CSC 431

Glow-Getter Web Application

Software Requirements Specification (SRS)

Team 8

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Version History

Version	Date	Author(s)	Change Comments
1.0	2/20/24	Talia Berler Nimmi Suri Aaliyah Brown	First Draft
2.0	5/7/2024	Talia Berler Nimmi Suri Aaliyah Brown	Final Draft

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1. System Requirements

1.1. Functional Requirements

1.1.1. User Search

Table 1

Title	User Search
Description	This use case outlines the process of searching for beauty companies or products by name within the application
Priority	3
Precondition(s)	The search functionality must be accessible from the application's interface. The database of beauty companies and products must be populated with relevant data.
Basic Flow	The user navigates to the search bar. The user enters the name of the beauty company or product they wish to search for. The system displays the search results to the user, including matching beauty companies and products. The user is presented with search results matching the search query.
Postconditions(s)	System displaying requested results received from database.
Use Case Diagram	3.1.1

1.1.2. Return average ratings calculation

Table 2

Title	Average Rating Calculation Based on NLP Emotion Analysis
Description	Calculate and display the average rating of a brand/product based on NLP emotion analysis of reviews. The average rating is then displayed via a rating gauge as a spectrum from 0 to 5, where 0 represents the worst rating and 5 represents the best rating.
Priority	4
Precondition(s)	User is logged in. Application has access to review data. NLP emotion analysis is integrated.
Basic Flow	User selects brand/product. Application retrieves reviews. NLP analyzes sentiment. Average rating is calculated. Display average rating on a 0-5 rating gauge. User sees average sentiment rating.
Postconditions(s)	Sentiment score visible on user screen.
Use Case Diagram	3.1.1

1.1.3. Provide sample of reviews prioritizing photos

Table 3

Title	Prioritized Positive and Negative Reviews with Photos
Description	Provide users with a sample of positive and negative reviews, prioritizing those with photos.
Priority	3
Precondition(s)	User is logged in. Application has access to review data. Reviews include photos.
Basic Flow	User selects brand/product. Application retrieves positive reviews. Prioritize positive reviews with photos. Display sample of prioritized positive reviews. Application retrieves negative reviews. Prioritize negative reviews with photos. Display sample of prioritized negative reviews. User sees sample of prioritized positive and negative reviews with photos.
Postconditions(s)	Sample of reviews visible on user screen.
Use Case Diagram	3.1.1

1.1.4. Ratio of positive vs negative Reddit reviews

Table 4

Title	Reddit Review Ratio
Description	Retrieve and analyze positive and negative reviews from Reddit, providing the total number of each category and the ratio of positive to negative reviews.
Priority	2
Precondition(s)	User is logged into the application. The application has access to Reddit review data.
Basic Flow	User selects a brand/product. Application retrieves positive reviews from Reddit. Application counts the total number of positive reviews. Application retrieves negative reviews from Reddit. Application counts the total number of negative reviews. Application calculates the ratio of positive to negative reviews. User views the total number of positive and negative reviews. User sees the ratio of positive to negative reviews.
Postconditions(s)	Ratio of reviews visible on user screen.
Use Case Diagram	3.1.1

1.1.5. Reddit keyword scraping

Table 5

Title	Reddit Keyword Scraping
Description	Scrape Reddit threads by identifying keywords from search queries.
Priority	0

Precondition(s)	The application has access to Reddit threads.
Basic Flow	User enters keywords or search queries. Application searches Reddit for threads containing the specified keywords. Application scrapes relevant information from the identified threads. User receives relevant information from Reddit threads based on the entered keywords.
Postconditions(s)	Relevant information is presented on the user screen
Use Case Diagram	3.1.1

