Day-13 Assignment Questions:-Part-1

1. Write a Java program to demonstrate multithreading by extending the Thread class.
--->Create a class MyThread that extends Thread.
--->Override the run() method to display the thread name and a message five times with a delay of 500 milliseconds between prints.
--->In the main() method, create two objects of MyThread and start them.
--->Each thread prints its message independently, showing concurrent execution.

2. Write a Java program to create a thread using the Runnable interface.
--->Create a class TaskRunner that implements Runnable.
--->Inside the run() method, print the current thread name and a task-specific message 10 times with a delay of 1000ms.
--->In the main() method, create two Thread objects passing different TaskRunner instances and start both threads.
--->The console should reflect the concurrent execution of both tasks.

3. Write a Java program where one thread prints only even numbers and another prints only odd numbers from 1 to 20. Synchronize the threads so that they print alternately (i.e., 1 2 3 4 ...).

4. Create a Java program with a shared counter. Spawn 3 threads, where each thread increments the counter 1000 times. Use synchronization to avoid race conditions and display the final value.

5. Implement a basic producer-consumer problem using wait() and notify().
--->Producer thread should add items to a shared buffer.
--->Consumer thread should remove items.
Ensure the buffer size is limited to 5 items.. Use Threads to implement the ATM machine, where create thread to check the PIN number, another thread to perform the cash withdrawal, another one to check the balance amount and print the receipt.