Software Requirements Specification

Expression Calculator

Version 1.0

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1. Introduction

1.1 Purpose

Purpose of this document is to describe requirement specifications for expression calculator developed during the second laboratory training. The document will explain the features of the system and the constraints concerning the operation of the system.

1.2 Document conventions

This document does not use any specific conventions.

1.3 Intended Audience and Reading Suggestions

Users and developers of the described software.

1.4 Project Scope

To calculate the following expression based on user inputs:

10 $$y = \begin{cases} \sum_{i=0}^{n} (x-i)^2, x \le 0 \\ \prod_{i=1}^{n} \prod_{j=0}^{n-1} (x-i-j), x > 0 \end{cases}$$

Picture 1.1 - Expression to be calculated

1.5 References

Methodical recommendations: https://drive.google.com/file/d/1tzIlKBm4WNFr0Y-sEjHFDIvjx_qFHw6C/view

2. Overall Description

2.1 Product Perspective

The product will use CLI interface to request range, step and n input from user. The same CLI interface will be used for result output.

2.2 Product Features

Expression calculation based on user input.

2.3 User Classes and Characteristics

This product targets everyone who needs to calculate the expression on a specific range.

2.4 Operating Environment

The program can be used in any operating environment that provides C++ libraries and a basic terminal emulator.

2.5 Design and Implementation Constraints

The system has no constraints

3 System Features

3.1 Functional Requirements

The product must be able to output a set of expression results on a given range with a given step.

4 External Interface Requirements

4.1 User Interfaces

CLI interface for data input and output.

4.2 Hardware Interfaces

Any output interface which is able to display text. Any input interface which can be used to send keyboard signals.

4.3 Software Interfaces

The system has no software interfaces.

4.4 Communications Interfaces

The system has no communications interfaces.

5. Nonfunctional Requirements

5.1 Performance Requirements

The system must be able to output a result in a reasonable time: no more than 1 second.

5.2 Safety Requirements

The system must operate without crashes.

5.3 Security Requirements

The system has no security requirements.

5.4 Software Quality Attributes

The system must be reliable and output accurate results.