

ML, **DL** Questions

- 1. How you can define Machine Learning?
- 2. What do you understand Labelled training dataset?
- 3. What are 2 most common supervised ML tasks you have performed so far?
- 4. What kind of Machine learning algorithm would you used to walk robot in various unknown area?
- 5. What kind of ML algo you can use to segment your user into multiple groups?
- 6. What type of learning algo realised on similarity measure to make a prediction?
- 7. What is an online learning system?
- 8. What is out of core learning?
- 9. Can you name couple of ml challenges that you have faced?
- 10. Can you please give 1 example of hyperparameter tuning wrt some classification algorithm?
- 11. What is out of bag evaluation?
 - What do you understand by hard & soft voting classifier?
- 13. Let's suppose your ML algorithm is taking 5 min time to train, How will you bring down time to 5 second for training? (Hint: Distributed Computation)
- 14. Let's Suppose I have trained 5 diff model with same training dataset & all of them have achieved 95% precision. Is there any chance that you can combine all these models to get better result? If yes, How? If no, Why?
- 15. What do you understand by Gradient decent? How will you explain Gradient decent to a kid?
 - Can you please explain diff between regression & classification?
 - Explain a clustering algorithm of your choice.
 - How you can explain ML, DL, NLP, Computer vision & reinforcement learning with example in your own terms?
- 19. How you can explain semi-supervised ML in your own way with example?
- 20. What is difference between abstraction & generalization in your own word.
- 21. What are the steps that you have followed in your last project to prepare the dataset?
 - In your last project what steps were involved in model selection procedure?

- 23. If I give you 2 columns of any dataset, what will be the steps will be involved to check the relationship between those 2 columns?
- 24. Can you please explain 5 diff kind of strategies at least to handle missing values in dataset?
- 25. What kind of diff. issues you have faced wrt your raw data? At least mention 5 issues.
 - What is your strategy to handle categorical dataset? Explain with example.
- 27. How do you define a model in terms of machine learning or in your own word?
- 28. What do you understand by k fold validation & in what situation you have used k fold cross validation?
 - What is meaning of bootstrap sampling? explain me in your own word.
 - What do you understand by underfitting & overfitting of model with example?
 - What is diff between cross validation and bootstrapping?
 - What do you understand by silhouette coefficient?
 - What is the advantage of using ROC Score?
- 34. Explain me complete approach to evaluate your regression model
 - Give me example of lazy learner and eagar learner algorithms example.
 - What do you understand by holdout method?
 - What is diff between predictive modelling and descriptive modelling.
 - How you have derived a feature for model building in your last project?
 - Explain 5 different encoding techniques.
 - How do you define some features are not important for ML model? What strategy will you follow
 - What is difference between Euclidian distance and Manhattan distance. Explain in simple words.
 - What do you understand by feature selection, transformation, engineering and EDA & What are the steps that you have performed in each of these in detail with example.
 - What is difference between single values decomposition (SVD) and PCA? (hint: SVD is one of the way to do PCA)
 - What kind of feature transformations you have done in your last project?
- 45. Have you taken any external feature in any of project from any 3rd party data? If yes, explain that scenario.
 - If your model is overfitted, what you will do next?
 - Explain me bias variance trade-off.

- What steps would you take to improve accuracy of your model? At-least mention 5 approach. And justify why would you choose those approach
- Explain process of feature engineering in context of text categorization.
- Explain vectorization and hamming distance.
- Can you please explain chain rule and its use?
- What is difference between correlation and covariance?
- What are the sampling techniques you have used in your project?
- Have you ever used Hypothesis testing in your last project, if yes, explain How?
- In which case you will use naïve Bayes classifier and decision tree separately?
- What is the adv & disadvantage of naïve Bayes classifier, explain
- In case of numerical data what is naïve Bayes classification equation you will use?
- Give me scenario where I will be able to use a boosting classifier and regressor?
- In case of Bayesian classifier what exactly it tries to learn. Define its learning procedure.
- Give me a situation where I will be able to use SVM instead of Logistic regression.
- What do you understand by rbf kernel in SVM?
- Give me 2 scenarios where AI can be used to increase revenue of travel industry.
- What do you understand by leaf node in decision tree?
- What is information gain & Entropy in decision tree?
- · Give disadvantages of using Decision tree
- List some of the features of random forest.
- How can you avoid overfitting in decision tree?
- Explain polynomial regression in your own way.
- Explain learning mechanism of linear regression.
- What is the cost function in logistic regression?
- What is the error function in linear regression?
- What is the use of implementing OLS technique wrt dataset?
- Explain dendrogram in your own way.
- How do you measure quality of clusters in DBSCAN?
- How do you evaluate DBSCAN algorithm?
- What do you understand by market basket analysis?
- Explain centroid formation technique in K Means algorithm.
- Have you ever used SVM regression in any of your project, If yes, Why?
- Explain the concept of GINI Impurity.
- Let's suppose I have given you dataset with 100 column how you will be able to control growth of decision tree?
- If you are using Ada-boost algorithm & if it is giving you underfitted result What is the hyperparameter tuning you will do?
- Explain gradient boosting algorithm.
- Can we use PCA to reduce dimensionality of highly non-linear data.

