MAKERERE****UNIVERSITY

**COLLEGE OF COMPUTING AND INFORMATION SCIENCES.**

**BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING**

**BSE2301 RECESS**

SUPERVISOR: MBABAZI ISAAC  
Software Requirement Specification

For

BSE2301 RECESS

Version 1.0

Prepared by Group 8

Monday, June 25th 2018

**GROUP 8**

|  |  |  |
| --- | --- | --- |
| Name | Student Number | Registration number |
| Kimwero Dickson | 216000635 | 16/U/441 |
| Lumala David | 216003711 | 16/U/6679/eve |
| Nansamba Nuliyati | 214004137 | 14/U/12656/EVE |
| Musaba Ivan | 214016818 | 14/U/9961/EVE |

**Table of Contents**

Revision History 3

1. Introduction 4

1.1 Purpose 4

1.2 Document Conventions 4

1.3 Intended Audience and Reading Suggestions 4

1.4 Product Scope 5

1.5 References 5

2. Overall Description 5

2.1 Product Perspective 5

2.2 Product Functions 6

2.3 User Classes and Characteristics 7

2.4 Operating Environment 7

2.5 Design and Implementation Constraints 7

2.6 User Documentation 7

2.7 Assumptions and Dependencies 8

3. External Interface Requirements 8

3.1 User Interfaces 8

3.2 Hardware interfaces 8

3.3 Software Interfaces 9

3.4 Communication Interfaces 9

4. System features 9

4.1 Review registration 9

5 Other Nonfunctional Requirements 11

5.1 Performance Requirements 11

5.2 Safety Requirements 12

5.3 Security Requirements 12

5.4 Software Quality Attributes 13

5.5 Business Rules 14

**Table of figures**

[Figure 1: Context diagram 7](#_Toc519471958)

[Figure 2: Use case diagram 10](#_Toc519471959)

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason for Changes** | **Version** |
| Group 8 | 25-06-18 | Initial draft | 0.1 |
|  |  |  |  |

# 1. Introduction

## 1.1 Purpose

This document describes the requirement specification (SRS) for a software product that enables manipulation of datafiniti’s product database mainly focusing on the writing quality like review length, punctuation, spelling errors and rating has impacted online product reviews positively and negatively. Hence this document is a basis for evaluating how writing quality impacts positive and negative online product reviews. This is the version 0.1 of the software requirements specification.

## 1.2 Document Conventions

This document has been written using font Times New Roman, Font size 12, line spacing 1.5, text align is justified and the IEEE referencing format, most of the heading are Boldfaced. Our requirements are quite different and every requirement is going to have its own priority.

## 1.3 Intended Audience and Reading Suggestions

This document is written for researchers, Product manufacturers, Product reviewers, documentation writers, marketing staff and users involved in the datafiniti database.

We begin with initiating an open discussion for impact of writing quality on online product reviews. Section 2 discusses the steps that are to be undertaken when bringing up and analyzing the impact of the writing quality on the online product reviews. Section 3 discusses the external interface requirements highlighting the logical characteristics of each interface between the software product, the users, the hardware and the communication between them. Section 4 discusses the system features to highlight the major services to be provided by the intended product and their functional requirements. Next the other non-functional requirements are discussed. Other requirements, glossaries and we shall also conclude with some reference documents.

## 1.4 Product Scope

The final product is aimed at improving the analysis time of manipulating vast amounts of information, distinguish and easily find the best product basing on which ones are rated more, the effect of punctuation on the reviews, how spelling errors affect and to discover the effect of review length.

## 1.5 References

This document is based on the following references:

* [Gary\_B.\_Shelly, \_Harry\_J.\_Rosenblatt] \_Systems\_Analysis(BookFi.org) [1]

# 2. Overall Description

## 2.1 Product Perspective

People are often misled into acquiring wrong items and some of the reasons can be due to poor writing skills. This product assesses some of the writing issues and shows their effects and that’s in accordance to the reviews that are available. But for all this to occur there are multiple steps that can take place.

1.Initiate. In the initiation stage there involves provision of the data that is to be checked or worked upon in order to draw conclusions. This can be through providing a dataset that was obtained via a certain amount of time or to connect to the database where the reviews are stored.

2.manipulation. Next, we use the necessary skills to manipulate and work on the data so that we can come up with conclusions. This is a large amount of data so we have to be as careful as possible not to make mistakes and it’s also hard to deal with vast data but that’s the environment we have to face.

3.Reporting. We have to provide reports next according to our results which is our final step which can help in decision making like discovering which product is rated most.

## 2.2 Product Functions

**Major functions**

* Find out if users use punctuation correctly.
* Find out about the effect of spelling errors.
* Find out the distribution of star ratings.
* Discover the length of a review and its effects.



