

**SRINIVAS UNIVERSITY
INSTITUTE OF ENGINEERING AND
TECHNOLOGY**

MODULE 3

**Data Essentials, Types, Big Data,
Processing, and Ethics**

INDIVIDUAL TASK

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MODULE 3:

Data Essentials, Types, Big Data, Processing, and Ethics

INDIVIDUAL TASK

Data Ethics Case Study: Each group analyzes a real or hypothetical case of data misuse (like the Cambridge Analytica case) and discusses how better governance and ethical practices could have prevented it.

. Introduction

In today's digital world, recommendation systems play an important role in guiding user choices. From music streaming apps to online shopping platforms, these systems analyze user behavior and suggest items that match personal interests. The aim of this project, My Personal Pattern Tracker, is to observe my own daily choices for one week and analyze whether a recommendation system using

supervised learning could predict my next decision.

Tracking personal behavior helps in understanding how patterns are formed.

Human choices may appear random, but when recorded over time, they often show repetition, preference, and hidden structure. By collecting simple data such as songs listened to, products browsed, or videos watched, it becomes possible to train a predictive model.

This study focuses on three main goals:

- Recording personal choices for seven days
- Identifying patterns in behavior
- Evaluating whether supervised learning can predict the next choice

The project demonstrates how machine learning concepts can be applied to everyday life in a simple and understandable way.

Concept of Recommendation Systems

A recommendation system is a software technique used to suggest relevant items to users based on their behavior, preferences, or similarities with others. These systems are widely used in:

- Music and video streaming
- Online shopping platforms
- Social media feeds
- News applications

Types of Recommendation Systems

1. Content-based filtering

Recommends items similar to what the user liked earlier.

2. Collaborative filtering

Uses preferences of similar users to generate suggestions.

3. Hybrid methods

Combine both techniques for better accuracy.

In this project, instead of using large public data, personal behavior data from one week is analyzed to check if prediction is possible.

Understanding Supervised Learning

Supervised learning is a machine learning method where a model learns from labeled data.

Each training example contains:

Input → user's past choices

Output → actual next choice

The model studies relationships between inputs and outputs to predict future results.

Common supervised learning algorithms

- Decision Trees
- k-Nearest Neighbors (k-NN)
- Linear Regression
- Support Vector Machines

For a small personal dataset, simple models like Decision Trees or k-NN are sufficient.

Weekly Data Collection (Personal Tracking)

To understand my behavior, I tracked my **daily song listening pattern** for one week.

Recorded attributes

- Day of the week
- Time of listening (morning/evening/night)
- Mood (happy, calm, sad, energetic)
- Song genre chosen

Sample Observation Table

Day	Time	Mood	Genre played
Mon	Morning	Calm	Melody
Tue	Night	Energetic	Pop
Wed	Evening	Sad	Slow songs
Thu	Night	Energetic	Pop
Fri	Evening	Happy	Dance
Sat	Morning	Calm	Melody
Sun	Night	Happy	Dance