

SiteRush – A SEO Tool



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fulfillment for the award of degree in Bachelor of Software Engineering

June 2023

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Abstract

Search Engine Optimization (SEO) is an essential component of any successful digital marketing strategy. However, the existing SEO tools on the market often come with a hefty price tag and limited capabilities, leaving users with incomplete data and little flexibility. Moreover, most tools assume users are starting from scratch, making strategy development complex and potentially wasteful of valuable resources.

To address these challenges, we present SiteRush, a revolutionary web-based SEO tool designed to empower website owners in their quest for improved search engine rankings. Our goal is to provide a comprehensive solution that delivers real-time insights and customized recommendations, based on the current health of a website.

Unlike other SEO tools, SiteRush goes beyond standard website analysis, keyword research, and competitor analysis. We consider customers website's existing strengths and weaknesses, leveraging this information to suggest targeted improvements and keyword opportunities tailored to their unique circumstances.

With SiteRush, digital marketers and site owners receive personalized SEO reports that streamline strategy development. By utilizing cutting-edge crawler and NLP models, our tool generates comprehensive keyword lists, identifies site improvement opportunities, highlights critical issues, and enables seamless keyword tracking.

SiteRush delivers a cost-effective and user-friendly solution for enhancing website's SEO performance. Our tool provides the real-time insights and actionable recommendations, empowering the site owners to make informed decisions and optimize their website effectively.

Keywords: SEO tool, SEO, NLP, ML, Crawler, User-friendly SEO tool, Crawler model

Dedication

We heartily dedicate this project to our loving and supportive families for nursing us with affection, love, and their dedicated partnership for success in our lives.

Acknowledgments

All the praises and thanks be to ALLAH, the Lord of the worlds, for his countless blessings and guidance at every stage of our lives. He enabled us to work on this project and helped us to carry out the instructed tasks with dedication and honesty.

Our deep gratitude goes to our supervisor Engr. Iqra Basharat, Sr Lecturer of Bahria University Islamabad, who skilfully directed and supported us throughout the project. Her mentoring and encouragement have been especially valuable. Without her constant assistance and guidance, we would not have been able to complete and deliver this project successfully.

We humbly acknowledge and thank people who put their efforts and contribution in our project such as our teachers who helped us learn a lot of things during this phase. We are also indebted to our parents and friends for giving us never-ending motivation and appreciation throughout or academic life. We feel great and valuable by being a part of this project.

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Chapter 1

Introduction

1.1. Motivation

The need to solve the problems that digital marketers, website owners, and SEO specialists experienced when trying to maximize their online presence served as the driving force behind the creation of SiteRush. We identified the need for a thorough and user-friendly SEO tool that simplifies the complicated world of search engine optimization and gives customers the tools they need to reach their objectives quickly and successfully. We are driven by the idea that SEO shouldn't be a time-consuming or intimidating task. We wanted to develop a tool that simplifies the optimisation process so users could concentrate on what really matters providing their audience with insightful information and interesting experiences. To fill the gap between technological know-how and accessibility, SiteRush was created. By making SEO available to users of all experience levels, from novices to seasoned professionals, we hoped to democratise SEO. We sought to empower individuals and organisations to take control of their SEO strategy and produce noticeable results by offering a user-friendly design and intuitive functionality. The knowledge that personalised insights are essential for success in the competitive online environment was another major driving force behind the creation of SiteRush. By providing personalised insights based on the features of website, we hoped to go beyond just general recommendations. We enable customers to make knowledgeable decisions and optimise their websites in a way that is consistent with their goals by offering personalised SEO reports and recommendations.

1.2. Problem statement

Businesses and individuals nowadays face a variety of difficulties when trying to optimise their websites for search engines. It is challenging for website owners to effectively increase their online presence and attract organic traffic due to the complexity of search engine optimization (SEO) tactics, the constantly evolving search engine algorithms, and the lack of user-friendly tools. Furthermore, users with a variety of technical expertise experience difficulties by the absence of user-friendly interfaces

and intuitive functionality in existing SEO solutions. Beginners frequently struggle to comprehend and put SEO best practices into practice, while seasoned pros may find it difficult to streamline their optimization efforts and keep up with the most recent market developments. By addressing these issues, SiteRush strives to give people and companies the tools they need to confidently optimise their websites. For users of all levels of skill, SiteRush seeks to streamline the SEO process, improve online exposure, and generate organic traffic by providing customised SEO reports, intuitive features, and an easy-to-use interface.

1.3. Objectives

The main objectives of our project are,

1. To give users access to effective keyword research tools. SiteRush strives to assist customers in finding productive keyword opportunities, optimizing their website content, and raising search engine ranks by offering thorough keyword analysis and insights.
2. The objective is to provide users with accurate and up-to-date data on their keyword positions in search engine results, allowing them to measure the success of their SEO efforts and make data-driven decisions.
3. The goal of SiteRush is to assist users in analysing and enhancing the performance of certain web pages. The goal is to offer users a page score that assesses several on-page elements, including the quality of the content, meta descriptions, headings, and internal linking, and to make practical suggestions for improving page performance and SEO.
4. SiteRush makes an effort to offer users thorough site audits to find technical problems, broken links, duplicate content, and other things that might hurt search engine results.
5. To make the users' SEO workflow more efficient. SiteRush strives to offer a centralised solution that streamlines the optimization process, saves time and effort, and increases the overall effectiveness of SEO tactics by integrating crucial SEO features into one platform.

1.4. Main contributions

- **What is new, different, better, significant?**

SiteRush stands out among SEO tools because of its personalized suggestions, blending of many features, advanced keyword research, precise rank tracking, deep page score analysis, thorough site assessment, user-friendly interface. Users of SiteRush may anticipate a distinctive and exceptional user experience that will enable them to confidently accomplish their SEO objectives, efficiently optimize their websites, and boost search engine ranks.

- **Why is the world a better place because of what I have done?**

SiteRush makes the complicated world of SEO more approachable for companies and people of all skill levels. SiteRush enables customers to effectively optimize their websites by offering intuitive tools as well as personalized insights, resulting in better online exposure and more organic traffic. As a result, businesses are able to communicate with new clients, reach their target audience more effectively, and develop their online profile. SiteRush saves users time and effort by providing a full range of SEO operations on a single platform, allowing them to concentrate on other areas of their business. In the end, SiteRush improves the digital landscape, helps businesses succeed and expand, and makes the internet a better place for everyone.

- **What is now known/possible/better because of this project?**

The project has brought attention to the value of personalized insights and suggestions for optimal website optimization. According to SiteRush, optimizing SEO tactics for each website's particular qualities results in better outcomes and higher search engine ranks. SiteRush has additionally demonstrated the advantages of combining several SEO features into a single platform, speeding the optimization process and saving consumers time and effort. SiteRush has increased the knowledge and skills of SEO experts, enabling them to make educated decisions and get better results with its extensive keyword research, precise rank tracking, deep page score analysis, and thorough site audits. Overall, SiteRush has improved the knowledge and application of SEO, making it more available, effective, and efficient for companies and people all around the world.

1.5. Report organisation

The structure of the report is illustrated in figure 1

Chapter 2 discusses the background study & literature review. We have also analysed the existing work to further analyse the problem statement and Project solution. Project overview is also discussed in this chapter including project vision, scope, and functions.

Chapter 3 focuses on system requirements including functional and non-functional requirements. It also discusses project feasibility and model analysis.

Chapter 4 discusses system design requirements including design approach, constraints, system architecture, logical design, dynamic view, and component design. It also includes user interface design and system prototype.

Chapter 5 discusses the applicability of the project that involves system implementation strategy, technologies used and mythologies.

Chapter 6 consists of discussion related to the evaluation of the project including all sort of testing like component testing, unit testing, integrated testing, and system testing.

Chapter 7 concludes the thesis by summarizing different aspects of the work including contributions, and future work.

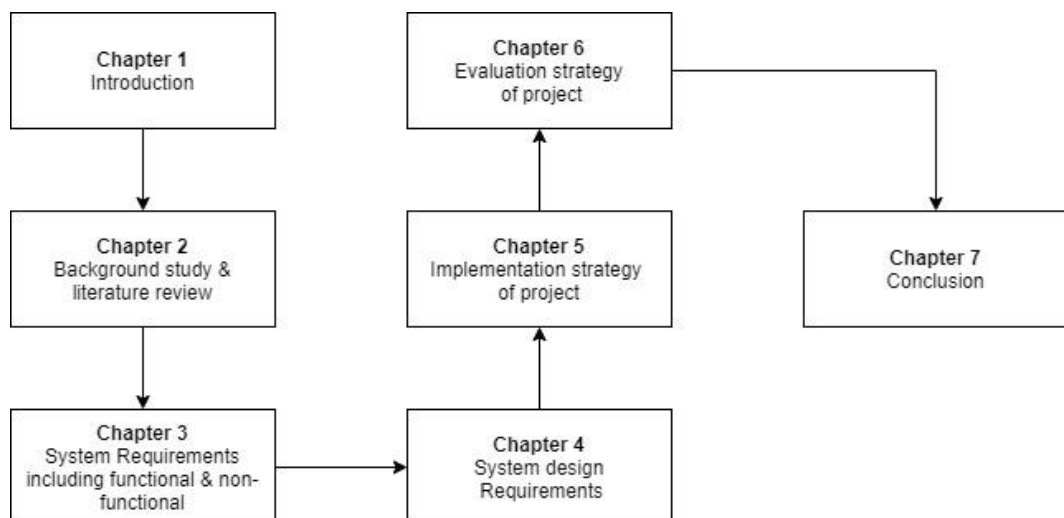


Figure 1 Thesis Organization

Chapter 2

Literature Review

2.1. Key Concepts

SiteRush focuses on offering personalised insights and suggestions while configuring its features to meet the requirements of each website. Users might find worthwhile possibilities to optimise their content and raise their search engine ranks by performing extensive keyword research. Users may monitor their keyword placements and evaluate the success of their SEO initiatives with accurate rank tracking. With the use of detailed page score analysis, customers can optimize specific pages for increased performance by evaluating numerous on-page criteria. Site audits aid in locating technical problems and offer useful suggestions for advancement. An easy-to-use design and ongoing innovation guarantee a modern and flawless SEO experience. Overall, the core ideas of SiteRush revolve around giving customers access to personalized insights, extensive functionalities, and simple tools to get the best possible SEO results.

2.2. Analysis of existing work

There are different existing SEO tool including **UberSuggest [1]** and **Ahrefs [2]** for Search Engine optimization. Ubersuggest offers user-friendly interface and affordability, SiteRush goes beyond basic keyword research to provide personalized recommendations based on website health, offering more tailored approach to optimization. Ahrefs excel in backlink analysis and data accuracy when it comes to complete functions, respectively. Instead of requiring customers to transfer between many tools, SiteRush incorporates several SEO features, such as keyword research, rank tracking, page score, and site audit, into a single platform. Additionally, SiteRush stands out from other SEO tools due to its emphasis on personalized reports and useful insights, which give users recommendations that are more focused and efficient.

2.2.1. UberSuggest [1]

Ubersuggest is an SEO tool that provides users with valuable insights and data to optimize their website's search engine performance. The strong point of Ubersuggest includes:

- Backlink Analysis
- Competitive Analysis

The weak point of this app as compared to our project includes:

- Ubersuggest has limitations in terms of advanced functionalities and personalized recommendations. The personalized approach gives SiteRush an advantage over Ubersuggest in terms of delivering more targeted and effective recommendations for optimizing SEO strategies.

2.2.2. Ahrefs [2]

Ahrefs is a powerful SEO tool widely recognized for its comprehensive suite of features and data-driven insights. The strong point of this app includes:

- Comprehensive backlink analysis.
- Another strong point of Ahrefs is its comprehensive site auditing feature. Ahrefs allows users to analyse their website's technical aspects and identify potential issues that may affect search engine visibility and user experience.

The weak point of this app as compared to our project includes:

- For new users or those unfamiliar with SEO ideas, Ahrefs' extensive feature set and data can be difficult. It may take some level of training or knowledge to navigate through the many functionalities and evaluate the data.

2.3. Differences and similarities

Table 1 Differences b/w SiteRush & Existing Apps

Characteristics of Our Project	SiteRush	Ahrefs [2]	Ubersuggest [1]
Keyword Research	Advanced	Comprehensive	Basic
Rank Tracking	Yes	Yes	Yes
Site Audit	Yes	Yes	Yes
Page Score	Yes	No	No
Personalized Reports	Yes	No	No
User Friendly	Yes	Yes	Yes
Site Visualisation	Yes	No	No
Learning Curve	Easy to Use	Moderate	Easy to Use

2.4. Research Work

We have studied different research articles to understand the previously done work in this regard. We have learnt about the technologies that they have used or considered. This research work guided us about the suitable technologies that we can use for our project. We have also added those research papers that have the domain like our project in this section.

2.4.1. The Foremost Guidelines for Achieving Higher Ranking in Search Results through Search Engine Optimization

This research study [3], shows that the practice of optimising web pages or entire websites for search engines is known as search Engine Optimization (SEO). When deciding how to rank online sites, major search engines like Google, Yahoo, Bing, and Ask take into account a variety of factors. In order to improve a website's visibility and prominence in organic search results, SEO works on improving both the content and coding of the page. Utilizing optimization strategies, websites can rise in the search engine results and draw more visitors. The present optimisation strategies used for specific web pages and entire websites are reviewed critically and summarised in this study, identifying any knowledge gaps. The study offers a comparison of earlier SEO research and includes pertinent recommendations for successful website optimization.

2.4.2. Important Factors for improving Google Search Rank

In light of the expanding number of websites on the World Wide Web, this research study [4] discusses the rising significance of search engine rankings and the discipline of search engine optimisation (SEO). The author emphasises how search engines had to create algorithms to deliver appropriate search results as companies began using online advertising and the web became a vital platform for communication and information. This led to the creation of SEO as a profession, where engineers attempted to identify the characteristics that contribute to greater search engine results. The article gives a two-part analysis, beginning with a review of the literature on the elements that influence website rankings and emphasising important elements such backlinks, social media support, website structure, loading speed, and keyword density. The second section is devoted to the author's investigation, which looked at Google search results for particular terms and calculated the link between different elements and rankings. The results, which significantly deviate from the literature analysis, show that elements

including a website's SSL certificate, keyword in the URL, number of backlinks, text length, and domain age play major roles in higher ranks. The article provides insights into the variables affecting website visibility in search results and illuminates the intricate dynamics of search engine rankings overall.

2.4.3. The Role of AI in modern SEO Strategies

The study [5] discusses how artificial intelligence (AI) is used in contemporary SEO (Search Engine Optimisation) tactics. The author emphasizes how AI has evolved into a crucial tool for the SEO sector, providing useful capabilities and insights to improve website performance and search rankings. They emphasize how artificial intelligence (AI) enabled solutions can analyse massive data sets, spot patterns, and come to data-driven conclusions to improve website content, keywords, and overall SEO strategy. The application of AI in several SEO processes, including content production, keyword research, on-page optimization, and link building, is covered in the article. The author also discusses the value of the user experience and how AI might help increase website engagement and usability. They emphasise the use of AI for competitive advantage through analysing search engine algorithms. Overall, the paper emphasises the important role that AI plays in developing contemporary SEO strategies and the importance of businesses utilising AI-powered tools and techniques to increase their online success and search visibility.

2.4.4. Text Summarization Techniques for Meta Description Generation in process of Search Engine Optimization (SEO)

In this study [6], the usage of text summarising techniques is examined in relation to search engine optimization (SEO). The idea of creating "meta descriptions" for web sites that are missing this crucial component is specifically explored by the researchers. In order to produce pertinent and succinct information for meta descriptions, the study offers a query-based algorithm that makes use of summarising techniques. It is shown through experimental findings and professional evaluation that the suggested algorithm successfully generates meta descriptions that can improve a webpage's SEO. The creation of recommender systems aiming at enhancing search engine optimisation tactics should take these findings into consideration.

2.4.5. Received Citation as a main SEO Factor of Google Scholar Results Ranking

The author of this study [7] examines the significance of citations as a key SEO criterion for Google Scholar ranking. The study explores the connection between an academic publication's quantity of citations and its position in Google Scholar search results. The author emphasises the importance of citation count as a key indicator of a research paper's importance and influence within the academic community. By looking at a sample of scientific publications, they examine the methodology used to analyse the relationship between citation count and ranking position. The paper emphasises that more citations have a beneficial impact on a publication's ranking, indicating that citations are essential for establishing the legitimacy and visibility of research works. This study emphasises the significance of citations in assessing the effect and relevance of scholarly papers and advances our understanding of the dynamics of SEO in the academic setting.

2.4.6. KnowCrawler: AI Classification Cloud-Driven Framework for Web Crawling Using Collective Knowledge

In this study [8] the author discusses that the breadth of the World Wide Web and the requirement to efficiently rank and display pertinent web pages in search results make web crawlers crucial to search engine optimisation. This study proposes a web crawling system powered by AI in the cloud to solve this demand. In order to effectively manage massive volumes of data, the framework includes a scheduler, dispatcher, and classification unit. It uses a bagging classifier and parallel processing. The proposed method seeks to solve issues like a lack of diversity and the cold start problem in web crawling by integrating AI classification cloud and utilising collective knowledge, ontology, and Cuckoo search. A Harvest Rate of 94.41% was achieved by the architecture, which is notable because it performs better than baseline methods. This study offers a valuable method for increasing the speed and accuracy of web crawling operations while maintaining Semantic Web requirements.

2.4.7. A Distinctive Approach to Obtain Higher Page Rank Through Search Engine Optimization

SEO entails making websites and webpages more appealing to search engines in order to raise their rating. The strategy presented in this paper [9] includes recommendations for efficient keyword research analysis and backlink creation. The framework recommends that relevant keywords be incorporated into webpage text and that website

traffic should be tracked through referrals. Higher positions in search results can be attained by include relevant and prominent keywords in webpage content and titles, as well as a sufficient number of backlinks to track website traffic. The methodology highlights the role of developers and designers in executing successful SEO strategies, emphasising the need of correct keyword selection and link building during software development projects.

2.5. Conclusion

In this chapter, we have covered the background and literature review of this thesis report. We have discussed the previously created apps like our project. We have also covered the key differences between our app and previously existing apps like our project. We have also included the research papers that we have studied to get knowledge about the technologies that can be used for our project.

Chapter 3

System Requirements

In this chapter, system requirements including functional and non-functional are mentioned. System requirements are an important aspect of the whole system. These requirements must be fulfilled at the end. If the system is implemented according to these requirements, it will be considered a complete successful project.

