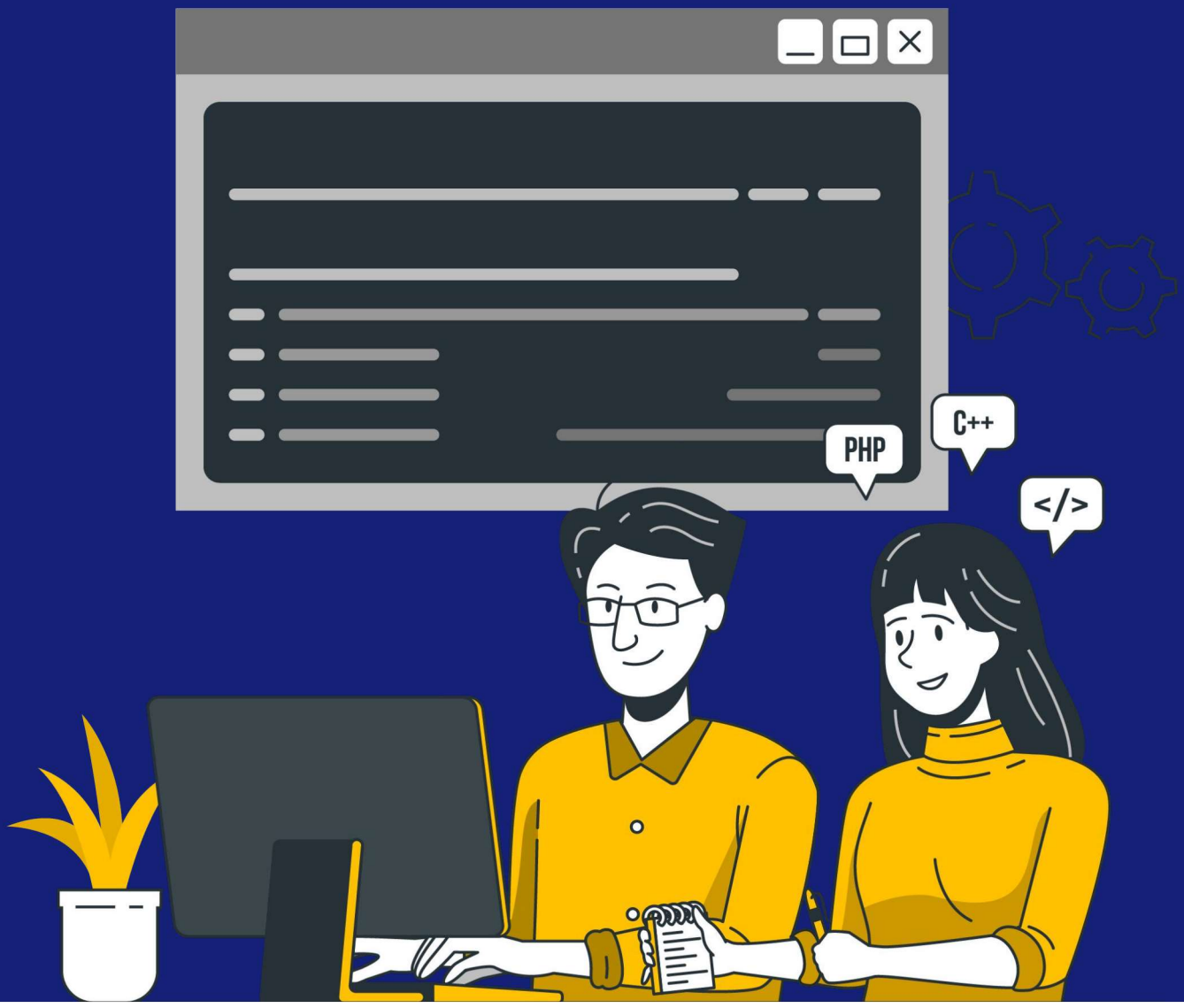
PW SKILLS

Files & Exceptional Handling

Assignment questions



1. Discuss the scenarios where multithreading is preferable to multiprocessing and scenarios where multiprocessing is a better choice.

2. Describe what a process pool is and how it helps in managing multiple processes efficiently.

3. Explain what multiprocessing is and why it is used in Python programs.

4. Write a Python program using multithreading where one thread adds numbers to a list, and another thread removes numbers from the list. Implement a mechanism to avoid race conditions using threading.Lock.

5. Describe the methods and tools available in Python for safely sharing data between threads and processes.

6. Discuss why it's crucial to handle exceptions in concurrent programs and the techniques available for doing so.

7. Create a program that uses a thread pool to calculate the factorial of numbers from 1 to 10 concurrently. Use concurrent.futures.ThreadPoolExecutor to manage the threads.

8. Create a Python program that uses multiprocessing.Pool to compute the square of numbers from 1 to 10 in parallel. Measure the time taken to perform this computation using a pool of different sizes (e.g., 2, 4, 8 processes).