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ENGINEERING COMPUTER ENGINEERING  
DEPARTMENT**

**CENG 408**

Innovative System Design and Development 2 Project Report

**Team ID: 202203**

**SoruSor: Online Platform for Asking  
Questions and Providing Answers**

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# Abstract

It is a known fact that not everyone has the same ability to search for information from Google. Some people can find information quickly and accurately, while others may not. With this website, we aim to convey the correct information and the opinions of the people on the issues that do not require the correct information to the person asking the question in the fastest way possible. Even though there are already some such sites for foreigners, this is unfortunately not the case for Turkey. Although there are some competing sites like [kizlarsoruyor.com](http://kizlarsoruyor.com)[18], in our opinion, the user interfaces of these sites are not sufficient and cannot provide the desired information comfortably and professionally. On the other hand, SoruSor aims to serve this purpose with a nice user interface and accurate sources of information mostly based on user votes, opinions of experts or people who have thoughts on a subject while using a technology that is anti-insulting, understanding the main idea and preventing offensive, violent elements.

## Öz

Herkesin Google'dan bilgi arama yeteneğinin aynı olmadığı bilinen bir gerçektir. Bazı insanlar bilgiyi hızlı ve doğru bir şekilde bulabilirken bazıları bulamayabilir. Bu web sitesi ile amacımız, doğru bilgiyi ve doğru bilgi gerektirmeyen konularda kişilerin görüşlerini, soruyu soran kişiye en hızlı şekilde iletmektir. Halihazırda yabancılar için bu tür siteler olsa da Türkiye için durum ne yazık ki böyle değil. [Kizlarsoruyor.com](http://kizlarsoruyor.com)[18] gibi rakip siteler olsa da bize göre bu sitelerin kullanıcı arayüzleri yeterli değil ve istenilen bilgiyi rahat ve profesyonel bir şekilde sağlayamıyorlar. Öte yandan SoruSor sitemiz ise, güzel bir kullanıcı arayüzü ve çoğunlukla kullanıcı oylarına, hakareti engelleyen, ana fikri anlayan ve saldırgan tutum, şiddet içeren unsurları önleyen bir teknoloji kullanarak bir konu hakkında uzman veya fikir sahibi kişilerin görüşlerine dayalı doğru bilgi kaynakları ile bu amaca hizmet etmeyi amaç edinmiştir.

# 1.Introduction

Due to the vast quantity of information that is currently available online, the Web is gradually turning into an excellent resource for answers to a variety of inquiries that are not related to any one subject. As already noted, individuals regularly utilize search engines like Google to locate the information they need online. However, in many instances, the accuracy and relevance of their provided findings are still unsatisfactory.

There are currently several online communities where members may share general comments, thoughts, and information, such as EkşiSözlük[19] and numerous forums. In these online communities, knowledge may also be shared and distributed as a unique type of information. Users may often ask questions and receive free responses from other users. However, individuals are frequently busy, especially professionals. They occasionally offer to share their expertise by answering a few questions, but not usually. This is because addressing those inquiries would take up valuable time on their part. However, people should be more inclined to invest their precious time if they can receive compensation, like money, for answering the questions. Their time and expertise are compensated for in these situations. We think that many (professional) individuals would be willing to pay for the answers to their critical inquiries and that more people know the answers and would be willing to spend some time providing them. However, we thought we should add the subscription/paying answers methods on the later versions of our website.

There will be a wide range of subjects in SoruSor. Depending on the user's chosen themes, the user may look for questions and answers, which will appear in the user's feed. Science, math, philosophy, cinema, photography, mobile applications, baking, creative writing, and many more subjects are covered. Most of the information on the website/app is quite educational and beneficial, and individuals worldwide donated to it. Some questions are factual, while others call for an expert's opinion or relate to personal experiences. In this thread, people talk about their own positive and negative experiences. It indeed provides the user with a fresh viewpoint on several issues. A system of upvotes and downvotes is also present here. The more upvotes the user receives, the better the response is. There is also an artificial intelligence/machine learning system on SoruSor that ensures that there are not any harmful, violent comments/answers.

## 2. Literature Review

This part introduces the literature review of the project. We first present the machine learning literature, then, we summarize the literature related with the web programming.

### 2.1. Machine Learning

The act of employing mathematical models to assist a computer in learning without explicit instructions is known as machine learning (ML). It is thought of as a part of artificial intelligence (AI). Algorithms are used in machine learning to find patterns in data. The development of a predictive data model also takes advantage of these patterns. Machine learning outcomes are more precise as more data and experience are collected, just like people get better with more practice. Machine learning is a fantastic solution because it is adaptable when data, requests, or tasks are ever-changing or when it is impossible to develop a solution efficiently. Artificial intelligence is said to include machine learning. An "intelligent" computer completes tasks independently and thinks like a human. Using a neural network, a collection of algorithms based on the human brain is one method of teaching a computer to think like a person. [1]

There are several application areas for machine learning, and more are continually being added. The following are some of the most significant advantages that companies have achieved through machine learning projects:

*Finding the solutions:* Both organized and unstructured data may be used by machine learning to find patterns and understand the narratives they contain.

*Improving data integrity:* Machine learning, which excels at data mining, may take it a step further and continuously enhance its features.

*Increasing consumer satisfaction:* Chatbots, virtual voice assistants, adaptive interfaces, and material that is more relevant to the user are a few examples of how machine learning may enhance the user experience.

*Risk reduction:* Machine learning keeps up with the continually evolving fraud strategies. To detect fraud efforts early on, machine learning tracks and identifies new trends.

*Predicting customer behavior:* Machine learning helps users to study customer-related data and improve product suggestions to provide the most excellent possible client experience.

*Reducing costs:* Process automation using machine learning frees up time and resources so that a team can concentrate on the essential things.

Machine learning uses comparable techniques to data mining and predictive modeling. Data searching is required to find patterns and modify program behaviors. Machine learning is well known to many thanks to online shopping and the advertising that follows each customer's purchase. This is so that online ad distribution may instantly be personalized by recommendation engines using machine learning. In addition to tailored marketing, typical machine learning use cases include news feed creation, fraud detection, spam filtering, network security threat identification, and threat detection.

Email providers created spam filters to block invasive and unwelcome marketing emails before they reached the inbox. According to estimates, approximately 80% of emails sent online daily are spam. Email providers help consumers save time and avoid falling victim to fraud by keeping their inboxes free of spam, thanks to the spam filter they provide.

In our project, spam filtering refers to the software used to screen queries and answers as they are sent to the server, find offensive words and phrases, and stop them from appearing on the site. Spam filters examine pre-written statements using a variety of rules and standards. For instance, spam filters look for terms like vulgarity and insults in your headlines and sentence content.

Recent Natural Language Processing applications include pattern recognition and machine learning methods. We have to deal with texts (or emails or other forms of messaging) daily that contain various insults and derogatory language. It would be helpful and could save its users time and effort if there was automatic intelligent software that could identify flames or other harsh words. Insensitive language can make fun of or criticize an individual or a group of individuals (attacks like racial, cultural, or ideological rants). The following list of offensive words falls under this category:

*Taunts:* These words or phrases aim to make fun of or blame the reader as a whole.

*References to disabilities:* These expressions criticize the reader for having a low IQ.

*Slaughterous language:* These expressions appeal to the reader's physical or sexual vices.

*Slurs:* These words or phrases aim to offend a particular culture or ethnicity. These expressions often refer to anti-homosexual feelings.

*Racism:* These words scare people based on their race or ethnicity.

*Extremism:* These words attack certain religions or political ideas.

There are also several additional types of flames, in which the flamer utilizes odd words or phrases to insult or humiliate the reader (this is not an assault) in ways like:

Expressions that humiliate people, typically because they allude to pornographic or excretory material

*Disguise:* Expressions whose sound or meaning are the same as a more aggressive phrase. There are five or six words with only four letters, known as four-letter words.

*Provocative language:* words or phrases that might incite rage or violence. Expressions that are taboo in a certain society or community. Several idioms are prohibited simply by what they mean rather than because they include any specific taboo words.



## 2.2. Web Programming

### 2.2.1. Front-end Programming

It is the development of an application that operates over the Internet, i.e., websites. There are two types of web development:

- Front-end Programming
- Back-end Programming

The part of a website with which the user interacts directly is referred to as the front end. It is also known as the application's "client side." HTML, CSS, and JavaScript programming languages are used for front-end development. These programming languages are concerned with how the website appears to the user.

HTML is an abbreviation for HyperText Markup Language. It is used to create the front end of web pages with a markup language. Because it is used to create a website's structure, it functions as a skeleton.

CSS is Cascading Style Sheets, or CSS is a simple language designed to make the creation of web pages presentable easier. It is employed in the design of our website.

JavaScript is a scripting language that is used to provide dynamic behavior to our website.

Bootstrap is a collection of free and open-source tools for building responsive web apps and websites. It is the most widely used CSS framework for creating mobile-first, responsive websites. Nowadays, websites are optimized for all browsers (IE, Chrome, and Firefox).

### 2.2.2. Back-end Programming

The server side of a website is referred to as the back-end. It is a section of the website that users cannot see or interact with. It is the software part that has no direct contact with the users. It is used to organize and store data.

### 2.2.3. Mern Stack

MernStack; It is an open-source technology bundle that uses MongoDB for the database, Express JS for the framework, React for the front-end, and Node.js software for the back-end. The SoruSor site is a site created using the "Mern" stack. Thus, a dynamic and fast website is targeted.

## **React JS**

It is a Javascript Library for building React JS user interfaces. React enables the development of complex applications that support the ability to load new data without refreshing the web page, enhancing app speed and allowing users a better user experience. This permits better integration with other JavaScript frameworks and libraries.

### *Advantages of ReactJS*

- Lightweight DOM for Enhanced Performance
- Simple Learning Curve
- JSX compatibility
- increased performance
- Support for Virtual DOM
- Data flow would be unidirectional.

### *Disadvantages of ReactJS*

- In MVC, just one View layer is covered.
- A web application requires extra tooling and external support to perform.

## **Express JS**

Express is a Node.js web application framework and a jet, unopinionated, minimalist web framework. It includes multiple features that make developing web applications much simpler and quicker than it would be when only Node.js could be used. Express.js is started building with the Node.js middleware module connect, which implements its HTTP module.

### *Advantages of ExpressJS:*

- Makes Node.js developing web applications jet fast and painless.
- Extremely simple to establish and customize.
- Allows you to establish application routes based on HTTP techniques and Web addresses.
- Includes various middleware modules that may be utilized to perform multiple routines on demand and • response.
- Helps with error-handling procedures.
- It is a simple task to serve static files and resources from one's application.
- Allows the creation of RESTful API servers.
- Simple integration with MongoDB databases.

## **MongoDB**

MongoDB is an open-source document database that provides app data consistency and is built with scalability and developer flexibility in imagination. MongoDB bridges the gap between fast and scalable key-value stores and relational databases with rich functionality. It is a kind of NO-SQL database store in which the data is stored as key pair values rather than in a grid of rows and columns.

### *Advantages of MongoDB*

- Clearly defined object structure.
- Joins that are simple.
- Deep queries are supported.
- Tuning is the process of fine-tuning something.
- Extremely scalable.
- There is no need for application object conversion or mapping.
- Internal memory is used to store the working set, allowing for faster data access.

### *Disadvantages of MongoDB*

- Massive amount of data.
- Less flexibility in query execution.
- There is no transactional support.
- At the moment, Map/Reduce (for example, to perform aggregations/data analysis) is not lightning fast.

## **NodeJS**

Node.js is a JavaScript runtime environment for back-end application development (via Express). It includes a number of features required for developing web applications, such as networking protocols like HTTP. It also supports the installation of third-party modules via npm, the node package manager. Node.js is an event-driven, asynchronous engine that allows the application to make a request and then continue working on other effective routines instead of trying to stall while waiting for a response. When the desired task is completed, the conclusions are returned via pushback functions, enabling parallel computing.

### *Advantages of NodeJS*

- It is extremely fast.
- Open source and constantly growing.
- Supports the development of real-time applications.
- Improves overall productivity.

### *Disadvantages of NodeJS*

- Poor performance when performing CPU-intensive queries.
- Large-scale applications perform poorly.
- The NodeJS API has an inconsistency problem.
- Poor performance when using relational databases.

## 3. Software Requirements Specifications

### 3.1. Purpose

The purpose of this document is to describe our website called SoruSor. Our aim with this website is to convey the right information and the opinions of the people on the issues that do not require the right information, to the person asking the question in the fastest way possible. The project's requirements are described in full in this paper. It represents the suggested software features, limitations, and features that have been defined.

### 3.2. Scope of Project

The Web is gradually developing into a terrific resource for solutions to a range of unconnected problems due to the large amount of information that is now accessible online. Search engines like Google are frequently used by users to find the information they need online. It is common knowledge that not everyone has the same level of Google proficiency. While some people can locate information fast and accurately, others might not be able to. Thanks to this website, the right information and the opinions of the people on the issues that do not require the right information are conveyed to the person asking the question, and it is ensured that the person can easily access the information. Although there are such sites for users from abroad, there is no easy-to-use and reliable questioning site for Turkey. The user interfaces of some sites that are in use in Turkey and that serve the same purpose are not sufficient and they cannot provide the desired information in a comfortable and professional way.

