System Requirement Specification

for SearchX

Course- CSC 232

Team E

Harshit Ambalkar

Gargi Prabhugaonkar

Amirush Javare

Shamika Joshi

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1. Purpose of the Project

1.a The User Business or Background of the Project Effort

The Internet has become a pivotal part of daily life today. Data on the Internet has increased at an alarming rate which includes 3.5 billion queries per day due to an exponential increase in the number of users and the data posted. Therefore, searching any content on the Internet is a tedious task, and improvisation is the need for the day. So, we intend to improvise user experience over the internet by taking into consideration, interests, and preferences of the user. Appropriate keywords used while querying a search engine affects the quality of the search results retrieved.

We intend to develop an interactive search engine that internally builds search queries based on responses received from the users. Moreover, it also drills down the search by asking about their preferences for the search results making it more concise for the user to search over the internet. We aim to enhance the user experience by eliminating the need for users to search for different websites for different types of content. This will minimize the time required by the user to find useful and relevant content they desire. Thus, the interactive search engine will be a one-stop-shop for all the information from the web.

1.b Goals of the Project

To provide an interactive, personalized content search experience for the user by retrieving optimized results in a single view.

2. Stakeholders

1. **Client**
   The client for our application would be a start-up who consider this project idea as novel and be willing to invest in it.

2. **Customer**
   The customer or users of our application would be students and researchers

3. **Other**
   Other stakeholders comprise of developers, business analyst etc.

3. Mandated Constraints

3.a Solution Constraints

We are making use of web crawler technology which is used by most of the known search engines around the world like Google, Duck-Duck Go, Yahoo, etc.

Web crawler just crawls different links over the Worldwide Web for Indexing. The reason for using such technology is that it allows us to retrieve various information from different sources and provide a better and concise search result to the user.

3.b Partner or Collaborative Applications

There is different adjacent system with which the product collaborates to fetch information based upon the query and preferences chosen by the user.

Search Engines are the heart of the product with whom it will fetch information. Various search engines like Google, Yahoo, IEEE and many educational websites play a major role in our project.

3.c Off-the-shelf Software

Web browsers like Firefox, Chrome is utilized as they provide better performance and also able to run the website with ease.

3.d Schedule Constraints

The project has a schedule constraint of 6 months. It is crucial to develop the product in this time frame as customers could be lost due to competitive market and potential leak of product idea.

3.e Budget Constraints

The project may cost around 150K USD and may also increase based upon the requirement changes done by the customer and based upon the availability of the resources. As having a greater number of business events, PUC, functional and non-functional requirements may have a considerable effect on the cost.

4. Naming Conventions and Terminology

1. **Search Engine**
   The search engine is a program that fetches information based on a particular keyword specified by the user from the database, it is used especially for finding particular sites on the world wide web.

2. **Recommendation System**

It is a subclass of information system which gives information to the user based on his preferences. The system uses past data of the user to give recommendations which could be based on his likes and dislikes.

3. **Feedback System**
   The product uses feedback system so that the product could improve its search experience.

4. **Database**
   The data is stored in the database so that it can be used for future use. Database can be considered a system to store and take care of data.

5. **Web Search query**
   It is search term or a word which user enters in the search box to satisfy his or her information needs.

5. RELEVANT FACTS AND ASSUMPTIONS

Relevant Facts:

1. The search engine will always provide accurate search results when a search query is provided by the user.
2. The recommended system would recommend search results to the user.

Business Rules:

1. Search engines from which data is fetched should always be up and running
2. The Recommended system should always recommend valid search queries and search results to user.

Assumptions: We have made the following assumptions

1. The user should have previous knowledge of using a browser
2. The user should provide appropriate responses to the system.

6. Scope of the Work

6.a The Current Situation

Searching on the internet is now a tedious task as the uses are overwhelmed with the amount of content that is being provided from relevant as well as non-relevant search engines. This increases the chances of the user not finding the information he needs. Like for example when a student searches over the internet about a topic based on computer science, he is given search results by suggesting different options from different domains like Computer Networks, software engineering, operating system. But what if the user is just interested in software engineering and not the other things. So, finding better and in-depth

knowledge from the huge amount of information given in search results can confuse users and thereby make the task too tedious and boring as well.

6.b Context of the work
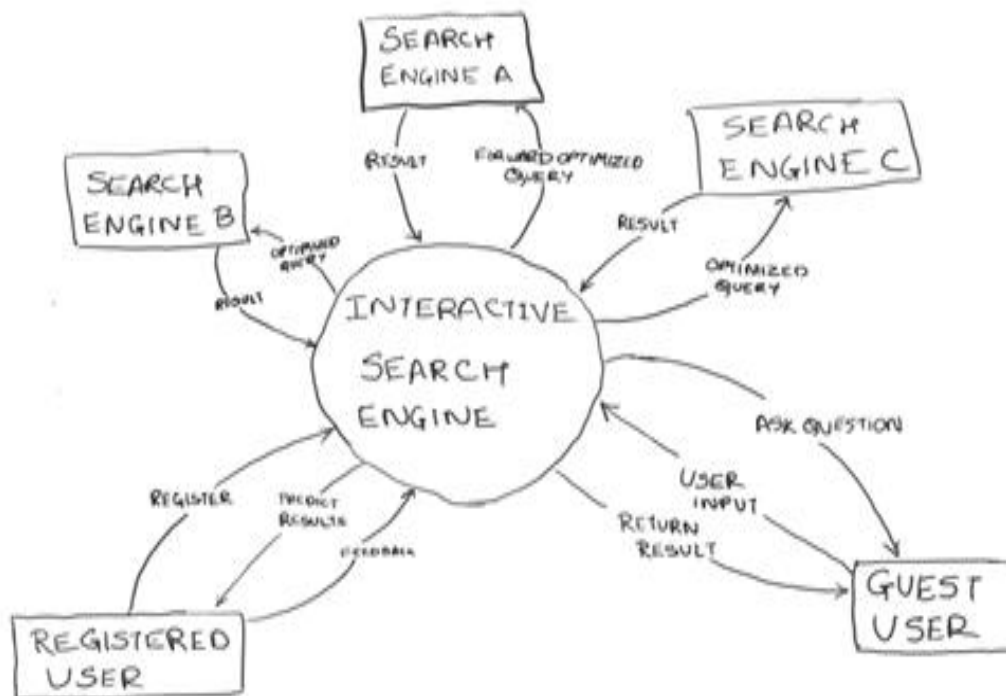
Fig 6.1 Context Diagram

6.c Work Partitioning

No.	Event Name	Input	Output	Summary of BUC
1	Guest User Sign Up	Guest user profile details	Guest user registered on system	Functionality onboard guest users into the system
2	Guest User Search	Guest user search keywords	Refined query	Functionality to accept search keywords from guest user to convert into refined query
3	Registered User Login	Registered user credentials	Registered user logged into profile	Functionality to accept user credentials and grant access to premium features of the system
4	Registered User Search	Registered user search keywords	Refined query	Functionality to accept search keywords from logged in user to convert into refined query

