AI PROJECT CYCLE

OBJECTIVE QUESTIONS (SET 01)

1. The AI Project Cycle mainly has _____.
a. 2 Stages
b. 3 Stages
c. 4 Stages
d. 5 Stages
Ans: d. 5 Stages

2. What are the various parameters which affect the problem _____.
a. You need to acquire data which will become the base of your project
b. You go for data acquisition by collecting data from various reliable and authentic sources.
c. After exploring the patterns, you can decide upon the type of model you would build to achieve the goal.
d. All of the above
Ans: d. All of the above

3. You need to _____ which will become the base of your project as it will help you in understanding what the parameters that are related to problem scoping are.
a. Acquire Data
b. Database
c. Data Mining
d. None of the above
Ans: a. Acquire Data

4. _____ by collecting data from various reliable and authentic sources.
a. Data Acquisition
b. Database
c. Data Mining
d. None of the above
Ans: a. Data Acquisition

5. Once the _____ is complete, you now need to test your model on some newly fetched data.
a. Data Acquisition
b. Modelling
c. Data Mining
d. None of the above
Ans: b. Modelling

6. The Sustainable Development Goals aim is to achieve by the end of year_____.
a. 2025
b. 2030
c. 2035
d. 2040
Ans: b. 2030

7. The _____ Problem canvas helps in identifying the key elements related to the problem.
a. 4Ws
b. 6Ws
c. 2Ws
d. 3Ws
Ans: a. 4Ws

8. _____ are the people who face this problem and would be benefited with the solution.
a. Key Persons
b. Stakeholders
c. End user
d. None of the above
Ans: b. Stakeholders

9. _____ helps in analyzing the people getting affected directly or indirectly due to it.
a. Who
b. What
c. Where
d. Why
Ans: a. Who

10. _____ helps to determine the nature of the problem.
a. Who
b. What
c. Where
d. Why
Ans: b. What

11. “What” block helps to gather evidence from _____ to prove that the problem you have selected actually exists.
a. Media
b. Announcements
c. Newspaper & Articles
d. All of the above
Ans: d. All of the above

12. “Where” block will help you look into the situation in which the _____where it is prominent.
a. Problem arises
b. The context of it
c. The locations
d. All of the above
Ans: d. All of the above

13. In “Why” block canvas, Which of the following canvases is the base of problem solving.
a. Who the people that would be benefitted by the solution
b. What is to be solved
c. Where will the solution be deployed
d. All of the above
Ans: d. All of the above

14. After filling the 4Ws Problem canvas, you now need to summarize all the cards into one _____.
a. Template
b. Situation
c. Both a) and b)
d. None of the above
Ans: a. Template

15. Templates help us to summarize all the key points into one single Template so that in future, whenever there is a need to look back at the basis of the problem, we can take a look at the _____ and understand the key elements of it.
a. Problem Solving Template
b. Problem Statement Template
c. Problem Arising Template
d. None of the above
Ans: b. Problem Statement Template

16. _____ helps to acquire data for the project.
a. Problem Scoping
b. Data Acquisition
c. Data Exploration
d. Data Evaluation
Ans: b. Data Acquisition

17. _____ can be a piece of information or facts and statistics collected together for reference or analysis.
a. Database
b. Data
c. Data Type
d. None of the above
Ans: b. Data

18. Whenever we want an AI project to be able to predict an output, we need to _____ it first using data.
a. Analyze
b. Train
c. Explore
d. All of the above
Ans: b. Train

19. You would feed the data into the machine. This is the data with which the machine can be trained. Now, once it is ready, it will predict his next data efficiently. This previous data is known as _____.
a. Testing Data
b. Training Data
c. Exploring Data
d. All of the above
Ans: b. Training Data

20. You would feed the data into the machine. This is the data with which the machine can be trained. Now, once it is ready, it will predict his next data efficiently. This next data is known as _____.
a. Testing Data
b. Training Data
c. Exploring Data
d. All of the above
Ans: a. Testing Data

21. For better efficiency of an AI project, the _____ needs to be relevant and authentic.
a. Testing Data
b. Training Data
c. Exploring Data

d. All of the above
Ans: b. Training Data

22. _____ refer to the type of data you want to collect.
a. Data features
b. Exploring Data
c. Data Acquisition
d. All of the above
Ans: a. Data features

23. What are the different ways to collect data?
a. Web Scraping & API
b. Surveys & Sensors
c. Cameras & Observations
d. All of the above
Ans: d. All of the above

24. Sometimes, you use the internet and try to acquire data for your project from some random websites. Such data might not be authentic as its accuracy cannot be proved. Due to this, it becomes necessary to find a _____.
a. Reliable source
b. Random source
c. Unauthorize source
d. All of the above
Ans: a. Reliable source

25. One of the most reliable and authentic sources of information where we can download the authentic data for our project are _____.
a. Private websites
b. Government websites
c. Personal websites
d. None of the above
Ans: b. Government websites

26. Data is a complex entity – it is full of numbers and if anyone wants to make some sense out of it, they have to work some patterns out of it.
a. Data acquiring
b. Data mining
c. Data analysis
d. None of the above
Ans: a. Data acquiring

27. The _____ makes the data understandable for humans as we can discover trends and patterns out of it.
a. Random Data
b. Graphical Representation
c. Unstructured Data
d. None of the above
Ans: b. Graphical Representation

28. AI models can be classified as _____.
a. Learning Based
b. Rule Based
c. Both a) and b)

d. None of the above
Ans: c. Both a) and b)

29. Learning Based models can be classified as _____.
a. Machine Learning
b. Deep Learning
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

30. AI modelling where the rules are defined by the developer is known as _____.
a. Rule Based Approach
b. Learning based Approach
c. Both a) and b)
d. None of the above
Ans: a. Rule Based Approach

31. _____ which tells us about the conditions on the basis of which we can decide
a. Dataset
b. Rule Based
c. Learning based
d. None of the above
Ans: a. Dataset

32. Learning based approaches are divided into _____ parts.
a. 2
b. 3
c. 4
d. 5
Ans: b. 3

33. Which one of the following is correct for Learning based approach?
a. Supervised Learning
b. Unsupervised Learning
c. Reinforcement Learning
d. All of the above
Ans: d. All of the above

34. In a _____ model, the dataset which is fed to the machine is labeled.
a. Supervised Learning
b. Unsupervised Learning
c. Reinforcement Learning
d. All of the above
Ans: a. Supervised Learning

35. What are the different types of supervised learning?
a. Classification
b. Regression
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

36. Where the data is classified according to the labels is known as _____.
a. Classification

b. Regression
c. Both a) and b)
d. None of the above
Ans: a. Classification

37. _____ models work on continuous data.
a. Classification
b. Regression
c. Both a) and b)
d. None of the above
Ans: b. Regression

38. An _____ model works on an unlabeled dataset.
a. Unsupervised learning
b. Supervised learning
c. Reinforcement Learning
d. All of the above
Ans: a. Unsupervised learning

39. The _____ models are used to identify relationships, patterns and trends out of the data which is fed into it. It helps the user in understanding what the data is about and what are the major features identified by the machine in it.
a. Unsupervised learning
b. Supervised learning
c. Reinforcement Learning
d. All of the above
Ans: a. Unsupervised learning

