Requirements Document

Overview & Grading Rubric

This document contains two sections: the first section provides a description and how to produce a well-written Requirements Document. The second section describes the grading rubrics used to assess your learning and provide formative feedback.

# Overview

## Description

In the documentation flow, [the requirements document](https://docs.google.com/document/d/1EC7B5ZXHvQCj5L8FyeUiUaVwLXDa3uCnWf-UklEA6X8/edit?usp=sharing) comes after the vision document and before the design document.

## Why are we making the requirements document?

Please review the Requirements Document learning materials on OLI.

## How to produce a well-written deliverable

Make sure your writing is brief and easy to understand, with 1 to 3 paragraphs per section. The entire document (not including references and appendix) should be about two to five pages. Each section should follow the guidelines as outlined in the template. In addition, you should structure the paragraphs and build effective connections between them. By setting out your ideas and arguments with a natural flow, you will increase the readability of your work.

# Grading Rubric

## Introduction (4 points)

* The introduction reintroduces the summary of the real-world problem your project addresses.
* Each subsequent section of the document is well-introduced and summarized in the introduction.
* The items introduced are appropriate for the type of project
  + A research-oriented project should include sections resembling an experimental design: preparing the data, fitting the models, hyperparameter tuning, model evaluation, error analysis, etc.
  + A software-oriented project should include items that need to be presented in a software assurance project: software packages you are building, how they are going to be arranged in a software repository, how you are going to test each of them in isolation and then run them together in a system, how will they be containerized, etc.
* Is there "too much" technical terminology?
  + Example of possible point deduction: introduction contains excessive mathematical equations or technical terminology with overwhelming information
* Are points explained concisely and not dragged on?
* The introduction should not exceed two paragraphs in length

## Intended Users (6 points)

* Who will be using the system is mentioned
* How users will be using the system is mentioned
  + For research projects (ML, classifier, etc.), the use cases can be abstract (for example: speed up the data processing time for ML researchers)
  + For industry projects, the use case and system functionality sections need to explain how these requirements align with the company's needs.
  + For end-user study projects, the use cases are real people who generate measurable data and subjective data at the end of your evaluation.
* The section details different groups of users and their requirements for respective use cases.
* Each mentioned user group is labeled

## Functional Requirements (8 points)

* The section details the functions the system is required to provide to the user groups.
* Are all development steps included?
* Are all development steps explained in greater detail (than in the Vision Document)?
* The section depicts simple steps of the flow of events
* Alternative flows are also included
* The section includes [a context diagram](https://docs.google.com/document/d/1hLurQDgpBei_bqlDD7lybwMPvicgiQardGEbJcbdyC8/edit?usp=sharing)

## Non-Functional Requirements (7 points)

* The section details how and in what manner the mentioned system functionalities are going to be carried out.
* The section lays out expectations and/or constraints on requirements pertaining to the system's characteristics that do not directly pertain to the user.
* The section is thorough and includes anticipated situations where the system is actually implemented and used, even if not all non-functional requirements are going to be supported in the capstone.
* Use cases or scenarios are well-listed when defining non-functional requirements.
* The definitions of the non-functional requirements are detailed in the Definitions section.
* Traceability is considered. The section outlines which functional requirement(s) or major feature(s) this non-functional requirement is related to

## Resource Requirements (4 points)

* Does this section mention all the resources clearly necessary, given what they talked about in the rest of the document?
  + Data, hardware, non-development human effort

## Project Scope (4 points)

* The upper scopes of each requirement that will be covered in the project are well-detailed
* How thoroughly each requirement is going to be covered is mentioned
* Prioritization of requirements is mentioned

## Terminology, Definitions, Acronyms, and Abbreviations (5 points)

* The definitions of the non-functional requirements are detailed in this section
* Necessary definitions, acronyms, and abbreviations are included
* Definitions of technical terminologies are included
* Always mention the full name of abbreviations/acronyms when first introduced, and consistently use abbreviations or acronyms throughout the document to maintain consistency

## References (3 points)

* All in-text citations are referenced in this section
* All citations include respective URLs
* The format of individual references is consistent throughout
  + This is not a strict requirement, but this is the general format for papers of a specific domain: NLP: ACL, EMNLP; ML: NeurIPS, ICML

## Reflection (4 points)

* A thoughtful and comprehensive reflection or lessons learned from completing this document is included.

## Appendix (0 points)

* Additional information for context is mentioned
* A glossary for terms (common-sense, real-world) is included

## (Optional) Changes To Previous Deliverables (0 points)

* The section outlines any changes made to the Vision Document due to the activities conducted during the making of the Requirements Document

## Writing, Style, and Formatting (5 points)

* The document is free of spelling errors
* Proper sub-heading style is used if the document contains subsections
* Auxiliary information, such as URLs, reference numbers, or external documentation, are included in footnotes; lengthy supplemental information is included in the appendix
* The written work is brief and easy to understand without unnecessarily long statements, and paragraphs
* The document should be versioned (e.g., V1 Vision Statement) with proper use of major and minor versions
* A changelog at the top of the document is included
* Citations take the proper form and are properly inserted in the text