Q/A OF INTRODUCTION TO AI PROJECT CYCLE

1. Q - What is the importance of the Al project cycle?

Ans. Developing an Al-based project is not an easy task. A lot of planning and resources are involved, and the accuracy of the developed model matter a lot. Thus, to implement and scale coastal Al projects, it is important to adopt a comprehensive approach to cover each step of the Al-based project. This is achieved through the AI project cycle.

3. What is testing data?

Ans - The training data is a set of data used with the Al algorithm to train as an Al model to produce a specific type of desired outputs.

2. What is training data?

Ans - Once an Al model is developed; it is tested using the testing data. The testing data is a set of data that is used to check if the Al model is producing results as intended.

Q/A of PROBLEM SCOPING – SET GOAL

1. What is the purpose of stage Problem Scoping?

Ans. The purpose of Problem Scoping is that while finalizing the aim of the project being designed, the scope of the problem being solved is decided.

2. List briefly, the role of problem scoping in designing the solution of a problem.

Ans. In problem scoping, broadly the aim and scope of the project undertaken are decided. In other words, during this stage, the following things are decided:

- To precisely define the problem objectives

Q/A of PROBLEM SCOPING – IDENTIFY STAKEHOLDER,ACTIONS & ETHICAL ISSUES

1. What is the significance of using 4Ws canvas?

Ans. The 4W's Canvas is a tool to identify the stakeholders (WHO), the problem issues (WHAT), context/situation (WHERE/WHEN), and the reasons (WHY) to find a solution for a problem that the stakeholders experience.

2 What is a problem statement? How is it useful?

Ans: A problem statement is a short, clear description in words of the problem listing its stakeholders, their issue(s), context, and reasons to solve the problem.
A problem statement gives a clear description of the issues being faced by the stakeholders, and the pain points and explains why a solution must be found.

3 Explain the DOIT principle of setting actions around the goal of your project

Ans. To set actions around the goal DOIT principle may be used as:

* Describe the pain points.
* Outline multiple possible solution alternatives.
*Identify the consequences of each alternative.
* Take the best possible alternative.

Q/A of PROBLEM SCOPING – EXPLORE & UNDERSTAND DATA

1Q. What is a dataset? What is its other name?

Ans- A dataset is a collection of data objects related to a common theme or project. A dataset is also known as a database.

2Q What are data features? Give example .

Ans. A data feature is an individual measurable property or characteristic of a data object being recorded or stored, e.g., color, mileage, and power can be considered as features of a car.

3Q. Describe the meaning of these data characteristics: Accuracy, Completeness, Reliability, Relevance, and Timeliness.

Ans -

Characteristic	How it's measured
Accuracy	Is the information correct in every detail?
Completeness	How comprehensive is the information?
Reliability	Does the information contradict other trusted resources?
Relevance	Do you really need this information? How up-to-date is the information?
Timeliness	How up to date is the information?

4. Explain briefly how would you determine the data features for your project.

Ans. For our project, from the problem statement, we shall determine the entities and their relationships. Then we shall pick the characteristics of each of the entities and the relationships Only relevant data features as per the theme of the project, would be stored as part of the data set.

5. What do you understand by the frequency of data collection? Why is it important?

Ans. The ‘frequency of data collection means how often one should record data, such as, daily. weekly, monthly or every 5th or 10th record, every time an important factor changes value, and so forth. It is very important to choose the correct frequency of data collection otherwise, your project would yield incorrect results

6. Why is data validation important?

Ans. Data validation is vital to ensure the data is clean, correct, and useful. Without data validation, we run the risk of basing decisions on imperfect or invalid data which does not represent the project or theme, or situation, and hence we won't get the correct and accurate results.

Q/A of DATA ACQUISITION

1. What is data Acquisition?

Ans**. Data Acquisition** refers to processes, methods, or systems that are used to collect information related to a certain theme or objective, to document or analyse some phenomenon.

2. List some commonly used sources of data collection.

Ans. The most commonly used data sources are Interviews, surveys, Observation, API, Web Scraping, Sensors, Cameras, the Internet, Problem reports, etc.

3. Why should data be not taken from the Internet directly?

Ans. The reasons for this are:

(1) The data might not be authentic as its accuracy cannot be proved. Studies have shown that more than half of the data of the Internet comes from unreliable sources or is inaccurate.
(ii) Even if the data is reliable, it cannot be directly taken if it is copyright protected because of IPR (Intellectual Property Rights).

4. When is it important to get data from the Internet, and what points must be considered before taking data?
Ans.- One should take data from the Internet only after ensuring the following two things:

(1) The source of data is authentic and reliable.
(ii) The data has been licensed for public use through licenses like Creative-commons, Copyleft, and other open-source licenses.

5. List some examples of situations where these data sources would be the most suitable :
(i) Sensors (iii) Interview (ii) Cameras (v) Survey

Ans. (1) For situations where environmental or human body parameters are to be measured such as the temperature of a furnace, level of a tank, body temperature of humans, blood pressure or heart-beat rate of humans, and so on.

(ii) For situations where images or video inputs are required to register data such as traffic violations, the correctness of the design of a product, etc.

(iii) For situations where personal knowledge or information or experience of stakeholders are required such as the taste of a food item or experience after using an adventure sport etc.

(iv) For situations where authentic problems are to be registered such as the problems in electronic gadgets or for the cause of diseases in the human body etc.

(v) For situations where responses for set of questions are required from stakeholders such as before installing a fountain in local park of a resident colony, a survey may be conducted among its residents to know about their choices.

Q/A of System Map for Problem Scoping

1. What is the significance of system maps?

Ans. A system map is used to show the structure of a system of interest at a point in time, clearly showing its environment, its boundary, components and interactions. Visually it represents the whole system's overview, interactions and how components influence other components.

2. Depict the symbols used to define the following in a system map:
(a) boundary line (b) relationship/interaction between components (c) impact of components

Ans. (a) closed line (b) arrows (c) +/- signs.

Q/A of Data visualisatoon

1. What is the need of data visualization?

Ans. Data visualization is important and useful for understanding and comprehending the information stored in data. It becomes easier to see the trends, relationships, and trends of data through data visualization. Data visualization is also useful for combining categories of data and thereby reducing data for processing.

2. Mention some popular data visualization techniques.

Ans. (1) Bubble chart (ii) Scatter graph (iii) Line chart (iv) Bar graph (v) Histogram (vi) Pie chart
(vii) Choropleth (viii) Heat map (ix) Timeline (x) Node link diagram (xi) Word cloud

Q/A of Modelling

1. How do Machine Learning systems work?

Ans. Machine Learning (ML) is an AI technology that takes lots of input data and finds pattems data and uses them to make predictions. ML algorithms use computational methods to "lean" information directly from data without relying on a predetermined equation as a model.

2. How do Deep Learning systems work?

Ans. Deep learning is a specialized form of machine learning, Deep Learning (DL) enables software to train itself to perform tasks with vast amounts of data. Since the system has got huge set of data, it is able to train itself with the help of multiple machine learning algorithms working altogether to perform a specific task.