Software Requirement Specification

for

WikiMon

Version 1.0 approved

Prepared by Vishwa, Anup, Sreesh

PES University

February 6, 2021

Contents

Revision History

Name	Date	Reason For Changes	Version
WikiMon	February 6, 2021	Created Initial SRS	1.0

1 Introduction

1.1 Purpose

WikiMon is an open-collaborative knowledge repository where users can view, edit and add knowledge about various objects, places, events and so on. Users can search for anything they like and remember WIkiMon as a default source of information.

1.2 Intended Audience and Reading Suggestions

The first few sections of this document intend to give a high level overview of this project and specify the goals and functionality. Further details about the implementation and internal workings are presented in the further sections. Developers are requested to read these sections for their reference.

1.3 Product Scope

WikiMon aims at bringing high quality factual information to everyone by having people from various professions around the world come together and share their knowledge. Every detail presented by WikiMon is fully reviewed and rewritten until it is flawless and will impart highly available knowledge on your desktop, tablet, phone and any device which supports a web browser.

1.4 References

The UI follows material design which is a grid based responsive design. More design requirements along with all use case guidelines can be found on WikiMon Developers site (you must register first).

Few of the design requirements and use cases are illustrated in this document under Software.

2 Overall Description

2.1 Product Perspective

WikiMon is a product in the family of projects which aims at bringing free knowledge to everyone. This project looks at unifying information from various sources and presented a neat overview of any topic present in WikiMon without delving into too many details which are better explained in the citations provided.

2.2 Product Functions

WikiMon is an open-collaborative knowledge repository. Hence it supports all features required for creating, reviewing and reading articles. Here is a list of features currently supported.

- Search the site for different articles in different categories
- Read articles and view citations to learn more about the what the article talks about
- Suggest edits after reading articles
- Users can create accounts and keep track of what they read.
- Users can become reviewers which gives them additional features/privileges.

2.3 User Classes and Characteristics

WikiMon will primarily be used by the general public for viewing information about various topics. WikiMon aims at making sure all the information presented is accurate, hence a lot of resources will be put in making sure all information is properly reviewed. Hence there will be two broad classes of users who will be involved aside from developers

2.3.1 General Public

- These are the users who will be largely reading information and occasionally submit request for edits, submit content

2.3.2 Community Reviewers

- These people are not directly involved with WikiMon but help review content from the general public for publishing and existing content in case it needs to be updated or deprecated.

2.3.3 WikiMon Content Managers

- These people perform the same function as community reviewers except they have more privileges to content on WikiMon.
- Community Reviewers contact them to update/add content.

2.4 Operating Environment

WikiMon consists of two different subprojects

2.4.1 Frontend

Frontend deals with what the public will see, how the information is presented, has an interface for additional functions such as adding content, reviewing content etc.

- Platform
  - Runs on the web browser which supports HTML5
- Software/Frameworks used
  - HTML, CSS and JS
  - React - JavaScript library for building user interfaces in the web browser

2.4.2 Backend

Backend deals with the logic of handling data and frameworks for hosting the service etc

- Platform
  - Linux container on any cloud platform (currently using AWS)
  - Amazon S3 for storing content

- Software/Frameworks used
  - PostgreSQL database
  - Python/flask web server

2.5 Design and Implementation Constraints

WikiMon primarily aims at providing error free information, hence all information available must be correct and should be easily taken down if it is incorrect/invalid/deprecated. Any content breaking local laws of public information must not be allowed on this platform.

2.5.1 Content Format Rules

- Should primarily be available in HTML format. If content is provided in any other format there must be a way to reliably convert that format to HTML
- Must not contain too many images and video links attached. All information on this platform must have all the required details summarized and cited.