Figure 1: Context diagram

**Figure showing the Context diagram of how the different entities relate with the system**

## 2.3 User Classes and Characteristics

The following are the users that are expected to use the system;

The administrators of Datafiniti are to have access to the system and they will be issued with passwords in order to verify their credibility and will be able to check the performance of the reviews basing on each quality and assess their vast information.

The people writing reviews are also part of the system as they are the people to buy the products and rate them by giving them the viable stars, comments and many other things and that goes straight to the database which the software will manipulate through the administrators to draw conclusions and make decisions.

## 2.4 Operating Environment

The product enabling manipulation of the database to find out the effect of quality writing is expected to be deployed in the real world for example on the computers of datafiniti administrators. Web service technologies are to be studied in detail to examine the feasibility of leveraging them. The implementation is to be coupled with languages like R using R studio to effectively manipulate the data and produce feedback. Also, on top of the existing standard application layer, some other things may come in handy like Apache tomcat, server software, protocols like HTTP.

## 2.5 Design and Implementation Constraints

The challenges in developing the product may include limited time because the project is needed in the least time possible which may not be enough.

## 2.6 User Documentation

Along with the software product, a user manual would be written to help administrators and other viable people understand the working methodology and usage of the developed system. It would be written for non- technical individuals and the level of content or terminology would differ considerably for example a system administrator guide which is more detailed and complex. The user manual with key system features and operations, step by step instructions for using the system including conventions, messaging structures, quick references, tips for errors and malfunctions, pointers to reference documents and glossary of items.

## 2.7 Assumptions and Dependencies

This system will be based on provision of correct information from the database of datafiniti and the information not being altered and incases of wrong information or altered information it may lead to wrong results hence the system doesn’t analyze changed information but just manipulates what is given to it.

The system will be independent of any operating system and supports all browsers.

# 3. External Interface Requirements

## 3.1 User Interfaces

The system will make use of basic graphical user interface elements such as buttons, links and other icons. A shiny R package will be used to design the user interfaces in R studio open source software. It will include color images and every page the user goes to will contain a help function in order to improve the user’s experience. All GUI family style guides will be applied and the necessary keyboard shortcuts included details of which will be included in the user interface design specification.

## 3.2 Hardware interfaces

This system is built to depict the influence of grammar on a product database by making use of several comparison tools. It will interface with desktop networked devices such as printers to print hardcopy output. The output data includes plots and charts, reports and other statistical measures. The system will be compatible on devices with a good processor speed and RAM like at least 2GB RAM.

## 3.3 Software Interfaces

The system will be connected to the customer and product databases of Datafiniti. It will also be integrated with the Microsoft Office suite and making use of Microsoft Excel in particular to read data as comma separated values into R. All the items in the dataset are to included and every row having corresponding details, comments and response of a given customer. Tools such as Git will be integrated with R Studio to enable collaborative development.

## 3.4 Communication Interfaces

There will not be any need for internet connection for the system to run except if the host machine needs to download the relevant packages like r shiny necessary for the system to work. FTP protocol will be used to import and transfer datasets to the system for analysis.

# 4. System features

The major services and functional requirements for the product can be illustrated by system features. This section is organized by use cases for major system features. In the following necessary description is provided for each use cases in the system. Each use case description provides information, the stimulus, functional requirements.

## 4.1 Review registration

### 4.1.1 Description

This feature is associated with registration of the review and all its information to the review database. The use case for this feature is shown in the figure below.



Figure 2: Use case diagram

**Figure shows review registered in review database**

**Use case Description**

**Actors**

**Product reviewer:** Makes reviews on the products online.

**Product Manufacturer:** Manufactures products whose reviews are to be analyzed.

**Marketing staff:** Finds market for the products online.

**4.1.2 Stimulus**

1. All users will first import the dataset before analysis begins.

2. The system will then analyze the dataset in two ways; check punctuation, and check grammar.

3. After analysis, the system will then visualize the insights.

4. Then all graphs will be displayed.

### 4.1.3 Functional Requirements

REQ-1: User should be able to upload datasets for analysis.

REQ-2: The system should display the imported data immediately after dataset upload.

REQ-3: The system should analyze the grammar for the product reviews.

REQ-4: The system should analyze the punctuation for the product reviews.

REQ-5: The system should visualize the insights got from the analysis.

