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CSC 4350/6350 SOFTWARE ENGINEERING
Assignment #2
Summer 2018
due Friday, June 15th, 11:59 pm

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Objective: Learn how to do project planning and scheduling; Learn Collaboration tools; Requirements Engineering-- understand the concepts of user and system requirements, the differences between functional and nonfunctional requirements, the main requirements engineering activities of elicitation, analysis and validation.

a) **Planning** and **Scheduling**:
- **Outline plan**, showing principal tasks and milestones.
  o Hardware and software resource requirements
  o Challenges and Risks
    o What is the single most serious challenge you see in developing the product on schedule?
    o Write down 2+ risks you can foresee in completing this project
    o Ways to avoid or lessen/ minimize the risks

- **Scheduling**
  - Work breakdown: (Create a table, see the **e.g.** below)
    o Identify the **tasks**
      ➢ Each task has a **duration** in calendar hours, days, or months,
      ➢ a **deadline** by which the tasks should be complete
      ➢ Organize tasks **concurrently** if needed
      ➢ Minimize task **dependencies** (to avoid delays caused by one task waiting for another to complete)
    o Allocate **people** to the tasks
    o An **effort estimate**, which shows the number of person-days or person-months to complete the work,
    o **Monitoring** and **reporting** mechanisms

  <u>Table example</u>: You can add more columns if needed, number of rows depends on the number of tasks you have identified for your problem

Task	Effort (person-days)	Duration (hours/or days/ etc)	Dependencies

b) **Collaboration:**
- Use Version Control (GitHub) and include the logs:
  o All project documents: doc, pdf, and code related files must be kept at GitHub so that all team members can have access to them.
  o Basic introduction to GitHub can be found here:
    https://guides.github.com/activities/hello-world/#intro
- Use Slack and include the logs.
  o Basic introduction to Slack can be found here:
    https://get.slack.help/hc/en-us/articles/115004056967
    https://get.slack.help/hc/en-us/articles/218080037-Getting-started-for-new-members

c) **Problem Statement:** (Overall Project Description, ***user requirements***)
  - First, read Ch4 page 88-90.
  - What is your product, on a high level?
  - Whom is it for?
  - What problem does it solve?
  - What alternatives are available?
  - Why is this project compelling and worth developing?
  - Describe the top-level objectives, differentiators, target customers, and scope
  - of your product.
  - What are the competitors and what is novel in your approach?
  - Make it clear that the system can be built, making good use of the available resources and technology.
  - What is interesting about this project from a technical point of view?

d) **System Requirements**
  - Describe at a very **high level the system's architecture**, identifying the components/modules that will interact.
    - Use context model
    - See Ch5: Section 5.1 and Figures 5.1

  - Develop **use cases** to help you elicit the requirements, and then to develop a requirements document for the system.
    - First, read Ch4 sections: 4.1, 4.1.1, 4.1.2, 4.4.3
    - Your requirements must be detailed, consistent, complete, and testable.
      - Remember, you will build this system later, and if you have a poor requirements document, you will run into problems.
      - You will be graded on what the system ought to do as opposed to what you think it should do.
    - You must write detailed requirement specifications that capture what the behavior of the final system should be, including:
      - defining functionality,
      - specifying properties that the output of the system must follow to be considered correct,
      - posing nonfunctional requirements that govern how the system operates with regard to performance, security, etc.

e) Submit project problem descriptions **VIDEO**:
  - This video must be 3-5 minutes. You will lose points if it is more than 5m.
  - Every team member must participate in this video.
  - Use your smart phone camera. Make sure the voice is clear.
  - Create a channel at YouTube and name it as your group name
  - Once ready, upload the video to your channel.
  - Include the link to this channel with your submission.
  - Use this channel for uploading future videos.

Deliverables

- You are required to submit the Planning and Scheduling contents as described above, and the user and system requirements as described above in one file (pdf).
    - Format should be:
        - First page has: the project title, group name, semester, and year.
        - Font size 12, Font type is times new roman, single space between lines.
        - All paragraphs must Text Justified.
        - Pages are numbered
        - Diagrams and tables must be centered.
- Include the following as part of the above document (file) in the Appendix section
    - Submit project problem description VIDEO link.
        - Presentations should be casual and low-stress.
    - Submit GitHub logs and a screen shoot of the main page so I can see key parts of the project/team members.
    - Submit Slack logs and a screen shoot of the main page so I can see key parts of the project/team members.
- You will submit the document electronically through iCollege as a PDF file:
    - The file you submit should be named coordinatorName_Groupname.pdf
    - Only the team coordinator should submit the report
        - Individuals will only get points if they are in a group that has been submitted.

Helpful Hints

- Do not invent many unneeded requirements.
- Focus on the core functionality of the system and do not add "things that would be nice to have".
- "Gold plating" the requirements by adding all kind
  of nice, but unneeded, functionality and checks will lead to an excessively large and complex document.
- Ensure you have time to complete the assignment, and focus on demonstrating that you can work with a team, learn new tools/languages/technology, and write good requirements.
- While preparing the report, pay more attention to the following criteria:
    - Analysis.
    - Description.
    - Understanding.
    - Preparation.
    - Completeness.
    - Correctness.
    - English Grammar.

Note: More supportive materials for this assignment will be posted in the project Forum at iCollege. So, keep visiting the Forum.