40. Unsupervised learning models are divided into _____ categories.
a. 5
b. 4
c. 3
d. 2
Ans: d. 2

41. Which categories belong to Unsupervised learning.
a. Clustering
b. Dimensionality Reduction
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

42. Unsupervised learning algorithm which can cluster the unknown data according to the patterns or trends identified out of it is known as _____.
a. Clustering
b. Dimensionality Reduction
c. Both a) and b)
d. None of the above
Ans: a. Clustering

43. We humans are able to visualize up to 3-Dimensions only but according to a lot of theories and algorithms, there are various entities which exist beyond 3-Dimensions.
a. Clustering
b. Dimensionality Reduction

c. Both a) and b)
d. None of the above
Ans: b. Dimensionality Reduction

44. In Unsupervised learning models, if we need to reduce their dimension, which algorithm do we have to use?
a. Supervised algorithm
b. Dimensionality reduction algorithm
c. Clustering algorithm
d. None of the above
Ans: b. Dimensionality reduction algorithm

45. _____ helps to test data so that one can calculate the efficiency and performance of the model.
a. Accuracy
b. Evaluation
c. Precision
d. None of the above
Ans: b. Evaluation

46. Efficiency of the model is calculated on the basis of which parameters.
a. F1 Score >> Recall >> Precision >> Accuracy
b. Accuracy >> Precision >> Recall >> F1 Score
c. Precision >> Accuracy >> F1 Score >> Recall
d. Recall >> Precision >> Accuracy >> F1 Score
Ans: b. Accuracy >> Precision >> Recall >> F1 Score

47. _____ are loosely modelled after how neurons in the human brain behave.
a. Neural networks
b. Neural science
c. Neural Analysis
d. None of the above
Ans: a. Neural networks

48. The key advantage of _____ are that they are able to extract data features automatically without needing the input of the programmer.
a. Data Science
b. Deep Learning
c. Neural Network
d. All of the above
Ans: c. Neural Network

49. A _____ is essentially a system of organizing machine learning algorithms to perform certain tasks
a. Data Science
b. Deep Learning
c. Neural Network
d. All of the above
Ans: c. Neural Network

50. A Neural Network is divided into multiple layers and each layer is further divided into several blocks called _____.
a. Nodes
b. Connector

c. Terminal
d. All of the above
Ans: a. Nodes

51. The first layer of a Neural Network is known as the _____.
a. Output Layer
b. Input Layer
c. Hidden Layer
d. All of the above
Ans: b. Input Layer

52. The job of an _____ is to acquire data and feed it to the Neural Network.
a. Output Layer
b. Input Layer
c. Neural Layer
d. All of the above
Ans: b. Input Layer

53. In Neural Network, The _____ are the layers in which the whole processing occurs.
a. Output Layer
b. Input Layer
c. Hidden Layer
d. All of the above
Ans: c. Hidden Layer

54. Hidden Layers in Neural Network means.
a. Layers are hidden
b. Not visual to the user
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

55. In a Neural Network, Each node of these hidden layers has its own _____ which it executes on the data received from the input layer.
a. Machine Learning Methods
b. Machine Learning Approach
c. Machine Learning Algorithm
d. All of the above
Ans: c. Machine Learning Algorithm

56. The last hidden layer passes the final processed data to the _____ which then gives it to the user as the final output.
a. Output Layer
b. Input Layer
c. Hidden Layer
d. All of the above
Ans: a. Output Layer

57. A secret AI hiring tool was being developed by Amazon. The machine learning experts discovered a significant issue: their new recruiting engine disliked women. The system has already learned that male candidates were preferred. The resumes with “women” on them were punished. As a result, the tool failed. This is an example of_____.
a. Data Privacy
b. AI Access

c. AI Bias
d. Data Exploration
Ans: c. AI Bias

58. Which of the following datasets can have a particular structure or pattern?
a. Semi Structure
b. Structured
c. Unstructured
d. Fully Structured
Ans: b. Structured

59. Which of the following models the connections or data patterns that the developer defined?
a. Rule Base Approach
b. Learning Based Approach
c. Knowledge Based Approach
d. Decision Based Approach
Ans: a. Rule Base Approach

60. It gives us a suitable framework that can help us get closer to the objective of our AI project.
a. 4Ws Canvas
b. AI Project Cycle
c. Project Model
d. AI Models
Ans: b. AI Project Cycle

61. The computer is trained using an enormous quantity of data in _____, which helps it train itself based on the data.
a. Supervised learning
b. Deep learning
c. Classification
d. Unsupervised learning
Ans: b. Deep learning

62. Choose one of the following statements regarding the unsupervised learning-based model that is false.
a. We can provide a very large data set.
b. The algorithm itself analyzes the data set and determines relationships within that data.
c. The labeled data is fed with some rules by the developers.
d. lets us make predictions and improve the algorithms on its own.
Ans: c. The labeled data is fed with some rules by the developers.

63. _____ is a method of dividing a node into two or more sub-nodes.
a. Data Features
b. Splitting
c. 4Ws Canvas
d. Web Scraping
Ans: b. Splitting

64. Select the Decision Tree nodes from the list below.
a. Decision nodes
b. End nodes
c. Chance nodes
d. All of the above
Ans: d. All of the above

65. Which one of the following is not a modelling approach?
a. Root
b. Terminal
c. Interior
d. Parent
Ans: b. Terminal

66. Which one of the following approaches is not taken into account while modelling:
a. Rule-based approach
b. Learning-based approach
c. Knowledge-based approach
d. All of these
Ans: c. Knowledge-based approach

67. _____ is an example of a business problem when we categorize an observation as “Safe,” “AtRisk,” or “Unsafe.”
a. Classification
b. Clustering
c. Regression
d. Dimensionality Reduction
Ans: a. Classification

68. Data exploration is possible with the use of _____.
a. Problem Scoping
b. Data Visualization
c. Data Features
d. Web Scraping
Ans: b. Data Visualization

69. Techniques for data visualization are used to _____.
a. Data discovery
b. Large data evaluation in real time
c. Gaining fresh perspectives on data
d. All of the above
Ans: d. All of the above

70. The _____ is the first stage of the AI project cycle.
a. Problem Scoping
b. Data Acquisition
c. Data Exploration
d. Data Modelling
Ans: a. Problem Scoping

71. The _____ is the second stage of the AI project cycle.
a. Problem Scoping
b. Data Acquisition
c. Data Exploration
d. Data Modelling
Ans: b. Data Acquisition

72. The _____ is the third stage of the AI project cycle.
a. Problem Scoping
b. Data Acquisition

c. Data Exploration
d. Data Modelling
Ans: c. Data Exploration

73. The _____ is the fourth stage of the AI project cycle.
a. Problem Scoping
b. Data Acquisition
c. Data Exploration
d. Data Modelling
Ans: d. Data Modelling

74. The _____ is the fifth stage of the AI project cycle.
a. Problem Scoping
b. Data Evaluation
c. Data Exploration
d. Data Modelling
Ans: b. Data Evaluation

75. The data that is provided as input during data collecting is referred to as _____.
a. Testing Data
b. Training Data
c. Input data
d. None of the above
Ans: b. Training Data

76. The kind of data that is being gathered during data collection is referred to as _____.
a. System Mapping
b. Web Scraping
c. 4Ws Canvas
d. Data Features
Ans: d. Data Features