The purpose of our SoruSor site is to serve this purpose by providing users with a beautiful and effective user interface, using a technology that is mostly based on user votes, understanding the main idea and preventing elements containing insults, violence and offensive attitudes, with accurate information resources based on the opinions of experts or opinions on a subject. aimed to do. This website allows users to access the right information effectively and quickly. At the same time, it prevents users from accessing harmful content while accessing this information. This project provides users with easy use and access. Thus, users access our website to get accurate information and to get the opinion of other users about a subject.

On our website, you may search for questions and answers based on the themes you select, and the results will show up in your feed. It covers a variety of topics, including physics, arithmetic, philosophy, movies, photography, mobile apps, food, and creative writing. Users may customize their feeds and conduct interest-based searches. People from all around the world have provided a lot of really useful and instructional content to the website and mobile app. Some of the inquiries are factual and impartial. Others connect to personal experience or call for a professional opinion. People discuss their personal experiences in this area, both good and bad, giving other users a chance to weigh in and get fresh insight. There is also a plus and minus vote system in the answers section. The more upvotes you get, the better your answer will be. Also, SoruSor has an artificial intelligence/machine learning system that ensures that there are no harmful, violent comments/responses. In this way, users are prevented from seeing harmful content and it is ensured that they are not badly affected.

### 3.3. General Description

#### 3.3.1. Glossary

Term	Definition
Account	A user-specific network database area that allows a user to log in to a domain or computer and use available resources.
Homepage	It is the general name of the URL that is automatically loaded by entering the root address of the websites into the browsers. In the most common and common usage of this particular URL, the filename of the page is index.shtml.
Https	HTTPS is a widely used HTTP extension on the internet for secure communication over a computer network. In HTTPS, the communication protocol is encrypted with Transport Layer Security or its predecessor, the Secure Sockets Layer.
Object-Oriented Programming Language	It is a programming approach where every function is abstracted as objects. Programming languages that support object-oriented programming are called high-level languages.
SoruSor Website	Online Platform for asking questions and providing answers
SQL Database Management System	SQL Database management system is the system and software designed to define, create, use, modify databases and to meet all kinds of operational requirements related to database systems.
User	a person who uses or operates something, especially a computer or other machine.
Web System	It is a collection of documents covering all pages that convey information or provide services to its visitors in the form of text, visuals and animations.

#### 3.3.2. User Characteristics

Mostly, the students who want to reach the right information and there will be people who have knowledge on a certain subject or who want to receive/give ideas.

### 3.3.3.Overview of Functional Requirement:

There are two types of users who are also actors, such as the person asking the question and the person answering the question.

Person who is asking the question:

- Can register to the system or log in to the system if the user have an account.
- Can browse the questions asked and their answers
- Can see the list of unanswered questions.
- Can customize homepage flow.
- There are suggestions and customizations that will allow users to spend more time on the platform.
- Can like or dislike answers.
- Can see questions and answers from all over the world.
- Seeing and accessing harmful content is prevented.

Person who is answering the question:

- Can register to the system or log in to the system if the user has an account.
- Can browse the questions asked and their answers.
- Can see the list of unanswered questions.
- Can customize homepage flow.
- Can like or dislike answers.
- Can answer questions matching his field as an expert.
- Can give an opinion to the questions of users who do not want objective information.

## 3.4 Requirement Specification

### 3.4.1 External Interface Requirement

#### **User Interfaces**

- Back-end Software: Mongo DB, Node.js
- Front-end Software: React JS ,HTML,CSS,Javascript

#### **Hardware Interfaces**

- This system, as a web system, can be accessed via computers. Online video and audio are supported by our technology. These are supported by hardware on the system.
- In all operating systems, this website can be used actively at full working capacity.

#### **Software Interfaces**

- Because the system will be used online, it will be compatible with all web browsers. SQL database management systems are used to store user data. SQL is a database management technology that enables quick data management.

## Communication Interfaces

- Because the system's many components are dispersed, communication between them is critical. However, because the underlying web operating systems handle the system, it makes no difference how the connection is established.

### 3.4.2. Functional Requirements

Use Case: Answer a Question

- View Questions
- View Feedbacks
- Follow/Unfollow/Block
- Give a Feedback
- Filter
- See Notifications

Diagram:

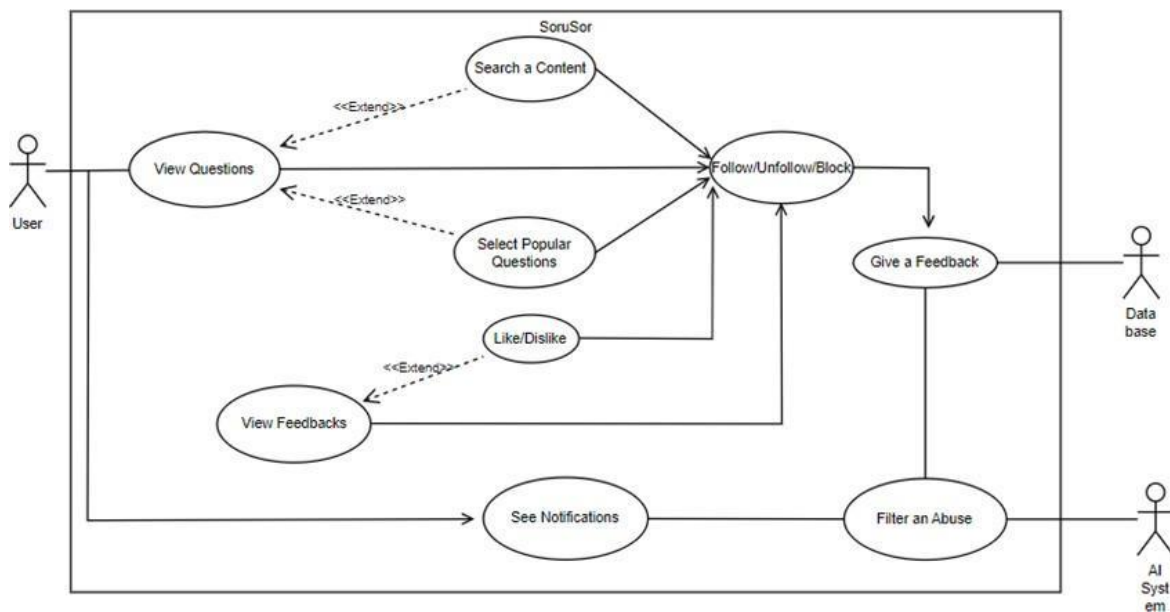


Figure 1: Use Case: Answer a question

- View Related Areas
- View Account Detail
- Manage Profile
- View Asked Question
- Edit Profile
- Edit Password

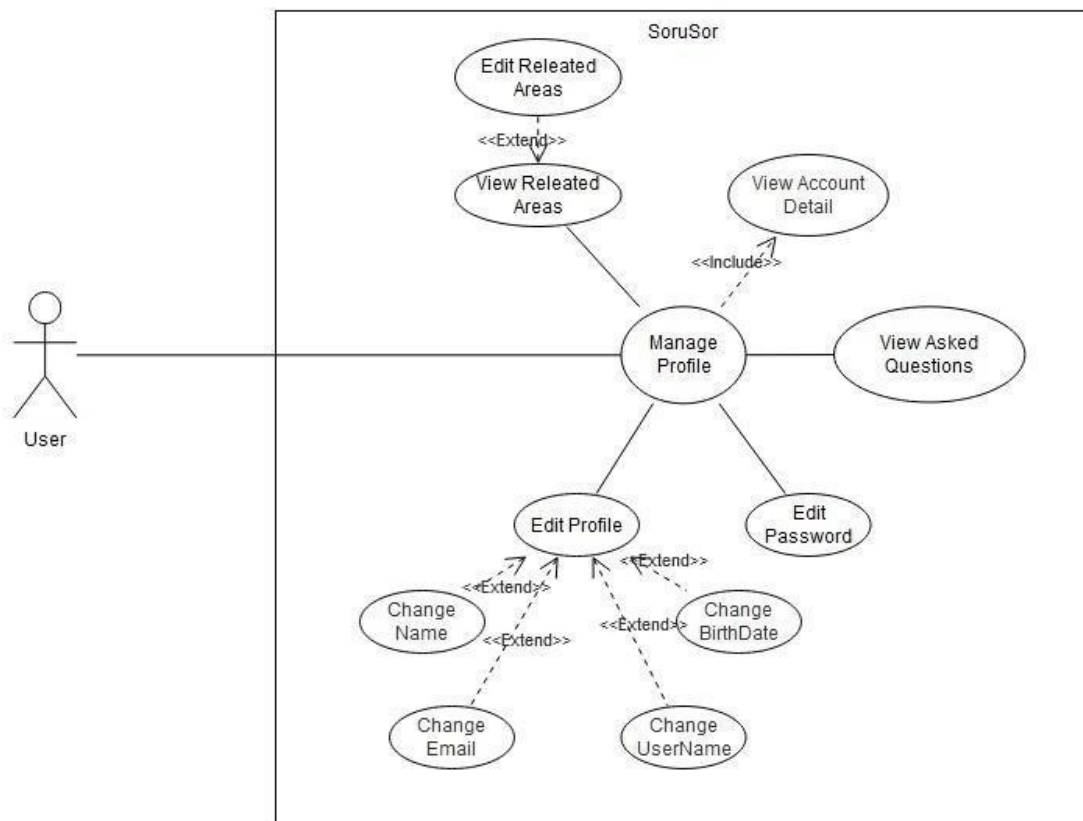


Figure 2: Use Case: Profile



## Use Case: Registration & Login

- Register
- Login
- Update User Table
- Access
- Authenticate User Details

Diagram:

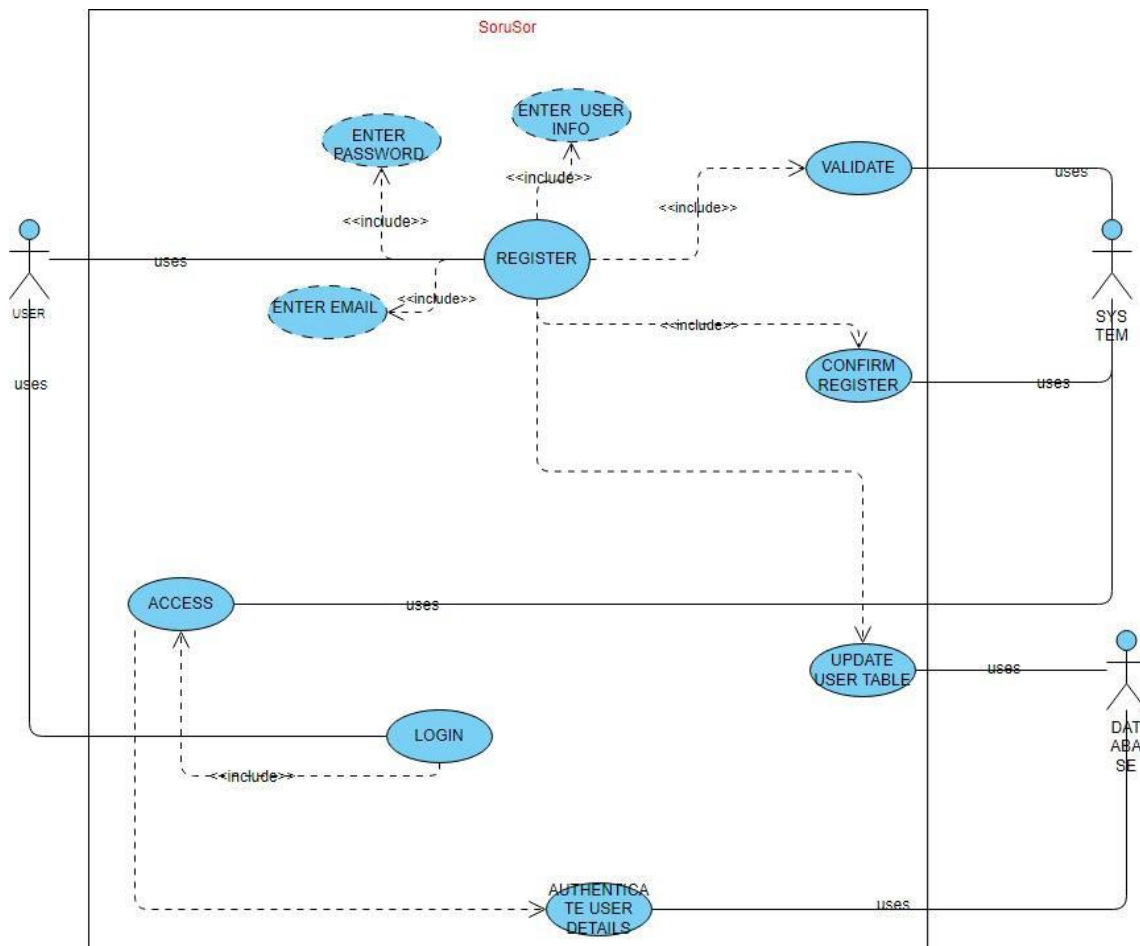


Figure 3: Use Case: Registration & Login

### Use Case: Add a Question

- Add a Question
- Select a Category
- Choose Access
- Filter Validation
- View Asked Questions
- Share Post via Another App
- Share the question

