1. **Why is it important to break a project into tasks? Explain how a WBS is used in the stages of planning a project.**

Breaking a project into tasks is important because it would otherwise be difficult to tackle down a project with a large scope all at once. In planning a large and complex scope, one might feel overwhelmed. To get past this barrier, one can use a WBS. A WBS uses the “divide and conquer” concept and makes the project more understandable. Since the WBS contains 100% of the work, one can measure progression as tasks are completed. This in turn can boost employees moral as they feel like they’re accomplishing a lot and may even feel the project easier to complete. All of these pros increase the project’s chance of success.

A WBS can be used as an aid during the planning stages of a project too. With a WBS, the project manager can determine what skills are needed accomplish the tasks and eventually identify the team members needed. It can help identify milestones which is crucial when creating a schedule. It can also be used to identify resources and personnel to estimate staff and resource costs. Lastly, the WBS is used to identify the critical path which is vital in terms of the project’s success.

1. **How do Pert and Gantt charts aid in the management of projects? What is a critical path and how is it used? (25 points)**

When a project is complex and contains many parallel tasks, a Gantt chart can be used to illustrate the project schedule to a wide audience serving as a visual aid. One can easily see the start and finish of each terminal element. When a project is too large and complex, the Gantt chart can be used to summarize the schedule into a neat one or two page bar graph. The audience can also easily see the current status of the project with the “today” vertical line.

Pert charts on the other hand focuses more on the completion time of tasks. It facilitates decision making and provides flexibility for completion times. It relies heavily on the critical path, milestones and the order of tasks. The critical path is very apparent, and easy to see compared to the Gantt chart. This chart can be used when presenting a complex project because only the essential tasks and milestones are shown.

The Critical Path Method (CPM) is an algorithm for scheduling a set of project activities which is very important for effective project management. It uses fixed time estimates for each activity and does not consider time variations. The process determines which tasks are considered the longest path of planned activities or “critical”. This sequence of critical tasks directly effects the project’s completion time.

The CPM allows managers to prioritize activities to complete the project on time. The manager may or even shorten the critical path by allotting more resources or performing more activities in parallel (“fast tracking”). Since schedules change on a regular basis, the CPM allows continuous monitoring of the critical activities and may even alert the project manager about delays.

1. **Describe the most important lessons that you have learned during the semester and how you feel that this lesson will prepare you for your future as a computer science professional. More than one is expected. (25 points)**

CS410 was a surprisingly realistic workforce class that tested more than just the ability to learn new concepts. It puts to test all previously learned skills such as programming languages and combines it with people skills such as communication and work habits. The most important lessons of the class to me were learning to work with a group, planning and presenting.

One of the most important lessons was learning to work with a group. In previous CS classes, students were allowed to work in groups of two. In this class my team had six members which is a good number that can accomplish a lot of work in the real world. We separated tasks by member’s strengths and dealt with member unwilling to cooperate. We communicated through forums, meetings and phone calls. We talked to each other almost every Monday, Wednesday and Friday. It was an experience that no other class offered. As a result, I’ve made new friends, increased my social capabilities, and learned a lot about how other students work.

Another important lesson was planning, as a lot of this course was just that. I’ve learned much more about planning than I did in CS350. We created a plan for every presentation, deliverable and phase. We were in charge of settings due dates for deliverables and tasks. Planning the next three years of work requires a lot of thought and consideration. We had to think about resources, costs and staff. Many times our estimations were wrong and we learned from that.

The last lesson, which many may overlook, is presenting - especially in front of a professional panel. Presentations occur in the business world all the time. It’s an essential communication skill and can be used to display individualism. The feedback we got from the panel was very interesting. They agree on some criticisms and differ on others. Each panel member nitpicked different areas based on their profession. Similar to discovering differences in group members, it was interesting to observe the professionals.

There were a lot more lessons learned, but I felt these three were critical with the brink of graduation nearby. The class didn’t teach obsolete concepts; it taught people skills. These are real lessons that prepare us for the real world.