

TREVO: AI Travel Partner

Final Year Project

Software Requirement Specifications

Bachelor of Science in Software Engineering

By

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1. Introduction

1.1 Purpose

Another reason for Asia's high percentage of solitary travelers globally (31% of 2021 visitors), is that 32% of visitors were aged between 51 and 60 (Pearson), and our website aims to simplify the process of planning and booking tours by offering consumers a one stop shop to view and book. Users of the platform can sign up, log in, search for tours based on location and price constraints, reserve excursions and post reviews. Furthermore, the site gains a distinctive and cutting edge metal when the Chabot tour guid is added.

1.2 Document Conventions

1. **Style Guide:** In style guide the work of designing the font, color scheme, photo's style and tone of voice of the website was included.
2. **Brand Guidelines:** A copy of website's font, color scheme, photo style, and website's voice would have been included in the style guide.
3. **Content guidelines:** The written content on the website will be described using the voice, tone and style using the content guidelines.
4. **Technical Documentation:** It may have details on the sort of software that was used, the database structure or way, documentation for the API, and any 3rd party integrations used.

1.3 Intended Audience and Reading Suggestions

1. **Travel guides:** Therefore, you can make up complete itineraries for all cities and all of regions of Pakistan. So also with the city sights Lahore, say Lahore Fort, Badshahi Mosque, recommendations on what to eat and what to see at the markets, cultural events, etc, an example of such a guide.
2. **Reviews and recommendations:** User generated content of your website also include comments from other travelers who use your site to reserve their accommodations and travel.

1.4 Product Scope

The Product scope of your travel guide website:

1. **User registration and login:** You should allow visitors on your website to register accounts, maintain preferences and retrieve past bookings.

2. **Tour Booking:** This feature allows users to research and book tours and other activities from a number of travel agencies and tour companies.
 3. **Tour Search:** Tours should be available based on users To begin with, location, budget and interest.
 4. **User evaluations for tours:** Your website will have users of your website, which must be given a chance to leave comments and leave a score for the excursions they've taken as well as other experience they've had.
 5. **Chabot integration:** When a Chabot is linked with the GPT Turbo API, Users should be able to ask questions and ask for Suggestion.
 6. **Partner management:** Therefore, you should offer companies that work as travel agencies or tour operators, a spot in your website that they can use to post and manage their excursions.
- Payment processing:** A site should offer various ways of paying for tours and activities, as it should.

2. Overall Description

2.1 Product Perspective

The online product perspective of our travel guide website is the way it is made and structured for the satisfaction and expectation of the target audience. There is also, a user friendly interface, easy to use, and clear and concise content that allow travelers to easily get the information they need quickly and easily.

1. Analyzing and designing functional conditions for delivery of the website, its optimization for different screen sizes and devices and a user-friendly layout.
2. It offered a broad spectrum of excursions and activities that would please people who are interested in excursions, have limited or great financial capacity and who have different preferences for travel.
3. Summary, picture and user review for every trip and activity provided. Making it easier for clients to search for tours and other activities using a variety of criteria, such as location, price, and duration.

2.2 Product Functions

Trevo travel guide website core functions are configured such that they significantly ease searching, reviewing, and booking tours for users. Here are the key functionalities:

User accounts User can create accounts and login into accounts to keep their profile with their own preferences and user booking history.

Advanced Search and Filtering: The website has an advanced search such as Tour Search and Filtering in which customers can look for tours or activities by location, price, duration, and user ratings.

Tours users can book directly in the website with customization as per their preferences.

Interactive User Interface: Delivers a user friendly interface with a simple navigation and a responsive design, that adjusts to different sizes of the screen device is attached to.

In Chabot Integration we have incorporated a virtual tour guide powered by GPT Turbo that behaves as a real time interactive tour guide which provides personal travel advice.

Useful Reviews and Rating System: Since users put their reviews and rate their experience towards the product, it helps others to gain information about the product through community feedback.

Safe and Hassle Free Transaction: The website pays cash payments and gives their customers an assurance of safe and sleek transactions as it has a secure payment Gateway that supports variety of payment options from online payment, currency exchange and the likes.

Global Audience - The website is multi lingual, enabling users from other linguistic influences to use the site.