5	Registered User Search Bookmarks	Bookmarked queries from logged in user	Add input query to bookmark	Functionality to allow logged in user to add selected query to bookmark list
6	Registered User Recommendation	-	Display recommended search queries	Functionality to recommend queries to user based on frequently searched, recently search, most searched for faster retrieval
7	Search result retrieval	Refined query	Refined query search result	Functionality to request search result to search engines by sending refined query
8	Collate search result from Search engines	Search results from multiple search engines	Collated search result	Functionality to collate all the search results from partner search engines
9	Display Search Results	Collated search results	Systematically render collated search results	Functionality to render collated search results
10	Search result positive feedback	Confirmation from user about accuracy of search results	End search	Functionality to improve search based on user feedback. Positive feedback terminates search
11	Search result negative feedback	Confirmation from user about accuracy of search results	Trigger user search	Functionality to improve search based on user feedback. Negative feedback requests more details from user to re-trigger user search

6.d Specifying a Business Use Case

No. 1. Business Use Case Name: Guest User Sign Up
Trigger: Need to learn/research, literature survey for project/paper/conference
Preconditions: User must not be registered
Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.
Active Stakeholders: User, New User Registration Service, Database Admin
Rewrite the first draft:
1. User opens SearchX
2. User selects Sign Up from Sign Up and Log In option
3. User is required enter email and a new password
       E3.1 User enters invalid/blank data in field
       E3.2 Display error asking user to enter missing data
       M3.1 User enters invalid email
       M3.2 User prompted to enter valid email and password
4. User profile created and prompted to login
5. User is logged in and can now Search
Outcome:
User account is successfully created, and user is successfully logged into SearchX to search content as per their preference.

No. 2. Business Use Case Name: Registered User Login
Trigger: Need to learn/research, literature survey for project/paper/conference
Preconditions: User must be registered, user is not logged in.
Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.
Active Stakeholders: User, Login service, Database Admin
Rewrite the first draft:
1. User opens SearchX to login
2. User selects LogIn from Sign Up and Log In option
3. User is prompted to enter username and password
       E3.1. User selects forgot password option and enters email
       E3.2 User is sent a password reset link via email
       E3.3 User resets his password and is asked to login
4. System validates user credentials
       E4.1 Username or password is invalid
       E4.2 An error message is displayed, and user is asked to enter credentials again
       M4.1 User hasn't registered and is trying to login
       M4.2 User is asked to select sign-up option and register
5. User is logged in and can now Search
Outcome:
By providing valid credentials user is successfully logged into SearchX to search content as per their preference.

No. 3 Business Use Case Name: Search
Trigger: Need to learn/research, literature survey for project/paper/conference
Preconditions: User is guest user or registered user
Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.
Active Stakeholders: User, associated search engines, search service
Rewrite the first draft:
1. User opens SearchX with a query
2. SearchX asks user "What are you searching today?"
3. User responds with the topic he is looking for
       E 3.1 User fails to provide correct input
       E 3.2 Most relevant query for the search will be displayed
       4. SearchX asks the user, "What type of results do you want?" and suggesting some common types like videos, papers, journals.
5. User selects the options/ all the options
6. SearchX refines the query and fetches results from various search engines
7. Top results from different engines are displayed on SearchX.
Outcome:
User searches for a topic he is interested in and gets most relevant results from different search engines to work with.

No. 4 Business Use Case Name: Recommend search queries to user
Trigger: Need to search information
Preconditions: Registered User

Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.

Active Stakeholders: User, associated search engines, search services, recommendation service

Rewrite the First Draft:

1.User visits SearchX.

2. Search X asks user "What are You searching today"?

3. User responds with the topic he is looking for.

4. SearchX gives recommendations to user based on previous user search queries.

5. User selects the recommended search query.

      E.1 User does not select the recommended query

6. SearchX asks the user, "What type of results do you want?" and suggests some.

7. User selects the options/ all the options

8. SearchX refines the query and fetches results from various search engines

9. Top results from different engines are displayed on SearchX

Outcome:

User gets search queries based on recommendation, which are made from previous search queries.

No. 5 Business Use Case Name: User feedback for search results

Trigger: Retrieved Search results R

Precondition: The results are been retrieved and displayed to the user

Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.

Active Stakeholders: User, associated search engines, search services.

Rewrite the First Draft:

1. Search results are displayed to the user

2. SearchX asks user if the results displayed are satisfactory

3. User is satisfied with the results

      E3.1 User is not satisfied with the results

4. Search on the given query is completed and feedback is saved to provide accurate results

Output:

Feedback on search results are successfully captured to enhance result accuracy.

7. BUSINESS DATA MODEL AND DATA DICTIONARY

7a. Data Model

Class Diagram: This diagram defines the structure of the product by specifying the classes and their attributes and the relation amongst objects. The fig 7.1 shows the major components of the product which consist of recommendation system, query formulator and search engine. Each of this major component has its child component's which have its methods and attributes.
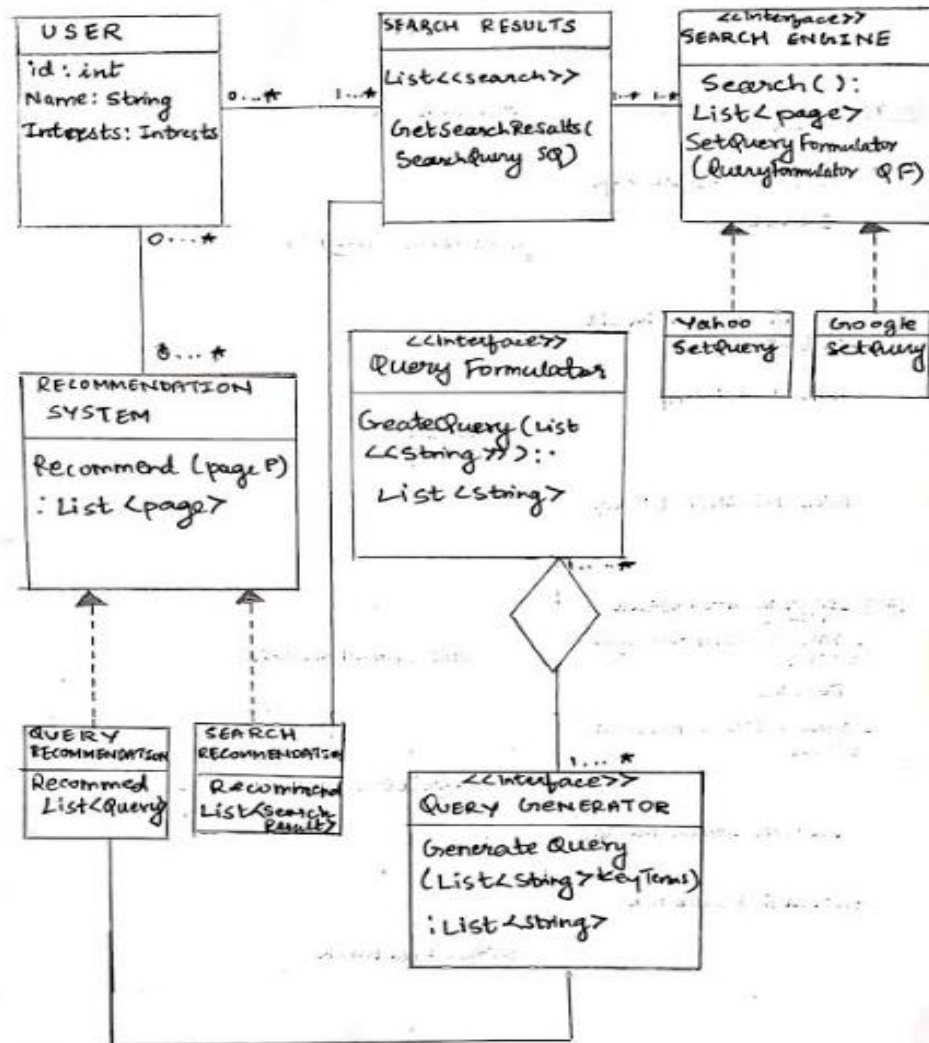
Fig 7.1 Class Diagram

