Design Specification

The purpose of the Design Specification assignment is for you to describe your project in more detail than in your Project Requirements document now that you have more knowledge about the project.

The report contains additional and updated information from the initial understanding of your project. As you worked on your project, you may have found that aspects of your project changed, but if it directly impacted your MVP you must have formal approval for a change to it. Again, you must include disclosure of any code used in another CS course or from the internet. If you simply copy the sections from the Project Requirements document without updating, do not expect the same points will be given for the Design Spec.

At least 2 days before the due date, you should deliver a copy to your sponsor to allow them to read and okay your proposal.

Prepare your design specification in a **double-spaced** format with a **12-point font**. In general, the document should be **five to seven Full written pages**. (If you give several screen shots or diagrams, you may need a longer document.)

Written report – must include each of the following sections (do not combine sections unless otherwise stated). Use citations as appropriate and do not bullet point descriptions.

- **Title Page** (* not included in length of paper) – Title of the project, include your sponsors info (name and email) along with yours.

- **A short (a paragraph or two) Project overview** – Describe what the problem entails - its context/purpose/story and your motivation or reason (without specifying and languages or tools).

- **User requirements**
    - clearly explain what is needed for the Minimum Viable Product (MVP) to complete the project successfully (**for any possible alteration to the MVP *see the More information section below**), you may also define other product features that you plan or desire to deliver beyond the MVP. Again, not bulleted lists, but a paragraph.
    - include disclosure of any code used in another CS course or tutorials from the internet you plan to use while developing your project.
    - briefly describe in generalizations the different types of system users (what are the main reasons for different users, administrator, employee/member, regular user, etc.). Include at least two user stories for each user of your system that supports your MVP (do not

go into specific details e.g. a user goes to page x and clicks button y, the details will be in other documents later).

- **Design Choices**– Describe what possible technology languages, tools, frameworks, databases, datasets, etc. you are considering or could be used for a project like yours (this should come from your research into the project). You should have multiple possibilities to compare and contrast by discussing the advantages and disadvantages of each similar technology. Later, if your selected design choice doesn't work out, this will provide alternative options to choose from.

- **Design Selected** – Of your many design choices above, what technologies did you choose and explain why you made your choice. Describe the structure of your software system. Give the major components and their relationships. You may want to use diagrams to illustrate the architecture (Workflow, Model-View-Controller, etc.). If your project involves a database, you should describe your database design (e.g., using a schema or Entity-Relationship diagram). **List all external applications (API's, tutorials, etc..) you plan to use for the project and provide an estimate of their makeup for the project (include links to these applications)..**

- **User interfaces/interactions with your project** – include use case diagrams, transition diagrams, command descriptions, etc.. Consider the different types of users (this is where you go into more details about the user and how they interact with the project).

- **Development environment** – Describe the hardware (your machine or list cloud services used), any software, OS, or data sets you needed for implementation and testing and why you chose this environment. **In this section you must disclose any code used in other CS courses or the internet** which should also be included in your bibliography.

  You must use a version control system, such as ***GitHub,*** and implement appropriate testing tools to support your development.

- **Deployment environment** – Describe the hardware (deployment host site), software, or data sets you needed to support the delivered system and why you chose this environment. Consider what you need to do to install your project's software in the deployment environment.

  If and only if both the Development and Deployment environments are the same, the information about both should be combined and stated.

- **Test plan** – Describe how you plan to test the individual components and the overall system (unit tests, etc.).

- **Updated Project timeline** – List the upcoming milestones (do not list past dates), that is, the major tasks and the target dates for completion.

- **Bibliography** – List the textbooks, reference books, journal or conference papers, tutorials, Web documents, code from other CS courses, etc. you referenced while researching or you otherwise expect to use in your project. This may include materials describing the application domain of the project.

Submit your report to your instructors by the due date as a digital copy to Blackboard. Convert your document to a pdf for submission.

More Information about your MVP

The faculty will use the MVP in your Design document to evaluate your project at the presentation. Any modifications made to the scope of your MVP after the submission date of the Design Specification Document must be made as a formal request in writing to your instructors (minor wordsmithing is allowed without approval). NOTE: If you make changes that are not approved, they will not be considered in the evaluation of your final project.