INTERNATIONAL INSTITUTE OF MEDICAL SCIENCE & TECHNOLOGY COUNCIL

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Machine Learning Crash Course Assignment

Title: Predicting House Prices using Machine Learning

Objective:

Build a simple supervised machine learning regression model using the California Housing dataset from scikit-learn, evaluate it using appropriate metrics, and deploy it with a minimal Streamlit app for predicting housing prices.

Task Breakdown

1. Data Loading & Preprocessing

- Load the California Housing dataset using sklearn.datasets.fetch_california_housing- Convert it into a pandas DataFrame
- Explore the dataset:
* Show feature descriptions and dataset shape
* Plot histograms or pairplots
* Apply normalization or scaling if needed

2. Model Building

- Use LinearRegression or RandomForestRegressor from scikit-learn
- Train with 80-20 train-test split

- Evaluate using MAE, MSE, R^2 Score

3. Streamlit App Deployment

- Create a simple UI with input fields for features
- Add a Predict button
- Display prediction and model metrics

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4. Documentation

- README.md or PDF with:

* Project summary
* Streamlit usage instructions
* Metrics explanation
* Screenshot of Streamlit app

Bonus Suggestions

- Add feature importance chart
- Use GridSearchCV for hyperparameter tuning
- Save the model using joblib or pickle

Deliverables

- Jupyter Notebook / Python script
- app.py for Streamlit
- requirements.txt
- Documentation (Markdown or PDF)
- Optional: .pkl or .joblib model file

Deadline

31/07/2025

Evaluation Criteria

Model correctness & performance - 30%

Code structure & readability - 20%

Streamlit UI functionality - 20%

Documentation clarity - 20%

Bonus implementation - 10%

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