7b. Data Dictionary

Name	Content	Type
Registered User	User Name, User Identifier	Class
Guest	Temporary Identifier	Attribute/Element
Search Query	Keywords to query, User Identifier	Class
Feedback	Response Received from users	Class
Registered User Search	User login + Search field update + Fetching results from search engines	Data Flow
Unregistered User Search	Search field update + Fetching results from search engines	Data Flow
Feedback Flow	Search field update + Fetching results from search engines + Feedback form display + response from user	Data Flow

Fig 7.2 Data dictionary of the product

8. The Scope of The Product

8.a Product Boundary

The product intends to automate the search experience of user. The boundaries of product separate associated search engines and different kinds of users, namely guest and registered, from the product which receives data from users, processes it with associated search engines and generates a refined compiled result list.

8b. Product Use Case Table

PUC No.	PUC Name	Actors	Input/output
1	Product Registers New User	Student/ Academic Professionals	New User data saved(in)
2	Product Logs User In	Student/ Academic Professionals	Verify user credentials(in)
3	Product Provides the Search Results to User	Guest/registered user	Search results(out)
4	Product Recommends Search Queries to User	Student/ Academic Professionals	Recommanded search results(out)
5	Product asks for Feedback about the Search Experience to User	Student/ Academic Professionals	User feedback(in)

Fig 8.1 PUC Table

8c. Individual Product Use Cases

No.1.Product Use Case Name: Product Registers New User
Trigger: Need to learn/research, literature survey for project/paper/conference
Pre-condition: User must not be registered
Interested stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service
Actor: User/ Student
1. The Product ask for user's information when user clicks on signup
2. User enters information
   E2.1 User enters invalid data
   E2.2 The Product prompts the error message
3. The Product verifies information and registers the user
4. The Product directs the user to search page
Outcome: The new User is Registered on the product, user is provided with credentials and user is directed to the search page.
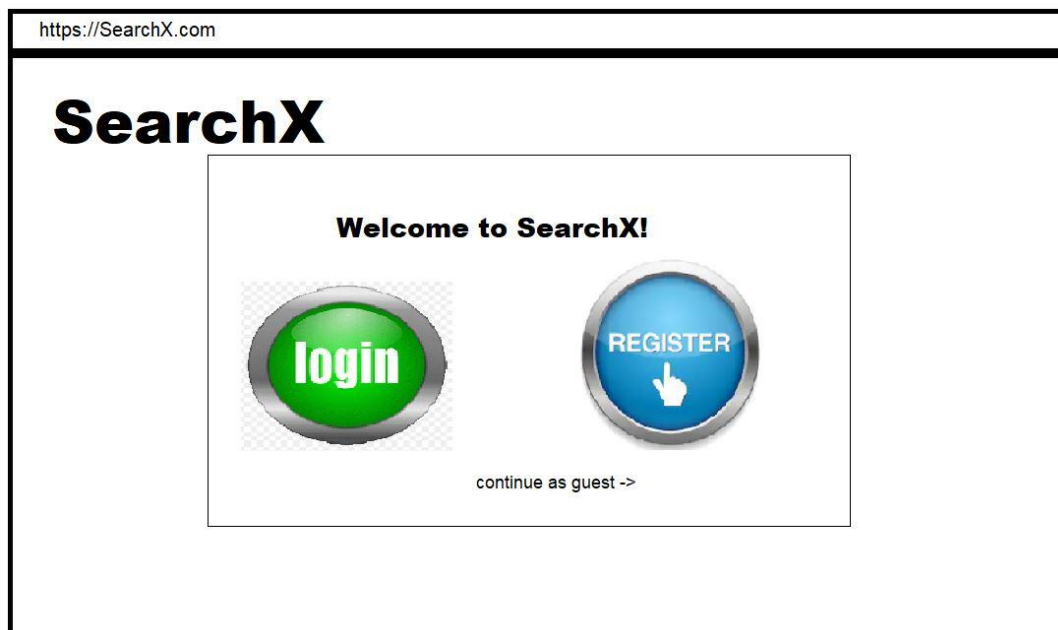

Fig 8.2 Landing page of product

Fig 8.3 Registration page of product

No.2. Product Use Case Name: Product Logs User In

Trigger: Need to learn/research, literature survey for project/paper/conference

Preconditions: User must be registered, user is not logged in.

Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.

Active Stakeholders: User, Login service, Database Admin

1.The Product Prompts the user to enter the credentials

2.User supplies the credentials

   E2.1 User supplies wrong credentials

   E2.2 The Product prompts error message to enter valid credentials

3.The Product verifies the user information

4.The Product directs the user to search page

Outcome: The User is logged in SearchX after the product verifies the user credentials, the user is then taken to the search page by SearchX.
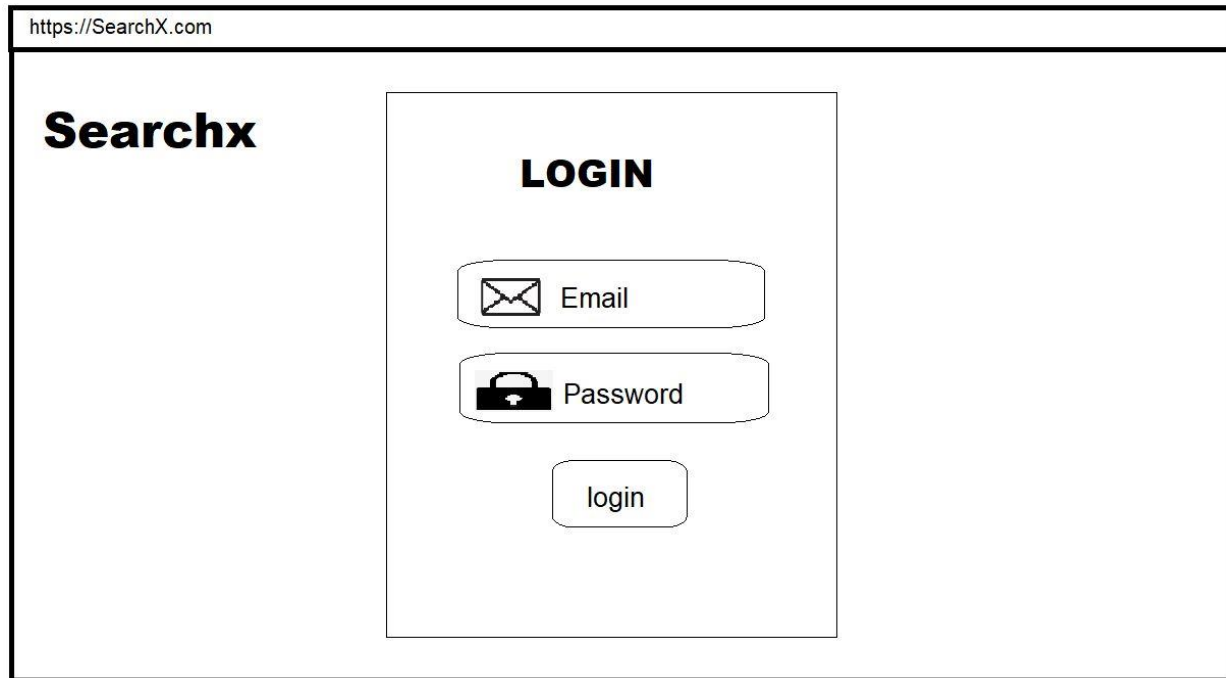
Fig 8.4 Login page of product

