Customized Cosmetics System

Due Date: 5/5/2023

STANDING BULLS

We don't win wars alone; we do stand together.

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System Requirements Review (SRR)

Business Problem Statement

The cosmetics industry not only has high profit margins but also the competition is fierce, and compared to traditional models, customers are increasingly demanding personalized products that meet their individual needs and preferences. However, traditional cosmetics brands often offer a limited selection of products and do not always offer quality products that meet customers' specific beauty goals. As a result, there is a growing demand for services that can provide customized cosmetics to the individual needs and preferences of customers in a convenient and cost-effective manner. The main business problem that we are facing is lacking the ability to provide customers with high quality and personalized cosmetic products.

Research Questions

How can we create and design a system to analyze the skin conditions and cosmetics, enabling the creation of cosmetic products that are most effective for them and enhance their overall experience with cosmetic products?

Motivation

The motivation behind the Customized Cosmetic Service business problem is to solve the gap in the cosmetic industry, provide customers with a more personalized and convenient way to buy and use cosmetic products, and improve their overall experience of using products on a daily basis. Many customers struggle to find high-quality cosmetics that meet their specific needs and preferences. While there is a wide variety of cosmetics on the market, it can be challenging for customers to find the right product for their skin type, skin problems and beauty preferences. The customized cosmetics services address this problem by offering personalized products tailored to each customer's personal beauty characteristics. This approach enables customers to access products specifically designed for their unique needs,

which can lead to better skin care results and overall satisfaction with the products they use. In addition, customized cosmetic services can provide a convenient and cost-effective solution for customers who want to try new products or try different formulations without having to search for products themselves.

Introduction

Customized Cosmetic Service is a business system that provides personalized cosmetic products to customers based on their personal beauty profile. Is the purpose of the system is looking for a suitable for their specific needs and preferences of the customers with high quality cosmetics convenient and cost-effective solution.

The cosmetics industry is a large and growing market that offers consumers a wide range of brands and products. However, many customers struggle to find products that meet their individual needs and preferences, as traditional cosmetic brands often offer a limited selection of products that may not be suitable for everyone. In addition, many traditional cosmetic brands are opaque about the ingredients used in their products or the manufacturing processes used to make them, thus there is a growing demand for personalized cosmetics tailored to individual customer needs and preferences. This has led to the emergence of several customized cosmetic services that use technology and algorithms to create personalized products for customers. However, many of these services have been criticized for producing low-quality products or providing a poor customer experience.

Description and Purpose

The Customized Cosmetics Service we want to build is a business system that aims to solve these problems and provide high-quality, personalized cosmetics that meet the specific beauty goals of customers. The service is based on a subscription model that allows customers to receive a certain number of customized cosmetics per month based on their personal beauty profile. These products are created using advanced technologies and algorithms that analyze a

customer's skin type, skin problems, and beauty preferences and produce products that match their individual needs and preferences.

High-level processes

Create customer profile - Customers sign up for the service by creating a profile on the company's website or mobile app. During the onboarding process, customers answer questions about their skin type, skin concerns, and beauty preferences, which are used to create their individual beauty profile.

Product Creation - Based on the customer's individual beauty profile, the system uses advanced algorithms and technology to create customized cosmetics products that are designed to meet their specific needs and preferences. This process involves analyzing the customer's skin type, skin concerns, and beauty preferences, and using this information to select the ingredients and formulas that will be used to create their personalized products.

Product Delivery - Once the products have been created, they are packaged and shipped to the customer's address. Customers receive a set number of products each month, based on their subscription plan, and can adjust their product selection and delivery schedule as needed.

Customer support - The company will provide customer support by phone, email, or live chat to answer any questions or concerns customers may have.

The moving parts and boundary conditions of the system

Data Collection - The system relies on customer-provided data about their skin type, skin concerns, and beauty preferences to create their personalized products. This data must be accurate and up-to-date for the system to create effective and relevant products.

Product Formulation - The system uses advanced technology and algorithms to formulate customized cosmetics products that are designed to meet the customer's specific needs and

preferences. The accuracy and effectiveness of this process are critical to the success of the system.