3.1. Use Case Diagram

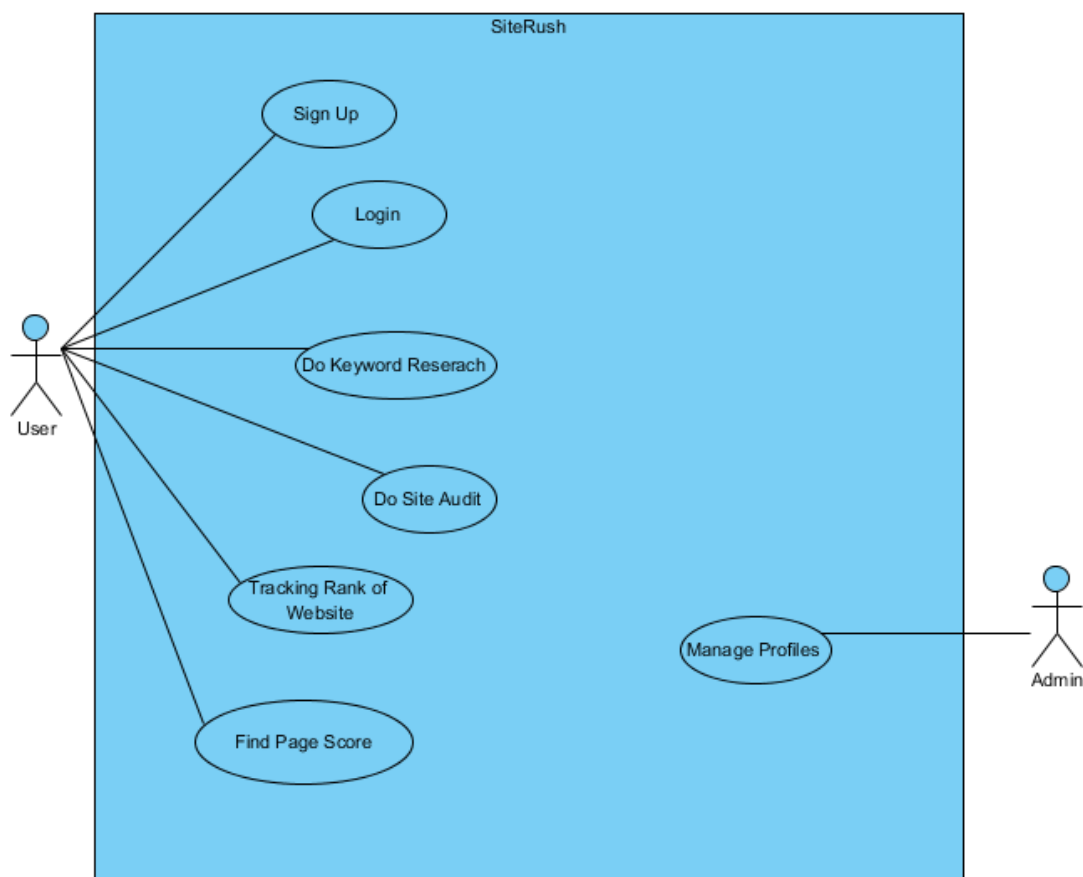


Figure 2 Use Case - SiteRush

User will Sign Up when using the SiteRush for the first time. After signup, user will have to login to use SiteRush. They will be able to do keyword research by entering a keyword. They will be able to do Site Audit by entering site URL. They can also find page score and rank of their website by entering URL.

Admin will be able to manage user profiles.

3.2. Functional Requirements

3.2.1. Keyword Explorer

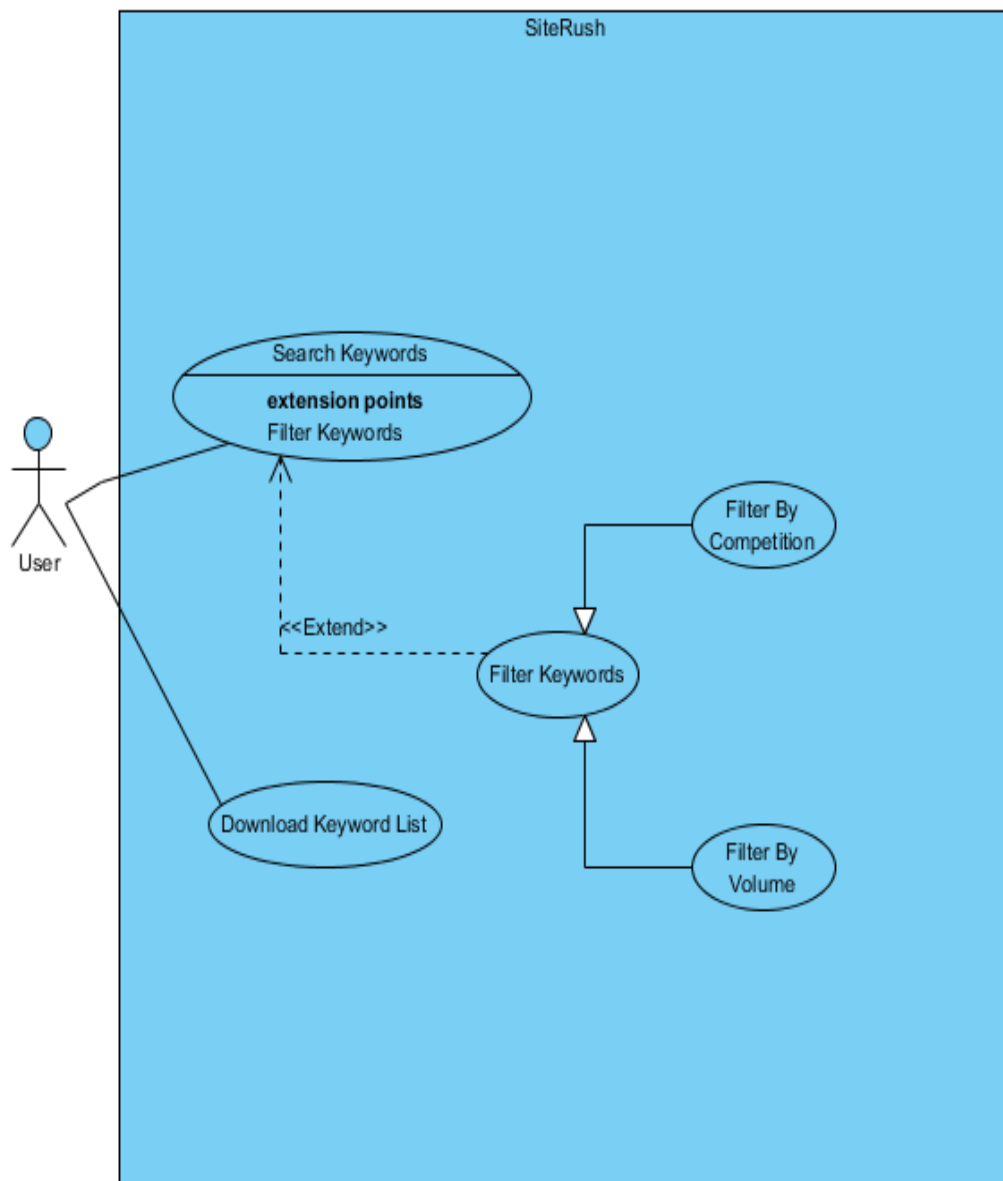


Figure 3 Use Case - Keyword Explorer

In Keyword Explorer, the user will enter a keyword and click the search button. The user can also filter the keywords according to volume and competition. The user will be able to see the search volume, CPC, Competition and Score of the keyword.

Table 2 Use Case Description - Keyword Explorer

Use Case ID:	UCI-1	
Use Case Name:	Keyword Explorer	
Actor(s):	User	
Pre-Conditions:	User selects the “Keyword Explorer” option from Navbar.	
Priority:	High	
Basic Flow:	The user adds keywords to the search bar and the system generates a custom list of keywords.	
Post-Conditions:	User gets keyword search result.	
Actor Actions		System Response
1.	User selects “Keyword Explorer” option from Navbar and searches a keyword.	2. System displays keyword list according to search term.
Alternative Course of Action (if any)		
	Actor Action	System Response
1a	User searches for a non-existing keyword.	1a System displays error message.

3.2.2. Site Audit

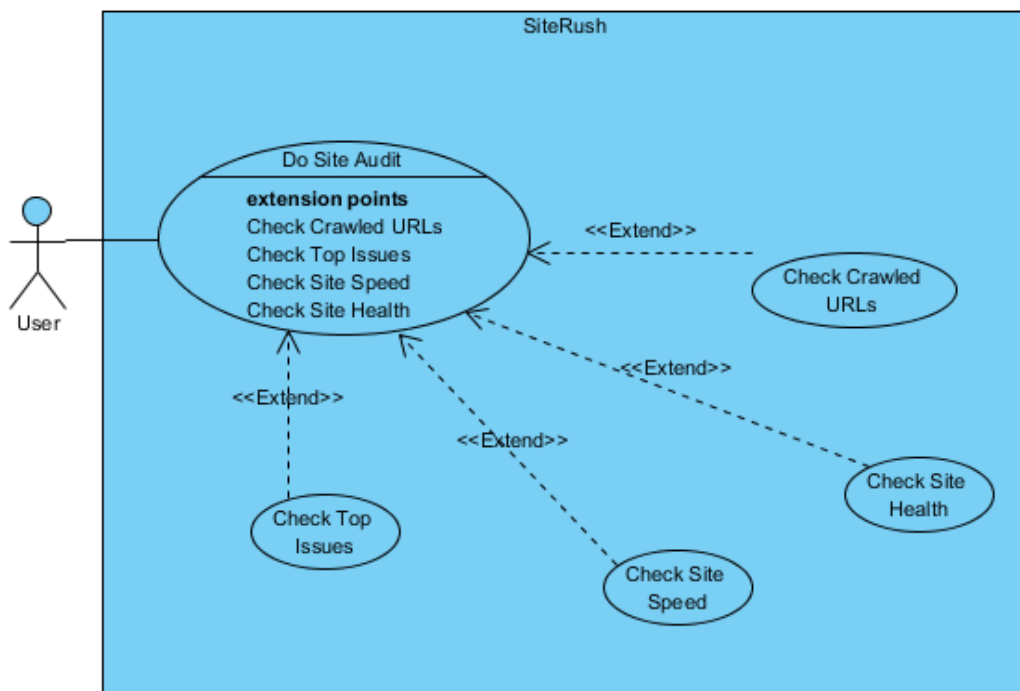


Figure 4 Use Case - Site Audit

The site Audit Feature allows users to check top issues, site speed, and overall site health. Crawl details will also be provided to the user. The user will be required to add the site URL to add the project.

Table 3 Use Case Description - Site Audit

Use Case ID:	UCI-2	
Use Case Name:	Site Audit	
Actor(s):	User	
Pre-Conditions:	User enter Site URL.	
Priority:	Medium	
Basic Flow:	User adds website information and gets audit of the website.	
Post-Conditions:	User is able to see the audit of his site.	
Actor Actions		System Response
1.	User selects “Site Audit” option from Navbar.	2. System displays text fields for site information.
3.	User enters site name, Site URL, and clicks on “Get Audit” button.	4. System shows SEO audit of the website.
Alternative Course of Action (if any)		
Actor Action		System Response
1a	User does not fill any of the field among the site URL, name, and clicks on “Get Audit” button	2a System displays error message and asks user to fill all the required fields
1b	b User enters invalid or non-existent site URL.	2b System displays error message and asks user to fill all the required fields

3.2.3. Rank Tracking

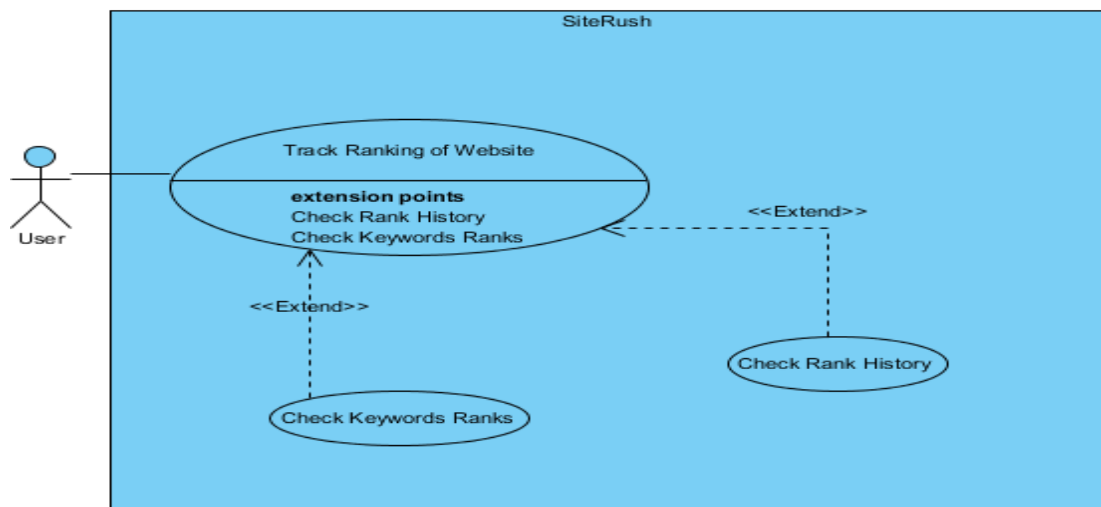


Figure 5 Use Case - Rank Tracking

Users will be required to add location, domain URL, and set of keywords to track. The user can use rank tracking to view the ranking positions of added keywords and their rank history to visualize the keyword position trend.

Table 4 Use Case Description - Rank Tracking

Use Case ID:	UCI-3	
Use Case Name:	Rank Tracking	
Actor(s):	User	
Pre-Conditions:	User enter domain URL, location and set of keywords.	
Priority:	Medium	
Basic Flow:	User adds keywords and location and gets keyword ranking of the keywords for the mentioned site.	
Post-Conditions:	Keyword ranking is shown to the user.	
Actor Actions		System Response
1.	User selects “Rank Tracking” option from Navbar.	2. System displays text fields for site information.
3.	User enters site name, Site URL, keywords, location and clicks on “Track Keywords” button	4. System shows “Success” message.
Alternative Course of Action (if any)		
Actor Action		System Response
1a	User does not fill any of the field among the site URL, name, location and clicks on “Track Keywords” button	2a System displays error message and asks user to fill all the required fields
1b	User enters invalid or non-existent site URL.	2b System displays error message.

3.2.4. Page Score

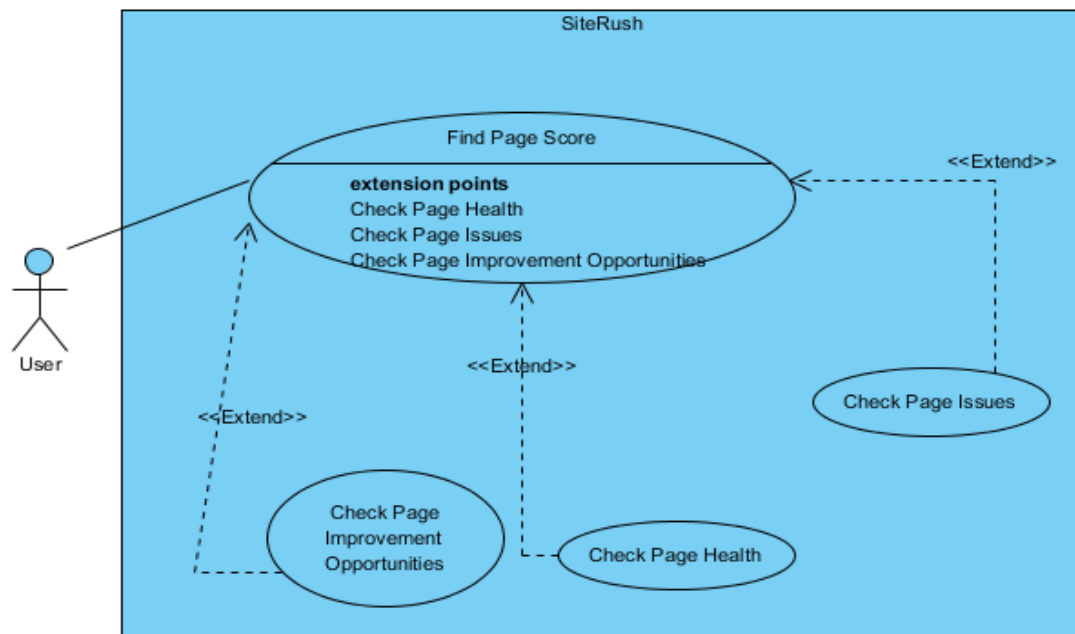


Figure 6 Use Case - Page Score

Users will be required to enter the page URL. The system will provide users to check top issues, site overall health, and improvement opportunities.

Table 5 Use Case Description - Page Score

Use Case ID:	UCI-4	
Use Case Name:	Page Score	
Actor(s):	User	
Pre-Conditions:	User enter Page URL.	
Priority:	Medium	
Basic Flow:	The user will select “Page Score” option and add page URL to the search bar. The user gets Page Health Score with detailed report on SWOT analysis.	
Post-Conditions:	Page health score is shown to the user	
Actor Actions		System Response
1.	User selects “Page Score” option.	2. System displays a list of all issues, improvement opportunities, and overall health related to the SEO elements of the page.
Alternative Course of Action (if any)		
Actor Action		System Response
1a	User added an invalid URL.	2a System displays error message.

3.2.5. Manage User Profiles

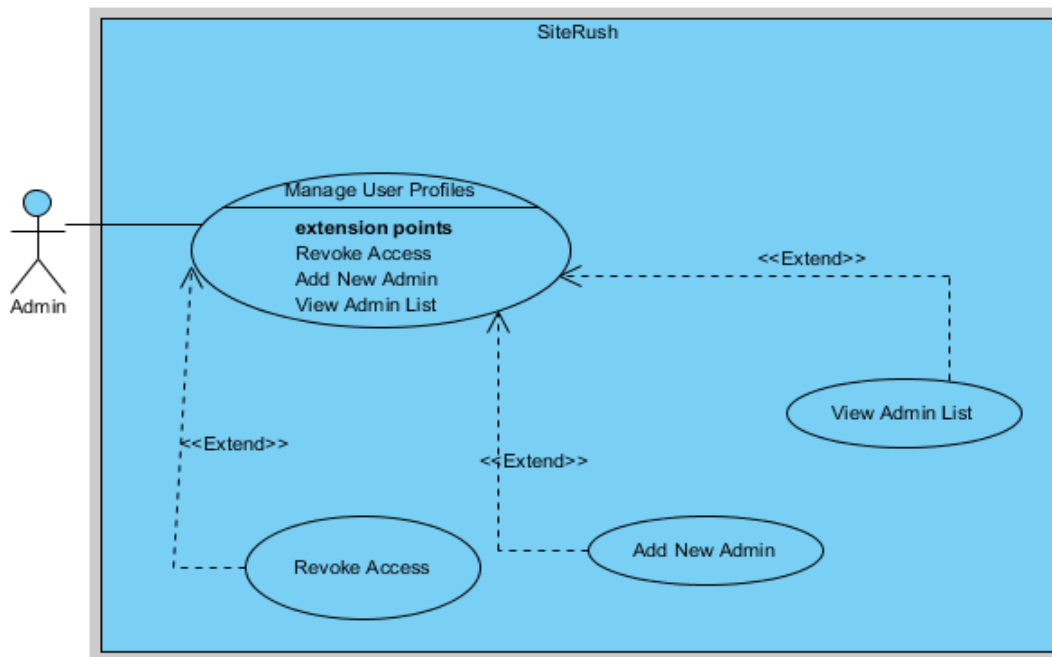


Figure 7 Use Case - Manage User Profile

Admin can manage user profiles by revoking access, adding new admins, and viewing the active admin list.

Table 6 Use Case Description - Manage User Profiles

Use Case ID:	UCI-5	
Use Case Name:	Manage User Profiles	
Actor(s):	Admin	
Pre-Conditions:	Admin signs in as administrator of the system	
Priority:	High	
Basic Flow:	Admin can manage the user profiles by choosing the option.	
Post-Conditions:	Changes updated successfully.	
Actor Actions		System Response
1.	Admin clicks on manage user profiles and revokes access of a user.	2. System generates a success message on successful deletion of a user profile.
Alternative Course of Action (if any)		
Actor Action		System Response
1a	Admin does not have the privilege to delete an admin.	2a System displays error message.

3.3. Interface Requirements

3.3.1. User Interfaces

- **Sign Up Interface**

Sign Up screen includes the fields like Id, password, and Sign-Up button. User enters id and password to sign up.

- **Log in Interface**

Log In screen includes the fields like Id, password and Log In button. User enters id and password to Log In.

- **Dashboard Interface**

This screen shows a intro of SiteRush and there is Navbar from which user can select the functionality he/she wants to use.

- **Keyword Explorer Interface**

This screen shows a text field and a “Search” button. User enters a keyword and clicks on search button, and he/she can see tables of matching and related keywords.

- **Site Audit Interface**

This screen shows a text field where user can enter site URL and a “Get Site Audit” button. The user can see the complete audit of the website.

- **Rank Tracking Interface**

This screen shows a “Create New Project” button. When the user clicks the button a dialog box opens and asks the user to enter the Site URL, location and list of keywords then the user is shown the result.

- **Page Score Interface**

This screen shows a text field where user can enter page URL and a “Get Page Score” button. The user can see the page health of the page.