2.6 Assumptions and Dependencies

All content is assumed to be available in a format compatible with HTML

3 External Interface Requirements

3.1 User Interfaces

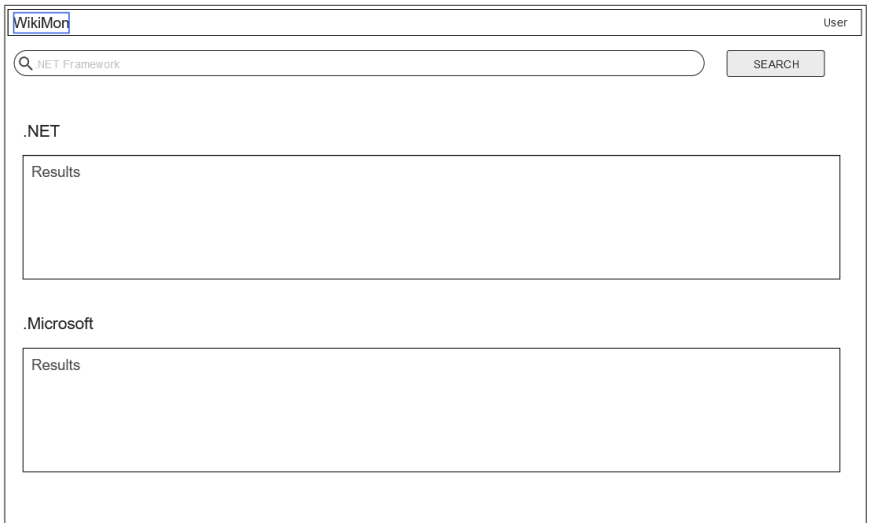
All the UI/UX requirements for WikiMon is shown along with an Wireframe. The real design may vary depending on the platform/device.

The following sections include wireframes for a wide screen monitor.

3.1.1 Reading Content

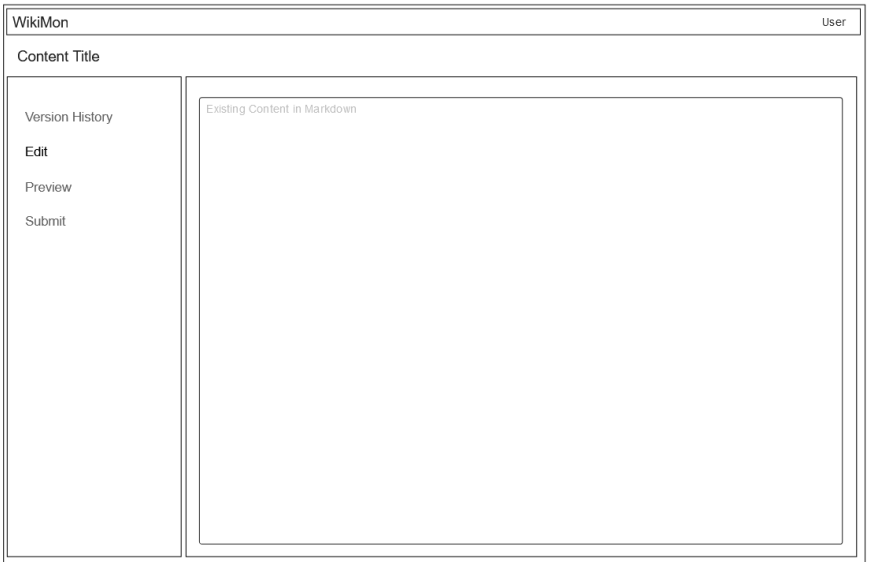
- Users must be able to read content and navigate through them
- Users must be able to submit edit requests easily to any given page

3.1.2 Searching Content



- Users must be search for content with their titles, categories
- Users should see results with articles under relevant categories

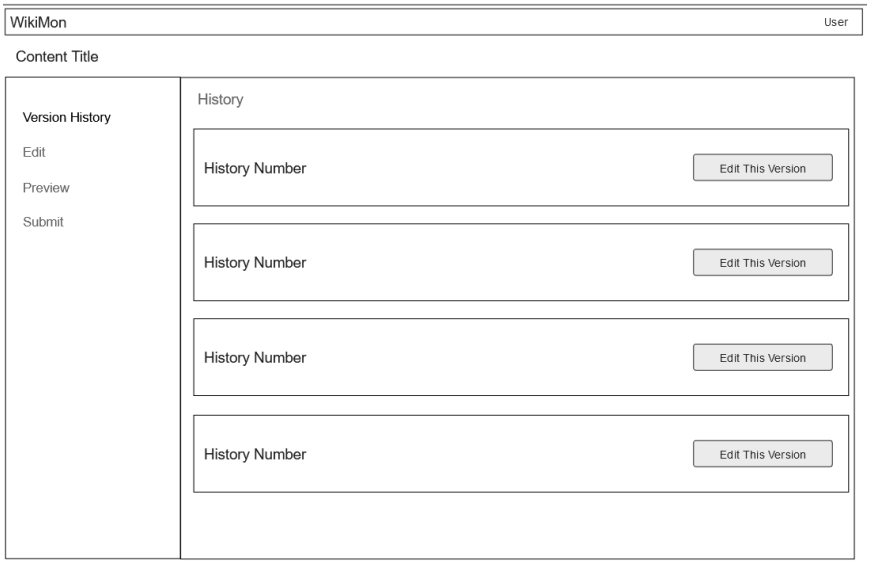
3.1.3 Editing Content



- Users should be able view the current text of the page in markdown and edit them