No.3. Product Use Case Name: Product Provides the Search Results to User
Trigger: Need to learn/research, literature survey for project/paper/conference
Preconditions: User is guest user or registered user
Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.
Active Stakeholders: User, associated search engines, search service
1.The Product prompts the user for the search query
2.User provides the query he wants to search
   E2.1 User could not provide correct input to product
   E2.2 The Product displays most relevant query based on user's search.
3.The Product asks user about what type of search results does user needs (videos/image/journals/research papers)
4.Users selects his preferences.
5. The Product combines the users query and his preferences.
6. The Product fetches various search results from different search engines.
7. The Product displays various search results from different search engines to the user.
Outcome: User gets the search results from different search engines; Uses gets the desired results according to the preferences chosen.
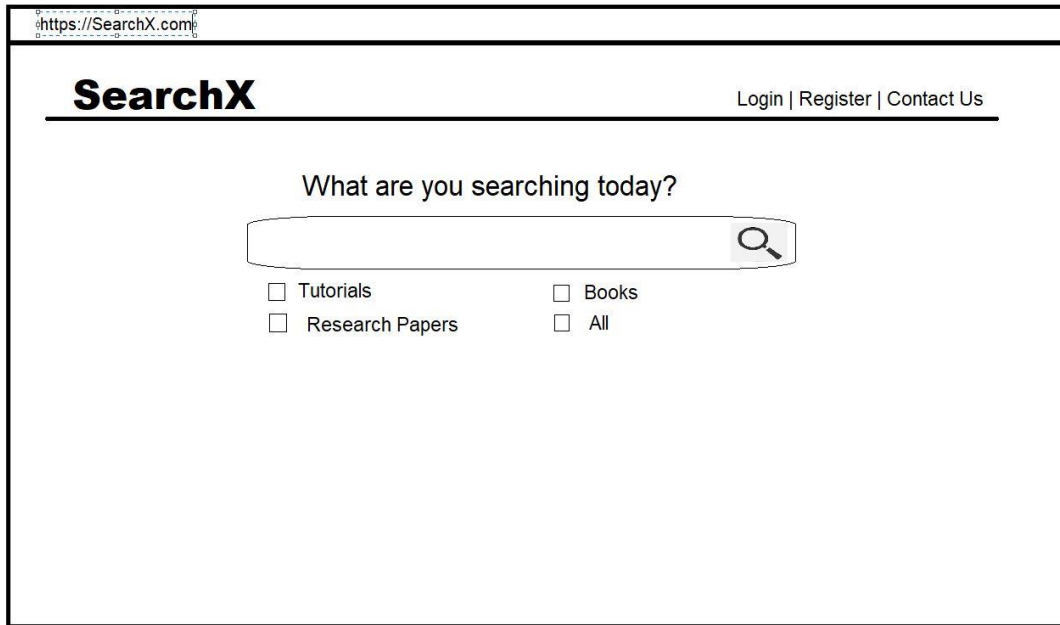
Fig 8.5 Search page of the product
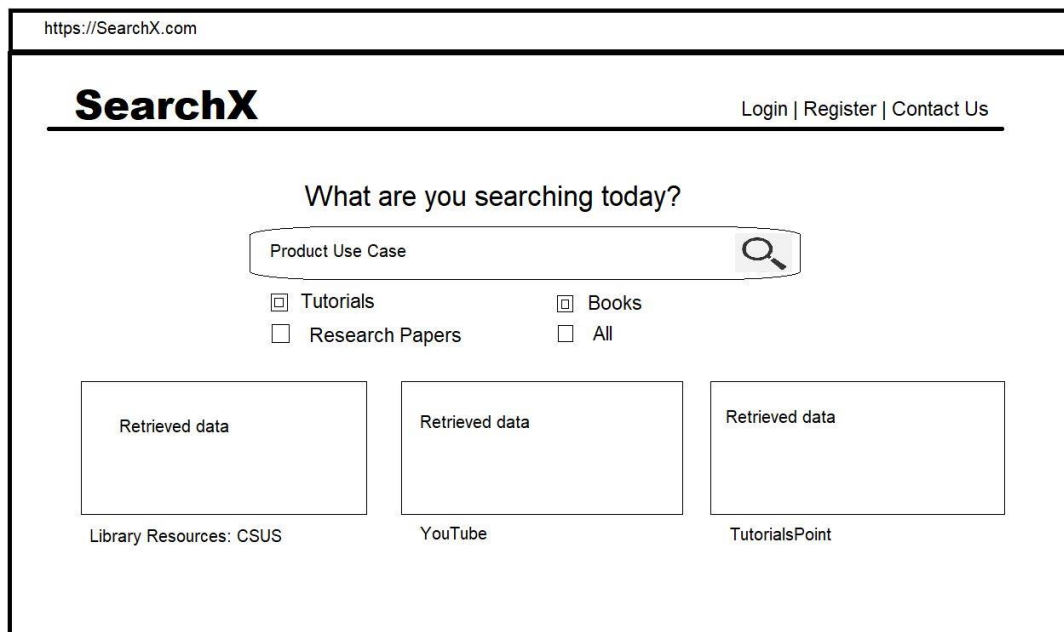
Fig 8.6 Search results displayed to the user

No.4. Product Use Case Name: Product Recommends Search Queries to User
Trigger: Need to search information
Preconditions: Registered User
Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.
Active Stakeholders: User, associated search engines, search services, recommendation service

1. The Product asks user about search query
2. User responds with the topic which he is looking for
3. The Product gives user recommendation to user based on his previous search queries.
4. User selects the recommended query
5. The Product asks user about the type of information he wants (videos/image/journals/research papers).
6. User selects his preferences.
7. The Product combines the users query and his preferences.
8. The Product refines the search results from different search engines.
9. The Product displays the search results to the user.

