

1. Machine learning algorithms build a model on sample data, known as .....

  - a. Training data
  - b. Transfer data
  - c. Data training
  - d. None of the above

2. Machine learning is a subset of .....

  - a. Deep learning
  - b. Data learning
  - c. Artificial Intelligence
  - d. All of the above

3. .... algorithms enable the computers to learn from data, and even improve themselves, without being explicitly programmed.

  - a. Deep learning
  - b. Machine learning
  - c. Artificial Intelligence
  - d. None of the above

4. Common classes of problems in machine learning is/are

  - a. Clustering
  - b. Regression
  - c. Classification
  - d. All of the above

5. Which of the following is true about cost function?

  - a. Lower is better
  - b. Higher is better
  - c. A or B depend on the situation
  - d. None of these

6. In regression analysis, the variable that is being predicted is .....

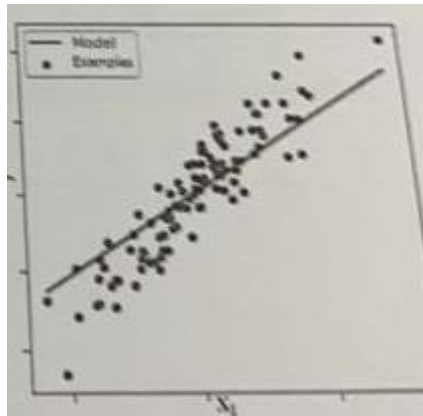
  - a. The independent variable
  - b. The dependent variable
  - c. Usually denoted by x
  - d. Both independent and dependent variable

7. Which of the following is true about classification problem?

  - a. The data is labelled into two or more classes
  - b. Require the prediction of quantity

- c. Both a) and b)
  - d. None of the above
8. Machine learning is used when .....
- a. The system is dynamically adaptable
  - b. Models are based on huge data
  - c. Human expertise does not exist
  - d. All of the above
9. Unsupervised learning is one of the learning approached in ML that can be used for .....
- a. Classification
  - b. Regression
  - c. Dimensionality reduction
  - d. a) and b)
10. The set of parameters that are selected based on their influence on the model architecture are called .....
- a.  $\theta^T$
  - b. Coefficients
  - c. Hyperparameters
  - d. All of the above
11. In the regression equation  $y = \theta_0 + \theta_1 x$ .  $\theta_1$  is .....
- a. The slope of the line
  - b. An independent variable
  - c. The intercept
  - d. The value of the feature
12. Which of the following is True about Feature Scaling?
- a. It refers to the process of removing noisy data.
  - b. It is not necessary if the data plot is skewed.
  - c. It helps making the data dimensions of almost the same scale.
  - d. All of the above
13. If the cost function is convex, then it converges to .....
- a. Global maximum
  - b. Global minimum
  - c. Local minimum
  - d. Local maximum

14. Consider the figure below, what type of regression does it represent?



- a) Linear regression
- b) Logistic regression
- c) Polynomial regression
- d) None of the above

- How many coefficients do you need to estimate its value, in a simple linear regression model (with one feature)?

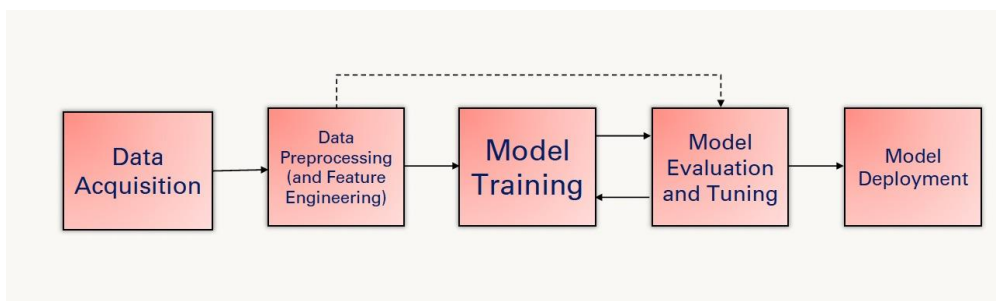
2 coefficients

- What is semi-supervised learning?

➤ What is **Semi-supervised** learning?

- Supervised learning + Additional unlabeled data
- Unsupervised learning + Additional labeled data

- What is the Learning process (workflow)?



- In which case we should use polynomial regression rather than linear regression?

Polynomial regression is useful as it allows us to fit a model to nonlinear data. Therefore, it is used when the relationship between dependent and independent is nonlinear

- In the context of logistic regression, what is the use of the sigmoid function? And what is the range of returned values?

For logistic regression, sigmoid function is used as the squashing function. The function returns a value between 0 and 1. Thus, it is used to map predicted values to probabilities and the range of returned value is between zero and one.

- Which type of the learning methodologies is appropriate for the following scenarios?
  - Grouping of similar customers for a certain business. (Clustering (Unsupervised Learning))
  - Calculation of the expected price of a stock in the stock market. (Regression (Supervised Learning))
  - Recommending new song based on someone's past music choices. (Classification (Supervised Learning))
  - Diagnosing some disease based on some previous patient cases. (Classification (Supervised Learning))