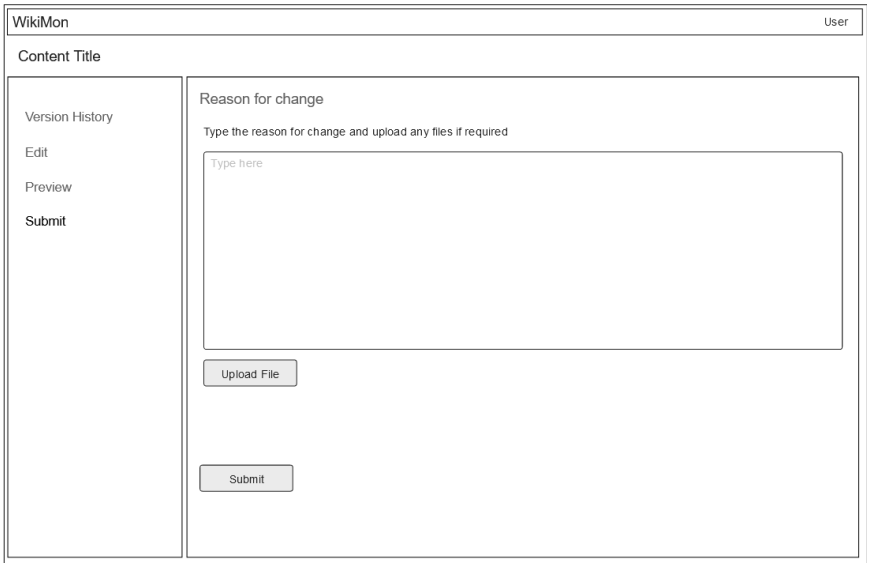
- Going to preview mode must show the new content given page

3.1.4 Version History



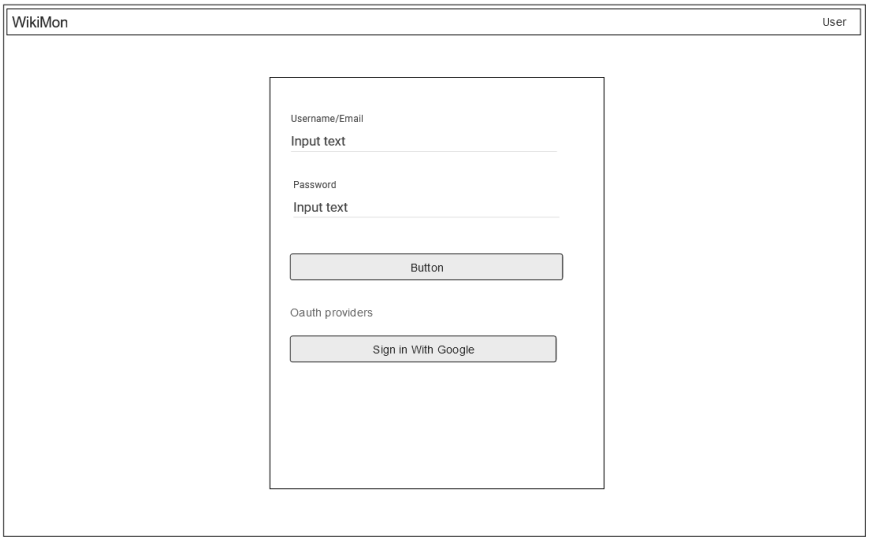
- Users must be able to view different versions of the edit that version if needed

3.1.5 Submit edit



- Users must be able to submit edit with a reason any extra files

3.1.6 Logging in



- Users must be able login/signup using server managed credentials or use an Oauth flow like google

3.2 Software Interfaces

3.2.1 Overview

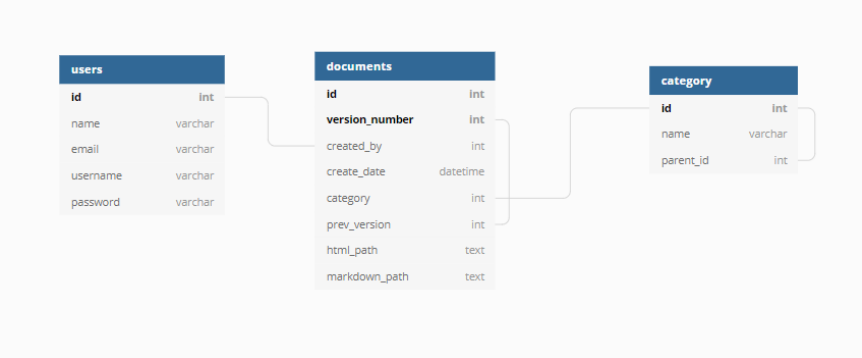
WikiMon consists of a distributed architecture with microservices for each specific task and fully exists on the cloud. All user data is stored in a PostgreSQL database running on a linux container. Metadata about each document is also placed in the database while the actual contents are stored on Amazon S3 block storage.

