7. Weak Al is

o a set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans.

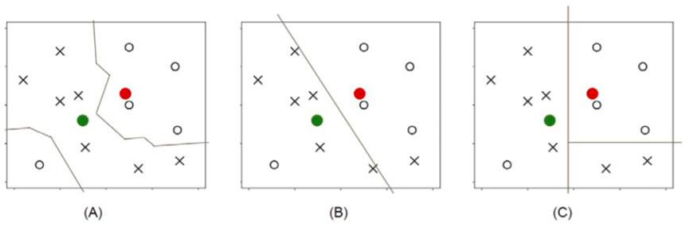
o the study of mental faculties through the use of mental models implemented on a computer.

O the embodiment of human intellectual capabilities within a computer.

o All of the above

4. Who is the "father" of artificial intelligence?
O John McCarthy O Fisher Ada O Allen Newell O Alan Turnina

2.c. (2 pts) Nearest Neighbor Classifier. (Write A, B, or C)



14. Choose the option**s** that are correct regarding machine learning (ML) and artificial intelligence

(A) ML is an alternate way of programming intelligent machines.

(B) ML and Al have very different goals.

(C) ML is a set of techniques that turns a dataset into a software.

(D) Al is a software that can emulate the human mind.

15. Classification problems are distinguished from estimation problems in that
A. O classification problems require the output attribute to be numeric.
B. O classification problems require the output attribute to be categorical.
C. C) classification problems do not allow an output attribute.
D. O classification problems are designed to predict future outcome.

28. Regression trees are often used to model ..... data.
A. O linear **B. O nonlinear** C. C) categorical D. C) symmetrical

1. List down use cases of support vector machines algorithms

- Used to detect cancerous cells
- Used to predict driving routes
- Face detection
- Image classification
- Handwriting detection

2. What is the difference between support vector machines and K-means algorithm ?

- **SVM** works with labeled data, whereas **K-means** does not require labeled data.
- **SVM** allows for non-linear classification, while **K-means** only performs linear classification

1. Choose the correct option:

Classification -> continuous data

Regression -> discrete data sets

Clustering -> unknown data set

Decision Tree -> Only discrete data

2. Suppose you have created a machine learning model which detects cat species. You tested the model in your development and test environemnt and it worked fine. You launched the code in production but there, some users are using the model to test kitten images. The model fails on kitten images. What can you do to fix it ?

Choose production as the only distribution and dont work with test or dev

Choose dev and test sets from the same distribution as production distribution

Choose dev and test from the same distribution

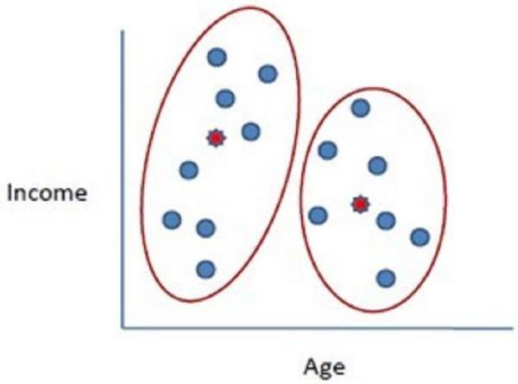
3. It is considered that Artificial Intelligence is the

Fourth industrial revolution

Third industrial revolution

Sixth industrial revolution

Fifth industrial revolution



4. What kind of algorithm is the following:

Mean shift clustering algorithm

Apriopi algorithm

K-Means algorithm

5. What is a Turing test in Artificial Intelligence?

Turing test determines if a machine is capable of thinking like a human being.

Turing test determines if a human is capable of thinking like a machine.

Turing test determines if a machine is capable of acting like super computers.

