Data Structures Course

Gaming-Based Logic Exercise Sheet

Student Name: _____

Roll Number: _____

Instructor: _____

Date: _____

Imagine you are working as a **Game Developer** for a new online multiplayer game. The game tracks players' scores, levels, and achievements. As part of the development team, you have been assigned the task of implementing the **core data handling features** of the game, such as managing scores, sorting leaderboards, and performing quick searches for player data.

These features are critical because:

- Players need **real-time score updates**.

- The game should show a **leaderboard sorted by scores**.

- Bonus levels and rewards depend on **prime numbers, factorials, and Fibonacci series logic**.

Your job is to **write efficient algorithms and programs** to implement these features using **Data Structures concepts** like arrays, searching, and sorting.

Motivation for Students:
By solving these problems, you will:

✔ Learn **how arrays, loops, and conditional logic apply to real-world gaming systems**.

✔ Understand **why efficiency matters** in games where millions of players interact simultaneously.

✔ Gain practical experience in **searching, sorting, and number-based algorithms** that are common in software engineering interviews.

✔ Develop **problem-solving skills** by implementing the backbone logic of a gaming platform.

Note: Write the Algorithm, Program Code and output of the following questions.

Q1: Find the Highest Score in a Game

Q2: Find the Lowest Score in a Game

Q3: Calculate Total Points

Q4: Reverse Player Turn Order

Q5: Search for a Player's Score

Q6: Calculate Average Score

Q7: Count Even and Odd Scores

Q8: Swap Player Positions

Q9: Check if Level Number is Prime

Q10: Calculate Factorial for Game Rewards

Q11: Generate Fibonacci Sequence for Power-ups

Q12: Sort Player Scores using Bubble Sort

Q13: Sort Player Scores using Selection Sort

Q14: Count Frequency of Scores

Q15: Find the Second Highest Score

Task Completed and Teacher's Signature

Task Completed:	_____
Teacher's Signature:	_____
Date:	_____