# Journal: Processor Simulator Development

**19/05/2024**

- **Project Structure:**
    - Created the basic project structure with separate folders for header files, source files, and test cases.
    - Defined the core classes: Instruction, ReservationStation, Register, Memory, and Simulator.

- **Class Implementation:**
    - Started implementing the Instruction class, including attributes for instruction type, execution cycles, source/target registers, and state management.
    - Implemented the ReservationStation class, including attributes for busy status, current instruction, source reservation stations, and execution speed.
    - Implemented the Register class with attributes for data and a pointer to the reservation station waiting for its value.

**20/05/2024**

- **Test Case Development:**
    - Created initial test cases to validate basic instruction execution and data dependencies.
    - Focused on testing load/store, arithmetic, and logic operations.
    - Designed a test case for loop execution to check branch prediction and loop performance.

- **Refactoring and Testing:**
    - Refactored the existing code, adding comments for clarity and improving the structure.
    - Expanded the test cases to cover more complex scenarios, including function calls, conditional branches, and data dependencies.

- **Report Drafting:**
    - Started drafting the report, outlining the project's objectives, implementation details, and test cases.

- Focused on providing clear explanations and examples of the code and its functionalities.