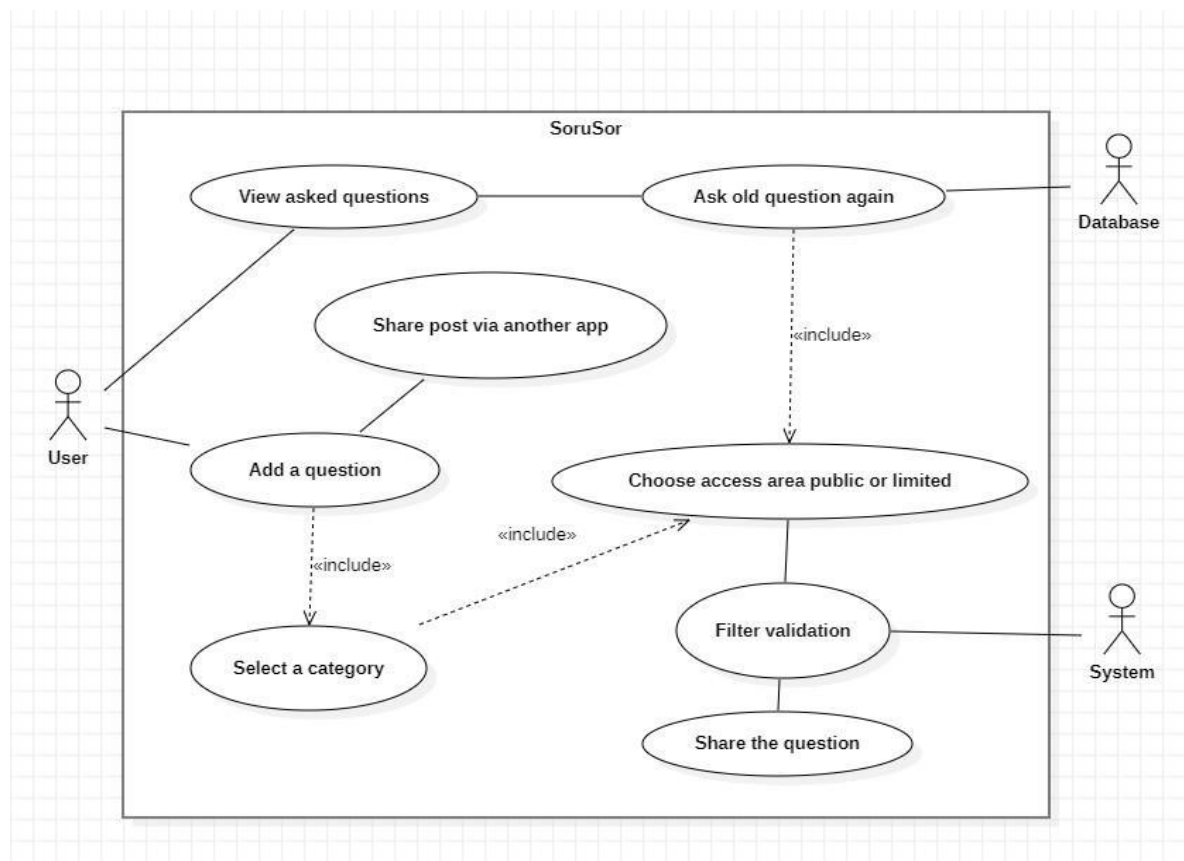


Figure 4: Use Case:

Addaquestion

## Use Case: Category

- Manage Related Category
- Delete & Add Related Category
- Create a New Category
- Add a new Related Category Suggested by system.

Diagram:

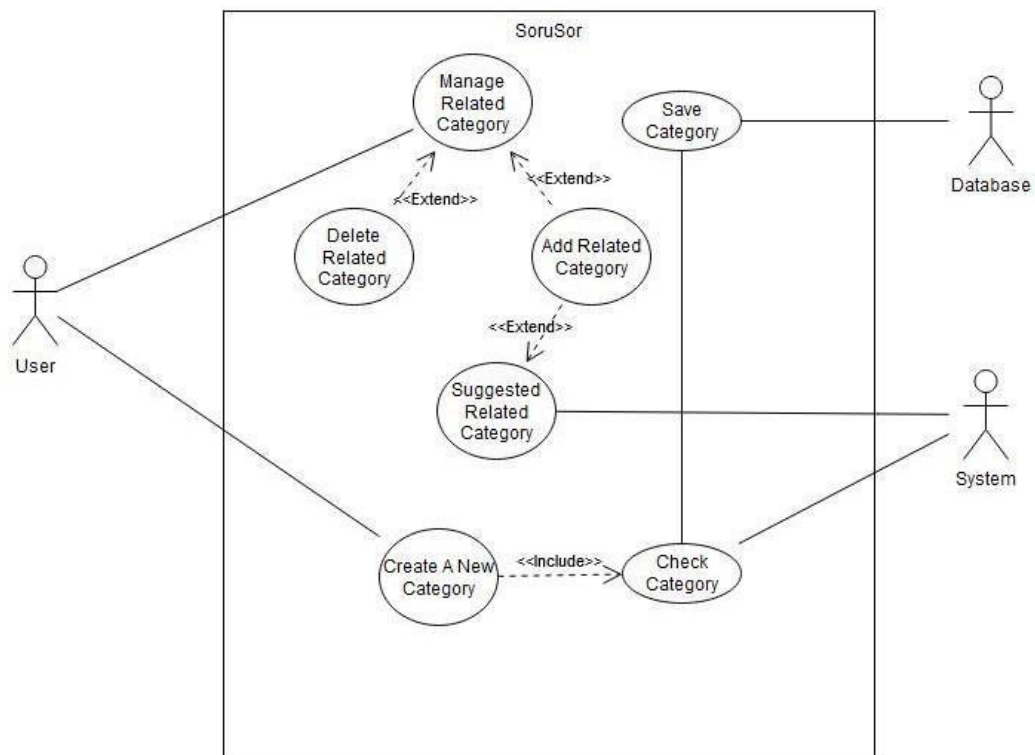


Figure 5: Use Case: Category

### 3.4.3. Non-Functional Requirements

#### **Performance**

- When searching the database, the results must be displayed in no more than 2 seconds.
- Following registration, the system must respond within 5 seconds, regardless of the response.

#### **Usability**

- In addition to PCs, this application software supports users. As a result, users must understand how to use computers. Users should be satisfied with the system's interface.
- The user can access the desired section with just two clicks

#### **Supportability**

- The codes must be easy to understand.
- The design architecture should be thoroughly documented in all aspects.
- The object-oriented programming language used in this project allows jobs to be separated and thus easier to manage.

#### **Security**

There are several protocols, standardizations on this software.

- HTTPS (HyperText Transform Protocol Secure)
- SHA-256 (Secure Hashing Algorithm)
- SHA-512 (Secure Hashing Algorithm)

#### **Reliability**

- The database that the system uses responds to each search within 99% of the time.

## 4. Software Design Document

### 4.1. Purpose of the document

The purpose of this Software Design Document is providing the details of project titled as “SoruSor”.

The target audience includes persons who have expertise about a certain topic or who want to receive or provide ideas, as well as students who want to find the correct information. The goal of this website is to provide the questioner with accurate information as quickly as possible, as well as opinions of individuals on subjects that do not need accurate knowledge.

Due to the vast quantity of knowledge that is currently available online, the Web is increasingly becoming a fantastic resource for solutions to a variety of unrelated problems. Users regularly use search engines like Google to locate the information they need online. It is well known that not everyone is equally adept at using Google. Others might not be able to discover information as quickly and precisely as other individuals can. This website makes it possible for the person asking the inquiry to readily acquire the information while also receiving the correct information and views of others on matters that do not call for the correct information. Although there are similar websites for people from other countries, Turkey lacks an accessible and dependable questioning website. Some websites used in Turkey that perform the same goal but have insufficient user interfaces are unable to deliver the required information in a welcoming and expert manner.

The aim of our SoruSor site is to achieve this goal by giving users a user interface that is appealing and functional, utilizing technology that relies heavily on user votes, comprehending the main idea and avoiding elements that contain insults, violence, and offensive attitudes, and providing accurate information resources based on the opinions of experts or opinions on a subject. Users may quickly and efficiently get the appropriate information using this website. While users are receiving this information, it stops them from accessing harmful stuff. Users may utilize and access this project with ease. Users use our website in order to learn the truth about a topic and to learn what other users think about it.

Using the topics you choose, you may search for questions and answers on our website, and the results will appear in your feed. It includes a wide range of subjects, such as physics, mathematics, philosophy, literature, photography, mobile apps, and gastronomy. Users may do interest-based searches and customize their feeds. The website and mobile app have received a ton of really helpful and instructive information from users all around the world. There are some accurate and objective queries. Others draw on personal encounters or want a professional assessment. People share their own, positive and negative, experiences in this field, providing other users an opportunity to comment and get a new perspective. In the replies area, there is also a voting mechanism using plus and minus signs. Your answer will get better as you receive more votes. Additionally, SoruSor includes a system that uses machine learning and artificial intelligence to make sure that no offensive or violent remarks or reactions are made. Users are shielded from hazardous information in this way, and it is assured that they won't suffer any negative effects.

## 4.2. Scope of the software

This document contains a complete description of the design of SoruSor.

While using the website, the user is expected to login. The questions and answers you find can then be searched for based on the themes you select, and they will show up in your feed. It covers a variety of topics, including science, arithmetic, philosophy, movies, photography, mobile apps, food, and creative writing. People from all over the world have provided a lot of really useful and instructional content to the website and mobile app. Some of the inquiries are factual, while others call for an expert's judgment or concern one's own experiences. It truly provides you a fresh outlook on a variety of problems.

Additionally, a plus-and-minus voting mechanism is present here. Your answer will get better as you receive more votes. Users can quickly get the information they need by searching for questions and topics. At the same time, it provides a seamless experience to users by blocking insulting questions, answers and messages using artificial intelligence.

## 4.3. Overview of the software architecture

Consistency in app data is ensured by MongoDB, an open-source document database that was created with scalability and developer inventiveness in mind. MongoDB bridges the gap between rapid and flexible crucial stores and database systems because to its broad range of capabilities. Back-end apps are made using the Node.js JavaScript execution framework (via Express). It contains several features, including networking protocols like HTTP, which are essential for developing online applications. It also makes it possible to install third-party modules via npm, the node package management.

HTML stands for HyperText Markup Language. Markup language is used to create the front end of web pages. Given that it is used to create the framework of a website, it acts as a skeleton. Cascading Style Sheets (CSS), a basic language, was developed to simplify the process of designing visually appealing web pages easier. The design of our website incorporates it. JavaScript is the computer language used to generate dynamic activity on our website. JS React It is a Javascript library used to design React JS user interfaces.

## 4.4. Requirements

### 4.4.1. Functional requirements

*Answer a Question:* Users can have the option to answer the asked questions by firstly viewing them. They can give their opinions/feedback.

Users should have an option to view related questions, manage their profiles, edit their profiles, and passwords.

In the registration/login page, the system should allow users to access the page, register or login to their registered accounts.

The system should let users to share posts via another app, share their questions, and select a category.

Only system admins have the right to access the database.

#### 4.4.2. Non-functional requirements

This part was mentioned in the Non-functional requirements section of the Software Requirements Specifications

#### 4.4.3. Constraints and assumptions

- *Language*:The open source development platform of nodejs, that is, javascript, used in the business logic layer will be used.
- *Framework*:Planning to use React JS and Express JS for the project's framework.
- *Database*:It is planned to use the mongo database, which can easily handle the heavy traffic flow.
- *Timescales*:SoruSor project is assumed to be ready for use in about 11 weeks.
- *Testing*:It is planned to use Agile Test Quadrants methods.
- *Bug Fixing*:Visual Studio compiles code to catch and resolve project and compiler errors, and run-time and run code to find dynamic errors, assuming bug fixes.
- *New Feature Requests*:Latest versions of all code software tools used in Mern Stack will be used. Popular effects, animations and templates etc. will be used to get a dynamic website look. is planned to be used.

### 4.5. Architecture

#### 4.5.1. High-level overview of the software architecture

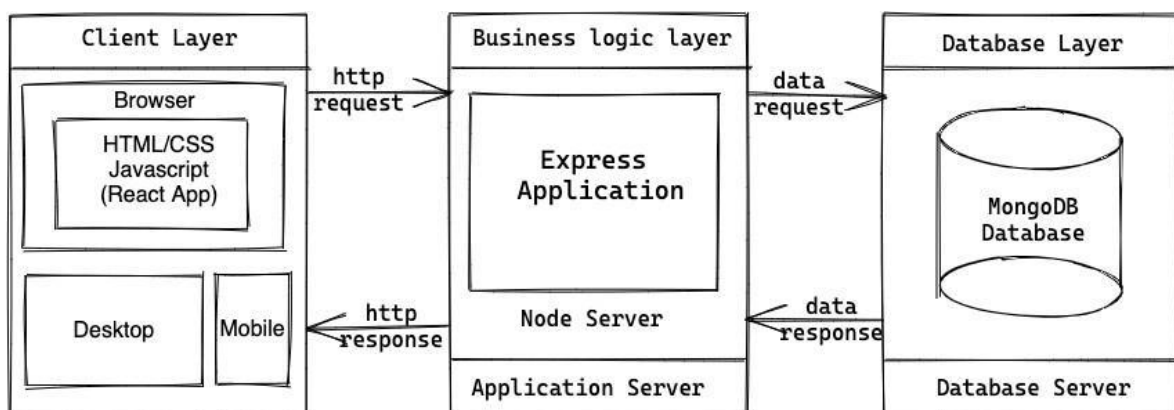


Figure 6: Software Architecture

It consists of three tiers: client, server, and database. Our application's architecture is based on a standard MVC model. Our client tier (View) will be written in Javascript, HTML, and CSS, with the framework ReactJS. The user will interact with this level of the architecture to access the features of our application.

