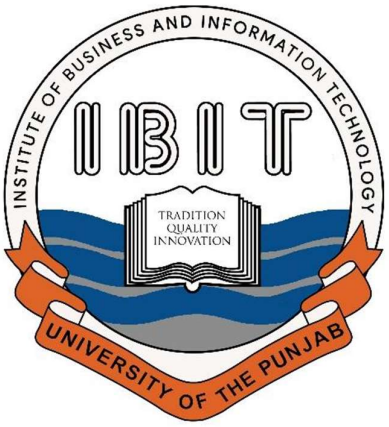
FINAL YEAR PROJECT REPORT ON
SEO AUTOMATION WITH NLP

TECHMINDS



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Executive Summary

This report encapsulates the comprehensive project details of “RankRanger”, a Web Application designed to streamline the process of Content Optimization/SEO Automation. Developed using contemporary technologies like Flask, Python, React, and MongoDB, coupled with Natural Language Processing (NLP) models, the tool positions itself at the intersection of advanced technology and creative content marketing.The primary objective of RankRanger is to provide a user-friendly platform that enhances Content Quality and Performance. It utilizes the power of AI to offer actionable insights and recommendations for improving the effectiveness of existing digital content. The tool's distinctive features include keyword optimization, content Readability Score, competitor content analysis, and content improvement suggestions grounded on real-time analytics. The incorporation of Google's Natural Language API further fortifies the tool's capabilities, enabling a deep understanding of content structure and semantics. Additionally, the tool supports ethical web scraping to gather competitor content data for analysis, helping users to stay competitive in the fast-paced digital marketing landscape. The use of MongoDB ensures efficient data management, providing a robust and flexible system for storing and retrieving content and analysis data.

Acknowlegement

First and foremost, we would like to express our sincere gratitude to God, the Almighty, for giving us the strength, knowledge, ability and opportunity to undertake this project and to successfully complete it. We are grateful for His blessings and the wisdom He has bestowed upon us. We are deeply grateful to our project supervisor, Sir Yasin Nasir, whose encouragement, guidance, and support from the initial to the final level enabled us to develop an understanding of the subject. His invaluable advice, deep insight, and patience has been of immense value to us throughout the course of this project.

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Chapter 1

SEO Automation Using NLP

Introduction

"RankRangers" is a Web-Application focused on "Content Optimization" or "SEO Automation" of the Content, which tackles the needs of the users/clients/customers such as Marketers, Content Writers and Bloggers. This system is specifically designed to improve the quality, readability, and SEO performance of text-based content. It provides the Clients a platform where they can Optimize their content and get the Insights such as Sentiment Analysis, Polarity Analysis, Word, Sentences and Syllables Count along with Readability Score and Keywords Suggestions based on Competitor's Analysis. RankRanger utilizes Custom and Pre-Trained NLP models and integrates them into a powerful, intuitive, and user-friendly Web-Application. Built on the solid foundation of Python and Flask for the backend, and React for the frontend, RankRangers delivers top-notch performance and an excellent user experience.

Core Functions

The core functions of the content optimization Web App RankRanger is to ensure that the Users produce high-quality content as an output, that is easily understood and engaging for readers/audience. Here are some of the primary functions:

User Management: This function handles tasks related to the user's interaction with the system, such as User Registration, Login, LogOut, Profile Settings, and user-specific operations such as Text input.

Text Input: The application provides a text-editor for users to input/submit their content for optimization or Analysis. This can be done through text input or file upload.

Text Processing: Text processing involves several steps, such as :
Cleaning the text (Removal of irrelevant information for smooth processing)
Tokenization (Breaking up words into units; tokens)
Stop-word removal (Removal of common words like 'a', 'the', 'is' which do not contain much meaning)
Lemmatization (Reducing words to their base forms or roots)
Part-of-speech tagging (labelling each word with its part of speech; like noun, pronoun or adjective)

Content Analysis: This core function takes the submitted content and performs various analyses using NLP techniques. It evaluates the content's grammar, syntax, readability, SEO optimization, and sentiment, among other factors.

Content Optimization: Based on the Content Analysis, this function generates optimized content. It makes necessary corrections, offers suggestions for improvement, and highlights areas where changes can be made.

Web Scraping: It gathers data from the web related to the content's topic. This provides the additional context and input for the SEO/Content Optimization Process.

Content's Insights : After the analysis process, the Insights related to the User's Text would be displayed. These Insights include:

Display of Words Cloud

Readability Score(including gunning fog, flesch score, smog score and clarity of the text)

Sentiment Score

Polarity

Word Count

Sentences Count.

Competitor's Analysis with Entities Recognition & Salience Scoring:

Users can also ask for Keywords Suggestions based on Competitor's Analysis with Entities Recognition and their Salience Score mentioned.

Entity Recognition and Salience Scoring: First, we use Google's Natural Language API to perform entity recognition on the competitor's content. This would identify the entities - the nouns that represent real-world objects like people, places, or things - within the content. The salience score, which ranges from 0 (not at all important) to 1 (very important), indicates how central each entity is to the overall content.

Identify Keywords from Entities: The entities with higher salience scores are likely the main topics or themes of the content. These high-salience entities can be considered as potential keywords, as they represent what the content is mainly about.

Keyword Analysis: Then, we analyze these potential keywords - considering factors like how frequently each keyword is used in the competitor's content, how relevant it is to your own content or business, and how difficult it might be to rank for this keyword (based on how many other sites are also using it).

Keyword Suggestions: Based on this analysis, we can suggest keywords for our own content. These suggestions would be the keywords that are highly relevant to our content, are used effectively by competitors, and have a reasonable level of competition.

Integration with Google NLP API: This function leverages the capabilities of Google's NLP API to enhance theRankRanger's content analysis and optimization capabilities.

These functions work together to provide a seamless experience for the user, allowing them to easily submit their content, receive optimized content, and understand the changes made.

Chapter 2

Software Requirement Specification

Purpose

The development of "RankRanger" is primarily aimed at achieving the following purposes:

- **Improved Content Quality:** Enhancing the overall quality of content by fixing grammatical errors, improving sentence structure, and ensuring clarity of language.
- **SEO Optimization**: Assisting users in optimizing their content for search engines, thereby increasing the visibility of their content on platforms like Google.
- **Content Strategy Enhancement**: Providing insights and suggestions that can help users develop a more effective content strategy.
- **Automated Proofreading**: Automating the process of content proofreading and editing to save time and increase efficiency.
- **Personalized Content Recommendations:** Offering personalized content improvement recommendations based on individual writing styles and content objectives.
- **Readability Analysis**: Analyzing and improving the readability of content to ensure it is easily understood by the intended audience.
- **Sentiment Analysis**: Providing sentiment analysis to help users understand the tone and emotional impact of their content, whther it is positive or negative.
- **Competitor's Analysis**: Keywords suggestions based on entities and their salience score.
- **Learning and Development**: Assisting in the development of users' writing skills by providing detailed feedback and suggestions for improvement.
- **Data-Driven Decisions**: Using data and AI to make informed decisions about content optimization, thereby increasing the effectiveness of the content.

These objectives contribute to the primary goal of enhancing the value of content for users, whether it'sor blogs, articles, product descriptions, social media posts, or any other form of written content.

Scope

"RankRanger" is designed to handle various types of Content including Blog Posts, Articles, Product Descriptions. It supports Businesses and Individuals looking to improve their online presence, Content Marketers seeking to enhance their Content for SEO, and Publishers desiring to increase the readability of their texts

- **Quality Content Creation:** RankRanger can significantly assist writers, bloggers, journalists, marketers, and any other individuals or organizations involved in creating written content. By providing immediate feedback and suggestions for improvement, it can make the content creation process more efficient and result in higher quality output.
- **SEO Optimization:** One key aspect could be helping with search engine optimization. By analyzing the text for keyword density, readability, and other factors that affect search engine rankings, RankRanger can help users create content that is more likely to rank highly in search results.
- **Improved Writing**: RankRanger can also be used in an educational context. For people who lack english language proficiecy or improving their writing skills, the feedback provided by it can provide valuable learning opportunities and accelerate their progress.
- **Business Communication**: Businesses could use RankRanger to improve their internal and external communication. Whether it's emails, reports, presentations, or marketing materials, theRankRanger could ensure that all written communication is clear, professional, and effective.
- **Website Content Management:** Web content managers could use RankRanger to keep their website content fresh, relevant, and engaging. It could help with everything from optimizing product descriptions to ensuring that blog posts are well-written and engaging.
- **Global Reach:** Given its digital nature and usage of English Language, RankRanger could be used by individuals and organizations worldwide.
- **Research and Academia:** In academic and research settings, RankRanger could help researchers, students, and faculty produce higher quality reports, papers, and other written materials. It could ensure that their writing is clear, concise, and free of errors.
- **Accessibility:** By improving readability and clarity, RankRanger could make content more accessible to a wider audience.