Outcome: User gets recommendations for the search queries. User gets search results based on refined queries.
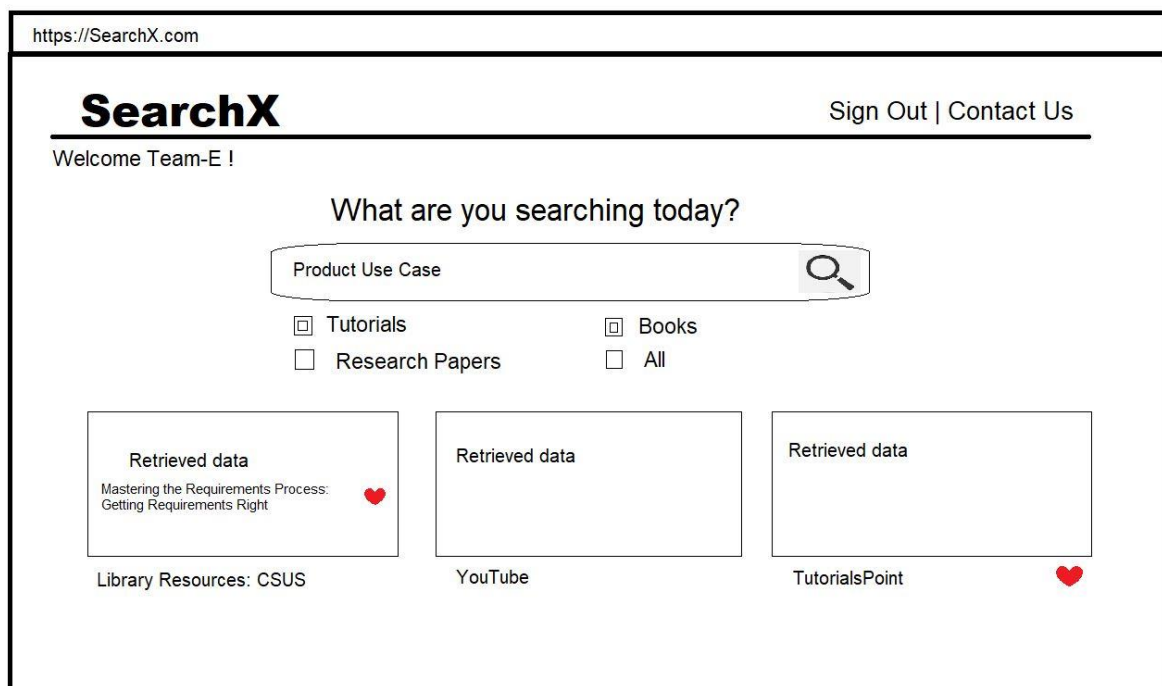
Fig 8.7 Bookmark the search results in product

No.5. Product Use Case Name: Product asks for Feedback about the Search Experience to User
Trigger: Retrieved Search results
Precondition: The results are been retrieved and displayed to the user
Interested Stakeholders: User, Server, Database Admin, School/University, Internet provider, associated search engines, Developers, search services, recommendation service.
Active Stakeholders: User, associated search engines, search services.
1. The Product displays various search results to the user.
2. User tries to exit from the website.
3. The Product prompts the user to provide feedback based upon his search experience.
4. User provides a positive feedback
   E4.1 User provides a negative feedback
   E4.2 Product ask about unsatisfactory features by providing the list.
   E4.3 User selects the unsatisfactory features
   E4.4 Product records user's response.

5. The Product improvises its search experience-based user's feedback.
Outcome: User provides feedback based on his search experience. User leaves the website.
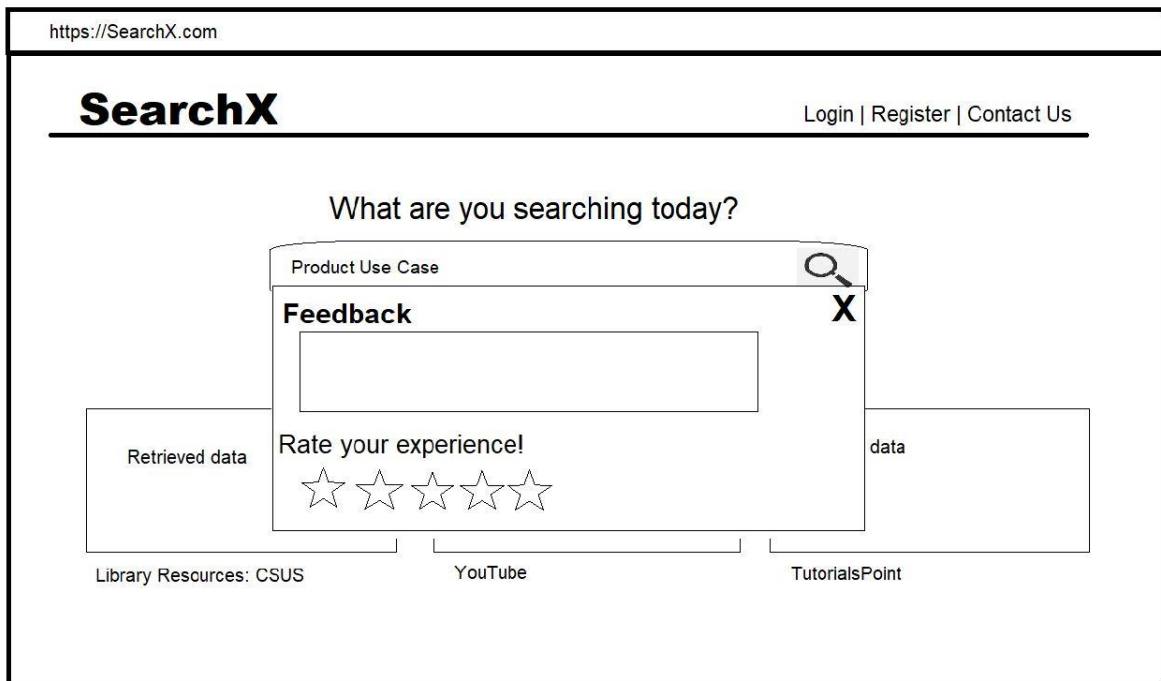
Fig 8.8 Feedback page of the product

8.d Use Case Diagram Models

Activity Diagram: Diagram Below shows Activity diagram for the product which is based upon the requirements that is collected.
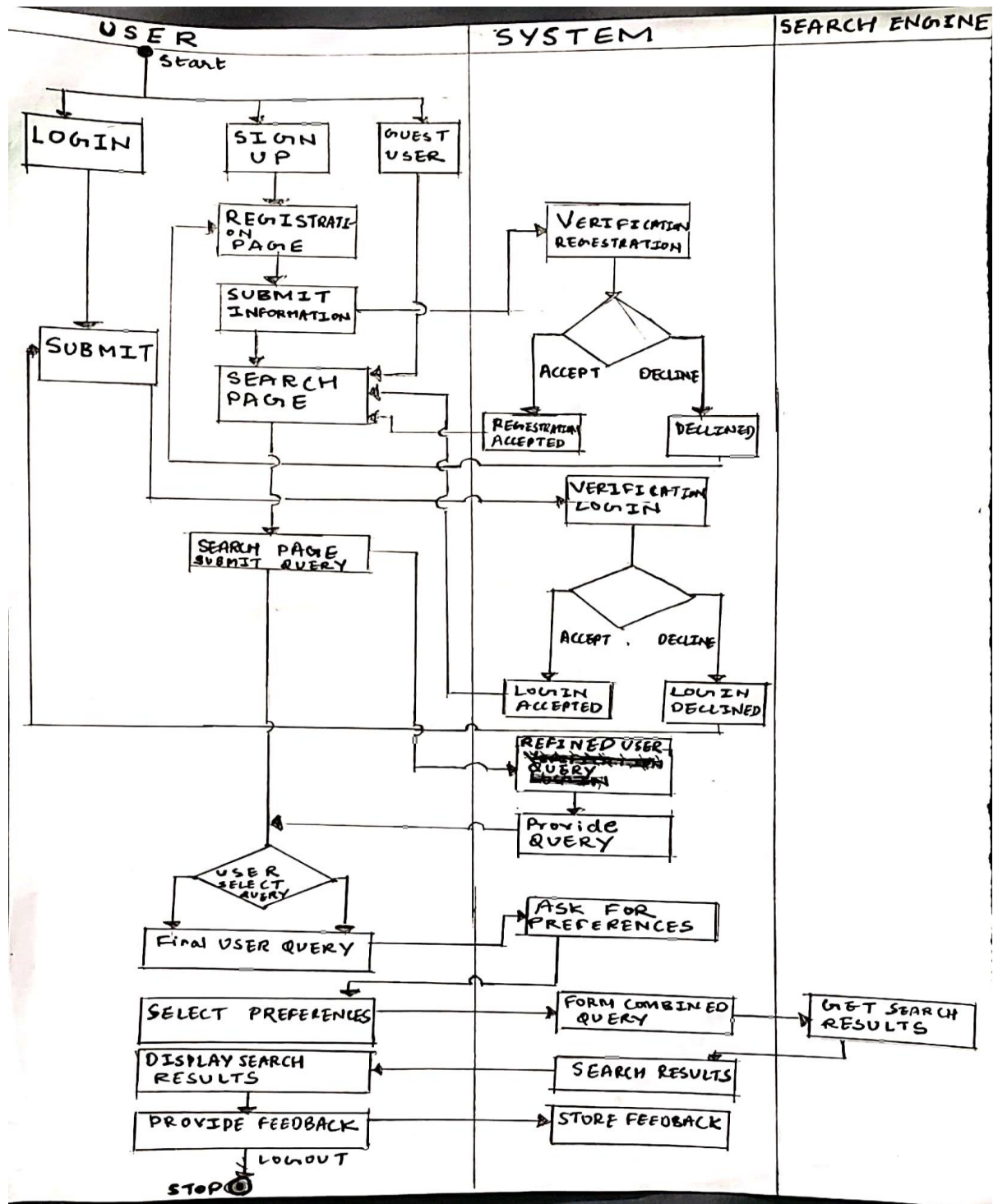
Fig 8.9 Activity Diagram

