**Date:03-June-2024**

**Interview Questions: Project-195**

**Python**

1. How do you create a virtual environment in Python, and why is it useful?
2. What is the difference between @staticmethod and @classmethod in Python?
3. Explain the concept of list comprehensions and provide an example.
4. How does Python's garbage collection mechanism work?
5. What is the Global Interpreter Lock (GIL) in Python, and how does it affect multithreading?

**SQL**

1. How do you use the JOIN clause in SQL? Explain with examples of different types of joins (INNER, LEFT, RIGHT, FULL).
2. What is the difference between GROUP BY and ORDER BY in SQL?
3. Explain the concept of database normalization. What are the normal forms?
4. How can you optimize a SQL query for better performance?
5. What are indexes in SQL, and how do they improve query performance?

**Deep Learning**

1. What is the difference between a convolutional neural network (CNN) and a recurrent neural network (RNN)?
2. Explain the concept of backpropagation and how it works in training neural networks.
3. What is the vanishing gradient problem, and how can it be addressed?
4. How does dropout work in deep learning models, and what problem does it solve?
5. What are Generative Adversarial Networks (GANs), and how do they function?