# CIS11 Course Project Part 1: Documenting the Project

Fill in the following areas (purple).

**Introduction**

* 1. **Purpose**

Project will be the Test Score Calculator which is project B for the CIS 11 final project.

* 1. **Intended Audience and Users**

The audience this project is intended for is teachers.

* 1. **Product Scope**

This project will allow the audience, generally teachers to input the test scores and output the min, max, and average of the 5 submitted test scores.

* 1. **Reference**

**Source Documents for the Program Requirements and Specification**

LC3Edit and its documentation: [Introduction to Computing Systems | LC-3 Simulator (mheducation.com)](https://highered.mheducation.com/sites/0072467509/student_view0/lc-3_simulator.html)

[LC-3 Assembly Lab Manual (georgetown.edu)](https://people.cs.georgetown.edu/~squier/Teaching/HardwareFundamentals/LC3-trunk/docs/LC3-AssemblyManualAndExamples.pdf)

**2. Overall Description**

**2.1 Product Perspective**

This Program will provide the user the ability to input 5 test scores and find out the average, highest, and lowest test scores.

* 1. **Product Functions**

**The overall description of functionality:**

The program’s main function is to allow its users to type in the 5 test score percentages based on the Letter grade system.

**Technical functionality**

1. Must contain the addresses: origination, fill, array, input and output.
2. Must display the minimum, max, average grades into the console.
3. Must use the correct labels and comments.
4. Must contain appropriate instructions for arithmetic, data movement and conditional operations.
5. Must comprise of 2 or more subroutines and implement subroutine calls.
6. Must use both conditional and iterative branching for control.
7. Must manage the overflow and storage allocation.
8. Must manage stack, which includes the PUSH-POP operation on stack.
9. Must Include the save-restore operations.
   1. **User Classes and Characteristics**

Program Documentation: Giovanni Hernandez

Assembly Programmer: Bishwo Sedai

Pseudocode and Flowchart: Danny Goodlow

* 1. **. Operating Environment**

The operating environment will be in an LC-3 Simulator that is available for Windows and Linux.

* 1. **. Design and Implementation Constraints**

Not Applicable

* 1. **. Assumptions and Dependencies**

The only dependency needed for this code is an LC-3 Simulator.

***3*. External Interface Requirements**

* 1. **User Interfaces**

The User Interface used for the code is the LC-3 Simulator.

* 1. **Hardware Interfaces**

LC3Edit and Simulator - Windows, Linux

* 1. **Software Interfaces**

The program was coded with LC-3 Edit program and ran via the Simulator.

* 1. Communications Interface

There will be no requirements for any communication interfaces since the Simulator can work offline.

**4. Detailed Description of Functional requirements**

**4.1     Type of Requirement (summarize from Section 2.2)**

The purpose of this project is to provide the user a way to input 5 test scores and see which on has the lowest, highest, and the average grades of the test.

The program will be inputted via keyboard and mouse.

The inputs will be processed via the use of multiplication subroutines, PUSH/POP stacks, ASCII operations, pointers.

The program will then output the lowest, high, and average grades of the test.

The Data will be students who the test.

**4.2 Performance requirements**

The performance requirements to run the code is a computer with the Simulator program downloaded.

**4.3 Flow Chart and Pseudocode.**

 Pseudocode

1. Start Program
2. Declare Test Score as an integer
3. “Enter Test Score and grade will be displayed”
4. Input Test Score
5. IF Test Score is 90 - 100

* “Grade is an A”

1. IF Test Score 80 - 89

* “Grade is a B"

1. IF Test Score 70 - 79

* “Grade is a C"

1. IF Test Score 60 - 69

* “Grade is a D"

1. IF Test Score 0 - 59

* “Grade is a F"

1. End

Diagram

Description automatically generated

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