Product Delivery - The system must ensure that the customized cosmetics products are delivered to the customer's address in a timely and efficient manner. The quality of the packaging and the shipping process can affect the customer experience and the perception of the product quality.

Purpose

The Customized Cosmetics Service is an online platform that provides customers with customized cosmetics products that are tailored to their individual beauty profiles. The service uses advanced technology and algorithms to analyze each customer's skin type, skin concerns, and beauty preferences, and then creates personalized cosmetics products that are designed to meet their specific needs. In addition, the Customized Cosmetics Service uses high-quality, natural ingredients in its products and works with certified suppliers to ensure that all ingredients meet the highest standards for safety and effectiveness. The service also offers a satisfaction guarantee, so customers can feel confident that they will receive products that meet their expectations. Overall, the Customized Cosmetics Service is a convenient and cost-effective solution for customers who are looking for personalized cosmetics products that are tailored to their specific needs and preferences. The service aims to provide customers with high-quality products that are effective, safe, and easy to use, improving their overall skincare outcomes and satisfaction with the products they use on a daily basis.

Stakeholders

The stakeholders of the Customized Cosmetics Service system include:

1. Customers: The primary stakeholders of this system are the customers who use the service to receive customized cosmetics products. They provide the information about

their skin type, skin concerns, and beauty preferences, and receive the personalized products in return.

2. Company: The company that operates the Customized Cosmetics Service is also a stakeholder. It is responsible for developing and maintaining the platform, ensuring that the products meet the highest standards for safety and effectiveness, and delivering the products to customers.

3. Suppliers: The suppliers of the ingredients used in the products are also stakeholders in the system. They must ensure that the ingredients meet the standards for safety and effectiveness requirements, and that they are delivered on time to the company.

4. Regulators: Regulatory agencies that supervise the cosmetics industry are also stakeholders in the system. They are responsible for ensuring that the products are safe for use and that they meet all applicable regulatory standards.

5. Investors: Investors who have provided funding for the company are also stakeholders in the system. They are interested in the success and profitability of this business system.

6. Employees: The employees of the company are also stakeholders. They are responsible for developing and maintaining the platform, creating the products, and delivering them to customers. They are interested in the success of the business and their benefits.

Requirements

- Personalization: The Customized Cosmetics Service system must be able to generate customized cosmetics products that are tailored to each customer's individual beauty profile. This requires advanced algorithms that analyze the customer's skin type, skin concerns, and beauty preferences, and then recommend specific product formulations that meet their needs.

- Quality Assurance: The system must ensure that all products meet the highest standards for safety and effectiveness. This includes using high-quality, natural ingredients, working with certified suppliers, and conducting rigorous testing and quality control procedures to ensure that the products are safe and effective for use.

- User-Friendliness: The system must be user-friendly and easy to navigate for customers. This includes providing clear instructions on how to use the products, offering customer service support to answer any questions or concerns, and providing a seamless and efficient ordering and delivery process. The system should also be able to adapt and evolve to changing customer needs and preferences over time.

Use Cases

Creating a Beauty Profile and Receiving Customized Product Recommendations:

Ariana creates a beauty profile by providing information about her skin type, skin concerns, and beauty preferences. Based on this information, the system generates personalized product recommendations for Ariana to purchase. She can review the recommended products and choose to purchase one or more of them, which are then manufactured and delivered to them.

Receiving Personalized Cosmetics Products on a Subscription Basis:

Ariana subscribes to the Customized Cosmetics Service and receives a regular delivery of personalized cosmetics products, tailored to their individual beauty profile. The system generates product recommendations based on her beauty profile and preferences, and the products are manufactured and delivered on a schedule chosen by the customer. Ariana can modify her beauty profile at any time to ensure that the products she receives continue to meet her needs and preferences.

Reordering Customized Products Based on Previous Purchases:

Ariana logs into her account and reviews her previous purchases of customized cosmetics products. The system recommends additional products that are similar to the ones previously

purchased, based on the customer's beauty profile and preferences. She can choose to purchase these products, which are then manufactured and delivered to them. The system also prompts her to update her beauty profile to ensure that the products meet her evolving needs and preferences.