6. Prompt engineering impacts AI model's performance by:

Expanding its training data

Increasing its computational speed

Enhancing the relevance and accuracy of its responses

Changing its underlying algorithms

7. Amazon had been working on a recruitment tool which uses AI for decision making (meaning which candidate should be called for an interview). However, the machine-learning specialists uncovered a big problem: their new AI recruiting system prioritized CVs of men over women. For some reason, the system taught itself that male candidates were preferable over female candidates. It penalized resumes

that included the gender “women". This led to the failure of that tool. Theoretically speaking, what kind of problem was this ?

Data Exploration issue

Data Privacy issue

AI access issue

AI Bias issue

8. The transformer model, introduced in 'Attention is All You Need' (2017), is known for:

Reducing the need for large datasets

Its efficiency in processing sequential data

Simplifying neural network architectures

Its application in robotics

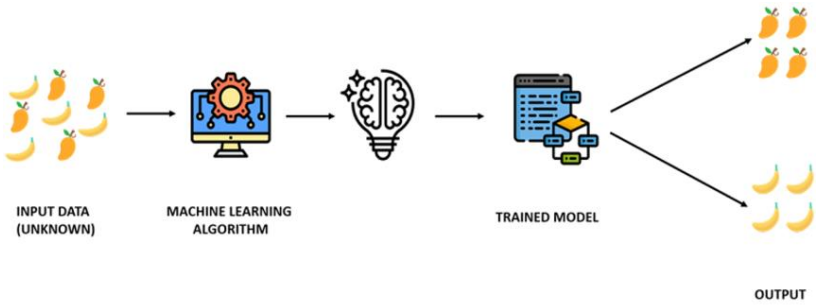
9. In AI, what is the 'singularity' often referred to?

The convergence of different AI technologies

The point where AI surpasses human intelligence

The creation of the first AI model

10. Which type of machine learning is shown in this image ?



Supervised learning

Reinforcement learning

Recomender systems

Unsupervised learning

11. Which of these is a key feature of 'Large Language Models' like GPT and BERT?

They are capable of understanding and generating human-like text

They are mainly used for image recognition tasks

They have a limited token range for processing language

They primarily focus on structured data analysis

12. What does a classification model do?

Predicts real number responses such as changes in temperature, date, or time

Predicts the class of the data

None of the above

Clusters responses in groups based on similarity, to find patterns

13. Which of the following is a key characteristic of a transformer model in natural language processing?

It is based on Naive Bayes classification.

It relies on an attention mechanism.

It uses reinforcement learning.

It primarily utilizes decision trees.

14. You want to improve sales of your online store. You realize that people who buy books also buy pencils. This is just a theory but you want to test it out. What kind of algorithms can you use to try this out?

Clustering algorithms

Supervised algorithms

Association algorithms

15. The correlation between the number of years an employee has worked for a comany and the salary of the employee is 0.75. What can be said about employee salary and years worked ?

There is no relationship between salary and years worked

Individuals that have worked for the company the longest have higher salaries

The majority of employees have been with the company a long time

Individuals that have worked for the company the longest have lower salaries

16. Chatbots and Voice assistants (Siri, Alexa, Google assistant) are examples of:

Super AI

Narrow AI

General AI

17. Regression models are used with

Continuous data

Random data

none of the above

18. What is the maximum number of hyperplanes one can use

n dimensional

3 dimensional

2 dimensional

10 dimensional

19. What is the primary function of the K-means algorithm in machine learning?

Clustering

Classification

Regression

Reinforcement Learning

20. Suppose you are given a data set of customer complaints in Norwegian. The data set is labelled. You are now given a task to understand how angry or happy the customers are in those complaints. What kind of algortihms would you use ?

Classification

Regression

Clustering

21. While working with creating Artificial Intelligence applications, In which area do AI programmers spend most of their time ?

