GlowGuide

Application

Principles of Software Engineering

CCSW-223

Section: CY1

GlowGuide
Application

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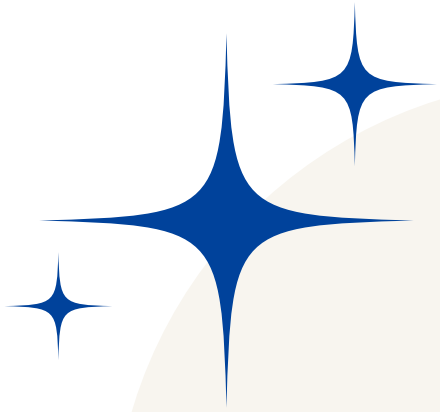
Illustrations:



Lab One

Introduction & Project Definition

Introduction

Skincare plays a huge role in how we feel about ourselves, but figuring out what your skin actually needs isn't always easy. Most people aren't even sure what their skin type is, and with shelves full of products making big promises, it's easy to pick the wrong ones—and end up doing more harm than good.

That's exactly why we created *GlowGuide*. It's a smart app for your phone or laptop that helps you figure out your skin type, spot any issues, and find products that actually make sense for you. But what really makes it different is that you can talk to real, certified dermatologists—through chat or video—whenever you need more guidance. It's a mix of tech and expert help that makes skincare simpler and way more reliable.

Our goal is to build a platform that's not only intelligent but also genuinely helpful—one that gives people accurate skin analysis, trusted product suggestions, and access to real professionals, all in one place. With *GlowGuide*, skincare becomes clearer, more personal, and a whole lot more effective.

Lab Two

Information Gathering

Introduction:

Our project is about an application that sells skin care products, and we are trying to be distinguished with our application by adding features that are not available in other applications of this type by asking people and knowing what they care about and what they prefer to have on the application. The application contains skin care products with recommendations from experts, doctors, and even customers. All of this is to gain the user's trust in us and to make them prefer our application over other applications that have the same type of services and make them order from us again always.

Interview

Raheed's Questions:

- Do you know your skin type?
- When you buy skin care products, do prefer buying from reputable brands even if its expensive, or are you open to try new brands for a cheaper price?
- Do you have a dedicated time for skin care in your everyday routine?
- What is the most challenging thing you experienced when using skin care products?
- Do you prefer an easy and simple app, even if the recommendations are limited, or an easy and complex app that has much more details?
- Would you prefer to have consultation services in the application?

Lamees's Questions:

- Do you care about knowing your skin type?
- When you buy skincare products, do you prefer to use commercial or medical websites?
- Do you prefer that skincare routines are explained by a specialist in a quick way, or in detail with steps?
- What is a problem you face when choosing skincare products? (e.g., too many options, prices, difficulty finding the right product, etc.)
- Do you prefer that the app gives recommendations based only on your skin type, or also includes your lifestyle and daily habits?
- Do you think that clinics sometimes exaggerate or overuse expensive product recommendations?

✷ *Seham's Questions:*

- Do you like the idea of finding out what your skin type is with a dermatologist online?
- Do you use skincare products frequently?
- Would you prefer that the application mentions the ingredients and products that you should avoid based on your skin type?
- Have you ever visited a dermatologist? If yes, why? If not, why not?
- Do you prefer the app to be simple and easy to use, even if the recommendations are limited? Or do you prefer it to have many details, even if it takes more time and effort?
- Would you prefer if there were free consultation services available within the app or website?

✷ *Raghad's Questions:*

- Do you prefer determining your skin type with a specialist through live chat or voice chat?
- Do you consider skincare product prices to be reasonable?
- Is it important to you that the products have a quick and short-term effect?
- Do you think the products that are promoted by clinics are always effective?
- What factors influence your choice of the skincare products you use?
- What is the most important part of your skincare routine?

✷ *Rama's Questions:*

- Do you prefer identifying your skin type through a home test with a specialist or by visiting a dermatology clinic?
- Do you prefer buying skincare products online or from physical stores?
- Is it important to you that the app provides articles or general skincare advice from experts?
- Do you think clinic prices and skin cleaning services are affordable for everyone?
- Do you prefer that the app gives personalized recommendations based on your skin's features?
- Do you think skincare products are suitable for both genders, or only for women?

✷ *Shujune's Questions:*

- What do you think of the idea of a bot analyzing your skin type and giving you advice?
- When you buy products, do you read reviews and people's opinions?
- Do you find it difficult to tell whether a product is medical or cosmetic?
- Do you prefer trying products yourself, or do you prefer using a smart app to recommend a personalized skin care routine?
- Do you prefer that each product has a video or images explaining how to use it?
- Is it important to you that the app provides detailed information about product ingredients?

Interview conclusion

All of the interviewees emphasized the importance of knowing their skin type before purchasing skincare products, though some preferred online assessments while others leaned toward video consultations. Most participants favored well-known brands due to trust and consistency, with some also relying on recommendations from friends. The biggest challenges they faced included false advertising, the overwhelming number of choices, high product costs, and the risk of purchasing items that might not suit their skin.

When it comes to skincare routines, preferences varied—some followed structured routines morning and night, while others struggled with consistency or preferred a quick and simple approach. Many valued ingredient transparencies and sought recommendations tailored to their skin type and lifestyle. Additionally, skepticism toward overpriced or overhyped products was a common theme, with several participants believing that specialists sometimes push expensive options unnecessarily.

Regarding online platforms, there was a clear preference for simple, easy-to-use medical websites or applications that provide free skincare consultations. Some interviewees wanted detailed product descriptions and guidance, while others favored a more minimalistic approach. The idea of incorporating skincare advice into the platform, whether through recommendations, consultations, or introductory guides, resonated strongly with most participants. These insights highlight the need for a user-friendly platform that prioritizes personalized recommendations, accessibility, and transparency in skincare guidance.

Lab Three

Planning Phase One

The Purpose of The Project

Project Overview

GlowGuide is a mobile app that uses AI to analyze skin and provide personalized skincare routine. By simply uploading a photo, the app identifies skin type and potential concerns, then suggests suitable products and routines. It also allows users to consult dermatologists and track their skin progress over time. With 24/7 accessibility and a user-friendly interface, *GlowGuide* makes skincare routine simple and effective.

Why This Project is Needed

Many people struggle to find the right skincare products, often wasting time and money on trial and error. Visiting a dermatologist can be inconvenient due to appointment wait times and scheduling conflicts. *GlowGuide* fills this gap by offering instant, expert-backed guidance, helping users make better skincare choices without the hassle.

Main Goal and Expected Benefits

The main goal of *GlowGuide* is to make skincare more accessible, accurate, and effective. The app aims to:

- Analyze skin types using AI to provide personalized recommendations.
- Recommend personalized skincare routines and products based on individual needs.
- Offer direct consultations with dermatologists for expert advice.
- Allow users to track their skin's progress and adjust their routines accordingly.
- Ensure privacy and security by keeping personal data protected.

Preliminary Report

The problem

Customers face multiple challenges when managing their skincare, including:

- Difficulty identifying their skin type and its needs, often resorting to trial-and-error methods that waste time and money.
- Overwhelming product choices, deceptive advertising, and difficulty distinguishing between cosmetic and medical skincare products.
- High costs and a lack of trust in expensive products or services.
- Limited access to dermatologists, requiring inconvenient appointments and long wait times.
- Lack of personalized recommendations and transparency in tracking skincare progress over time.

Findings

- Awareness of Skin Type: Many individuals struggle to identify their skin type and often rely on trial-and-error methods, leading to wasted time, money, and potential skin damage.
- Brand Preferences: While trusting well-known brands for their reliability, they are open to trying new products if recommended by dermatologists or supported by scientific evidence.
- Skincare Routine: Some maintain consistent routines, but many struggle with consistency due to busy lifestyles or lack of guidance.
- Challenges: Key issues include deceptive marketing, overwhelming product choices, high costs, and difficulty distinguishing between cosmetic and medical skincare products.

- Application Preferences: prefer simple, intuitive platforms that offer personalized skincare recommendations, progress tracking, and direct access to dermatologists for consultations.
- Lack of Progress Tracking: They have no way to monitor improvements in their skin condition over time, leading to frustration and uncertainty about product effectiveness.

Recommendation or proposed solution

Create a friendly, easy-to-use skincare application that addresses these challenges by providing:

- **AI- Skin Analysis:** Users can upload photos to receive an accurate analysis of their skin type and conditions, eliminating the need for trial-and-error.
- **Personalized Recommendations:** Tailored product and routine suggestions based on the user's skin type, preferences, and lifestyle.
- **Expert Consultations:** Direct access to certified dermatologists via video calls or chat for professional advice and guidance.
- **Progress Tracking:** A feature to monitor skin improvements over time, providing transparency and motivation for users.
- **Transparency:** Detailed information about product ingredients, costs, and scientific evidence to build trust and confidence.

- **User Reviews and Ratings:** Honest feedback from other users to help make informed decisions.
- **Simple Interface:** An intuitive, easy-to-navigate design that simplifies product searches and skincare management.
- **Cost-Effective Options:** Recommendations for affordable alternatives to high-end products, with clear explanations of their benefits.
- **Educational Content:** Articles, videos, and tips to help users improve their skincare habits and knowledge.
- **Recurring Reminders:** Notifications to help users maintain consistent skincare routines. This solution seeks to make skincare purchasing easier, gain consumers' confidence, and assist them to achieve their skincare goals effectively.