The Business Logic Tier (Controller) will be written in NodeJs and ExpressJS, and it represents the Application Server that will serve as a communication bridge between the Client Tier and the Database Tier. This tier will serve HTML pages to the user's device, accept HTTP requests from the user, and respond appropriately.

MongoDB will be hosted on our Database Tier (Model). This is where we will keep all of the critical data that our application requires to function.

#### *Used Technologies*

- Back-End Programming : NodeJs for application server, MongoDB for Database
- Front-End Programming : Express JS, HTML, CSS, Javascript, ReactJS

### 4.5.2. Detailed description of the components and their interactions

#### **HomePage:**

When visitors enter a site, they want to see everything on their screen. They do not want to make any scrolling. The home page of this website is designed to attract the attention of visitors. It is easy to use and can see popular topics on the homepage of the website. cannot use other functions. Visitors will want to become a member by seeing popular topics.

#### **SingUp:**

When visitors enter a site, they want to see everything on their screen. They don't want to do any scrolling. That's why we decided to make the Homepage be the landing page. The most popular topics will be displayed on the main page so that the visitors can be interested in our website. So the main page is for visitors, not members. The potential user visiting the main page will notice that there are features such as liking and following popular questions and answers and will want to become a member.

#### **Category:**

On the category page, the user can like and follow the topics she/he likes, and thus the user can see the popular questions and answers of these topics on the homepage.

In other words, it is aimed to facilitate the use of the website for the user.

#### **Question:**

The Questioning Component is one of the most important components. Users can ask a question about a topic they are curious about or in a related category and follow the problem. They can like or rate the answers or block them. It is important not to use forbidden words when asking questions. can view the list. Users who use prohibited words can see the warning of the artificial intelligence integrated into the website from the warnings link.

#### **Answer :**



There is also a special link for users that allows answering questions. In this link, the user can answer any question he wants. It is also an answering component that can be used to give an opinion without a question or to publish an article.

- The directions are intended for convenience and to please every user.

### 4.5.3. Diagrams or sketches of the architecture

#### Activity Diagram

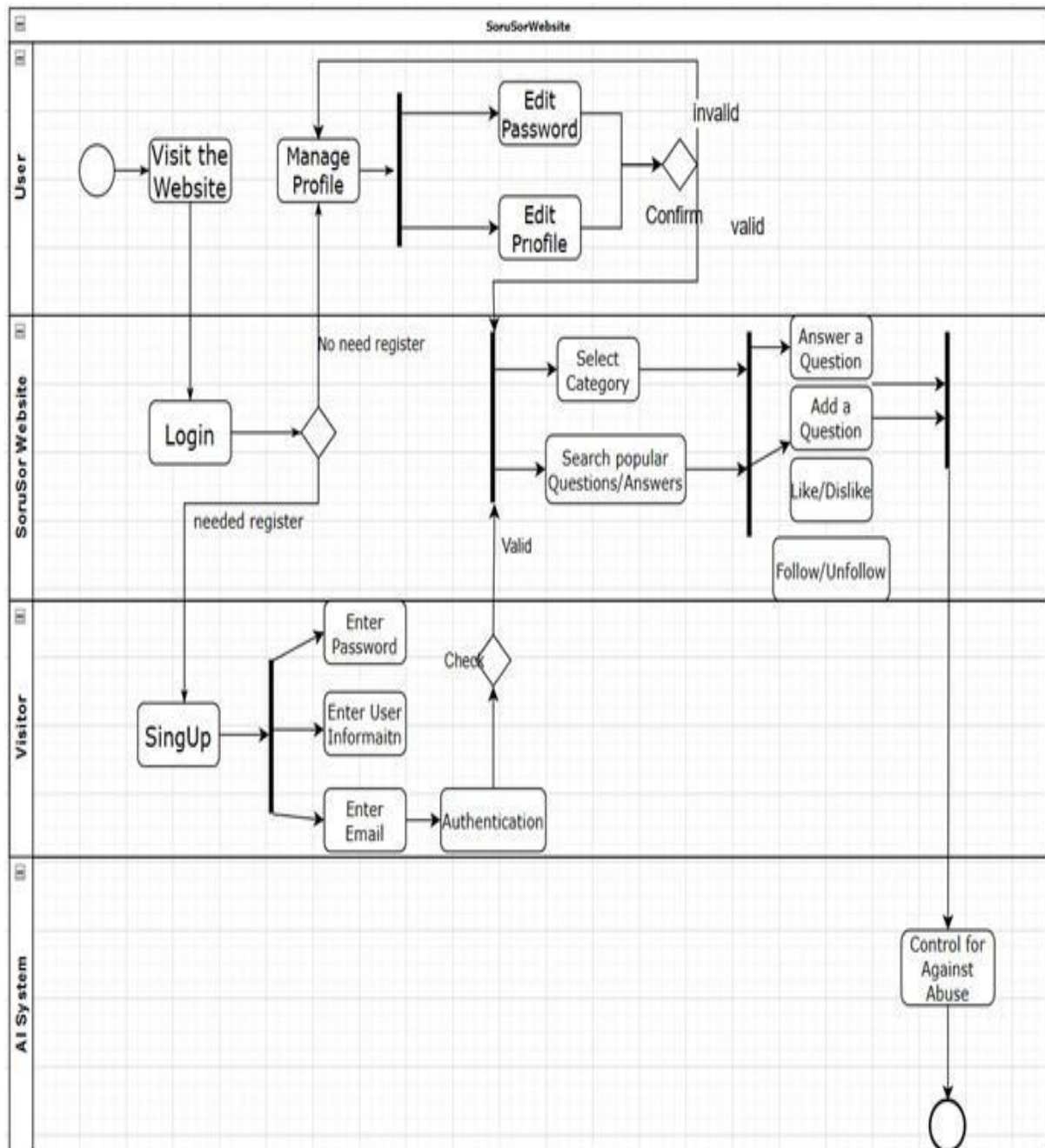


Figure 7: Activity Diagram

### Class Diagram

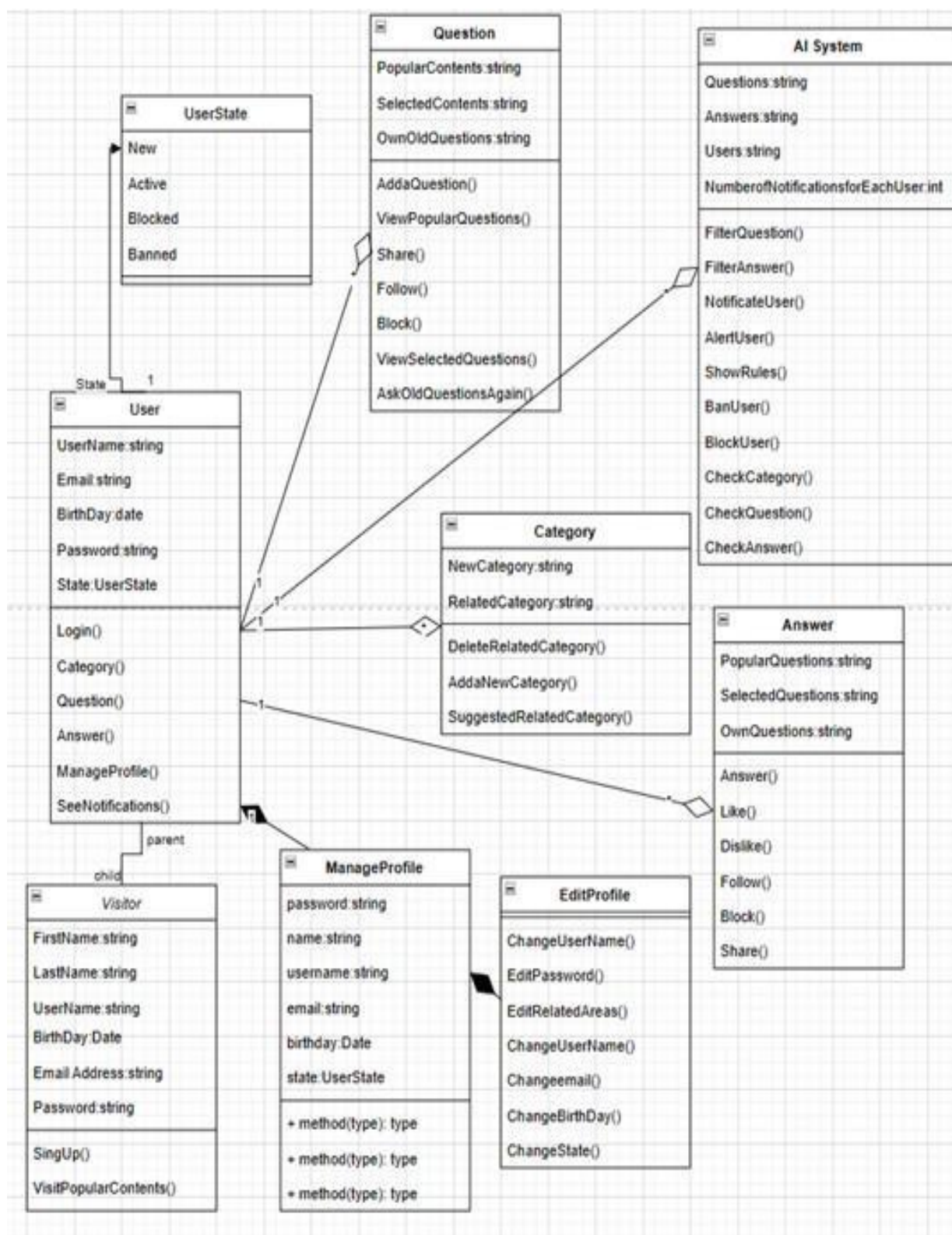


Figure 8: Class Diagram

## 4.6. Detailed Design

### 4.6.1. Detailed design of each component

#### **HomePage:**

- Design Class Hierarchy:

The home page is the first and foremost page of the design class. The other pages are subsets of this page.

- Processing Detail:

The home page should be interesting to visitors as defined above, and the home page will show popular topics. The homepage directs users and visitors to popular topics.

- Restrictions/Limitations:

Only users can read, follow and rate popular topics here.

- Processing Detail For Each Operation:

#### *Learn More:*

By clicking the learn more link under popular topics, the visitor and user will be able to see the answers and questions to the topic, as well as the relevant categories.

#### *Follow Button:*

Only users will be able to follow by clicking the follow button under each topic and thus receive notifications about that topic.

#### *Rating:*

Only users will be able to rate 1 to 5 under each topic.

#### *Ask a Question Button:*

With this button, the user can go to the related question page.

#### *Answer Button:*

With this button, the user can go to the related answer page.

#### **SingUp:**

- Design Class Hierarchy:

The sign up page in the links created above is one of the subpages of the home page.

- Processing Detail:

Only requires necessary information and email verification for the visitor to become a member easily.

- Restrictions/Limitations:

This page is designed for visitors only.

- Processing Detail For Each Operation:

*Name, Username, Email, Birthday, Related Area and Password Text Area:*

They must be filled by the visitor. Filling in each information will be mandatory.

*Sign Up Button:*

Registration will be completed with the Sign Up button.

### **Category:**

- Design Class Hierarchy:

It is one of the sub-pages of the main page. This page can be accessed with the search and visit link on the main page.

- Processing Detail:

Categories that may be relevant to the user at the moment are shown on the category page, and rating and following features are shown under each category. If the user wants to access other categories, a separate link is given for this.

- Restrictions/Limitations:

This page can be used by both users and visitors. However, only users can use the like and follow feature.

- Processing Detail For Each Operation:

*Follow Button:*

With this button, the user can follow that category and receive notifications.

*Rating:*

Users will be able to rate 1 to 5 under each topic.

### **Question:**

- Design Class Hierarchy:

It is one of the sub-pages of the main page. This page can be accessed with the Add a Question link on the main page.

- Processing Detail:

On this page, users can ask questions on any subject they want and upload photos or videos related to the question. The website specific to this page displays a warning message about banned words.

- Restrictions/Limitations:

Only users can add a question.

- Processing Detail For Each Operation: Add a

Question: In the given field, the user must write her/his question.

*Ask Button:*

With this button, the user can publish her/his question.

*Add Video or Photo:*

In this section, the user related to the question can upload photos or videos. However, this section is checked against abuse by our artificial intelligence.

*Forbidden Words Link:*

In this link, the user can look at the list of prohibited words, warnings and rules of the website.

