

REQUIREMENTS

SENG 401 - L01

Group: 18

Date: 2025-02-24

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1 FUNCTIONAL REQUIREMENTS

1.1 R-001 USER AUTHENTICATION

- (1) Registered users with valid usernames and passwords will have their credentials verified each time they log in.
- (2) Acceptance Criteria:
 - (a) The home page will have a button navigating you to the login page.
 - (b) The login page will have text boxes for entering a username and password to create or sign in to an account.
 - (c) Login credentials will be persistent.
 - (d) Password storage will be encrypted.

1.2 R-002 GUEST USER ACCESS

- (1) Users will be allowed full access to the capabilities of our website except for persistent user data.
- (2) Acceptance Criteria:
 - (a) All users will be able to make submissions and receive recommendations.
 - (b) Only registered users will have persistent data stored.

1.3 R-003 ROUTINE TIME SELECTION

- (1) Users can select whether they wish to do a morning routine, an evening routine, or both or indicate that they have no preference.
- (2) Acceptance Criteria:
 - (a) A dropdown-style submission for the morning or evening routine will be available.

1.4 R-004 SKIN TYPE INPUT

- (1) Users will be able to select their skin type.
- (2) Acceptance Criteria:

- (a) A drop-down menu will be available to indicate the following skin concerns:
 - (i) Normal Skin
 - (ii) Oily Skin
 - (iii) Dry Skin
 - (iv) Combination Skin

1.5 R-005 SKIN CONDITIONS INPUT

- (1) Users can submit skin conditions such as acne or rashes and general traits such as dry or oily.
- (2) Acceptance Criteria:
 - (a) Users will describe their skin conditions in a text box.
 - (b) Gemini will parse this information and only use recognized skin conditions.

1.6 R-006 ALLERGIES INPUT

- (3) Users will be able to submit allergies.
- (4) Acceptance Criteria:
 - (a) Users will list their allergies in a text box.
 - (b) Gemini will parse this information and only use recognized allergies.

1.7 R-007 SKIN CONCERNS

- (3) Users can select specific areas of their skin that are of concern.
- (4) Acceptance Criteria:
 - (a) A checkbox will be available to indicate the following skin concerns:
 - (i) Skin Concerns:
 - (1) Acne
 - (2) Hyperpigmentation

- (3) Redness
- (4) Dehydrated
- (5) Congested Skin
- (6) Enlarged Pores
- (7) Dullness & Uneven Texture
- (8) Fine Lines & Wrinkles
- (9) Loss of Firmness & Elasticity
- (10) Dark Circles & Puffiness (Under Eyes)
- (11) Sun Damage
- (12) Keratosis
- (13) Scarring

1.8 R-008 INGREDIENT PREFERENCES

- (1) Users will be able to select ingredient preferences for the recommended products.
- (2) Acceptance Criteria:
 - (a) A checkbox will be available to indicate the following ingredient preferences:
 - (i) Fragrance-Free
 - (ii) Alcohol-Free
 - (iii) Paraben & Sulfate-Free

1.9 R-009 ETHICAL & SUSTAINABILITY CONCERNS

- (3) Users can select ethical and sustainability concerns for the recommended products.
- (4) Acceptance Criteria:
 - (a) A checkbox will be available to indicate the following product preferences:

- (i) Cruelty-Free
- (ii) Vegan
- (iii) Eco-Friendly Packaging
- (iv) Sustainable Sourcing

1.10 R-010 BUDGET PREFERENCE

- (1) Users can submit budget preferences for low-, medium-, and high-priced products.
- (2) Acceptance Criteria:
 - (a) Users can input the minimum and maximum of their budget range per item.

1.11 R-011 SMART RECOMMENDATIONS

- (1) Users will receive product recommendations tailored to their specific skin and budget concerns provided in their input form.
- (2) Acceptance Criteria:
 - (a) Gemini will use all user input when crafting the recommendation query.

