Software Requirements Specification

For

DIU Alumni Association

Version 0.1 approved

Prepared by

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Revision History

Name	Date	Reason For Changes	Version

1. 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 **DIU Alumni Association System** by defining the problem statement in detail. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features. The detailed requirements of the **DIU Alumni Association System** are provided in this document.

1.1 Purpose

The purpose of the document is to collect and analyze all assorted ideas that have come up to define the system, its requirements with respect to alumni members. Also, we shall predict and sort out how we hope this system will be used in order to gain a better understanding of the project, outline concepts that may be developed later, and document ideas that are being considered, but may be discarded as the system develops.

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 system and its associate's members and its user interface, hardware and software requirements. It defines how admin, alumni's and general member see the system and its functionality. Nonetheless, it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

1.2 Project Scope

Primarily, the scope pertains to the alumni features for making DIU Alumni System. It focuses on the institution, the stakeholders and applications, which allow alumni members to be connected in an online platform and keep relationship between them.

This SRS is also aimed at specifying requirements of software to be developed but it can also be applied to assist in the selection relation between the graduates. The standard can be used to create software requirements specifications directly or can be used as a model for defining the system requirements.

1.3 Glossary

This subsection contains definitions of all the terms, acronyms, and abbreviations used in the document. Terms and concepts from the application domain are defined.

- DIU – Daffodil International University
- SRS – System Requirement Specification
- SDLC – Software Development Life Cycle
- UI – User Interface

1.4 References

IEEE. *IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.

1.5 Overview

This system is designed to be a facility for maintaining relationship between the graduate's members from Daffodil International University such as creating post, events, notice posting job circular is available to any member as well as command and control systems. The rest of the SRS examines the specifications of the DIU Alumni Association System in detail. Section 2 of the SRS presents the general factors that affect the Alumni system user role such as user class and characteristics and section 3 of this SRS presents the overall design and implementation techniques of this system.

2. User Classes and Characteristics

There are three types of users in this system. The first two are, executive member, and general member, the only distinction between them is that executive member are allowed to see the preference and exclusion sets of other users. It is the third type of user, the administrator, who is able to initially setup the system, add new users, and set their authorization level.

General Member: Most members will be of the type general member. These members are able to like, comment share any post events and notice. They also can see all the executive alumni members' associates to this system. They also can get the executive alumni card facilitates.

Executive Member: The next most common type of user is the authorized executive members. These users have the same permissions as the general member's with the additional ability to view other member's preference and exclusion set. They are allowed to post events notice even they also can post job circular for general alumni member's. Also they have the permission to change their profile and their post.

DIU Authority: Finally, the system administrators are users who are able to setup the system from the initial installation and maintain the systems member accounts. They automatically have the functionality of authorized users within the normal operation of the system; however have additional menu options which allow them to maintain the system.

3. Design and Implementation Constraints

Design and implementation constraints are those that we have used to implement this project make successful. It also describes tool that enables developers and testers to view and interact with the user interface (UI) elements of this application.

3.1 User Interface Technology

User interface (UI) is everything designed into a system view that which person's associates with this system may like the interface of this system.

3.1.1 Programming Language

For developing this system we will use PHP as a programming language. PHP (recursive acronym for *PHP: Hypertext Pre-processor*) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages

3.1.2 JavaScript and jQuery Library

The most common use of JavaScript is to add client-side behaviour to HTML pages, also known as Dynamic HTML (DHTML). Scripts are embedded in or included from HTML pages and interact with the Document Object Model (DOM) of the page.

jQuery is a JavaScript library. jQuery greatly simplifies JavaScript programming. jQuery UI is a curated set of user interface interactions, effects, widgets, and themes built on top of the jQuery JavaScript Library. Whether you're building highly interactive web applications or you just need to add a date picker to a form control, jQuery UI is the perfect choice. jQuery UI is built for designers and developers alike. We've designed all of our plug-ins to get you up and running quickly while being flexible enough to evolve with your needs.

3.1.3 CSS Framework

CSS is a language that describes the style of an HTML document. CSS describes how HTML elements should be displayed. Build responsive, mobile-first projects on the web with the world's most popular front-end component library.