REQ-6: The system should display graphs and conclusions from the analysis

REQ-7: The system should perform a sentimental analysis on the product reviews

# Other Nonfunctional Requirements

## Performance Requirements

* At least 20 percent of the processor capacity and storage space available to the system shall be unused at peak load seasonal periods.
* The system restart cycle must execute completely in less than 60 seconds.
* System shall be able to process a notification in 1 second or less, and up to and including 100 notifications in 15 seconds or less.
* The initial system shall be able to handle the entry of orders by customers at a minimum rate of 10 per second.
* The system must accommodate 300 simultaneous users or less within the peak load period from 9:00 a.m. to 11:00 a.m. Maximum simultaneous user capacity loading at non‐peak periods will be 150.
* Any interface between a user and the automated system shall have a maximum response time of two seconds.
* Complete report summaries of the current business day’s trading shall be available one minute after the end‐of‐day close of trading.
* Routine maintenance that is executed while users are active shall not cause a perceptible increase in response time for any function of more than 5% over the response time when no maintenance process is executing.

## Safety Requirements

* The vending product shall be able to be used by adult members of the public without training.
* The system must only authorize transactions of the only original products in the cart.
* Proper prescription and product description must be guaranteed.
* There must be prior product testing and sampling to ascertain the true quality with the required health standards and designed outcomes.
* Expired products must be checked and removed from cart regularly.
* No member of a test panel shall incur an injury while playing with the product. The product must comply with product safety regulations as defined by the state constitution.

## Security Requirements

* Users shall be forced to change their password the next time they log in if they have not changed it within the length of time established as “password expiration duration.”
* Users must change the initially assigned login authentication information (password) immediately after the first successful login. The initial password may never be reused.
* The system shall ensure that the original product data can be accessed only by authorized/signed up users. The system shall distinguish between authorized and non‐authorized users.
* Any restricted employees/users shall not be allowed to update any product data information, and any such attempt shall be reported to the security administrator.
* The access and alteration permissions for system data may only be changed by the system’s data administrator.
* Passwords shall never be viewable at the point of entry or at any other time.
* Each unsuccessful attempt by a user to access an item of data shall be recorded on an audit trail.
* Users shall receive notification of profile changes via preferred communication method of record when profile information is modified.

## Software Quality Attributes

* The system shall be accessible by people with specific vision needs, to the extent that a user shall be able to:

Display the whole user interface in a large font without truncating displayed text or other values.

Use a screen magnifier to magnify a selected part of the screen.

Use a screen reader to read aloud information displayed.

* The Online Payment System shall be available for use 24/7 and shall achieve 100 hours MTBF (mean time between failures).
* Unless the system is non‐operational, the system shall present a user with notification informing them that the system is unavailable.
* The system shall protect the privacy of all protected product information in compliance with the privacy rule of the government Act and shall remain confidential with original content for user confidence in the system.
* All monetary amounts must be accurate to two decimal places.
* The integrity of the system data area must be checked by the internal audit system twice per second.
* Inconsistencies in the data are detected; the system operation should be disabled.
* The authorization transaction match process shall require a 100‐percent match to post a transaction.
* People with no training and no understanding of English shall be able to use the product.
* The system shall be useable by program developers after five weeks of training.
* For Flexibility; Provisions shall be made for the future usage of multiple languages. Provision shall include at least the following: 1)
* The structure of the data store shall be such that multi‐lingual support shall not necessitate additional components or the need to replace current components, and 2) A user shall be able to nominate their preferred language when entering their personal information.
* Maintainability; The customer service call center shall analyze 95% of the problem reports within 2 hours. Items classified as “urgent” shall be repaired within 3 business days in 98% of the reported cases.
* The system shall not be shut down for maintenance more than once in a 24‐hour period.
* The product shall not use picture icons that could be considered offensive in any country where the product is marketed.
* All developers on the project shall have identical development environment configurations, and all testers shall have identical quality assurance environment configurations.

## Business Rules

* The integrity of the system data area must be checked by the internal audit system twice per second; if
* Inconsistencies in the data are detected; the system operation should be disabled.
* When an update failure is detected all updates performed during the failed session shall be rolled back to restore the data to pre‐session condition.
* The customer service call center shall analyze 95% of the problem reports within 2 hours.
* A development programmer who has at least one year of experience supporting this system shall be able to add a new product feature, including source code modifications and testing, with no more than one week of labor.
* The system shall not be shut down for maintenance more than once in a 24‐hour period.
* The elapsed duration of time required to produce any statement or report showing information about transactions shall be based upon how much data is presented rather than the total quantity of stored data.
* The claims system shall support all assigned adjustors following any catastrophic event.
* The system shall support unlimited customer and transaction relationships.
* The business rules repository shall be scalable to manage an unrestricted number of additional rules.
* All developers on the project shall have identical development environment configurations, and all testers shall have identical quality assurance environment configurations.
* The basic language used in the incoming mail department shall be English to increase communication effectiveness and reduce processing errors.

**Other requirements**

**Appendix A: Glossary**

**Appendix B:Analysis Models**

**Appendix C: To be determined.**