The client application is version controlled using *git* and is hosted on GitHub. These applications are served on multiple servers which are connected by a continuous integration pipline to GitHub. Hence commiting a new version on GitHub will update the application in each of these servers. The servers are present on Amazon EC2 instances.

A seperate cluster of instances are used for conversion of markdown to HTML. The client servers communicate to this service using a REST Api when a conversion is required. After conversion the HTML pages are stored on Amazon S3 and the file metadata is updated on the database.

3.2.2 Database Model

This section shows the main tables used by WikiMon. There are a couple more tables which are used for auditing, management data etc.



users

The users table holds basic information about the user

documents

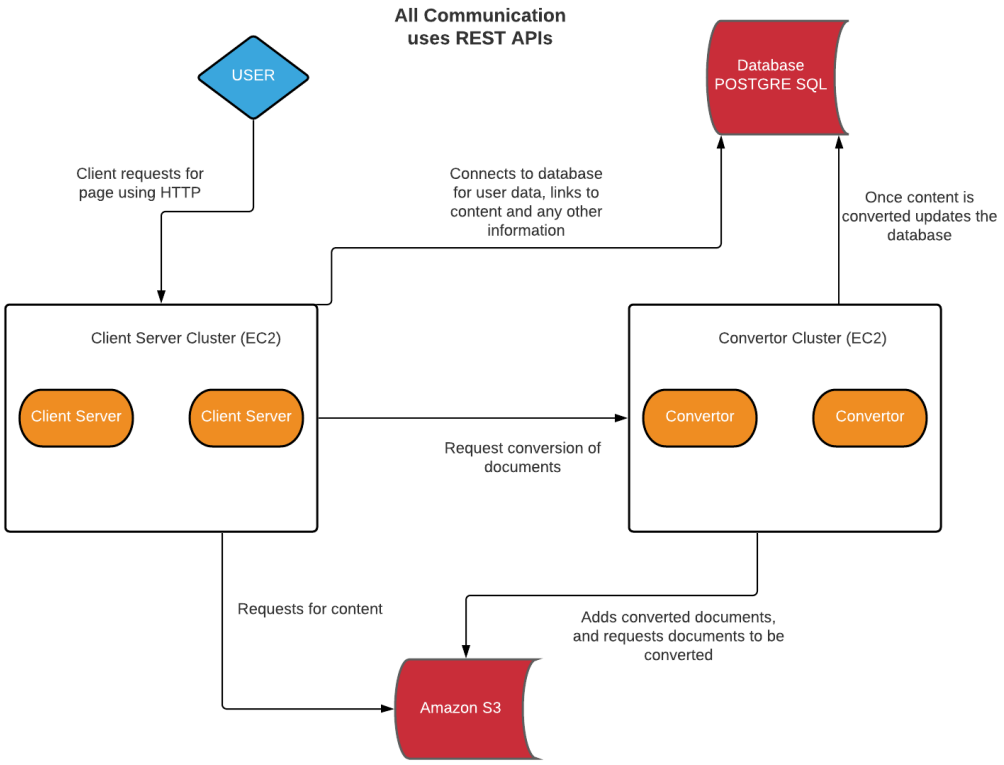
The documents table is identified by a document id and a version number. Each version consists of a html formatted document and a markdown source document. Other relevant details such about users, creation time, category and the previous version are also stored.

The previous version field exists since the document can be modified from any version of the document, hence an identification of the parent document is required

category

The category is represented by its name and holds a reference to its parent category. This lets categories to be nested.