2.3 User Classes and Characteristics

- Our travel guide website typically has users who are in search for places and the places to visit, places to stay, or some other travel related things. The users of these features might be individuals, couples, families, friends or groups of friends planning a trip to have fun, or as a business trip, or both.
- The characteristics users of travel guide websites could want (e.g. travel places to stay, do, etc.) are wide ranges. In addition, other travelers might looking for reviews and ratings on other travelers to get their good travel experiences.

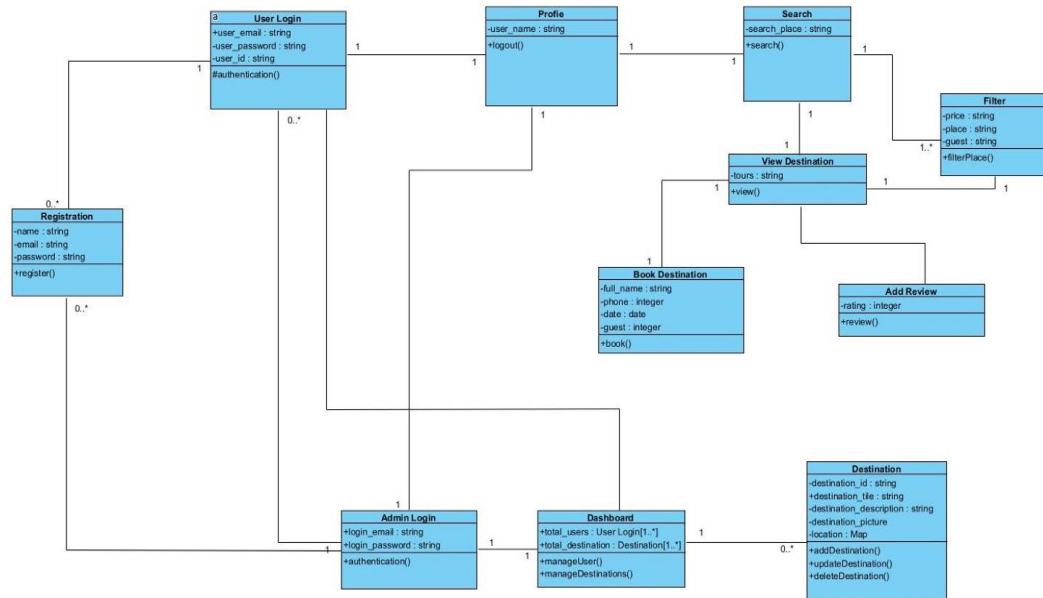


Figure 1: Class Diagram

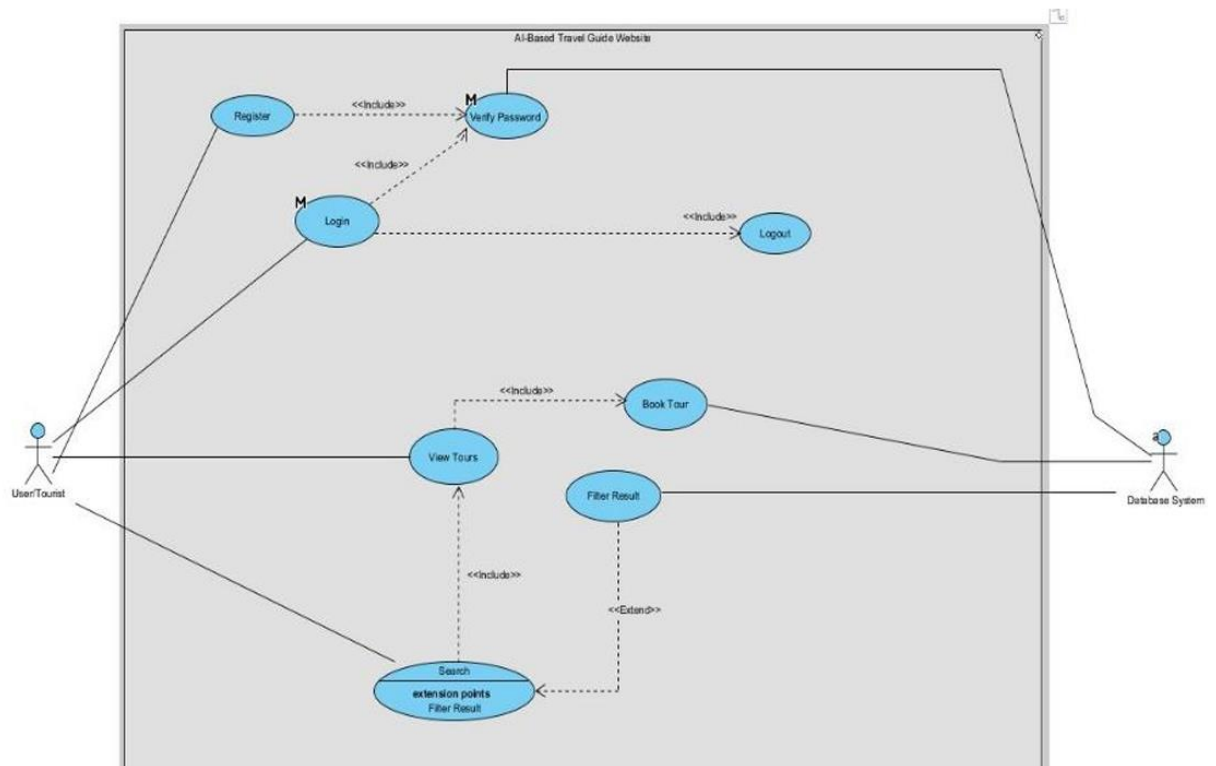


Figure 2: Use case for User

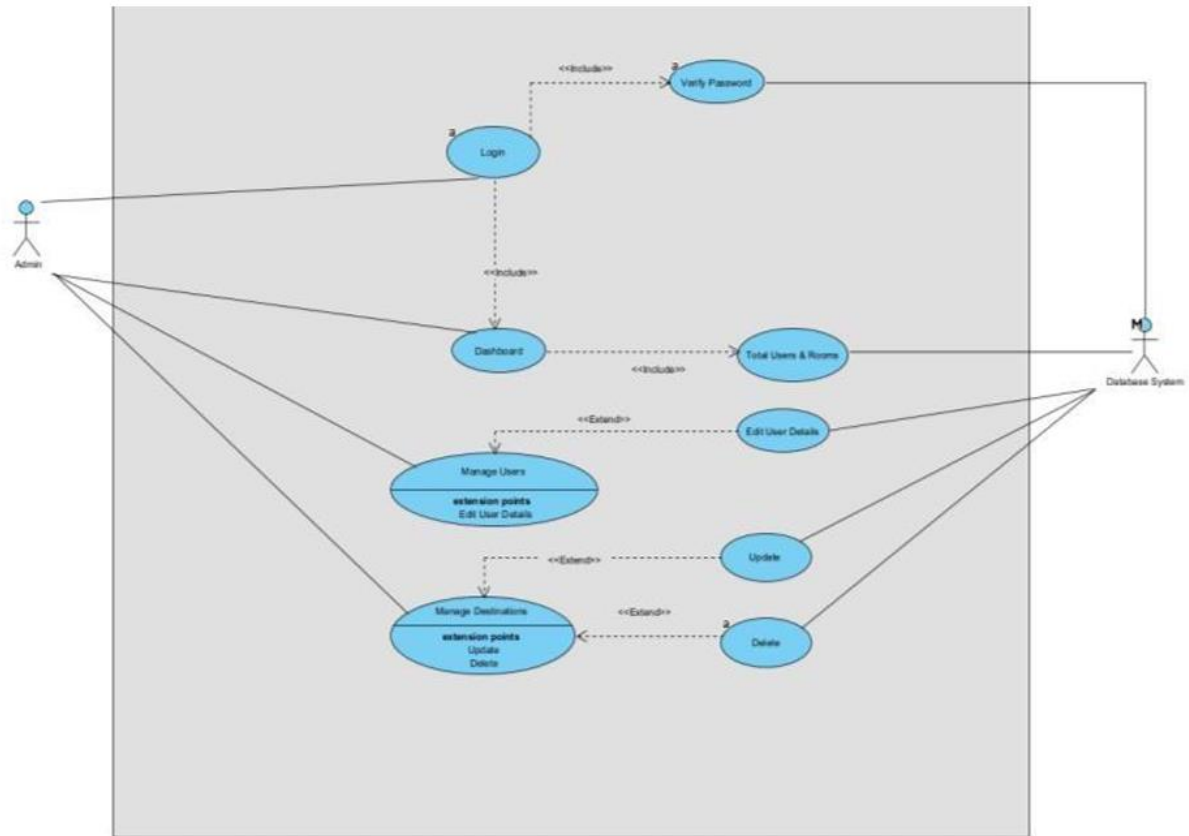


Figure 3: Use case for Admin

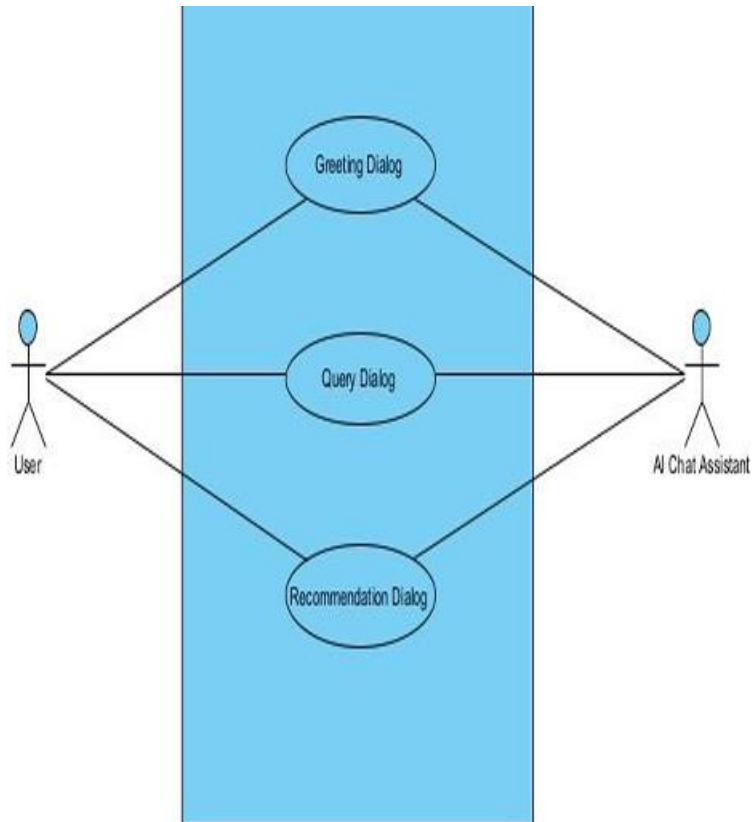


Figure 4: Use case for AI Chat Assistant

2.4 Operating Environment

The problem of Travel guide website refers to operating environment of the site which includes the technical and logistical considerations necessary for the site to be functioning properly and for users to access it.

- Windows 10