User Stories

- Bella has sensitive skin, she wants to be able to create a personalized beauty profile that takes into account her specific skin concerns and preferences, so that she can receive customized product recommendations that are safe and effective for her skin.

- As a busy professional, Risky want to be able to subscribe to the Customized Cosmetics Service and receive regular deliveries of personalized cosmetics products, so that she don't have to spend time shopping for and trying out different products on her own.

- As Taylor has used the Customized Cosmetics Service before, she wants to be able to easily reorder products that she previously purchased and liked, so that she can continue to receive personalized products that meet my needs and preferences over time. She also want to be able to update my beauty profile as my skin concerns and preferences change, so that the products she receive continue to be tailored to her evolving needs.

System Thinking Framework Questions

Is this Logically possible?

Yes, a Customized Cosmetics Service business system is logically possible.

The features and functions required for this system can be made possible by using various technologies such as; web-based platforms, databases, e-commerce platforms, and data analytics tools. The system can be designed to allow customers to customize their cosmetic products by selecting from available options and generating product formulas based on

customer preferences. The system can also handle orders, process payments, manage inventory, generate production schedules, conduct quality control, and provide customer support.

However, it is important to note that the implementation of such a system requires careful consideration of various factors such as the availability of raw materials, production capacity, quality control processes, and customer support channels. The system must also be designed to protect customer data and comply with relevant regulations and standards.

In summary, a Customized Cosmetics Service business system is logically possible, but its successful implementation requires careful planning, design, and execution.

Is this economically feasible?

The Customized Cosmetic Service is economically feasible because it is a monthly and bi-monthly subscription for customers. Also, the price all depends on the customers' comfortability. This service would fit perfectly in the beauty supply market because the industry is still recovering from an 8.5% decrease in unemployment which was caused by COVID-19. Due to the growing demand in cosmetic supplies, the Customized Cosmetic Service would fit in perfectly with the beauty supply market, as these cosmetic products are personalized and specific to each customer. Therefore, there should never be a shortage in the market since customers are only getting as much as they can afford.

Evidence-Based method of evaluation

The Customized Cosmetic Service can be evaluated through the use of websites and technology. Since the Customized Cosmetic Service is a subscription, we can track how well the system works. In terms of customer satisfaction, we can track that by the amount of subscriptions each month. Since the service is a monthly and bi-monthly subscription, depending on the number of subscriptions each month, we can see how well the service is

doing, as well as which on of the subscriptions are returning customers. The website can also provide a survey asking about the customers' satisfaction of the products from the Cosmetic Service.

Supporting configuration document (CSCI) of system

Requirement	Owner/ Primary Stakeholder	Secondary Stakeholder	Module/ Sub-System Level	Feature	Function	Test Case	Priority (Revised at PDR)	Non-Functional/Quality Criteria
Personal Data	Customer	Manufacturer	Data Collection	Personal data is collected once the customer creates a profile under the system.	Personal data is used to send to the manufacturing companies in order to develop cosmetic supplies that are specific to the customer.	First, create a user profile. In the profile, fill out all personal information in order for the system to recognize you.	The personal data must be included in the user's profile before they can receive any cosmetic items.	The criteria for personal data will be met once the customer answers every question asked during the creation of their user profile.

Completed Survey	Customer	Manufacturer	Distribution System	The survey is necessary because it ties along with the personal data as it allows the system to better understand the customer's needs.	The survey lets the system know what went well and what needs to be improved during the process of searching for cosmetic products that are right for the customer.	A survey is sent out every time a customer receives a product. The survey is completed and submitted online and the system will read through the survey for internal improvement.	It is important to complete the survey so that the system can improve in the matchmaking process of cosmetic products.	A survey is considered complete once the customer answers every required question and submits the survey.
User Profile	Customer	Manufacturer	Data Collection	The user profile is the	Making a profile allows for	Create a profile by signing	User profiles are highly	A user profile will be completely set

				first thing the customer encounters once they use the system.	each customer to be unique and allows for exclusive products to be sent to each user.	up and creating an account. Then you can personalize the account to make it unique.	suggested as it will be easier for the system since all of the personal data will be saved into their profile.	up once the customer receives an email that their profile has been created. The system will know the customers' email since that is one of the pieces of information that is required.

