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Remote Calculator

Software Requirements Specification (SRS) Document

Sprint Implementation

Project Timeline: 13.10.2022 to 18.10.2022

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# Software Requirements Specification

## Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS with purpose, scope, definitions, acronyms, abbreviations, references and overview of the SRS. The aim of this document is to gather and analyze and give an in-depth insight of the complete **Remote Calculator** by defining the problem statement in detail. The purpose of this document is that the requirements mentioned in it should be utilized by software developer to implement the system. The detailed requirements of the **Remote Calculator** are provided in this document.

* 1. **Purpose**

The remote calculator is specifically developed for calculation with facilities of addition, subtraction, multiplication, division and exponentiation. Secondly, the application also allows only the authorized user to login to perform the calculations.

In short, the purpose of this SRS document is to provide a detailed overview of our software product, its parameters and goals. This document describes the project's target audience and its user interface, hardware and software requirements. It defines how our client, team and audience see the product and its functionality. Nonetheless, it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

* 1. **Scope**

Primarily, the scope of the remote calculator features to ensure smooth arithmetical operations. The main aim of this application is that client gives the system input in the form of operators and operands separated by semicolon and then it is received by the server and all the calculations are performed on the sever side and the answer is passed on to the client.

This SRS is also aimed at specifying requirements of software to be developed but it can also be applied to assist in the selection of in-house and commercial software products. The standard can be used to create software requirements specifications directly or can be used as a model for defining an organization or project specific standard. It does not identify any specific method, nomenclature, or tool for preparing the SRS.

* 1. **Definitions, Acronyms, and Abbreviations**

|  |  |
| --- | --- |
| TCP | Transmission Control Protocol |

* 1. **References**

The references are:

1. <https://www.geeksforgeeks.org/socket-programming-cc/>
2. <https://www.geeksforgeeks.org/introduction-to-stack-data-structure-and-algorithm-tutorials/>
3. <https://www.geeksforgeeks.org/tcp-ip-model/>
4. <https://www.geeksforgeeks.org/layers-of-osi-model/>
5. <https://www.cs.rpi.edu/~moorthy/Courses/os98/Pgms/socket.html>
   1. **Overview**

The remaining sections of this document provide a general description, including characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product. General description of the project is discussed in section 2 of this document

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Section 3 gives the functional requirements, system features and constraints made while designing the system. Section 3 also discusses the external interface requirements and gives detailed description of functional requirements. Section 4 is for supporting information.

## Overall Description

The remote calculator is used for various arithmetical operations like addition, subtraction,

multiplication, division. The main protocol used in this is TCP which is a connection-

oriented protocol for communications that helps in the exchange of messages between the

different devices over a network. To make sure that each message reaches its target

location intact, the TCP/IP model breaks down the data into small bundles and afterward

reassembles the bundles into the original message on the opposite end. Stack data

structure is used for the calculation of the expression entered which is in the form of a

string. The operators that are used are addition, subtraction, multiplication, division.

## Specific Requirements

The specific requirements are–

* 1. **Functionality**

Introduction–

This subsection contains the requirements for the remote calculator system. These requirements are organized by the features discussed in the case study provided to us. Features from case study are then refined into use case diagrams and to sequence diagrams to best capture the functional requirements of the system.

* + 1. **Client**

3.1.1.1 Login Functionality: Client can login to the server by using Username and Password.

3.1.1.2 Input of operands and Operators: Client will take input of expression to be solved using a calculator

* + 1. **Server**

3.1.2.1Formulation of Problem: Server will formulate the problem to be solved

3.1.2.2 Calculation: Server will perform the required calculations.

3.1.2.3 Fetch Result: After calculations, the Server will fetch the results from the server.

* 1. **System Features**
     1. **Reliability & Availability**

The system is available when the client requests for service. The system is available 24/7.

* + 1. **Performance**

The system will work on the user’s terminal. The performance shall depend upon hardware components of the required system and the internet connection.

* + 1. **Security**
       1. **Login**

The Client can login the Calculator application to perform the calculations using Username and Password. Username and password can only be changed or created by the Client So, only after login from the Client, the Server can perform the calculations and get the result.

* + 1. **Supportability**

The system is easy to maintain.

* 1. **Design Constraints**

The Remote Calculator system is built using only C language which puts certain limitations to the visual appeal of the software.

* 1. **Usability**

The Remote Calculator is essential for performing various calculations required. The Remote Calculator is the process of taking input of operators and operands in the form of expression and then performing the required calculation and displaying the results. The software can handle the data like Username and Password.

* 1. **Interfaces**

There are many types of interfaces as such supported by the Remote Calculator system namely : Client-Server Interface, Hardware and Software Interface.

* + 1. **Hardware Interfaces**

Since The Application must run over the internet, all the hardware required to connect to the internet will be the hardware interface for the system.

Various interfaces for the product could be

1. Touch screen/Monitor with 4 GB RAM

2. Keypad

3. Continuous battery backup

* + 1. **Software Interfaces**

1. Any Linux operating system.
2. Programming Language : C Language, System Programming
3. The final application must be packaged in a set up program, so that the application can be easily installed on machines.
   1. **Licensing Requirements**

Not Applicable

* 1. **Applicable Standards**

It shall be as per the industry standard.

## Supporting Information

Please refer the following document:

Case study 7 Remote Calculator