3.3 Communications Interfaces



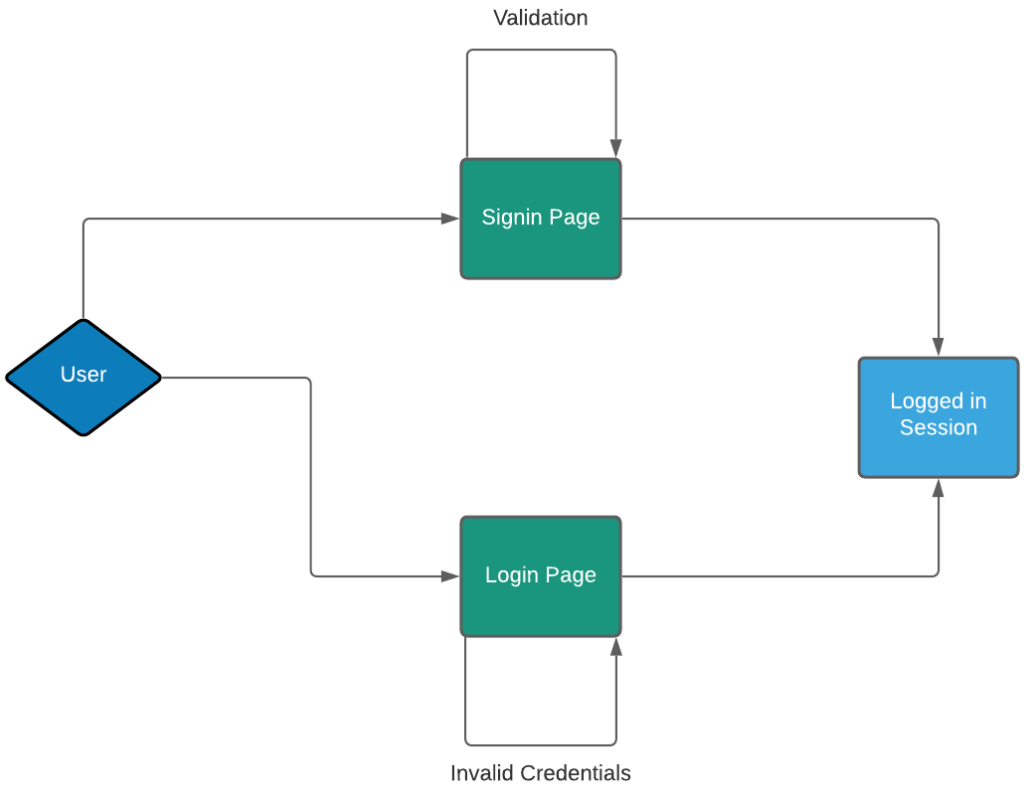
The entire communication pattern is illustrated in the image. Only the client server is visible to the public and all data flows through the client clusters. Rest of the services remain private.

4 Analysis Models

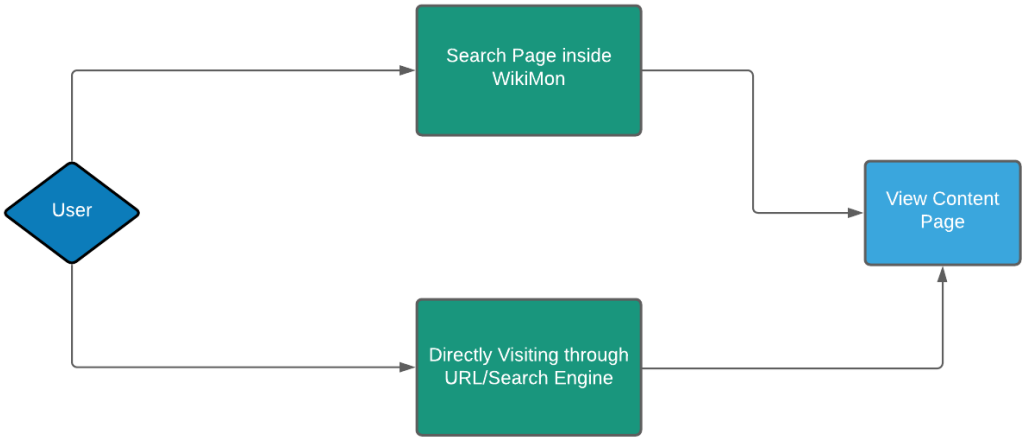
A few common use case diagrams are illustrated in the following sections.

4.1 Signing in

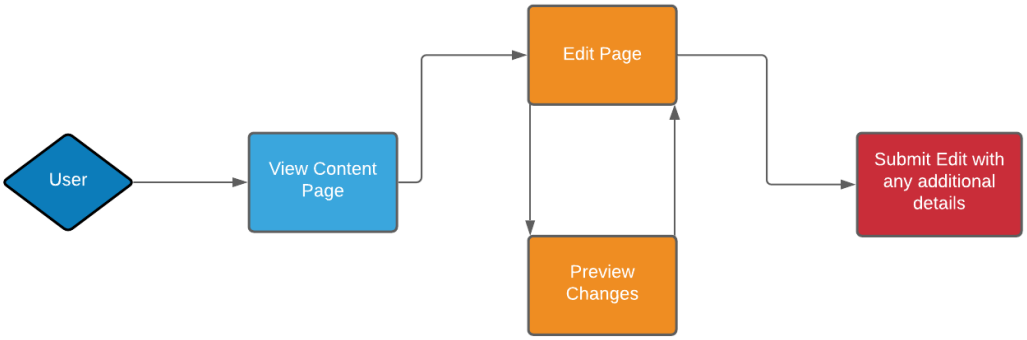
Both users/editors sign in using the same flow