3.3.2. Hardware Interfaces

- Laptop, Desktop
- Internet Service Provider

3.3.3. Software Interfaces

- **Operating System:** Windows 10
- **Developing Tool:** Django Framework for backend and React Js for Frontend.
- **Developing Technology:** Python will be used as programming language for developing backend of SiteRush and React Js is used for developing frontend of SiteRush.
- **Database:** MySQL
- **Web Browser:** The web application should support all important Web Browser.

3.3.4. Communications Interfaces

It will get data of keywords from database and will make it available for the user for analysis purpose. It will also use Wi-Fi to communicate to users and the communication standard will be HTTP.

3.4. Database Requirements

Web application uses MySQL as Database that is used to store sign up credentials of the user including id and password as well as all the details of keywords and websites.

3.5. Non-Functional Requirements

3.5.1. Performance Requirements

The performance requirements of this software are as follows:

1. **Speed of Response:** The system should be fast so that users should not have to wait to get desired results.
2. **Storage Capacity:** Up-to-date data needs to be added and monthly maintenance is necessary for unforeseen breakdowns. Assessment of current data storage needs and forecasting future storage requirements is needed.

3.5.2. Safety Requirements

Some elements like personal data, intellectual property, and/or confidential data are forbidden for scraping. Developers need to create constraints in crawlers for ethical web scraping. Crawl details need to be filtered before displaying them to users. Crawl details can be kept in DB for future usage, but it needs to be highly protected to avoid misuse of resources and confidential information.

3.5.3. Security Requirements

- **Identify:** allow users tell the application who they are.
- **Authenticate:** verify the credentials of users.
- **Authorize:** define the rights and permissions for users/third parties.

3.5.4. Software Quality Attributes

Reliability	There shall be reliable transfer of data between mobile application and web application
Availability	The web application shall be available 24/7.
Maintainability	DBA and Admins can make appropriate changes to keep site performance at par standards.
Correctness	The data provided by the SiteRush should be correct and accurate.

3.6. Project Feasibility

3.6.1. Technical Feasibility

Web application requires Internet, React Js, Django Framework and MySQL Database. These requirements are easily available and manageable. Django framework is simple and easy to implement as compared to other frameworks.

So, use of My SQL database and Django framework makes our project technically feasible.

3.6.2. Operational Feasibility

Due to its easy-to-use interface, accessibility, dependability, scalability, and integration skills, SiteRush exhibits a high degree of operational viability. SiteRush concentrates on delivering a seamless user experience, making sure users can quickly browse its

features and obtain their SEO data from anywhere. Users are given the ability to make knowledgeable judgements and efficiently optimise their SEO efforts thanks to the tool's dependable and accurate data as well as its scalability for various website scales. Along with improving operational efficiency, SiteRush's integration capabilities make it possible for it to effortlessly connect with current operations. Overall, SiteRush provides a highly workable solution for online marketers and website owners, enabling them to easily accomplish their SEO objectives.

3.6.3. Legal and Ethical Feasibility

In the project SiteRush, there is no such legal and ethical obstacle in the development of project. The project is legally and ethically do able as there are no legal and ethical consequences that need to be considered in the development.

3.7. Analysis Models

3.7.1. Activity Diagram

3.7.1.1. For Keyword Explorer:

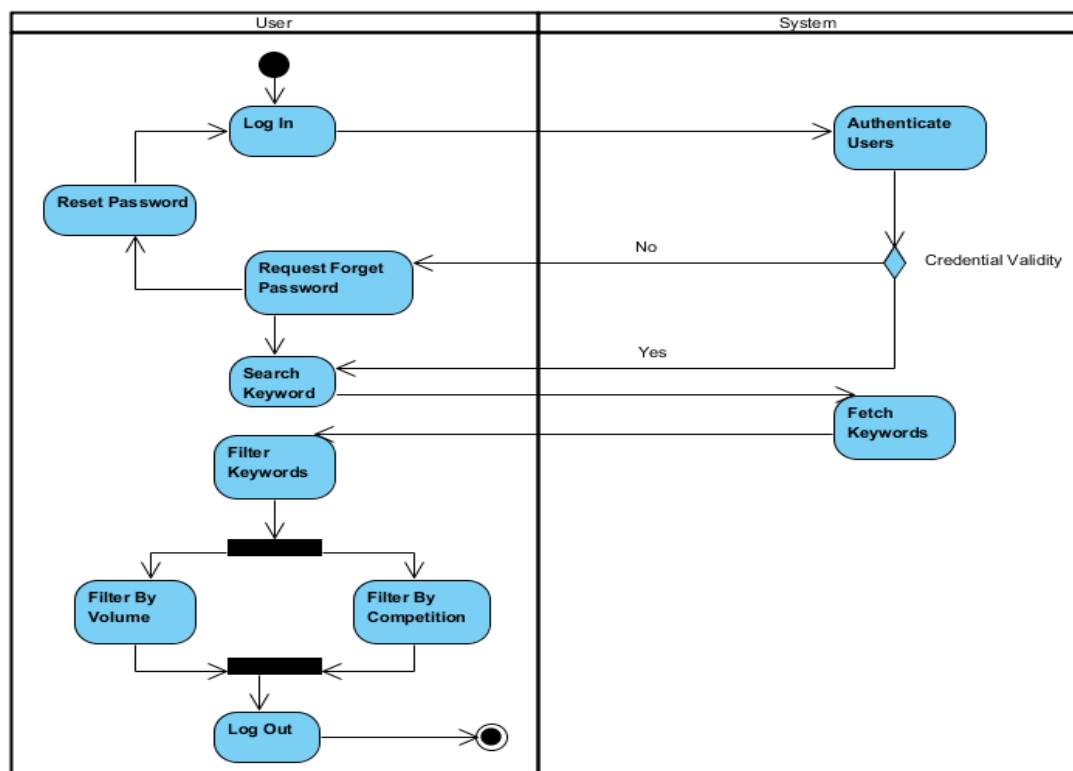


Figure 8 Activity Diagram - Keyword Explorer

- **User** includes all the activities that will be performed by the user. When user

successfully logs in to the system and opts keyword explorer. Following activities are performed:

- Search Keyword
- System Fetches Keyword according to the Search.
- User is displayed list and now can filter keywords by Competition or Volume.

3.7.1.2. For Site Audit:

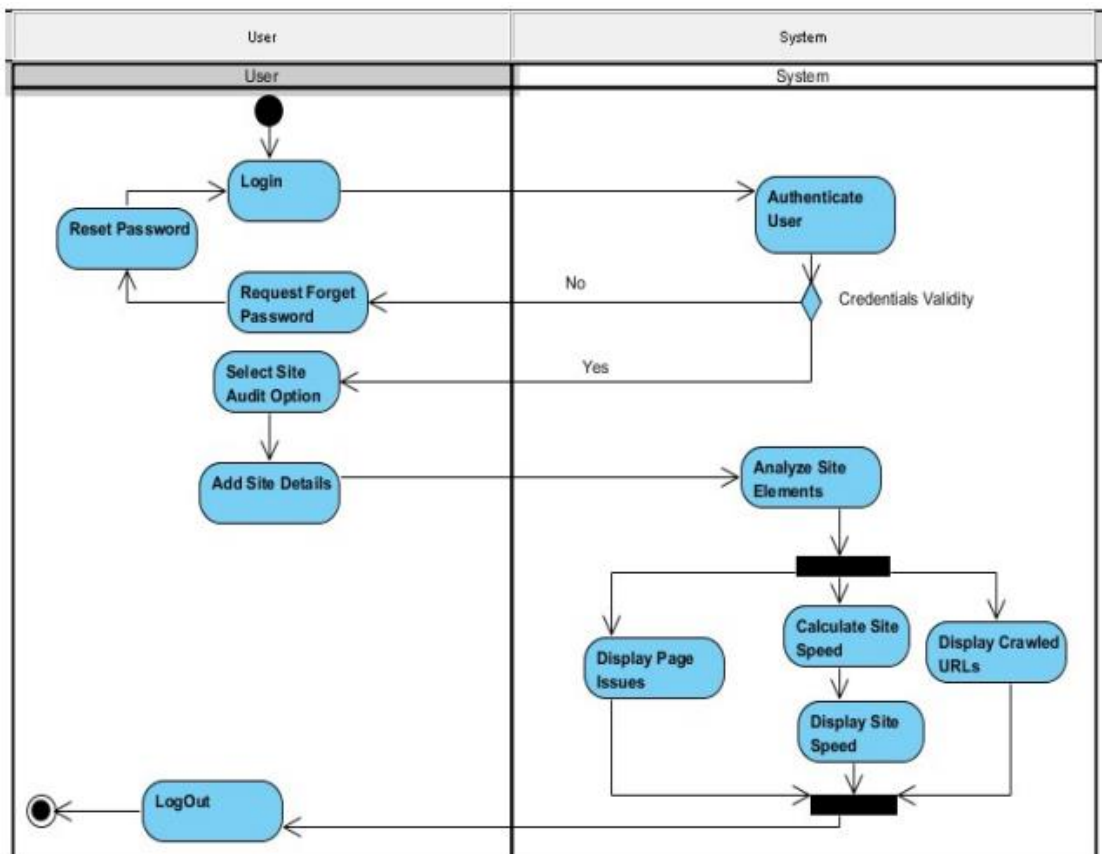


Figure 9 Activity Diagram - Site Audit

- **User** includes all the activities that will be performed by the user. When user successfully logs in to the system and opts site audit. Following activities are performed:
 - Add Site Details
 - The system analyzes site elements. It displays page issues, crawled URLs, and site speed.

3.7.1.3. For Rank Tracking:

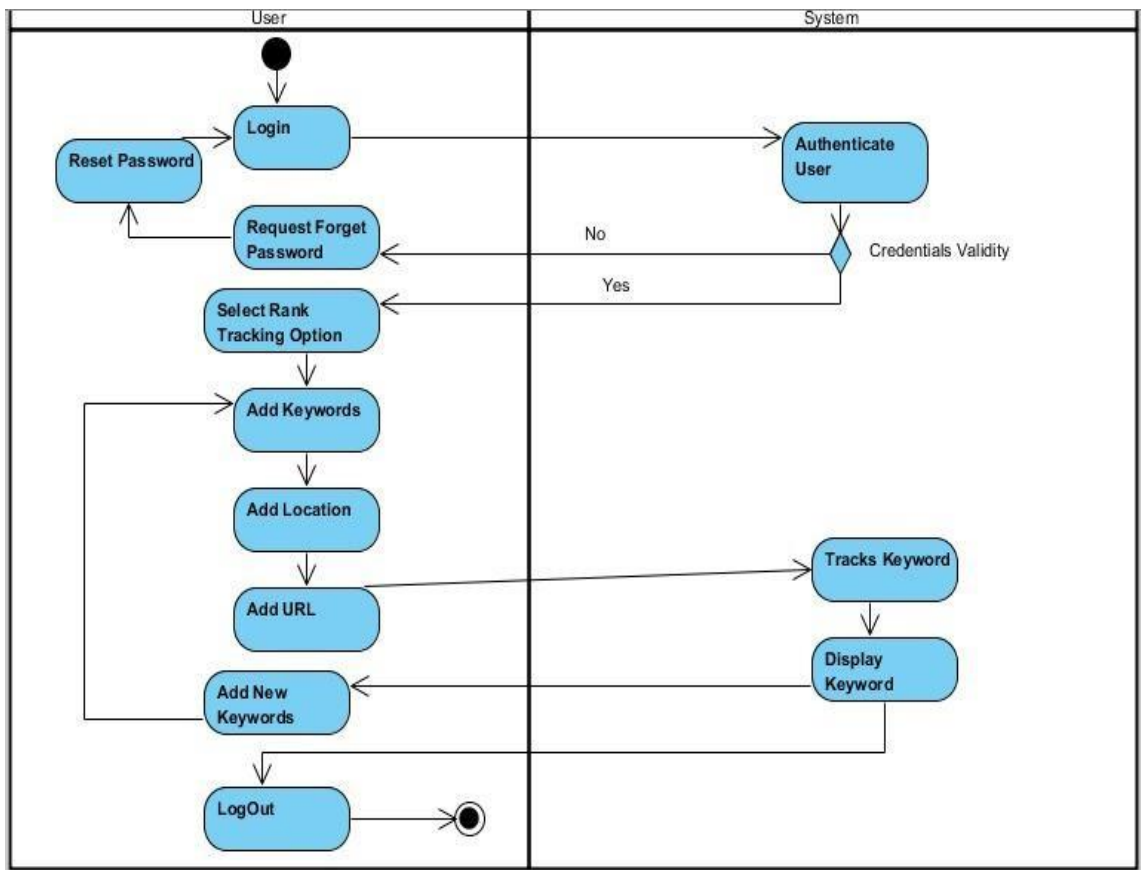


Figure 10 Activity Diagram - Rank Tracking

- **User** includes all the activities that will be performed by the user. When the user successfully logs in to the system and opts Rank Tracking option. Following activities are performed:
 - Add Keywords, Location and Site URL
 - The system tracks keywords and displays Keyword List.
 - User can add more keywords if he wants.

3.7.1.4. For Page Score:

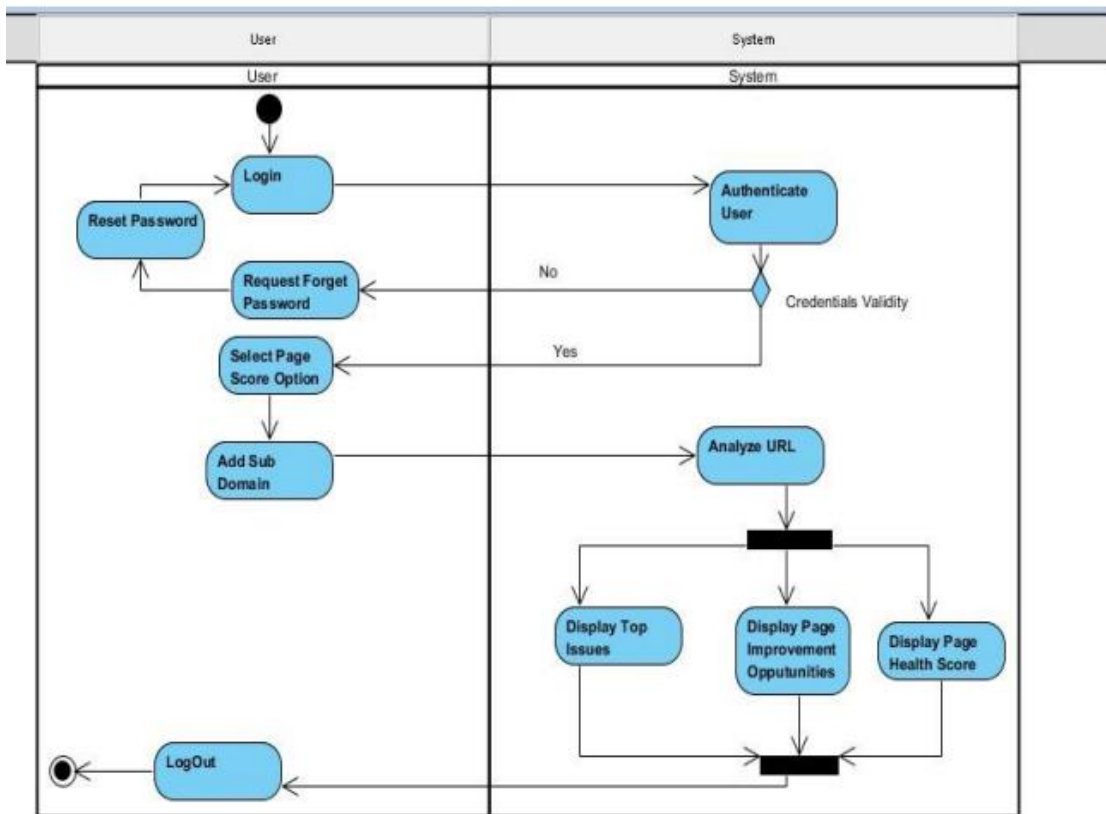


Figure 11 Activity Diagram - Page Score

- **User** includes all the activities that will be performed by the user. When the user successfully logs in to the system and opts Page Score options. Following activities are performed:
 - Add Sub Domain or Page URL.
 - The system Analyzes HTML elements of the page.
 - The system displays issues, page improvement opportunities, and overall, SEO scores.

3.7.1.5. For Profile Management by Admin:

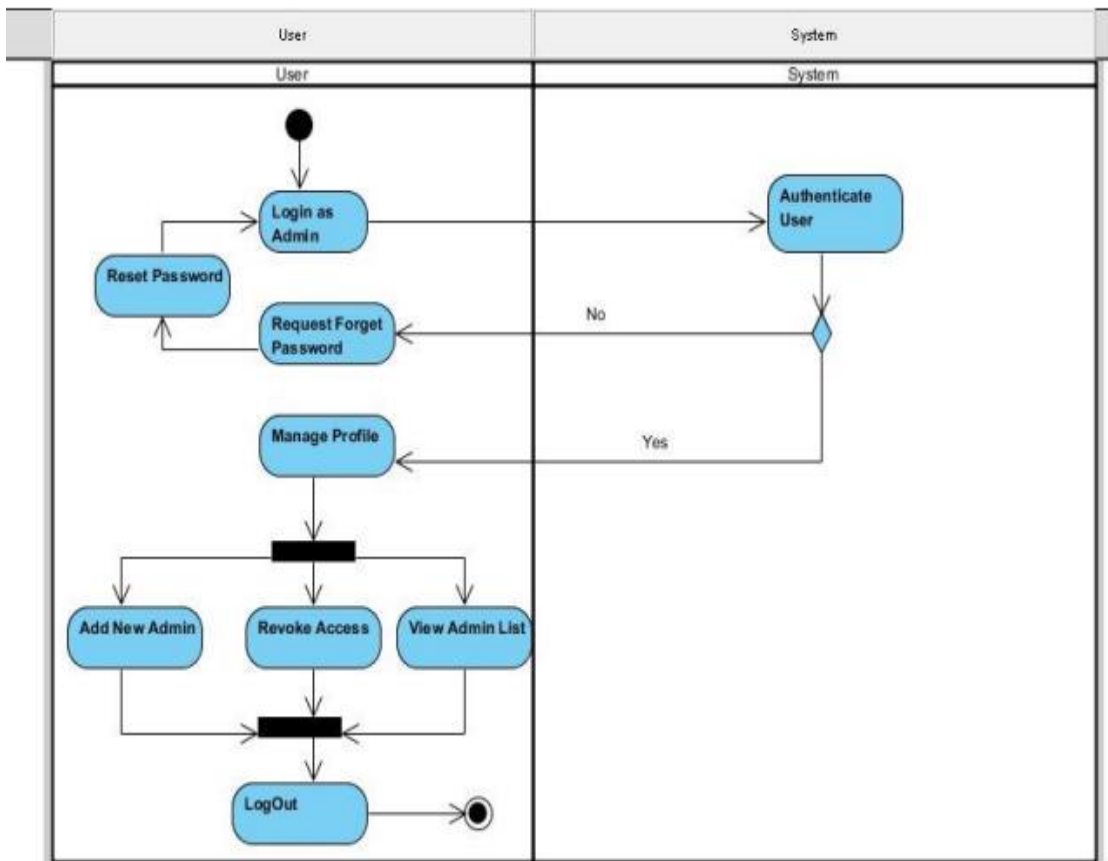


Figure 12 Activity Diagram - Profile Management by Admin

- **User** includes all the activities that will be performed by the admin. When admin successfully logs in to the system and opts Update Keywords options. Following activities are performed:
 - Users can add new admin.
 - Users can revoke access from existing users.
 - Users can view the admin list.