1.1.6. Perform Natural Language Processing

Table 6

Title	Emotion Analysis and Rating Calculation
Description	Perform natural language processing on each review to determine its emotion score (positive or negative) and magnitude of emotion. Save this information in the database and incorporate it into the total rating gauge score.
Priority	3
Precondition(s)	Reviews are available in the database.
Basic Flow	Retrieve reviews from the database. Perform natural language processing (NLP) on each review to analyze its emotion score (positive or negative) and magnitude. Save the emotion analysis results in the database. Calculate the total rating gauge score based on the aggregated emotion scores of all reviews. Emotion scores (positive/negative) and magnitudes are stored in the database. Total rating gauge score is updated with the aggregated emotion scores of all reviews.
Postconditions(s)	The total rating gauge score is up to date with all emotion scores of reviews stored in database.
Use Case Diagram	3.1.1

1.2. Non-Functional Requirements

1.2.1. Results time

Table 7

Title	Results time
Description	The system should display search results within 2 seconds after the user presses the enter key or the magnifying glass in the search bar.
Priority	2
Applicable FR(s)	1.1.1

1.2.2. Gauge time

Table 8

Title	Gauge display time
Description	The gauge graphic displaying the average rating should settle within three seconds after the search results are displayed.
Priority	2
Applicable FR(s)	1.1.2

1.2.3. Photo reviews

Table 9

Title	Reviews Display Order
Description	When displaying the reviews, those with pictures should be prioritized to appear at the top of the search results.
Priority	3
Applicable FR(s)	1.1.3

1.2.4. Manage storage space

Table 13

Title	Optimized Data Storage
Description	The system must efficiently manage storage space by employing optimized data storage formats and compression techniques. This includes utilizing efficient file formats and compression algorithms to minimize storage requirements while maintaining data integrity and accessibility.
Priority	3
Applicable FR(s)	1.1.2

2. System Constraints

2.1. Tool Constraints

2.1.1. Sufficient Database Management

Table 14

Title	Sufficient database storage
Description	The database must be able to handle large volumes of data. Particularly, storage, retrieval and organization of the data.
Priority	0

2.1.2. Web Scraping Tool Compatibility

Table 15

Title	Web Scraping tool compliance
Description	The web scraper used to collect data must be compatible with Reddit, as that will be a primary source of information
Priority	0

2.2. Language Constraints

2.2.1. Frontend User Interface

Table 16

Title	Frontend User Interface
Description	To ensure responsiveness among all devices, the app will be written using HTML and CSS. CSS version support will also be tested to ensure different browsers are compatible with the web app.
Priority	0

2.2.2. Backend Framework

Table 17

Title	Backend framework
Description	Since the app requires database management, python will be used to run the SQL queries.
Priority	0

2.3. Platform Constraints

2.3.1 System Compatibility

Table 18

Title	System compatibility
Description	The app must be compatible with various operating systems and also all of the most popular web browsers.
Priority	0

2.3.2 Seamless API Interaction

Table 19

Title	Seamless API Interaction
Description	The app must handle seamless interaction with the Reddit API to access the product reviews and data.
Priority	0

2.4. Hardware Constraints

2.4.1 Sufficient Memory

Table 20

Title	Sufficient Memory

Description	The app needs sufficient Database Management systems to store the product reviews and pull from it when a user searches for it.
Priority	0

2.4.2 Server Compatibility

Table 21

Title	Server Compatibility
Description	The website's host server must be able to accommodate user traffic and communication between the DBMS, the application server, and remote user requests.
Priority	0

2.5. Network Constraints

2.5.1 Internet Access

Table 22

Title	Good Internet Access
Description	The app will require internet connection and bandwidth to access Reddit, and connect to the website host server, application server, and DBMS.
Priority	0

2.6. Deployment Constraints

2.6.1. Application Reliability

Table 23

Title	Application Reliability
Description	Application must be able to respond to a large volume of users accessing the system with accurate results.
Priority	0

2.6.2. Scalability

Table 24

Title	Potential Scalability issue
Description	As the volume of information needed grows, the infrastructure may need to be scaled up to prevent overload. This involves upgrading servers and/or databases.
Priority	2

2.7. Transition & Support Constraints

2.7.1. Data Migration

Table 25

Title	Seamless Data Migration
Description	When migrating from an existing system or platform, there should not be loss of data or disrupted operations. Robust data migration scripts, rigid testing and rollback procedures are crucial.
Priority	1