The scope of RankRanger is vast and wide and can span multiple industries and user bases. With its AI capabilities, it has the potential to redefine how we approach Quality content creation and management.

Features

- **User-Friendly Interface:** An intuitive and straightforward interface that makes the entire content optimization process seamless. This interface can include a clean layout, easy navigation, and user-friendly features like drag-and-drop functionality for uploading content files, etc.
- **Content Analysis:** RankRanger can provide comprehensive content analysis, checking for grammatical errors, punctuation mistakes, redundant phrases, and passive voice usage. It can also check the clarity and coherence of the content to ensure that it's easily understandable.
- **Automated Content Optimization:** Using sophisticated AI and NLP algorithms, theRankRanger can automatically suggest improvements to your content. These improvements can range from minor grammar fixes to major structural suggestions, depending on the analyzed data.
- **Real-Time Content Editing:** Users can get real-time feedback while creating or editing content, which can help in making immediate improvements. This feature can save a significant amount of time that would have been spent on manual proofreading.
- **Content Scoring**: The RankRanger can offer a scoring system, ranking content based on various factors such as readability, SEO optimization, grammatical correctness, etc. This score can give users a quantitative measure of their content's quality.
- **Web Scraping for Context/Data:** By scraping relevant websites, the RankRanger can provide additional contextual data that can enhance content optimization. For example, it can pull out commonly used phrases or keywords related to the topic of your content to improve SEO.
- **Data Security:** The RankRanger ensures that all user data is handled securely.

- **Integration with Google NLP API:** By integrating with Google's NLP API, theRankRanger can leverage advanced capabilities like sentiment analysis, entity recognition, syntax analysis, etc., to provide a more detailed analysis of the content.

- **SEO Analysis:** RankRanger can evaluate content based on SEO best practices, providing insights and suggestions to improve search engine rankings. This can include checking for appropriate keyword usage, meta descriptions, title tags, etc.

By implementing these features, RankRanger can offer a comprehensive solution for creating high-quality, effective, and engaging content.

Definitions, Acronyms and Abbreviations

i. **Software Requirement Specification** is a document that describes the purpose, functionality and performance of a software system. It includes functional and non functional requirements, use cases and description.

ii. **Artificial Intelligence** is a field in computer science where machines are designed to act and think like humans.

iii. **Natural Language Processing (NLP)** is a field of artificial intelligence which focuses on the interaction between computers and humans through natural language.

iv. **Search Engine Optimization (SEO)** is a process of improving a website's/content's visibility and ranking in search engine results pages (SERPs). The goal is to increase organic (non-paid) traffic to a website through higher rankings on search engines.

v. A **Readability Score** is a measure that determines how easily a text can be read and understood. It's often based on a numerical system where a lower score usually indicates easier readability, while a higher score indicates more complex text.

vi. **The Gunning Fog Index** is a tool that helps you understand how easy or hard a piece of English writing is to read. A high value indicates that the text is more difficult to comprehend.

vii. **Flesch Score** is one of the most widely used readability tests. It uses sentence length and syllables per word in its calculation. The score ranges from 0-100, with a higher score indicating easier readability.

viii. **SMOG Score** uses sentence length and complex words, specifically focusing on words of three or more syllables. The score represents the years of education needed to understand the text.

ix. **Salience Score** is often used to measure how much a particular term or topic stands out in a text. In simple words, it's a measure of importance or prominence. In Google's Natural Language API, for example, salience refers to the importance or centrality of an entity to the

entire document text. The scores range from 0.0 to 1.0, with 1.0 being the most important. Higher salience scores indicate that an entity is central to the text, while lower scores suggest that the entity is less central or less important.

x. **API** or Application Programming Interface is a set of rules and protocols for building and interacting with software applications. APIs define the methods and data formats that an application will accept from or provide to other programs, essentially acting as a contract between different software components.

Abbreviations

SRS	Software Requirement Specification
AI	Artificial Intelligence
SEO	Search Engine Optimization
NLP	Natural Language Processing
API	Application Programming Interface

Tools, Languages & Libraries

Here are the tools, languages and libraries that have been used for the frontend and backend of the system.

Frontend

- HTML 5 (Hypertext Markup Language)
- CSS (Cascading Style Sheets)
- React JS

Backend

- **Programming language:** Python
- **Framework :** Flask
- **Database :** MongoDB
- **APIs** : REST X, Google NLP API

Libraries

- **Text Processing:** Spacy, NLTK, Text Blob
- **Data Analysis:** Textatistic
- **Web Scraping:** Scrapy, Beautiful Soup

Assumptions and Dependencies

i. High Quality data is available for NLP Model training.
ii. Reliable Internet Connection is available to the users.
iii. Users must have latest browser.
iv. User must be registered to avail the services of “RankRanger”.
v. Data Collection and Processing is in conformance to the Data Privacy Laws and Regulation.
vi. Data Collection is ethical.
vii. Users are aware of presence of Smart SEO Apps like “ RankRanger” in the market.

Use-case Model Survey

Workflow

User

1. To Register
2. To Login
3. To Logout
4. For Content Analysis/Insights
5. For Keywords Suggestion/Competitors Analysis

Process to Register

Description	Input	Output	Workflow
User Visits "RankRanger" webApp and clicks on Register.He/she enters his Name, email address and password, a verification email is send to his mail and by clicking the link he/she registers successfully.	*Name, Email and Password.*	*User Registered Successfully.*	*User enters details and get verification mail on his/her email.*

Process to Login:

Description	Input	Output	Workflow
User has a registered account on"RankRanger" and he/she can use his/her registration details for login	*Email and password.*	*User successfully logins and can access to the services in dashboard for SEO Automation of content.*	*Enter User details and gets logged in.*

Process to Logout:

Description	Input	Output	Workflow
User is logged into his/her account, after completion of his/her activity he/she logs out from the "RankRanger".	*No input required, only clicks logout button on dashboard.*	*User successfully logs out his/her"RankRanger" account.*	*User logs out of his/her account by clicking on the logout option on the dashboard.*

