COMPETENCY-BASED QnA

AI PROJECT CYCLE

Competency-Based Questions

1. Mr. Gurek S. Randhawa is your school'. Since your school is an inclusive school, he wanted to give the exposure of using playing with robots to all students. So he gave a 2-wheel drive robot to students to use and play with, But he noticed that some differently-abled students were not able to use a keyboard or a joystick or smartphone to control it as they had some problems with motor skills. However, they can move their hands. So, Mr.Randhawa has identified the problem of replacing the keyboard/smartphone/joystick with gestures to control the 2-wheel drive robot.

Which stage of the Al Project cycle is Mr. Randhawa in?

a) Problem Scoping (b) Data Acquisition (c) Modelling (d) Data Exploration

Competency-Based Questions

2. Students really took a good interest in Mr. Randhawa's Al project and now under his guidance, they are ready with 2-3 prototypes of the gesture-controlled robot. Out of these, only one is to be finalized and then Al algorithms are to be developed accordingly. Which stage has their Al project reached into?

a) Data Acquisition (b) Modelling (c) Data Exploration (d) Evaluation

Competency-Based Questions

3. After their dedicated efforts, Mr. Randhawa and his students are ready with their final product which is to be showcased to the manufacturers. Manufactures will test its accuracy and performance before commercially producing it. Which stage has their Al project reached?

(a) Data Acquisition b) Modelling (c) Data Exploration (d) Evaluation

Competency-Based Questions

4. Vijender has to maintain inventory on a daily basis, it usually takes 3-4 hours for a helper to take out raw material, which in turn delays the production cycle and also delays the updation of stock His manager has identified the problem and looking for a possible solution. This is the task under

(a) Problem Scoping (b) Data Evaluation c) Neural Network d) Data Exploration

5. Under the Sashakt Bharat Abhiyan, your state government wants to get deploy **Smart Speakers** for farmers. These smart speakers will be able to alert the farmers about the climate conditions, any emergency situations such as extreme winds or rains/squalls(आंधी), etc., and update farmers about the latest news and policies related to farming. So, the government wants to identify the issues that the smart speakers will address. This is being done under the stage of the Al Project Cycle

(a) Modelling

b) Problem Scoping

(c) Data Acquisition

(d) Data Exploration

6. After shortlisting some problems on which smart speakers will keep you updated, the government wants to zero upon one of two major farming problems to be addressed via smart speakers. This is being done to for the Smart Speaker Project.

(a) Collecting Data

(b) Set Goal

(c) Develop Model

(d)Clean Data

Problem Statement 1

7. **Lavanya** Industry is developing electricity-based vehicles (EV) for regular commuters, who travel by road because EVs are a better choice for vehicles. But the problem is that the EVs require recharging after some kms or hours as batteries lose charge. They look to develop a technological solution for charging-on-the go so that batteries never run out of charge.

7.1. Identity **WHO** for Problem Statement 1

a) Regular Commuters

b) Lavanya Industry

c) EVs

d) Technological Solutions

7. 2. Consider problem statement 1 and identify the WHERE Component of the problem

(a) Lavanya Industry

b) EVs Parking Station

c) Technological Solution

d) Roads

7. 3. Consider the problem statement I and identify the WHAT component of the problem,

a. The Evs are a better choice as vehicles.

b. EVs batteries lose charge soon and require recharging after every few kms/hours.

c. EVs are alternative energy vehicles, hence require a technological solution

d. All of these

7. 4. Consider the problem statement I and identify the WHY component of the problem,

a. The Evs are a better choice as vehicles.

b. Charging-on-the go to ensure batteries never run out of charge

c. Batteries require charging

d. All of these

COMPETENCY-BASED QUESTIONS

8. During the tough pandemic time, the data of vaccination drive is to be updated and shown regularly for each state and UT: Which of the following is the best way to show vaccination data of multiple states simultaneously?

(a) Line Chart (b) Scatter Chart (c) Bar Chart (d) Histogram

9. Government of India has to release its data about the yearly amount spent on Education in past 5 years. Which of the following is the best way to present this data visually?

- (a) Pie Graph (b) Scatter Chart (c) Bar Chart (d) Bubble Chart

10. During the Population control summit, you have to make a presentation about the increasing population of the world, the density of people, and its impact on natural resources. How would you present the world population showing each country's population along with their density ?

(a) Pie Chart (b) Heap map (c) Bar Chart (d) Bubble Chart

11. Pluto Company's to see how the prices of the most selling item have evolved in The past ten years. Which of the following is the best way to present this data visually ?