77. Initial problem definition is the first step in the AI process, which is afterwards
a. Designing >> Brainstorming >> Building
b. Designing >> Deploying >> Brainstorming
c. Brainstorming >> Designing >> Building
d. Designing >> Brainstorming >> Building
Ans: c. Brainstorming >> Designing >> Building

78. Sumit is studying the phases of an AI project. She was aware of the problem statement template, but she is now attempting to recall it. For the problem statement template, which of the following statements is true?
a. Help people in creating a single overview that includes all the important details
b. Help in looking back and analyzing the issue in the future
c. Contains fundamental information regarding the issue's general dimensions.
d. All of the above
Ans: d. All of the above

79. Data was entered into the system by Vikash, who is presently receiving the results, which she will examine. The name of this result set is _____.
a. Result Set
b. Database
c. Training Data
d. Testing Data

Ans: d. Testing Data

80. Manish work in a Nirma Constructions. He has a list of questions and inquiries that his clients can respond to with a yes or no. This approach is called _____.
a. Surveys
b. Web scraping
c. Sensors
d. None of the above
Ans: d. None of the above

81. The team leader Rakesh wants to use the observational method to gather data. Which tool from the list below may be utilize for the same?
a. Website Article
b. Google Forms
c. Checklist
d. All of these
Ans: c. Checklist

82. What do you mean by Web Scraping?
a. Utilizing automated bots to browse the internet and collect data
b. Gathering information from the dark web
c. Using an app or website to collect data
d. None of the above
Ans: a. Utilizing automated bots to browse the internet and collect data

83. Data can be directly downloaded from any website. What kinds of data are available for free download and use?
a. Someone's property
b. Data generated by a specific group
c. Open Source Data
d. Closed Source Data
Ans: c. Open Source Data

84. Amit has gathered information. But he discovered that the material he gathered is exceedingly challenging to comprehend. given that data is always
a. Complex entity
b. Filtered and bifurcated
c. Sophisticated structured
d. None of the above
Ans: a. Complex entity

85. When Rajesh explores data, she wants to compare the data and demonstrate certain cyclical variations. Which graph from the following can be used?
a. Bar Graph
b. Line Graph
c. Pie Graph
d. Histogram Graph
Ans: a. Bar Graph

86. Select the five phases of the AI project cycle in the proper order.
a. Data Acquisition -> Problem Scoping -> Data Exploration -> Modelling -> Evaluation
b. Evaluation -> Problem Scoping -> Data Exploration -> Data Acquisition -> Modelling
c. Problem Scoping -> Data Acquisition -> Data Exploration -> Modelling -> Evaluation
d. Problem Scoping -> Data Exploration -> Data Acquisition -> Evaluation -> Modelling

Ans: c. Problem Scoping -> Data Acquisition -> Data Exploration -> Modelling -> Evaluation

87. In order to have a clearer view, we examine several parameters that have an impact on the problem we're trying to address under the _____ stage of the AI Project Cycle.
a. Data Exploration
b. Evaluation
c. Modelling
d. Problem Scoping
Ans: d. Problem Scoping

88. Reviewing the project or business requirements for the AI model
a. Data Exploration
b. Evaluation
c. Modelling
d. Problem Scoping
Ans: d. Problem Scoping

89. What do you mean by Problem Scoping?
a. Creating an algorithm to solve a problem
b. Proper solution of a problem
c. Recognizing a problem and having a plan to address it.
d. analyzing the trends in the collected data sets
Ans: c. Recognizing a problem and having a plan to address it.

90. How many SDGs have been officially announced by the UN?
a. 18
b. 17
c. 16
d. 15
Ans: b. 17

91. People that experience the mentioned issue and would gain from the solution are referred to as _____.
a. Key Persons
b. Stakeholders
c. End user
d. None of the above
Ans: b. Stakeholders

92. The person starting a project should be absolutely clear with _____.
a. Problem Reasons
b. Problem Statement
c. Problem Solutions
d. None of the above
Ans: b. Problem Statement

93. Which of the information sharing about problem scoping?
a. It will increase misunderstanding among stakeholders
b. It is a tool that ensures the issue won't arise again
c. While adding actual value to the organization
d. The data flow is understood clearly
Ans: a. It will increase misunderstanding among stakeholders

94. What is the Problem Statement Template, exactly?

a. Data set that was compiled to identify the essential components of a problem
b. The template summarizes each card in the 4Ws Problem Canvas
c. The template offers the data set's prediction.
d. None of the above
Ans: b. The template summarizes each card in the 4Ws Problem Canvas

95. Which of the following 4Ws canvas problems aids in the direct or indirect analysis of those who are affected?
a. What
b. Who
c. Why
d. Where
Ans: b. Who

96. The nature of the problem is determined by which of the 4Ws of problem scoping is used.
a. What
b. Who
c. Why
d. Where
Ans: a. What

97. The _____ helps in collecting all the important information into a single template for problem scoping.
a. Problem Taking Template
b. 4ws of problem scoping
c. Information Template
d. Problem Statement Template
Ans: b. 4ws of problem scoping

98. Which block of the 4ws problem canvas focuses on the problem's context, circumstance, or location?
a. What
b. Who
c. Why
d. Where
Ans: d. Where

99. Which of the following is not a part of the problem scoping's 4 W?
a. What
b. Who
c. Why
d. When
Ans: d. When

100. The 4Ws canvas is related to _____.
a. Data exploration
b. Data Acquisition
c. Modelling
d. Problem Scoping
Ans: d. Problem Scoping

101. Method of data acquisition is _____.
a. Google Cloud
b. Programing

c. Survey
d. All of the above
Ans: c. Survey

102. Which of the following is not a reliable source for acquiring data?
a. System Hacking
b. Surveys
c. Website
d. None of the above
Ans: a. System Hacking

OBJECTIVE QUESTIONS (SET 02)

Q1. The AI Project Cycle mainly has _____ stages
a. 2
b. 3
c. 5
d. 9
Ans: c. 5

Q2. Which of the following is the first stage of AI Project Cycle?
a. Data Exploration
b. Evaluation
c. Problem Scoping
d. Modelling
Ans: c. Problem Scoping

Q3. Evaluation is the _____ stage of AI Project Cycle.
a. First
b. Last
c. Second
d. Third
Ans: b. Last

Q4. Under _____ we look at various parameters which affect the problem we wish to solve so that the picture becomes clearer.
a. Evaluation
b. Modelling
c. Data Exploration
d. problem scoping
Ans: d. problem scoping

Q5. Problem scoping is _____
a. Identifying a problem and having a vision to solve it.
b. Collecting data
c. Test your model on some newly fetched data.
d. Research online and select various models which give a suitable output.
Ans: a. Identifying a problem and having a vision to solve it.