Sequence Diagram: This is another diagram which shows the product in terms of timeline of how the steps takes place by coordinating with the other modules of the products.
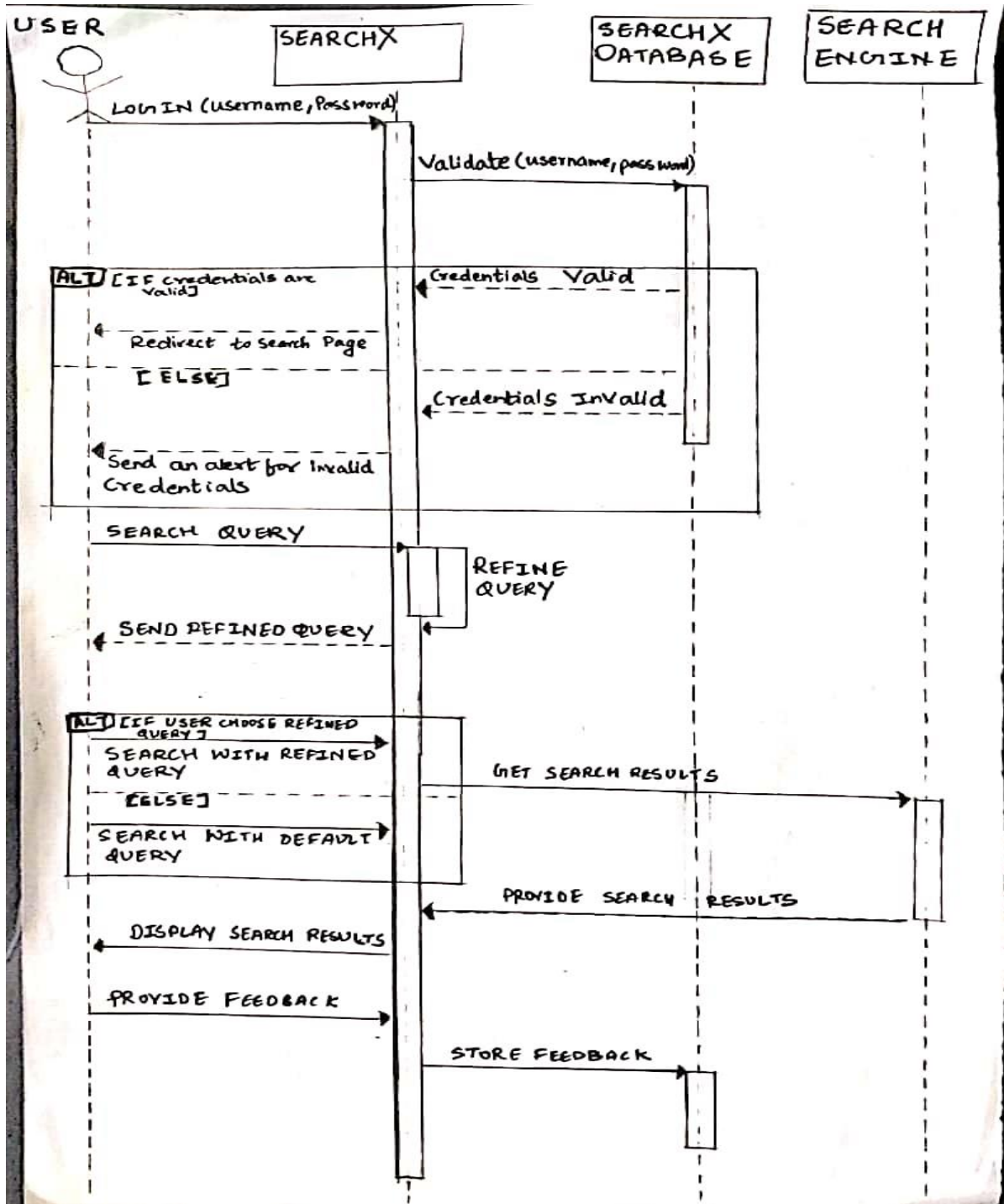
Fig 8.10 Sequence Diagram