Cost & Schedule Estimates

Project Estimated Costs

Resources	Estimated cost
Website Design & Development	7500
Domain Name Purchase	50
Website Hosting	1499 (per year)
Website Security (SSL Certificate, Firewall)	Included in hosting
Database Management	Included in development
UI/UX Design	Included in development
Maintenance & Updates	1000 (per year)
Digital Marketing & Advertising	3,000 (per month)
Technical Support	4500 (per year)
Integration with Payment Systems	2,000
AI Model Development (Skin Analysis AI)	20,000 – 50,000
Cloud AI Services (Google Vision, AWS Recognition)	1,500 – 5,000 / month
AI Chatbot Development & Integration	10,000 – 25,000
Server & Data Storage for AI	5,000 – 15,000 / year
AI Maintenance & Updates	2,500 – 7,500 / year
Total Estimated Cost (One-time)	44,500 – 95,000 SAR
Total Estimated Cost (Annual)	21,999 – 55,000 SAR

Table 3.1

Key Insights

- Initial Cost (One-time setup): 44,500 – 95,000 SAR
  - Major costs include AI model development & chatbot integration.
- Annual Running Costs: 21,999 – 55,000 SAR per year
  - Covers AI cloud services, server costs, marketing, and website support.

Project Estimated Schedule

Tasks	Estimated duration	Start date	End date
Phase 1: Project Analysis & Planning (3 Months)			
Collecting & Analysing Project Requirements	15 days	19-01	02-02
Market & Competitor Research	14 days	03-02	16-02
Defining Project Scope & Initial Specifications	12 days	17-02	28-02
Creating Initial Wireframes & Flowcharts	18 days	01-03	18-03
Preparing a Comprehensive Requirement Analysis Report	10 days	19-03	28-03
Team & Stakeholder Review Meetings	7 days	29-03	04-04
Finalizing & Documenting the Requirement Analysis	9 days	05-04	13-04
Presentation & Submission of Phase 1 Report	5 days	14-04	18-04
Phase 2: Project Development & Implementation			

UI/UX Design	10 days	19-04	28-04
Backend & Database Development	18 days	29-04	16-05
Frontend Development	18 days	17-05	03-06
AI Development (Skin Analysis)	25 days	04-06	28-06
AI Chatbot Integration	10 days	29-06	08-07
Payment Gateway Integration	4 days	09-07	12-07
Testing & Quality Assurance	10 days	13-07	22-07
Final Deployment & Launch	5 days	23-07	27-07

Table 3.2

Summary of the Final Timeline

- Phase 1 (Analysis & Planning): Fully detailed and lasts 3 months (January 19 - April 18, 2025).
- Phase 2 (Development & Implementation): Takes about 3.5 months (April 19 - July 27, 2025).
- The entire project will be completed in 6 - 7 months, with all tasks well-distributed and structured.

Lab Four

Planning Phase Two

Feasibility Study

Problem Definition

Managing skincare and health concerns is often overwhelming, especially when individuals struggle to identify their skin type and seek personalized recommendations for effective solutions. Many people rely on trial and error, using various products that may or may not work, wasting both time and money. Furthermore, consulting with dermatologists and skincare professionals often requires scheduling appointments, enduring long wait times, and taking time off work, which can be both inconvenient and stressful.

This inefficient process leaves many individuals frustrated, especially when they are not sure what products or treatments will actually benefit their skin. The lack of personalized guidance leads to confusion, and individuals may even worsen their skin conditions due to incorrect choices. Additionally, managing skincare concerns often lacks transparency, with little way of tracking progress or receiving expert advice regularly.

A specialized app can transform this experience. By simply uploading a photo, users can receive a skin analysis that accurately determines their skin type and suggests personalized skincare routines, treatments, and products. The app also allows for direct consultations with medical professionals, ensuring users receive expert advice tailored to their unique needs. This approach eliminates the guesswork, provides more immediate access to solutions, and improves users' overall experience, making skincare both convenient and effective.

Scope Objectives of "new system"

GlowGuide is an innovative mobile application designed to simplify and enhance skincare management for individuals. The app aims to address the common challenges people face when trying to understand their skin type and find effective solutions for their skin issues. *GlowGuide* brings convenience, expertise, and transparency into one seamless experience.

The standout feature of *GlowGuide* is its ability to provide users with a comprehensive skin analysis through just a photo upload, accurately identifying skin types and conditions. From there, the app offers personalized skincare routines, product recommendations, and even connects users with certified dermatologists for consultations directly through the app. It also includes features such as tracking skin progress over time, setting up recurring skincare reminders, and offering educational content for better skincare habits.

GlowGuide is available 24/7, ensuring users can access skincare guidance and support even on holidays or vacations. It also offers a user-friendly interface to manage multiple accounts for families or groups, with a customer support feature for inquiries and troubleshooting.

Privacy is a top priority for *GlowGuide*, ensuring that all personal information is kept confidential and compliant with the highest security standards. To begin using the app, users must authenticate their accounts with government-approved documents for added safety and legitimacy. This makes *GlowGuide* a trusted and essential tool for anyone looking to take better care of their skin with ease and expert support.

Alternative Solutions

1. Developing " *GlowGuide*" Application
2. Add a feature to “health” Application
3. No Solution

Cost And Benefits of Alternatives

Alternatives	Cost	Benefits	Drawbacks
Developing “GlowGuide” Application	High initial development and maintenance costs	Fully customizable, dedicated features, direct consultations, strong security, and privacy controls	Requires significant time and financial investment
Add a Feature to “Health” Application	Lower development cost since it builds on an existing platform	Faster implementation, integrated with other health services	Limited customization, dependency on existing platform updates, potential privacy concerns
No Solution	No cost	No effort needed for implementation	Users continue to experience confusion, trial-and-error skincare, and lack of expert guidance

Table 4.1

Based on this evaluation, the recommended solution is to develop *GlowGuide*. This ensures full customization, high security, and superior user experience tailored specifically for skincare management.

Software Impacts

Since *GlowGuide* is a new app, it will be built from scratch. The main software considerations include:

1. **Mobile App Development:** The app will be created for both iOS and Android.
2. **AI Skin Analysis:** The app will use AI technology to analyze skin conditions from uploaded photos.
3. **Consultation Feature:** The app will allow video calls and chat with dermatologists for expert advice.
4. **Privacy and Security:** Strong security measures that will ensure the privacy of user information.
5. **Cloud Storage:** User data will be stored securely in the cloud to ensure easy access and backup.
6. **Third-Party Integration:** The app will connect with payment systems and product stores for a complete skincare experience. These features will make *GlowGuide* a fast, secure, and user-friendly skincare app.

Potential Changes in the Organization

Implementing *GlowGuide* will introduce several changes in the organization, including:

1. **Hiring Developers:** Specialists in AI, mobile app development, and cybersecurity will be required to build and maintain the app.
2. **Establishing Dermatologist Partnerships:** Collaborations with certified dermatologists will be needed for professional consultations.

3. **Customer Support Expansion:** A dedicated customer support team will handle user inquiries, troubleshooting, and feedback.
4. **Marketing and User Growth Strategy:** A comprehensive marketing campaign will be launched to attract and retain users through advertising, social media, and partnerships.
5. **Revenue Planning:** A structured plan for subscription, in-app purchases, and advertisements will be established to generate revenue.

These organizational changes will ensure the smooth development, launch, and operation of *GlowGuide*, making it a trusted and effective skincare solution.

Recommended Alternative of the Course of Action

Developing and launching the application, providing a fully customized skincare experience with AI-driven skin analysis, expert consultations, and personalized recommendations to enhance user confidence and skincare management.

Project Plan

Resource Sheet

	Resource Name	Type	Material	Initials	Group	Max.	Std.	Ovt.	Cost/Use	Accrue	Base	Code	Add New Column
1	Raghad	Work		R		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard		
2	Raheed	Work		R		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard		
3	Rama	Work		R		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard		
4	Seham	Work		S		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard		
5	Lamees	Work		L		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard		
6	Shujun	Work		S		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard		

Figure 4.1

Task Sheet

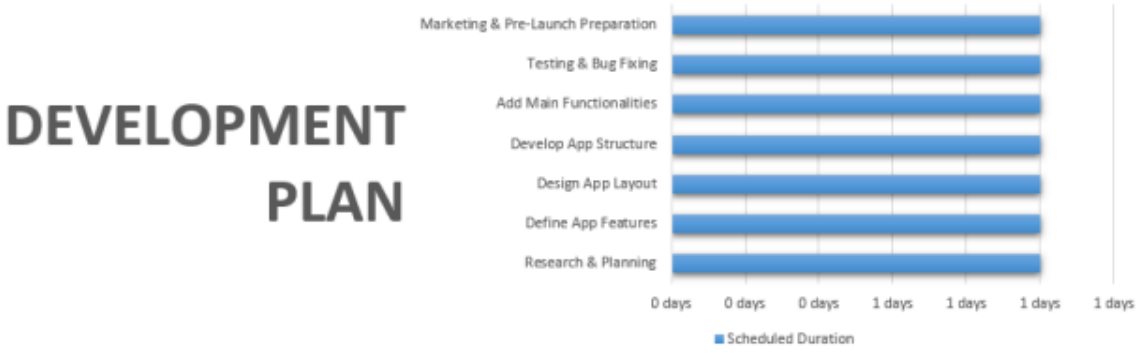
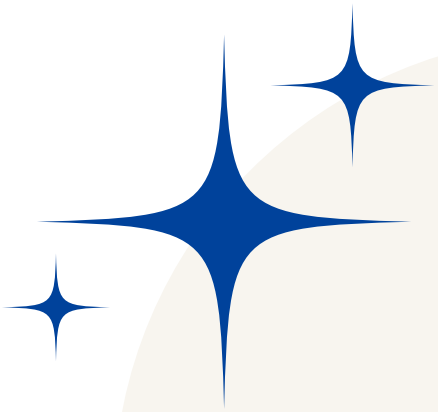