Q6. The 4W's of Problem Scoping are:
a. Who, What, Whose, Why
b. Who, What, Where, Why
c. Who, What, Where, Whose
d. Who, What, Whom, Whose

Ans: b. Who, What, Where, Why

Q7. Which of the following is not 4W of Problem Scoping?
a. Who
b. What
c. Whose
d. Why
Ans: c. Whose

Q8. Which block of 4W helps in analysing the people getting affected directly or indirectly due to problem?
a. Where
b. What
c. Who
d. Why
Ans: c. Who

Q9. Under the _____ block, you need to determine the nature of the problem.
a. Where
b. Why
c. What
d. Who
Ans: c. What

Q10. _____ are the people who face this problem (identified by you) and would be benefited with the solution.
a. Stakeholders
b. Staker
c. Problem holder
d. None of the above
Ans: a. Stakeholders

Q11. In _____ block of 4W, we need to focus on the context/situation/location of the problem.
a. What
b. Where
c. Who
d. Why
Ans: b. Where

Q12. _____ is the last 'W' in 4W Problem Canvas.
a. What
b. Why
c. Where
d. Who
Ans: b. Why

Q13. The stage after "Problem Scoping' in AI Project Cycle is ___
a. Data Exploration
b. Evaluation
c. Modelling
d. Data Acquisition
Ans: d. Data Acquisition

Q14. We use the 4Ws Problem Canvas in _____ stage of AI Project Cycle.
a. Data Acquisition
b. Modelling
c. Evaluation
d. Problem Scoping
Ans: d. Problem Scoping

Q15. Ananya is talking about the various stages of AI Project cycle. She is telling that, in this stage we acquire data for the project. She is talking about _____ stage of AI Project Cycle.
a. Problem Scoping
b. Data Exploration
c. Data Acquisition
d. Modelling
Ans: c. Data Acquisition

Q16. Aman want to make an Artificially Intelligent system which can predict the salary of any employee based on his previous salaries. He has to feed the data of his previous salaries. This is the data with which the machine can be trained. The previous salary data here is known as _____ while the next salary prediction data set is known as the _____
a. Testing Data, Training Data
b. Training Data, Testing Data
c. Training Data, Next Data
d. First Data, Testing Data
Ans: b. Training Data, Testing Data

Q17. For better efficiency of an AI project, the Training data needs to be and ____
a. relevant and useless
b. relevant and authentic
c. irrelevant and useful
d. relevant and not required
Ans: b. relevant and authentic

Q18. Data features refer to _____.
a. the features of data
b. the data from internet.
c. the type of data you want to collect
d. None of the above
Ans: c. the type of data you want to collect

Q19. Ways by which you can collect data for your AI Project is _____
a. Surveys
b. Cameras
c. Sensors
d. All of the above
Ans: d. All of the above

Q20. Which of the following is an open-sourced government portals?
a. data.gov.in
b. india.gov.in
c. Both of the above
d. None of the above
Ans: c. Both of the above

Q21. Which of the following is visual representation of data?

a. Bar graph
b. Map
c. Histogram
d. All of the above
Ans: d. All of the above

Q22. _____ approach refers to the AI modelling where the rules are defined by the developer.
a. Rule based
b. Learning based
c. Machine learning
d. Deep learning
Ans: a. Rule based

Q23. In _____ approach we fed the data along with rules to the machine and the machine after getting trained on them is now able to predict answers for the same.
a. Rule based
b. Learning based
c. Machine learning
d. Deep learning
Ans: a. Rule based

Q24. A drawback/feature for rule based approach is _____
a. Learning is static.
b. The machine will not learn from its mistake.
c. Once trained, the model cannot improvise itself on the basis of feedback.
d. All of the above.
Ans: d. All of the above.

Q25. _____ refers to the AI modelling where the machine learns by itself
a. Rules based approach
b. Learning based approach
c. Deep learning
d. Machine learning
Ans: b. Learning based approach

Q26. _____ approach introduces the dynamicity in the AI model.
a. Machine learning
b. Rule based
c. Both of the above
d. None of the above
Ans: a. Machine learning

Q27. Supervised Learning is the sub category of _____
a. Rules based approach
b. Learning based approach
c. Both of the above
d. None of the above
Ans: b. Learning based approach

Q28. In a _____ learning model, the dataset which is fed to the machine is labelled.
a. Supervised
b. Unsupervised
c. Reinforcement

d. All of the above
Ans: a. Supervised

Q29. Classification and Regression are two types of _____
a. Supervised Learning Models
b. Unsupervised Learning Models
c. Reinforcement Learning Models
d. All of the above
Ans: a. Supervised Learning Models

Q30. _____ type of supervised learning model works on discrete dataset which means the data need not be continuous.
a. Classification
b. Regression
c. Both of the above
d. None of the abov
Ans: a. Classification

Q31. _____ type of Supervised Learning models work only on continuous data.
a. Classification
b. Regression
c. Both of the above
d. None of the above
Ans: a. Classification

Q32. A _____ model works on unlabelled dataset.
a. supervised learning
b. unsupervised learning
c. reinforcement learning
d. None of the above
Ans: b. unsupervised learning

Q33. _____ means that the data which is fed to the machine is random and there is a possibility that the person who is training the model does not have any information regarding it.
a. Labelled dataset
b. Partial dataset
c. Unlabelled dataset
d. Complete dataset
Ans: c. Unlabelled dataset

Q34. Aman have a random data of 1000 dog images. He wish to understand some pattern out of it, so he would feed this data into the _____ and would train the machine on it.
a. supervised learning model
b. unsupervised learning model
c. reinforcement learning model
d. None of the above
Ans: b. unsupervised learning model

Q35. Sonal wants to identify relationships, patterns and trends out of the random data. Which of the following learning model is suitable for her?
a. Supervised
b. Unsupervised
c. Reinforcement
d. None of the above

Ans: b. Unsupervised

Q36. Type of Unsupervised learning models is _____
a. Clustering
b. Dimensionality Reduction
c. Both of the above
d. None of the above
Ans: c. Both of the above

Q37. _____ refers to the unsupervised learning algorithm which can cluster the unknown data according to the patterns or trends identified out of it.
a. Clustering
b. Dimensionality Reduction
c. Non Clustering
d. None of the above
Ans: a. Clustering

Q38. Humans are able to visualise up to _____
a. 1-Dimensions
b. 2-Dimensions
c. 3-Dimensions
d. N-Dimensions
Ans: c. 3-Dimensions

Q39. What happen to an entity when we reduce its dimension?
a. The information which it contains is lost.
b. The information which it contains is increased.
c. The information which it contains is remain same.
d. None of the above
Ans: a. The information which it contains is lost.

Q40. Which algorithm is used to reduce the dimension of an entity?
a. Dimensionality Reduction
b. Clustering
c. Classification
d. Regression
Ans: a. Dimensionality Reduction

Q41. Which of the following parameter is used to calculate the efficiency of the model?
a. Accuracy
b. Precision
c. F1 Score
d. All of the above
Ans: d. All of the above

Q42. The advantage of neural network is _____
a. They are able to extract data features automatically without needing the input of the programmer.
b. It is a fast and efficient way to solve problems for which the dataset is very large.
c. Both of the above
d. None of the above
Ans: c. Both of the above

Q43. A Neural Network is divided into multiple layers and each layer is further divided into several blocks called _____

a. Neuron
b. Nerve
c. Node
d. Nervous
Ans: c. Node

Q44. The first layer of a Neural Network is known as the _____
a. Work layer
b. Output layer
c. Input layer
d. Check layer
Ans: c. Input layer

Q45. The job of an input layer in Neural network is _____
a. to acquire and feed data.
b. to process data.
c. to present data
d. None of the above
Ans: a. to acquire and feed data.