- How do you evaluate performance of PCA.
- Have you ever used multiple dimensionality techniques in any project? if yes, give reason. If no, where can we use it?
- What do you understand by curse of dimensionality explain with help of example
- What is the difference between anomaly detection and novelty detection
- Explain gaussian mixture model.
- Give me list of 10 activation functions with explanation
- Explain neural network in terms of mathematical function
- Can you please corelate a biological neuron and artificial neuron?
- Give list of cost functions you heard of, with explanation.
- Can I solve problem of classification with tabular data in neural network?
- What do you understand by backword propagation in neural network?
- Why do we need neural network instead of straight forward mathematical equation?
- What are the different weight initialization techniques you have used?
- Can you visualize a neural network? if yes provide name of software we can use?
- How will you explain training of neural network?
- Can you please explain difference between sigmoid & tanh function.
- 100. Explain disadvantage of using RELU function.
- 101. How do you select no. of layers & no. of neurons in neural network?
- 102. Have you ever designed any Neural network architecture by yourself?
- 103. Can you please explain SWISS Function?
- 104. What is learning rate in laymen way and how do you control learning rate?
- 105. What is diff between batch, minibatch & stochastic gradient decent.
- 106. What do you understand by batch size while training Neural N/w with example
- 107. Explain 5 best optimizer you know with mathematical explanation.
- 108. Can you build Neural network without using any library? If yes, prove it.
- 109. What is use of biases in neural network?
- 110. How do you do hyper-parameter tuning for neural network
- 111. What kind of regularization you used wrt neural network.
- 112. What are the libraries you have used for neural network implementation?
- 113. What do you understand by custom layer and a custom model?
- 114. How do you implement differentiation using TensorFlow or Pytorch library?
- 115. What is meaning of epoch in simple terms?
- 116. What do you understand by a TensorFlow record?
- 117. Explain the technique for doing data augmentation in deep learning
- 118. List down diff CNN network you heard of.
- 119. List down a names of object detection algorithm you know
- 120. What is difference between object detection and classification?

- 121. List down major tasks we perform in CNN.
- 122. List down algorithms for segmentation
- 123. Which algorithm you can use to track a football in football match.
- 124. If I give you a satellite image data, so which algo you will use to identify image from those image data
- 125. Which algorithm you will use for PCB fault detection.
- 126. What do you understand by pretrained model?
- 127. Explain different types of transfer learning.
- 128. Explain me where your CNN network will fail with example. And where we can use RNN network.
- 129. Which GPU you have been using to train your object detection model?
- 130. How much data set you have used for this model, what was epoch, time and accuracy of the model
- 131. What kind of optimization you have done for training object detection model
- 132. How do you evaluate your object detection model?
- 133. List down algorithm for object tracking
- 134. What do you understand by FPS (frame per second)?
- 135. Can you please explain 2D & 3D convolution?
- 136. What do you understand by batch normalization?
- 137. Which algorithm you use for detecting handwriting detection?
- 138. Explain me SoftMax function.
- 139. What is disadvantage of using RNN?
- 140. List down at least 5 RNN?
- 141. Explain architectural diagram of LSTM, Also list Adv & dis adv
- 142. Explain architectural diagram of BI LSTM, Also list Adv & dis adv
- 143. Explain architectural diagram of stacked LSTM. Also list Adv & dis adv
- 144. What do you understand by TF-IDF
- 145. How you will be able to create a Word 2 vector of your own
- 146. List down at least 5 vectorization technique.
- 147. What is difference between RNN and Encoder-Decoder.
- 148. What do you understand by attention mechanism and what is use of it
- 149. Have you read a research paper Attention you all need? If not, then why you are claiming you know NLP
- 150. What do you understand by multi headed attention? explain