- Google Chrome
- Visual Studio Code
- MongoDB
- Node
- Google Map JavaScript API

2.5 Design and Implementation Constraints

Our travel guide design and implementation page takes many constraints into account:

- **Website design:** Simple, straightforward, and easy to navigate, the website is attractive with responsive design for all on different devices.
- **Web Performance:** The web site is good and blazing fast featuring many reliable uptime.
- **Scale:** Since the website is likely to gain more traffic in the future, it must not crash or become slow to performance with that increase.
- **Storing and managing data:** Our website should be able to keep a list of all locations, attractions, reviews.
- **Diverse considerations:** The site is legally relevant, that means it abides by all regulations regarding information privacy, intellectual genuine and online content.
- **Marketing and monetization:** Market and monetization: The website provides clear plan about marketing and monetize the website by advertisements, sponsored content or not.

2.6 User Documentation

<Enumerate the user documentation components (user manuals, on-line help, tutorials) that will be given to the user at the time of the software delivery. Determine if there are any known user documentation delivery format or standards known.>

2.7 Assumptions and Dependencies

Comprehensive user documentation will accompany the “Trevo” travel guide website to enable the use of all the features and functionalities of it. The documentation will include:

Step 1 – User Manual: A how to use User Manual that guides the user through the registration process, booking process, tour review, etc.

FAQs section on the website where the user can ask questions related to the navigation, booking, and troubleshooting.

Interactive help feature such as Online help added into the website, which provides real time help through the Chabot of immediate support and guidance.

Short video links to guide you in using different features available on the website including the “Trevo” YouTube channel.

Solution: Includes troubleshooting solutions for problem users facing trouble logging in, error or payment on booking. Support Information: Information about how to refer to the customer support through mail, phone, or live chat.