Q46. In neural network, no processing occurs in _____
a. Input Layer
b. Output Layer
c. Both of the above
d. Hidden Layer
Ans: c. Both of the above

Q47. In neural network, the whole processing occurs in _____
a. Input Layer
b. Output Layer
c. Processing Layer
d. Hidden Layer
Ans: d. Hidden Layer

Q48. Which of the following is a correct feature of a Neural Network?
a. Neural Network Systems are modelled on the human brain and nervous system.
b. They are able to automatically extract features without input from the programmer.
c. It is useful to solve problems for which the data set is very large.
d. All of the above
Ans: d. All of the above

Q49. There can be multiple hidden layers in a neural network system. (T/F)
a. True
b. False
Ans: a. True

Q50. The _____ hidden layer passes the final processed data to the output layer which then gives it to the user as the final output.
a. Second
b. First
c. Last
d. Third
Ans: c. Last

QUESTIONS AND ANSWERS (SET 01) - 1 mark

1. Name all the stages of an AI Project cycle.
Problem Scoping, Data Acquisition, Data Exploration, Modeling, Evaluation

2. What are sustainable development goals?
The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

OR

The Sustainable Development Goals (SDGs) or Global Goals are a collection of 17 interlinked goals designed to be a "blueprint to achieve a better and more sustainable future for all" so that the future generations may live in peace and prosperity.

3. Name the 4Ws of problem canvases under the problem scoping stage of the AI Project Cycle.
a. Who, b. what c. where d. why

4. What is Testing Dataset?
The dataset provided to the model ML. algorithm after training the algorithm

5. Mention the types of learning approaches for AI modeling.
Supervised, unsupervised and re-enforcement

6. What is the objective of evaluation stage?
It is to evaluate whether the ML algorithm is able to predict with high accuracy or not before deployment.

7. Fill in the blank:
The analogy of an Artificial Neural Network can be made with _____? (Parallel Processing)
8. Which of the following is not an authentic source for data acquisition?
a. **Sensors b. Surveys c. Web Scraping d. System Hacking**
System Hacking

9. Which type of graphical representation suits best for continuous type of data like monthly exam scores of a student?
Linear graph

10. Fill in the blank: Neural Network is a mesh of multiple _____.
Hidden Layers / Layers

QUESTIONS AND ANSWERS (SET 01) - 2 marks

1. What are the two different approaches for AI modelling? Define them.
There are two approaches for AI Modelling; Rule Based and Learning Based.
The Rule based approach generates pre-defined outputs based on certain rules programmed by humans. Whereas, machine learning approach has its own rules based on the output and data used to train the models.

OR

Rule Based Approach Refers to the AI modelling where the relationship or patterns in data are defined by the developer. The machine follows the rules or instructions mentioned by the developer, and performs its task accordingly. Whereas in Learning based approach, the relationship or patterns in

data are not defined by the developer. In this approach, random data is fed to the machine and it is left to the machine to figure out patterns and trends out of it

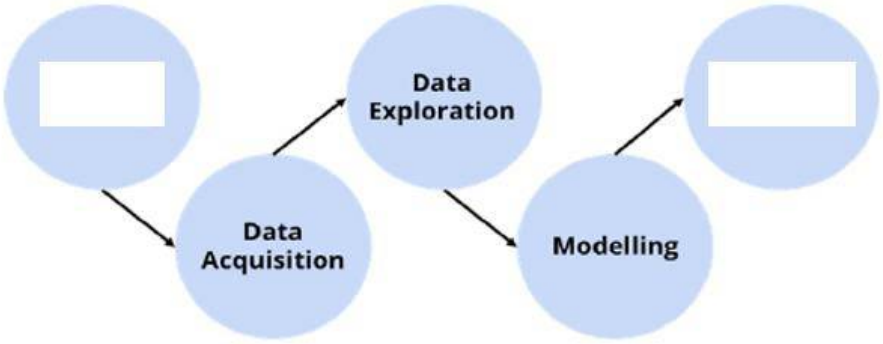
2. What is a problem statement template and what is its significance?
The problem statement template gives a clear idea about the basic framework required to achieve the goal. It is the 4Ws canvas which segregates; what is the problem, where does it arise, who is affected, why is it a problem? It takes us straight to the goal.

3. Explain any two SDGs in detail.
1. No Poverty: This is Goal 1 and strives to End poverty in all its forms everywhere globally by 2030. The goal has a total of seven targets to be achieved.
2. Quality Education: This is Goal 4 which aspires to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. It has 10 targets to achieve.
* (Any two goals can be defined)

4. Mention the precautions to be taken while acquiring data for developing an AI Project.
It should be from an authentic source, and accurate. Look for redundant and irrelevant data parameters that does not take part in prediction.

5. What do you mean by Data Features?
The type of data to collect,It should be relevant data.

6. Write the names for missing stages in the given AI project cycle:



Problem scoping, Evaluation

7. Draw the icons of the following SDGs:

Gender Equality	Clean Water and sanitation

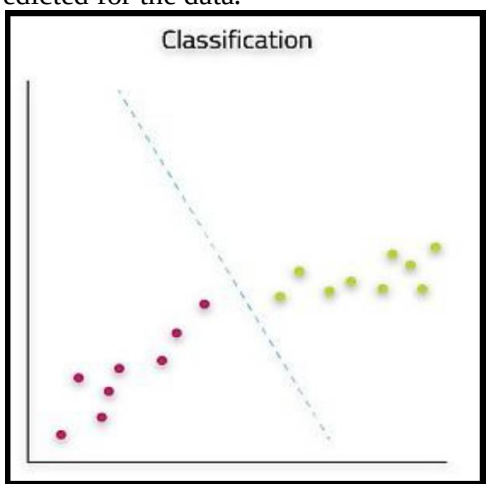
Ans:

8. Draw the graphical representation of Classification AI model. Explain in brief.

Classification: The classification Model works on the labelled data. For example, we have 3 coins of different denomination which are labelled according to their weight then the model would look for the labelled features for predicting the output. This model works on discrete dataset which means the data need not be continuous.

OR

In classification, data is categorized under different labels according to some parameters given in input and then the labels are predicted for the data.

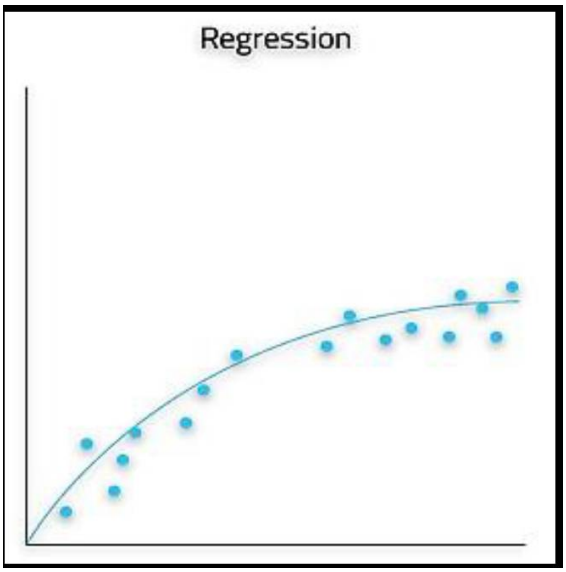


9. Draw the graphical representation of Regression AI model. Explain in brief.

Regression: These models work on continuous data to predict the output based on patterns. For example, if you wish to predict your next salary, then you would put in the data of your previous salary, any increments, etc., and would train the model. Here, the data which has been fed to the machine is continuous.