1.12 R-012 ROUTINE STORAGE

- (1) Registered users can save their recommended routines and store them in their accounts.
- (2) Acceptance Criteria:
 - (a) Products and routines will be persistent.
 - (b) Prior routines and product recommendations will be stored and accessible to the users.

1.13 R-013 RECOMMENDATION REASONING

- (1) Gemini will provide reasoning behind the products and routine recommendations.
- (2) Acceptance Criteria:
 - (a) Gemini will display the reasoning to the user upon receiving a recommendation.

- (b) User profiles will persistently store reasoning alongside product recommendations and routines.

1.14 R-014 PRODUCT VISUALIZATION

- (1) Gemini will provide photos of each product alongside recommendations.
- (2) Acceptance Criteria:
 - (a) Photos of all products up for recommendation will be viewable alongside them.

1.15 R-015 FORM DATA PERSISTENCE

- (1) Registered user-submitted data will be persistent across user sessions and immediately accessible during future routine requests.
- (2) Acceptance Criteria:
 - (a) User data will auto-fill for future queries for registered users.

2 NON-FUNCTIONAL REQUIREMENTS

2.1 R-016 USER INTERFACE

- (1) The interface will be generally appealing and easy to navigate.
- (2) Acceptance Criteria:
 - (a) Web page content will be reasonably divided to prevent information from being clustered.
 - (b) The colour palette will be accessible and designed to mitigate eye strain.

2.2 R-017 RESPONSE TIME PERFORMANCE

- (1) Recommendation response times will be as low as possible.
- (2) Acceptance Criteria:
 - (a) The time between the user's submission of criteria and Gemini's response will be no longer than the average time for a Gemini query of the same size.

2.3 R-018 PAGE LOADING

- (1) Website traversal will be seamless, with low latency and quick-loading web pages.
- (2) Acceptance Criteria:
 - (a) The site organization will lay out the web pages and assets to make navigation quick.

2.4 R-019 SECURITY

- (1) The site will not store user data without their knowledge and approval and should not make it available to any third party.
- (2) Acceptance Criteria:
 - (a) UI elements will inform users of their data usage.
 - (b) UI elements will use user input to determine data usage and storage.
 - (c) Data for one user will only be made accessible to that user during a logged-in session.

2.5 R-020 RESPONSIVE DESIGN

- (1) The UI will use responsive web design to adapt to the user's screen size and browser seamlessly.
- (2) Acceptance Criteria:
 - (a) The UI will adapt to screen sizes with minimal changes or intelligently transition formatting when impossible.
 - (b) Backend connections for all platforms will be centralized.
 - (c) Data continuity will be seamless when transitioning from one platform to another.

2.6 R-021 HIGH-TRAFFIC PERFORMANCE

- (1) The number of users accessing the site simultaneously will not impact performance.
- (2) Acceptance Criteria:
 - (a) The site will handle requests from multiple users concurrently.
 - (b) The database infrastructure will be scalable.

3 USER STORIES

3.1 U-001: PERSONALIZED SKINCARE RECOMMENDATIONS

- (1) *As a* skincare enthusiast, *I want to* receive personalized product and routine recommendations based on my skin type and concerns *so that I* can efficiently improve my skincare routine.
- (2) Functional Requirements:
 - (a) Allow users to input skin type, concerns, and skincare goals.
 - (b) Process user input and fetch product recommendations from a database or third-party API.
 - (c) Display customized skincare routines step by step.
- (3) Non-Functional Requirements:
 - (a) Recommendations should be accurate and tailored to user input.
 - (b) Response time for generating suggestions should be under 3 seconds.

3.2 U-002: USER AUTHENTICATION AND GUEST ACCESS

- (1) *As a* user, *I want to* log in securely or access the application as a guest *so that I* can receive skincare recommendations without always creating an account.
- (2) Functional Requirements:
 - (a) Provide secure user authentication using PostgreSQL to store credentials.
 - (b) Offer guest user login functionality with limited features.
- (3) Non-Functional Requirements:
 - (a) Ensure secure password storage and login process (use encryption).
 - (b) System uptime for login functionality should be 99.9% over a month.