(a) Line Chart (b) Scatter Chart (c) Bar Chart (d) Pie Chart

12. Making a film or drama having multiple main characters puts added pressure on the production team. The team has to ensure that all the main characters get balanced screen time and a nearly equal share of dialogues. To ensure this, many production teams use some data visualization charts to ensure that the main characters get shared and represented. For instance, the makers of the popular sitcom 'FRIENDS' used a data visualization chart during shooting to ensure that every six characters have an equal number of jokes and dialogues. Which chart could it be to depict the share of dialogues for each of the main six characters?

(a) Pie Chart (b) Line Chart (c) Bar Chart (d) Bubble Chart

13 Global warming has become a major issue of concern and governments of all countries working towards it. At the global warming conference, as a student participant, you have to present the global surface temperature data given to you in the form of a chart/graph. Your graph/chart is serious and should track global surface temperatures from 1880 to the 2020s. Which chart type would you pick to show the trend of global surface temperatures?

(a) Line Chart (b) Histogram (c) Bar Chart (d) Pie Chart

14. In the national wellness meet, you have to represent the happiness score of each state visually in such a way so that just by looking at the data, its size is able to tell which state is happier than others. Which of the following would be the best way to show this?

(a) Line Chart (b) Scatter Chart (c) Bar Chart (d) Pie Chart

15. After representing the budget in the parliament, the government has released a chart/graph where the percentage share of the budget allocated is shown for different parameters such as military education, agriculture, women and child development, health & family welfare, and so forth. Which chart type could it be?

(a) Line Chart (b) Scatter Chart (c) Bar Chart (d) Pie Chart

16. The News Engines categorize articles on the same story from various online news outlets. For example, the results of state elections could be categorized under their label for National news (India). The news engine are based on _____ based systems.

A. **Rule-based**
B. **Unsupervised Learning**
C. **Supervised Learning**
D. **Reinforcement Learning**

17._____ learning, provides essential features to medical imaging devices, such as image detection, classification, and segmentation, used in radiology and pathology to diagnose patients quickly and accurately while having an eye for new pattern discoveries.

A. **Rule-based**
B. **Unsupervised Learning**
C. **Supervised Learning**
D. **Semi-supervised Rule**

18. Suppose you have a dog that is not so well trained. Every time the dog messes up the living room you reduce the amount of tasty foods you give it (punishment) and every time it behaves well, you double the tasty snacks (reward). What will the dog eventually learn? This concept signifies

_____ .

(a) Supervised learning

(b) Rule-based

(c) Unsupervised learning

(d) Reinforcement learning

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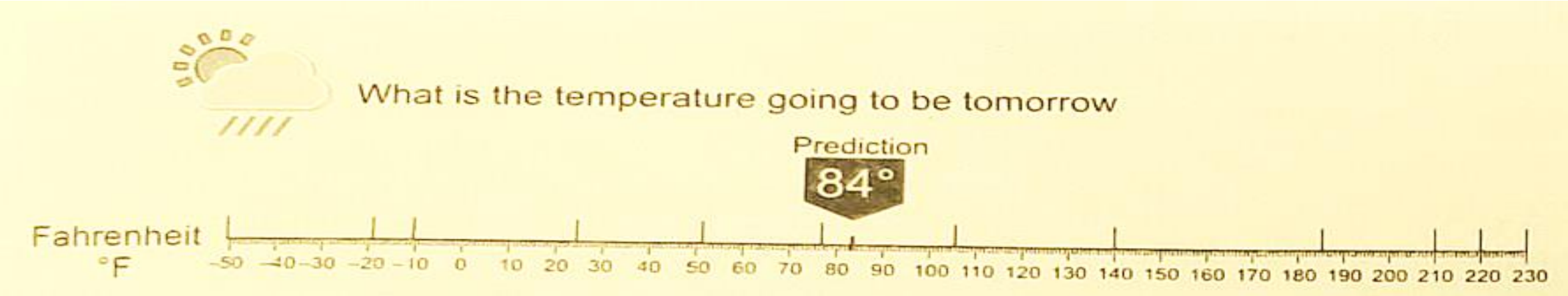
19. The problem listed in the image below can be answered _____through algorithm.



