

REQUIREMENTS

SENG 401 - L01

Group: 18

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1 FUNCTIONAL REQUIREMENTS

1.1 R-001 USER AUTHENTICATION

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

1.2 R-002 GUEST USER ACCESS

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

1.3 R-003 ROUTINE TIME SELECTION

- (1) Users *should* be able to 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 *should* be available.

1.4 R-004 SKIN CONCERNS INPUT

- (1) Users *should* be able to submit skin concerns such as allergies, acne, rashes or other skin conditions, and general traits such as dry or oily.

- (2) Acceptance Criteria:
 - (a) Users *should* describe their skin conditions and allergies in a text box.
 - (b) Gemini *should* parse this information and only use recognized skin conditions and allergies.

1.5 R-005 BUDGET PREFERENCE

- (1) Users *should* be able to submit budget preferences for low-, medium-, and high-priced products.
- (2) Acceptance Criteria:
 - (a) Users *should* be able to input the minimum and maximum of their budget range.
 - (b) Users *should* be able to indicate if their budget is for the entire routine or per item.
 - (c) Users *should* be able to select the currency of their budget.

1.6 R-006 PRODUCT PREFERENCES

- (1) Users *should* be able to select personal and ethical preferences for the recommended products.
- (2) Acceptance Criteria:
 - (a) A checkbox *should* be available to indicate the following product preferences:
 - (i) Brand Reputation & Trust:
 - (1) Dermatologist-Recommended
 - (2) Luxury
 - (3) Drugstore
 - (ii) Ingredient Preferences:
 - (1) Fragrance-Free
 - (2) Alcohol-Free
 - (3) Paraben & Sulfate-Free
 - (iii) Ethical & Sustainability Concerns:

- (1) Cruelty-Free
- (2) Vegan
- (3) Eco-Friendly Packaging
- (4) Sustainable Sourcing

1.7 R-007 SKIN CONCERNS

- (1) Users *should* be able to select specific areas of their skin that are of concern.
- (2) Acceptance Criteria:
 - (a) A checkbox *should* be available to indicate the following skin concerns:
 - (i) Skin Type:
 - (1) Normal Skin
 - (2) Oily Skin
 - (3) Dry Skin
 - (4) Combination Skin
 - (5) Sensitive Skin
 - (6) Aging-Skin
 - (ii) Skin Concerns:
 - (1) Acne
 - (2) Hyperpigmentation
 - (3) Redness
 - (4) Dryness/Dehydration
 - (5) Oily & 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
- (iii) Medical Conditions:
 - (1) Eczema
 - (2) Psoriasis
 - (3) Rosacea
 - (4) Hormonal Imbalances
 - (5) Diabetes
 - (6) Seborrheic Dermatitis
 - (7) Skin Cancer
 - (8) Fungal or Bacterial Infection
 - (9) Photosensitivity Disorder
 - (10) Chronic Stress
- (b) A textbox *should* be available to describe the severity of the checked concerns or to include other skin concerns.

1.8 R-008 SMART RECOMMENDATIONS

- (1) Users *must* receive product recommendations tailored to their specific skin and budget concerns provided in their input form.

- (2) Acceptance Criteria:
 - (a) Gemini *must* use all user input when crafting the recommendation query.

1.9 R-009 DATA PERSISTENCE

- (1) Registered user-submitted data *should* be persistent across user sessions and immediately accessible during future product requests.
- (2) Acceptance Criteria:
 - (a) User profiles *should* store previously input data and make it accessible in new sessions.
 - (b) User data *should* be auto-filled for future queries.

1.10 R-010 ROUTINE STORAGE

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

1.11 R-011 RECOMMENDATION REASONING

- (1) Gemini *should* provide reasoning behind the products and routine recommendations.
- (2) Acceptance Criteria:
 - (a) Gemini *should* display the reasoning to the user upon receiving a recommendation.
 - (b) User profiles *should* persistently store reasoning alongside product recommendations and routines.

1.12 R-012 PRODUCT VISUALIZATION

- (1) Gemini *may* provide photos of each product alongside recommendations.
- (2) Acceptance Criteria:

- (a) Photos of all products up for recommendation *may* be viewable alongside them.

2 NON-FUNCTIONAL REQUIREMENTS

2.1 R-013 USER INTERFACE

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

2.2 R-014 RESPONSE TIME PERFORMANCE

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

2.3 R-015 PAGE LOADING

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

2.4 R-016 SECURITY

- (1) The site *should* 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 *should* inform users of their data usage.
 - (b) UI elements *should* use user input to determine data usage and storage.

- (c) Data for one user *should* only be made accessible to that user during a logged-in session.