Use case diagram: This diagram depicts the user interaction with the system by creating a boundary where the user sits outside the boundary and gives inputs to the system and further system process the inputs and provide responses.
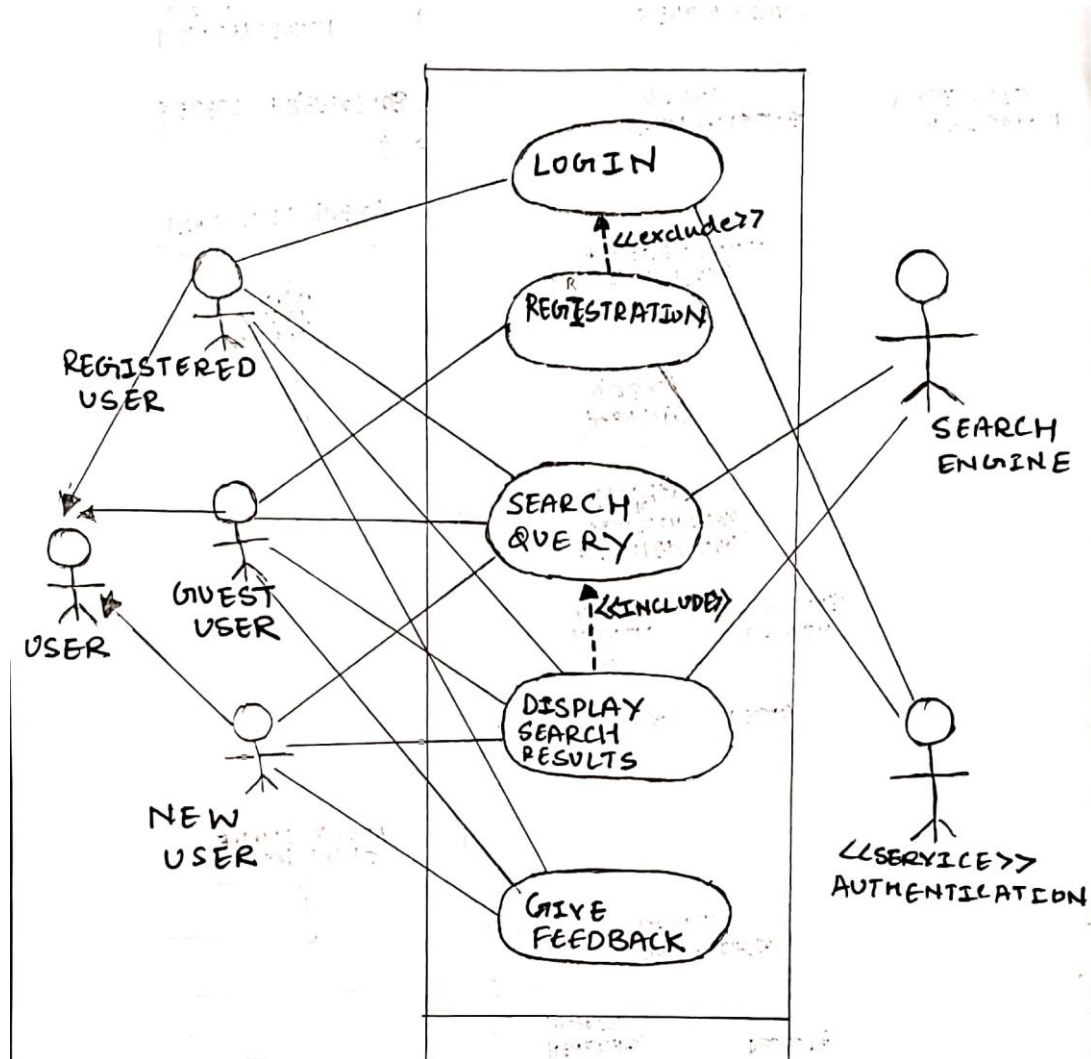
Fig 8.11 Use Case diagram

9. Functional and Data Requirements

9a. Functional Requirements

1. Searching Content Over the Internet

Description: The product shall allow guest users to search content using SearchX.

Rationale: The users want to search content on SearchX without registering or logging into SearchX.

Fit Criterion: 95% of user should be able to login in less than 1 seconds and the remaining should be able to login in 1-3 seconds

2. Signing Up on SearchX

Description: The product shall allow the guest user to sign up to SearchX.

Rationale: The users want to use recommendation and feedback services of SearchX.

Fit Criterion: 93% of user should be able to fill up the signup form in less than 10 seconds and for the remaining it might take 20 seconds if errors are encountered.

Fit Criterion: On an average the error rate for user entering credentials should be less then 5%.

3. Registered user login

Description: The product shall allow the registered user to login to SearchX.

Rationale: The users want to use different services of SearchX for registered account.

Fit Criterion: After clicking in the login button user should land on search page in less than 2 seconds after the product verifies the credentials.

4.User provides query as per his choice.

Description: The product shall allow the user to provide desired query to SearchX.

Rationale: The users want to search content in SearchX.

Fit Criterion: The product should respond to the user query in the form search results within fraction of seconds.

5. Selecting preferences for the search results

Description: The product shall allow the user to select preferences for search result type.

Rationale: The users want to choose the type of search results displayed in SearchX.

Fit Criterion: 80% of the user after login to SearchX choose preference query while the remaining user uses the search option.

6. Generating relevant search results based on user queries

Description: The product will be able to generate appropriate queries from user input.

Rationale: The product should be able to generate query and keywords to be used on search engines to provide relevant results.

Fit Criterion: The product must display relevant search results 99% of the time based on the query given by user.

7. Fetching data from multiple search engines for the user queries

Description: The product will fetch data from various search engine and display the compiled results.

Rational: the product intends to provide user a quick overview of multiple search engine.

Fit criteria: The product should be able to fetch data from different search engines 98% of the time display it to the user and for the remining the product should cooperate with the backup servers.

8. Personalized option in search results

Description: The product provides logged in users personalized recommendation to improve search experience

Rational: Logged in users should be able to find their data filtered according to their preferences.

Fit criteria: 90% of the users use personalized option to filtered their results according to their preferences. While the remaining uses the default option which is All.

9. Improving search results from the feedback received from users.

Description: The product improves with the feedback received.

Rational: the queries should get refined on basis of feedback received from user.

Fir criteria: The product should improve its search results from negative feedback received by 5% of the user while the remining give positive feedback

10. Look and Feel Requirements

10.a Appearance Requirements

The product will be attractive to students and academic professionals and any users who has an urge to search information on the internet.

Fit Criterion: 90% of the target users shall find the product to be interactive within 5 seconds of their encounter with SearchX

10.b Style Requirements

The products will provide a new enhanced feel to the users from other different search engines and better interface as well. The User will be given optimized and refined results based upon the preferences he chooses.

Fit Criterion: 85% of the user would sign up into the product after looking at the style of the product while the remaining would take more than 10 seconds to get the style.

11. Usability and Humanity Requirement

11.a Ease of Use requirements

1. The product shall be easy to use for a user who has basic knowledge of computer
2. The product should help user in his research and studies.
3. The product should make the user want to use it.
4. The product should be used by people with no prior training.

Fit criterion: The product should be easy to use for 98% pf the user while the remaining might need some time to get the feel for the product

11.b Learning Requirements

1. The product should be easy for a student to learn.
2. The product shall be able to be used by student with previous knowledge of browsers.

Fit Criterion: 90% of the user shall get familiarize with the product after his first search query results the get from the product and for the remaining it might take 2-3 search to learn the product.

12. Performance Requirements

12.a Speed and Latency Requirements

The product shall provide results 90% faster than the other search engines. Whenever the user clicks on any options available to him the product shall respond within fractions of seconds with the related search results without interrupting the flow of thoughts of the user. Moreover, the product shall try to improve the experience for the users with less than 1 seconds for 95% of its queries.

Fit Criterion: The response tie for the product to fetch the results would be less than 1-2 seconds for 96% of the users while for the remaining it might take no more than 3 seconds.

12.b Precision and Accuracy Requirements

The product shall provide an accuracy of 95-98% of the searches that the user is interested in omitting the irrelevant information. The product should accurately fetch the refined queries by the user over different search engines and retrieve 90% of accurate information.

Fit Criterion: The product shall provide more than 95% accuracies for the search result based upon the query given and for the rest it should try to achieve less errors.

12.c Reliability and Availability Requirements

The product shall be available to the users 24 hours and 365 days per year allowing the user to provide services as required. The product shall be reliable enough to fetch the query within seconds even when more than 1000 users are using the website at the same time

Fit Criterion: The product should have the data available for the user queries 99% of time while for the remaining it should try to get data from alternative search engines.

13. Operational and Environmental Requirements

13.a Requirements for Interfacing with Adjacent Systems

1. The product shall be able to fetch data from various search engines after refining the queries given by the user.
2. The product should display recommended results only when the user clicks on it.
3. The product new released versions should be able access the same search engines that it used access the search results in the previous release versions.
4. The product must interface with the database used for storing user credentials to verify the information user provides during login.

