Washington State University
Vancouver

Software Requirements Specification

for

Keyswitch Lookup Application

Version 1.0

Prepared by

Group Name: Fellowship of the Keys

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Table of Contents

Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1st Draft	Jonathan Meisner Joseph Boothby Kyle Stoneberg Elliott Long	Initial version of document.	11/06/20
Final Draft	Elliott Long Joseph Boothby Jonathan Meisner Kyle Stoneberg	Final version of document	12/12/20

1 Introduction

In the world of computer components, one of the most paramount and ubiquitous of them all is that of the keyboard. And within this world are numerous different varieties, from dome and optical, to that of the mechanical switch. Further still, within the world of the mechanical switch, there are innumerable variants, a somewhat daunting aspect that can leave users searching out mechanical keyboards with specific needs in mind confused and annoyed due to the lack of easy-to-parse sites of information. The project Fellowship of the Keys aims to eliminate that issue by providing a simple to use site in order to parse through differing varieties of keys, all depending on desired qualities, be that audibility of clicks, actuation strength required, or otherwise.

1.1 Document Purpose

This document outlines the design aspects of an application to aid users in finding information regarding mechanical keyboard switches. It aims to provide a source that centralizes the information available on other sites in a more readable and user-friendly way. This will be Release 1 of version 1.0.

1.2 Product Scope

The software is intended to catalogue mechanical keyboard switches, describe properties of the switches (including but not limited to tactility and audio qualities), and link to outside resources for potentially purchasing keyboards with matching switches through mechanicalkeyboards.com. The settings will be toggleable, allowing for dynamically sorting the list of switches by various qualities. This will be an improvement over existing systems in that it is orderable in a way that others have historically not been, allowing for an easier user experience in parsing information.

1.3 Intended Audience and Document Overview

The intended user for our website are clients interested in learning more about mechanical keyboard switches, and professors looking to grade a project. The rest of the SRS will contain (in this order): a list of definitions, abbreviations, and acronyms in section 1.4, the writing conventions used within the document in section 1.5, and references and acknowledgements in section 1.6. The 2nd section, the SRS features an overall description of the functionality, expected users, and generalized operating environment the software will be used in. Section 3 consists of all of the functional requirements of the software. Section 4 consists of all of the non-functional requirements of the software. For a typical client, a reading order of 1.4, 2.2, and 3.3 is suggested. For professors looking to grade, an order of 1.4, 2.1, 2.2, 2.4, 2.7, and 3.1-3.3.

1.4 Definitions, Acronyms and Abbreviations

Clicky - Loudly audible

CSS - Cascading Style Sheets

Dome Switches - A switch that uses a depressed rubber dome to register a keypress

HTML - HyperText Markup Language

Mechanical Keyboard - A keyboard featuring mechanical switches

Mechanical Switches - A switch that uses a mechanical mechanism to register a keypress

Modern - Maintained and updated from 2018 and on

Optical Switches - Switches that uses a visual sensor to register a keypress

SRS - Software Requirements Specification

Switch - Mechanical switch

MX Cherry - The leading manufacturer of mechanical keyboard switches

1.5 Document Conventions

This document follows IEEE formatting standards.

1.6 References and Acknowledgments

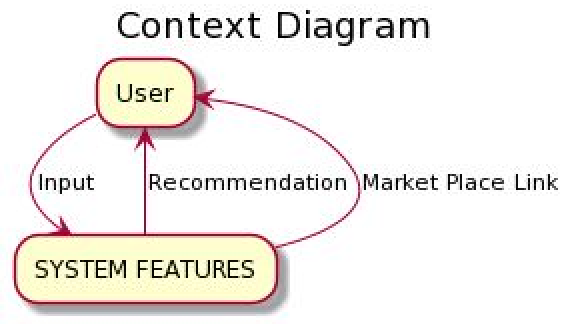
[1] "The Ultimate Mechanical Keyboard Catalog" *mechanicalkeyboards.com* [Online]. Available: https://www.mechanicalkeyboards.com. [Accessed 11/01/20].