Bootstrap is an open source toolkit for developing with HTML, CSS, and JS. Quickly prototype your ideas or build your entire app with our Sass variables and mix INS, responsive grid system, extensive prebuilt components, and powerful plug-ins built on jQuery.

The bootstrap code is included minified, which means that white spaces are removed to make the file size smaller and therefore make the load time faster for the file which improves the load time for the whole page. The main design that bootstraps ads without specifically adding design to elements is that when hovering over a link. This is fixed with some simple CSS-code added to the CSS-file, unless the bootstrap CSS-file is included after the original, then bootstrap will override the custom ones and the changes will not be seen. Having some basic knowledge about how Bootstrap works before starting to use it would increase the efficiency and speed one might achieve the goal one has in mind for including bootstrap into the project.

3.2 Implemented Tools and Platform

Every business plan, campaign, or project comes down to Tactics, Tools, and Strategies. To conceive, develop, and implement a sound social media marketing strategic plan that will be successful needs to have those three critical components.

3.2.1 Web Server

A Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as Web servers as well. We will use the Apache HTTP server to implement this project

3.2.2 Database Server

We will use MySQL database server to store all of the information of this system. The reason behind to choose the database server are given below:

- Security
- Reporting and Data Mining
- Replication
- Fault tolerance
- Performance diagnostics