2.5 R-017 RESPONSIVE DESIGN

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

2.6 R-018 HIGH-TRAFFIC PERFORMANCE

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

3 USER STORIES

3.1 US-1: 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 US-2: 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 US-3: 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 US-4: 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 US-5: 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

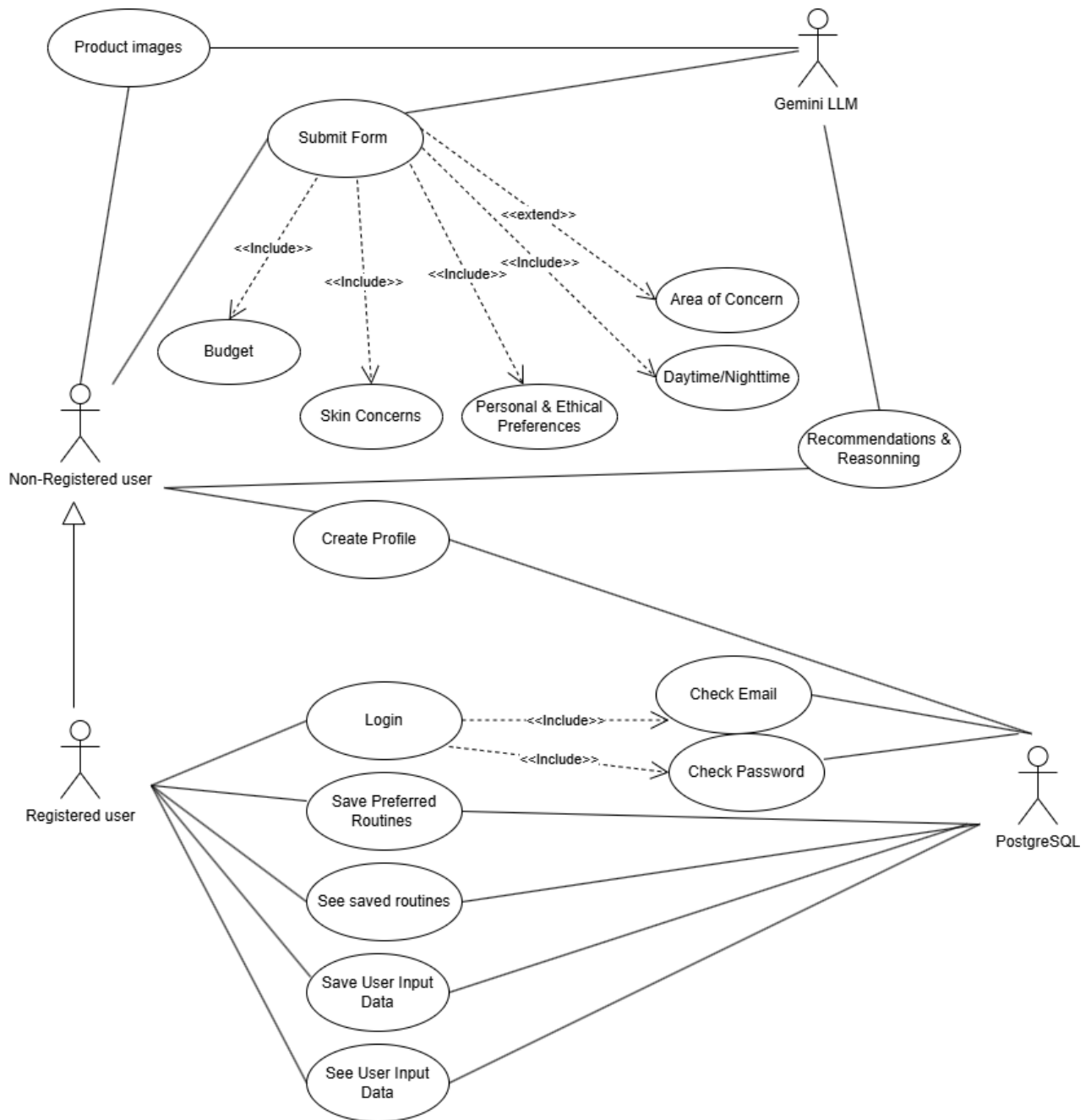


Figure 1: Use Case Diagram

5 REQUIREMENTS TRACEABILITY MATRIX

REQ ID	REQUIREMENT DESCRIPTION	REQ REF	DESIGN REF	TEST ID	STATUS
R-001	Registered User Login Credentials – Allow users to register and log in with email and password.	R-009 US-2			
R-002	Guest User Support – Provide full feature access except for data persistence.	US-2			
R-003	Routine Time Selection – Allow users to select morning/evening preferences.	US-1			
R-004	Skin Concerns – Enable users to submit skin conditions, allergies, and traits.	US-1			
R-005	Budget Range – Allow users to select price range preferences.	US-4			
R-006	Product Preferences – Enable selection of personal and ethical preferences.	US-1			
R-007	Skin Concerns – Allow users to specify problematic skin areas.	US-1			
R-008	Smart Recommendations – Provide tailored product suggestions based on user inputs.	US-1			
R-009	Data Persistence – Save user preferences and concerns for registered users.	R-001 US-3			
R-010	Routine Storage – Save recommended routines for registered users.	US-3			
R-011	Recommendation Reasoning – Display reasoning behind product suggestions.	US-1			
R-012	Product Visualization – Display product images with recommendations.	US-1			
R-013	User Interface – Implement intuitive, user-friendly design.	US-5			

R-014	Response Time Performance – Ensure recommendation response time is under 5 seconds.	US-1			
R-015	Page Loading – Optimize web page loading times.	US-5			
R-016	Security – Implement data privacy and security measures.	US-2			
R-017	Responsive Design – Ensure cross-platform compatibility.	US-5			
R-018	High-Traffic Performance – Ensure optimal performance regardless of the number of users.	US-5			

Table 1: Requirements Traceability Matrix