Figure 4.2

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
0		**Development**	**1 day?**	**Mon 1/3/0**	**Mon 1/3/0**			
1		**Research & Planning**	**1 day?**	**Mon 1/3/00**	**Mon 1/3/00**			
2		Research similar apps	1 day?	Mon 1/3/00	Mon 1/3/00			
3		Identify potential dermatologist collaborations	1 day?	Mon 1/3/00	Mon 1/3/00			
4		Collect user feedback from intreviews	1 day?	Mon 1/3/00	Mon 1/3/00			
5		**Define App Features**	**1 day?**	**Mon 1/3/00**	**Mon 1/3/00**			
6		Identify main app functionalities	1 day?	Mon 1/3/00	Mon 1/3/00			
7		Prioritize features based on user feedback	1 day?	Mon 1/3/00	Mon 1/3/00			
8		**Design App Layout**	**1 day?**	**Mon 1/3/00**	**Mon 1/3/00**			
9		**Develop App Structure**	**1 day?**	**Mon 1/3/00**	**Mon 1/3/00**			
10		Build the homepage and navigation menu	1 day?	Mon 1/3/00	Mon 1/3/00			
11		Develop product listing and checkout pages	1 day?	Mon 1/3/00	Mon 1/3/00			
12		Add consultation booking system	1 day?	Mon 1/3/00	Mon 1/3/00			
13		Implement user login & authentication	1 day?	Mon 1/3/00	Mon 1/3/00			
14		**Add Main Functionalities**	**1 day?**	**Mon 1/3/00**	**Mon 1/3/00**			
15		Set up a database for products and users	1 day?	Mon 1/3/00	Mon 1/3/00			
16		Develop shopping & order processing features	1 day?	Mon 1/3/00	Mon 1/3/00			
17		Implement AI skin analysis & recommendations	1 day?	Mon 1/3/00	Mon 1/3/00			
18		**Testing & Bug Fixing**	1 day?	Mon 1/3/00	Mon 1/3/00			
19		**Marketing & Pre-Launch Preparation**	**1 day?**	**Mon 1/3/00**	**Mon 1/3/00**			
20		Prepare product images and descriptions	1 day?	Mon 1/3/00	Mon 1/3/00			
21		Create social media pages and Plan launch strategy	1 day?	Mon 1/3/00	Mon 1/3/00			

Figure 4.3



Lab Five

Analysis Phase One

Stakeholders Definition

- The Client: organization funding and overseeing the development of *GlowGuide*.
- The Customer: users seeking skincare guidance.
- Other Stakeholders:
  - Dermatologists: provide expert consultations.
  - Developers & Designers: build and maintain the app.
  - Investors: provide financial support.

The Scope of The Work

Current Situation

Skincare is an essential part of personal health and wellness, but many individuals struggle to identify their skin type and select the right products for their specific needs. The market is saturated with numerous skincare products, making it difficult for users to determine which ones are suitable for their skin conditions. Additionally, access to professional dermatological consultations is often limited, expensive, or inconvenient for many users.

Motivation

To address these challenges, *GlowGuide* aims to provide a comprehensive skincare assistant that helps users identify their skin type and find the most suitable products for their skin concerns. The application integrates expert consultations, allowing users to receive professional advice from certified dermatologists via video calls or chat. By leveraging technology, *GlowGuide* enhances accessibility to personalized skincare guidance, ensuring users make informed decisions about their skincare routine.

The Context of the Work

GlowGuide is designed to assist users in identifying their skin type and finding suitable skincare products based on their specific skin concerns. The application provides users with access to professional dermatological consultations via video calls or chat, ensuring personalized and expert-driven skincare advice.

To achieve this, the system integrates various components, including:

- A skin analysis module that determines the user's skin type and concerns.
- A product recommendation system that suggests suitable skincare products.
- A consultation platform where users can connect with certified dermatologists.
- A user database to store skin profiles and consultation history for personalized recommendations.

The Context Diagram

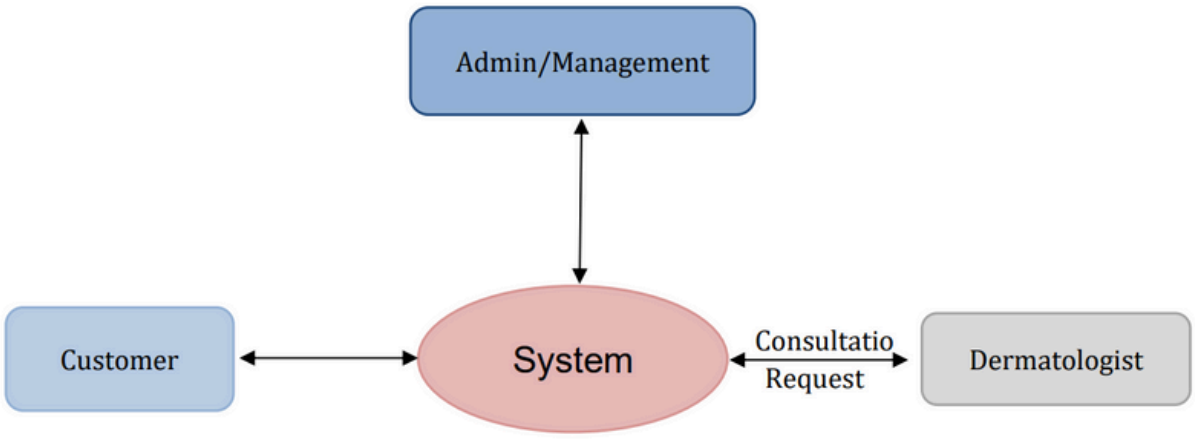


Figure 5.1

Event Table

Event Name	Trigger (Input)	Response (Output)	Summary
User Registration	User enters personal details and submits form	System verifies details and sends confirmation email	A new user creates an account in GlowGuide to access personalized skincare advice.
Skin Analysis	User uploads skin photos and answers skin type quiz	System analyzes the data and generates a skin type report	The system evaluates the user's skin condition using AI and questionnaire responses.
Product Recommendation	User selects skincare concerns (e.g., acne, dryness)	System suggests suitable skincare routines and products	The app provides expert-backed product suggestions based on the user's skin type.
Expert Consultation Booking	User requests a virtual consultation with a dermatologist	System schedules the session and sends appointment details	Users can book one-on-one video or chat consultations with certified dermatologists.
Skincare Tips Update	User subscribes to daily skincare tips	System sends daily or weekly tips via notifications	GlowGuide provides users with expert advice and seasonal skincare recommendations.
Routine Tracker Update	User logs their daily skincare routine	System tracks progress and provides reminders	Users can monitor the effectiveness of their skincare routine over time.
Community Discussion	User posts a question in the discussion forum	Other users or experts respond with advice	Users can engage in a community-driven skincare discussion and share experiences.
Feedback Submission	User submits feedback on consultation or advice	System stores feedback and may respond with follow-ups	Users can rate the effectiveness of expert consultations or app recommendations.

Table 5.1

Lab Six

Functional & Nonfunctional Requirements

Functional Requirements

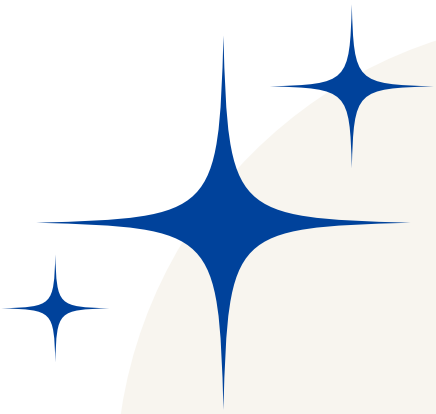
N	Requirement Definition
1	**User Registration & Secure Login**
1.1	The system shall require users to register using a valid email or phone number, with OTP verification.
1.2	Passwords shall enforce a minimum of 8 characters, including at least one uppercase letter, one number, and one special character.
2	**Personalized Skincare Recommendation**
2.1	Recommendations shall be generated based on user input (skin type, concerns and current routine).
3	**Image-Based Skin Analysis**
3.1	The system shall accept image uploads in JPG/PNG formats with a minimum resolution of 2MP
4	**Dermatologist Consultations**
4.1	The system shall connect users to certified dermatologists for consultations.
5	**Product Information**
5.1	Product pages shall display detailed information, full ingredient lists.
5.2	The system shall provide alerts for potential skin allergies based on user profiles.
5.3	The system shall allow users to compare high-price products with affordable alternatives.
6	**Progress Tracking**
6.1	The system shall allow users to track their skincare progress over time
7	**Reminders & Notifications**
7.1	Routine reminders shall be sent 1 hour before scheduled times, and appointment alerts 24 hours in advance