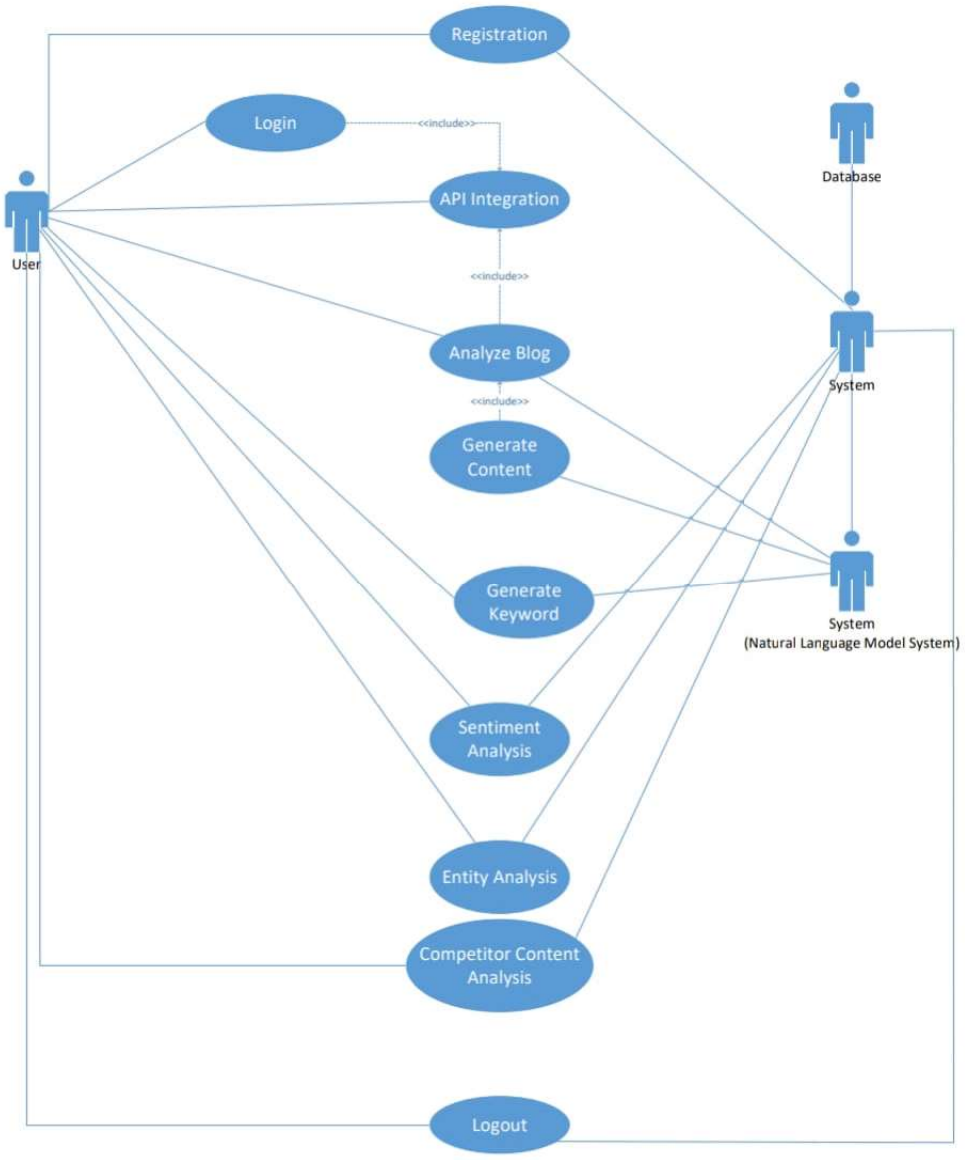
Process for Content Analysis/ Insights

Description	Input	Output	Workflow
User Visits Insights page on "RankRanger" webApp and enters/paste his content.On clicking "Get Insights" he gets Detailed Analysis of his content.	*User Inputu/Content.*	*User's Content Analysis Report.*	*User enters input and then gets the insights.*

Process for Keywords Suggestions Based on Competitors Analysis:

Description	Input	Output	Workflow
User visits Get Keywords page and enters his/her content.On prompt it gets keywords alon with their scores.	*User Input/Content.*	*Keywords Suggestion..*	*Enter Text, and get suggestions on prompt..*

Use-Case Model Diagram



Use-Case Report

Process Complete Content Analysis

USE-CASE ID	CONTENT_ANALYSIS_001
PURPOSE	User can get complete analysis of his/her content/blogpost
ACTOR	Content Writer
PRE-CONDITION	User has logged-In with his account and reside on the Dashboard.
POST CONDITION	A complete analysis of the content has been showed on the screen.
SUCCESS SCENARIO	1. User clicked on “Get Insights” tab located on dashboard 2. User provides content in the text box 3. User clicks on “Get Insights” option

Process API Integration

USE-CASE ID	API_INTEGRATION_002
PURPOSE	To allow the user to integrate an API in the settings of their application.
ACTOR	User
PRE-CONDITION	The user has access to the application settings and has an API key or token to use for integration.
POST CONDITION	The API is integrated and available for use in the application.
SUCCESS SCENARIO	1. The user navigates to the settings page of the application. 2. The user clicks on the "Integrate API" button or option. 3. The user enters their API key or token in the provided field. 4. The application verifies the API key or token. 5. The application displays a success message and the API is now integrated in the settings.
EXTENSIONS & ALTERNATIVES	1. If the user enters an invalid API key or token, the application will display an error message and prompt the user to enter a valid one. 2. If the API has specific settings or configurations that need to be set up, the application will prompt the user to configure them before the API can be integrated.

	3. If the API has additional authentication or authorization requirements, the application will prompt the user to provide the necessary credentials.

Process Generate Keywords

USE-CASE ID	GENERATE_KEYWORDS_003
PURPOSE	To allow the user to generate keywords for recommendation based on a query.
ACTOR	User
PRE-CONDITION	The user must have access to the system and provide a valid query.
POST CONDITION	The system generates keywords for recommendation based on the query.
SUCCESS SCENARIO	1. The user provides a query to the system. 2. The system retrieves relevant data from Google based on the query. 3. The system analyzes the data and generates keywords for recommendation. 4. The system displays the generated keywords to the user. 5. The user can select the desired keywords for further use.
EXTENSIONS & ALTERNATIVES	1. If the user provides an invalid query, the system displays an error message and prompts the user to provide a valid query. 2. If the system is unable to retrieve relevant data from Google based on the query, an error message is displayed to the user. 3. If the system is unable to generate keywords based on the retrieved data, an error message is displayed to the user.

Process Sentiment Analysis

USE-CASE ID	SENTIMENT_ANALYSIS_004
PURPOSE	User can get sentiment analysis of content provided by him
ACTOR	Content Writer
PRE-CONDITION	User has logged-In with his account and reside on the Dashboard.
POST CONDITION	A sentiment analysis of the content has been showed on the screen.
SUCCESS SCENARIO	1. User clicked on “Get Insights” tab located on dashboard 2. User provides content in the text box 3. User selects ”Get Insights” option 4. User click on “Analyze Document” option.

Process Login

USE-CASE ID	LOGIN_005
PURPOSE	It gives access to an existing User, so that he/she may perform Competitors Analysis or Get Insights.
ACTOR	User
PRE-CONDITION	The user must be Registered.
POST CONDITION	The User is successfully logged in to “RankRanger”.
SUCCESS SCENARIO	1. The User enters Email and Password. 2. The User clicks on login button 3. The User is successfully logged in.
EXTENSIONS & ALTERNATIVES	1a. The User enters wrong password. 1a1. The system displays error message stating “Invalid Password” 1a2. The User enters the correct password. 1a3. The User is successfully logged in.

Process Logout

USE-CASE ID	LOGOUT_006
PURPOSE	To Log Out of the "RankRangers"
ACTOR	User
PRE-CONDITION	The user must be Registered and Logged In.
POST CONDITION	The User is successfully logged out of "RankRanger".
SUCCESS SCENARIO	1. The User clicks on logout button 2. The User is successfully logged out.
EXTENSIONS & ALTERNATIVES	

Process Registeration

USE-CASE ID	REGISTERATION_007
PURPOSE	It registers a new customer and saves his data in the database.
ACTOR	User
PRE-CONDITION	The customer should be on the user registration page of the app.
POST CONDITION	The customer is successfully registered
SUCCESS SCENARIO	1. The User enters Email and Password. 2. The user clicks on Register Button. 3. A verification link is sent to the user via email. 4. User clicks on the Verification link. 5. The User is Registered Successfully.

EXTENSIONS & ALTERNATIVES	1a. The User skips any of the required details. 1a1. The system displays a Warning message stating. 1a2. The User then enters all the missing details and clicks on submit. 1a3. The User is successfully registered.

Functional and Specific Requirements

Specific Requirements

i. **Scalability:** The Web Application must run smoothly regardless of increasing number of users.

ii. **Data Privacy:** Data privacy of users must be ensured.

Functional Requirements

i. **Authentication:** Users can Register, and then Login and Logout of their Registered accounts basically to use the Web Application.

ii. **Input Data:** User must be able to write the textual data to be optimized in the text-editor.

iii. **SEO Analysis /Text Processing and Data Analysis:** System Analyzes the text and then the system displays the insights of the text.

iv. **Content Scoring:** After Analysis the system shows insights such as content score, readability scores.

v. **Web Scraping:** System should scrap relevant websites for context optimization.

vi. **Google NLP API Integration:** System should integrate smoothly with Google NlP API for Analysis.

Chapter 3

Design Document

Introduction

A design document in the context of software development is a comprehensive, detailed layout of how a software or application will look and function. It is a plan, like blueprints for a building, that clearly depicts what is to be built, how it's going to work, how it looks, and what components it consists of.

The design document is critical in app development for several reasons:

i. Clear Understanding: It ensures all stakeholders have a clear, detailed understanding of how the software or app is supposed to function and how different parts interact with each other.
ii. Guideline for Developers: It provides developers with a clear guideline to follow, reducing confusion and potential mistakes during coding.
iii. Consistency: It ensures consistency in design and implementation, especially in large teams or when multiple teams are working on different parts of the same application.
iv. Predictability: It helps predict potential issues and conflicts by requiring a thorough review of the planned application design before coding starts.
v. Communication Tool: It's a useful communication tool, allowing new team members, stakeholders, or external reviewers to understand the design and function of the application quickly.
vi. Documentation: It serves as documentation for future reference or if modifications need to be made later.

By helping to plan, communicate, and execute ideas, a design document is an integral part of a successful app development process.

UML

UML, which stands for Unified Modeling Language, is a standardized modeling language consisting of an integrated set of diagrams, developed to help system and software developers for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modeling and other non-software systems.

UML is not a programming language but there are tools that can be used to generate code in various languages using UML diagrams. UML has a direct relation with object-oriented analysis and design. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. UML is a very important part of developing object-oriented software and software development processes.

Types of UML Diagram

- Use Case Model Diagram
- System Sequence Diagram
- Class Diagram

Use Case Model Diagram

A use case diagram is a visual representation of how a user (or users) interacts with a system, such as a website or software application. They are used in software development to outline system behavior, helping teams understand and discuss requirements.

