1 Summary

In Technical Memo 5, you will identify the key steps required to execute the solution methods you identified as optimal in Technical Memo 4. You will describe how these tasks will be assigned to specific team members, and the time scale on which you seek to accomplish these tasks. A key element of this memo is a comprehensive Gantt chart that visually describes the main project milestones.

Each team should post a .pdf copy of their technical memo on Canvas by 12 noon on Thursday 4 October 2018.

2 Content of the Memo

By now your team has: (1) stated your fundamental challenge; (2) broken the project into components and identified the key criteria that characterize an exemplary solution of each component; (3) brainstormed solutions; and (4) rationally selected from these solutions to arrive at primary strategies for tackling each component. Now you will devote the rest of the semester to implementing this solution. To do so as effectively as possible, you should break each solution component into concrete tasks, and develop a plan for how you will tackle these tasks over the coming weeks. Do this in the following steps.

- **Specify the main components of your project.** These may be the same components you identified in Tech Memo 2, or perhaps they have evolved.

- **Identify tasks for each component.** For each of your main components, break the problem down into tasks (which generally can be tackled in one to two weeks each). For each task, specify which other tasks must be completed before you can begin work on this one. (As you work this dependency out, you might find it helpful to sketch out a flowchart for each component to reflect the relationship between tasks, like the component flowchart you presented in Tech Memo 2, but now at a finer level of granularity. Include major class assignments (i.e., presentations and the final report); see the syllabus for details.

- **Identify which team members will work on each task.** Be cognizant of team skills. (For example, if a team member has no experience in your main programming language, do not assign that team member to lead the coding effort!) If multiple members are working on a task, specify which of them will lead the effort.

- **Draw a Gantt chart for the entire project, and for each major task.** A Gantt chart breaks work down into specific tasks (rows) and time (columns). For each task, you highlight the appropriate cells to indicate when that work will be accomplished. To draw a Gantt chart, you can use L\TeX\ or a variety of online tools (e.g., tomsplanner.com, Excel macros, etc.).
The example below could get you started, if you want to use this approach. (It uses the `colortbl` package in LaTeX, and is a bit complicated: see the LaTeX source for some hints.)

You should first create a high-level chart that shows how all the major components will be tackled. Here the columns are labeled by dates; e.g., O1 indicates Monday, October 1.

![Gantt chart example](image)

Then for each major component, create another Gantt chart that breaks that component down into reasonable tasks. (Break these components down to a granularity such that each task only takes one to two weeks, at most.)

The following example colors the cells to indicate which team member will work on each task. This will help you identify if you’ve divided the work equally across the team.

![Gantt chart for Component 2](image)

\*blue = Amelia, yellow = Bob, red = Carrie, green = Amelia & Bob, gray = all\*

\*This is a planning exercise, not a contract.\* You should do your best to be realistic about the time it will take you to accomplish your tasks. Unforeseen obstacles will almost certainly challenge your ability to stick to this schedule, but make your best effort. In your final report, you will reflect on how well you attained this plan.

| blue = Amelia, yellow = Bob, red = Carrie, green = Amelia & Bob, gray = all |

\*Students typically overestimate their ability to get work done in a timely manner. Please be as realistic as possible. Budget a buffer of extra time in case a critical element of the project takes longer than expected. Be realistic about how much you will get done during Thanksgiving week.\*

If this planning exercise suggests that your project goals have thus far been unrealistically ambitious and you need to cut out a component to arrive at a tractable plan, then now is the time to do so. Please discuss such concerns with your coach.
3 Grading Rubric

This memo will be graded on a 100 point scale, according to the following rubric.

- **summary:** 10 points
  Concise, descriptive summary section that captures all main points

- **list of components and tasks:** 25 points
  Realistic breakdown of the project into components and simple tasks

- **assignment of tasks to team members:** 15 points
  Fair, specific breakdown of labor

- **Gantt charts:** 30 points
  Charts for the whole project and each major component

- **formatting, style, grammar:** 20 points