3.7.2. Sequence Diagram

3.7.3.1. For Log In:

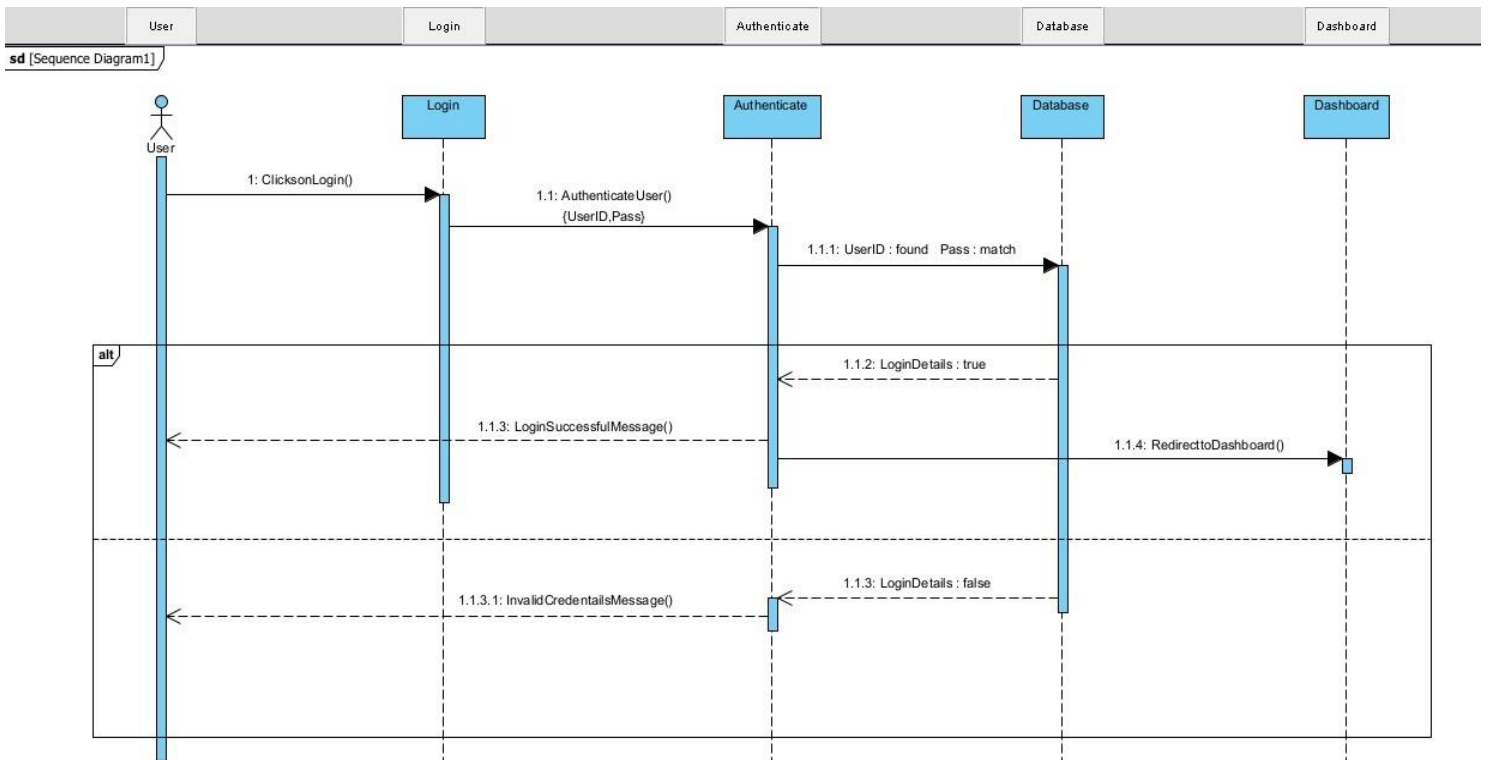


Figure 13 Sequence Diagram - Log In

The diagram shown in Figure 13 is the sequence diagram to log in as a user. This diagram shows the sequence between the objects of the user, Authenticate, Database, and User Dashboard.

- The user clicks on Login by entering the details.
- Authenticate matches the login details with DB.
 1. If, log in details match, the user is prompted with a success message and redirected to the Dashboard.
 2. Else, user is prompted with login failed message.

3.7.3.2. For Keyword Explorer:

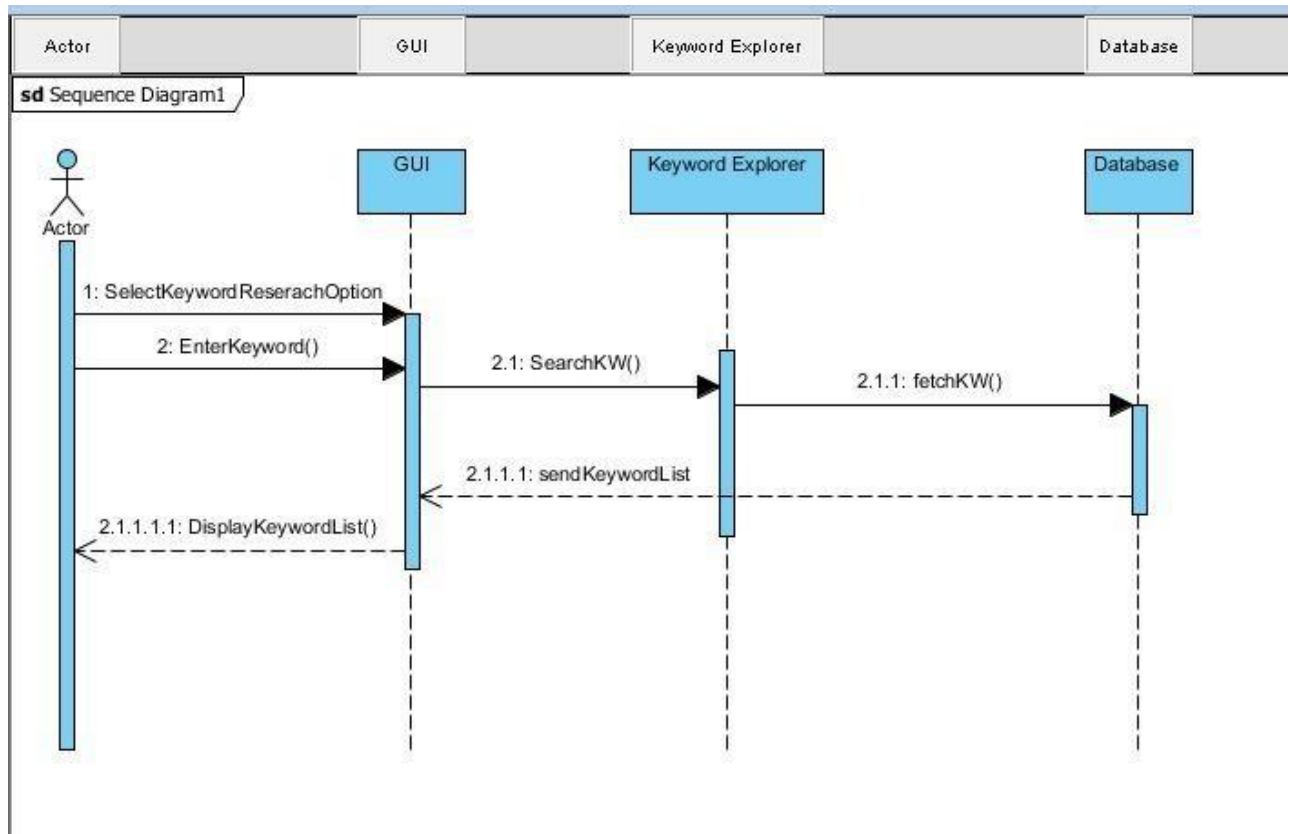


Figure 14 Sequence Diagram - Keyword Explorer

The diagram shown in Figure 14 is the sequence diagram to search a keyword. This diagram shows the sequence between the objects of the GUI, Keyword Explorer, and Database.

- The user clicks on Keyword Research Option and Enters a Keyword.
- Keyword Explorer object is triggered with the request.
- Keyword List is fetched from DB and the keyword list is displayed to end user.

3.7.3.3. For Site Audit:

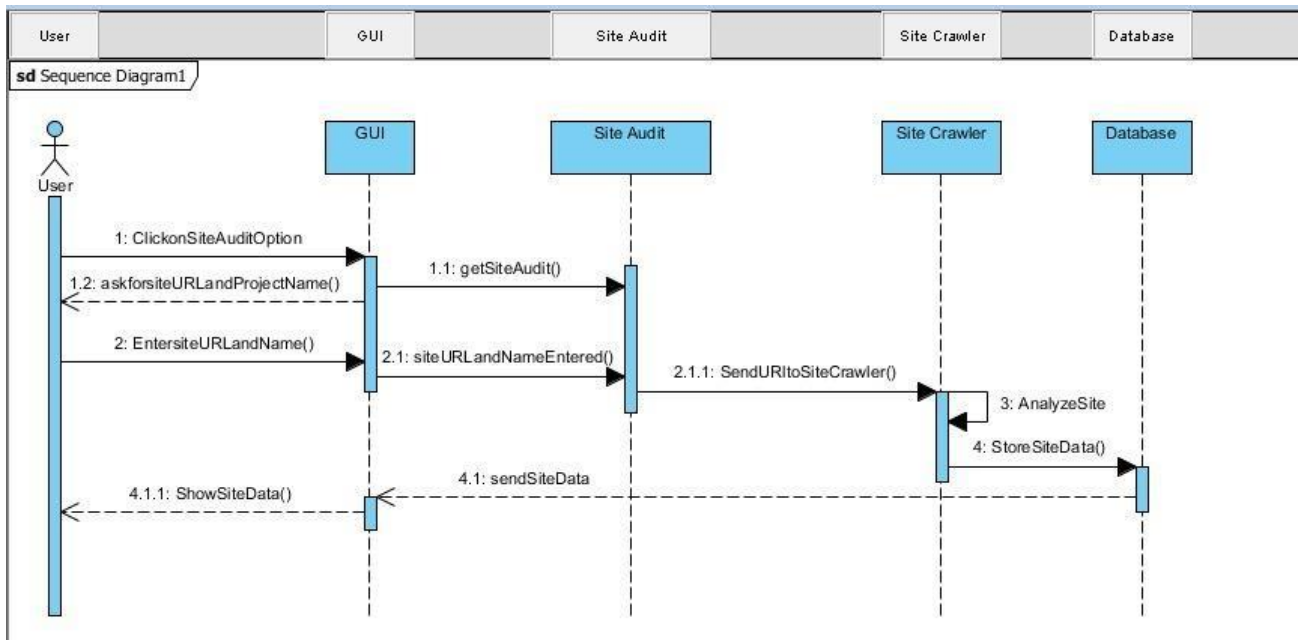


Figure 15 Sequence Diagram - Site Audit

The diagram shown in Figure 15 is the sequence diagram to perform a site audit. This diagram shows the sequence between the objects of the GUI, Site Audit, DB, and Site Crawler.

- The user clicks on the Site Audit Option and Enters a URL and project name.
- URL is sent to the site crawler and a request for the crawl is made.
- The crawler analyzes the site details and stores data in DB.
- DB sends data to GUI which is delivered to the user in a formatted manner.

3.7.3.4. For Rank Tracking:

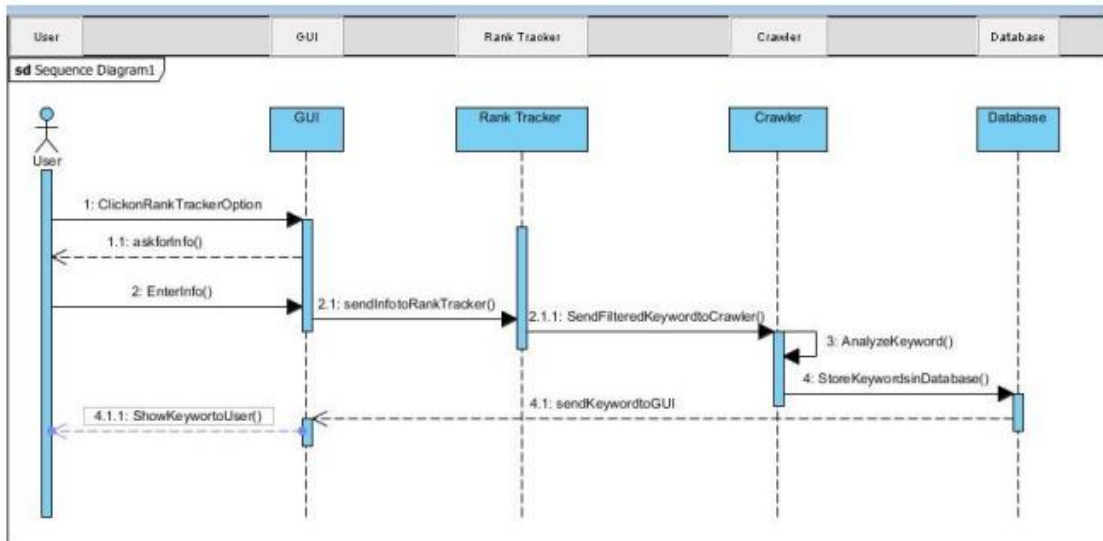


Figure 16 Sequence Diagram - Rank Tracking

The diagram shown in Figure 16 is the sequence diagram to perform rank tracking. This diagram shows the sequence between the objects of the GUI, Rank Tracker, DB, and Site Crawler.

- The user clicks on the Site Audit Option and Enters a URL and project name.
- URL is sent to the site crawler and a request for the crawl is made.
- Rank Tracker makes a crawl request to Crawler that analyzes keywords.
- Keyword Track information is sent to DB. It is then forwarded to the user.

3.7.3.5. For Page Score:

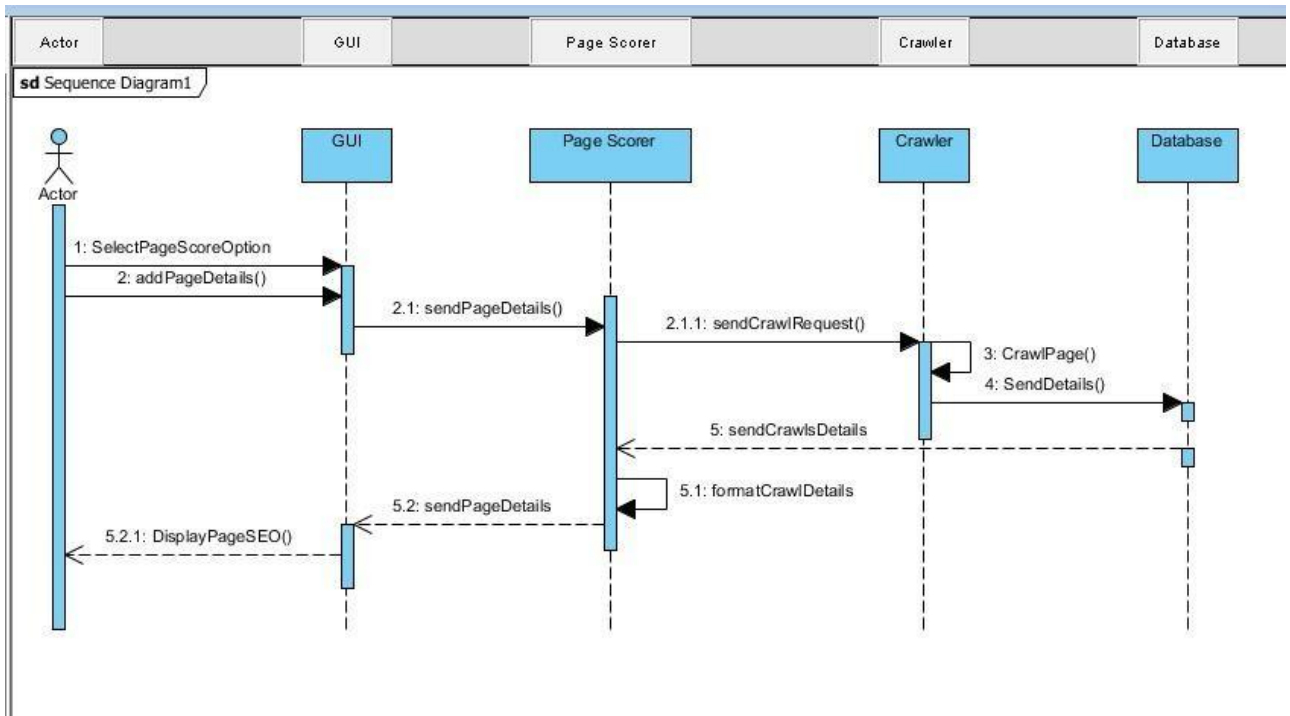


Figure 17 Sequence Diagram - Page Score

The diagram shown in Figure 17 is the sequence diagram to perform a page audit. This diagram shows the sequence between the objects of the GUI, Page Scorer, DB, and Site Crawler.

- The user clicks on the Page Score Option and Enters page details.
- URL is sent to the site crawler and a request for the crawl is made.
- The crawler analyzes the page HTML elements and stores data in DB.
- DB sends data to GUI which is delivered to the user in a formatted manner.

3.8. Conclusion

In this chapter, we have covered the requirements of our project. We have covered both functional and non-functional requirements of our project. We have discussed the interface requirements including hardware, software, and database requirements. We have also discussed the project feasibility by considering the technical, operational, and legal feasibility. We have included the analysis models of our project including activity diagram and sequence diagram.

Chapter 4

System Design

4.1. Design Approach

We have used the Object-Oriented Design (OOD) Approach that is a part of Object-Oriented Programming. OOD design uses an object methodology to design this web application. A project that uses OOD approach has better flow of program. This design approach is based on different classes and the interaction or link between those classes. Classes have unique names, attributes, and functions. Each class has any link or association with other class.

The main classes for our project SiteRush include:

- Admin
- User
- KW List
- Report
- Report
- Crawler

4.2. Design Constraints

- Python is used as programming language for developing SiteRush backend and React Js is used for developing frontend.
- Django Framework is used for backend development of SiteRush.
- React Js with material UI is used for frontend designing of SiteRush.
- MySQL is used as a database for storing and retrieving data.

4.3. System Architecture

SiteRush is web application which is following 3-tier architecture.

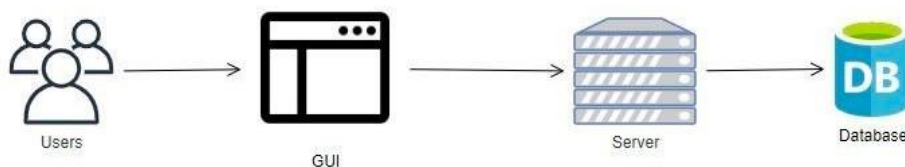


Figure 18 System Architecture - SiteRush

4.4. Logical Design

4.4.1. Domain Model

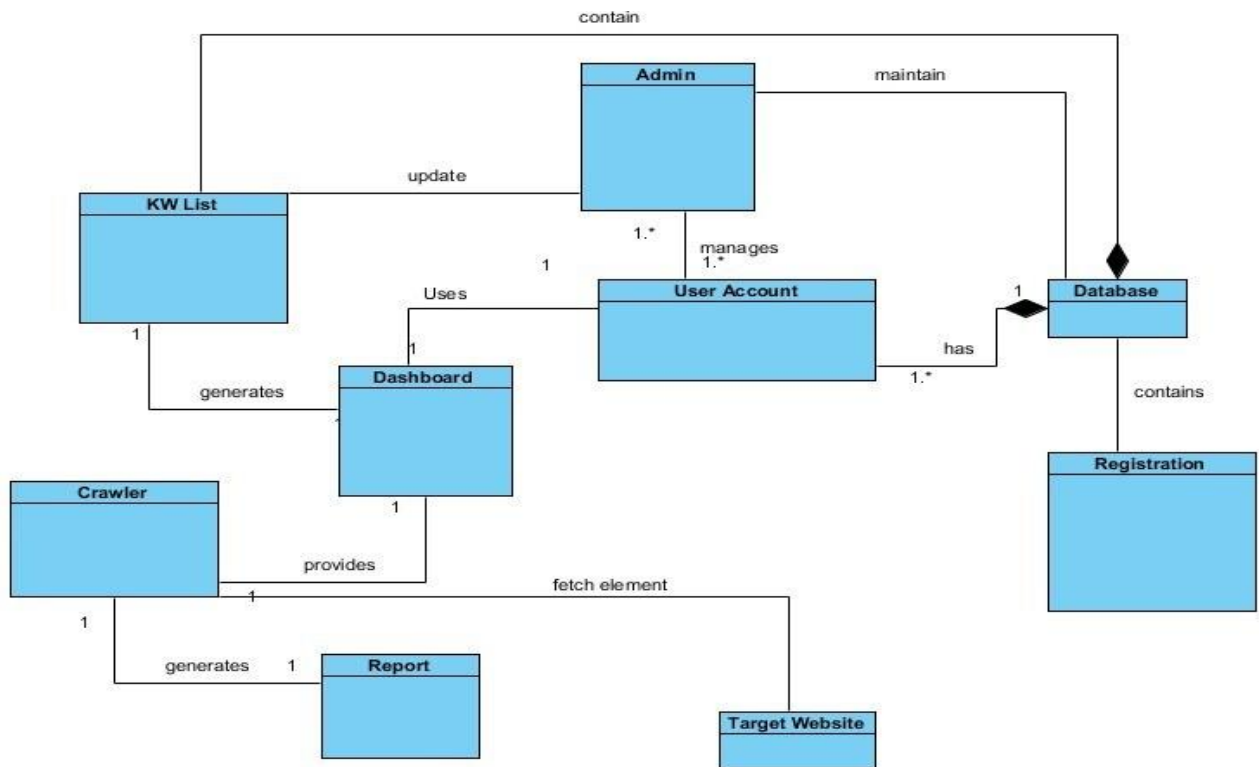


Figure 19 Domain Model - SiteRush

It includes.

