

COURSEWORK WORKLOAD DIVISION

Person 1	Mohammed Amiin
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Person 3	Tuong Luan
Person 4	Zafer Ahmad
Person 5	Daim Ahmed

PERSON 1: GROUP FORMATION AND COMMUNICATION, INTRODUCTION SECTION

- Implement network communication for the distributed system:
 - Research and select appropriate networking protocols (e.g., TCP/IP, UDP).
 - Develop methods for establishing and managing connections between nodes.
 - Implement messaging protocols for node communication.
- Write the Introduction section of the project report:
 - Describe the project's objectives and scope.
 - Explain the significance and potential impact of the system.

PERSON 2: GROUP STATE MAINTENANCE, DESIGN/IMPLEMENTATION SECTION

- Develop the logic for group state maintenance:
 - Design data structures to track the state of each node in the network.
 - Implement algorithms for adding and removing nodes from the group dynamically.
 - Ensure data consistency across the network during state changes.
- Cover the Design/Implementation section of the report:
 - Document the system architecture and data flow diagrams.
 - Explain the rationale behind design decisions, including chosen design patterns.
 - Detail the implementation challenges and solutions.

PERSON 3: COORDINATOR SELECTION, ANALYSIS AND CRITICAL DISCUSSION

- Implement coordinator selection mechanisms:
 - Research and choose an algorithm for electing a coordinator among nodes.
 - Code the election process, handling edge cases such as simultaneous failures.
 - Ensure the system can seamlessly switch coordinators without data loss.
- Analyse and discuss the system's fault tolerance in the report:
 - Evaluate the effectiveness of the coordinator selection mechanism.
 - Discuss the system's resilience to node failures and network partitions.
 - Critique the system's fault tolerance and provide suggestions for improvement.

PERSON 4: JUNIT TESTING AND FAULT TOLERANCE, CONCLUSIONS

- Write comprehensive JUnit tests:
 - Identify critical system functionalities that require testing.
 - Develop unit tests for individual components and integration tests for the system.
 - Document test cases, expected outcomes, and actual results.
- Summarize findings and future work in the Conclusions section of the report:
 - Highlight the key achievements of the project.
 - Discuss limitations and areas for future development.
 - Reflect on the project's learning outcomes and team collaboration.
- Help others with the coding to assure the tests run properly

PERSON 5: VERSION CONTROL AND PRESENTATION, DEMONSTRATION VIDEO

- Manage project version control using Azure DevOps:
 - Set up the project repository and branch policies.
 - Monitor commits and merge requests to maintain code quality.
 - Document version control practices and team collaboration strategies.
- Ensure the report's presentation quality and create the demonstration video:
 - Format and proofread the report for clarity, coherence, and grammatical accuracy.
 - Plan and record a demonstration video that showcases the system's functionalities.

- Edit the video to highlight key features, with narrations explaining the system's operations
- Help others with the code and designing to assure all the marking scheme criteria are met

TIMELINE – EVERYONE FOLLOW THIS

WEEK 1: PROJECT PLANNING AND INITIAL SETUP – 01/02/2024

- **All Members:**
 - Participate in the initial project meeting to discuss the overall strategy and assign roles.
 - Setup individual development environments.
 - Familiarize themselves with Azure DevOps.
- **Specific Tasks:**
 - **Person 5:** Set up the project repository on Azure DevOps and share access with all team members.

WEEK 2: DESIGN AND PRELIMINARY RESEARCH – 08/02/2024

- **Person 1 & Person 3:**
 - Start researching and planning the network communication and coordinator selection mechanism.
 - Draft an outline of their sections for the report.
- **Person 2:**
 - Begin designing the group state maintenance logic.
 - Sketch initial design patterns to be used and outline the Design/Implementation section.
- **Person 4:**
 - Research JUnit testing strategies relevant to the project.
- **Person 5:**
 - Plan the structure and content for the demonstration video.
 - Begin drafting the Presentation section of the report.

WEEK 3: DEVELOPMENT KICKOFF – 15/02/2024

- **Person 1:**
 - Start implementing the basic networking functionality.

- **Person 2:**
 - Develop the initial code for group state maintenance.
- **Person 3:**
 - Lay down the foundational work for the coordinator selection process.
- **Person 4:**
 - Write initial JUnit tests for early pieces of functionality.
- **Person 5:**
 - Ensure version control is being properly used and start documenting the process.

WEEK 4: CORE DEVELOPMENT – 22/02/2024

- **Person 1 & Person 3:**
 - Continue development on networking and coordinator selection, respectively. Start integrating their work with Person 2's.
- **Person 2:**
 - Further develop and start integrating the group state logic with networking and coordinator selection features.
- **Person 4:**
 - Expand testing to cover new functionalities being developed.
- **Person 5:**
 - Review the report's progress, ensuring clarity and completeness in the documented sections.

WEEK 5: INTEGRATION AND ADVANCED FEATURES – 29/02/2024

- **All Members:**
 - Begin integrating all components of the project, addressing any compatibility issues.
- **Person 1, Person 2, Person 3:**
 - Work collaboratively on system integration and start on fault tolerance mechanisms.
- **Person 4:**
 - Conduct integration testing, focusing on fault tolerance and error handling.
- **Person 5:**
 - Compile all written sections of the report, ensuring consistency in style and formatting.

WEEK 6: TESTING, DOCUMENTATION, AND FINALIZATION – 07/03/2024

- **All Members:**
 - Participate in thorough testing of the entire system, identifying and fixing bugs.
- **Person 1, Person 2, Person 3:**
 - Finalize their coding tasks and assist with preparing the demonstration video.
- **Person 4:**
 - Complete all remaining tests and finalize the testing documentation.
- **Person 5:**
 - Finalize the demonstration video and ensure the report is ready for submission.

WEEK 7: REVIEW AND SUBMISSION PREPARATION – 14/03/2024

- **All Members:**
 - Conduct a final review of the entire project, including code, report, and video.
 - Make any necessary revisions based on feedback.
 - Prepare all materials for submission.

CONTINUOUS TASKS:

- **All Members:**
 - Update their sections of the report with any new developments or findings each week.
 - Participate in weekly meetings to discuss progress, challenges, and next steps.