4. Use Case Diagram

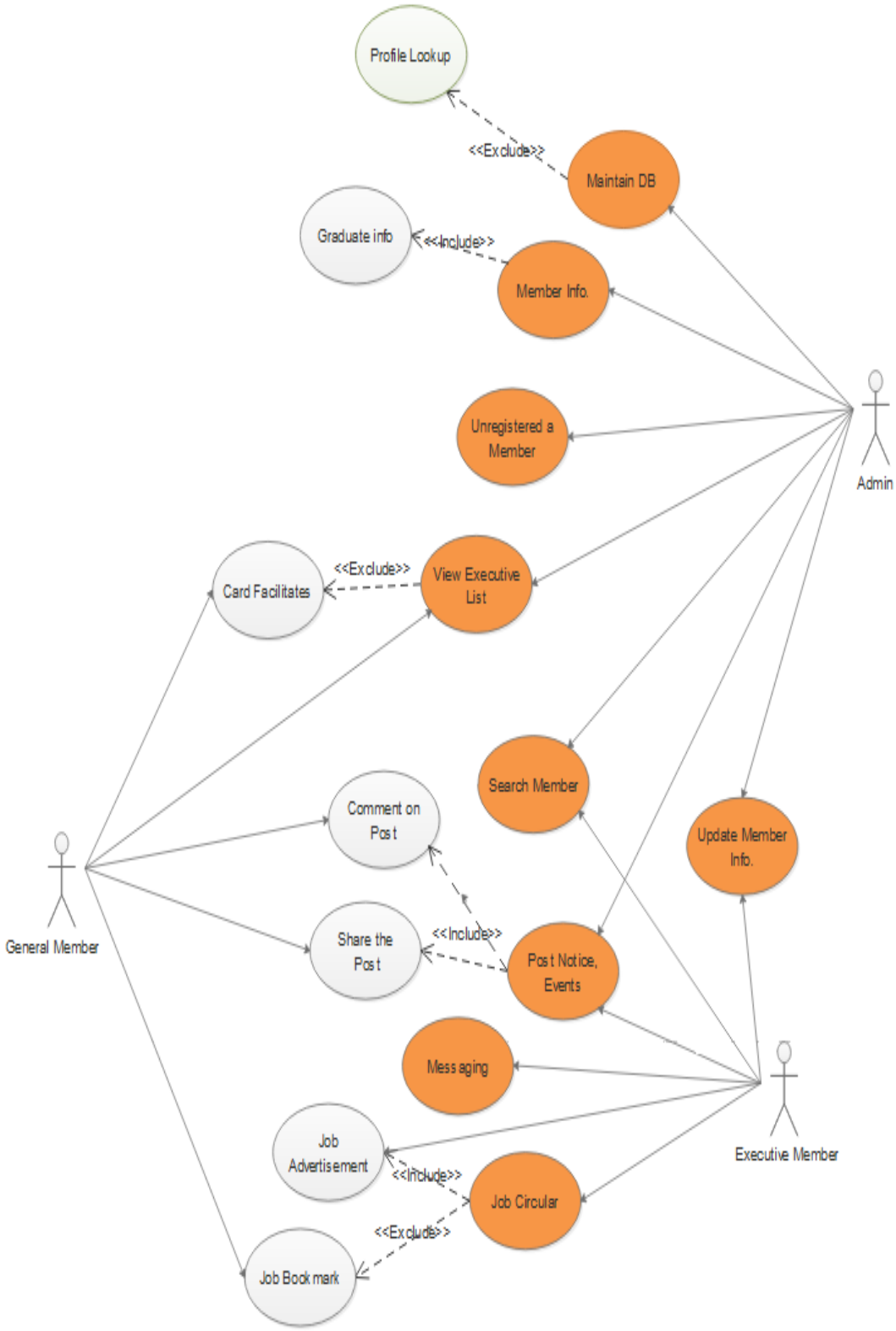

Figure 4.1: Use Case Diagram of DIU Alumni System

5. Requirement Specification

The complete requirement specification based on the elicitation process is described in this section.

5.1 Functional Requirements

The Functional Requirements Specification is designed to be read by a general audience. Readers should understand the system, but no particular technical knowledge should be required to understand the document.

FR-01	**Member Information**
Description	This module helps admin to register alumni members. Admin is able to maintain all the information of alumni members
Stakeholders	Admin

FR-02	**Update Members Details**
Description	This module helps admin to update alumni members' information. Admin and alumni members can update the details of the members and we store these details in database.
Stakeholders	Admin, Alumni member

FR-03	**Unregistered Members**
Description	Admin can delete the details of the alumni member and it also deletes these details in database.
Stakeholders	Admin

FR-04	**Search Member**
Description	Admin can search the details of the students and the system displays the specific member
Stakeholders	Admin

FR-05	**View Member Details**
Description	Admin as well as members can view the entire details of the students or members who are registered.
Stakeholders	Admin , Alumni member

FR-06	**Post Events and Notice**
Description	Admin as well as members can post or create any type events and notice that is related to this alumni. All the members of this alumni can see every events and notice
Stakeholders	Admin , Alumni member

FR-07	**Job Posting**
Description	The executive alumni members can post any job circular news to this alumni system and the members of this system can comment on this job posting and can share the post
Stakeholders	Admin , Alumni member

FR-08	**Messaging**
Description	All the registered alumni members can message to each other through this system
Stakeholders	Alumni members

5.2 Performance Requirements

A requirement that specifies a performance characteristic that a system or system or system component must possess; for example, speed, accuracy, frequency.

5.2.1 Speed and Latency Requirements

The system is required a fair amount of speed especially while browsing game lists to take bet on a posted game.

PR-01	The Landing page will response within a second
Description	While the user's browsing the system the landing page will show within a second. It also depends on user's internet connection.
Stakeholders	Admin, Executive Alumni, General Alumni

5.2.2 Precision and Accuracy Requirements

There are no specific precision and accuracy requirements

5.2.3 Capacity Requirements

The system is able to manage all the information of passed out students.

PR-02	Initially the system will store 50,000 student information
Description	The information of Alumni will be stored in database.
Stakeholders	Admin, Executive Alumni

5.3 Dependability Requirements

The flexibility of current frameworks encourage system architects to enable reconfiguration mechanisms that refocus the available, safe resources to support the most critical services rather than over-provisioning to build failure-proof system. Therefore, these requirements are essentials.

5.3.1 Reliability and Availability

In order to support global and smooth operations the system must be available around the clock. On the other hand most services in this system are not mission-critical. Even better the game posting can handle times of downtime as the users usually interact with high-availability from third party website. This system will be able to catch up with their data once it's up and running again.