2.7.2. Integration with Existing Systems

Table 26

Title	Integration with Existing Systems
Description	When integrating with existing systems, there may be compatibility issues. Rigid testing and fallback mechanisms are necessary to address these challenges.
Priority	1

2.8. Budget & Schedule Constraints

2.8.1. Budget Constraint

Table 27

Title	Budget Constraint
Description	As there is no funding for this project, there is no budget. We cannot use anything that costs money.
Priority	Lowest: 5

2.8.2. Quality Assurance and Testing Semester End Constraint

Table 28

Title	Quality Assurance and Testing Semester End Constraint
Description	Since this project is to fulfill requirements for course CSC431, it must be completed by the end of the spring 2024 semester.
Priority	Mandatory: 0

2.9. Miscellaneous Constraints

2.9.1. User Privacy & Data Protection

Table 29

Title	User Privacy & Data Protection
Description	Compliance with privacy regulations and protecting user data from unauthorized access, breaches, or misuse is paramount. Implementing

	robust security measures, encryption protocols, and data anonymization techniques is essential to address privacy concerns.
Priority	0

2.9.2. User Experience (UX) Design Constraints

Table 30

Title	UX design
Description	Aesthetic appeal must be balanced with usability, functionality, and performance constraints to deliver an intuitive and engaging user experience.
Priority	0

2.9.3. Brand Identity and Consistency

Table 31

Title	Maintaining brand identity
Description	To enhance brand recognition, brand consistency must be maintained across different platforms and channels. Specific brand guidelines, styles and design principles will be adhered to while maintaining diverse content and peak functionality.
Priority	1