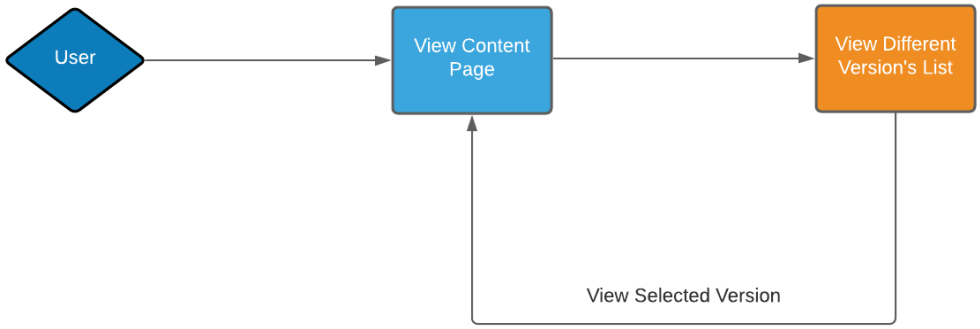
4.2 Finding and Reading Content



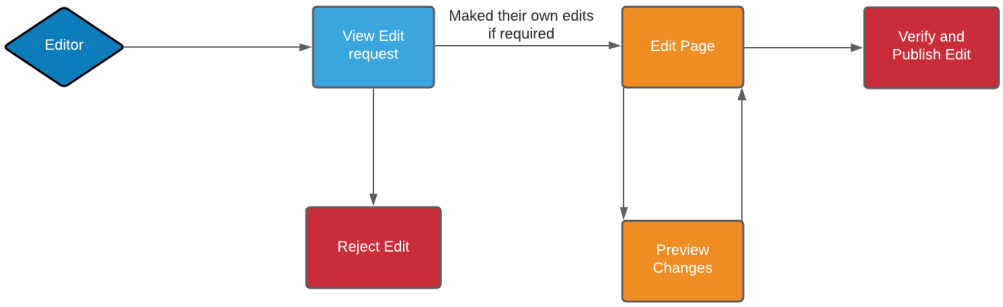
4.3 Users editing and submitting edit request



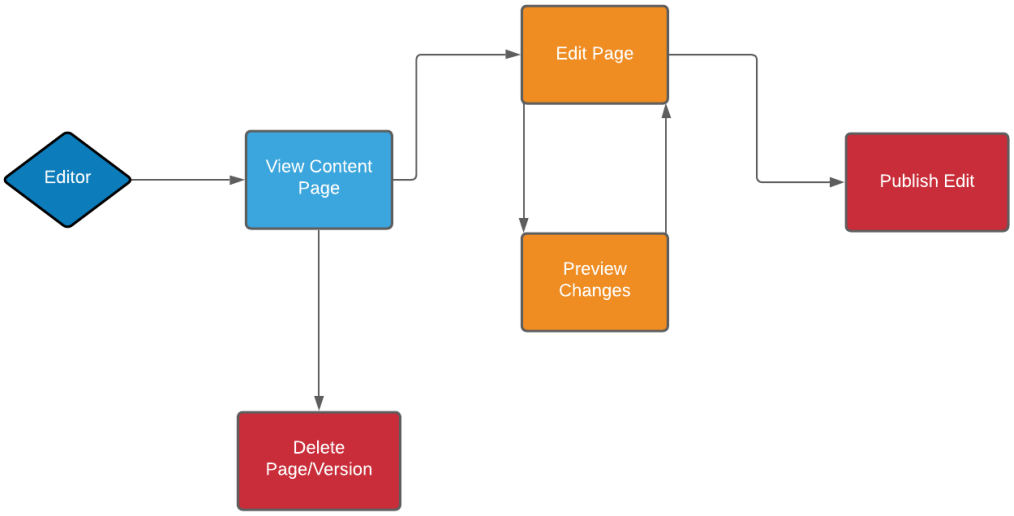
4.4 Viewing multiple versions



4.5 Editors verifying edit requests



4.6 Editors maintaining content



5 System Features

The required features of WikiMon are shown in the following sections.

This table shows an overview of features and their respective priorties.