In a use case diagram, the system is represented as a box, and the users, called actors, are placed outside the system box. The interactions or actions that actors can take in relation to the system are represented as lines and are named according to the action.

Purpose of Use Case Model Diagram

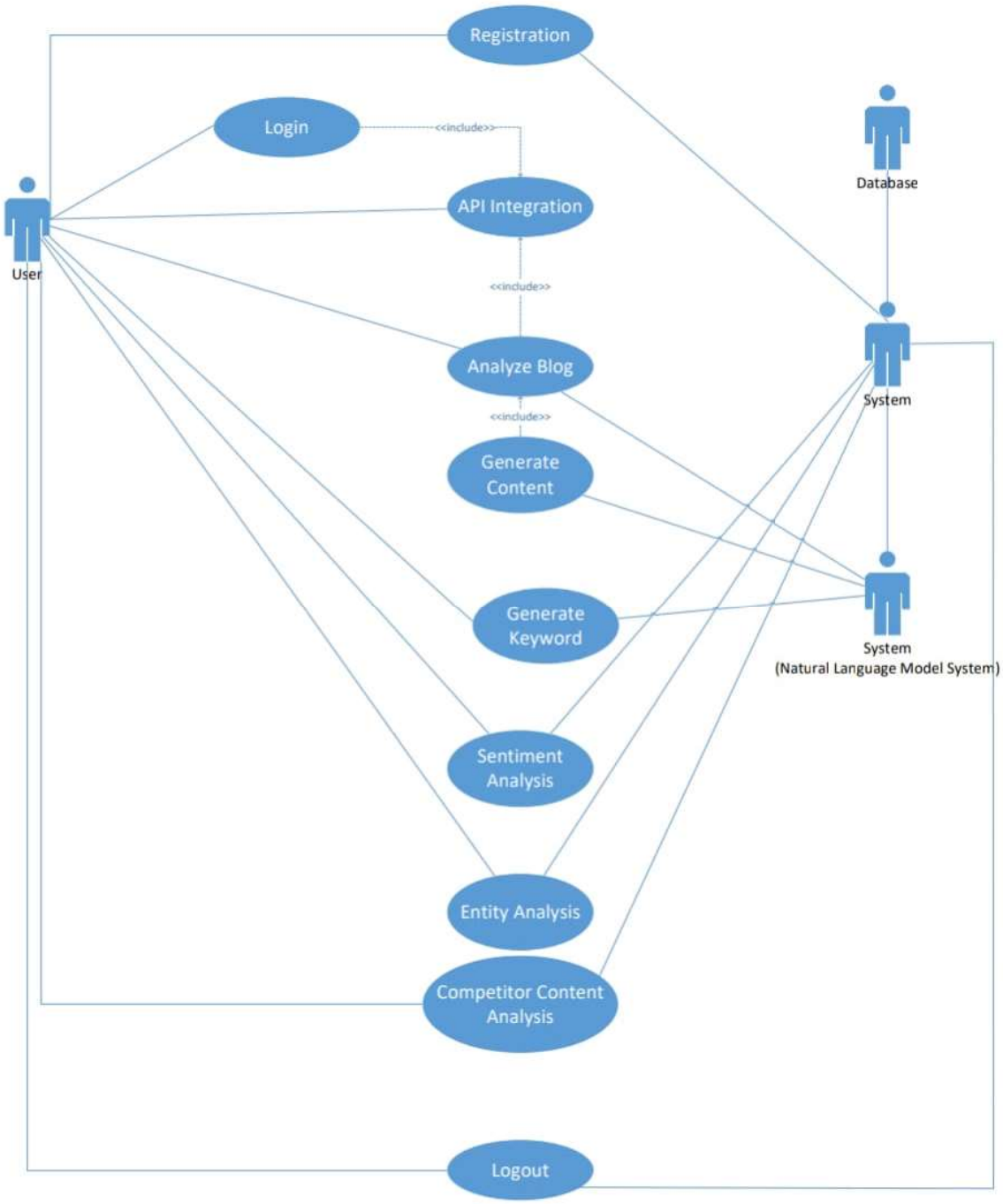
The purpose of a use case diagram is to capture the functional aspects of a system. It provides a high-level view and allows a team to discuss how users will interact with the system, providing a clear view of the system's functionality and expectations from the user's point of view.

Key elements of a use case diagram include:

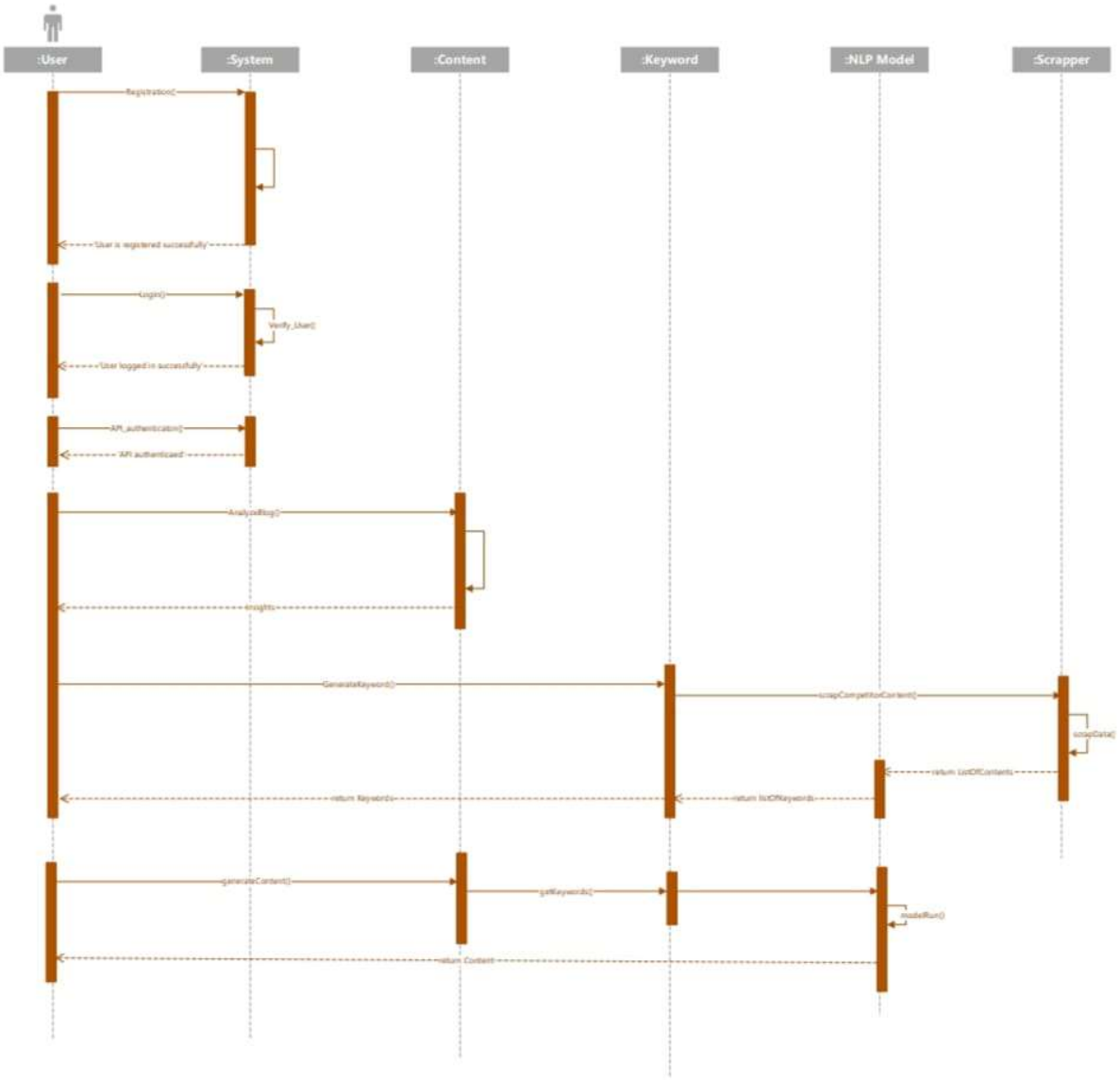
- **Actors**: These are the users of the system. They can be human users or other systems. They are usually placed to the left or right of the diagram.
- **System**: This is the specific system being modeled. It is usually represented as a box in the center of the diagram, and it contains the use cases.