### **Answer :**

- Design Class Hierarchy:

It is one of the sub-pages of the main page. This page can be accessed with the Answer a Question link on the main page.

- Processing Detail:

On this page, users can reply to any topic they want or publish a topicless answer (a post, an idea, a news article, etc.).

- Restrictions/Limitations:

Only users can answer a question.

- Processing Detail For Each Operation:

*Answer a Question:*

In the given field, the user must write her/his answer.

*Answer Button:*

With this button, the user can publish her/his answer.

## 4.6.2. Interfaces between the components

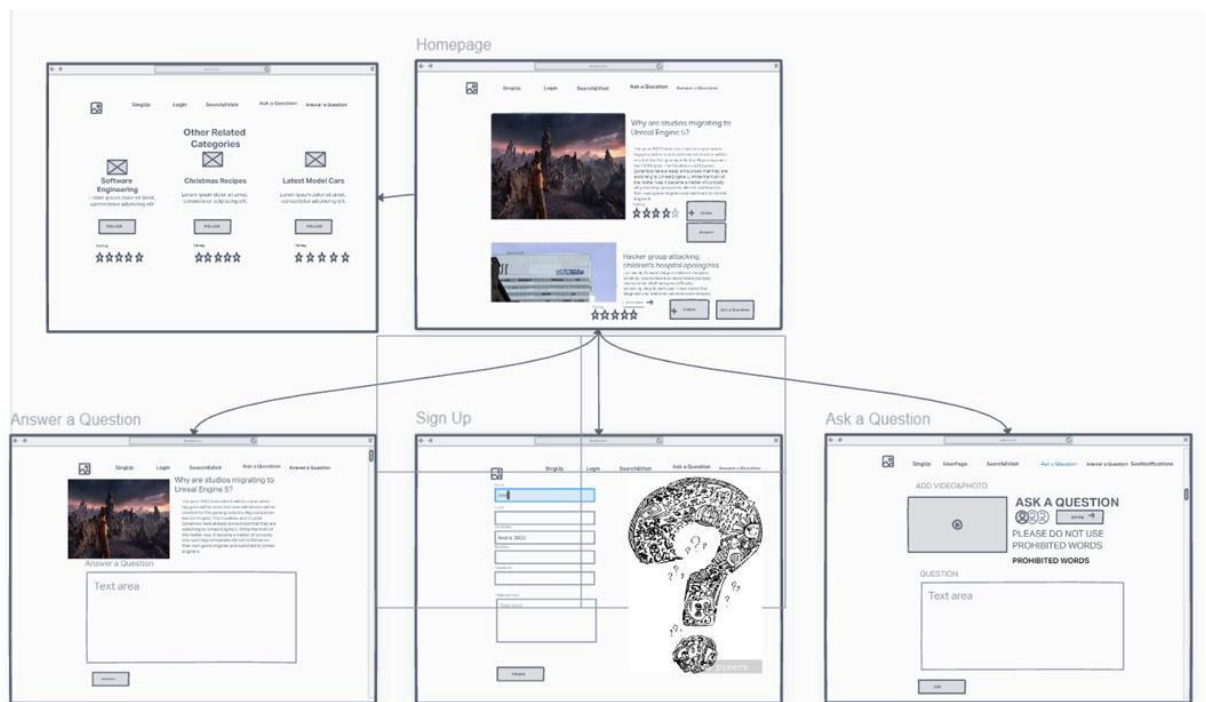


Figure 9: General Interface

## HomePage:

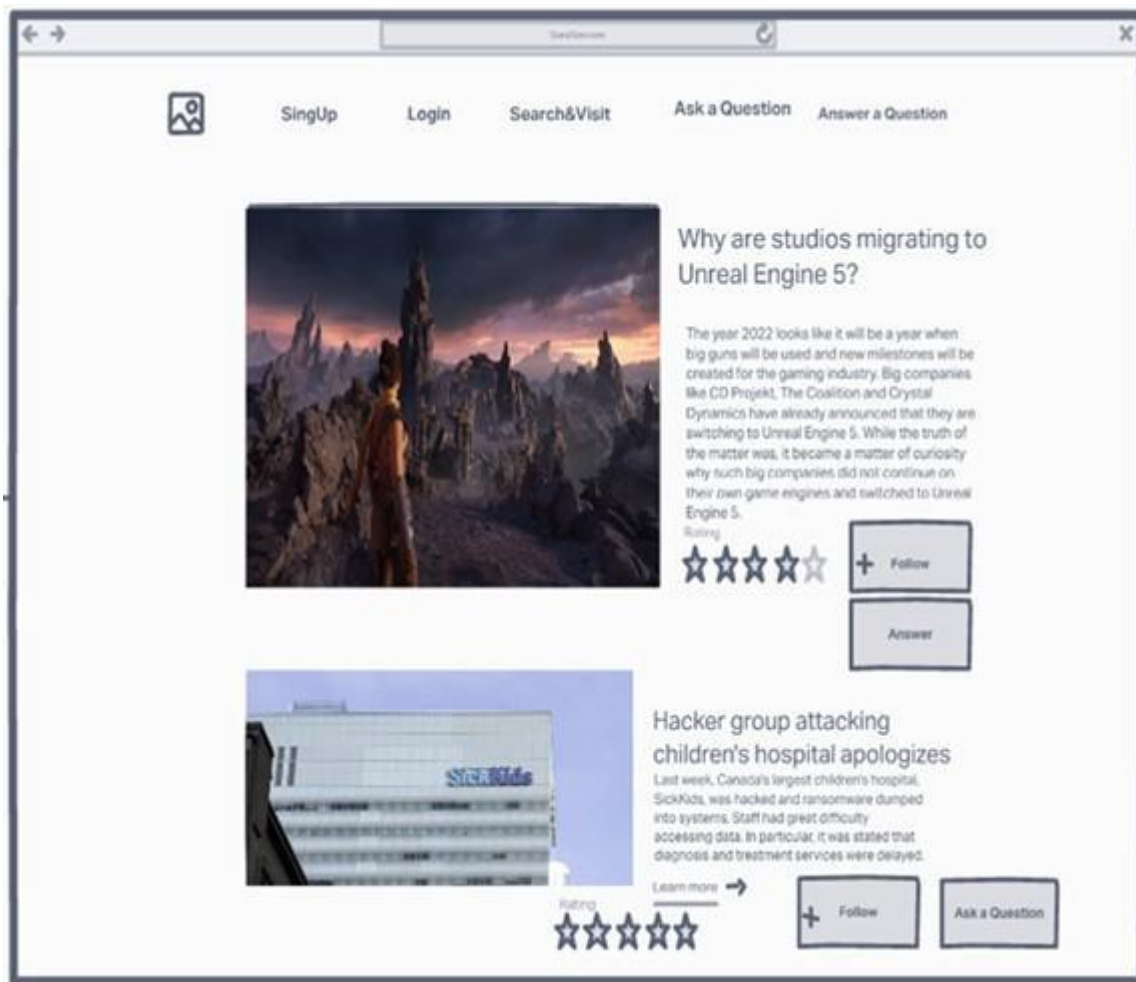


Figure 10: Home Page Interface

## SingUp:

The image shows a wireframe of a web browser window. The browser's address bar contains 'SingUp.com'. The page header includes a logo on the left and navigation links: 'SingUp', 'Login', 'Search&Visit', 'Ask a Question', and 'Answer a Question'. The main content area is divided into two sections. On the left is a 'SingUp' form with the following fields: 'Name' (containing 'And'), 'Email', 'Username' (containing 'André 3000'), 'Birth Day', 'Password', and 'Address/Phone'. Below these fields is a 'Text area' and a 'SingUp' button. On the right is a large, stylized 3D illustration of a question mark, rendered with hatching to create a sense of depth and shadow.

Figure 11: Sign Up Interface



## Category:

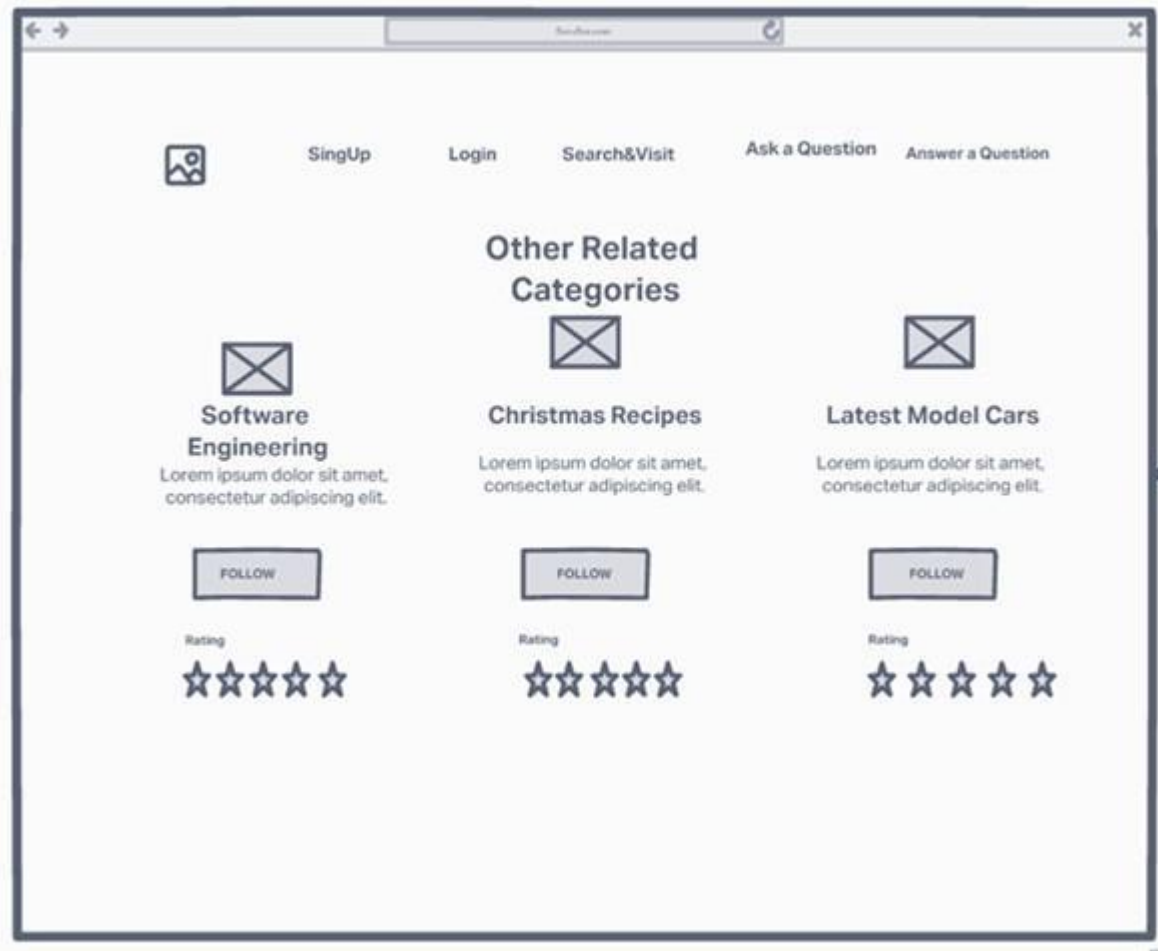
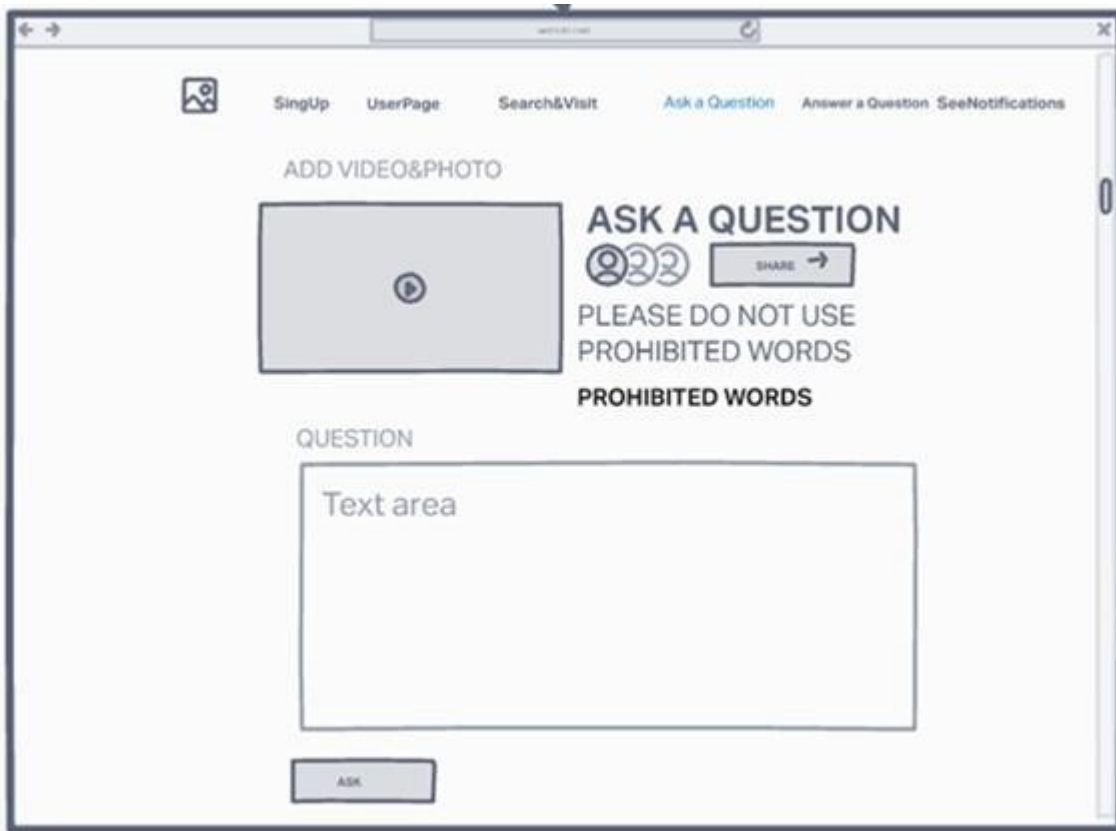


Figure 12: Category Interface

## Question:



The image shows a web browser window with a question-asking interface. The browser's address bar shows 'http://localhost:3000/'. The page has a navigation bar with links: 'SingUp', 'UserPage', 'Search&Visit', 'Ask a Question' (highlighted in blue), 'Answer a Question', and 'SeeNotifications'. Below the navigation bar, there is a section titled 'ADD VIDEO&PHOTO' with a placeholder image containing a play button icon. To the right of this is the 'ASK A QUESTION' section, which includes a 'SHARE' button with a right arrow icon. Below this, there is a warning: 'PLEASE DO NOT USE PROHIBITED WORDS' and a list of 'PROHIBITED WORDS'. The 'QUESTION' section features a large text area with the placeholder text 'Text area'. At the bottom of the form is an 'ASK' button.