Table 6.1

Nonfunctional Requirements

N	**Requirement Definition**
1	***Performance***
1.1	*The system should work fast. After uploading a photo, results should appear within 5-10 seconds, even if many people use it at the same time.*
2	***Security***
2.1	*User data (like passwords and health info) must be protected with strong encryption. Only the user and authorized staff can access it.*
3	***Usability***
3.1	*The system should be easy to use. Buttons and menus should be clear, and there should be a tutorial for new users.*
4	***Reliability***
4.1	*If the internet disconnects, the system should automatically save your progress every 5 minutes, so you don't lose data.*
5	***Availability***
5.1	*The system should be available to use almost all the time (24/7), except for maintenance breaks announced 2 days in advance*
6	***Compliance***
6.1	*Users must agree to terms before the system uses their data for analysis. The system must follow privacy laws.*
7	***Scalability***
7.1	*The system should handle more users overtime without slowing down or crashing.*
8	***Backup***
8.1	*Daily backups of all data shall be stored safely. If data is lost, it can be restored within 1 hour.*

Table 6.2



Lab Seven

Analysis Phase Two

Use Case Diagram

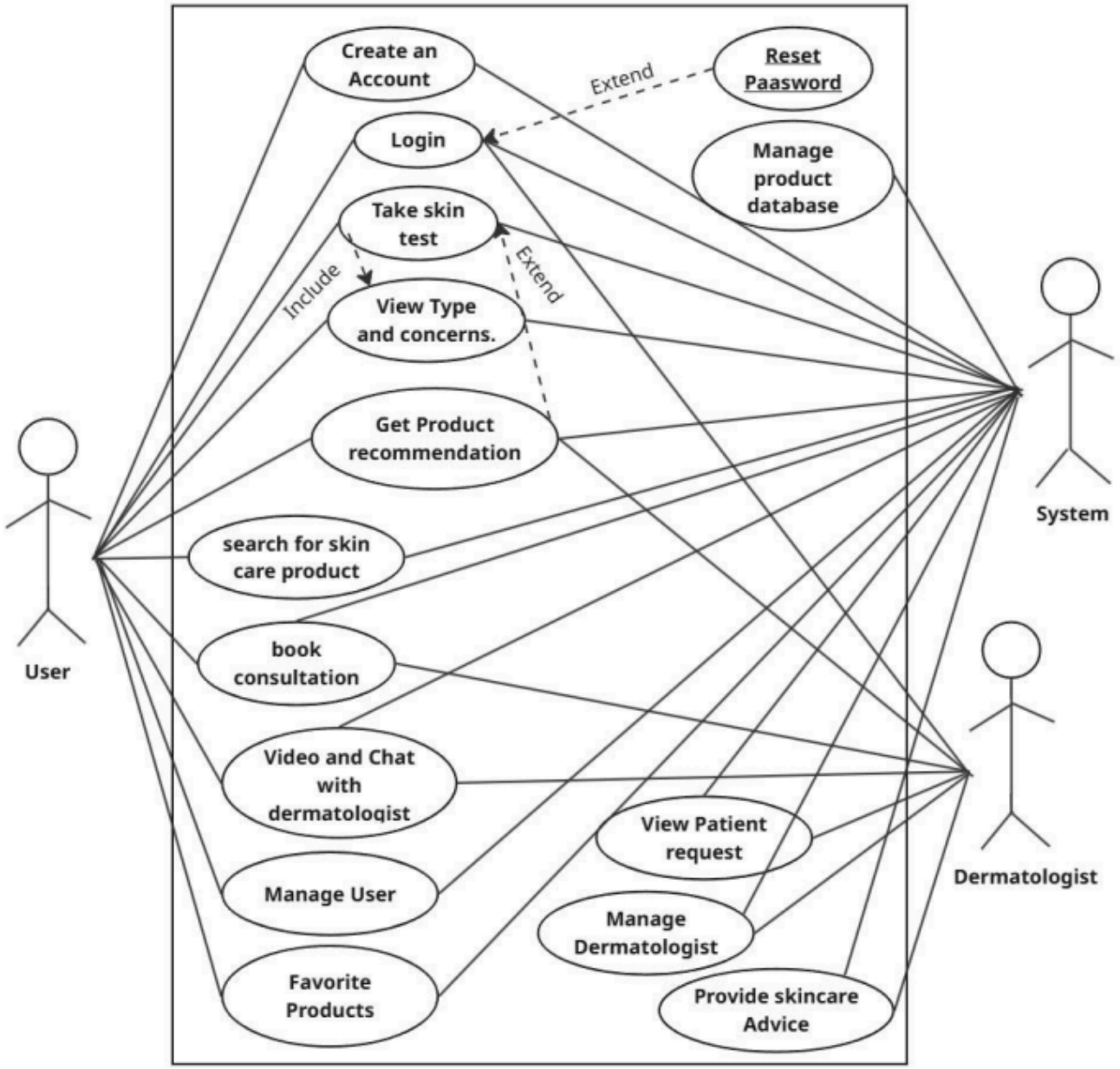


Figure 7.1

Use Case 1: Create Account

Scope: User, System

Level: Primitive

Primary Actor: User, System

Precondition: The user must be a new user.

Stakeholders and Interests: User, System

Scenario of UC1: After entering the website, the user can create an account. The user will have to provide necessary details like name, email, and password to register successfully.

Use Case 2: Login

Scope: Dermatologist, User, System

Level: Primitive

Primary Actor: Dermatologist, User, System

Precondition: The user must have an existing account.

Stakeholders and Interests: Dermatologist, User, System

Scenario of UC2: After the user has created an account, they can log in to the system to access its services. The user must enter their credentials (username and password) to authenticate their identity, and the Dermatologist can login to their preexistence account.

Use Case 3: Recommend Skincare Products

Scope: *GlowGuide* application

Level: Personalized skincare product recommendations

Primary Actor: Dermatologist

Stakeholders and Interest: User, dermatologist, system

Scenario:

1. The dermatologist logs into the system and accesses a user's profile.
2. The system displays the user's skin type, concerns, and past treatments.
3. Based on the user's history, the dermatologist selects and recommends suitable skincare products and the system records the recommendations and provides them to the user.
4. The user receives a notification with the recommended products and instructions for use.
5. The system tracks user feedback on the products to refine future recommendation.

Use Case 4: Favorite Products

Scope: *GlowGuide* application

Level: Product management

Primary Actor: User, System

Stakeholders and Interest: User, System, Dermatologists

Scenario:

1. The user logs into the system.
2. The user navigates to a skincare product page.
3. The system displays an option to "Add to Favorites."
4. The user clicks the "Favorite" button.
5. The system saves the product in the user's "Favorite Products" list.
6. The user can later access their favorite products from their profile.
7. The system allows the user to remove products from the favorites list if needed.

Use Case 5: View Patient Request

Scope: Dermatologist, System

Level: Primitive

Primary Actor: Dermatologist, System

Precondition: The dermatologist must be logged in, and the user must have submitted a request

Stakeholders and Interest: Dermatologist, User, System

Scenario:

1. The system collects and organizes patient requests submitted by users, such as inquiries about skin conditions, appointment bookings, or product recommendations.
2. The dermatologist logs in and navigates to the "Patient Requests" section.
3. The system displays a list of patient requests, including details such as the user's name, skin type, concerns, and any additional notes.
4. The dermatologist selects a specific request to view more details.
5. The system provides a detailed view of the request, including the user's skin test results (if available) and any previous interactions.
6. The dermatologist can then take appropriate action, such as providing advice, scheduling an appointment, or recommending products.

Use Case 6: Provide Skincare Advice

Scope: Dermatologist, User, System

Level: Primitive

Primary Actor: Dermatologist, User, System

Precondition: The dermatologist must be logged in and have reviewed the patient's request or skin test results. The user must also be logged in to receive notifications.

Stakeholder and Interest: Dermatologist, User, System

Scenario:

1. Based on the user's skin test results or specific concerns, the dermatologist provides personalized skincare advice.
2. The advice may include product recommendations, lifestyle changes, or follow-up appointments.
3. The system sends a notification to the user informing them that skincare advice is available.
4. The user can view the advice through their account dashboard or via email.
5. The system ensures that the advice is securely stored and accessible to the user for future reference.

Use Case 7: Take Skin Test

Scope: *GlowGuide* application.

Level: Skin test.

Primary actor: User.

Stakeholder and Interest: User, system, dermatologist.

Scenario:

1. User logs into the system and selects the option to take a skin test.
2. The system presents series of questions regarding the user’s skin type and concerns.
3. The user submits the responses and the system processes the answers and determines the user's skin type and concerns.

Use Case 8: Video/Chat Consultation With a Dermatologist

Scope: *GlowGuide* application.

Level: Video consultation with available dermatologist.

Primary actor: User.

Stakeholder and Interest: User, dermatologist, system.

