<https://github.com/iNeuronai/interview-question-data-science->

**QUESTIONS**

1. Tell me about yourself
2. Why you want to switch your current job
3. What is your notice period time it it negotiable?

**Python**

1. **OOP-->**
   1. What happen when we create multiple init function or constructor.
   2. Decorator, generator,iterator, lambda, function overloading(if create eg. Emp1, emp2)
2. **Pandas** --> melt, merge,pivot, groupby (pivot vs groupby )
3. **ML**
   1. Regression--> loss function, r2score, regularization
   2. Svm ,DT, random forest
   3. Confunsion matrix with 3 class
   4. Precision , recall, f1 score ,roc auc
   5. Preprocessing , pipline
4. **DL**
   1. How to decide the number of neuron in input layer?
   2. How to decide the number of neuron in output layer?
   3. What is activation,loss,optimizer, function? Usecase , advantage, disadvantage
   4. IN regression problem which activation function use as a output layer?
   5. Gradient vanishing (how to slove )
   6. How to decidel number of neural network in hidden layer
   7. How to decidel number of hidden layer in DL
5. Sql connector or sql alcamy
6. How to teach power-bi for non tech students (demo)
7. SQL--> engine
   1. Trigger
   2. Store procedures

**introductions**

Myself XXXXX I am currently at okhla vihar delhi. Currenlty I am working as a data sicence trainer at xxxxxx company. I am in working from last 5years So I teach varous of technology like python, django , data analytics tools like(excel powerbi, sql , tableau) and in machine learning/ Deep learining libraries(like np,pd, matplotlib, sklearn, tensorflow)skills.

Over the years, I have had the privilege of training a diverse group of learners, from beginners to professionals who switch ther carrer in it sector, in various aspects of data science, including data cleaning, statistical analysis, predictive modeling, and artificial intelligence.

**My expertis**e spans a variety of programming languages and tools such as Python, R, SQL, Tableau, and TensorFlow, enabling me to tailor training sessions to meet the specific needs of each audience. I take a hands-on approach to teaching, ensuring that my students not only understand the theoretical foundations of data science but also gain practical experience in real-world applications.

Throughout my career, I've worked with numerous clients and students, empowering them to leverage data for smarter decision-making and innovative solutions. I am constantly exploring new trends in the field of data science and strive to bring the latest insights and techniques into my training materials.

**why you are switch current company**

While I have enjoyed my role as a Data Science Trainer at my current company, I am looking for new opportunities where I can take on more challenges and continue to grow professionally. Although my current position has provided me with valuable experiences, I believe that switching to a new organization will allow me to explore different learning environments, work with diverse teams, and broaden my impact as an educator.

I'm excited about the potential to bring my skills and passion for data science training to a new team while continuing to evolve in the field. I value opportunities that will push me to develop new teaching methods, stay at the forefront of emerging trends in data science, and inspire more learners to succeed in this ever-evolving field.

Python -->decorators,function overloading (example emp1,emp2 obj create),what happen when use multiple init funtions

Pandas--> pivot, melt ,merge, groupby, desc(object)

Confusion matrix with 3class

Regression NN

**HOW TO DECIDE THE NUMBER OF NEURON IN INPUT LAYERS**

- The number of neurons in the **input layer** is determined by the number of features (independent variables) in your dataset.

The number of neurons in the **input layer** is determined by the number of features (independent variables) in your dataset. Here's how you decide:

### ****General Rule:****

Number of input neurons = Number of features

### ****Steps to Determine Input Layer Neurons:****

**Identify Features**

* 1. If you have a dataset with nnn input features (e.g., age, salary, experience), the input layer must have nnn neurons.

**Include All Relevant Features**

* 1. Ensure all necessary features are included and properly preprocessed (e.g., normalization, encoding categorical data).

**Example Cases:**

* 1. If you have a dataset with **10 features**, the input layer should have **10 neurons**.
  2. If you are dealing with images of size **28x28 (grayscale)**, the input layer should have **28 × 28 = 784 neurons** (flattened pixel values).

### ****Special Considerations:****

* **Text/NLP Models** → Number of neurons depends on the word embeddings or sequence length.
* **Time-Series Models** → Number of neurons depends on the number of time steps and features per step.
* **CNN Models** → The input layer is typically a feature map instead of a fully connected layer.

Would you like help determining the input neurons for a specific dataset?

**====================================**

**What is the activation function for regression output?**

For regression tasks, the activation function used in the output layer depends on the type of regression you are performing:

**Linear Activation (Identity Function)** f(x)=xf(x) = xf(x)=x

* 1. This is the most common activation function for regression outputs.
  2. It allows the network to predict any real-valued number.
  3. Suitable for tasks like predicting house prices, stock prices, or any continuous output.

**ReLU (Rectified Linear Unit)** f(x)=max⁡(0,x)f(x) = \max(0, x)f(x)=max(0,x)

* 1. Sometimes used if the output should be non-negative, e.g., predicting age or count

**Sigmoid** f(x)=11+e−xf(x) = \frac{1}{1 + e^{-x}}f(x)=1+e−x1

* 1. Only used for regression tasks where the output is constrained between 0 and 1.

**Softplus** f(x)=ln⁡(1+ex)f(x) = \ln(1 + e^x)f(x)=ln(1+ex)

* 1. Used when you want a smooth, strictly positive output.