SingUp UserPage Search&Visit Ask a Question Answer a Question SeeNotifications

ADD VIDEO&PHOTO

ASK A QUESTION

PLEASE DO NOT USE PROHIBITED WORDS

PROHIBITED WORDS

QUESTION

Text area

ASK

Figure 13: Question Interface

**Answer :**

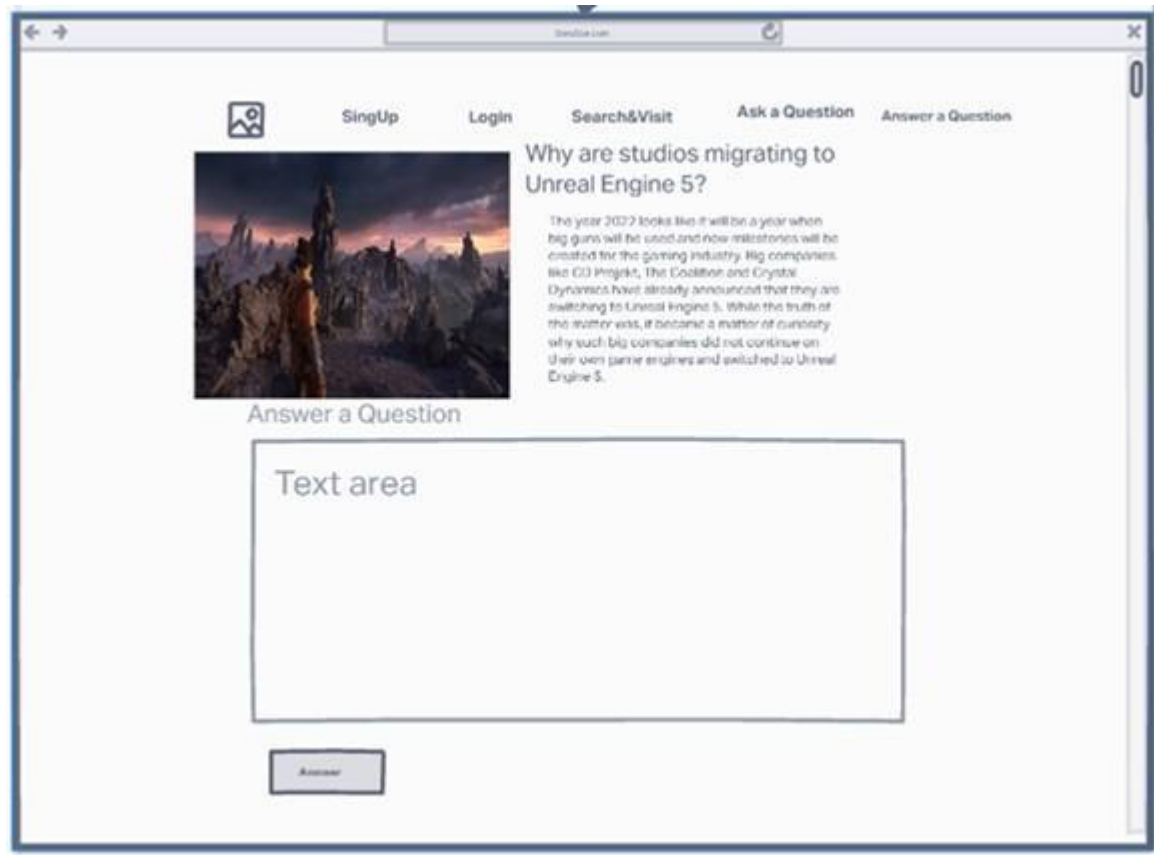


Figure 14: Answering the Question Interface

### 4.6.3. Data structures and algorithms used

#### **Ordered Array:**

*As advantages:*

Fast adding.

Elements can be called out of order.

*As disadvantages:*

Slow search, slow delete, and limited functionality.

#### **Distributed Hash Table:**

*As advantages:*

It is aimed to create a dynamic database using the hashing method or distributed hash table on our SoruSor website, where we use MongoDB, a NoSQL-based database.

At the same time, we use distributed hash table Javascript on our site, which is suitable for fast storage and fast search for arrays and objects.

*As disadvantages:*

Slow delete, slow access if key is unknown. Causes insufficient memory usage.

### **Server Selection Algorithm:**

*As advantages:*

A fast sorting algorithm can be designed with selection sort, which can be used in the server program.

The purpose of this server algorithm is that the user can do a quick search while using the website. Thus, a dynamic website is aimed.

*As disadvantages:*

If it turns into a website with many topics, the SoruSo site may run slow as this algorithm gives errors or consumes too much memory. This negatively affects the dynamic website feature of the SoruSor site. Therefore, quick sort can also be considered instead of this algorithm.

### **Backtracking Algorithm:**

*As advantages:*

We assume that the backtracking algorithm, which is an heuristic algorithm, is an algorithm that can be used for the filtering feature of our website. This algorithm, which is used in the labyrinth, tries every path that goes to the target, if the target cannot be reached, it returns and continues on a different path.

With this feature of the algorithm, it determines all the bad words in a list that we have created in the database as a target, and if the user has used one of these bad words, it is detected by backtracking search.

*As disadvantages:*

While searching for words that are forbidden to use the backtracking algorithm, it should be prevented from searching for a word that has been searched before. Otherwise, it will cause time and memory loss.

### **Stack:**

*As advantages:*

It can be an advantageous data structure for the latest database components and memory management. It can also be useful for backtracking.

*As disadvantages:*

However, due to the last in, first out feature, it is difficult to reach the desired component, so it may waste memory.

## 4.7. User Interface Design

### 4.7.1. Description of the user interface

This is the main UI (user interface) of the project. Users can access Communities (which are topics), hot and new questions, see the question of the day, preferably add a new question and generally control their way of feed. The color which is chosen for the website is blue, since etymologically, the term "true blue" has been used to describe trustworthiness for centuries.[17]

### 4.7.2. Mockups or sketches of the user interface

This is the main page of the SoruSor, it has components such as asking questions, viewing categories, polls, hot and new questions. Users can also see the question of the day chosen by editors.

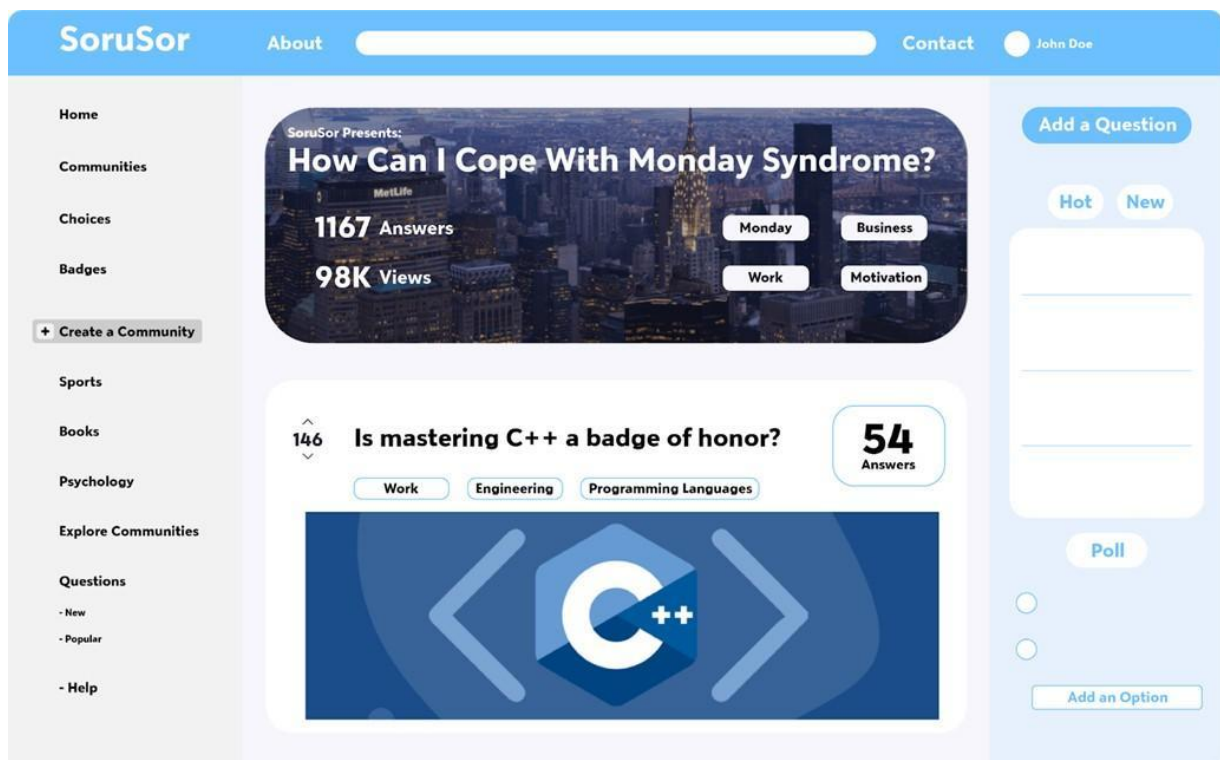


Figure 15: Main page of SoruSor

## 4.8. Implementation

### 4.8.1. High-level description of the implementation plan

The major goal of SoruSor is to create in our nation a platform for questions and answers that is based on scientific knowledge sharing. There is no shortage of topics at all on SoruSor. Depending on the subjects you've selected, you can search for questions and answers; these results will show up in your feed. There are several topics covered, including science, arithmetic, philosophy, cinema, photography, mobile apps, baking, and creative writing. The vast bulk of the content on the website and mobile app was provided as a gift by people all around the world and is highly informative and helpful. While some of the queries are factual in nature, others seek an expert's insight or speak to the author's own experiences. People discuss their personal experiences—both good and bad—on this topic. It genuinely gives you a new perspective on a variety of subjects. Here, there's also a system of upvotes and downvotes. Your comment will get better the more upvotes it receives. On SoruSor, there is also an a.i. learning system that makes sure that there are no aggressive or destructive comments or responses.

We aim to complete the project by June 23, 2023.

There are several dangers associated with the project, such as the inability to access enough artificial intelligence resources and libraries or the inability to achieve some of the requirements required in the project.

### 4.8.2. Dependencies and external libraries

HyperText Markup Language is referred to as HTML. The front end of web pages are made using markup language. It serves as a skeleton since it is utilized to build a website's structure.

A straightforward language called CSS, or Cascading Style Sheets, was created to make the process of creating attractive web pages simpler. It's used in the layout of our website.

The programming language JavaScript that is utilized to provide our website dynamic activity.

For creating responsive web apps and websites, Bootstrap is a suite of open-source, free technologies. The most popular CSS framework for developing responsive, mobile-first websites is this one. Today's web pages are fully browser-compatible .

React JS It's a Javascript library used to create user interfaces for React JS. React makes it possible to create intricate apps that allow for the loading of new data without reloading the web page, improving app performance and providing users with a more enjoyable experience. Better interoperability with some other JavaScript libraries and tools is made possible by this.

The Node.js web app framework Express JS is a simple, minimalistic web framework. It has several capabilities that make creating web apps much simpler and faster than it would be if Node.js were the sole option.

An open-source document database called MongoDB ensures consistency in app data and was designed with scalability and developer creativity in mind. With its extensive capabilities, MongoDB bridges the gap between quick and flexible important stores and database systems. A JavaScript execution framework called Node.js is used to create back-end applications (via Express). It has a variety of capabilities, including networking protocols like HTTP, that are necessary for creating web applications. Additionally, it enables the use of npm, the node package manager, to install third-party modules.