- KW List Class
- Admin Class
- User Account Class
- Crawler Class
- Registration Class

Important Relations:

- Admin & KW List: Admin Updates (Delete/Add) Keywords.
- User Account & Dashboard: The authenticated User uses functionality on the Dashboard.
- Crawler & Report: Crawler generates a report.
- Crawler & Target Website: Crawler fetches HTML elements from Target Website.

4.4.2. Class Diagram

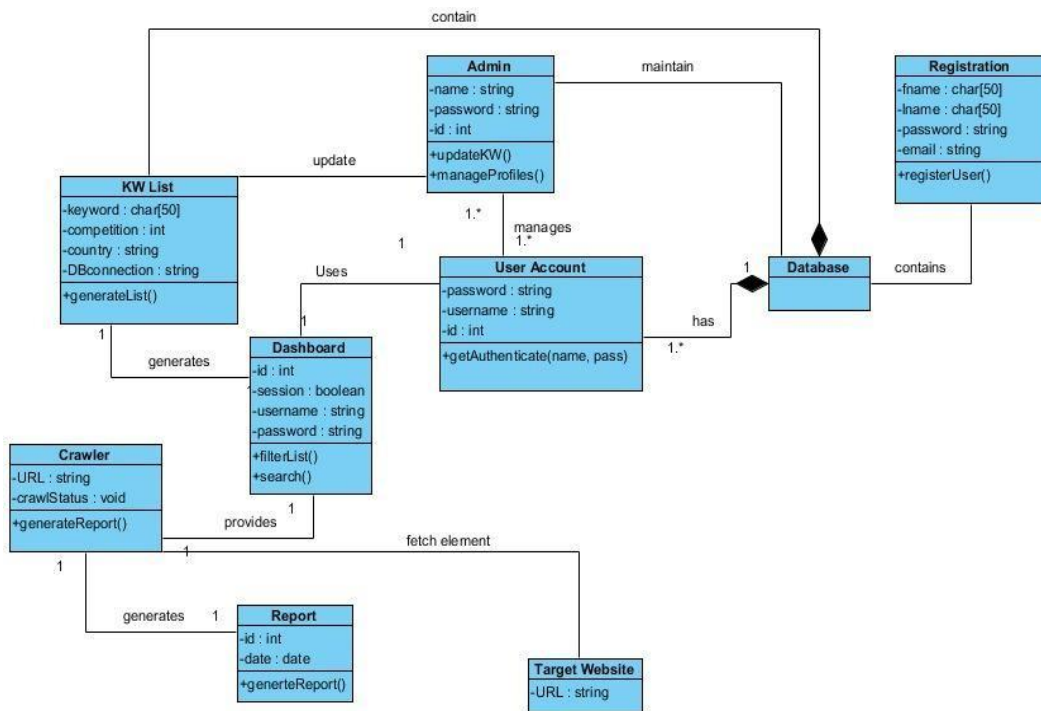


Figure 20 Class Diagram - SiteRush

- **Admin class includes**
 - **Attribute:** name(char), password(string), id(int)
 - **Functions:** updateKW() and manageProfile()
- **KW List class includes**
 - **Attribute:** keyword(string), competition(int), country(char)
 - **Functions:** generateList() – To Generate Keyword List
- **Crawler class includes**
 - **Attribute:** URL(string), crawlStatus(boolean)
 - **Functions:** generatereport()
- **Dashboard class includes**
 - **Attribute:** id(int), session(boolean), username(char), password(string)
 - **Functions:** filterList() and search()
- **Report class includes**
 - **Attribute:** id(int), date(date)
 - **Functions:** generateReport()
- **Registration class includes**
 - **Attribute:** fname(char), lname(char), password(string), email(string)
 - **Functions:** RegisterUser()

4.5. Dynamic View

4.5.1. Activity Diagram

4.5.1.1. For Keyword Explorer:

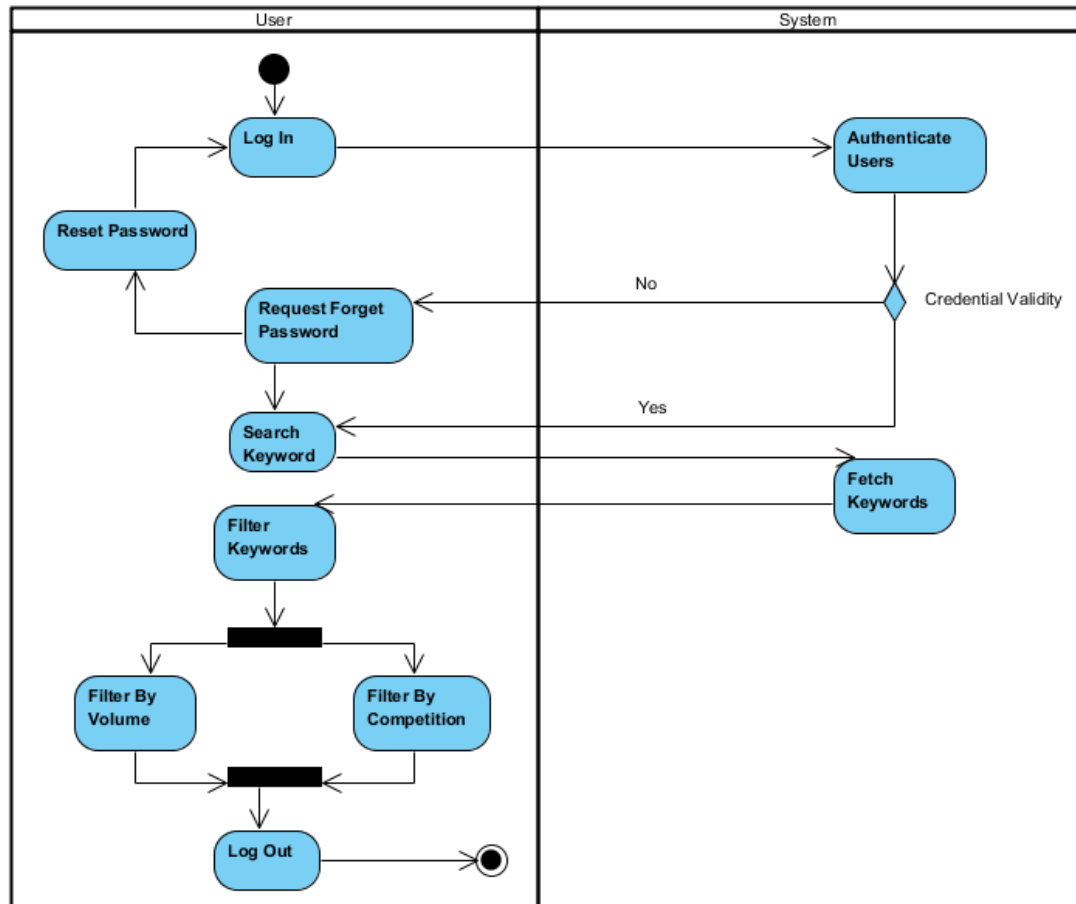


Figure 21 Activity Diagram - Keyword Explorer

- **User** includes all the activities that will be performed by the user. When user successfully logs in to the system and opts keyword explorer. Following activities are performed:
 - Search Keyword
 - System Fetches Keyword according to the Search.
 - User is displayed list and now can filter keywords by Competition or Volume.

4.5.1.2. For Site Audit:

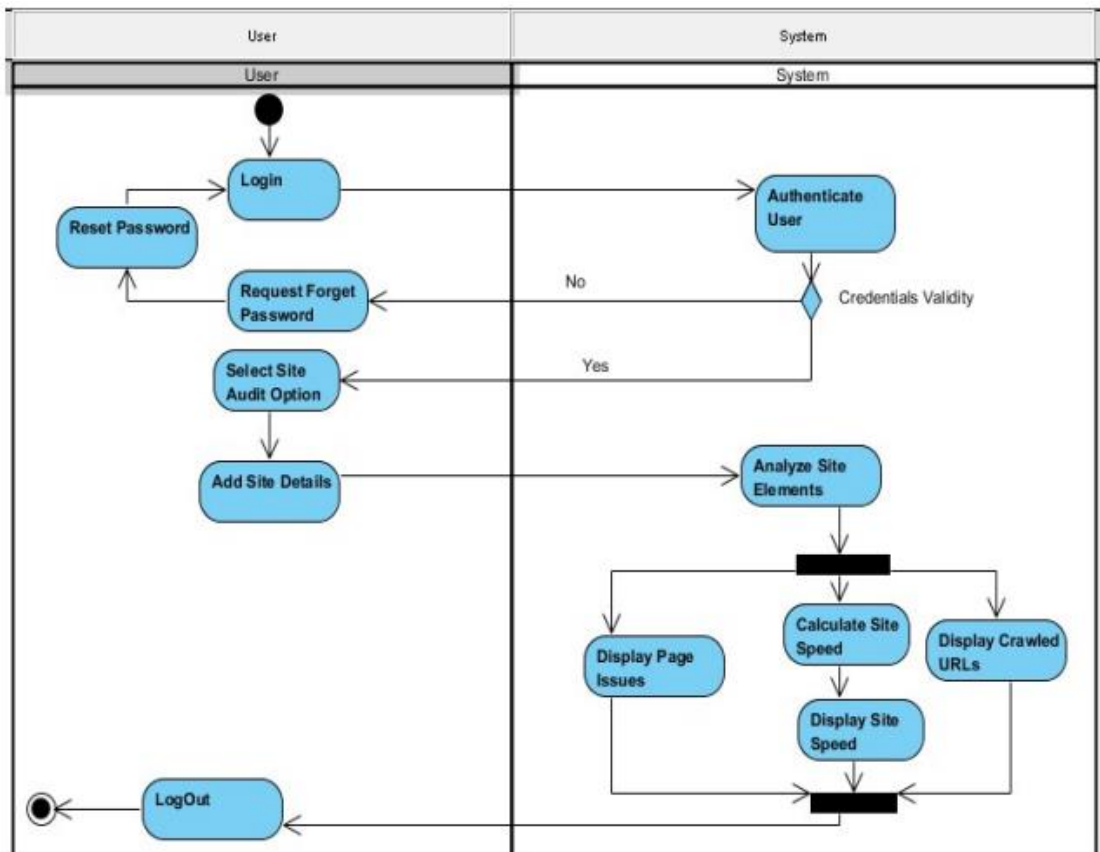


Figure 22 Activity Diagram - Site Audit

- **User** includes all the activities that will be performed by the user. When user successfully logs in to the system and opts site audit. Following activities are performed:
 - Add Site Details
 - The system analyzes site elements. It displays page issues, crawled URLs, and site speed.

4.5.1.3. For Rank Tracking:

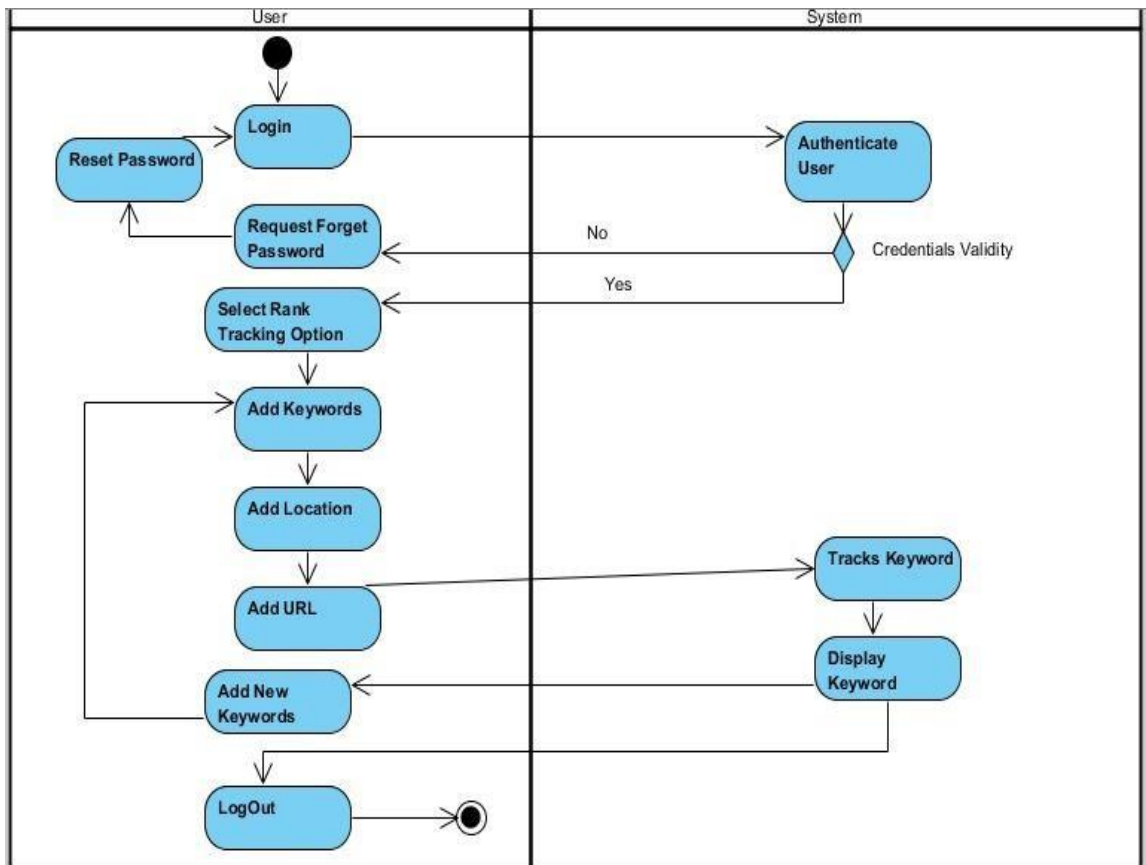


Figure 23 Activity Diagram - Rank Tracking

- **User** includes all the activities that will be performed by the user. When the user successfully logs in to the system and opts Rank Tracking option. Following activities are performed:
 - Add Keywords, Location and Site URL
 - The system tracks keywords and displays Keyword List.
 - User can add more keywords if he wants.

4.5.1.4. For Page Score:

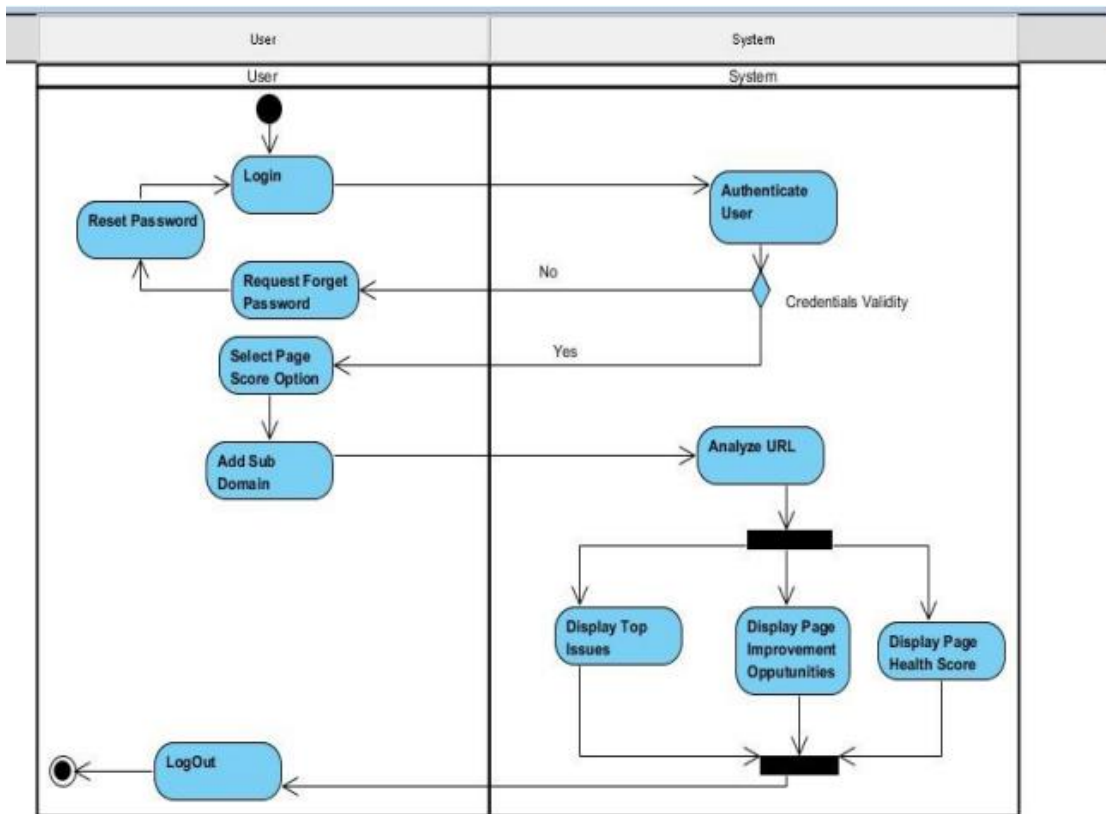


Figure 24 Activity Diagram - Page Score

- **User** includes all the activities that will be performed by the user. When the user successfully logs in to the system and opts Page Score options. Following activities are performed:
 - Add Sub Domain or Page URL.
 - The system Analyzes HTML elements of the page.
 - The system displays issues, page improvement oppotunities, and overall, SEO scores.