A.I programming

ML OPS

Model development

Data processing (cleaning, labeling etc)

22. Algorithm which does not consider relationships between features is:

Logistic regression

Linear regression

Support vector machines

Naive Bayes

23. Where do we primarily use data labeling ?

Reinforcement learning

Supervised learning

Unsupervised learning

24. Infrared sensors detect infrared energy that is emitted by one's body heat. When hands are placed in the proximity of the sensor, the infrared energy quickly fluctuates. This fluctuation triggers the pump to activate and dispense the designated amount of sanitizer. This is an example of:

Automated machine

AI machine

Deep Learning machine

25. Choose the correct option:

Regression -> discrete data sets

Decision Tree -> Only discrete data

Classification -> continuous data

Clustering -> unknown data set

26. The figure below an example of :

Feature engineering Data labeling

Data annonimization Synthetic data generation

27. Which country got the most private investments (for startups) in Artifical Intelligence (in 2018) in terms of per capita (dollar per person) ?

China

Israel

Unites states

Singapore

28. What kind of algorithm assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature

Linear regression

Polynomial regression

Naive Bayes algortihm

Logistic regression

29. Which of the following is a common use of unsupervised learning?

Detect outliers

Determine if meaningful relationships can be found in a dataset

Evaluate the likely performance of a supervised learning model

Determine a base set of inoput attributes for supervised learning

30. hat is TRUE for a machine learning algorithm ?

It is harder to train the first 90% than the remaining 10%

None of the above.

It is harder to train the remaining last 10% than the first 90%

31. Suppose you are given a data set of X ray images of covid patients. The data set is not labelled and you dont have the opportunity to label it. You are now given the task to identify if the patient has covid or not. What kind of algortihm would you use ?

Clustering

Classification

Regression

32. Supose you are given the task to predict the high price for Tesla stock for the next day. You need data for atlast 15 years and you only have data for the last 5 years. How will you get that missing data ?

Data annonimization

Feature engineering

Synthetic data

Data warehousing

33. Identify which of the following is incorrect about the unsupervised learning-based model.

It lets make predictions and improves the algorithms on its own.

The algorithm itself analyzes the data set and determines relationship within that data.

The labelled data is fed with some rules by the developers.

We can provide a very large data set.

34. The output of a sigmoid function (for classification algoithms) has a range from

0 to 1

0 to 10

0 to 100

0 to 1000

35. which statement is true about outliers ?

Outliers should be identified and removed from the data set

Outliers should be part of the test data set but should not be present in the training data

Outliers should be part of the training data set but should not be present in the test data

The nature of the problem determines how outliers are used

36. You have a data set for 1 million entries. For practical reasons, you do not have the time to label this data set. You need to find relationships between the data. What kind of technique will you use?

Association

Classification

Clustering

Supervised algorithms

37. Suppose that you are given the previous tax information of all individuals and you now have to develop an algorithm which predicts how much tax will they submit next year. Which type of algorithm would you use ?

Regression

Classification

Association

Clustering

38. What does the term 'overfitting' refer to in machine learning?

When a model performs too well on the training data but poorly on new data

When a model is too simple to capture the underlying pattern

When a model performs poorly on the training data

When a model requires excessive computational resources

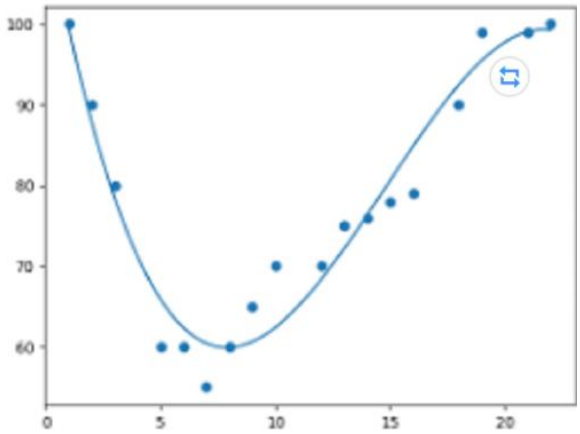
39. Logistic regression is a ____ regression technique that is used to model data having a ____ outcome.

nonlinear, binary

linear, numeric

nonlinear, numeric

linear, binary



40. The following image is an example of

Linear regression

Polynomial regression

41. While creating an A.I algorithm, you need some data which does not exist. Which method will you use to obtain this data ?