3.3 U-003: SKINCARE ROUTINE MANAGEMENT

- (1) *As a* registered user, *I want to* save and view my skincare routines *so that I* can track my skincare regimen over time.

- (2) Functional Requirements:
 - (a) Allow users to save generated skincare routines to their profiles if logged in.
 - (b) Provide an interface to view and manage saved routines.
- (3) Non-Functional Requirements:
 - (a) Saved routines should persist across sessions.
 - (b) The database should process queries to retrieve routines efficiently.

3.4 U-004: BUDGET-FRIENDLY RECOMMENDATIONS

- (1) *As a* budget-conscious user, *I want to* filter product recommendations by budget *so that I* can select affordable skincare options.
- (2) Functional Requirements:
 - (a) Include budget input fields during the recommendation process.
 - (b) Filter recommendations based on price range.
- (3) Non-Functional Requirements:
 - (a) Ensure real-time filtering without page reloads.
 - (b) Handle edge cases like missing budget data gracefully.

3.5 U-005: CROSS-PLATFORM COMPATIBILITY

- (1) *As a* mobile user, *I want to* access the application on different devices *so that I* can seamlessly use it on my desktop and phone.
- (2) Functional Requirements:
 - (a) Design a responsive user interface that adapts to different screen sizes.
- (3) Non-Functional Requirements:
 - (a) Maintain consistent performance across devices and user traffic with minimal layout shifts.
 - (b) Ensure compatibility with major browsers (Chrome, Safari, Edge).

