<Capstone Project Name>

Requirements Document

<student and mentor names>  
<submission date>  
<version>

# Introduction

In the introduction, you briefly introduce your project and give a succinct summary of the subsequent sections. For example, if your project is research-oriented, the following sections resemble the description of an experiment. On the other hand, if your project is an industrial application development, each section is the item that needs to be presented in an eventual software quality assurance project.

# Intended Users

In this section, you identify the stakeholders of the project. Who will be using the system, and how will they use it? Are there different groups of users requiring different things for their respective use cases? If so, label these groups for later referral and explain the differences. For research projects (ML, classifier, etc.), the use cases can be abstract (for example: speeding up the data processing time for ML researchers). If the project is sponsored, the use case and system functionality sections must explain how these requirements align with the company's needs.

# Functional Requirements

What functions is the system required to provide to the user groups? This section needs to be explained in greater detail than in the vision document and contains all development steps. Depict in simple steps what the flow of events will be while also including alternate flows. Doing so will elucidate your project/program's goals and simplify the road map to build your functionalities. [You can consider using System Context Diagrams (interactions between systems), Component Diagrams (makeup of logical components in a system), etc](https://docs.google.com/document/d/1hLurQDgpBei_bqlDD7lybwMPvicgiQardGEbJcbdyC8/edit?usp=sharing)., and utilizing tools such as [draw.io/](http://draw.io/) to produce these diagrams efficiently.

# Non-Functional Requirements

How and in what manner will the mentioned system functionalities be carried out? This section lays out expectations and/or constraints on speed, reliability, security, etc. (i.e., requirements pertaining to the system's characteristics that do not directly pertain to the user). Examples of non-functional requirements are tolerance, time (speed) constraints, no end-user, the magnitude of data, transparency, security, etc. Whenever possible, mention use cases or scenarios you are thinking of when defining your non-functional requirements. Additionally, make sure to include the definition of the non-functional requirements you are using in the Definitions section below.

# Resource Requirements

What data is needed to undertake the project? What hardware is needed? What non-development human effort is needed (e.g., manual text annotation, testing, etc.) What cloud resources are needed for this project, and what is the cost? (e.g., rates, GPU/CPU hours, etc.) This section should mention all the resources clearly necessary, given the items discussed in the rest of the document.

# Project Scope

Even though Capstone Projects are modeled according to the same patterns as larger-scale projects, they are comparatively limited because of time constraints. To account for this, identify what is “in scope” vs. “out of scope” for the system(s) you will build (first prototype, incremental improvement, etc.) and requirements prioritization (don’t forget about data sources, scaling, etc. over time).

# Terminology, Definitions, Acronyms, and Abbreviations

Include all definitions, acronyms, and abbreviations necessary to understand your solution easily. You can use a table to organize your definitions if necessary. For example, define the NFRs, the metrics that are going to be used in the project, words associated with Data Structures (e.g., what is a feature vector?), terms used in the project (e.g., what is meant by a classifier?), etc.

# References

[C&I, 2016] Complicated & Important, If you have many references, they should go into a bibliography appendix such as this one!, Proceedings of Whatever, 67-98, 2016.

[Also-Important, 2016] Also-Important et al., How you format these individual references is not that important as long as it is consistent, Journal of Meaningful Studies, Vol. 16, 112-120, 2016.

References should follow the IEEE standards. Follow [this guideline](https://ieee-dataport.org/sites/default/files/analysis/27/IEEE%20Citation%20Guidelines.pdf) to cite references.

# Reflection

Use this section to write a brief description of what you learned in the process of making this document: what will I do differently next time, what I learned from working in a team, etc. Then, reflect on the decision-making process when making this document. Reflection points to consider:

1. Do you anticipate these requirements would change as you do more research and get more data?
2. How did you differentiate between the functional and non-functional requirements and decide which ones to select for your project?
3. How do intended users affect your requirements, and if the users change, do you think that you will need to update the requirements?
4. Have you taken broader reach and accessibility into consideration during the design process? Does your design help accommodate easier user interaction if applicable?
5. What would you do differently next time?

# Appendix

This section contains any additional information you’d like to preserve in this document for context. For example, consider having a Glossary, or any additional materials you discovered or created in the process of making this document.

# Changes To Previous Deliverables

Use this section to outline any changes you had to make in your previous documents, the Vision Document, because of your activities as part of this deliverable.

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# Writing, Style, and Formatting

### Overall writing requirements

Make sure your writing is brief and easy to understand. 1 to 3 paragraphs per section. The entire document (not including references and appendix) should be about 2 to 5 pages. Please take time to edit and proofread your work before submitting it.

### As always, if you produce subsections

Make sure that you use the proper sub-heading style.[[1]](#footnote-0)

### The same goes for Sub-sub-headings

This is important because the documents you produce may be read by people who are not close collaborators and for whom a well-structured document is helpful to understand things. Also, remember to cite the things you use [C&I, 2016].

1. It may not appear necessary at first but it is part of learning how to communicate your work. Sometimes you may want to add auxiliary information into footnotes such as this one. Examples include technical things like URLs, reference numbers of any kind or citations to papers and external documentation. [↑](#footnote-ref-0)