Data preparation

Feature engineering

Synthetic data

Data anonimization

42. The process of collecting new attributes from an existing data (to train a machine learning model) is called:

Data labeling

Data mining

Feature engineering

Data wrangling

43. What is 'Prompt Engineering' in the context of AI?

The design and input of instructions to an AI model

The method of programming AI algorithms

The technique of optimizing AI model parameters

The process of building AI hardware

44. In Machine learning, Linear Regression falls within the category of:

Supervised learning

Recommender systems

Reinforcement learning

Unsupervised learning

45. Suppose you have to build a machine learning model to predict the price of housing market in Norway. What kind of models would you choose?

Classification models

Regression models

Reinforcement models

46. Is it normal to use the 70% train and 30% test data ratio when data set is big ?

Yes

No

47. What type of A.I is a recommendation system? (e.g used by Facebook, Amazon, Netflix etc)

Super A.I.

Narrow A.I.

General A.I.

48. The major reason behind the increased use of Artifical intelligence today is due to

Cloud computing

Powerful processors

Availability of increased data

Increased connectivity between devices

All of the above

49. What is NOT valid for a hyperplane ?

Hyperplanes work with support vector machines

They are boundaries that help classify data points

We can only use maximum 2 hyperplanes for any number of features

50. What is a Generative Adversarial Network (GAN)?

A database management system

A network for optimizing data storage

A pair of neural networks competing to improve data generation

A tool for analyzing large language models

51. In the context of AI, what does the term 'GAN' stand for?

General Algorithm Network

Generative Adversarial Network

Generic AI Node

Global Analysis Network

52. What is a 'token' in the context of Natural Language Processing (NLP)?

An algorithm used for language translation

A basic unit of text, such as a word or a part of a word

A type of neural network architecture

A method for encrypting text data

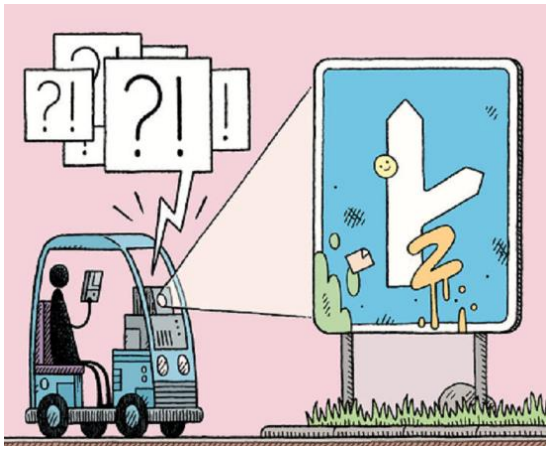
53. Choose the correct order of an AI project cycle.

Problem Scoping -> Data Acquisition -> Data Exploration -> Modelling -> Evaluation

Evaluation -> Problem Scoping -> Data Exploration -> Data Acquisition -> Modelling

Data Acquisition -> Problem Scoping -> Data Exploration -> Modelling -> Evaluation

Problem Scoping -> Data Exploration -> Data Acquisition -> Evaluation -> Modelling



54. In the following image the self driving car came to an abrupt stop. What do you think went wrong ?

The smiley face picture on the board is interpreted as a human face and the car cannot move

The human took the floppy drive out of the car and the car cannot move

Self driving cars have problems with blue color

A handful of stickers and graffitii have confused the car to misinterpret the sign

55. A data point which differs significantly from other observed data points is called

Synthetic data

Labelled data

Outlier

56. The type of machine learning which enables an agent to learn on its own through trial and error is called:

Recommender systems

Supervised learning

Unsupervised learning

Reinforcement learning

57. Which one of the following is the largest and fastest growing sector for AI-related global investment (2018-2019)?

Drug, cancer study

Facial Recognition

Autonomous driving

Robotic automation