**Introduction**

This project requires us to create an optimal schedule for tasks given dependencies between them and calculate it using a given number of cores. For the initial planning phase, we had to produce a Work Breakdown Structure, Network Diagram and Gantt chart.

We used the waterfall model as a large inspiration for how we approach the breakdown of tasks, and the dependencies between them.

**WBS**

For this project, we decided to split tasks into four categories. Plan/design, Code, Test, and Deliverables. This is to follow the applicable categories of the Waterfall model, which involves coding, testing and design. We break down these categories further, into specific outcomes that we want to reach. Deliverables was added as a category, a significant enough proportion of the project needed to be dedicated to preparing for presenting the results of our progress at specific milestones.

**Network Diagram**

The network diagram was created to show the dependencies that are present between the different tasks from the WBS. The ordering of dependencies is also heavily influenced by the Waterfall model, with designing tasks earlier in the project, coding in the middle and testing being done after coding. As we had to do a presentation for a milestone in the middle of the project, we decided to break the coding phase into two parts. The design for both of the parts would be done at the start of the project and the implementation of the first part followed by the initial set of tests would be done before the basic milestone. The implementation and tests for the second part would then be done after that.

**Gantt Chart**

We created a Gantt chart to keep track of the progress we are making towards the project. This is derived from the Network diagram, and shows the main schedule we will be following for the rest of the project. The chart helps us visualise our progress and ensures that we are following the waterfall model. The chart is based around the four due dates for the plan, basic milestone, final milestone and the final report. The time between the start of the project and the plan due date were distributed equally for each diagram. After the plan we decided to give a significant portion of the time for coding the various aspects required for each milestone and leave several days before the deadline to do sufficient testing and presentation planning. We will begin the final report while we are finishing off the last bit of coding so that we can easily recall the development process and leave enough time to finish the report.