Q1 Write a short note. what is data Analysis

=> data Analysis is the process of collecting, cleaning, transforming and interpreting data to discover such as data cleaning, exploration, visulization, and statistical analysis to turn row data into meaningful insights. Data Analysis is widely used in ~~fft~~ fields like business, ~~heti~~ healthcare, finance and technology to improve performance predict trends, and solve real - world problems.

Q2. Describe how to plan a data science project, listing all steps. ?

=> Describe a data science project plan. to given below:

1) Define the problem:
   i) understand the business or real-world problem.

2) understand the data requirements.
   * decide what type of data is needed.

3) data collection:
   * Gather data from 6 identified sources.
   * use tools like SQL, API's, web scraping or surveys.

4) data cleaning and r: preprocessing
   * handle missing value.
   * Remove duplicates and incorrect record.

5) Exploratory data Analysis (EDA):
   * Analyze data using statistics and visualizations
   * identify patterns, trends and outliers.

②

6) Feature Engineering:-
   * create a meaningfull Features.
   * select important features.

7) model selection :-
   * choose suitable algorithms
   * split data into training and testing.

8) model training :-
   * train the model using training data.

9) model Evaluation :-
   * Evaluate model performance using matrics.
   * compare multiple models.

10) model Deployment:-
   * Deploy the model into production
   * integrate with existing systems.

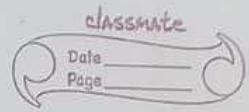11) monitoring and maintenance:-
   * monitori model per forformance over time.
   * defect data drift or model degradation

12) Documentation and communication:-
   * document assumptions methods and results.
   * present insights using reports or dashboards.

Q3 Frame a machine learning problem
statement : predict whether a customer will
churn base on purchase behavior?
→ it is a ~~sur~~ supervised classification
problem where historical purchase behavior
is used to predict whether a customer
will churn or not.

Q4 Explain :

* what are tensors?
→ Tensors are multi-dimensional data
structures used to represent data in
machin learning and deep learning.

* provide an in-depth explanation of tensors
with simple examples using Numpy.
→ A tensors is a container of numbers
arranged in multiple dimensions you can
think of it as a general way to represent
data of any shape.
tensors are the foundation of machin
learning and deep learning.