4.5.1.5. For Profile Management by Admin:

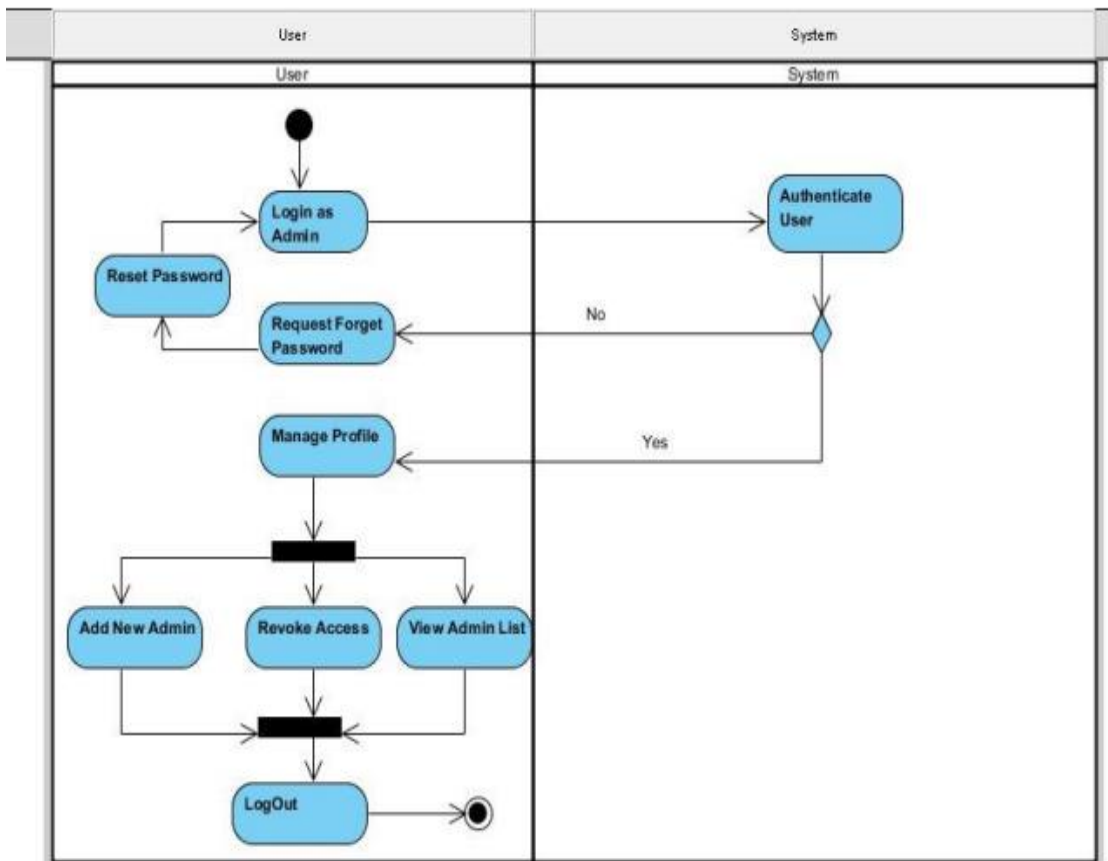


Figure 25 Activity Diagram - Profile Management by Admin

- **User** includes all the activities that will be performed by the admin. When admin successfully logs in to the system and opts Update Keywords options. Following activities are performed:
 - Users can add new admin.
 - Users can revoke access from existing users.
 - Users can view the admin list.

4.5.2. Sequence Diagram

4.5.2.1. For Log In:

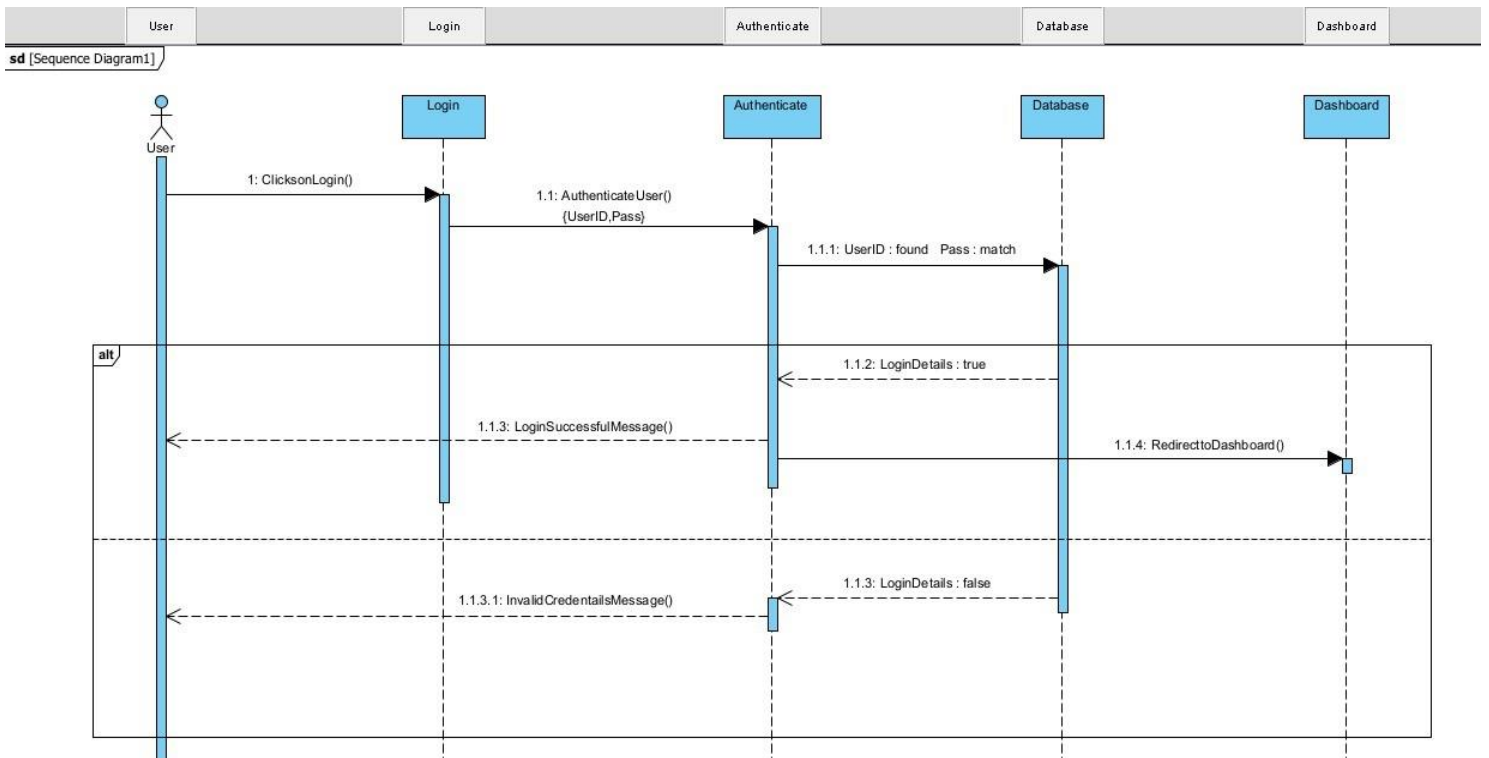


Figure 26 Sequence Diagram - Log In

The diagram shown in Figure 26 is the sequence diagram to log in as a user. This diagram shows the sequence between the objects of the user, Authenticate, Database, and User Dashboard.

- The user clicks on Login by entering the details.
- Authenticate matches the login details with DB.
- 3. If, log in details match, the user is prompted with a success message and redirected to the Dashboard.
- 4. Else, user is prompted with login failed message.

4.5.2.2. For Keyword Explorer:

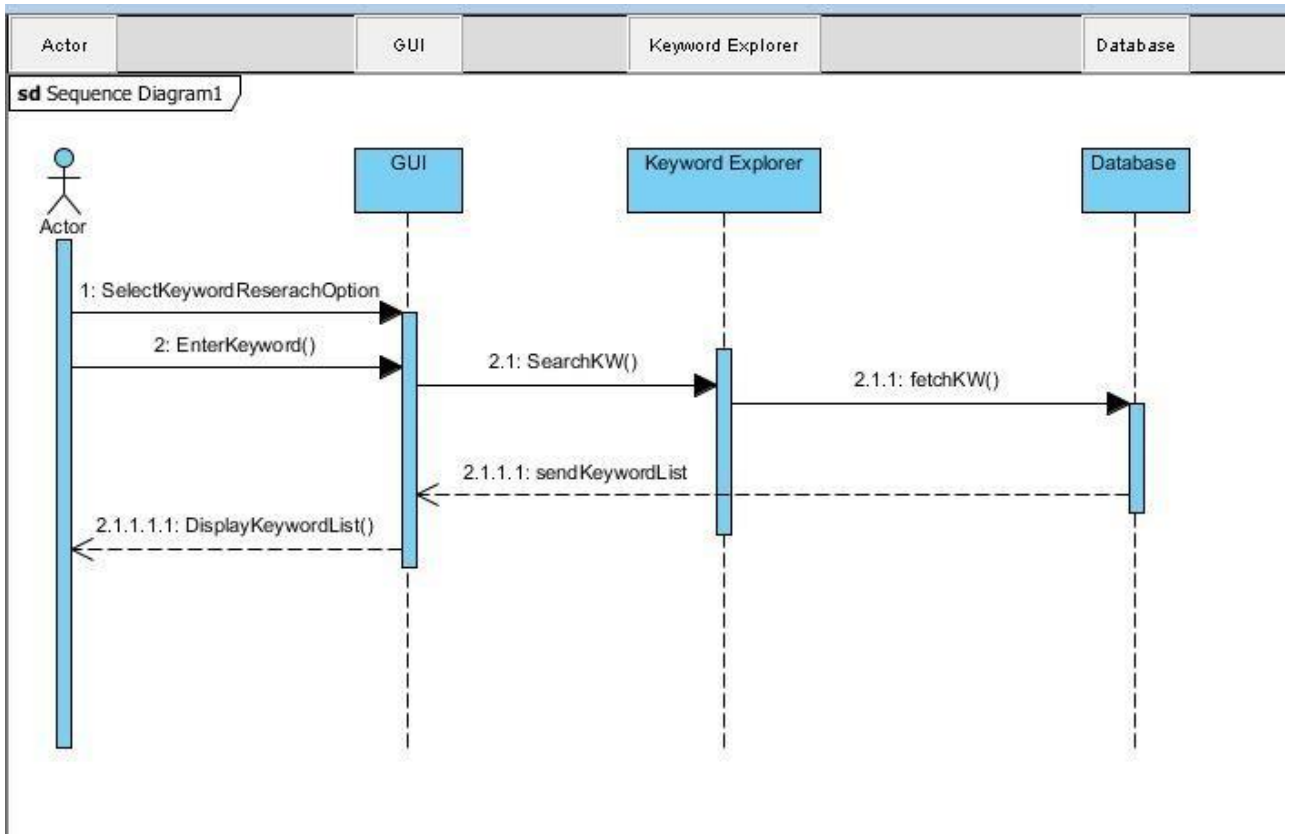


Figure 27 Sequence Diagram - Keyword Explorer

The diagram shown in Figure 27 is the sequence diagram to search a keyword. This diagram shows the sequence between the objects of the GUI, Keyword Explorer, and Database.

- The user clicks on Keyword Research Option and Enters a Keyword.
- Keyword Explorer object is triggered with the request.
- Keyword List is fetched from DB and the keyword list is displayed to end user.

4.5.2.3. For Site Audit:

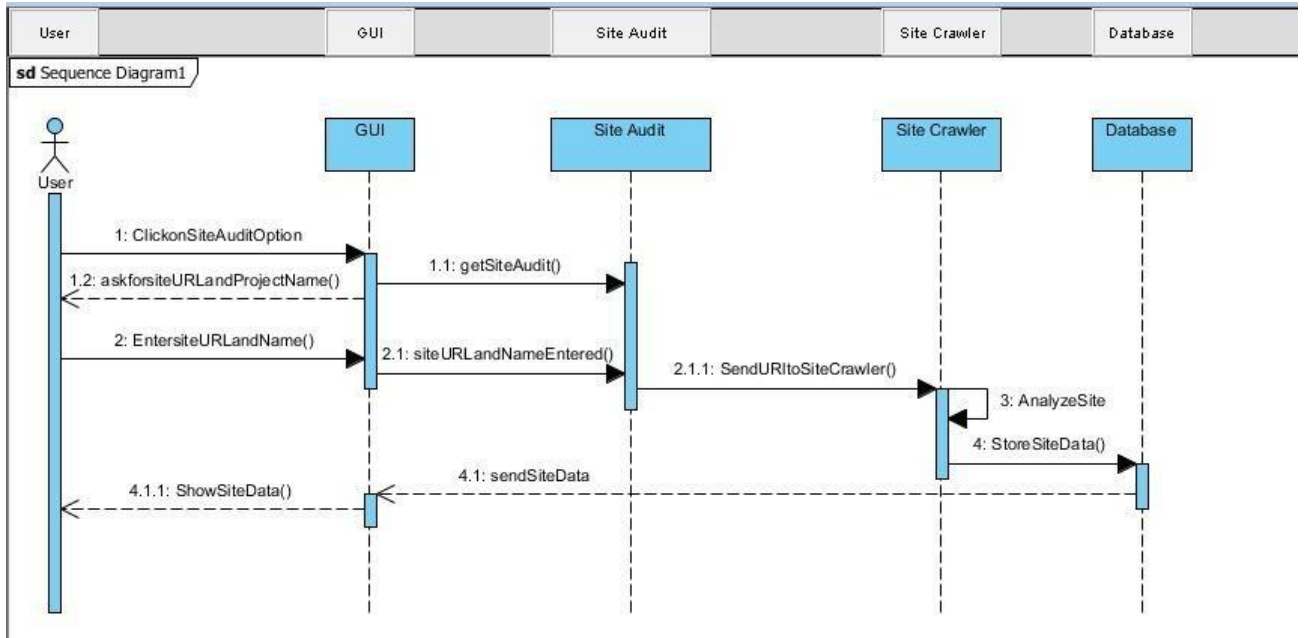


Figure 28 Sequence Diagram - Site Audit

The diagram shown in Figure 28 is the sequence diagram to perform a site audit. This diagram shows the sequence between the objects of the GUI, Site Audit, DB, and Site Crawler.

- The user clicks on the Site Audit Option and Enters a URL and project name.
- URL is sent to the site crawler and a request for the crawl is made.
- The crawler analyzes the site details and stores data in DB.
- DB sends data to GUI which is delivered to the user in a formatted manner.

4.5.2.4. For Rank Tracking:

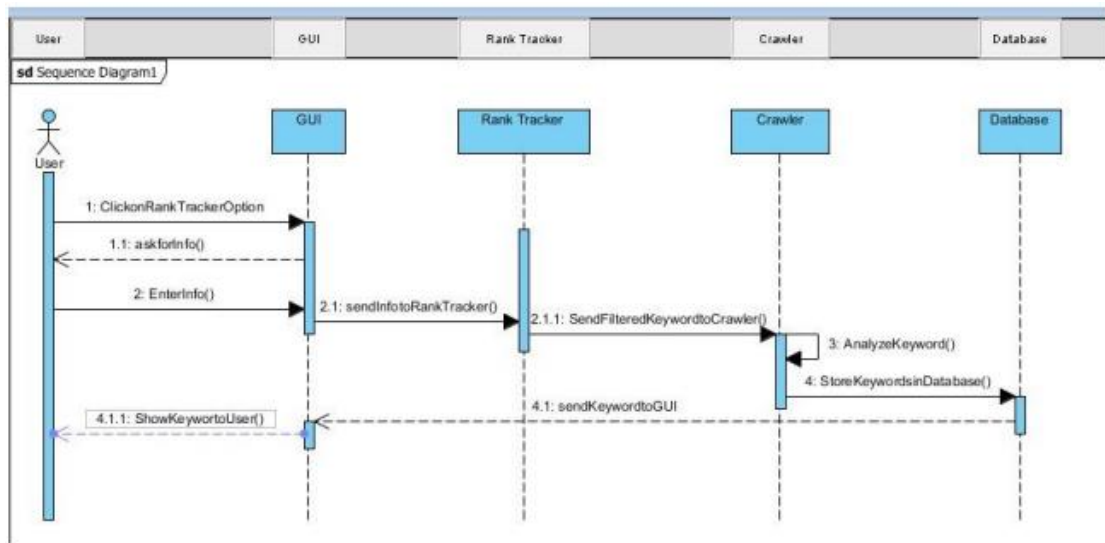


Figure 29 Sequence Diagram - Rank Tracking

The diagram shown in Figure 29 is the sequence diagram to perform rank tracking. This diagram shows the sequence between the objects of the GUI, Rank Tracker, DB, and Site Crawler.

- The user clicks on the Site Audit Option and Enters a URL and project name.
- URL is sent to the site crawler and a request for the crawl is made.
- Rank Tracker makes a crawl request to Crawler that analyzes keywords.
- Keyword Track information is sent to DB. It is then forwarded to the user.

4.5.2.5. For Page Score:

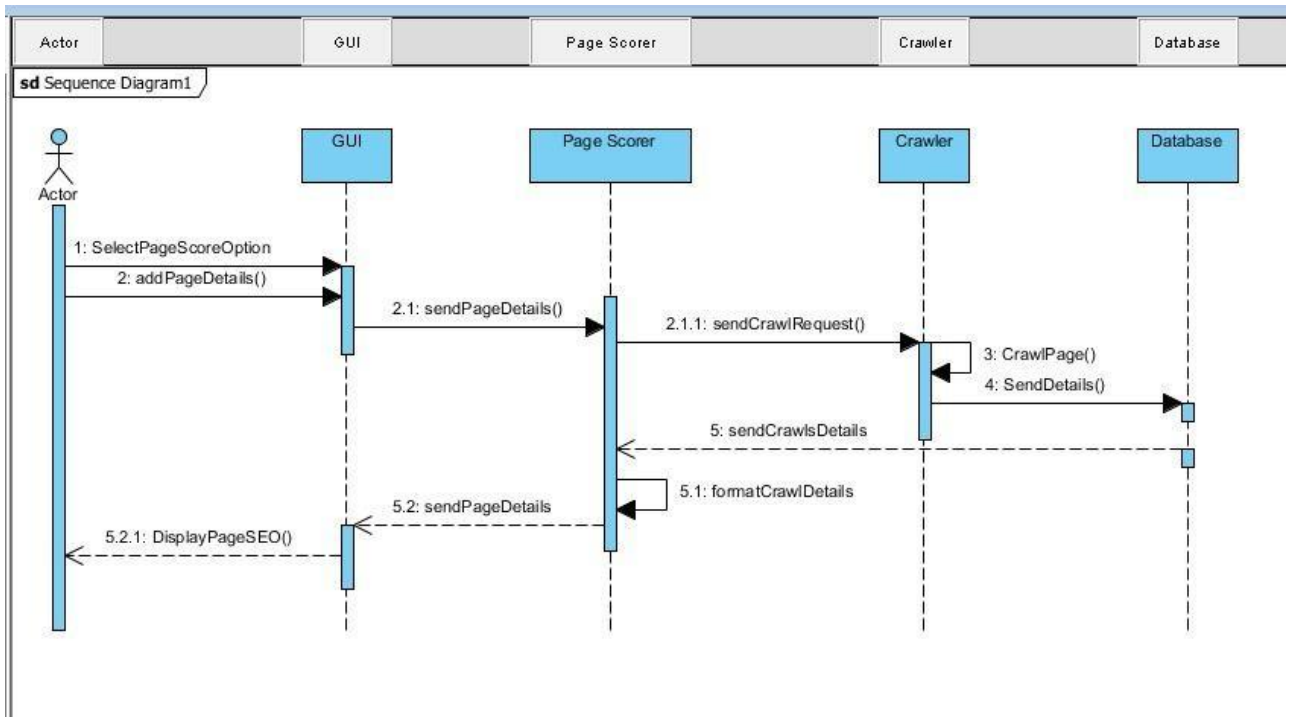


Figure 30 Sequence Diagram - Page Score

The diagram shown in Figure 30 is the sequence diagram to perform a page audit. This diagram shows the sequence between the objects of the GUI, Page Scorer, DB, and Site Crawler.

- The user clicks on the Page Score Option and Enters page details.
- URL is sent to the site crawler and a request for the crawl is made.
- The crawler analyzes the page HTML elements and stores data in DB.
- DB sends data to GUI which is delivered to the user in a formatted manner.