DR-01	The system must be available 24x7
Description	• The system must be available 24 hours in a day • The system must be updated regularly • The system must publish the notice, events and job posting and update these regularly
Stakeholders	Admin, Executive Alumni

5.3.2 Robustness and Fault Tolerance Requirements

The system will almost ensure 0% crush in any single minor error and don't give any wrong calculation.

DR-02	The system handles over access and system errors
Description	Sometimes multiple users can over access to this system. The system can handle multiple user access
Stakeholders	N/A

5.3.3 Safety Critical Requirements

There are no specific safety critical requirements

5.4 Maintainability and Supportability

Supportability is the degree to which system design characteristics and planned logistics resources meet system requirements. Supportability is the capability of a total system design to support operations and readiness needs throughout the life-cycle of a system at an affordable cost.

5.4.1 Maintenance Requirements

MS-01	The system helps to update any information in any time
Description	The admin and executive alumni can post any events and can enable to change or update any information in any situation
Stakeholders	Admin, Executive Alumni

5.4.2 Supportability Requirements

In order to understand the system's behaviour on a technical support required by the system operator. The reason for reading them might be

- System malfunction has occurred and the system operator has to find the exact point of time when this happened
- System produces wrong results and the developers must be able to reproduce the data flow through the system
- Hacker tried to breach the system's security mechanisms and the system operator must understand what he did

5.4.3 Adaptability Requirements

There are no specific adaptability requirements

5.5 Security Requirements

There are no access requirements beside those that have been outlined in the below:

- The software must validate all user input to ensure it does not exceed the size specified for that type of input
- The server must authenticate every request accessing the restricted Web pages
- After authenticating the browser, the server must determine whether that browser is authorized to access the requested restricted Web pages
- The system must have security controls to protect against denial-of-service attacks
- The system must encrypt sensitive data transmitted over the Internet between the server and the browser

To get access to this system or a specific module the system must provide a central authentication mechanism. In order to prevent anyone to exploit stolen all users password must be encrypted in hash process.

5.5.1 Access Requirements

To get access to the system, the system provides authorization/authentication way. This system uses various modules.

SR-01	The system provides security strategies.
Description	The system is designed in way that allows all modules to access a mechanism that provides security services.
Stakeholders	Admin, Executive members, General Members

5.5.2 Integrity Requirements

To protect credentials of user from being stolen, all passwords are stored in encrypted form. The Requirements significantly reduces the value of stolen user credentials, it's not easy to decrypt the password.

5.5.3 Privacy Requirements

The system provides a protection of the database in the server. However, the system will have to increment this level of protection because of the personal data mode available on the system & the larger share of people that will be having access to it through the system's registration. The user's privacy will be granted by the limited access that the log in process is going to give to the database.

SR-02	All data will be protected
Description	The main requirement in the context is the generation of Alumni member's data for analysis.
Stakeholders	Admin, Executive members, General Members

5.6 Usability and Human Integrity Requirements

These Requirements define how to meet the physical and cognitive needs of the intended users of your website or application

5.6.1 Ease of Use Requirements

The system is easy to use and can easily be understandable.

UH-01	The system must be usable for Alumni member's with all associate stakeholders.
Description	The system indicates the several possibilities that the alumni member has to go on in using the system. The alumni members are allowed to undo any of the operation.
Stakeholders	Admin, Executive members, General Members

5.6.2 Understand-ability and Politeness Requirements

This section describes more requirements of DIU Alumni system to add more features in future

UH-02	The features of DIU Alumni System
Description	The system is more efficiently ease of use more added features .The system is understand-ability for both user. The system will not use any term that is not specified in this system.
Stakeholders	Admin

5.6.3 Accessibility Requirements

There are no access requirements beside those that have been outlined in the below:

AR-1: Log in as a Admin

AR-2: Log in as an Executive Alumni

AR-3: Log in as a General Member

AR-4: Log out as a Admin

AR-5: Log out as an Executive Alumni

AR-6: Log out as a General Member

To get access to this system or a specific module the system must provide a central authentication mechanism. In order to prevent anyone to exploit stolen all users password must be encrypted in hash process.

