1. Simulate *Simple Task Scheduling in Cloud using Java*

Objective:
To simulate basic task scheduling in a cloud environment using Java, where tasks are submitted and executed in a First-Come-First-Serve (FCFS) order, demonstrating the fundamentals of cloud job scheduling.

📋 **Requirements:**

- Java (JDK 8 or higher)
- Any IDE or compiler (Eclipse, IntelliJ, NetBeans, or Terminal)

🔁 **Algorithm / Steps:**

1. **Start the program.**
2. **Create a Task class** with:
    - Task ID
    - Execution time (in milliseconds)
    - A method to simulate task execution using Thread.sleep()
3. **Create a CloudServer class** that:
    - Maintains a queue of tasks (FIFO)
    - Provides methods to submit tasks and execute all tasks
4. **In the main method:**
    - Instantiate the CloudServer object.
    - Create multiple Task objects with different execution times.
    - Submit all tasks to the cloud server.
5. **Execute tasks one by one in the order they were submitted (FCFS).**
6. **Print messages during submission and execution.**
7. **End the program.**

```
import java.util.*;

class Task {
   int id;
   int executionTime; // in milliseconds

   public Task(int id, int executionTime) {
      this.id = id;
      this.executionTime = executionTime;
   }

   public void execute() {
      System.out.println("Executing Task ID: " + id + " | Time required: " + executionTime + "ms");
      try {
         Thread.sleep(executionTime); // simulate execution delay
      } catch (InterruptedException e) {
         System.out.println("Task execution interrupted.");
      }
```

```
        System.out.println("Task ID: " + id + " completed.\n");
    }
}

class CloudServer {
    Queue<Task> taskQueue = new LinkedList<>();

    public void submitTask(Task task) {
        taskQueue.add(task);
        System.out.println("Task ID " + task.id + " submitted to cloud.");
    }

    public void executeAllTasks() {
        System.out.println("\n--- Cloud Execution Started ---\n");
        while (!taskQueue.isEmpty()) {
            Task task = taskQueue.poll();
            task.execute();
        }
        System.out.println("--- Cloud Execution Finished ---");
    }
}

public class SimpleCloudSimulator {
    public static void main(String[] args) {
        CloudServer cloud = new CloudServer();

        // Create some sample tasks
        Task task1 = new Task(1, 1000); // 1 second
        Task task2 = new Task(2, 1500); // 1.5 seconds
        Task task3 = new Task(3, 500);  // 0.5 seconds

        // Submit tasks to cloud
        cloud.submitTask(task1);
        cloud.submitTask(task2);
        cloud.submitTask(task3);

        // Execute all tasks (FCFS)
        cloud.executeAllTasks();
    }
}
```