4.8. Component Design

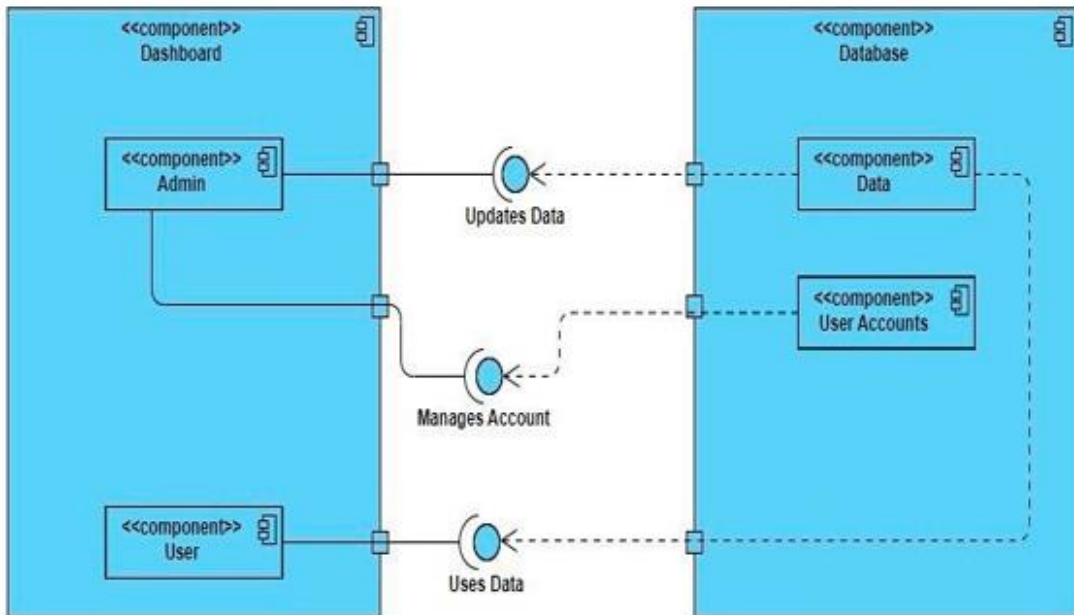


Figure 31 Component Diagram - SiteRush

- **Components**
 - Admin
 - User
 - User Account
 - Data
- **Provided information:**
 - Updates Data
 - Manages Account
 - Uses Data

4.8.1. Deployment Diagram:

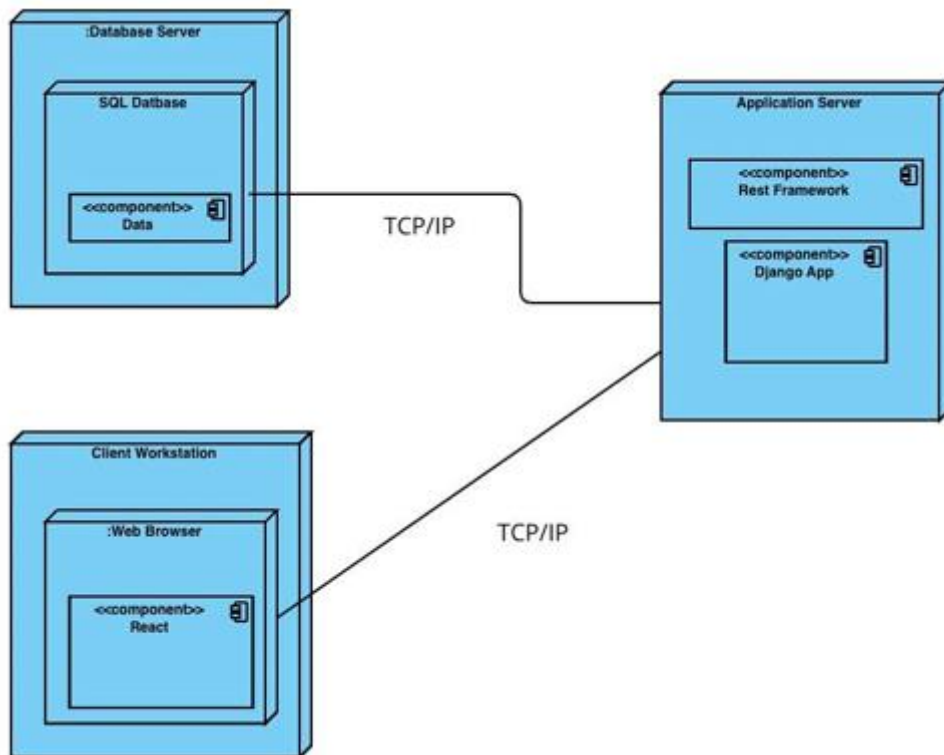


Figure 32 Deployment Diagram - SiteRush

Devices:

- Database Server
- Web Server
- Client Workstation

Execution Environment:

- SQL Database
- Web Browser

Artifacts:

- Data Banks
- Django App
- React Frontend Application
- Rest Framework

4.9. Data Models

4.9.1. ER Diagram

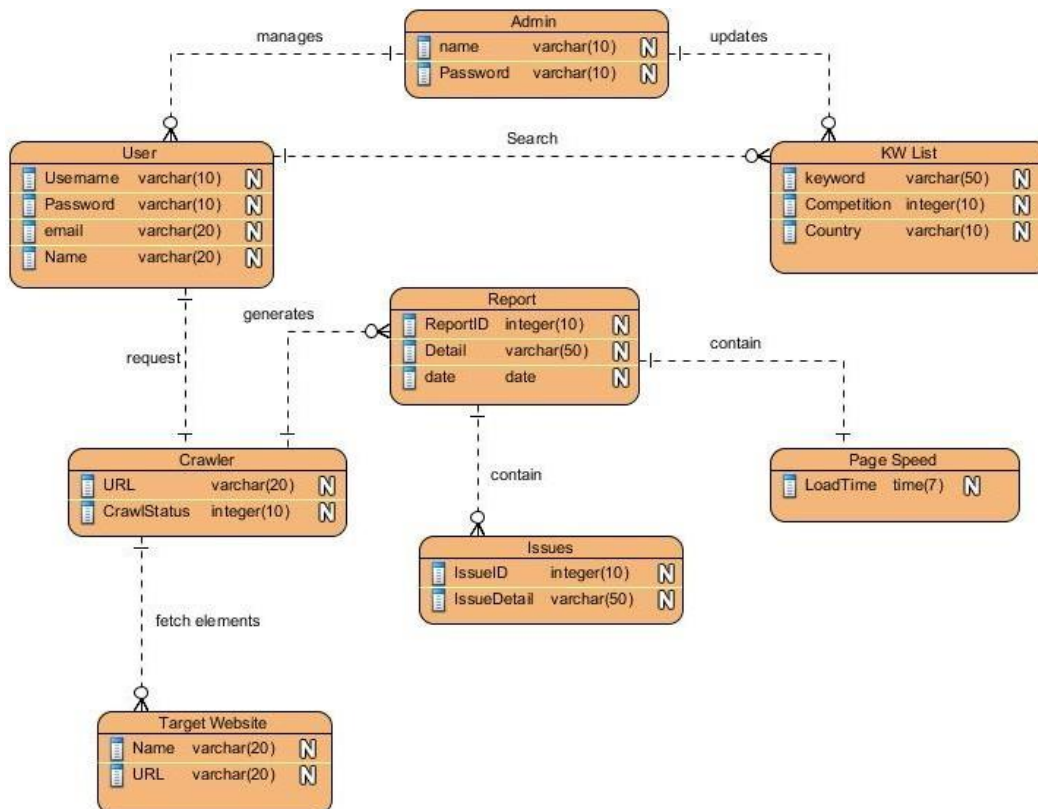


Figure 33 ER Diagram - SiteRush

The diagram shown in Figure 33 is the ER diagram of whole System.

- **Attributes:**
 - **Admin:** name(char), password(string), id(int)
 - **KW List:** keyword(string), competition(int), country(char)
 - **Crawler:** URL (string), crawlStatus(boolean)
 - **Dashboard:** id(int), session(boolean), username(char), password(string)
 - **Report:** id(int), date(date)
 - **Registration:** name(char), lname(char), password(string), email(string)
- **Relations:**
 - **Crawler & Target Website** – One-to-Many Relationship
 - **User & Crawler** - One-to-One Relationship
 - **Report & Issues** - One-to-Many Relationship
 - **Admin & Keyword List** - One-to-Many Relationship

4.10. User Interface Design

SiteRush must have following pages for users:

- **Log in Interface**
 - The user needs to add a valid username or email address and password to login to SiteRush.
 - Forgot Password button is provided to reset the password.
 - If the user is not yet signed up, the ‘Sign Up’ button will get the necessary details and register use.

—

Log in to SiteRush
Enter your email and password below

EMAIL
Email address

PASSWORD
Password [Forgot password?](#)

Log In

Don't have an account? [Sign up](#)

Figure 34 High Fidelity - Log In

- **Dashboard Interface**
 - After a successful login, a user is directed to the main dashboard.
 - A list of all active projects is present with necessary details like project details, site name, crawl date, and site score.
 - Users can navigate to other functionalities or Add New Projects from the dashboard.

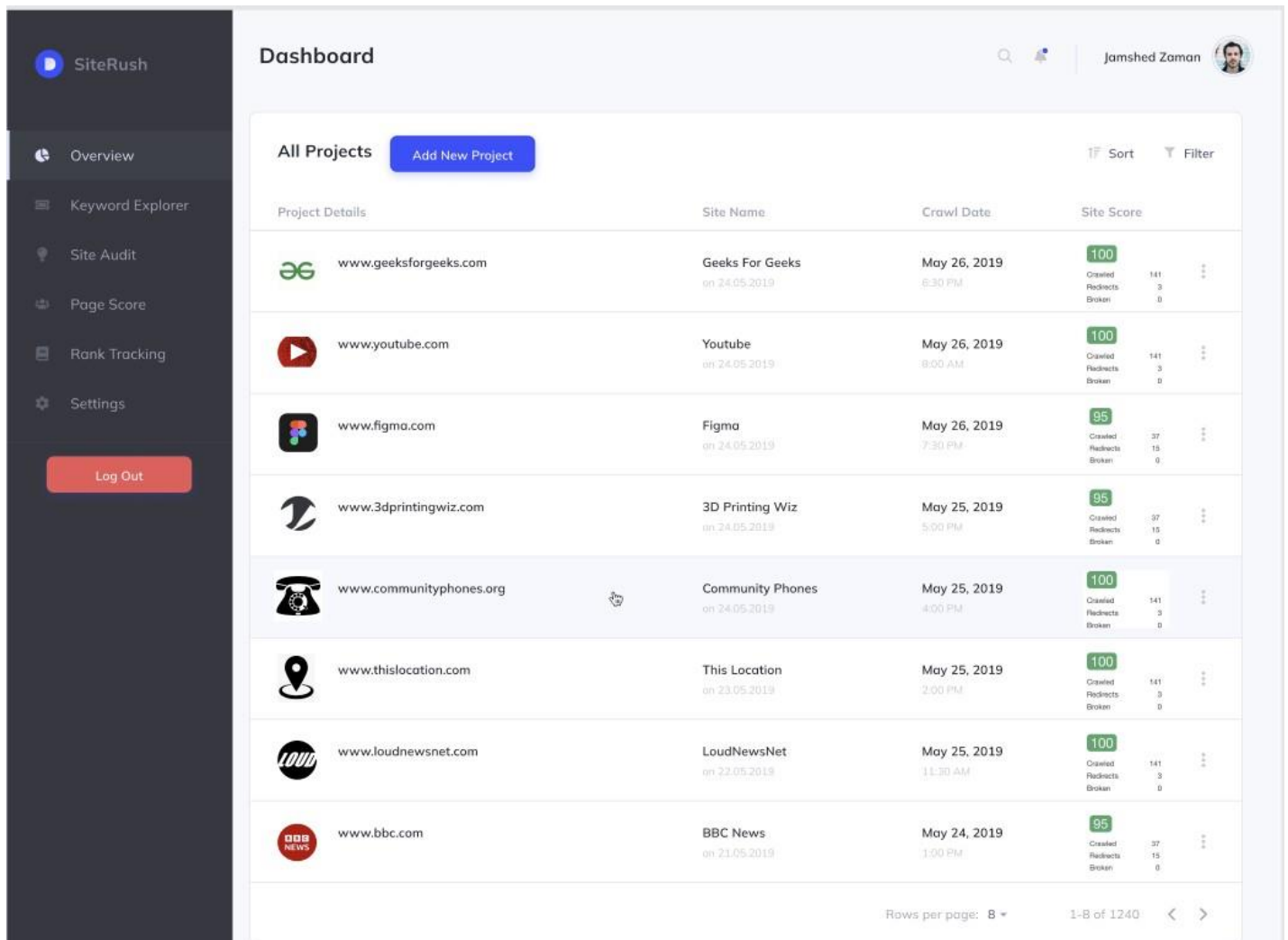


Figure 35 High Fidelity - Dashboard

- **Rank Tracking Dashboard**
 - Rank Tracking Dashboard contains all the existing projects and their keyword tracking overview.
 - Important metrics like average position, total keyword and visibility are shown in the dashboard.
 - Users can select a project to open up a detailed ranking volatility.

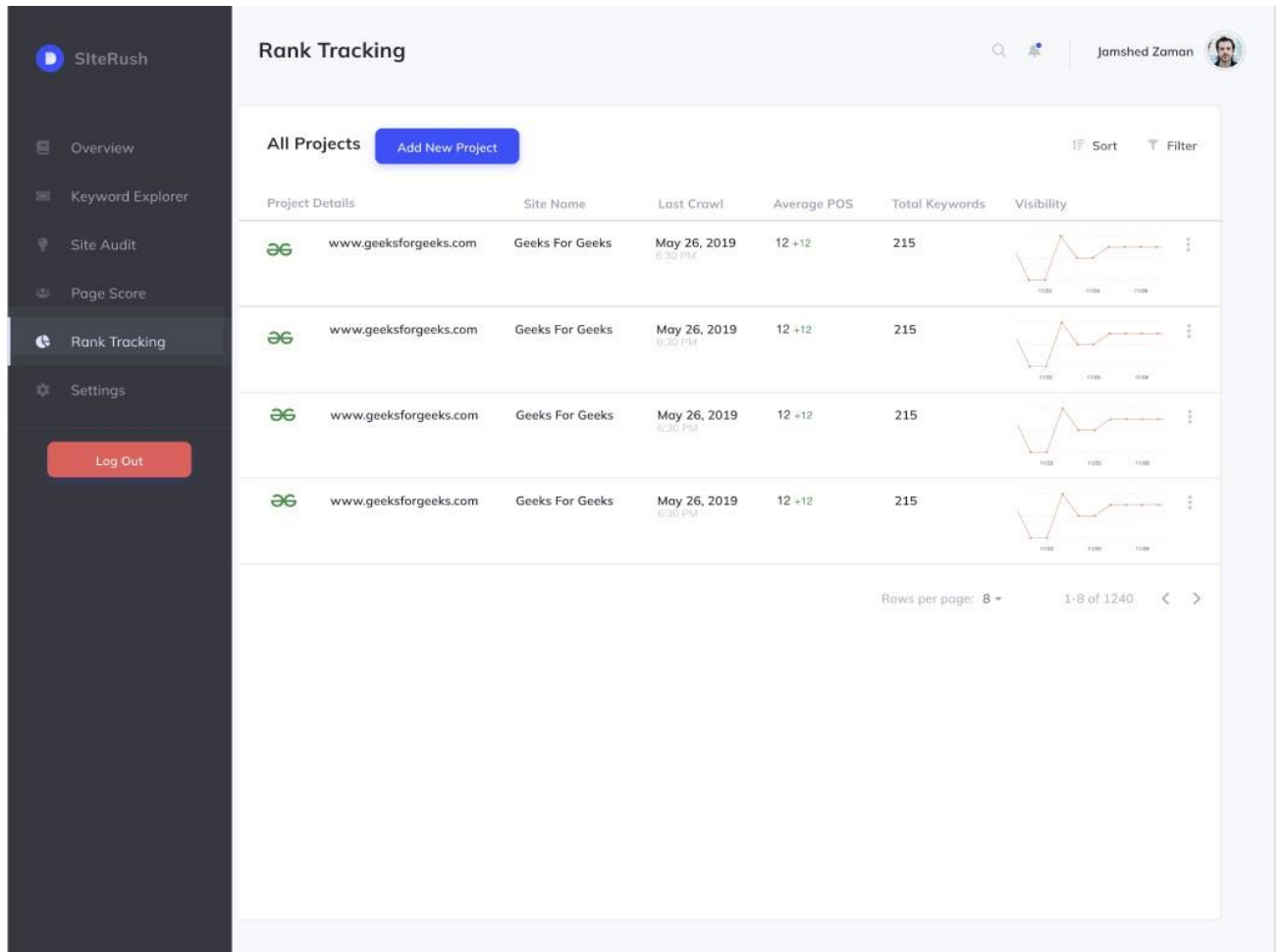


Figure 36 High Fidelity - Rank Tracking Dashboard

- **Site Audit Dashboard**

- Site Audit shows important project details like URLs crawled, health score, crawl date etc.
- Users can select a project to get a detailed overview of SWOT analysis done by the system.

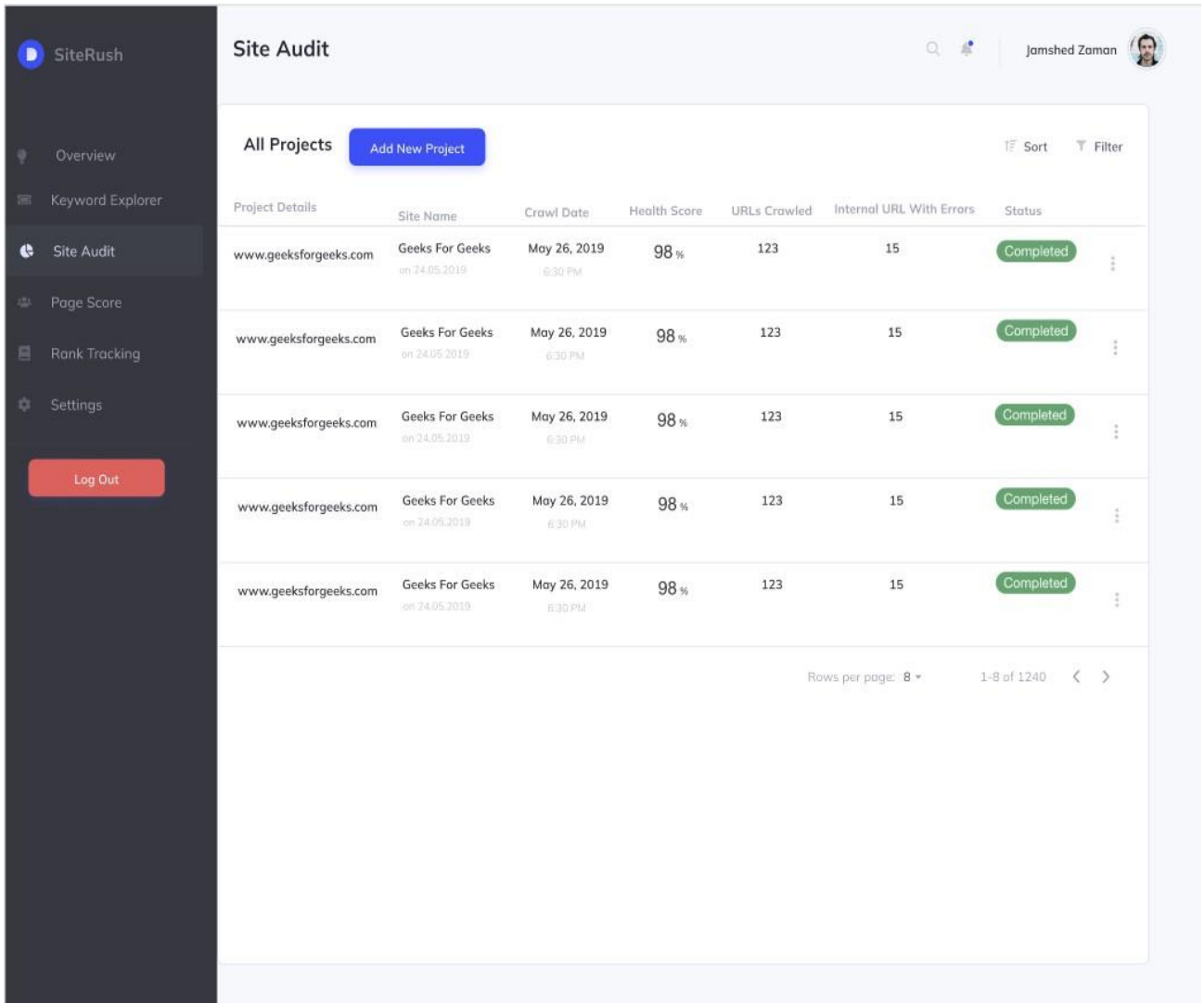


Figure 37 High Fidelity - Site Audit Dashboard

- **Site Audit for Target Website**
 - Site Audit ranks the site based on known ranking factors. It discovers issues, and warnings to the user’s website.
 - A detailed breakdown of problems, their description, priority, etc.

