CSCI 250 Code Task 1 Group Coding Assessment Rubric

Your Names:- -

September 2, 2024

Part 1: Union-Find Data Structure (20 points)

1. **Implementation of Union Operation (5 points)**

   ☐ Not implemented (0 points)

   ☐ Partially implemented with errors (2 points)

   ☐ Fully implemented without errors (5 points)

2. **Implementation of Find Operation (5 points)**

   ☐ Not implemented (0 points)

   ☐ Partially implemented with errors (2 points)

   ☐ Fully implemented without errors (5 points)

3. **Implementation of Connected Operation (5 points)**

   ☐ Not implemented (0 points)

   ☐ Partially implemented with errors (2 points)

   ☐ Fully implemented without errors (5 points)

4. **Quick Union with Path Compression (5 points)**

   ☐ Not implemented (0 points)

   ☐ Partially implemented with errors (2 points)

   ☐ Fully implemented without errors (4 points)

   ☐ Path compression Graph (no hand drawings) (1 point)

Part 2: Problem Solving (30 points)

5. **Efficient Processing of Union and Query Operations (10 points)**

   ☐ Inefficient or incorrect processing (0 points)
   ☐ Partially efficient with some errors (5 points)
   ☐ Highly efficient with no errors (10 points)

6. **Correctness of Union-Find Operations (10 points)**

   ☐ Many errors in handling operations (0 points)
   ☐ Some errors in handling operations (5 points)
   ☐ All operations handled correctly (10 points)

7. **Handling of Input and Output (10 points)**

   ☐ Poor handling of input and output (0 points)
   ☐ Adequate handling with minor issues (5 points)
   ☐ Smooth handling with clear input/output (10 points)

Part 3: Algorithm Analysis (20 points)

8. **Time Complexity Analysis (15 points)**

   ☐ Incomplete or incorrect analysis (0 points)
   ☐ Some analysis but lacks depth (5 points)
   ☐ Thorough analysis with clear reasoning (15 points)

9. **Efficiency and Optimizations Discussion (5 points)**

   ☐ No discussion of efficiency or optimizations (0 points)
   ☐ Limited discussion with minor insights (2 points)
   ☐ Comprehensive discussion with valuable insights (5 points)

Part 4: Additional Features (Optional) (10 points)

10. **Implementation of Stack and Queue Data Structures (5 points)**

    ☐ Not implemented (0 points)
    ☐ Partially implemented with errors (2 points)
    ☐ Fully implemented without errors (5 points)

11. **Demonstration of Usage in Solving a Problem (5 points)**

    ☐ No demonstration of usage (0 points)
    ☐ Partial demonstration with errors or incomplete (2 points)
    ☐ Full and clear demonstration with a problem solved (5 points)

Overall Presentation (20 points)

12. **Code Organization and Clarity (10 points)**

    ☐ Poor code structure and readability (0 points)

    ☐ Adequate organization with some readability issues (5 points)

    ☐ Well-structured and highly readable code (10 points)

13. **Documentation and LaTeX PDF (10 points)**

    ☐ Inadequate documentation and missing PDF (0 points)

    ☐ Partial documentation with some errors or incomplete PDF (5 points)

    ☐ Comprehensive documentation and complete PDF (10 points)

Total Points: _____ (out of 100)