Scenario:

1. The user logs into the system and navigates to the dermatologist consultation section.
2. The user selects an available dermatologist and type of consultation, schedules an appointment and the system confirms the booking and sends a notification to both the user and dermatologist.
3. At the scheduled time, the user joins the video or chat consultation and the dermatologist provides personalized skincare advice.
4. After the session, the user receives a consultation summary and can rate the experience.

Lab Eight

UML Sequence Diagram

GlowGuide Sequence Diagram

Use Case: Create Account

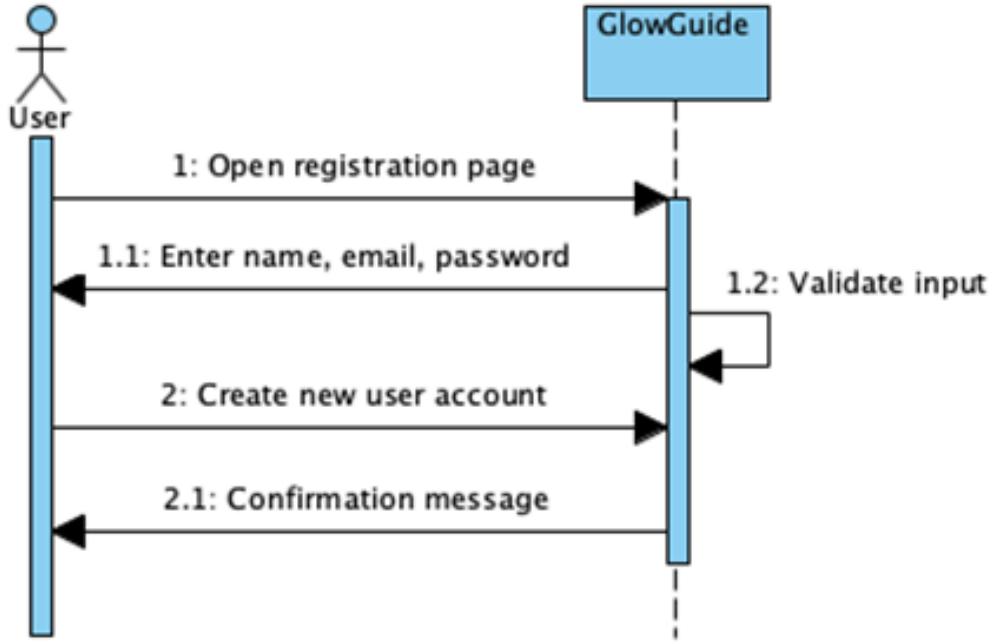


Figure 8.1

Description:

1. The user accesses the registration page.
2. The system displays the account creation interface.
3. The user enters registration details and submits the form.
4. The system validates the input data.
5. If valid, the system confirms account creation.
6. The system displays a success message of account creation to the user.

Use Case: Login

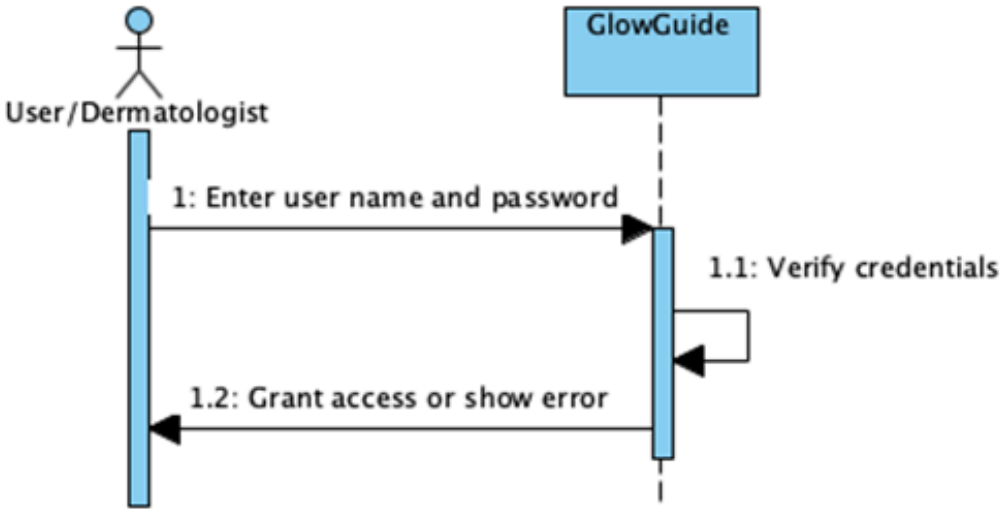


Figure 8.2

Description:

1. The user enters login credentials.
2. The system validates them and responds with either loginSuccess or loginFailed based on validity.

Use Case: Recommend Skincare

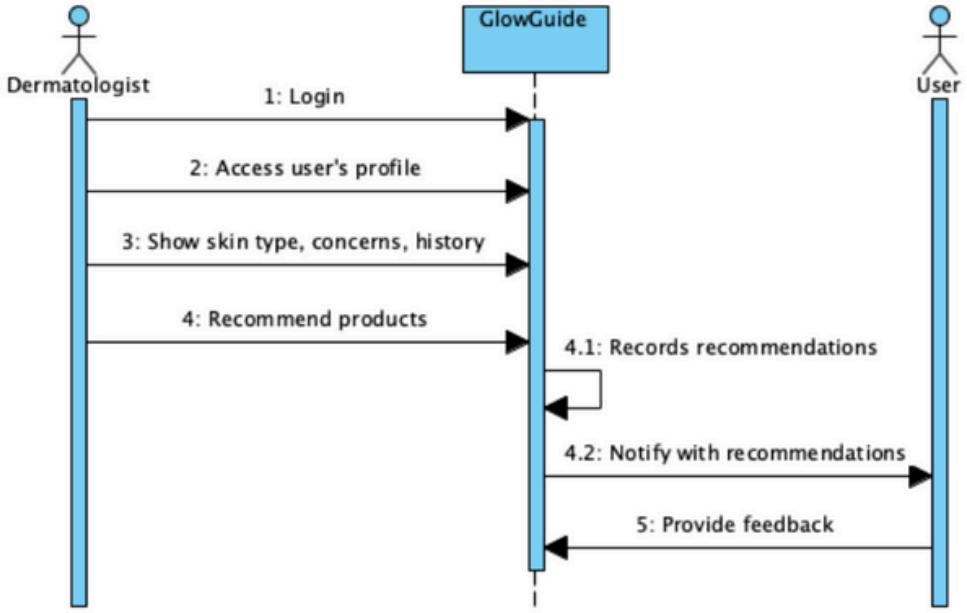


Figure 8.3

Description:

1. The dermatologist logs into the system.
2. The dermatologist accesses the user's profile.
3. The system displays the user's skin type, concerns, and history.
4. The dermatologist reviews the information and inputs a skincare recommendation.
5. The system saves the recommendation to the user's profile and notifies them that a new recommendation is available.
6. The user then provides feedback.

Use Case: Favorite Products

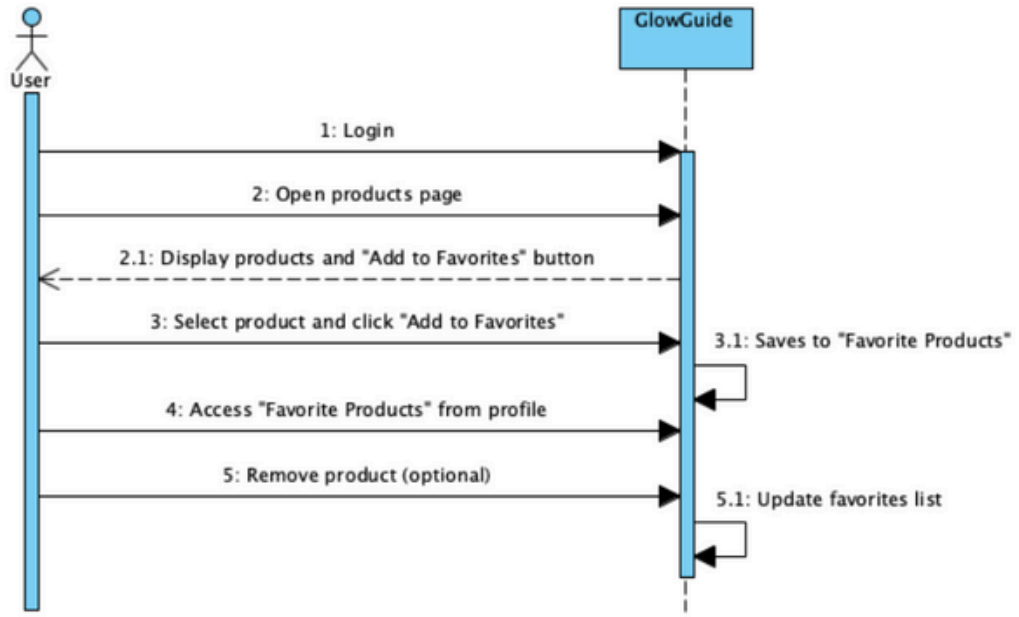


Figure 8.4

Description:

1. The user logs into the system.
2. The user views a list of products from the products page.
3. The user selects a product to add to the "Favorite Products" list.
4. The system saves the product, and the User can access and optionally remove products from the list.