OR

Regression is the process of finding a model for distinguishing the data into continuous real values instead of using discrete values. It can also identify the distribution movement depending on the historical data.



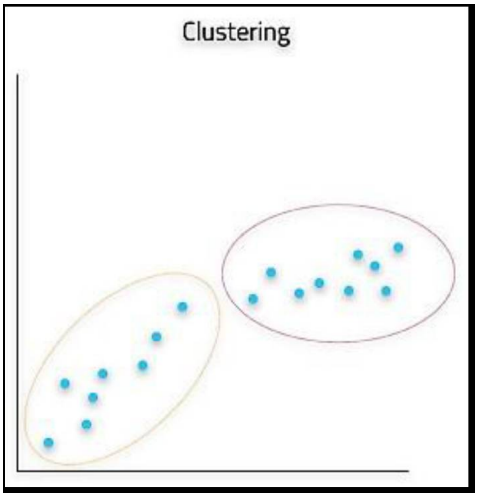
10. Draw the graphical representation of Clustering AI model. Explain in brief.

Clustering: It refers to the unsupervised learning algorithm which can cluster the unknown data according to the patterns or trends identified out of it. The patterns observed might be the ones which are known to the developer or it might even come up with some unique patterns out of it.

OR

Clustering is the task of dividing the data points into a number of groups such that data points in the same groups are more similar to other data points in the same group and dissimilar to the data points

in other groups. It is basically a collection of objects on the basis of similarity and dissimilarity between them.



11. Explain Data Exploration stage.

In this stage of project cycle, we try to interpret some useful information out of the data we have acquired. For this purpose, we need to explore the data and try to put it uniformly for a better understanding. This stage deals with validating or verification of the collected data and to analyze that:

- The data is according to the specifications decided.
- The data is free from errors.
- The data is meeting our needs.

12. What are the features of an Artificial Neural Network?

Any Artificial Neural Network, irrespective of the style and logic of implementation, has a few basic features as given below.

- The Artificial Neural Network systems are modelled on the human brain and nervous system.
- They are able to automatically extract features without feeding the input by programmer.
- Every node of layer in a Neural Network is compulsorily a machine learning algorithm.
- It is very useful to implement when solving problems for very huge datasets.

OR

It can work with incomplete knowledge and may produce output even with incomplete information.

- It has fault tolerance which means that corruption of one or more cells of ANN does not prevent it from generating output.
- It has the ability to learn events and make decisions by commenting on similar events.
- It has Parallel processing capability i.e. ANN have numerical strength that can perform more than one job at the same time.

OR

- Neural Networks have the ability to learn by themselves and produce the output that is not limited to the input provided to them.
- The input is stored in its own networks instead of a database; hence the loss of data does not affect its working.
- These networks can learn from examples and apply them when a similar event arises, making them able to work through real-time events.
- Even if a neuron is not responding or a piece of information is missing, the network can detect the fault and still produce the output.
- They can perform multiple tasks in parallel without affecting the system performance

13. What is the purpose of getting AI Ready?

The world is changing with each day and we have huge data coming our way. The purpose of getting AI ready means taking steps to collect data around relevant systems, equipment, and procedures; and storing and curating that data in a way that makes it easily accessible to others for use in future AI applications.

OR

The purpose of getting AI ready specifies the responsible and optimum use of huge amount of data around us to create and implement into such systems and applications which should make life of future generations more organized and sustainable. This process may lead to better lives for mankind.

14. What are the different types of sources of data from where we can collect reliable and authentic datasets? Explain in brief.

Data can be a piece of information or facts and statistics collected together for reference or analysis. Whenever we want an AI project to be able to predict an output, we need to train it first using data There could be many ways and sources from where we can collect reliable and authentic datasets namely Surveys, Web scrapping, Sensors, Cameras, Observations, Research, Investigation, API etc. Sometimes Internet is also used to acquire data but the most important point to keep in mind is that the data should be taken from reliable and authentic websites only. Some reliable data sources are UN, Google scholar, Finance, CIA, Data.gov etc.

QUESTIONS AND ANSWERS (SET 01) - 3/4 marks

1. Explain the AI Project Cycle in detail.

The steps involved in AI project cycle are as given:

- The first step is Scope the Problem by which, you set the goal for your AI project by stating the problem which you wish to solve with it. Under problem scoping, we look at various parameters which affect the problem we wish to solve so that the picture becomes clearer
- Next step is to acquire data which will become the base of your project as it will help you in understanding what the parameters that are related to problem scoping.
- Next, you go for data acquisition by collecting data from various reliable and authentic sources. Since the data you collect would be in large quantities, you can try to give it a visual image of different types of representations like graphs, databases, flow charts, maps, etc. This makes it easier for you to interpret the patterns in which your acquired data follows.
- After exploring the patterns, you can decide upon the type of model you would build to achieve the goal. For this, you can research online and select various models which give a suitable output.
- You can test the selected models and figure out which is the most efficient one.
- The most efficient model is now the base of your AI project and you can develop your algorithm around it.
- Once the modelling is complete, you now need to test your model on some newly fetched data. The results will help you in evaluating your model and hence improving it.

Finally, after evaluation, the project cycle is now complete and what you get is your AI project.

2. Explain the relation between data size and model performance of an Artificial Neural Network.

The basis for any kind of AI development is BIG DATASET. The performance of any AI based application depends on the data supplied

ANN models are also known as Learning models and are used for prediction purposes. These are mostly developed without paying much cognizance to the size of datasets that can produce models of high accuracy and better generalization. Although, the general belief is that, large dataset is needed to construct a predictive learning model. To describe a data set as large in size, perhaps, is circumstance dependent, thus, what constitutes a dataset to be considered as being big or small is somehow vague.

In fact, the quantity of data partitioned for the purpose of training must be of good representation of the entire sets and sufficient enough to span through the input space. It must be authentic and relevant to give better model performance.

3. Draw the 4Ws problem canvas and explain each one of them briefly.

The 4Ws problem canvas is the basic template while scoping a problem and using this canvas, the picture becomes clearer while we are working to solve it.

a) **Who:** The "Who" block helps you in analyzing the people getting affected directly or indirectly due to it? Under this, you find out who the 'stakeholders' to this problem are and what you know about them. Stakeholders are the people who face this problem and would be benefitted with the solution.

b) **What:** Under the "What" block, you need to look into what you have on hand. At this stage, you need to determine the nature of the problem. What is the problem and how do you know that it is a problem?

c) **Where:** In this block, you need to focus on the context/situation/location of the problem. It will help you look into the situation in which the problem arises, the context of it, and the locations where it is prominent.

d) **Why:** in the "Why" canvas, think about the benefits which the stakeholders would get from the solution and how would it benefit them as well as the society.

4. Differentiate between rule-based and learning-based AI modelling approaches.

Rule Based Approach: It refers to the AI modelling where the relationship or patterns in data are defined by the developer. The machine follows the rules or instructions mentioned by the developer, and performs its task accordingly.