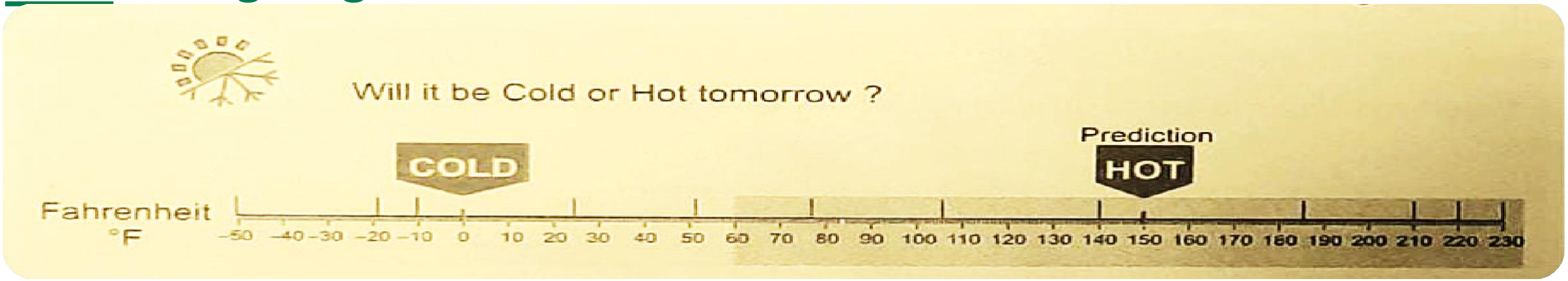
(a) Regression

(b) Classification

(c) Clustering

(d) Dimensionality Reduction

20. The problem listed in the image below can be answered ____through algorithm.



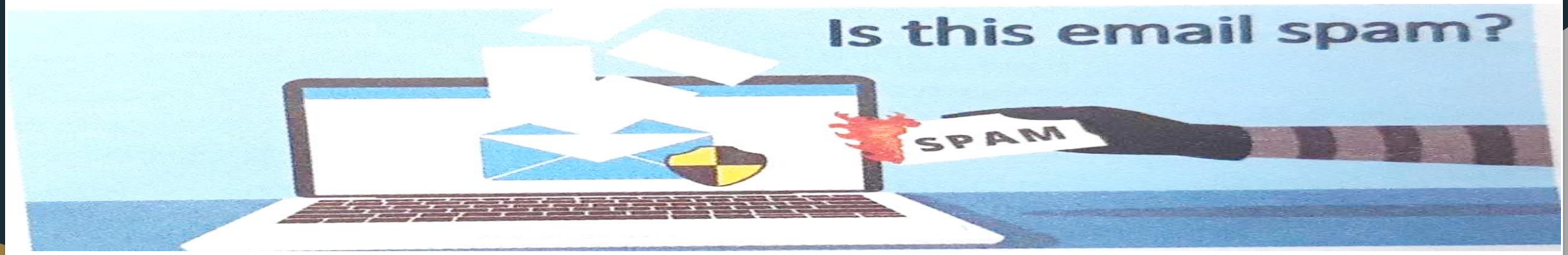
(a) Regression

(b) Classification

(c) Clustering

(d) Dimensionality Reduction

21. The Problem listed in the image below can be answered through _____ algorithm.



(a) Regression

(b) Classification

(c) Clustering

(d) Dimensionality reduction

22. Using past purchase behavior data, _____ can help to discover data trends that can be used to develop more effective cross-selling strategies. This is used to make relevant add recommendations to customers during the checkout process for online retailers.

(a) Supervised learning

(b) Rule-based learning

(c) Unsupervised learning

(d) Reinforcement learning

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23. To make correct predictions for the weather for a location, we need to take into account various continuous data parameters, including historical temperature data, precipitation, wind, humidity, and so on. This is required to find the prominent patterns as some earlier recognized set of patterns. For this, the _____supervised learning algorithm is very useful.

(a)Regression

(d) Dimensionality reduction

(b) Classification

(c) Clustering

Answer - COMPETENCY BASED – PROJECT CYCLE

1. Ans - a) Problem Scoping

2. Ans - b) Modelling

3. Ans - d) Evaluation

4. Ans - (a) Problem Scoping

5. Ans – Problem Scoping

6. Ans – (b) Set Goal

7.1. Ans (a) Regular Commuters & (b) Lavanya Industry

7.2. Ans (d) Roads

7.3 Ans – (b) EVs batteries lose charge soon and require recharging after every few kms/hours.

7.4 Ans – (b) Charging-on-the go to ensure batteries never run out of charge

8. Ans – (c)Bar Chart

9. Ans – (c)Bar Chart

10. Ans – (b) Heap Map

11.Ans –(a) Line Chart

12.Ans - (a) Pie Chart

13Ans –(a)Line Chart

14. Ans –(b)Scatter Chart

15.Ans –Pie Chart

16. ANS – (C) UNSUPERVISED LEARNING MODEL

17. ANS – Semi-Supervised Learning Model

18. ANS – Reinforcement Learning Model

19. ANS – Regression

20. ANS – Classification

21. ANS – Classification or Clustering

22. ANS –(c) Unsupervised learning

23. ANS - Regression