- **Use Cases**: These are the actions that an actor can perform on the system. They are represented as ovals inside the system box, and each one is a specific type of interaction that the actor can have with the system.
- **Relationships**: The relationships between the actors and the use cases are represented by lines. A straight line indicates that an actor can perform a use case.
- **Inclusion**: This is a relationship in which a use case, called the base case, uses the behavior of another use case. It is represented as a dashed line with an arrowhead pointing towards the included use case.
- **Extension**: This is a relationship where an extension use case adds new behaviors to a base use case. This relationship is represented as a dashed line with an arrowhead pointing towards the base use case.

Use Case Diagram



System Sequence Diagram (SSD)

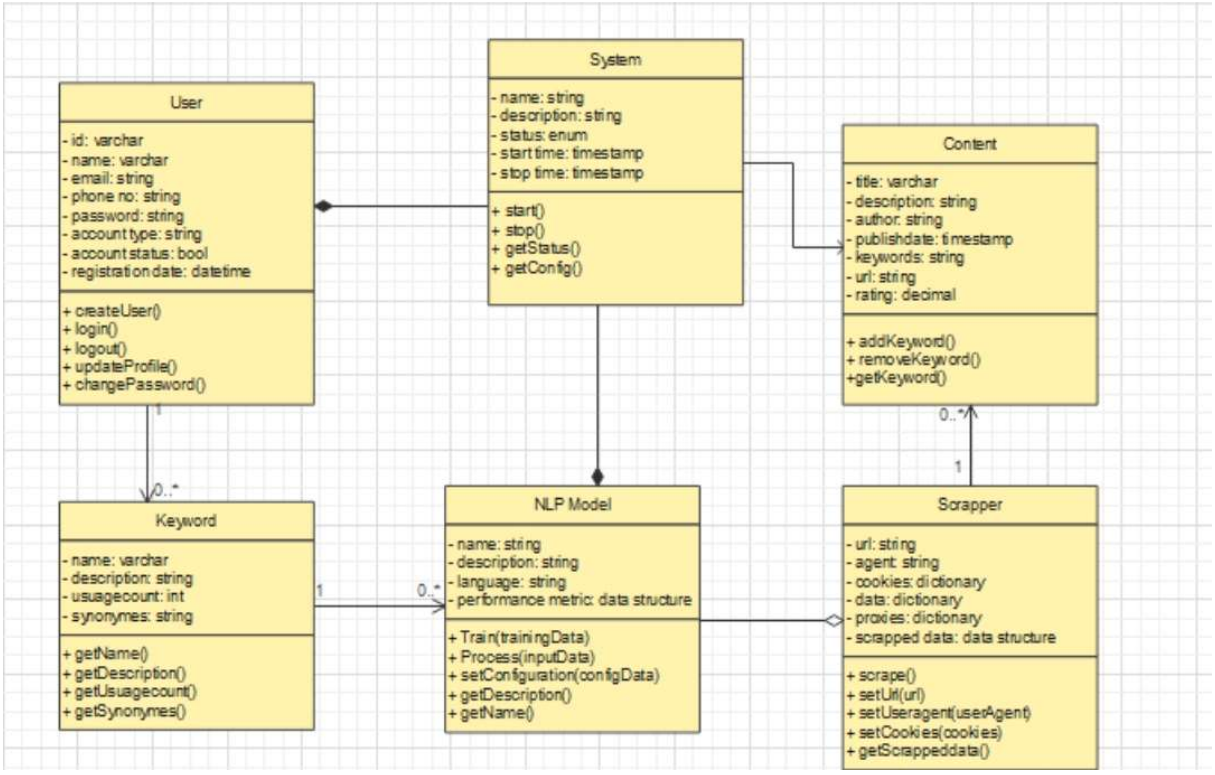


Class Diagram

A Class Diagram is a type of diagram used in software development and systems modeling to describe the structure of a system by showing the system's classes, their attributes, methods (or operations), and the relationships among objects. It is a part of Unified Modeling Language (UML), which is a standard notation for the modeling of real-world objects and systems.

In a Class Diagram, classes are depicted as boxes with three compartments:

i. **Class Name:** This compartment contains the name of the class and is located at the top.
ii. **Attributes:** This is the middle compartment and contains the attributes (or properties) of the class. Attributes typically detail specific characteristics of the class.
iii. **Methods**: This compartment is at the bottom and contains the operations that the class can perform, or the methods.

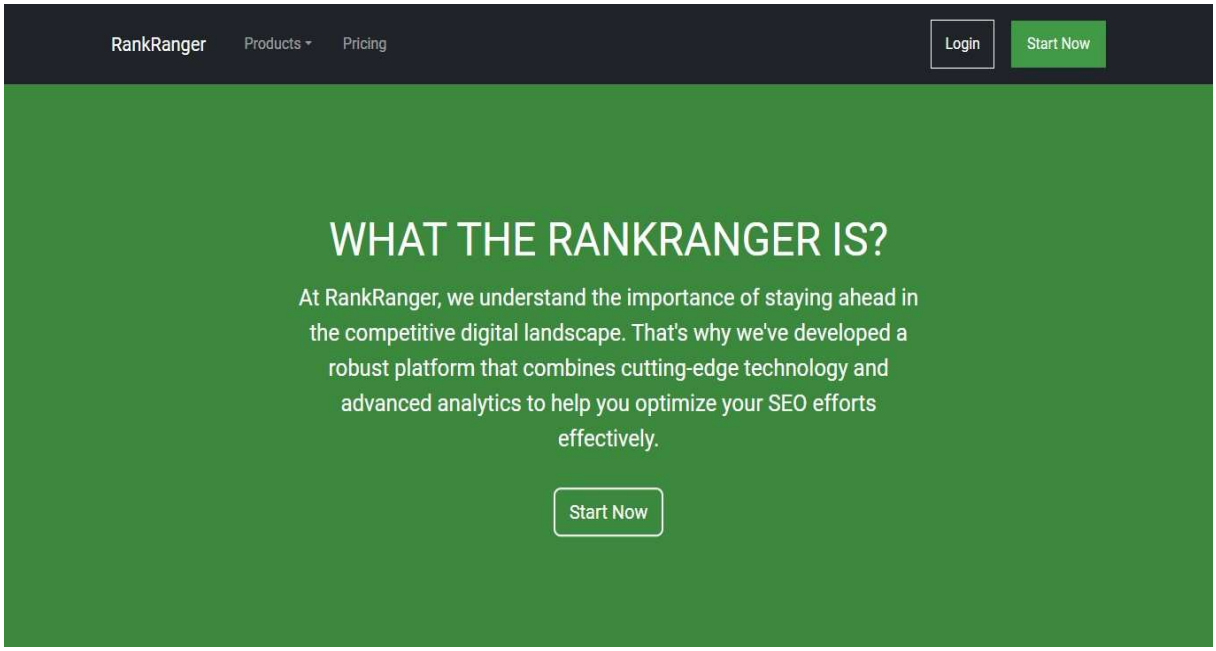


Chapter 4
RankRangers, A Web Application

RankRanger is a Web Application that is specifically designed for the purpose of SEO Automation of User's Content using NLP.The Application's UI is simple yet eye catching and interactive or User-Friendly. Here is an overview of the Application's UI.

Home Page Screen

This is the Home page of RankRanger. It displays an overview of our Application.As observed the Dasboard contains the Detail of the Products such as Content Analysis and Keywords suggestions based on Competitors Analysis. Also it includes Pricing details. The "Start Now" button will take the User to the Registeration Page/screen. Only once the User registers, then he can visit the Product's page.

