose: Continuously evaluate and validate the system's performance on both training and test data to ensure it generalizes well to new inputs.



Any Query?????

Thank you.....