5.6.4 User Documentation

UH-03	The system developer documentation
Description	To develop this project we have specified requirement of user documentation. The teams are involved to this project documentation.
Stakeholders	System Developer

5.7 Look and Feel Requirements

The look and feel requirements describe the intended spirit, the mood, or the style of the product's appearance. These requirements specify the intention of the appearance, and are not a detailed design of an interface.

5.7.1 Appearance Requirements

It should be clear to the admin and alumni which fields need to be filled and which can be left blank in this system.

LF-01	Labels of mandatory fields must be bold
Description	Labels of mandatory fields must be bold to identify them as being of mandatory.
Stakeholders	Admin, Executive members

5.7.2 Style Requirements

We will provide a web based user interface. This requirement does not only define the necessity to use a css but although the requirements regarding the css's content as well as css framework like bootstrap.

LF-02	The look and feel must be controllable using style sheet.
Description	The styling of the elements of the web based user interface will be defined using css, JS and bootstrap.
Stakeholders	Admin, System Developer

5.8 Operational and Environmental Requirements

This requirements focus on how the users will operate the system, including interfaces and interoperability with other systems. The requirements establish how well and under what conditions the system must perform.

5.8.1 Expected Physical Requirements

There are no specific expected physical requirements

5.8.2 Requirement for Interfacing with Adjacent System

There is no specific interfacing with adjacent system requirements

5.8.3 Release Requirements

There are no specific release requirements but in the project schedule section it was described briefly.

5.9 Legal Requirements

These requirements consider any violence of rules and regulation and which rules should be followed to maintain this system

5.9.1 Compliance Requirements

There are no specific compliance requirements

5.9.2 Standard Requirements

There are no specific standard requirements

6. Requirement Engineering Process

Requirements engineering refers to the process of defining, documenting and maintaining requirements in the engineering design process. It is a common role in systems engineering and software engineering.

6.1 Requirement Elicitation Techniques

Requirement elicitation is the process of collecting and refining stakeholder's requirements. Projects are garbage-in-garbage-out meaning that poor quality requirements typically lead to project issues and failure.

6.1.1 Hold Elicitation Interviews

We hold interviews that can be performed one-on-one or with a small group of stakeholders. They are an effective way to elicit requirements without taking too much stakeholder time because we meet with people to discuss only the specific requirements that are important to this system. Interviews are helpful to separately elicit requirements from members in preparation for workshops where those member of this system come together to resolve any conflicts.

6.1.2 Perform Document Analysis

Existing documentation can help reveal how systems currently work or what they are supposed to do. Documentation includes any written information about current systems, business processes, requirements specifications, competitor research. Reviewing and analyzing the documents can help identify functionality that needs to remain, functionality that isn't used.

6.1.3 Distribute Questionnaires

We conduct a survey to collect requirements for this system. Questionnaires are a way to survey large groups of users to determine what they need. Questionnaires are useful with any large user population but are particularly helpful with distributed groups.

6.2 Requirement Validation

Validation ensures that the requirements are correct and demonstrate the desired quality that you want from this system. Requirements that seem fine when you read them might turn out to have ambiguities and gaps when to try to work with them.

6.2.1 Review the Requirements

Peer review of requirements, particularly the type of rigorous review called inspection, is one of the highest-value software quality practices available. Assemble a small team of reviewers who represent different perspectives and carefully examine the written requirements, analysis models, and related information for defects.

6.2.2 Test the Requirements

We tests constitute an alternative view of the requirements. We also conduct writing tests about how to tell if the expected functionality was correctly implemented. Derive tests from the user requirements to document the expected behaviour of the product under specified conditions.

6.2.3 Simulate the requirements

To simulate the requirements commercial tools are available that we have used to simulate a proposed system either in place of or to augment written requirements specifications. Simulation takes prototyping to the next level.

6.3 Change Management

We used a common set of web-based tools for handling change requests and tracking open issues is essential. Change always has a price, so using change management practices to control scope creep is vital in a contract-development situation. We will provide these following issues in change management.