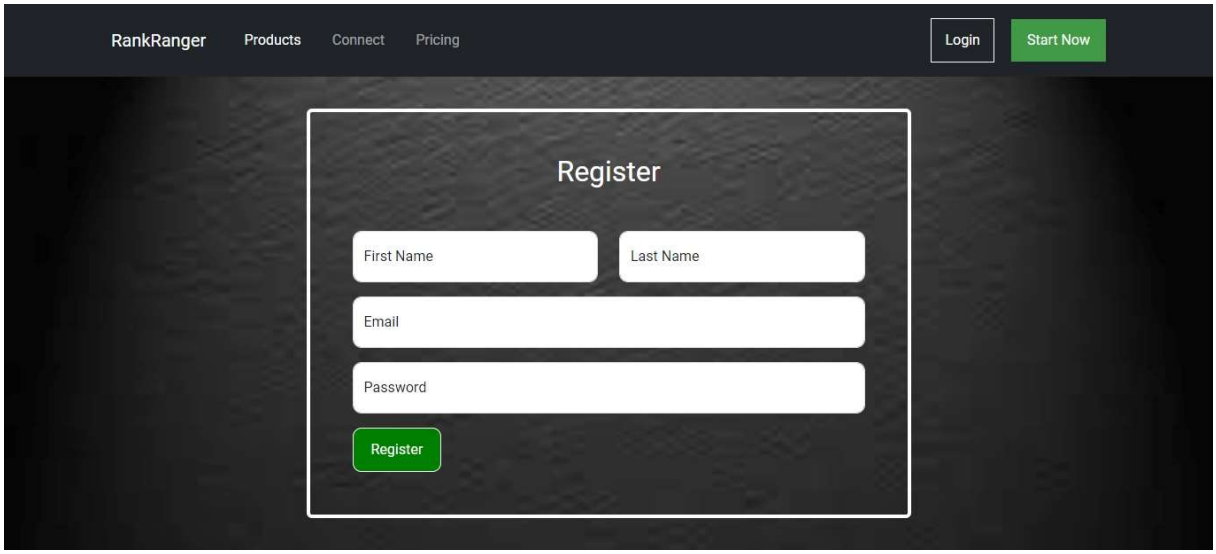


Registeration Screen

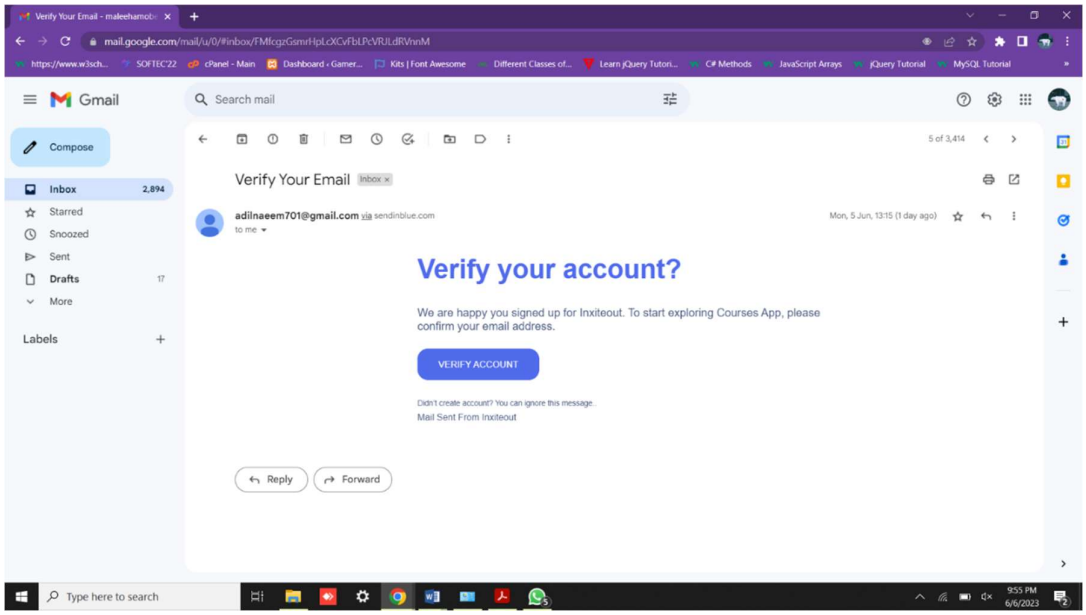
Registeration Screen/Form takes the following inputs from the User:

i. First Name and Last Name
ii. Email ID
iii. Password

User on Entering the input in the input fields and clicking the “Register” button, gets a verification Link on his/her Email ID. Upon clicking the link, the User is successfully registered to the “RankRanger”.



Email Verification for Registeration



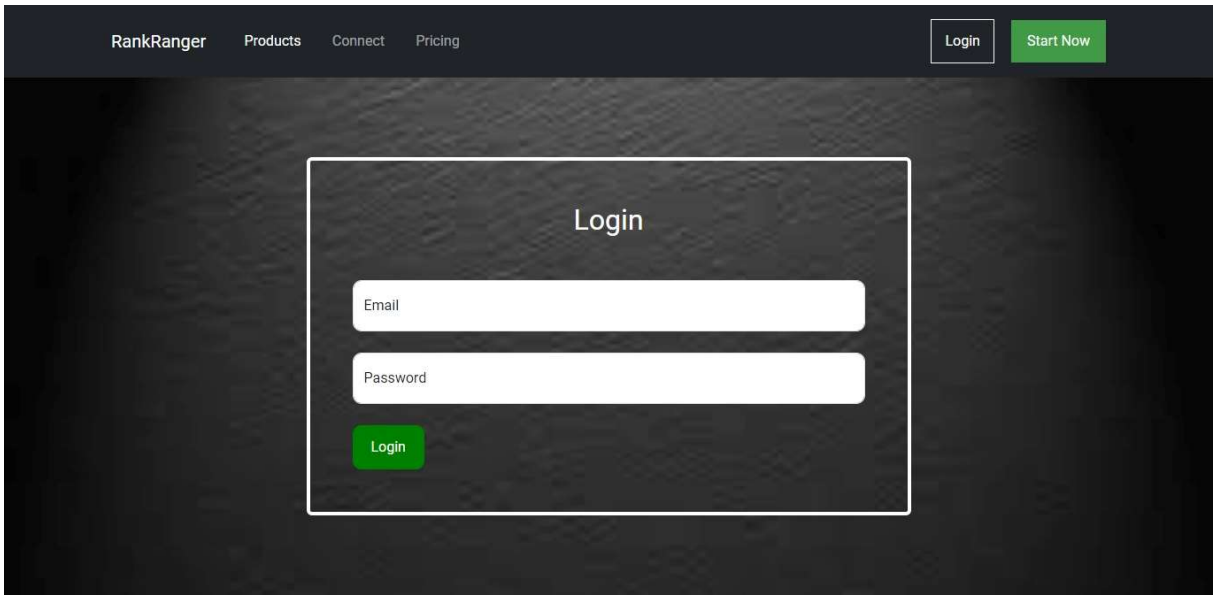
Login Screen

Login Screen contains two input fields:

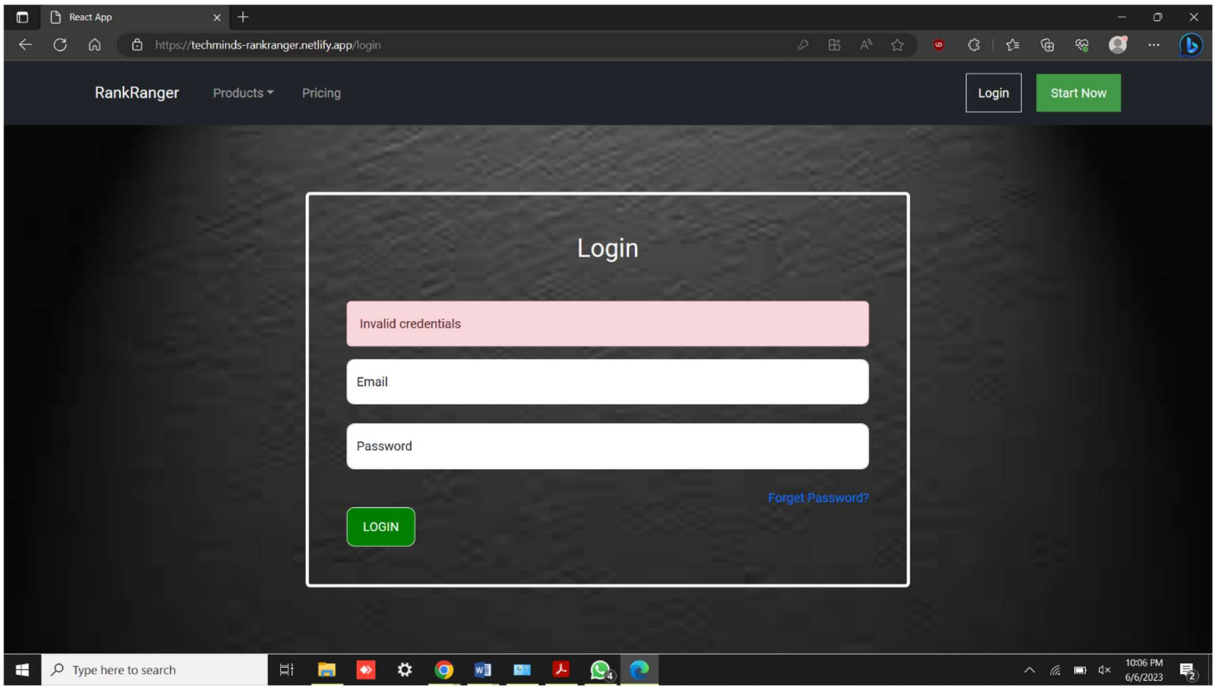
i. Email

ii. Password

If a User Enters wrong Email or Password by mistake, then an Error Message stating ”Wrong Email Id” or “Wrong Password” appears. The User can only Login through his Registered Email and Password.