4 USE CASE DIAGRAM

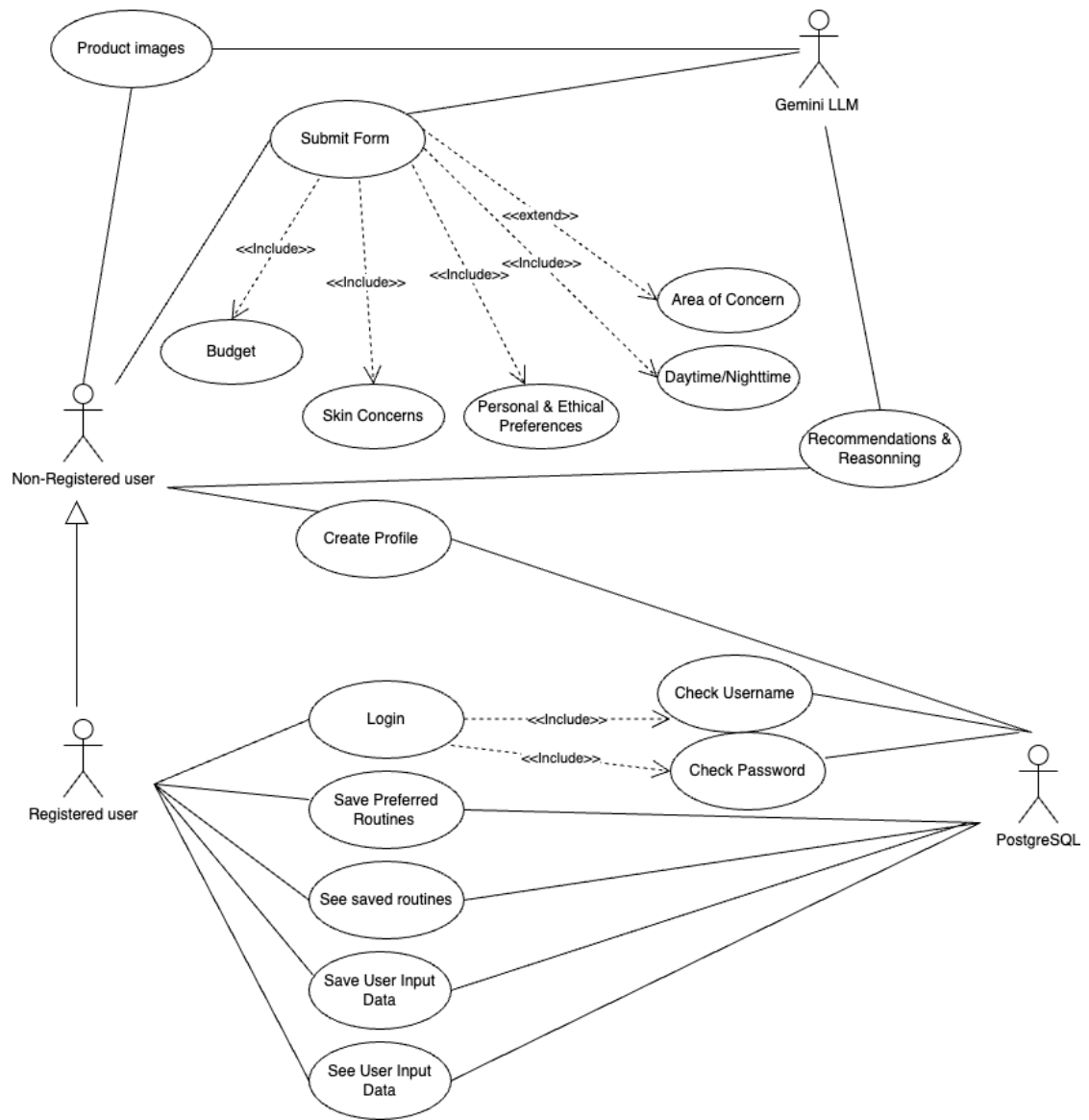


Figure 1: D-001 Use Case Diagram

5 REQUIREMENTS PRIORITIZATION

| PRIORITIZATION LEVEL | RED ID | REQUIREMENT TITLE |
|----------------------|-----------------------|-----------------------------------|
| 1 – Must Have | R-001 | User Authentication |
| 1 – Must Have | R-002 | Guest User Access |
| 1 – Must Have | R-003 | Routine Time Selection |
| 1 – Must Have | R-004 | Skin Type Input |
| 1 – Must Have | R-005 | Skin Conditions Input |
| 1 – Must Have | R-006 | Allergies Input |
| 1 – Must Have | R-007 | Skin Concerns |
| 1 – Must Have | R-011 | Smart Recommendations |
| 1 – Must Have | R-012 | Routine Storage |
| 1 – Must Have | R-015 | User Interface |
| 1 – Must Have | R-016 | Response Time Performance |
| 1 – Must Have | R-019 | Responsive Design |
| 2 – Should Have | R-008 | Ingredient Preferences |
| 2 – Should Have | R-009 | Ethical & Sustainability Concerns |
| 2 – Should Have | R-010 | Budget Preference |
| 2 – Should Have | R-018 | Page Loading |
| 2 – Should Have | R-019 | Security |
| 2 – Should Have | R-021 | High-Traffic Performance |
| 3 – Could Have | R-013 | Recommendation Reasoning |
| 4 – Won't Have | R-014 | Product Visualization |
| 4 – Won't Have | R-015 | Form Data Persistence |