Use Case: View Patient Requests

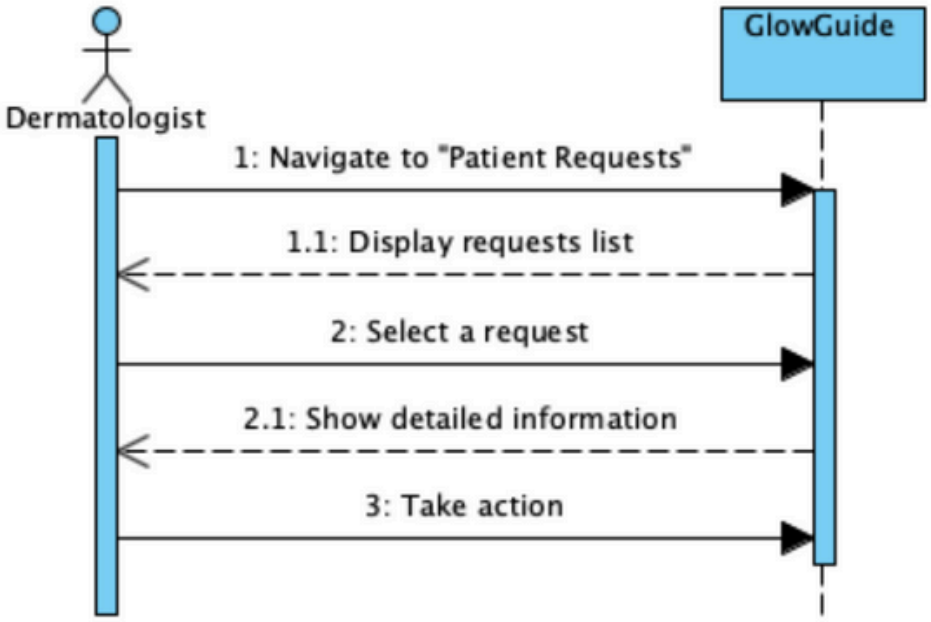


Figure 8.5

Description:

1. The dermatologist selects the option to view patient requests.
2. The system retrieves the list of patient requests.
3. The dermatologist selects a request.
4. The system displays the request details.
5. The dermatologist then decides whether to provide advice or schedule a consultation.

Use Case: Provide Skincare Advice

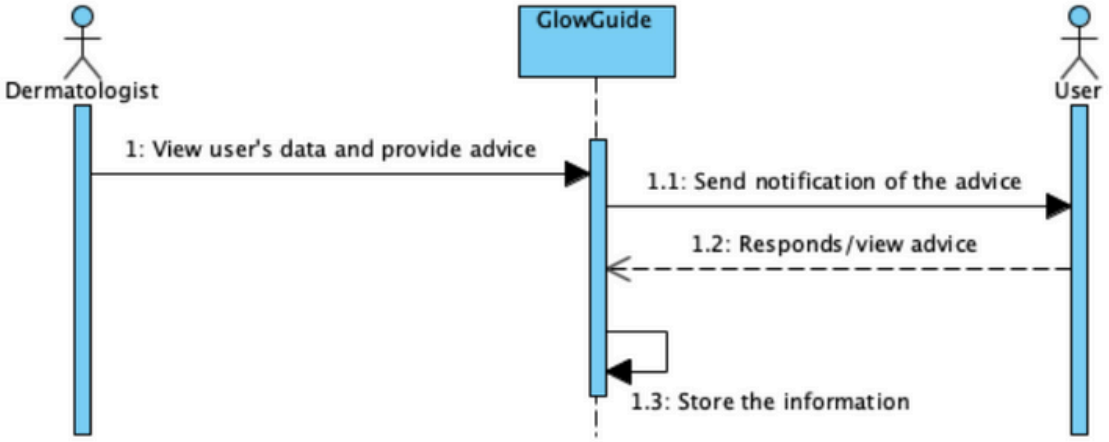


Figure 8.6

Description:

1. The dermatologist reviews the information of the user, and sends skincare advice to the system,.
2. The system sends a notification to the user containing the dermatologist's advice.
3. The user views and responds (optional) to the advice.
4. The system saves the skincare advice.

Use Case: Take Skin Test

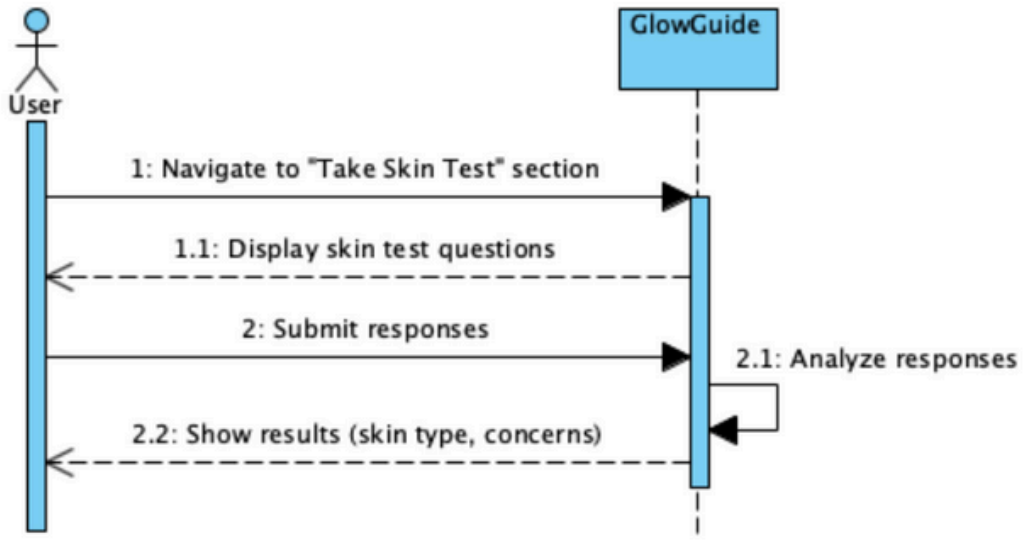


Figure 8.7

Description:

1. The user selects the option to take a skin test.
2. The system displays the skin test questions.
3. The user completes and submits the skin test.
4. The system analyzes the responses.
5. The system displays the skin test results (skin type, concerns).

Use Case: Video/chat Consultation

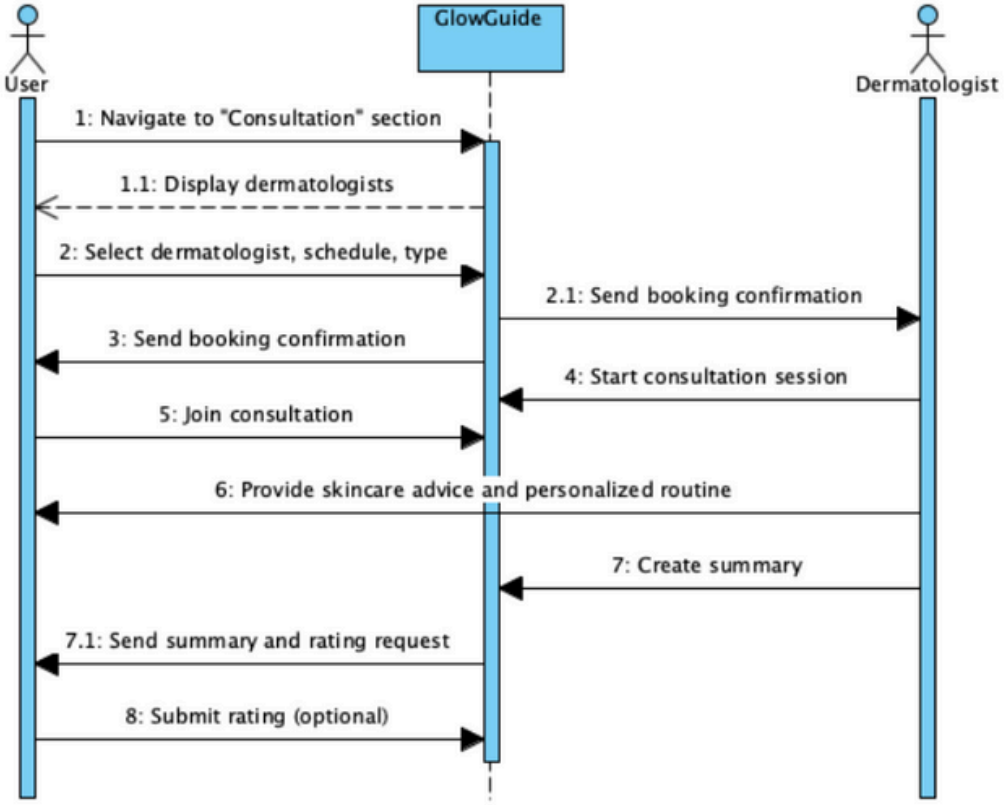


Figure 8.8

Description:

1. The user requests a consultation.
2. The system displays a list of dermatologists.
3. The user selects a dermatologist, available date, and type (video or chat).
4. The System schedules it and confirms with both the user and dermatologist.
5. The dermatologist starts the consultation session, and the user joins.
6. The dermatologist provides consultation to the user during the session.
7. After the session, system saves consultation summary from the dermatologist and sends it to the user.