- Evaluate and prioritize defect corrections and enhancement requests
- Dynamically adjust the scope of future releases or iterations
- Evaluate the impact of proposed changes on users and business processes
- Participate in making change decisions

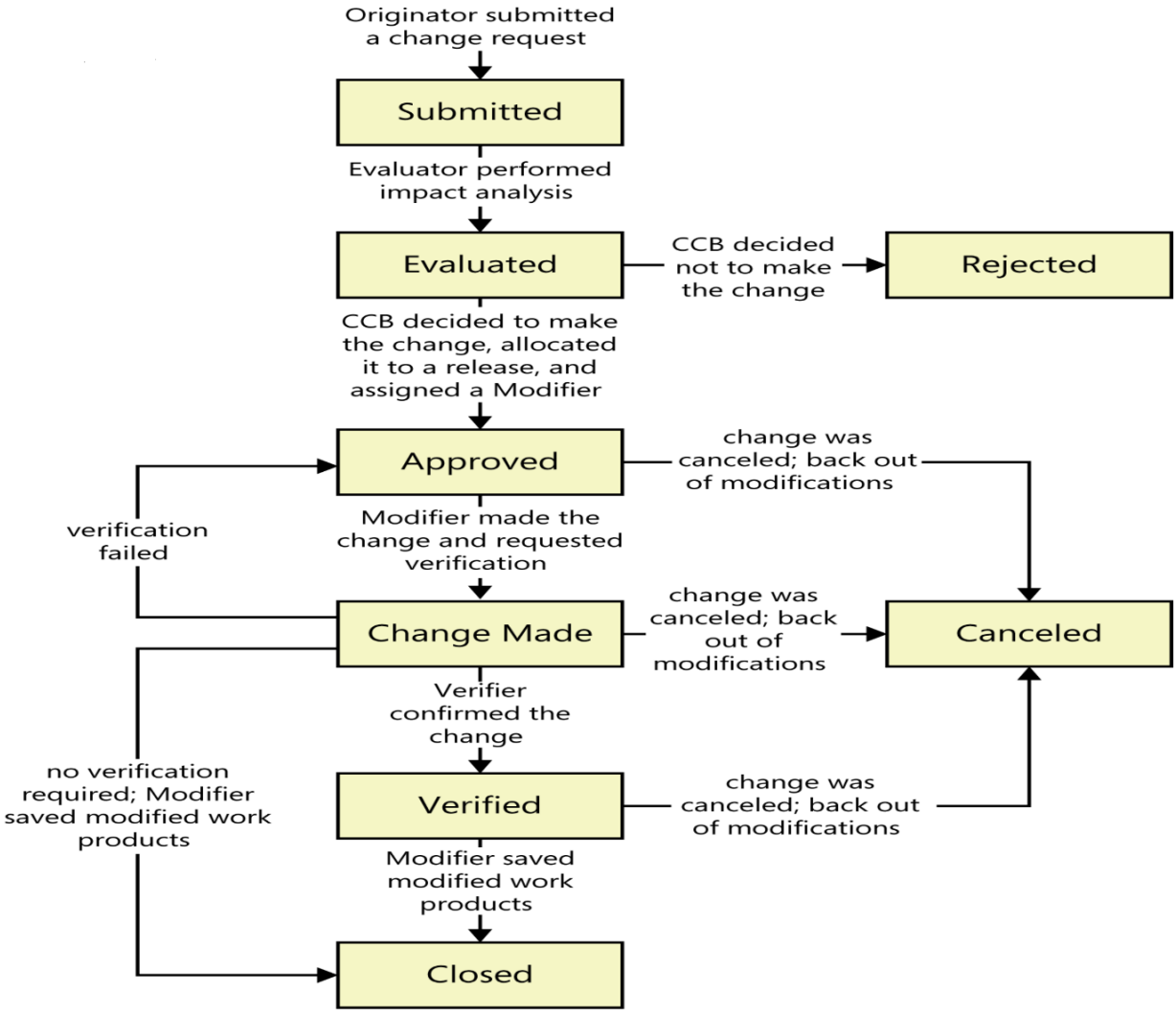

Figure 6.1: State Diagram of Change Request