Table 1: Requirements Prioritization

6 REQUIREMENTS TRACEABILITY MATRIX

| REQ ID | REQUIREMENT DESCRIPTION | REQ REF | DESIGN REF | TEST CASE ID | STATUS |
|-----------------------|--|---|--|---|-----------|
| R-001 | Registered User Login Credentials – Allow users to register and log in with username and password. | R-012 R-015 U-002 | D-003 D-004 D-005 D-007 D-008 D-009 | T-001 T-002 T-003 T-004 T-005 T-006 T-007 T-025 T-041 | Completed |
| R-002 | Guest User Access – Provide full feature access except for data persistence. | U-002 | D-003 D-006 D-007 D-009 | T-001 T-026 T-027 T-040 | Completed |
| R-003 | Routine Time Selection – Allow users to select morning/evening preferences. | U-001 | D-004 D-007 D-009 | T-008 T-028 | Completed |
| R-004 | Skin Type – Enable users to submit their skin type. | U-001 | D-004 D-007 D-009 | T-009 T-029 | Completed |
| R-005 | Skin Conditions – Enable users to submit skin conditions. | U-001 | D-004 D-007 D-009 | T-010 T-030 | Completed |
| R-006 | Allergies Input – Enable users to submit allergies. | U-001 | D-004 D-007 D-009 | T-011 T-031 | Completed |
| R-007 | Skin Concerns – Enable users to submit skin concerns. | U-001 | D-004 D-007 D-009 | T-012 T-032 | Completed |
| R-008 | Ingredient Preferences – Enable selection of ingredient preferences. | U-001 | D-004 D-007 | T-013 T-033 | Completed |

| REQ ID | REQUIREMENT DESCRIPTION | REQ REF | DESIGN REF | TEST CASE ID | STATUS |
|-----------------------|--|-----------------------|----------------------------------|--|-----------|
| | | | D-009 | | |
| R-009 | Ethical & Sustainability Concerns – Enable selection of ethical and sustainability concerns. | U-001 | D-004 D-007 D-009 | T-014 T-034 | Completed |
| R-010 | Budget Range – Allow users to select price range preferences. | U-004 | D-004 D-007 D-009 | T-015 T-015 T-017 T-018 T-035 T-036 T-037 T-038 T-047 T-048 T-049 T-050 T-051 T-052 | Completed |
| R-011 | Smart Recommendations – Provide tailored product suggestions based on user inputs. | U-001 | D-004 D-009 | T-019 T-039 | Completed |
| R-012 | Routine Storage – Save recommended routines for registered users. | U-003 | D-005 D-008 D-009 D-010 | T-023 T-024 | Completed |
| R-013 | Recommendation Reasoning – Display reasoning behind product suggestions. | U-001 | D-004 D-008 D-009 | T-020 | Blocked |
| R-014 | Product Visualization – Display product images with recommendations. | U-001 | D-004 D-008 D-009 | T-021 | Blocked |

| REQ ID | REQUIREMENT DESCRIPTION | REQ REF | DESIGN REF | TEST CASE ID | STATUS |
|-----------------------|---|--|---|--------------|-----------|
| R-015 | Form Data Persistence – Save user preferences and concerns for registered users. | R-001 U-003 | D-004 D-007 D-009 D-010 | T-022 | Blocked |
| R-016 | User Interface – Implement intuitive, user-friendly design. | U-005 | L-001 L-002 L-003 L-004 L-005 L-006 L-007 L-008 L-009 L-010 L-011 | T-041 | Completed |
| R-017 | Response Time Performance – Ensure recommendation response time is under 5 seconds. | U-001 | D-009 | T-042 | Completed |
| R-018 | Page Loading – Optimize web page loading times. | U-005 | D-009 | T-043 | Completed |
| R-019 | Security – Implement data privacy and security measures. | U-002 | D-009 | T-044 | Completed |
| R-020 | Responsive Design – Ensure cross-platform compatibility. | U-005 | L-001 L-002 L-003 L-004 L-005 L-006 L-007 L-008 L-009 L-010 L-011 | T-045 | Completed |

| REQ ID | REQUIREMENT DESCRIPTION | REQ REF | DESIGN REF | TEST CASE ID | STATUS |
|-----------------------|--|-----------------------|------------|--------------|-----------|
| R-021 | High-Traffic Performance – Ensure optimal performance regardless of the number of users. | U-005 | D-009 | T-046 | Completed |

Table 2: Requirements Traceability Matrix