Lab Nine

Modeling Phase

GlowGuide Class Diagram

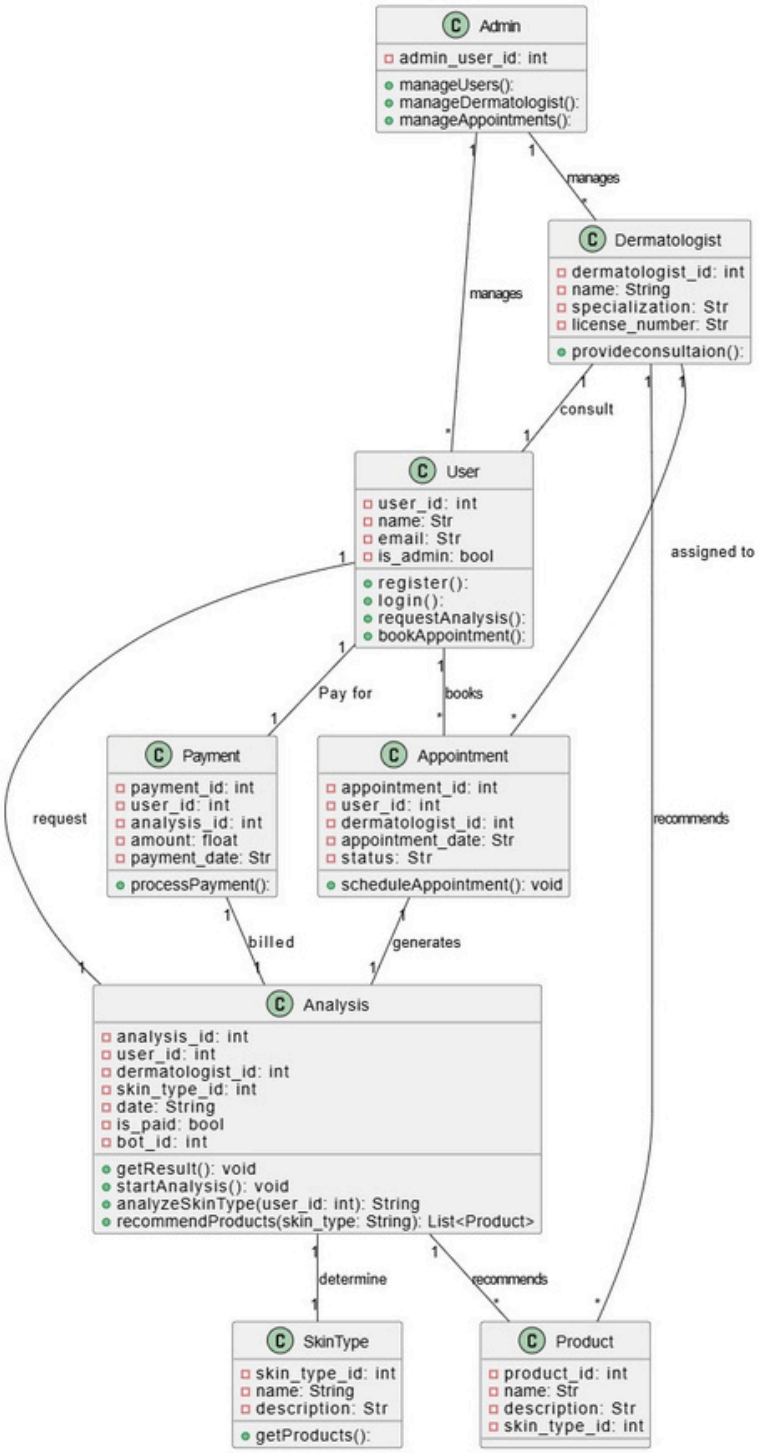


Figure 9.2

Class Analysis

What is Class Analysis?

Class analysis is the process of figuring out the main parts of a system and understanding how they work together. These parts are called classes, and each class represents an object in the system. We look at what information the class stores and what it can do. This helps us understand how the system is organized and how the different parts communicate with each other.

Types of Analysis Classes

- **Entity Classes:** These classes represent things in the system. They store information about something specific, like a user, product, or order. For example, in our app, the User class would be an entity class because it stores information about a person using the app.

- **Boundary Classes:** These classes handle interactions between the system and users. For example, the Payment class is a boundary class because it deals with user payments and connects to the system.

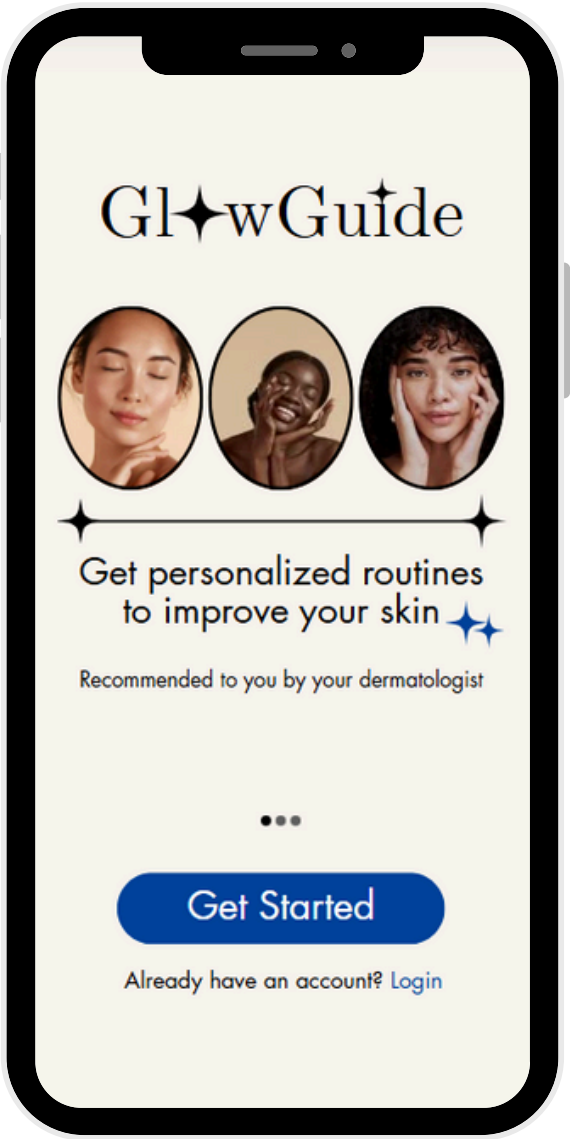
- **Control Classes:** These classes manage the system's processes. They usually control the flow of information and make decisions. For example, the Analysis class might serve as a control class by coordinating the skin analysis process between users and dermatologists.

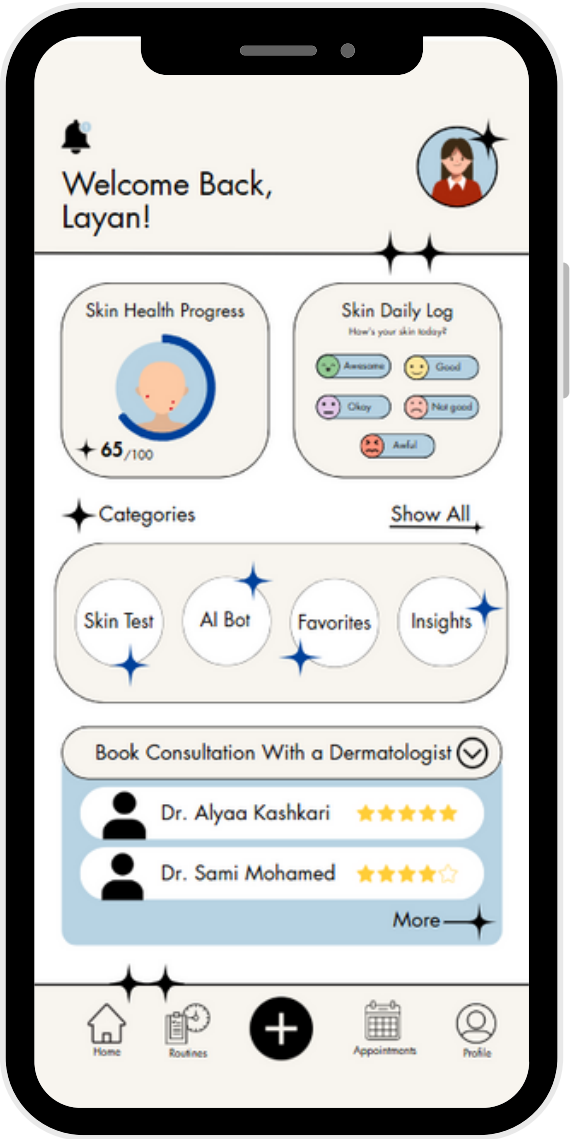
Description of Class Diagram

Class Name	Description
User	- Represents a person using the system for dermatology services. -Has basic info and can register() and requestAnalysis().
Admin	- Represents a system administrator with extended privileges. - Inherits from User and can manage users and analyses through manageUsers() and manageAnalyses().
Dermatologist	- Certified skin specialist with attributes like name, specialization, and license number. - Provides analyses through provideAnalysis().
Appointment	- Represents a scheduled meeting between user and dermatologist. -Includes IDs, date, status, and can be managed via scheduleAppointment().
Payment	- This class contains attributes like payment, user and analysis id, the full amount, payment date. - It processes payments for analysis.
Analysis	- This class contains attributes like analysis, dermatologist, user and skin type id, date and if it's paid or not. - It has a method that returns the result of the skin analysis.
Skin Type	- This class contains attributes like skin type id, name, and description. - It has a method that retrieves suitable products for the skin type.
Product	- This class contains attributes like product id, name, description, and skin type id. - It links each product to the suitable skin type.

