Final Project

1) What is Data Analysis.

- Data Analysis is the process of inspecting, Cleaning, transforming, and modeling raw data to discover useful information, draw conclusion, and Support business decision - making.

   - Descriptive:- what Happend? (sales dropped by 10% last month.

   - Diagnostic:- why did it happen? (Because a new competiton launched.)

   - Predictive:- what will happen next? (if we run a discount, Sales will go up)

2. How to Plan a Data Science project.

- A Standard data Science project follows a lifecycle, often referred to as CRISP - DM.

1. Business Understanding: what is the actual Problem. (e.g We are losing Customer.")

2. Data Understanding: what data do we have available? is it Clean? is it Enough.

3. Data preparation: Cleaning missing values, handling Outliers, and formatting data.

4. Modeling: Applying Machine learning algorithme (like Random forest or logistic Regression) to the prepared data.

5. Evaluation:- Did the model actually solve the business problem accurately?

6. Deployment: Integrating the model into the real-world app or Software.

Q.3) How to frame a ML Problem.

= framing is translating a vague business goal into a specific data/machine learning task.

- Define the Target: What exactly are we predicting? (in your dataset, the target is default flag: 0 or 1).

- Determine the type of Problem:-

Supervised learning: we have historical answers.

Classification:- The answer is a Category.

Regression:- the answer is a number.

- Define the Matric: How will We
  measure Success?

Q.4. Explain Tensors with NumPy Examples.

- A Tensor is Simply a Container that can
  House data in N dimensions. It is a
  mathematical generalization of Scalars,
  Vectors and matrices. Tensors are the
  fundamental data Structure used in
  Deep learning:

Ex: 0-D Tensor (Scalar): Just a single Number.
                                    No axes.

Import numpy as nP.
Scalar = nP. array .(Me)
Print (scalar.ndim)
                 # output : D

1-D Tensor (Vector). Set of array of numbers.
                            it has 1 axis.
Vector = nP. array ([10,20,30,uD])
   Print (vector.ndim)
                 # output 1

2-D Tensor (matrix) . A grid of Numbers.

Matrix = nP. array ([[1,2,3],
                      [4,5,6],
                      [7,8,9]])

Print (matrix.ndim)

        # output 2.

3-D Tensor (cube). An array of matrices.
- Think of a Rubik's cube, or a color image which has a 2D matrix of pixels for Red, another two Green, and Blue. 3 axis.

tensor 3d = np.array([[[1,2], [3,4]],
[[5,6], [7,8]],
[[9,10], [11,12]]]).

Print (tensor_3d.ndim).

#output : 3