#### 4.8.3. Development and testing environment

We employ the following development tools: Node.js software for the backend, Express JS for the frontend, MongoDB for the database, and React for the backend.

After the product demo is made, we intend to evaluate the first version's user experience. In terms of the software, we intend to do performance tests for React, MongoDB, Express.js, and Node.js using their respective test code sequences.

### 4.9. Testing

#### 4.9.1. Description of the testing strategy

Testing that corresponds to the guidelines and concepts of agile software development is known as "agile testing." Agile testing approach is continuous rather than sequential . Software testing is now the duty of the entire team thanks to Agile and Agile Testing, and quality is no longer simply the tester's job. Testing becomes more proactive and systematic when faulty findings continue to be produced rather than problem identification. It makes reference to Agile tenets. Customer demands and customers are its main priorities. Testing starts, and testing and development are continuously integrated. [16]

The time provided for a certain project phase is known as a sprint. When the sprints are finished, the project is deemed to be finished. Team members may dispute whether the project's development has been adequate, but at a certain point in the process, no further work will be done on this subject. The project's remaining phases will continue to be developed according to their own timelines. [14]

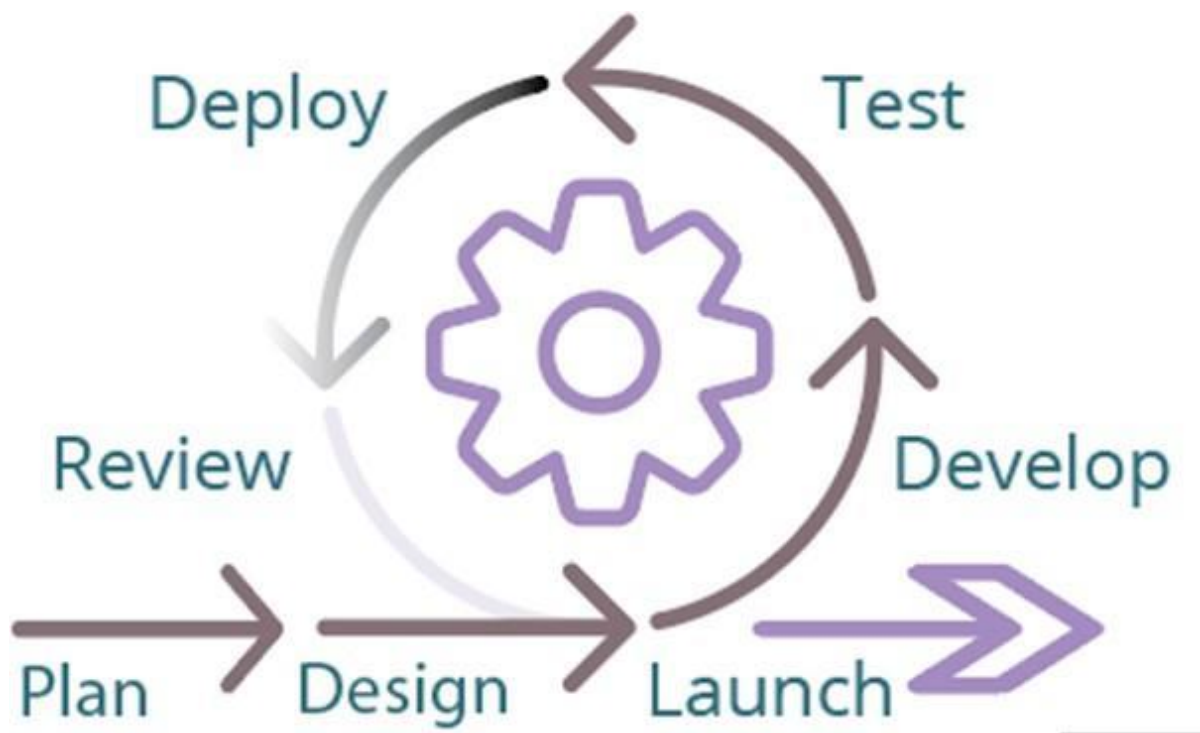


Figure 16: Agile Method

The general concepts of the Agile method are:[14]

- Customer satisfaction is very important in this test method.
- Put an emphasis on making software that regularly functions. Delivery must occur as soon as practical.
- Businesspeople and developers should collaborate on the project from beginning to end.
- Motivated individuals should continue working on projects. They should be given the assistance they require as well as a proper atmosphere. To do their duties, they must be secure.
- The finest method of informing a team is face-to-face communication.
- The main indicator of progress is working software.
- Agile methodologies encourage sustainable growth.
- Technical prowess and smart design require constant effort to improve agility.
- It is acknowledged as the art of optimizing unfinished business and that simplicity is crucial.
- The finest designs are typically produced by self-organized teams.
- Consider how the team can be more successful at regular intervals, and modify behavior as necessary.



### 4.9.2. Description of the different types of tests

Three complementary techniques are mainly used in Agile Testing.[13]

**Test-Driven Development:**It is a strategy made up of a series of five steps. It is really built around the concept of "How can I deliver the requirements before I start developing code?"

- Create one unit test.
- Check the test's functionality.
- Create the code and run the test.
- Rework it. (Refactor till the test for the prepared code is passed.)[13]

**Behavior-Driven Development:**It concentrates on making TDD application processes better.

- In actuality, it frequently focuses on identifying and addressing the underlying causes of delays and issues. For root cause analysis, the "5 Whys" approach is applied. This principle's central question is "Why?" As the name implies, five times in a row. is to utilize questioning to identify the underlying issue. Going deeper is impossible if the core cause is identified in the third question, and updating the pertinent process or operation is required when going deeper if the underlying cause is not identified in the fifth question.[13]

**Acceptance Driven Development:**The primary goal of this technique is to validate requirements and acceptance criteria. It operates on the principles of open communication, teamwork, and clarity. All stakeholders are involved in defining the acceptance criteria. Acceptance tests are a group of tests that must be completed in order for the program to be deemed complete. It is often executed at the conclusion of the software development cycle.

- Before beginning development, commonly accepted acceptability testing is automated. It guarantees that each project participant is aware of the tasks at hand. Automated tests don't have to be conducted only at the end of a project when using the ATDD methodology. Making tests that are appropriate is the aim. automatically carries out when code is modified. While it offers an impartial gauge of development, it mostly relies on features and user stories to ascertain complexity.[13]

### 4.9.3. Test plan and test cases

The Agile test plan details the many kinds of tests carried out throughout this cycle, such as the testing environments, infrastructure, and test results. A test plan is created and modified for every release in an agile approach. Typical Agile test plans include:[15]

- Testing new functionality is the test's scope.
- Testing levels or types based on the complexity of the features
- Infrastructure Assessment Mitigation or Risk Plan sourcing Load and Performance Test
- Deliveries and Achievable Goals[15]

#### **The Agile Testing Quadrants [15]**

The agile testing quadrants serve to clarify how agile testing is carried out by dividing the entire process into four quadrants.

#### ❖ Innovator Quadrant

This quadrant's primary focus is on the internal code quality, and it comprises of test cases that are technology-driven and built to help the team, including

- Unified tests
- element tests

#### ❖ Second Agile Quadrant

It includes test cases that are applied to help the team and are driven by business. This quadrant concentrates on the specifications. The type of test carried out during this stage is

- Testing of probable situation and workflow examples
- User experience testing using prototypes
- Testing in pairs

#### ❖ Third Agile Quadrant

The comments from this quadrant are sent to quadrants one and two. Automation testing may be carried out using the test cases as a foundation. Numerous iteration reviews are conducted in this quadrant, which increases consumer confidence in the product. Testing conducted in this region is

- Usability Evaluation
- Investigative Testing
- customer testing in pairs
- Testing in groups
- testing for user acceptability

#### ❖ Fourth Agile Quadrant

Performance, security, stability, and other non-functional criteria are the main focus of this quadrant. The application is designed to offer the intended value and non-functional aspects with the aid of this quadrant.

- Tests that aren't functional, like stress and performance tests
- Security examinations with regard to hacking and authentication
- Testing of the infrastructure
- Testing data migration
- Scalability evaluation
- A load test

## 4.10. Maintenance

### 4.10.1. Description of the plan for maintaining and updating the software, process for track and fix bugs

Our plan to maintain and update the software and process for tracking and fixing bugs for our Website is as follows:

- Every 7 days, the database logs and web server logs will be checked for errors.
- If there is an error after the check, it will be aimed to be corrected within the same day so that users do not experience problems.
- Apart from the control done every 7 days, an area will be created so that users can report possible bugs on our site.
- If a bug is reported to the system by the user, our goal is to resolve this issue within 24 hours.
- In addition, we aim to have a system that receives requests and recommendations from users other than bugs, collects them on a weekly basis and turns them into a report.

## 5. Test Plan Document

### 5.1. Introduction

#### 5.1.1. Version Control

<i>Version No</i>	<i>Description of Changes</i>	<i>Date</i>
1.0	First Version	Apr 07, 2023

#### 5.1.2. Overview

The use case of SoruSor's system users which had been determined in SRS document will be tested.

#### 5.1.3. Scope

In this paper, the test strategy for use cases, test cases, and design elements are briefly explained.

#### 5.1.4. Terminology

<i>Acronym</i>	<i>Definition</i>
UI	User Interface
AQM	Ask Question Menu
MM	Main Menu
ASQM	Answer Question Menu

## 5.2.Features to be Tested

This section lists and gives a brief description of all the major features to be tested. For each major feature there will be a Test Design Specification added at the end of this document.

### 5.2.1.User Interface (UI)

In project, user interface components are used with react. It is divided into two separate parts which are main menu includes question lists, communities, rising communities, notification button, discover space button and adding a question section which user can define the question while adding an image link if desired.

### 5.2.2.Ask Question Menu (AQM)

In the main menu, there is a big call to action that says, "Add Question." The button opens a form or modal which uses a react technology where the user may enter a new question when they click it. The question title, description, picture upload, category, and other fields could be present in the modal.

### 5.2.3. Main Menu(MM)

At the top of the page, there is a permanent element called the main menu. It often contains any additional pertinent data or controls, as well as links to other pages or parts of the website. Links to the user's profile, notifications, settings, and other resources might be found on the main menu, for instance.

### 5.2.4.Answer Question Menu(ASQM)

Using the Quill text editor in a React-based web application, users may enter and submit their responses to questions that have been submitted using the project's Answer Question functionality.

## 5.3.Features not to be Tested

- *The Filtering System*

The filtering system could not be predicted and tested because it has not yet been integrated into the artificial intelligence website.

## 5.4.ITEM PASS/FAIL CRITERIA

### 5.4.1.Exit Criteria

- 100% of the test cases are executed
- All High and Medium Priority test cases passed

## 5.5.REFERENCES

- Software Requirement Description(SRS)
- Software Design Description(SDD)

## 5.6. TEST DESIGN SPECIFICATIONS

### 5.6.1.User Interface (UI)

#### 5.6.1.1.Subfeatures to be tested

#### 5.6.1.2.Home button (UI.HB)

Participant can return the main menu when click 'Home button'.

#### 5.6.1.3 Communities Button (UI.CB)

Participant can show the communities question part when presses 'Communities button'.

#### 5.6.1.4. Add Question Button (UI.AQB)

Opens the add question menu when the participant presses the 'Add Question Button'.

#### 5.6.1.5 Answer Button (UI.AB)

Opens the answer question menu when the participant presses the 'Answer Button'.

#### 5.6.1.6. Time Keeper (UI.TK)

Participant can see when the question is asked.

#### 5.6.1.7.Hot Communities (UI.HC)

Participant can see hot communities questions.

#### 5.6.1.8.Notification Button (UI.NB)

Participant can see notifications about questions when presses the 'Notification Button'.

#### 5.6.1.9.Profile Button (UI.PB)

Participant can display selected participant profile when presses the 'Profile Button'.

#### 5.6.1.10.Question List (UI.QL)

Participant can show asked and answered question.

#### 5.6.1.11. Test Cases

Here list all the related test cases for this feature

TC ID	Requirements	Priority	Scenario Description
UI.HB.01	-	H	Select 'Home' button. After selecting, return to main menu.
UI.CB.01	-	M	Select 'Communities' button. After selecting, showed questions about selected communities.
UI.AQB.01	-	H	Select 'Add Question' button. After selecting, add question menu opens.
UI.AB.01	-	H	Select 'Answer' button. After selecting, answer question

			menu opens.
UI.TK.01	-	M	Display when the question is asked.
UI.HC.01	-	M	Display hot communities questions.
UI.NB.01	-	M	Select 'Notification' button. After selecting, display notifications about questions.
UI.PB.01	-	H	Select 'Profile' button. After selecting, display selected participant profile.
UI.QL.01	-	M	Display asked and answered question.

## 5.6.2. Ask Question Menu (AQM)

### 5.6.2.1. Subfeatures to be tested

#### 5.6.2.1.2. Image Link (AQM.IL)

Participant uses 'Image Link' part to attach the photo to the question in link format.

#### 5.6.2.1.3. Add Question Button (AQM.AQB)

Participant can share the question when presses 'Add Question Button'.