3. External Interface Requirements

3.1 User Interfaces

Requirements for a travel guide website include e.g:

- A clean and modern design that is visually appealing and easy to navigate.
- A clear hierarchy of content, with the most important information displayed prominently.
- Easy-to-use searches such as a search bar and a menu of categories and Google Maps.
- High-quality images and other multimedia elements, such as maps.
- It provides reviews and ratings of other travelers to help users make decision of where to go or what to do.
- In general, a travel guide website must have a user friendly and intuitive user interface through which users find required information and take the required action easily.
- It uses responsive design such that the site adjusts well on desktop and mobile device.
- Good color contrast and large and easy to read text.
- Succinct and useful descriptions of destinations, attractions, and other travel-related information.

3.2 Hardware Interfaces

The hardware requirements for travel guide website will depend on the size and complexity of the site, as well as the expected traffic. Here that we are using:

- Processor: Intel® Core™ i7-4710MQ CPU @ 2.5HGz (8 CPUs), ~2.5GHz [1]
- Memory: 8GB RAM
- Storage: 128GB SSD
- Networking: 8 to 10 MB/s

3.3 Software Interfaces

This includes:

- **User Panel** as the main interface in which users can register, log in, and search and book tours, give reviews and ratings, etc.
- **Admin Panel** to manage and organize the tours and the user.
- It's also important to have a reliable hosting provider to ensure that the website is always available to users.

3.4 Communications Interfaces

A few different communication interfaces are used on our travel guide website. Include:

- **Chat Assistant:** This enables users to communicate with a Chat Assistant through a chat window on the website.
- **Social media:** Websites will have links to their social media profiles, such as Facebook, Twitter, or Instagram, which users can use to get in touch or ask questions.
- **Email:** The website will also provide an email address or a contact form that users can use to send a message directly to the website owner or a customer service representative.
- **Phone:** The website may provide a phone number that users can call to speak with a customer service representative.

4. System Features

The features that a travel guide website include:

- **Login/Register:** User can login through a modal.
- **Search functionality:** allows users to search for destinations, hotels and other travel-related information.
- **Book:** The user can book the tour
- **Chat Assistant:** This enables users to communicate with a Chat Assistant through a chat window on the website.
- **Admin Dashboard:** included in the backend of our website which allows the website administrator to manage tour information about the destinations, users, and other information provided on the website.

4.1 Login/Register

4.1.1 Description and Priority

We will add a login registration component in our travel guide website. User can access all features of our website (except booking) without login.

4.1.2 Stimulus/Response Sequences

The function is triggered by a button "Log In" on the top right, that the user can click on to access to create an account or log in. It also includes a button to submit the form and complete the login or registration process.

4.1.3 Functional Requirements

Functional requirements are the specific functionality that a login and registration must provide in order to be effective and usable. Some functional requirements for a login and registration component include:

REQ-SF1-1: User authentication: The modal is able to verify the user's credentials (email, password) and grant or deny access to book the tour.

REQ-SF1-2: Account creation: The component allows new users to create an account by providing their personal information (e.g., name, email address, password).

REQ-SF1-3: Error handling: The component validates user inputs and display error messages when necessary, such as when a user enters an invalid email address or an incorrect password.

REQ-SF1-4: Secure data transmission: The component ensure that user data is transmitted securely.

4.2 Chat Assistant

4.2.1 Description and Priority

In our travel guide website, a GPT Turbo Chat Assistant feature on a travel guide website would allow users to communicate with a Deep learning powered assistant through a chat window. By having a Chat Assistant feature on the travel guide website, users can get instant help and support, which can increase the satisfaction and engagement on the website, reduce bounce rate and enhance the user experience.

4.2.2 Stimulus/Response Sequences

- **Real-time communication:** The chat assistant provides real-time communication with users, allowing them to ask questions and conversationally receive answers. Ability to understand natural language: The chat assistant should be able to understand the user input in natural language, instead of mandating the user to type specific keywords or phrases.
- It also has good knowledge base of information regarding travel, for example, destinations.
- The Chat Assistant: provides fallback mechanism to redirect the users to relevant resources if the Chat Assistant is not able to assist

4.2.3 Functional Requirements

This feature has some functional requirements as follows:

REQ-SF1: Be easy to use: Easy to communicate to the user.

REQSF1-2 The assistant should be based on true and valid answers.

REQ-SF1-3: Easy to use the chat interface with clear instructions and it must be intuitively navigated.

REQ-SF1-4: The chat assistant should achieve cross-browser compatibility and should work across different devices, for instance, desktop and mobile.

REQ-SF1.5 Performance The chat assistant's response time and its performance level should remain acceptable and should not degrade too much with increasing load.