Feature	**Priority**
SIGNING INTO THE WEBSITE	MEDIUM
CONTENT SEARCH AND READABILITY	HIGH
SUBMISSION OF EDIT REQUEST BY USER	MEDIUM
ABILITY TO VIEW THE PREVIOUS VERSIONS	LOW
EDITORS AUTHORISING THE EDIT REQUESTS	HIGH
EDITORS ADDING/MODIFYING CONTENT	HIGH

5.1 SIGNING INTO THE WEBSITE

5.1.1 Description and Priority

The requirements of this feature set describe how the system asks the user of the website to sign in by providing his/her credentials. The signing up page is displayed to add the user to the database by collecting his information and then the login page is displayed for authentication. This feature is of *medium priority* since he is not required to sign in to view the content but is necessary for editing.

5.1.2 Stimulus/Response Sequences

- A new user is asked to sign up to the website. The system stores his credentials in the user database.
- An existing user is asked to login to the website. The user types in the correct details. The system logs the user into the website.
- The existing user types in wrong credentials. He/she is redirected to the login page to try again.

5.1.3 Functional Requirements

- System should be able to ask users its credentials in an easily understandable manner.
- Exclusive database for users to help the system verify the details.

5.2 CONTENT SEARCH AND READABILITY

5.2.1 Description and Priority

The requirements of this feature set describe how the system enables the user to search for his desired topic and obtain the content of said topic. This feature is of *high priority* since this is one of the main end goals of our website.

5.2.2 Stimulus/Response Sequences

- A user searches the topic in the search bar of the website. The system directs him to the article accordingly.
- A user searches using the URL/Search Engine directly. The system directs him to the article on the website.

5.2.3 Functional Requirements

- System must have the ability to direct to an appropriate article based on the topic.
- System should be capable of obtaining the topic asked from the URL query directly.
- The content present should be in an orderly and neat manner.

5.3 SUBMISSION OF EDIT REQUEST BY USER

5.3.1 Description and Priority

The requirements of this feature set describe how the user, if feels like some part of the provided content is wrong, must be able to put in an edit request to the system. This feature is of *medium priority*.

5.3.2 Stimulus/Response Sequences

- User presses a button to edit the page. The system leads him to a page where he/she can carry out the edits.
- The user wants to preview his changes. The system leads him to a page where the final article can be previewed after his changes.
- The user is satisfied with his changes. The system enables him to submit the edit with any comments explaining the cause.

5.3.3 Functional Requirements

- System must provide a comprehensible interface for the user to edit content
- System should let the user preview his final edit before submission of request.

5.4 ABILITY TO VIEW THE PREVIOUS VERSIONS

5.4.1 Description and Priority

The requirements of this feature set describe how the system helps user (and developers) view the previous versions of the content before it was edited. This is of *low priority*.

5.4.2 Stimulus/Response Sequences

- The user wants to view the previous versions of the article. The system provides them with the version history.
- The user clicks that version and is presented with that specific version of content.

5.4.3 Functional Requirements

- The version history table the user views must be comprehensible. The user should be able to understand the sequence of the versions.
- The system should be able to store all the versions in an exclusive database.

5.5 EDITORS AUTHORISING THE EDIT REQUESTS

5.5.1 Description and Priority

The requirements of this feature set describe how the editors can look over the edit requests made by the users and accept or reject the requests based on their authenticity. Editors are required to keep an eye on the requests and maintain the content on the website. This feature is of *high priority*.

5.5.2 Stimulus/Response Sequences

- The editor rejects the edit request. The system does not make any changes to the article in question.
- The editor accepts the request. The system directs him to the content with the edits made and allows them to make their own edits.
- The editor wants to preview changes. The system enables him to view the final version going to be submitted.
- The editor wants to publish the article. The system makes changes to the article on site.

5.5.3 Functional Requirements

- System should allow the editor to make further changes if desired to the edited article.

5.6 EDITORS ADDING/MODIFYING CONTENT

5.6.1 Description and Priority

The requirements of this feature set describe how the editors can add new content to WikiMon and also maintain existing content. The requirement of authorizing edit requests was illustrated above but the editor himself can add/modify content as he wishes. He can submit edit/add requests which will be viewed by others for approval. This feature is of *high priority*.

5.6.2 Stimulus/Response Sequences

- The editor wants to add new content. He can create a new article send that for approval and once approved he can add them. The system provides him required func-

tions for him to do so.

- The editor wants to modify existing content. He can submit an edit request, send that for approval and once approved he can add them. The system provides him required functions for him to do so.

5.6.3 Functional Requirements

- System should allow the editor to add new content.
- System should allow the editor to modify existing content.

