MACHINE LEARNING: PROJECT WORK (TEST2)

Title: Development and Deployment of a Machine Learning–based AI application

A. Objective

To design, train, evaluate, and deploy a machine learning model (Linear Regression or Decision Tree) and integrate it into a simple AI application that generates predictions based on user input.

B. Project Requirements

Each group must:

i. **Select a real-world prediction problem**, preferably based on the Tanzanian context (e.g., house price prediction, student performance prediction, crop yield prediction, salary estimation, etc.).

ii. **Use a suitable dataset** and perform the following tasks:
- Data preprocessing
- Train both Linear Regression and Decision Tree models
- Evaluate and compare model performance
- Select the best-performing model
- Visualize results

iii. **Develop a simple AI application** that:
- Accepts user input
- Loads the trained model
- Displays prediction results

iv. **Deploy the application online** using any of the following; (Streamlit Cloud, flask etc).

C. Deliverables

1. **Jupyter Notebook file:** A file named: **ml_project.ipynb**
   It must include: Data preprocessing, Model training (LR and DT), Model evaluation, Visualizations **and** Saving the best-performing model
2. **Deployed AI Application**
   A fully functional deployed application with the ability to Load the saved model, accept user input and display prediction
   Submit: **Application URL (link), app.py, model.pkl**
3. **A simple project report (max-2 pages)**
   Must contain: Introduction, Dataset description, Methodology**,** Results**,** Screenshots of the app

Deadline: ***16th February 2026 while 18th February 2026 will be project presentation***
Note: ***Each group should consist of*** *10 students****, and*** *every student must be able to demonstrate their individual contribution* ***to the project.***