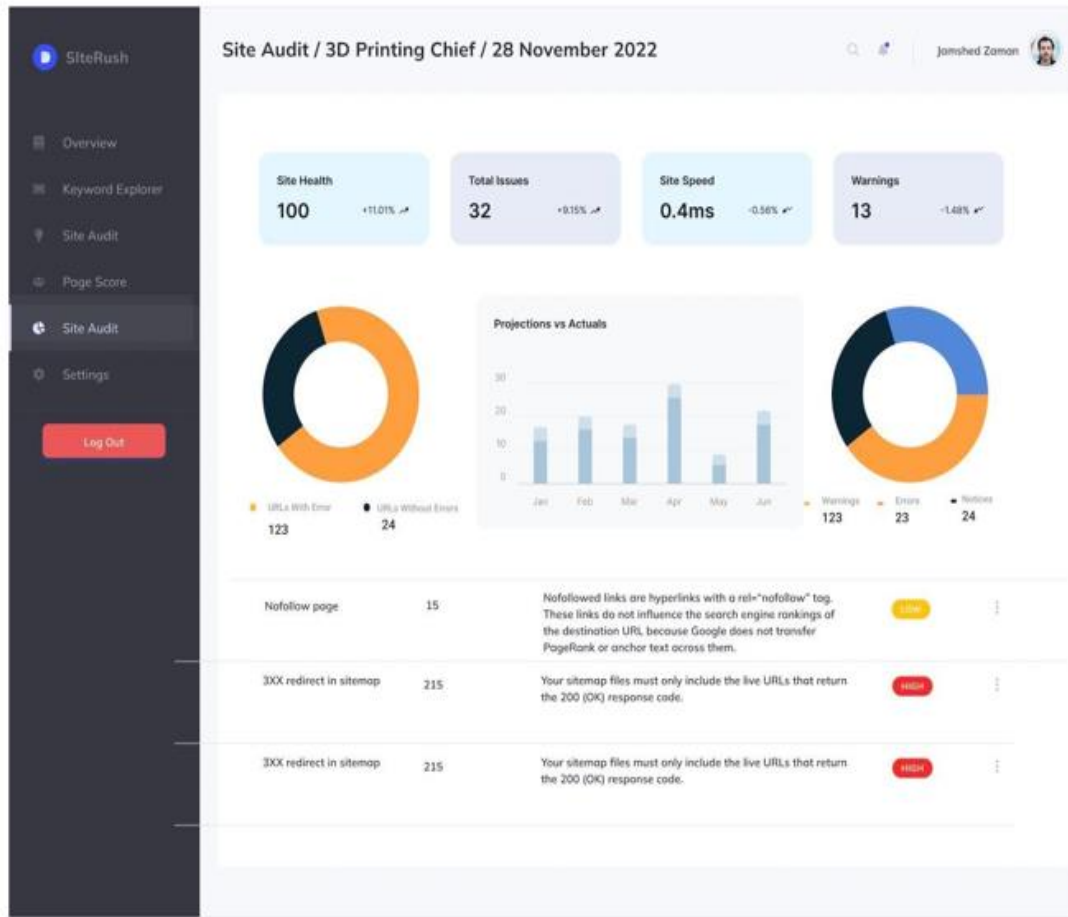


Figure 38 High Fidelity - Site Audit for Target Website

- **Keyword Explorer**
 - Keyword Explorer is used to searching keywords and generate semantically related keywords.
 - SiteRush provides a detailed overview of keyword chances of ranking for your website.

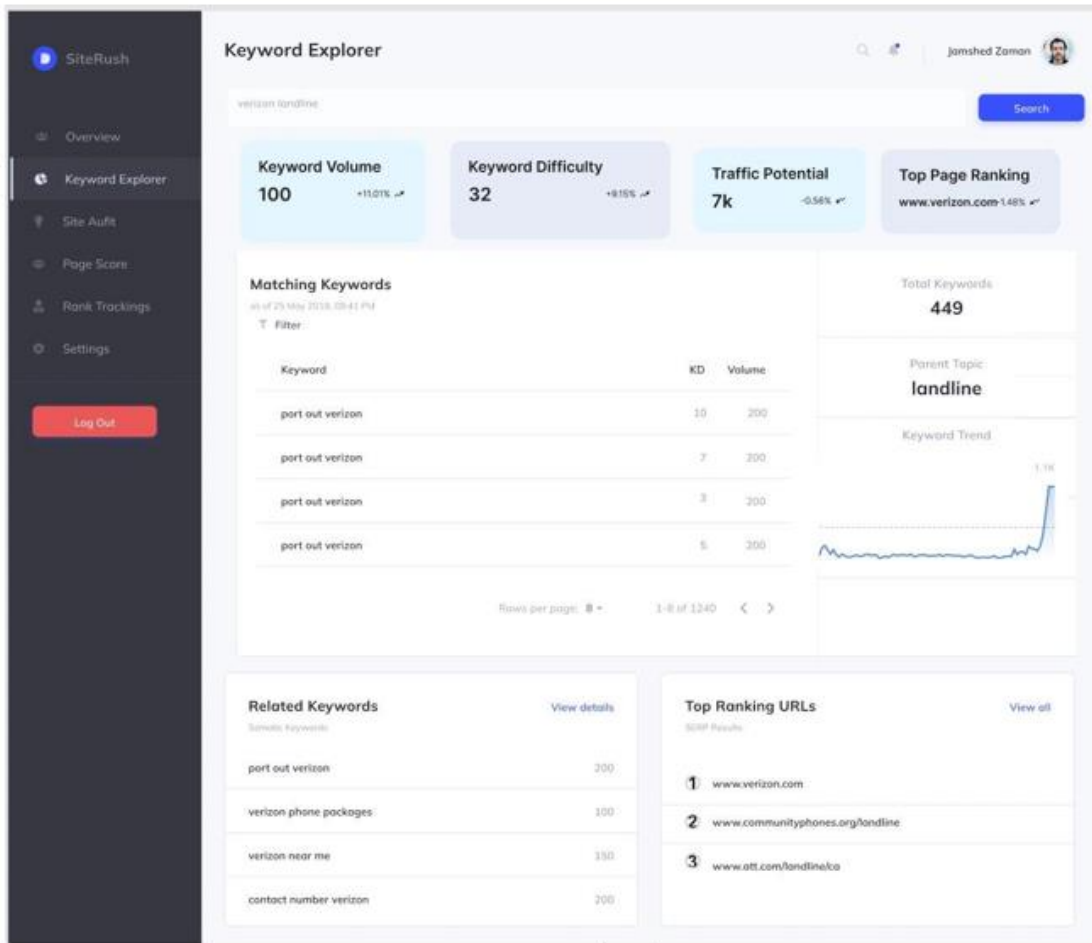


Figure 39 High Fidelity - Keyword Explorer

4.11. Conclusion

In this chapter, we have discussed the design approach used for our project. We have also discussed System design related constraints and system architecture. We have covered the logical design of our system by including Class and ER diagram. We have also covered the dynamic view of our project by including state, sequence, and activity diagrams.

Chapter 5

System Implementation

5.1. Tools Used

5.1.1 Integrated Development Environment IDE:

Visual Studio Code is used as IDE for the development and implementation of web application. Interface designing, coding, debugging, and testing are all available within an easy-to-use software Visual Studio Code. It is free to download with its latest version.

5.1.2 Database

MySQL is used as the database for our project. Google Firebase is the Realtime Database as well as a cloud-hosted NoSQL database that allows to store and sync data in real time.

5.1.3 Programming Language

Python is used as programming language for the development of web application in visual studio code. It is used to implement all the functionalities of web application.

React Js is used for the UI designing of web application.

5.2. Methodologies

5.2.1. Iterative Development

We have used the iterative development method for the efficient implementation of our project. In this method, Software or project development is divided into further smaller parts. We have used this method because it includes the coding, designing, and testing of each feature one by one in repeated cycles. After the completion of each iteration, new features can be designed, developed, and tested until the project is completed successfully, functioning properly and ready to deploy in market. Iteration methodology is performed in different stages including.

- **Planning Stage**
In this stage, we discussed and planned some specific points of our project like which technologies and platforms we are going to use for our project including software, hardware, and database requirements.
- **Analysis Stage**
In this stage, analysis was performed to select the database models and necessary business logic that can be suitable for our project.
- **Design Stage**
In this stage, the first two stages were linked. Technical requirements that were decided in stage 1 were necessary to meet the requirements determined in the 2nd stage. In this stage, the design of the project is finalized.
- **Implementation Stage**
In this stage, the implementation of the system is performed by coding all the features.
- **Testing Stage**
In this stage, the testing of all features is performed one by one to check whether they are working properly or not. This stage identifies the bugs if there are any.
- **Evaluation Stage**
In this stage, complete evaluation of the project is performed to make sure that each feature is working properly.

Through these different stages of iteration, a project is successfully completed.

5.3. Conclusion

In this chapter, we have discussed the thorough implementation of our project. We have discussed the programming languages used for the development as well as the IDE used, and the databases used. We have discussed the methodology that is used for the development of our project.

Chapter 6

System Testing & Evaluation

6.1. Test Strategy

The manual testing approach is used to test our project. It is an old method to test the project in phases. In manual testing, different test cases are made by keeping in view each case or condition. We have considered the following point while making the test cases:

- Each condition must be satisfied.
- Every type of input must be included in the test cases.
- To make sure that each feature is properly working.
- Use the inputs that are outside of the domain of system and confirm that they are giving wrong results.
- Test cases must cover both situations (either right or wrong)

6.2. Component Testing

In component testing, each module or feature of the project or system is tested individually to make sure that each feature is working properly. Component testing is performed at the execution level. In other words, it is performed when the whole system has implemented or developed. In component testing, each component is verified individually to check whether it is working properly or not. It specifies any fault or bug (if any) in the component or feature being tested. In our project, small modules were developed or implemented first and then tested on the individual basis or separately. After implementing and testing all the features, we implemented interface applications and checked the working of those interfaces separately.

6.3. Unit Testing

In unit testing, each module or feature of the project or system is tested individually to make sure that each feature is working properly. But Unit testing is performed at the development level. In other words, it is performed when the system is still in development or implementation phase. In component testing, each component is verified individually to check whether it is working properly or not. After the successful

testing of one feature, next feature can be implemented and so on. It means, it is implemented after every development stage. The detection of error in this testing is very because the system is still in the development stage.

6.4. Integrated Testing

In Integrated testing, each module or feature is tested by combining or integrating with any other feature. It is performed to test or validate the interaction between different components or modules. It makes sure that either each module is working according to its specified requirements or not by integrating with other modules. In our project, we have performed integrated testing by integrating features like Rank Tracking with Rank Tracking dashboard to make sure that the recent projects are displayed in the dashboard of Rank Tracking dashboard.

6.5. Test Cases

We have performed the following test case to validate the proper working of the system.

6.5.1. Test Cases for Sign Up

Table 7 Test Case - Sign Up

Use Case Id	UCI_1				
Use Case Name	Sign Up				
Test Title	Sign Up				
Test Priority	Medium				
Description:	Test the Sign-Up page				
Pre-Conditions	<ul style="list-style-type: none"> • User is not registered. • User is on Log in page. 				
Post-Conditions	<ul style="list-style-type: none"> • User is registered. 				
Test Cases					
Test Case ID	Test Steps	Input Data	Expected Result	Actual Result	Status (Pass/Fail)
TC-01	<ol style="list-style-type: none"> 1. Open SiteRush 2. Click on “Register Here” on the Login Screen 3. Click on Sign Up Button 	Click on Sign Up Button	Error	There is an error to fill the required fields	Pass
TC-02	<ol style="list-style-type: none"> 1. Open VIRS android app 2. Click on “Register Here” on the Login Screen 3. Enter Name, Email, and Password. 4. Click on Sign Up Button 	Name = “XYZ” Email = “abc@gmail.com” Password = “1234567” Click on Sign Up Button	Successful Registration	Registration is completed successfully	Pass

6.5.2. Test Cases for Log In

Table 8 Test Case - Log In

Use Case Id	UCI_2				
Use Case Name	Log In				
Test Title	Log In				
Test Priority	Medium				
Description:	Test the Log In page				
Pre-Conditions	<ul style="list-style-type: none"> User is registered. User is on Log In page 				
Post-Conditions	<ul style="list-style-type: none"> User is logged In. 				
Test Cases					
Test Case ID	Test Steps	Input Data	Expected Result	Actual Result	Status (Pass/Fail)
TC-01	<ol style="list-style-type: none"> Open SiteRush Click on Log in Button 	Click on Log in Button	Error	There is an error to fill the required field	Pass
TC-02	<ol style="list-style-type: none"> Open SiteRush Enter Email Enter Password Click on Log in Button 	Email = "abc@gmail.com" Password = "12345678" Click on Log in Button	Successful Log in	Successfully Logged in	Pass

6.5.3. Test Cases for Keyword Explorer

Table 9 Test Case - Keyword Explorer

Use Case Id	UCI_3				
Use Case Name	Keyword Explorer				
Test Title	Keyword Explorer				
Test Priority	High				
Description:	Test the Keyword Explorer feature				
Pre-Conditions	<ul style="list-style-type: none"> • User is logged in. • User is on Keyword Explorer Page. 				
Post-Conditions	<ul style="list-style-type: none"> • User gets keyword search result. 				
Test Cases					
Test Case ID	Test Steps	Input Data	Expected Result	Actual Result	Status (Pass/Fail)
TC-02	<ol style="list-style-type: none"> 1. User Enter a Keyword in the text field. 2. User clicks on “Search” Button 	<p>Enter Keyword</p> <p>Click on Search Button</p>	<p>1a. CPC, Search Volume of the keyword is displayed.</p> <p>2a: Competition and Keyword score is also displayed.</p>	<p>1a: Search Volume and CPC is shown on the screen successfully.</p> <p>2a: System shows Competition and Keyword Score to the user successfully.</p>	Pass
TC-03	<ol style="list-style-type: none"> 1. User click on Search Button without entering keyword. 	User click on Search Button	Error	There is an error to fill the required field	Pass

6.5.4. Test Cases for Site Audit

Table 10 Test Case - Site Audit

Use Case Id	UCL_4				
Use Case Name	Site Audit				
Test Title	Site Audit				
Test Priority	High				
Description:	Test the Site Audit feature				
Pre-Conditions	<ul style="list-style-type: none"> • User is logged in. • User is on Site Audit Page 				
Post-Conditions	<ul style="list-style-type: none"> • User is able to see the audit of his site. 				
Test Cases					
Test Case ID	Test Steps	Input Data	Expected Result	Actual Result	Status (Pass/Fail)
TC-02	<ol style="list-style-type: none"> 1. User Enter a URL of site in the text field. 2. User clicks on “Get Site Audit” Button 	Enter URL Click on Get Site Audit Button	<ol style="list-style-type: none"> 1a. Complete Audit of Website is displayed. 	<ol style="list-style-type: none"> 1a. System shows the complete Audit of the website to the user. 	Pass
TC-03	<ol style="list-style-type: none"> 3. User click on Get Site Audit Button without entering URL. 	User click on Get Site Audit Button.	Error	There is an error to fill the required field	Pass

6.5.5. Test Cases for Page Score

Table 11 Test Case - Page Score

Use Case Id	UCI_5				
Use Case Name	Page Score				
Test Title	Page Score				
Test Priority	Medium				
Description:	Test the Page Score feature				
Pre-Conditions	<ul style="list-style-type: none"> • User is logged in. • User is on Page Score Screen. 				
Post-Conditions	<ul style="list-style-type: none"> • Page health score is shown to the user. 				
Test Cases					
Test Case ID	Test Steps	Input Data	Expected Result	Actual Result	Status (Pass/Fail)
TC-02	<ol style="list-style-type: none"> 1. User enter a Page URL in the text filed. 2. User clicks Get Page Score button. 	Enter Page URL Click on Get Page Score Button	1a. Complete Ranking of Page is displayed.	1a. System shows the Page Ranking to the user.	Pass
TC-03	<ol style="list-style-type: none"> 3. User click on Get Page Score Button without entering Page URL. 	User click on Get Page Score Button.	Error	There is an error to fill the required field.	Pass

6.5.6. Test Cases for Rank Tracking

Table 12 Test Case - Rank Tracking

Use Case Id	UCI_6				
Use Case Name	Rank Tracking				
Test Title	Rank Tracking				
Test Priority	High				
Description:	Test the Rank Tracking feature				
Pre-Conditions	<ul style="list-style-type: none"> User is logged in. User is on rank tracking screen. 				
Post-Conditions	<ul style="list-style-type: none"> Keyword ranking is shown to the user. 				
Test Cases					
Test Case ID	Test Steps	Input Data	Expected Result	Actual Result	Status (Pass/Fail)
TC-01	1. User clicks on Rank Tracking option from home page.	Click on Rank Tracking Option	User is directed to Rank Tracking Page.	The Rank Tracking Screen is displayed to the user.	Pass
TC-02	1. User Click on Create New Project button. 2. User enter location, site URL and set of keywords. 3. User click on Create button.	Click on Create New Project Enter Location and Site URL Enter Set of Keyword Click on Create button.	1a. System gets the location. 2a. System create a new project. 3a. Complete tracking of keyword is displayed.	1a. System gets the location successfully. 2a. System create a new project successfully. 3a. Complete Tracking of keywords is shown on screen successfully.	Pass
TC-03	4. User click on Create Button without entering required fields.	User click on create button.	Error	There is an error to fill the required field.	Pass

6.5. Results & Evaluation

All the test cases were performed successfully, each test case was performed manually, and it gave the pass result as the actual result of every feature was like the expected result. So, all the features of both android and web application were given the status of pass after testing.

6.6. Conclusion

In this chapter, we have discussed different testing types and the way of testing we are going to use for our project. We have tested each feature of our project. We have used use cases as the basis for the test cases.

Chapter 7

Conclusion

7.1. Contributions

By addressing the flaws and shortcomings in other solutions, SiteRush stands out among other software options on the market. Digital marketers and site owners may optimise their online presence and increase organic traffic with the help of SiteRush, which offers a comprehensive set of capabilities. The ability of SiteRush to offer customised SEO reports is one of its primary advantages. SiteRush offers suggestions for changes and keyword opportunities while taking into account the health and performance of the unique website, unlike many other tools that only offer general insights. By adjusting recommendations to the website's present status, this personalised method greatly improves the process of developing strategies and saves the wastage of time and money.

Additionally, SiteRush differs from other programmes on the market thanks to its extensive feature set. SiteRush provides comprehensive coverage of all the essential elements of SEO in one platform, ranging from keyword research and rank tracking to page scoring and site audits. Users no longer have to rely on several tools, which streamlines their workflow and saves them a lot of time and effort.

The importance of SiteRush resides in its capacity to equip website owners and digital marketers with the resources necessary to enhance their online presence and boost SEO performance. SiteRush advances digital marketing strategies and helps users stay competitive in the constantly changing online environment by offering actionable insights, tailored recommendations, and a user-friendly interface.

So, the FYP report on SiteRush shows how an efficient SEO tool with a competitive edge in the market was successfully developed. Its distinctive selling qualities, personalised reports, and extensive feature set make it an invaluable tool for any website owner or digital marketer. Users can successfully optimize their websites with SiteRush, save time and money, and confidently accomplish their SEO objectives.

7.2. Reflections

SiteRush exhibits strengths in its comprehensive features, tailored insights, and user-friendly design. While it may have limitations in terms of integrations and a learning curve, its impact on society includes enhanced website performance, increased accessibility to SEO tools, and developments in SEO methods. SiteRush enhances user experiences, boosts exposure, and boosts conversion rates by enabling users to properly optimise their online presence. It also contributes to the digital marketing landscape.

7.3. Future work

SiteRush's shortcomings and potential improvements can be the focus of future study. It is possible to investigate integration with different platforms and third-party applications to increase its compatibility and give consumers a more fluid workflow. The onboarding process for new users and the educational materials available can be improved. It is possible to explore new SEO trends and algorithms through ongoing research and development to make sure that SiteRush is always current and efficient at enhancing website performance. SiteRush must be improved and kept current with user feedback in order to remain useful in the constantly changing SEO industry.

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APPENDIX A

3-Tier Architecture

Django Framework

Python

Java

VS Code