You have to implement one ML project during the semester which include following criteria.

Objective :

Create Complete ML project using Flask/ Fast API of given problem statement with neat and clean UI. The project includes a clean UI for data input and prediction visualization.

Dataset Selection:

Select dataset with at least 5K records.

Project should Include following:

Objective	Title	Description	Week No.
1	Problem Definition and Dataset Exploration	Problem statement, dataset summary, and initial observations.	1
2	Data Cleaning and Pre-processing	Handle missing values Identify and handle outliers. Encode categorical variables Normalize/scale numerical features. EDA	2
3	Model Creation	Select Algorithm for training from our ML syllabus. Train Model using Algorithm Implement Algorithm without use of Library.	3,4,5
4	Model Evaluation	Test the model on the test dataset and compute metrics. Check for overfitting or underfitting.	6
5	Advanced Model Training	Experiment with advanced models cross-validation to ensure model stability. Compare models based on validation metrics. Hyperparameter Tuning	7
6	Visualization of metrics and graph	Display all types of graph associated with performance metrics	8
7	Flask Project Setup	Learn How to setup project on Flask Create simple flask application which use form .	9
8	Create Front end	Create front end of your project. Generally for user to input data	10
9	Create backend	Setup backend to handle user request	11
10	Deployment	Final Project Deployment to available free hosting site.	12

Library for development:

You can used numpy, pandas, matplolib, plotly, sklearn, seaborn

Evaluation of Objective:

Evaluation of project will be done on **every Saturday**. For every one objective have **one marks** for end semester evaluation.

Timeline For Project Development

Timeframe Week No.	Current Semester Objective
1	-
2	-
3	-
4	-
5 (13/01 to 18/01)	1,2
6 (20/01 to 25/01)	3
7 (27/01 to 01/02)	3
8 (03/02 to 8/02)	4
9 (10/02 to 15/02)	5
10 (17/02 to 22/02)	6
11 (10/03 to 15/03)	7,8
12 (17/03 to 22/03)	9,10

Use any one dataset from following list:

- MNIST
- IMDb Dataset
- Boston Housing Dataset
- COIL-20 Dataset
- Adult Census Income Dataset
- Wine Quality Dataset
- PIMA Indian Diabetes Dataset
- California Housing Dataset
- Bank Marketing Dataset
- COVID-19 Radiography Dataset