Fit Criterion: The product shall successfully complete all the functions defined within 5 seconds in a simulation of a 3 years and the product shall function correctly after 18hours after the release.

14. Maintainability and Support Requirements

14a. Supportability Requirements

1. Support should be provided to the user by providing relevant/ recommended results when the user logs in based upon his previous search.

14.b Adaptability Requirements

1. The product is expected to run on iOS and Android devices.
2. The product is intended to work on different browsers in mostly all the browsers which are available by default on the machines.
3. The product adapts to any environment on any device and opens the product websites in less than 2 seconds.

Fit Criterion: The product should be able to work on all the systems 99% of time and for the remaining the user should choose desktop option on their devices if possible.

15. Security Requirements

15a. Access Requirements

1. The access is granted to all the users who have provided correct credentials during login after product verifies the details into the database.

2. The user can sign up only when all the information is in valid format.

3. Only authorized user should be able to login to product.

Fit Criterion: For 90% of the users should be given access in less than 2 seconds to search after verifying credentials on the login and signup page

15b. Privacy Requirements

1. The product should protect users private search information in accordance with relevant privacy laws and the organizations information policy.'

2. The product shall make user aware of its information practices before collecting data from them.

3. The product shall notify customers of changes to its information policy that it has made for every release versions of the product.

Fit Criterion: The product should keep the user privacy safe for 98% of the time and for the remaining it should try to protect it within 2 days.

16. Legal Requirements

16.a Compliance Requirements

Personal information shall be implemented so as to comply with data protection act.

Fit Criterion: The product shall be certified as complying with the current years corporate search engines standards.

16.b Standard Requirements

The product should be developed with respect to six sigma specifications.

Fit Criterion: The product should follow all the standards of the search engines in the market.

17. Open Issues

1. The availability of search results depends on the search engines we intend to collaborate. If we do not receive authorization from these search engines, then we cannot display the search from the intended sources.
2. The recommendation systems depend on the training data. In the initial phases the recommendation service may not display accurate results.

18. Off-The-Shelf Solutions

18a. Ready-Made Products

There are a few available software that can be used to optimize some part of the product. For instance, Google Correlate is a very useful tool that gathers more keywords related to the user's current search which he is likely to search soon. This kind of tool can be useful to optimize the recommendation feature.

Soovle is another tool which provides suggestions for auto-complete feature from a variety of sources which can be useful for the user while he is hunting to put his academic issue in words. This feature can be very useful for our product by providing options and built pen

18b. Reusable Components

The features such as search and feedback are common for different users. These can be reused as templates if new types of users such as premium users are added.

19. New Problems

19a. Effects on the Current Environment

The product intends to enhance the search experience of the user by providing top results from various associated search engines. It will reduce the manual data mining efforts by the user to get his desired results. A single platform for a variety of pooled data will be useful for the user but the data retrieved from these queries will not be saved or hosted by our product.

19b. Effects on the Installed Systems

The product will be built on data pooling from existing independent search engines. These existing search engines might be affected by the product, as it may affect their traffic of users.

19c. Potential User Problems

The user is currently used to a focused search on a specific page. The product might overwhelm the user with a lot of information at same time. Most of the current search engines do not give any prompts for registering, login or feedback to the user in current system. The user will be prompted to login, register and provide feedback for personalized and better user experience.

19d. Follow-Up Problems

The scope of academics can be quite vast, touching each field, area of interest and maintaining data on them can be a tedious process. Given the number of students and researchers, keeping the product up 98% of time might be issue.

20. Tasks

20a. Project Planning

The product development will occur in an Agile manner. The development will occur in Sprints and iteration will undergo the required phases such as requirement, analysis, design, development and testing. All the requirements will be converted into user stories from the product backlog. The product backlog will be prioritized based on user requirements.

20b. Planning of the Development Phases

Breakdown for various tasks of product will be as follows but might have some changes in the number of days required for each module:

Requirement Analysis	30 days
Database setup	15-20 days
Pool data from various search engines	30 days
Query builder	15 days
Login Module	15 days
Register Module	15 days
Feedback Module	10 days
Guest Module	10 days
Recommendation	30 days
UI Development	10 days
Testing	30 days
Setting up server and hosting the product	10 days
Customer validation, feedback and backlogs	30 days

Fig 21.1 Task Table

21. Migration to the new product

21.a Requirements for Migration to the New Product

1. The product shall need to be migrated into a new product after the user base scales to a large capacity. For instance, if the product hits one million users per day, more resources would be required to handle this user base.

2. Upon migration, the product shall not need to be backed up manually as it should be taken care automatically.
3. Any migration shall not decrease the user base and not impact existing functionality.
4. The migration shall not affect the availability of the product.
5. Any existing data should be backup and available post-migration

21.b Data that must be modified or Translated for the new system

The product shall be able to transfer the current user's data to the new product, where the already existing users should not be asked to re-register themselves.

The product when transformed into a new product should be portable with some modifications and all the data related to search and recommendations should be transferred to the new system as well.

22. Risks

The product may face issues during releases and maintenance of existing resources or increase in activity. For example, if the collaborating search engines face a downtime, it could affect the availability of our product. Although the probability of this situation is less than 1%, there must be contingency plans in place to handle such situations.

Increase in user base can affect the availability of the product as it may not be able to handle excessive load specially if there are concurrent users.

23. Costs

The cost of the product includes several factors that are dependent on the number of input and output flows in the product, Business events the product has, PUC's, functional requirement, and non-functional also lastly functional points. We can get an estimate for the product by using a formula stated by Lord Kelvin which estimated the cost by taking into consideration just the function points.

Our product will have approximately 45 functional points for different aspects of the product to be taken care of after and before the product release.

The formula is:

Effort in staff months = (function points / 150) * function points0.4

We have 400 functional points, so we get

= (45/150) * 45 * 0.4

= 5.4 months

So, approximately it will take 5.4 months of staff work to complete the product. But it does not take into consideration the changes in requirement by the customers as well so we can say the approximate tie would be around 6 to 8 months.

24. User Documentation and Training

24.a User documentation Requirements

1. The product will provide a website tour to the user when users uses the product for the first time.
2. The product would contain a help link to guide the users about the website.
3. The product will also contain an FAQ section where users can find answers to their queries about product.

24.b Training Requirements

Users would not be needing any training to use this product as it will be completely user friendly and can be used by anyone who has basic knowledge of computer

25. Waiting Room

1. The product should be able to show user's profile, which would show what searches users have made and what are his most preferred choices.
2. The product should be able to send notifications to users about new information available based on his search preferences.
3. The product should also have some premium features which would help to generate the revenue.
4. The product should have an admin panel to manage administrative activities.

26. Ideas for solution

The idea is to give more control to the users and yet develop a product smart enough to understand what the user needs. The way the user searches for content on the internet has not changed over years.

The current solution for user search demands that the user provides accurate search query and the accuracy of the results entirely depends on the user query. By providing recommendations and preferences we can narrow the range of possible errors and provide accurate search results to what the user is looking for.

Additionally, all search engines currently provide search results and require that the details be viewed separate tabs and windows. As a result, the users could potentially lose track of the results and eventually miss out on the original query. By providing a single view for all search results and categorized by preference type, the users can hold on to a single view for all the desired information.