6 Other Nonfunctional Requirements

6.1 Performance Requirements

The following are the performance requirements for a knowledge management system

6.1.1 Availability

The website should be accessible to tens of thousands of users at the same time. It should be available to take requests at any time and give the desired output efficiently.

6.1.2 Response Time

The response time is the sum of three numbers:

(a) Service time

(b) Wait time

(c) Transmission Time

The goal should be to deliver the search results minimising the service time as well as the resources used.

6.1.3 Reliability

The website should deliver appropriate search results consistently with high efficiency consistently.

6.2 Safety Requirements

The website hosts articles and posts which are edited frequently according to change in trends and situation of the said topic. So as to prevent unlawful updation of information or wrong information being updated and hence leading to crisis and controversies, the highest privileges has been given to **WikiMon Content Managers**, who authorise the action and review the information whether it is editing or deprecation of older information. Hence making sure the information is factual and preventing any wrongdoings.

6.3 Security Requirements

The registration of users isn't necessary, but interested ones can register using their email id and password. The system should resist deliberate or accidental intrusions, so as to prevent the personal details of the registered users being accessed by hackers and other parties, who can then use it for intrusions in other websites using the same details. Hence security is the utmost priority to the users and also the developers.

6.4 Software Quality Attributes

6.4.1 Attributes Regarding users and editors

Availability This software must be available in all countries while making sure that the content follows local laws/rules and regulations. Hence certain content which is not allowed must not be shown to users of that country.

Adaptability Editors must be ready to change content as and when required and all articles must be regularly monitored. For this to be possible editors must have neat workflow of reviewing content and being able to modify them. Any issues in this workflow must be considered serious and should be immediately taken care of since WikiMon wants to avoid unwanted issues with any content which is presented (for instance a bad article which violates certain rules has adverently been public and must be removed/changed, editors must be able to do so quickly)

6.4.2 For developers

More rules and regulations can be obtained from the manager of the team you are working in.

Data Collection and Backups All data collected about users visiting/using WikiMon must comply with GDPR rules of their country. Users must be prompted with a confirmation whenever it is not clear if their data can be collected. For instance asking the user to allow cookies when the visit the website and try to use any features which require cookies. Any important data must be backed up wherever required in case of any failure.

Security and Maintenance The software which runs WikiMon must be regularly monitored and all error events must be logged correctly and must be taken care in regular service cycles. Whil logging security of data must be kept in mind, such that users passwords are not logged in plain text.

6.5 Business Rules

Classes	Rules
General Public	Browse through the information Register as a new user or login as an existing user Occasionally submit requests for edits, submit content.
Community Reviewers	Browse through the information Help review content from the general public for publishing. Suggest edits or deprecation of existing information. Contact content managers while updating or editing data.
Content Managers	WikiMon employees. Have the highest privileges. All edits or updation of data is done on their authorization so as to prevent wrongful activities.
Website and Technical Administrator	Must oversee complaints received from users and respond to them. Must resolve any technical issues related to the website. Ensure security measures are always enforced and the integrity of information is upheld.

7 Other Requirements

While every important and needed requirements and their definitions has been said in this document, it is again *emphasized* that the content presented must be factual and must be void of all assumptions and opinions as much as possible.

All users visiting here should be able to interact with WikiMon when required and their requests for any change either the content or UI, adding new features should be taken into account to as much extent as possible.

WikiMon revolves around *Wiki* hence users must always remember this platform for starting with any topic they want to know about, hence contents must live upto that standard and more importantly users must have fun learning new things from WikiMon.

Appendix A: Glossary

WikiMon	The open-collaborative project this document talks about
Content	Refers to articles published on WikiMon
HTML	Hyper Text Markup Language, a XML derivative for typing websites
CSS	Cascading Style Sheets, used to design html views
AWS	Amazon Web Services, A cloud platform
JS	Javascript, a scripting language
UI/UX	User Interface (or) User Experience
Amazon S3	Amazon Simple Storage Service
Amazon EC2	Amazon Elastic Compute Cloud
REST	Representational State Transfer
URL	Uniform Resource Locator

Appendix B: Field Layouts

Field	Length	Data Type	Description	Is Mandatory
Username	<100	String	The alias name	Y
Name	<500	String	Real name of user	Y
Email	<500	String	Email of user	Y
Article Markdown	-	String	Article in markdown Format	Y
Article HTML	-	String	Article in HTML Format	Y
Category Length	<100	String	Length of category names	Y
Edit request Description size	<3000	String	Description of edit	N
Edit request file attached	<5	Number	Additional files attached for edit request	N

Appendix C: Requirement Traceability Matrix

Under progress.