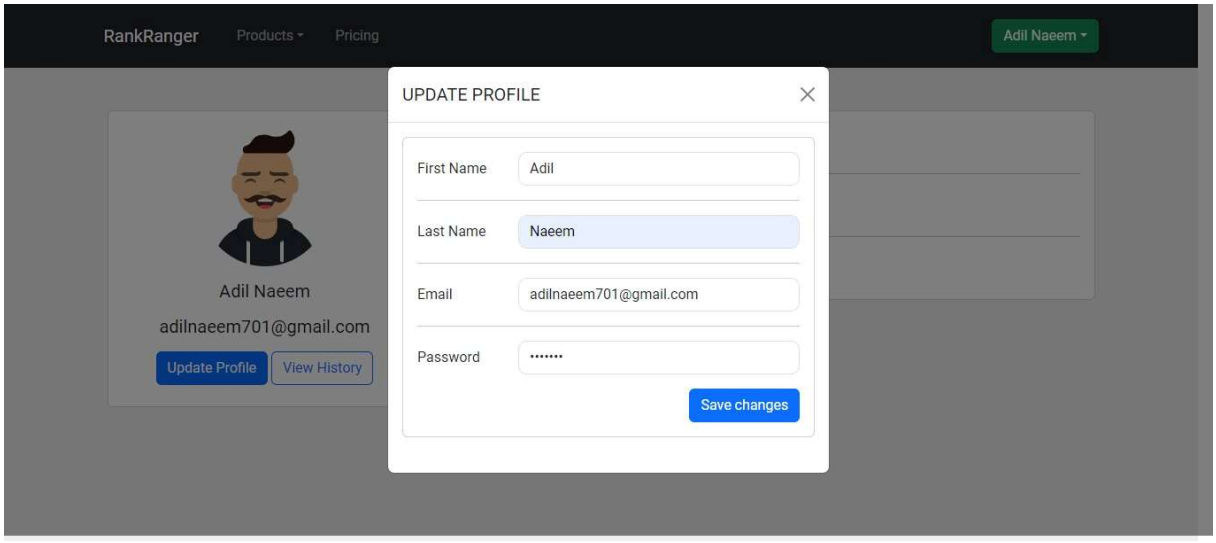


Wrong Credentials Added

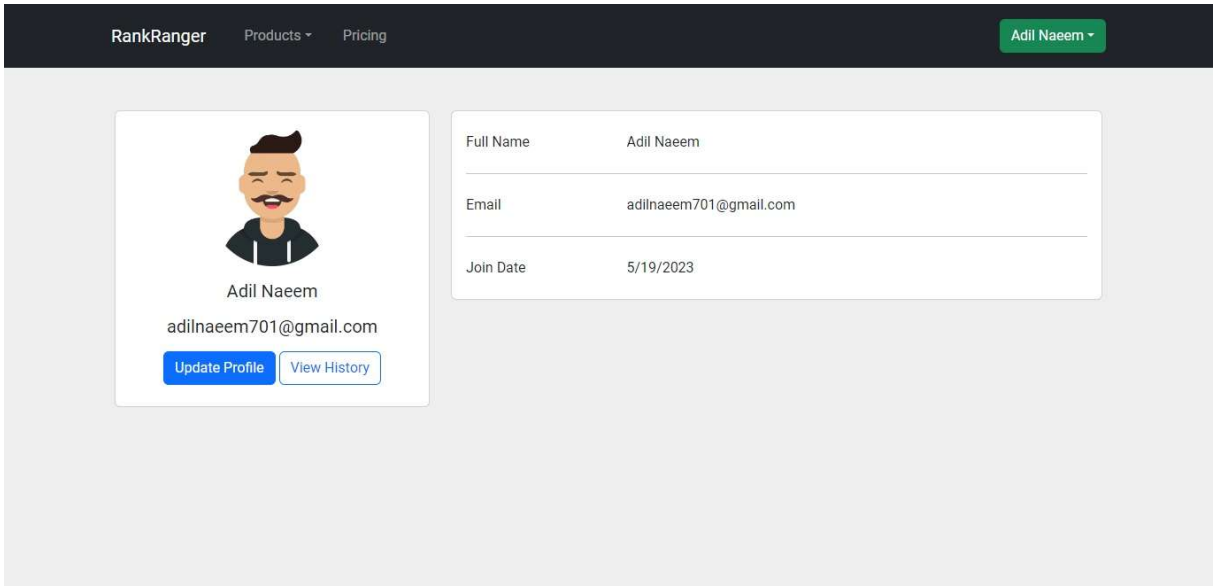


Profile Updation Pop-Up Screen

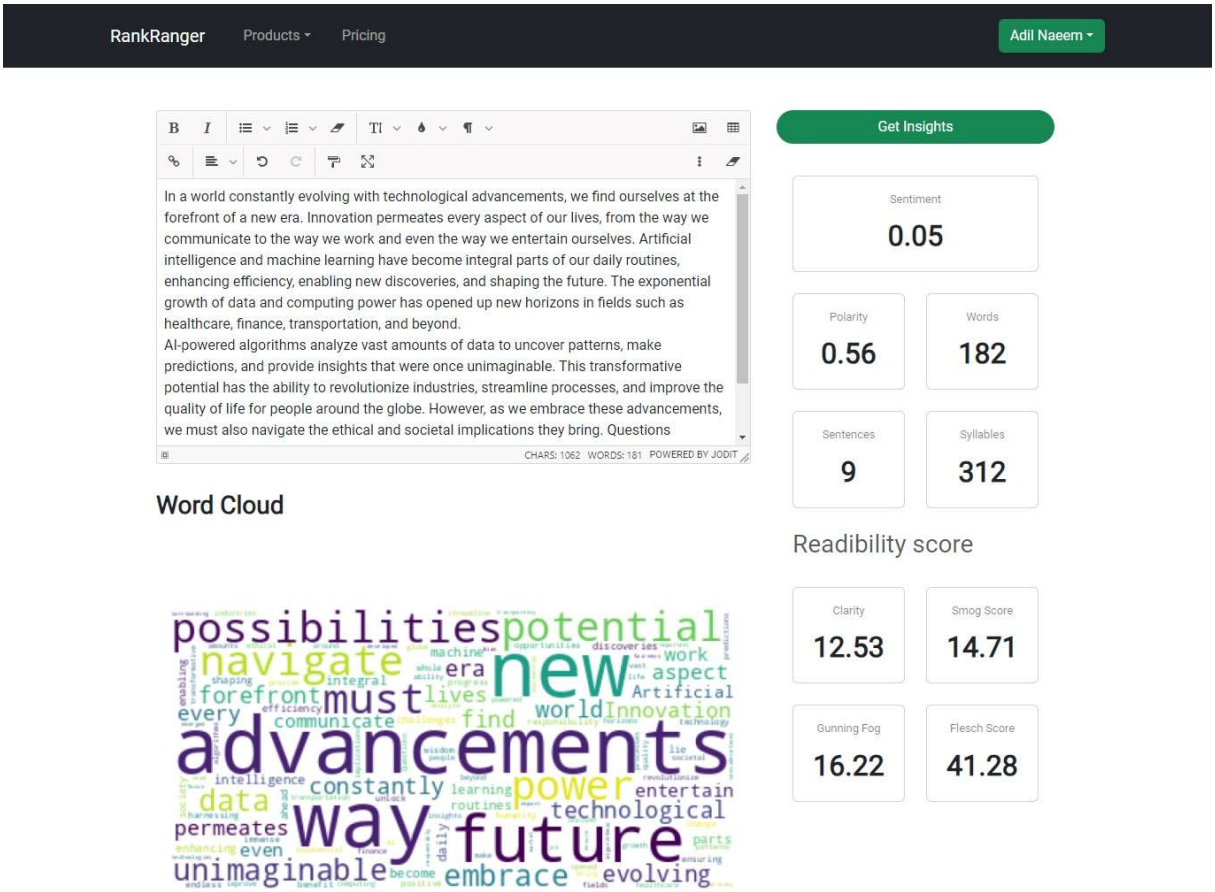
User can Update his/her profile through this screen.