4.3 Admin Dashboard

4.3.1 Description and Priority

In our travel guide website, we have a “backend of our website” which contains admin dashboard – in this is only available for authorized users (for example website administrators) to make certain functionality and content available. The admin dashboard for a travel guide website is very much common where the website administrator can make changes and update information regarding destination, users and other things on the website as per the requirement. It has a good priority.

4.3.2 Stimulus/Response Sequences

In the context of our travel guide website with an admin dashboard, some response sequences for different user actions include:

- **Logging in to the admin dashboard:** The administrator enters their login credentials, and the system checks them against a database of authorized users. If the credentials match, the user is granted access to the admin dashboard. If not, the system displays an error message.

- **Manage Tours:** The admin navigates to the "Manage Destinations" page within the admin dashboard, upload or selects an existing destination, modifies the information in the form, and submits the form. The system then updates the information in the database and may also display a confirmation message to the admin.
- **Deleting a destination:** The admin navigates to the "Manage Destinations" page within the admin dashboard, selects an existing destination, clicks on a delete button, and confirms the deletion. The destination is then removed from the database, and it may also inform the user that the destination has been removed.

4.3.3 Functional Requirements

But the feature also has some functional requirements.

REQ-SF1-1: The system ought to be easy to use, easy to communicate with the user.

REQ-SF1-2: The assistant should be built upon factual and accurate answers.

REQ-SF1-3: The design should be friendly to the users: The chat interface should be user friendly, clearly instructive and easy to navigate.

REQ-SF1-4: The chat assistant should have cross-browser compatibility; it should be able to function in different web browsers and also in different devices like mobile and desktop.

REQ-SF1-5: The chat assistant's response should be within an acceptable time and have an acceptable performance, even when operating under a heavy load.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Several other requirements of our travel guide website are performance requirements and are treated as non-functional requirements. These include:

- **Scalability:** The website should be able to grow with the demand and support more business without any performance issues.
- **Availability:** The website will be available for users at any time with a very high uptime.
- **Multi user:** The website should be able to be used simultaneously as multiple users would be able to access the website at the same time.

The website must be readily run on variety of gadgets or web program.

5.2 Safety Requirements

For example, if our travel guide website, some potential non-functional safety requirement are as follows.

- **Data Security:** The user's personal and financial data must not be at risk of being stolen from access or attacks such as cyber-attacks.
- **Reliability:** The site should never go down, and should never encounter any errors when it is up.
- Website should have user authentication in place so that only the users having displayed their identity through login credentials and other means such as Two Factor Authentication would be allowed to access the website.
- **Accessibility:** the website should be accessible to all users including disabled users particularly visually impaired and those with mobility problems.
- **Law compliance:** Legal laws and regulations concerning online privacy or security are to comply with.
- **Risk Management:** In case of any risk or hazard to the users there should be processes available in the website which is aimed at mitigating them.

5.3 Security Requirements

For example, if our travel guide website, some potential non-functional safety requirement are as follows.

- **Data Security:** The user's personal and financial data must not be at risk of being stolen from access or attacks such as cyber-attacks.
- **Reliability:** The site should never go down, and should never encounter any errors when it is up. Website should have user authentication in place so that only the users having displayed their identity through login credentials and other means such as Two Factor Authentication would be allowed to access the website.
- **Accessibility:** the website should be accessible to all users including disabled users particularly visually impaired and those with mobility problems.
- **Laws and regulations:** It should also comply with the relevant laws and regulations regulating online privacy and security.
- **Risk Management:** In case of any risk or hazard to the users there should be processes available on the website which are aimed at mitigating them.

5.4 Software Quality Attributes

Non-functional requirements related to usability for our travel guide website include:

- **Ease of use:** The website should be easy for users to navigate and understand, with clear instructions and intuitive design.

- **Learnability:** The website should be easy for new users to learn and become proficient with.
- **Flexibility:** The website should allow users to perform tasks in multiple ways, such as using different input methods.
- **Customizability:** The website should allow users to customize their experience, such as by personalizing their profile.
- **Compatibility:** The website should be compatible with a range of devices and web browsers.
- **Error handling:** The website should handle errors in a user-friendly way, such as by displaying clear and helpful error messages.

5.5 Business Rules

<State any of the operating principles of the product like the people or roles performing functions under particular circumstances. They are not functional requirements themselves, but they may imply some functional requirements in order to enforce the rules.>

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