For example, suppose you have a dataset comprising of 100 images of apples and 100 images of bananas. To train your machine, you feed this data into the machine and label each image as either apple or banana. Now if you test the machine with the image of an apple, it will compare the image with the trained data and according to the labels of trained images, it will identify the test image as an apple. This is known as Rule based approach. The rules given to the machine in this example are the labels given to the machine for each image in the training dataset.

Learning Based Approach: In this approach, the machine learns by itself. It refers to the AI modelling where the relationship or patterns in data are not defined by the developer. In this approach, random data is fed to the machine and it is left on the machine to figure out patterns and trends out of it. Generally, this approach is followed when the data is un labelled and too random for a human to make sense out of it.

For example, suppose you have a dataset of 1000 images of random stray dogs of your area. You would put this into a learning approach-based AI machine and the machine would come up with various patterns it has observed in the features of these 1000 images which you might not have even thought of!

5. What is an Artificial Neural Network? Explain the layers in an artificial neural network.

Artificial Neural Network: Modeled in accordance with the human brain, a Neural Network was built to mimic the functionality of a human brain. The human brain is a neural network made up of multiple neurons, similarly, an Artificial Neural Network (ANN) is made up of multiple perceptrons.

A neural network consists of three important layers:

Input Layer: As the name suggests, this layer accepts all the inputs provided by the programmer.

Hidden Layer: Between the input and the output layer is a set of layers known as Hidden layers. In this layer, computations are performed which result in the output. There can be any number of hidden layers

Output Layer: The inputs go through a series of transformations via the hidden layer which finally results in the output that is delivered via this layer.

6. What is the need of an AI Project Cycle? Explain.

Project cycle is the process of planning, organizing, coordinating, and finally developing a project effectively throughout its phases, from planning through execution then completion and review to achieve pre-defined objectives.
Our mind makes up plans for every task which we have to accomplish which is why things become clearer in our mind. Similarly, if we have to develop an AI project, the AI Project Cycle provides us with an appropriate framework which can lead us towards the goal.
The major role of AI Project Cycle is to distribute the development of AI project in various stages so that the development becomes easier, clearly understandable and the steps / stages should become more specific to efficiently get the best possible output. It mainly has 5 ordered stages which distribute the entire development in specific and clear steps: These are Problem Scoping, Data Acquisition, Data Exploration, Modelling and Evaluation.

7. Explain the following:
a. Supervised Learning b. Unsupervised Learning
Supervised learning is an approach to creating artificial intelligence (AI), where the program is given labelled input data and the expected output results.

OR

Supervised learning is a learning in which we teach or train the machine using data which is well labelled that means some data is already tagged with the correct answer. After that, the machine is provided with a new set of examples (data) so that supervised learning algorithm analyses the training data (set of training examples) and produces a correct outcome from labelled data.

OR

In a supervised learning model, the dataset which is fed to the machine is labelled. It means some data is already tagged with the correct answer. In other words, we can say that the dataset is known to the person who is training the machine only then he/she is able to label the data.

Unsupervised Learning: An unsupervised learning model works on unlabeled dataset. This means that the data which is fed to the machine is random and there is a possibility that the person who is training the model does not have any information regarding it. The unsupervised learning models are used to identify relationships, patterns and trends out of the data which is fed into it. It helps the user in understanding what the data is about and what are the major features identified by the machine in it.

OR

Unsupervised learning is the training of a machine using information that is neither classified nor labelled and allowing the algorithm to act on that information without guidance. Here the task of the machine is to group unsorted information according to similarities, patterns and differences without any prior training of data.

8. Differentiate between classification and clustering algorithms with the help of suitable examples.
Classification is a process of finding a function which helps in dividing the dataset into classes based on different parameters. In Classification, a computer program is trained on the training dataset and based on that training; it categorizes the data into different classes. The task of the classification algorithm is to find the mapping function to map the input(x) to the discrete output(y).
Example: The best example to understand the Classification problem is Email Spam Detection. The model is trained on the basis of millions of emails on different parameters, and whenever it receives a new email, it identifies whether the email is spam or not. If the email is spam, then it is moved to the Spam folder.
Regression is a process of finding the correlations between dependent and independent variables. It helps in predicting the continuous variables such as prediction of Market Trends, prediction of House prices, etc. The task of the Regression algorithm is to find the mapping function to map the input variable(x) to the continuous output variable(y).

Example: Suppose we want to do weather forecasting, so for this, we will use the Regression algorithm. In weather prediction, the model is trained on the past data, and once the training is completed, it can easily predict the weather for future days.

OR

Classification is the process of finding or discovering a model (function) which helps in separating the data into multiple categorical classes. In classification, the group membership of the problem is identified, which means the data is categorized under different labels according to some parameters and then the labels are predicted for the data.

Regression is the process of finding a model or function for distinguishing the data into continuous real values instead of using classes. Mathematically, with a regression problem, one is trying to find the function approximation with the minimum error deviation. In regression, the data numeric dependency is predicted to distinguish it. The Regression analysis is the statistical model which is used to predict the numeric data instead of labels. It can also identify the distribution movement depending on the available data or historic data.

OR

Key Differences between Classification and Regression

- The Classification process models a function through which the data is predicted in discrete class labels. On the other hand, regression is the process of creating a model which predicts continuous quantity.
- The classification algorithms involve decision tree, logistic regression, etc. In contrast, regression tree (e.g. Random forest) and linear regression are the examples of regression algorithms.
- Classification predicts unordered data while regression predicts ordered data.
- Regression can be evaluated using root mean square error. On the contrary, classification is evaluated by measuring accuracy.

9. Five sustainable Development Goals are mentioned below. Write 2 problems under each goal that you think should be addressed for achieving the goal.

a. Quality Education
b. Reduced Inequalities
c. Life on Land
d. No Poverty
e. Clean Water and Sanitation

a. Quality Education:

i. Providing education remotely, leveraging hi-tech, low-tech and no-tech approaches;
ii. Ensure coordinated responses and avoid overlapping efforts;
iii. Ensuring return of students to school when they reopen to avoid an upsurge in dropout rates.

b. Reduced inequalities:

i. Reduction of relative economic inequalities inequality in some countries having poorest and most vulnerable communities.
ii. Improving the situations in countries with weaker health systems.

c. Life on Land:

i. Prevention of Deforestation caused by humans and restoration of land
ii. Preventions and cure of diseases that are transmissible between animals and humans

d. No Poverty

i. Creation of Strong social protection systems to prevent people from falling into poverty
ii. Reduction of social exclusion, and high vulnerability of certain populations to disasters and diseases.
iii. Responsible distribution of resources.

e. Clean Water and Sanitation
i. To increase access to clean drinking water and sanitation mostly in rural areas
ii. Managing our water sustainably to manage our production of food and energy.

10. Do ethics in AI hamper data acquisition stage? Justify your answer.
Data acquisition is the most important factor or stage as the entire project development is based on the acquired data. There are several ethical issues which must always be considered when planning any type of data collection.
We need to understand that the data which is collected is ethical only if the provider agrees to provide. For example, in case of smartphone users, data is collected by clicking on allow when it asks for permission and by agreeing to all the terms and conditions. But at the same time if one does not want to share his/her data with anyone then this ethical issue hampers the acquisition process and lowers the accuracy or amount of data required for development.
Hence Regardless of the type of data collection, it is absolutely necessary to gain the approval of the community from which the data will collected otherwise.