User's Profile Setting Screen



Content/Text Analysis Screen



Keywords Suggestions Based on Competitor's Analysis Screen

Top 10 movies

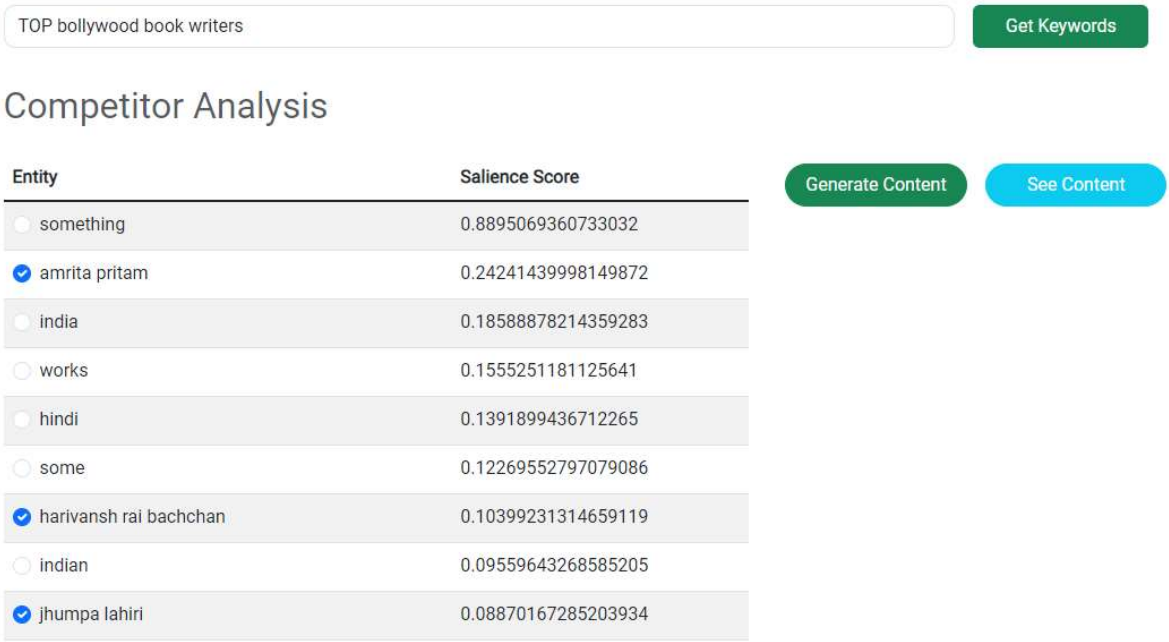
Get Keywords

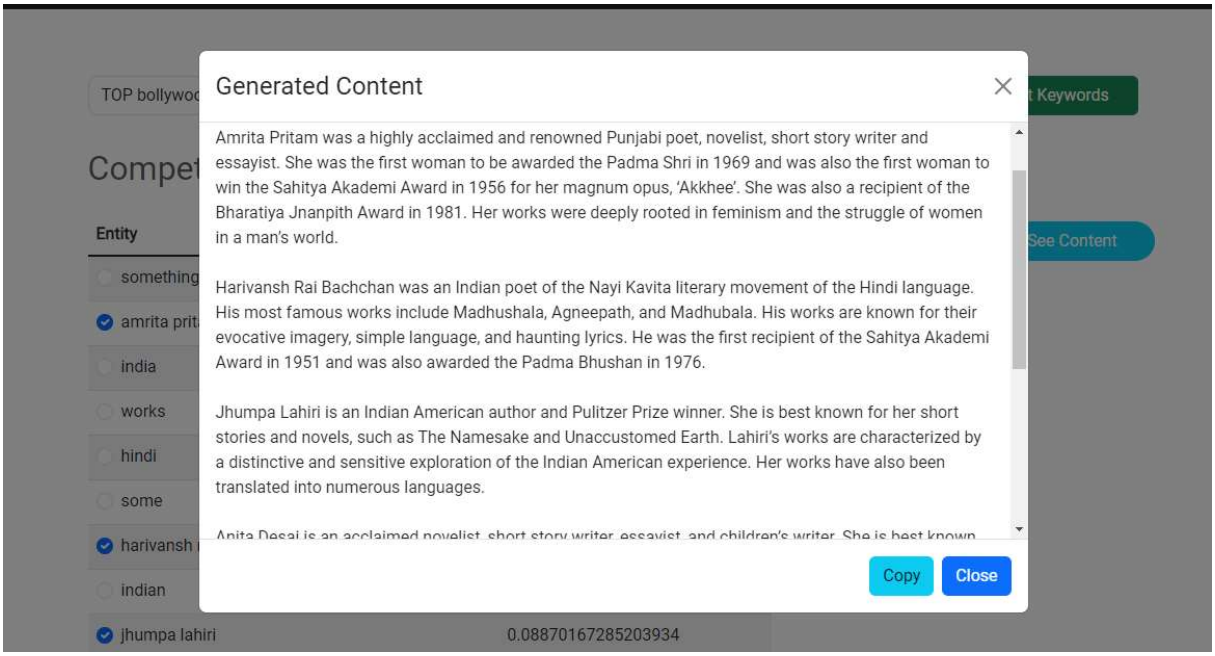
Competitor Analysis

Entity	Salience Score
score	0.6235589385032654
roger ebert	0.5894576907157898
au hasard balthazar	0.32462406158447266
top gun maverick	0.20961825549602509
streaming options	0.20155853033065796
stanley kubrick	0.1997983753681183
everything	0.1911562979221344
fingertips	0.1824178695678711
boss baby	0.15655992925167084
rotten tomatoes	0.15383346378803253
arthur c clarke	0.13137534260749817
movies list	0.12278014421463013
imdb	0.09725770354270935
netflix	0.08283483237028122
grouch	0.07969863712787628
netflix	0.07860731333494186
anna nicole smith	0.07782676815986633
expectations	0.071111299097538
nut	0.05328225716948509
rating	0.043634384870529175
imdb	0.04047410562634468
film	0.03632207587361336
minds	0.03632207587361336
movie critic	0.035164810717105865
tin & tina' tin & tina	0.035091008991003036
film	0.03432423248887062
casablanca	0.03396273031830788
audiences	0.03036057949066162
films	0.029617857187986374
the shawshank redemption	0.027886521071195602
forrest gump	0.027227791026234627
mother's day	0.02669074572622776
hits	0.023479869589209557
glass onion	0.022729026153683662
movies	0.021547216922044754
flop	0.021230824291706085
opinion	0.02122250571846962
one	0.019953323528170586
scoring system	0.019683215767145157
top 250 movies |rank & title	0.018205193802714348
imdb charts	0.018205193802714348
tv	0.0181764904409647
28 up	0.01500721089541912
the wild bunch	0.014806794933974743
streaming service	0.013607858680188656
spider-man: across the spider-verse	0.012072006240487099
bert kreischer	0.008888337761163712
fast x	0.007633460219949484
movies	0.006618930492550135
rotten tomatoes	0.0058613368310034275

Content Generation Using Chat-GPT

User can generate content after selecting keywords generated by Google NLP Model.





Conclusion

The development of this content optimization WebApp represents a significant advancement in the field of Content Creation and Optimization. With the power of Natural Language Processing and Machine Learning at its core, the application has the potential to redefine how businesses and individuals approach content creation, making it more data-driven, strategic, and effective. The WebApps ability to analyze existing content, draw insights from competitors, suggest relevant keywords, optimize text for readability and SEO, and provide real-time feedback is revolutionary. It presents a major leap from manual content analysis and optimization processes, offering significant time savings and increased accuracy. The Architecture of the application, involving the use of Flask, Python, and React in the front-end and back-end, and MongoDB for database management, has been carefully designed to ensure robustness, scalability, and a responsive user experience. The use of RESTful APIs ensures smooth communication between different parts of the application and allows for easy future expansions. However, as with any innovative technology, there is always room for growth and improvement. Future work will focus on integrating more data sources, refining the NLP models, enhancing user interface design, improving data security measures, and extending scalability to accommodate a growing user base. The recommendations provided in the report aim to guide these future enhancements.

Recommendations

Here are some recommendations for enhancing our project's Scope and Performance in the future:

i. **Incorporate User Feedback:** RankRanger should include a feature to incorporate user feedback for continuous learning and improvement. This feedback can be used to improve it's recommendations and make them more aligned with user expectations.

ii. **Enhance NLP Capabilities:** While RankRanger already uses NLP models, continuous improvement of these models is crucial for maintaining and enhancing the quality of analysis. This might involve training the models on more data, tuning the models to better fit the data, or incorporating the latest advancements in NLP research.

iii. **Extend Scalability:** As the user base grows, RankRanger should be able to handle the increased load. Optimizing the backend for better performance, using scalable databases, and potentially moving to a cloud-based infrastructure could all help ensure that RankRanger can scale effectively.

These recommendations aim to improve the functionality, usability, and effectiveness of RankRanger, enabling it to provide even more value to its users.

References

- https://youtu.be/S3o0dM5uE2E
- https://surferseo.com/blog/content-score-product-update/
- https://surferseo.com/blog/content-optimization/
- https://www.impressiondigital.com/blog/entity-salience-seo/