2 Overall Description

2.1 Product Perspective

This product is a self-contained web-based application. While our product does provide links to marketplaces, the information about switches is not dependent on any outside sources. The Fellowship of the Keys web-application provides a centralized source of accurate background information about mechanical keyboard switches and their characteristics to include: actuation pressure, lifecycle, tactile or not, and clicky or not. After the user makes an educated selection of key type, and chooses how they would like the results sorted, the web-application provides links to a marketplace (MechanicalKeyboards.com) where the user can purchase a keyboard with this type of switch [1].

This product is the answer to a deficit of information surrounding the selection of a mechanical keyboard based on switch type and streamlines the process for a first-time purchaser. The application itself does not provide income from the sales of these keyboards as an outside marketplace handles the transaction, so advertisements will be required to generate revenue.



2.2 Product Functionality

Our product will have the following functionality

- ❏ Provide Information about the different types of keyboards (Mechanical vs. Optical vs. Dome)
- ❏ Provide an introduction to keyboard switches
- ❏ Explain the differentiating characteristics of a mechanical keyboard switch
- ❏ Allow the user to filter by desired characteristics of a switch and display matching items
- ❏ Allow the user to choose if they would like to see the most expensive or least expensive keyboard first
- ❏ Provide a link to a trusted marketplace where the user can purchase a keyboard that uses the type of switch that they selected

2.3 Users and Characteristics

There are two different types of users of our web application. The first is users who are just interested in the knowledge about different switch types. These users will only be interacting with the “Display Switch Descriptions” and “Recommend Switch Type” activities of the program, and are the least important group for us to satisfy because they will generate the least amount of money.

The second type of user is the user who is looking to purchase a mechanical keyboard and will interact with the full capabilities of our site. These users are more important to satisfy for two reasons: they are more likely to recommend our site to future keyboard purchasers, and we may be able to get the marketplace to pay us for each successful purchase that we send to them.

The application must also allow for modification of the data presented by an administrator. It is possible that the static links to the marketplace may need to be updated, the line-up of available switches could change, or simply that the website information needs to be updated. For this, there must be an administrator.

2.4 Operating Environment

Our system will operate on any modern web browser to include, but not limited to, Mozilla Firefox, Google Chrome, and Internet Explorer. The project will be written using HTML, CSS, and JavaScript, so anything capable of interpreting these will display the web application properly. The only interaction with our site will be through mouse clicks on drop down lists and buttons. This means that the minimum requirement to use our application is a web browser and a mouse or, if on a mobile device, a web browser and a touchscreen.

2.5 Design and Implementation Constraints

The main constraints in this project relate to the interface with the marketplace we choose. It is possible that we would need to obtain proper permission from the site that we link to if we plan to make money using our application. We also must trust that the marketplace does not change its site layout in any manner that would invalidate our links.

2.6 User Documentation

Code documentation and well commented scripts will be sufficient for the maintenance of our project as its operation will be straight-forward. To use our web-application, all that users need to do is visit the home page. The website itself will explain the purpose and proper use of the site to guide new users through the switch selection process.

2.7 Assumptions and Dependencies

Dependencies:

- ❏ External Marketplace Website
- ❏ Website Hosting (Amazon Web Service)

Assumptions:

- ❏ The marketplace will remain static, allowing for our links to stay valid
- ❏ The type of switch that the user wants will be covered in the scope of our recommendations
- ❏ The hosting we choose will be able to handle any amount of web traffic we generate

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

On site startup users will be greeted with a homepage where they are welcomed and the goal of the site is displayed along with a get started guide. Attached to the welcome screen would be a page that contains information about mechanical key switches and optical/dome key switches as well as their differences. This page would visually contain images of both switch types along with some fun statistical data for the user to digest. The last page of the website would be a full list containing all the MX Cherry switches. Users here would have access to filters to manipulate the listed switches. Each list element would be an expandable panel that once expanded will give the descriptive information about the switch and a link to a trusted marketplace that has keyboards with that specific switch in them for sale [1].

Each page will be accessible at the top of the site via buttons for easy navigation.

3.1.2 Hardware Interfaces

Click Interface

The system must be able to recognize user clicks in an event-driven format. This interface with the hardware will be handed by the browser that is running our application. This means that the supported device types are an extremely broad category. The user may utilize a mouse, a touchpad, or a touchscreen and the browser will recognize this as a click for our system.

