Software Requirement Specification

Author: Dorzhey Matkhanov

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**Introduction**

* **Purpose of this Document –** to describe and specify design and requirements of software Scgog (software in future use).
* **Scope of this document –** Main objective is to provide understanding and clarifications of expectation of software and development project. The estimated cost is $1.000.000 and estimated development time is 3 months.
* **Overview –** Software will centralize most common Data Analysis techniques on Single Cell data. Most of techniques are focused on but are not limited to Machine Learning application.

**General description**

In this, general functions of product which includes objective of user, a user characteristic, features, benefits, about why its importance is mentioned. It also describes features of user community.

Single Cell biology is a rapidly growing field with amount data increasing even more. In purpose to help users to analyze this data without deep expertise in programming and Machine Learning, saving time and efforts. Users can be anyone from researchers and developers to amateurs interested in exploring a new field.

**Functional Requirements ---------------------**

In this, possible outcome of software system which includes effects due to operation of program is fully explained. All functional requirements which may include calculations, data processing, etc. are placed in a ranked order. Functional requirements specify the expected behavior of the system-which outputs should be produced from the given inputs. They describe the relationship between the input and output of the system. For each functional requirement, detailed description all the data inputs and their source, the units of measure, and the range of valid inputs must be specified.

**Interface Requirements**

In this, software interfaces which mean how software program communicates with each other or users either in form of any language, code, or message are fully described and explained. Examples can be shared memory, data streams, etc.

**Performance Requirements**

In this, how a software system performs desired functions under specific condition is explained. It also explains required time, required memory, maximum error rate, etc. The performance requirements part of an SRS specifies the performance constraints on the software system. All the requirements relating to the performance characteristics of the system must be clearly specified. There are two types of performance requirements: static and dynamic. Static requirements are those that do not impose constraint on the execution characteristics of the system. Dynamic requirements specify constraints on the execution behaviour of the system.

**Design Constraints**

In this, constraints which simply means limitation or restriction are specified and explained for design team. Examples may include use of a particular algorithm, hardware and software limitations, etc. There are a number of factors in the client’s environment that may restrict the choices of a designer leading to design constraints such factors include standards that must be followed resource limits, operating environment, reliability and security requirements and policies that may have an impact on the design of the system. An SRS should identify and specify all such constraints.

**Non-Functional Attributes**

In this, non-functional attributes are explained that are required by software system for better performance. An example may include Security, Portability, Reliability, Reusability, Application compatibility, Data integrity, Scalability capacity, etc.

**Preliminary Schedule and Budget**

In this, initial version and budget of project plan are explained which include overall time duration required and overall cost required for development of project.

**Appendices**

In this, additional information like references from where information is gathered, definitions of some specific terms, acronyms, abbreviations, etc. are given and explained.