QUESTIONS AND ANSWERS (SET 02)

1. What stages of an AI project are there?
Answer – There are five different stages of AI Project.
Problem Scoping >> Data Acquisition >> Data Exploration >> Modelling >> Evaluation

2. What is problem Scoping?
Answer – The process through which student designers "figure out" the problem they need to solve is called problem scoping. It is the procedure used to identify the issue.
You establish the objective for your AI project by identifying the issue you hope to address. When problem scoping, we consider several factors that have an impact on the issue we're trying to address to make the situation more evident.

3. How you can figure out the data using problem scoping?
Answer –
a. You need to acquire data which will become the base of your project.
b. Collect data from various reliable and authentic sources
c. After exploring the patterns, you can decide upon the type of model you would build to achieve the goal.
d. You can test the selected models and figure out which is the most efficient one.
e. The most efficient model is now the base of your AI project and you can develop your algorithm around it
f. Once the modelling is complete, you now need to test your model on some newly fetched data. The results will help you in evaluating your model and improving it.

4. What is Sustainable Development?
Answer – When all renewable resources are utilized properly, the variety of life on earth is conserved, and environmental harm is kept to a minimum for the benefit of future generations, this is considered sustainable development.
According to the Bruntland Commission Report from 1987, sustainable development refers to "development that satisfies present demands without compromising the ability of future generations to meet their own needs."

5. What are the goals of sustainable development?
Answer – There are 17 sustainable development goals announced by the United nations, aim to achieve these goals by the end of 2030 –
a. No Poverty

b. Zero Hunger
c. Good Health and Well-being
d. Quality Education
e. Gender Equality
f. Clean Water and Sanitation
g. Affordable and Clean Energy
h. Decent Work and Economic Growth
i. Industry, Innovation and Infrastructure
j. Reduced Inequality
k. Sustainable Cities and Communities
l. Responsible Consumption and Production
m. Climate Action
n. Life Below Water
o. Life on Land
p. Peace and Justice Strong Institutions
q. Partnerships to achieve the Goal

6. What is 4Ws Problem Canvas?
Answer – Who, What, Where, and Why are the 4Ws of problem scoping. These Ws aid in more accurate and effective problem identification and comprehension.
a. who : who is facing for problem who are the stakeholders of problem .
b. what: what is refer to a asking question .
c. where : where is refer to asking about the place where the person was going.
d. why: why is refer to a asking about the person like why are you asking question .

7. Who are the stakeholders?
Answer – Stakeholders are people who are either actively involved in the project or who have interests that the project's results might influence. Project managers, project sponsors, executives, clients, or users are typically included in this group.

8. What is a confusion matrix? What is it used for?
Answer – The comparison between the prediction and reality's outcomes is stored in the confusion matrix. We can determine variables like recall, precision, and F1 score, which are used to assess an AI model's performance, from the confusion matrix.

9. What do you mean by Problem Statement Template?
Answer – An stakeholders can define and describe a problem by writing a summarize report called a problem statement. Its objective is to offer a comprehensive plan of action to address the issue and include suggestions for how those responsible can stop it from happening again in the future.

10. What is data Acquisition?
Answer – The process of gathering correct and trustworthy data to work with is known as data acquisition. The second stage of the project cycle is data acquisition, and for successful decision making, we must make sure the data is gathered from genuine and trustworthy sources.

11. What is the difference between Training Data & Testing Data?
Answer – The datasets are divided into two groups in machine learning. The first subset, referred to as the training data, is a section of our actual dataset that is used to train a machine learning model. Second subset, referred to testing data, Once your machine learning model is built, you need unseen data to test your model. This data is called testing data.
Note – Training data use 80% of the whole data and testing data use 20%.

12. What is data features?
Answer – Data features refer to the type of data you want to collect.

13. What are the various ways to collect data?
Answer – Various ways to collect the data is –
a. Surveys
b. Web Scraping
c. Sensors
d. Cameras
e. Observations
f. Application Program Interface (API)

14. What is data exploration?
Answer – Data exploration is the process of displaying and detecting unique patterns and trends in data using tools and procedures. Data visualization and other complex statistical techniques can be used to do this.

15. What is data modelling?
Answer – Data modelling is the process of developing a visual representation of an entire information system or certain components of it. for example the development, training, and application of machine learning algorithms that simulate logical decision-making based on accessible facts are known as AI modelling.

16. What are the types of AI Modelling?
Answer – AI Models are classified into two type –
a. Learning Based
b. Rule Based

17. What is Rule Based Approach?
Answer – When the developer sets the rules. The machine executes its duty in accordance with the rules or instructions specified by the developer.
A rule-based artificial intelligence (AI) system is one that aims to develop artificial intelligence (AI) by using a model that is exclusively based on predetermined rules.

18. What is Learning Based Approach?
Answer – AI modelling where the computer learns on its own. The AI model is trained on the data provided to it under the Learning Based technique, and after that, it is able to create a model that is flexible to the change in data.

19. What are the different type of Learning based approach?
Answer – The learning based approach can be divided into three types –
a. Supervised Learning – In order for a computer to learn from data, it must have external supervision. This is known as supervised learning. We use the labelled dataset to train the supervised learning models. Supervised machine learning is a method for addressing two major issues: regression and classification.
b. Unsupervised Learning – This term refers to a sort of machine learning in which the machine can learn from the data on its own without any external supervision. The unlabelled dataset can be used to train the unsupervised models. These are employed in order to address the Association and Clustering issues.
c. Reinforcement Learning – Reinforcement learning is a learning process where an agent interacts with its environment by taking actions and learns through feedback. The agent receives feedback in the form of rewards; for example, he receives a positive reward for each good activity and a negative reward for each bad action. The agent is not under any oversight. Reinforcement learning makes use of the Q-Learning algorithm.

20. Who many type of Supervised Learning models in AI?
Answer – There are two types of Supervised Learning model –
a. Classification – When the data is labeled-based categorized. For instance, under the grading system, students are categorized based on the grades they receive in relation to their exam marks.
b. Regression – Such models work on continuous data. For example, if you wish to predict your next salary,
then you would put in the data of your previous salary, any increments, etc., and would train the model.

21. How many type of Unsupervised Learning model in AI?
Answer – There are two type of Unsupervised learning models in AI –
a. Clustering – refers to the unsupervised learning technique that can cluster the unknown data according to patterns or trends found in it. The developer may already be aware of the patterns noticed, or it may even generate some original patterns as a result.
b. Dimensionality Reduction – If you have a large number of features, it could be beneficial to minimise them using an unsupervised step before moving on to supervised steps. Numerous unsupervised learning techniques include a transform technique that can be used to lessen the dimensionality.

22. What is Expert System?
Answer – An expert system in artificial intelligence is a computer programme that mimics the capacity for judgement of a human expert. Expert systems are created to reason through knowledge bases that are primarily represented as if-then rules rather than through traditional procedural code.

23. What is the use of computer vision in AI?
Answer – Computers may be taught to understand and extract data from the visual environment, such as photographs, using an area of artificial intelligence called computer vision. Thus, computer vision makes use of AI technology to resolve challenging issues like image processing and object detection.