#### 5.6.2.1.4. Cancel Button (AQM.CB)

Participant can exit ask question menu when presses 'Cancel Button'.

#### 5.6.2.1.5. Question Text Bar (AQM.QTB)

Participant uses 'Question Text Bar' part to write the question in text format.

#### 5.6.2.1.6. Test Cases

Here list all the related test cases for this feature

TC ID	Requirements	Priority	Scenario Description
AQM.IL.01	-	H	Attach the photo to the question in link format.
AQM.AQB.01	-	H	Select 'Add Question' button. After selecting, question is shared.
AQM.CB.01	-	H	Select 'Cancel' button. After selecting, close the Ask Question Menu.

### 5.6.3. Answer Question Menu (ASQM)

#### 5.6.3.1. Subfeatures to be tested

##### 5.6.3.1.2. Time Keeper (ASQM.IL)

Participant can see when the question is asked.

##### 5.6.3.1.3. Quill (ASQM.Q)

Participant uses 'Quill rich-text editor as a React component' part to write the answer in text format.

##### 5.6.3.1.4. Cancel Button (ASQM.CB)

Participant can exit answer question menu when presses 'Cancel Button'.

##### 5.6.3.1.5. Add Answer Button (ASQM.AAB)

Participant can share the answer when presses 'Add answer Button'.

##### 5.6.3.1.6. Test Cases

Here list all the related test cases for this feature

TC ID	Requirements	Priority	Scenario Description
ASQM.IL.01	-	M	Display when the question is asked.

ASQM.Q.01	-	H	Enter a question's answer in text format.
ASQM.CB.01	-	H	Select 'Cancel' button.After selecting, close the Answer Question Menu.
ASQM.AAB.01	-	H	Select 'Add Answer' button. After selecting, answer is shared.

## 5.7. Detailed Test Cases

### 5.7.1.UI.HB.01

<b>TC_ID</b>	UI.HB.01
<b>Purpose</b>	Participant can return the main menu.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	20 Second.
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the button.
<b>Cleanup</b>	Go back to previous page.

### 5.7.2.UI.CB.01

<b>TC_ID</b>	UI.CB.01
<b>Purpose</b>	Participant can show the communities question part.
<b>Requirements</b>	-
<b>Priority</b>	Medium.
<b>Estimated Time Needed</b>	30 Second
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the button.
	[A04] Go Communities Page.
	[V01] Check if questions appear.
<b>Cleanup</b>	Go back to previous page.



### 5.7.3.UI.AQB.01

<b>TC ID</b>	UI.AQB.01
<b>Purpose</b>	Opens the add question menu.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the button.
	[A04] Ask a Question
	[A05] Click the share button.
<b>Cleanup</b>	Go back to previous page.

### 5.7.4.UI.AB.01

<b>TC ID</b>	UI.AB.01
<b>Purpose</b>	Opens the answer question menu.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the button.
	[A04] Answer a Question.
	[A05] Click the share button.
<b>Cleanup</b>	Go back to previous page.

### 5.7.5.UI.TK.01

<b>TC ID</b>	UI.TK.01
<b>Purpose</b>	Participant can see when the question is asked.
<b>Requirements</b>	-
<b>Priority</b>	Medium.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Question must be asked or answered.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Review one question.
	[V01] Check when shared.
<b>Cleanup</b>	Go back to previous page.

### 5.7.6.UI.HC.01

<b>TC ID</b>	UI.HC.01
<b>Purpose</b>	Participant can see hot communities' questions.
<b>Requirements</b>	-
<b>Priority</b>	Medium.
<b>Estimated Time Needed</b>	30 Second.
<b>Dependency</b>	UI.HB.01 must be worked.
<b>Setup</b>	Internet connection must be provided
<b>Procedure</b>	[A01] Connect to the internet
	[A02] Enter the website
	[A03] Review hot communities' question.
<b>Cleanup</b>	Go back to previous page.

### 5.7.7.UI.NB.01

<b>TC ID</b>	UI.NB.01
<b>Purpose</b>	Participant can see notifications about questions.
<b>Requirements</b>	-
<b>Priority</b>	Medium.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website
	[A03] Click the button.
	[V01] Check incoming notifications.
<b>Cleanup</b>	Go back to previous page.

### 5.7.8.UI.PB.01

<b>TC ID</b>	UI.PB.01
<b>Purpose</b>	Participant can display selected participant profile.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the button.
	[V01] Check user profile.
<b>Cleanup</b>	Go back to previous page.

### 5.7.9.UI.QL.01

<b>TC ID</b>	UI.QL.01
<b>Purpose</b>	Participant can show asked and answered question.
<b>Requirements</b>	-
<b>Priority</b>	Medium.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked it.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website
	[A03] Click the button.
	[V01] Check asked and answered question.
<b>Cleanup</b>	Go back to previous page.

### 5.7.10.AQM.IL.01

<b>TC ID</b>	AQM.IL.01
<b>Purpose</b>	Participant uses 'Image Link' part to attach the photo to the question in link format.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Ask Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the Ask Question button.
	[A04] Add an image link.
<b>Cleanup</b>	Go back to previous page.

### 5.7.11.AQM.AQB.01

<b>TC ID</b>	AQM.AQB.01
<b>Purpose</b>	Participant can share the question.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Ask Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the Ask Question button.
	[A04] Ask a question or add an image.
	[A05] Click the 'Add Question Button'.
<b>Cleanup</b>	Go back to previous page.

### 5.7.12.AQM.CB.01

<b>TC ID</b>	AQM.CB.01
<b>Purpose</b>	Participant can exit ask question menu.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Ask Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website
	[A03] Click the Ask Question button.
	[A04] Want to exit this menu.
	[A05] Click the 'Cancel Button'.
<b>Cleanup</b>	Go back to previous page.

### 5.7.13.AQM.QTB.01

<b>TC_ID</b>	ASQM.QTB.01
<b>Purpose</b>	Participant uses 'Question Text Bar' part to write the question in text format.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Ask Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the Ask Question button.
	[A04] Write a question in Text format.
<b>Cleanup</b>	Go back to previous page.

#### 5.7.14.ASQM.IL.01

<b>TC_ID</b>	ASQM.IL.01
<b>Purpose</b>	Participant can see when the question is asked.
<b>Requirements</b>	-
<b>Priority</b>	Medium.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Question must be asked.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Review one question.
	[V01] Check when shared.
<b>Cleanup</b>	Go back to previous page.

#### 5.7.15.ASQM.Q.01

<b>TC_ID</b>	ASQM.Q.01
<b>Purpose</b>	Participant uses 'Quill rich-text editor as a React component' part to write the answer in text format.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Answer Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website
	[A03] Click the Ask Question button.
	[A04] Write a answer in Text format.
<b>Cleanup</b>	Go back to previous page.

#### 5.7.16.ASQM.CB.01

<b>TC_ID</b>	ASQM.CB.01
<b>Purpose</b>	Participant can exit answer question menu when presses 'Cancel Button'.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Answer Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the Answer Question button.
	[A04] Want to exit this menu.
	[A05] Click the 'Cancel Button'.
<b>Cleanup</b>	Go back to previous page.

#### 5.7.17.ASQM.AAB.01

<b>TC ID</b>	ASQM.AAB.01
<b>Purpose</b>	Participant can share the answer.
<b>Requirements</b>	-
<b>Priority</b>	High.
<b>Estimated Time Needed</b>	1 Minutes.
<b>Dependency</b>	Participant must be clicked Answer Question Menu.
<b>Setup</b>	Internet connection must be provided.
<b>Procedure</b>	[A01] Connect to the internet.
	[A02] Enter the website.
	[A03] Click the Answer Question button.
	[A04] Answer a question.
	[A05] Click the 'Add answer Button'.
<b>Cleanup</b>	Go back to previous page.

## 6.Test Result

### 6.1.Tables of Test Results

TC ID	Priority	Result	Scenario Description
UI.HB.01	H	Pass	Select 'Home' button. After selecting, return to main menu.
UI.CB.01	M	Pass	Select 'Communities' button. After selecting, showed questions about selected communities.
UI.AQB.01	H	Pass	Select 'Add Question' button. After selecting, add question menu opens.
UI.AB.01	H	Pass	Select 'Answer'button. After selecting, answer question menu opens.
UI.TK.01	M	Pass	Display when the question is asked.
UI.HC.01	M	Pass	Display hot communities questions.
UI.QL.01	M	Pass	Display asked and answered question.

TC ID	Priority	Result	Scenario Description
AQM.IL.01	H	Pass	Attach the photo to the question in link format.
AQM.AQB.01	H	Pass	Select 'Add Question' button. After selecting, question is shared.
AQM.CB.01	H	Pass	Select 'Cancel' button.After selecting, close the Ask Question Menu.

AQM.QTB.01	H	Pass	Enter the question in text format
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TC ID	Priority	Result	Scenario Description
ASQM.IL.01	M	Pass	Display when the question is asked.
ASQM.Q.01	H	Pass	Enter a question's answer in text format.
ASQM.CB.01	H	Pass	Select 'Cancel' button.After selecting, close the Answer Question Menu.
ASQM.AAB.01	H	Pass	Select 'Add Answer' button. After selecting, answer is shared.

## 6.2. Summary of Test Results

All of the test cases have been executed and evaluated.

Priority	Number of TCs	Executed	Passed
High	10	10	10
Medium	5	5	5
Total	15	15	15

## 7.User Manual

Thank you for choosing the SoruSor Online Platform for Asking Questions and Providing Answers! This user manual will guide you through the installation, configuration, and usage of the system to help you create a polite and secure online community for users of question-and-answer forums. Please follow the instructions below to get started.

### 7.1. Installation

The SoruSor Platform can be installed on a server or cloud platform that supports machine learning models and natural language processing.

Ensure that you have the necessary hardware and software requirements, including a compatible operating system, sufficient processing power, and memory.

Download the installation package from the designated source or obtain it from the system provider.

## 7.2. Configuration

After installing the system, configure the necessary settings to optimize its performance.

Specify the input source for the system to monitor. This can be a specific question-and-answer forum or a collection of forums.

Set the sensitivity level of the system according to your community standards. You can choose from low, medium, or high sensitivity based on the level of offensive content you want to detect and remove.

Customize the list of offensive words or phrases that the system should identify and censor. You can add or remove words as necessary.

Configure the system's notification settings to alert administrators or moderators when offensive content is detected.

## 7.3. Training and Updates

The SoruSor AI System utilizes machine learning techniques, including deep learning and neural networks, to identify abusive language and patterns.

Periodically train the system using annotated text data to improve its accuracy and ability to detect new abusive linguistic patterns.

Stay updated with the latest releases and updates from the system provider. These updates may include improvements to the AI model, new features, or bug fixes.

## 7.4. User Input and Human Moderation

The system can benefit from user input and human moderation to enhance its performance.

Encourage users to report offensive content they encounter on the platform. This feedback will help the system learn and adapt to new forms of abuse. Employ human moderators to review flagged content and verify the accuracy of the system's censorship decisions.

Use user feedback and human moderation to continuously fine-tune the system's performance and adjust its sensitivity.

## 7.5. Usage

Once the system is configured and trained, it will automatically monitor and analyze user-generated content in real-time.

If offensive content is detected, the system will take action based on your configured settings. This may include removing the content, notifying administrators or moderators, or applying other appropriate measures.

Regularly review the system's performance and adjust its settings as needed to maintain a balanced approach to content moderation.

Continuously gather feedback from administrators, moderators, and users to improve the system's effectiveness and address any concerns or issues that arise.

Remember that the SoruSor Platform is a tool to assist in maintaining a polite and secure online



community, but it is not infallible. It is essential to combine the system's capabilities with human judgment and oversight to ensure fair and accurate content moderation.

For further assistance or technical support, please refer to the system provider's documentation or contact their support team.

We hope that the SoruSor Platform will contribute to the development of a welcoming atmosphere for all users on your question-and-answer forums.

## 8. Conclusion

### 8.1 Summary of the design

In this document, the details of the project “SoruSor” were given.

This project is useful and helpful since it is a great way to find out what others in your industry are thinking, and gives you an up-to-date summary of the most recent changes in your industry. Finally, you may use the Question Database on SoruSor to identify the greatest questions to pose to your customers or clients.

As previously indicated, SoruSor’s primary-targeted feature incorporates a system that makes use of artificial intelligence and machine learning to ensure that no inappropriate or violent statements are uttered. This protects users from dangerous material and ensures that they won't experience any unwanted impacts.

When questions and answers are transmitted to the server for this project, a filtering mechanism is used to examine each one, look for inappropriate words and phrases, and remove them from the site. Spam filters use a range of criteria and standards to evaluate pre-written assertions. For instance, spam filters scan your headlines and sentence content for words like profanity and insults.

### 8.2 Open issues and future work

There could be some issues regarding the filtering AI System. These are mainly about its speed, when users reach the website and ask their questions, the filtering system must rapidly analyze and detect the possible problems regarding the user’s question. With some thinking/designing processes, these problems could be handled.

The SoruSor can be improved in the future work, the AI system can be fastened. UI improvements can be done with the evolution of the user interface / user experience

technology. It can be modernized over time. A hashtag system can be added.

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