Table 9.2

Application Prototype





Conclusion

GlowGuide offers a smart and personalized solution to skincare challenges by combining AI technology with expert support. With features like skin analysis, product recommendations, and user-friendly design, the app stands out as a reliable and accessible tool. Backed by research, planning, and clear implementation steps, *GlowGuide* is ready to make a real impact in the skincare field.

Through its thoughtful features and user-centered approach, *GlowGuide* empowers individuals to take better care of their skin with confidence. As the app continues to grow, it holds strong potential to become a trusted companion in everyday skincare routines.

Interviews

Interviewer	Interviewee	Analyst Comment
Raheed	Name: Tala Age: 19 Other information: student, single, live in jeddah	She doesn't know her skin type, prefers well-known brands, has a daily skincare routine, has difficulty buying skincare products that don't match her skin, prefers simple websites, wants free skincare consultations available on the website
Raheed	Name: fajr Age: 21 Other information: Student, married, live in Jeddah	She knows her skin type, prefers well-known brands so as not to risk her skin, has a skin care routine in the morning and before bed, the hardest thing she faces when buying new skin care products is false advertising, many products contain perfumes that are not suitable for sensitive skin and other lies, she prefers the website to be simple and easy and recommend gentle and simple medical products, she prefers to have skin care advice within the application especially when using it for the first time as a kind of introduction to the application
Raheed	Name: refal Age: 27 Other information: Graduated, housewife, live in Riyadh	She knows her skin type, prefers well-known brands or a product recommended and tried by her friends, she has a daily skincare routine, the hardest thing she faces when buying skincare products is that she needs to try many products until she finds something that suits her skin, she prefers a website that has many details, whether about the product or how to use the application itself, she prefers that there be skincare advice on the website
Raheed	Name: renad Age: 32 Other information: works in a company, married, live in Riyadh	She knows her skin type and prefers to go with the known content because she does not like to experiment. She does not have a daily skin care routine. She faces difficulty in continuing with skin care products for a long time. She prefers the website to be simple and easy and does not need to have many recommendations. She prefers the presence of a free skin care consultation service on the website.
Lamees	Name: Mona Age: 40 Information: A housewife	She values knowing her skin type as a key step in skincare. She prefers buying from commercial websites due to the wider variety of options. A quick and simple routine is ideal for her, as long as it's effective. Her biggest challenge when shopping for skincare is the overwhelming choices and price differences. She prefers

Interviews

		recommendations that consider both her skin type and lifestyle for easier consistency. Lastly, she believes some specialists overhype expensive products, even when affordable alternatives work just as well
Lamees	Name: Manal Age: 31 Information: Works in a company	She finds it important to know her skin type and prefers buying skincare products from medical websites. She favors a quick and simple routine that still delivers results. Her biggest challenge is purchasing a product that ends up not suiting her. She prefers recommendations that consider both her skin type and lifestyle for better accuracy. Lastly, she strongly believes that some specialists overprice products unnecessarily.
Lamees	Name: Marwa Age: 20 Information: A university student	She considers knowing her skin type important and prefers purchasing skincare products from medical applications. She likes a routine that is quick and simple while still being effective. The biggest challenge is finding the right product due to the difficulty in determining what suits her best. She prefers recommendations that take both her skin type and daily habits into account. Lastly, she believes specialists tend to overprice products and sometimes even exaggerate procedures.
Seham	Name: Ghuson Age:27 Information: Nurse	Ghson is interested in skincare and uses products regularly. She prefers determining her skin type online and finds online skincare advice helpful. Although she hasn't visited clinics, she has learned about skincare online and finds the products she uses suitable for her. She prefers simple apps that are easy to use and values the availability of free consultations
Seham	Name: Raghad Age:21 Information: University student	She is highly invested in skincare and consumer products but prefers making informed decisions. She likes online consultations and personalized ingredient advice. She hasn't visited a clinic due to cost and potential side effects. She prefers a detailed app, even if it takes more time, and values free consultations

Interviews

Seham	Name: Aishah Age:53 Iformation: married	She uses skincare products a lot and prefers apps that mention ingredients to avoid based on her skin type. She doesn't like the idea of determining her skin type with a doctor online. She prefers simple and easy-to-use apps. She hasn't visited clinics because she's afraid of harming her skin, and she values free consultations in apps or websites.
Raghad	Name: Sharifa Age: 21 Information: University student	She prefers video consultations to identify her skin type and finds product prices expensive. Takes a long-term approach to skincare, and she avoids quick fixes. She is skeptical of prescribed products and cleansing is her top priority, reflecting her focus on quality and essential skincare practices.
Raghad	Name: Layal Age: 26 Information: Nurse	She prefers video consultations for skincare assessments. She considers skincare products expensive and does not prioritize quick results or prescribed products. She focuses on ingredients and considers moisturizing to be the most important part of her skincare routine.
Raghad	Name: Joury Age: 20 Infromation: University student	She prefers video consultations for skincare assessments and considers products expensive. She prioritizes quick results and is skeptical of prescribed products. Identifying her skin type is important to her, and she views moisturizing as the most crucial step in her skincare routine.
Raghad	Name: Hanan Age: 50 Infromation: Housewife	She prefers video consultations for skincare assessments and finds some products expensive. She does not prioritize quick results, and her view on prescribed products depends on the clinic. She values the brand of products and considers sunscreen to be the most important part of her skincare routine.
	Name: Layan	

Interviews

Raghad	Age: 17 Infromation: Student	She prefers video consultations for skincare assessments and considers products expensive. She prioritizes quick results and is skeptical of prescribed products. She focuses on ingredients and views moisturizing as the most important step in her skincare routine.
Rama	Name: Nour Age: 32 Infromation: Housewife	She focused on personal interactions and preferred in-person consultations with professionals. She enjoys the tactile experience of shopping in-store and would benefit from expert guidance on skincare. She's also open to personalized skincare recommendations and believes that skincare should be accessible to everyone, regardless of gender.
Rama	Name: Amal Age: 18 Infromation: Student	She prefers convenience, opting for at-home skin assessments and online shopping. She values expert advice and personalized recommendations but finds clinic prices high. She believes skincare should be accessible to everyone, regardless of gender.
Rama	Name: Sara Age: 23 Infromation: student	She prefers in-person consultations for accurate skin assessments but enjoys the convenience of online shopping. She values expert advice but doesn't consider personalized recommendations essential. While she finds clinic prices high, she believes professional treatments are worth the investment. She also sees skincare as important for both men and women.
Shujun	Name: Noura Age: 34 Information: Work for a company, married	Noura likes the idea of a bot analyzing her skin type since she is sometimes unsure. She reads reviews but prefers testing products herself. Distinguishing between medical and cosmetic products is sometimes difficult, so she researches ingredients. She prefers testing products but would use a highly accurate program to save time and money. She likes video tutorials for correct product use. Detailed ingredient information is very important to her due to skin sensitivities.
	Name: Raghad Age: 21	Raghad likes the idea of skin analysis but doubts its accuracy since her skin changes with the weather and products she uses.

Interviews

Shujun	Information: Student, Single	She sometimes reads reviews but prefers recommendations from friends and family. She finds it hard to distinguish between medical and cosmetic products due to marketing terms. She prefers testing products herself but might use a trustworthy program. Pictures are enough for her to understand product use, and she doesn't think every product needs a video. Ingredient details are not a priority as long as the product is safe and effective.
Shujun	Name: Sakhaa Age: 22 Information: Student, Single	Sakhaa likes the idea of skin analysis but only if it gives scientifically accurate advice. She always reads detailed, long-term reviews before buying skincare products. Distinguishing between medical and cosmetic products can be difficult, so she relies on ingredient lists and expert opinions. She prefers a personalized skincare program based on reliable information. For product use, she finds videos clearer than images. Knowing ingredient details is essential for her, as she avoids harmful chemicals and prefers natural products.

Tasks

	Lamees Mohamed	Raghad Alotaibi	Raheed Alturki	Rama Alhumaidi	Seham Alqarni	Shujun Almarjan
Lab 1	Introduction and project definition	Project definition	Project definition	Project definition	Project definition	Project definition
Lab 2	Interview questions 2, conclusion	Interview questions 4	Interview questions 1, introduction	Interview questions 5	Interview questions 3	Interview questions 6
Lab 3			Project estimated schedule	Preliminary report	Content, motivation	
Lab 4	Problem definition	Cost and benefits, alternative solutions				The plan using MS project
Lab 5	The scope of the work	List the stakeholders	Context diagram			Event table
Lab 6				Functional requirements	Nonfunctional requirements	
Lab 7	Use case diagram	Use case 7, 8	Use case diagram	Use case 5, 6	Use case 3, 4	Use case 1, 2
Lab 8		Use case sequence diagrams				Explanation of the sequence diagram for use cases
Lab 9	Class analysis		Project class diagram			Class analysis