Keyboard Interface

The system must be able to recognize keyboard input in an event-driven format. The interface with the hardware will be handed by the browser that is running our application. This will be used only for the purposes of administrative login and management of adding/removing switch types.

3.1.3 Software Interfaces

The only software that our application needs to interface with is the browser. In turn, the browser is the interface to the operating system. Modern browsers standardize their operation across multiple operating systems such as Windows, Linux, and Mac. This means that all operating systems should have the same experience

3.1.4 Communications Interfaces

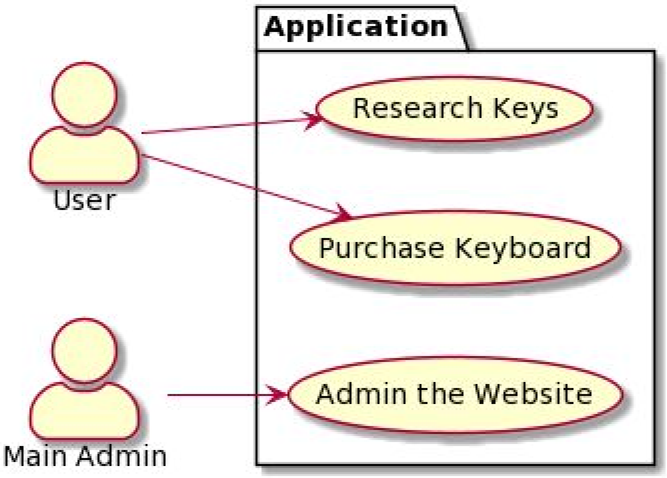
The only communications necessary for the site is a hyperlink to mechanicalkeyboards.com for each of the types of keyboard switches [1].

3.2 Functional Requirements

- ❏ Mechanical Switch Filters
  - ❏ Filters the switches visible to the user on the switches page. Users can select a filter type to only show those specific switches. When a filter is applied the list should change to match that filter and only return those who match the criteria.
- ❏ Page Navigation
  - ❏ Buttons at the top of the application should navigate users to the appropriate pages within the webpage.
  - ❏ If users select the same page that they are on, it should refresh the page to its original state.

3.3 Behavior Requirements

3.3.1 Use Case View



The user in this diagram represents users who are just interested in researching mechanical keyboards and users who want to purchase a keyboard. The same user may want to do both actions, and are therefore represented as a single entity. The Main Admin is the site administrator and they need access to the application in order to keep the information up to date, fix dead links to the marketplace, or perform any other desired maintenance.

4 Other Non-functional Requirements

4.1 Performance Requirements

The simplicity of the application means that there are no performance requirements that need to be mentioned.

4.2 Safety and Security Requirements

The application will be providing a link to other external websites. These links will be secure and lead to a trusted marketplace where the user can purchase a keyboard. No user information will be stored or collected in order to run this site.

The site platform and scripts used to run the application will be regularly kept up to date in order to prevent bugs and or possible security issues.

4.3 Software Quality Attributes

4.3.1 Availability

The application will be available on all modern web browsers and on modern major operating systems (MacOS, Windows, Linux, Android, iOS).

4.3.2 Usability

The application will be user-friendly in that it will not introduce any new, non-standard functionality. There will be dropdown menus that are clickable and hyperlinks that are clickable.

Appendix A – Data Dictionary

Admin: A designated administrator editing the list of key types available
User: An individual or group using the website in a browsing fashion

Appendix B - Group Log

9/30:

Catalog build to be object oriented javascript or java with additional modules or packages to be determined

Git Repo (keyboard-webapp) Created & Invited Group Members

10/2:

First Team Meeting

Team Arrangement Documentation Filled out.

Jonathan Meisner appointed as Initial Project Lead

Submitted Document via BB ~4:45pm 10/2/2020

10/26:

Met With Team

Discussed structure of project

~1 hour 15 minute meeting time

11/4:

Met With Team 3:00 - 5:30 & 6:30 - 8:00pm

Finished up section 2, 3, and 4.

Section 4 may need some touching up still.

Touched up editing and formatting.

~4 hour meeting time

Appendix C – Git Log

For convenience, a link has been provided:

https://github.com/JonMeisner/keyboard-webapp/commits/master