Practical – Development/Programming Assessment

Course: Fullstack AI

You have to program/Develop : 1 question from Section A and 1 question from section B

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Section A: Machine Learning [Marks 30]

Regression

Dataset:

US Real Estate Dataset

See File attached with name “us_house_Sales_data.csv”

OR

Dubai Real Estate Dataset

See File attached with name “uae_properties.csv”

Apply “Multiple Linear Regression”.

Or

Classification

See File attached with name “blood_donor_dataset.csv”

This dataset contains records of blood donors, aiming to predict whether a donor is currently available to donate. It includes a mix of demographic, medical, and donation history attributes.

Each row represents a single donor and provides features such as:

Blood Group

Age, Weight, Hemoglobin

Last Donation Date

Number of Donations

Availability (Target variable)

The target variable availability indicates whether the donor is likely available for donation at the time of inquiry.

This dataset is ideal for building classification models, exploring healthcare analytics, and demonstrating how machine learning can support blood bank management and public health decision-making.

📓 Column Descriptors

Column Name	Description
donor_id	Unique identifier assigned to each donor
blood_group	Blood type of the donor (e.g., A+, B-, O+, AB-)
age	Age of the donor in years
weight	Weight of the donor in kilograms
hemoglobin	Hemoglobin level (g/dL), used to assess donor eligibility
last_donation	Date of the last donation by the donor
num_donations	Total number of successful past donations
gender	Gender of the donor (e.g., Male, Female, Other)
availability	Target variable – whether the donor is currently available to donate

Steps - TO Do: [Neat, Clean, well-documented code]

Loading in DataFrame, Perform “Descriptive Statistics” Max-Operations, Input data analysis based on seaborn, Performing core operation of SK Learn, Perform metric analysis

[10 Marks for exceptional creative deep data analytical skills demonstration. For standard implementation – these marks will NOT be given.]

Section: Deep Learning [Marks 30]

LSTM

Steps - TO Do:[Neat, Clean, well-documented code]

Design Model with related layers, Performing core operation of Tensflow-Keras based deep learning, Perform Model metric analysis

[10 Marks for exceptional creative deep data analytical skills demonstration. For standard implementation – these marks will NOT be given.]

Dataset

Air Passengers

Analyse and Forecast Time Series data of US Air Passengers

This dataset provides monthly totals of a US airline passengers from 1949 to 1960.

See File attached with name “AirPassengers.csv”