3. Requirements Modeling

System Use Case Diagram

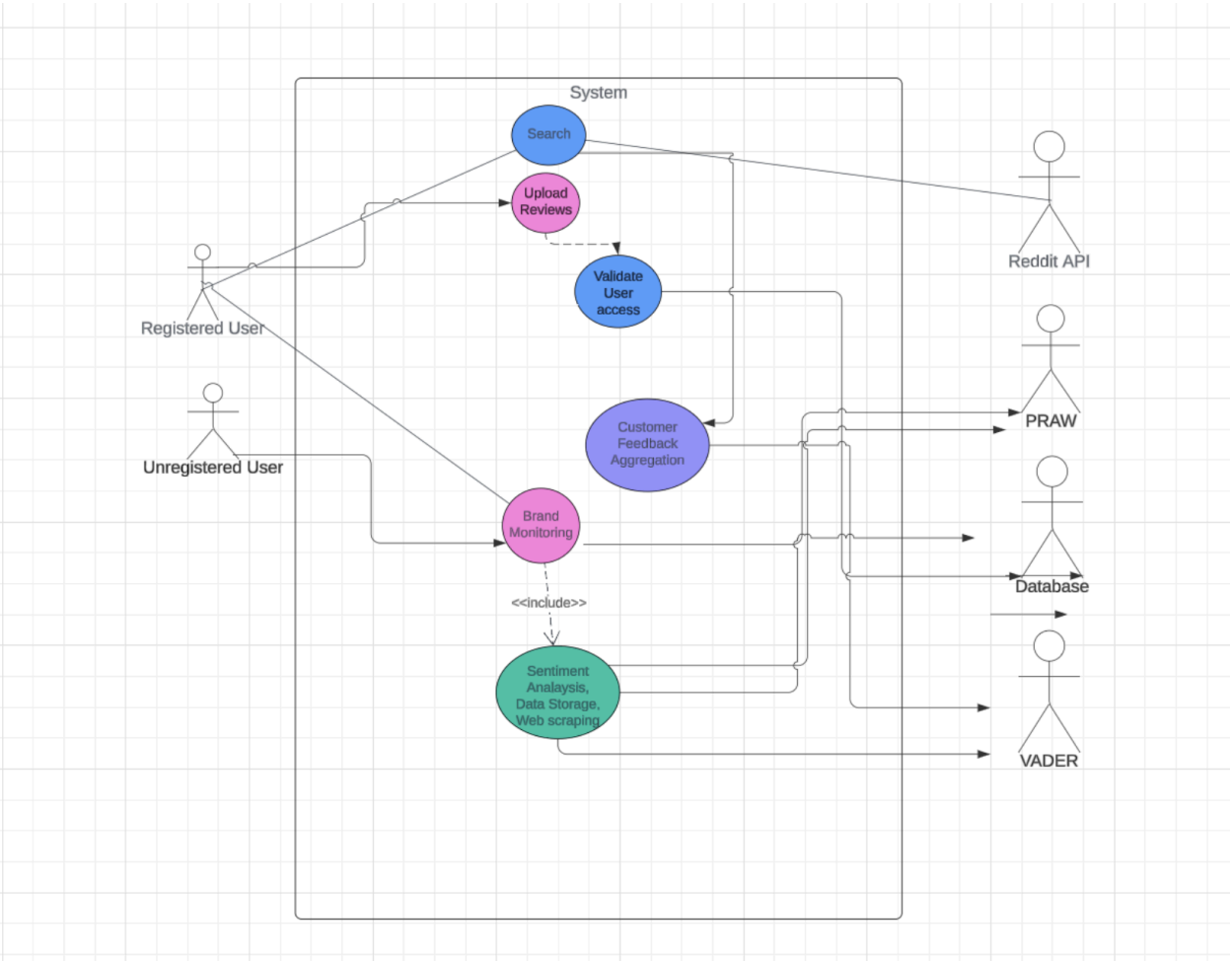

Figure 1: System Use-Case Diagram

4. Evolutionary Requirements

4.1 Functional Requirements

4.1.1 More Advanced Search Filters

Table 32

Title	Advancing search filters
Description	Implement additional search filters, such as sorting by relevance, date, sentiment score, or popularity, to enhance the search functionality and provide users with more precise results.
Priority	Low: 3
Precondition(s)	The user must select the magnifying glass or press “enter” after typing in the search bar
Postconditions(s)	The search results will have different filters based on what the user wants to see specifically.
Use Case Diagram	N/A

4.1.2 Real-time Monitoring

Table 33

Title	Real-time Monitoring
Description	Enable companies to receive immediate alerts or notifications about brand mentions, customer feedback, or product launches on social media platforms, allowing them to respond promptly to emerging trends or issues.
Priority	Low: 4
Precondition(s)	The company must have app notifications enabled.
Postconditions(s)	The companies receive an email or an in app notification about any activity regarding the brand name.
Use Case Diagram	N/A

4.1.3 Interactive Data Visualization

Table 34

Title	Data visualization
Description	Use interactive graphics to help users explore and analyze trends, patterns, and insights derived from social media reviews, customer feedback, or competitor analysis.
Priority	Low: 4
Precondition(s)	The user needs to search for a specific brand or product.
Postconditions(s)	A gauge or some other diagram is displayed to show the general vibe of the customer reviews.
Use Case Diagram	N/A

4.1.4 Regulatory Compliance

Table 35

Title	Regulatory Compliance
Description	Stay up-to-date with relevant laws, regulations, and industry standards pertaining to data privacy, security, and consumer protection.
Priority	Moderate: 3
Applicable FR(s)	Real-time Monitoring

4.2 Non-Functional Requirements

4.2.1 Scalability

Table 36

Title	Scalability
Description	As the app implements more complex searches and becomes more popular, the architecture will need to be scaled up to ensure proper data management.
Priority	High: 2
Applicable FR(s)	More advanced search filters

4.2.3 Reliability

Table 37

Title	Reliability
Description	Continuously improve on existing functions to ensure the app works as intended. This includes error handling mechanisms, graceful degradation strategies, and fault-tolerant components. Regular testing will be done to identify and address potential weaknesses in the system.
Priority	High: 0
Applicable FR(s)	Natural Language Processing