Preliminary Design Review (PDR)

Statement of Work

1. *Objective*

The objective of this project is to create and design a system for analyzing skin conditions and cosmetics to enable the creation of cosmetic products that are most effective for users and enhance their overall experience with cosmetic products.

2. *Scope of Work*

The scope of work for this project includes the following tasks:

- Design surveys to gather data from clients on their skin type, cosmetic concerns, and preferences for beauty products.

- Develop a comprehensive skin analysis system that includes the necessary hardware and software components.

- Design and develop the software application that will analyze the skin conditions and recommend cosmetic products.

- Collaborate with stakeholders to gather feedback and incorporate revisions.

- Integrate the system with existing cosmetic product databases to ensure that the recommended products are readily available.

- Test the system to ensure that it is effective, user-friendly, and accessible across multiple devices.

- Provide training and support to stakeholders on how to use the skin analysis system.

3. *Deliverables*

The following deliverables are expected as part of this project:

- A comprehensive skin analysis system with hardware and software components.

- A software application that analyzes skin conditions and recommends cosmetic products.

- Integration with existing cosmetic product databases

- User testing report

- Training materials for stakeholders

4. *Timeline*

The project will begin on May 1, 2023 and is expected to be completed by December 31, 2023. A detailed timeline with specific milestones will be provided at the start of the project.

5. *Budget*

The budget for this project is $250,000. Any expenses beyond this amount will require approval from the project sponsor.

6. *Assumptions*

The following assumptions have been made in the development of this SOW:

- All necessary data and information for skin analysis and cosmetic product databases will be provided by the client or third-party sources.

- The project team will have access to all necessary hardware and software components.

- The client will provide timely feedback and approvals throughout the project.

7. *Acceptance Criteria*

The skin analysis system will be considered complete and accepted when it meets the following criteria:

- The system is able to accurately analyze skin conditions and recommend cosmetic products.

- The system is user-friendly and accessible across multiple devices.

- The recommended cosmetic products are readily available in existing product databases.

- The system has been tested and is free of major errors or bugs.

Work Breakdown Structure

WBS Description

1. User Profile

 1.1 Develop Sign Up Screen

 1.2 Develop Login Screen

2. Generate Survey

 2.1 Develop a Customer Survey Screen

 2.2 Set Up Survey database

 2.3 Connect Survey database to User Profile

3. Searching

 3.1 Develop Lab System

  3.1.1 Connect Survey database to Lab System

  3.1.2 Beauty Experts analysis

 3.2 Personal Product Selection

 3.3 Capture Geolocation

 3.4 Process Data and Results

 3.5 Return Product Recommendations

4. System

 4.1 Software Management

  4.1.1 SaaS Acquisition

  4.1.2 Design User friendly UI

 4.2 Hardware Management

  4.2.1 PaaS Acquisition

  4.2.2 Maintenance

5. Database

WBS Diagram

Customized Cosmetics Service

1. Create User Profile
- 1.1 Create account
  - 1.1.1Name
    - 1.1.1.1 Email
    - 1.1.1.2 Phone
    - 1.1.1.3 Address
    - 1.1.1.5Passwor
- 1.2 Login
  - 1.2.1 Email
  - 1.2.2Phone Number
  - 1.2.3 Password

2. Survey
- 2.1 Gender
- 2.2 Age
- 2.3 Race/Ethnicity
- 2.5 Medical Conditions (allergies etc)
- 2.4 Goals

3. Searching
- 3.1 Lab
  - 3.1.1 Survey results sent to a lab
  - 3.1.2Beauty Experts analyze
  - 3.1.3 Data sent to cosmetic
- 3.2 Personal
  - 3.2.1 Availability Category through
  - 3.2.2 User selects product category.
  - 3.2.3 User selects products
- 3.3 Geolocation captured
- 3.4 Data and results processed
- 3.5 Product recommendation returned to customer

4. System
- 4.1 Software
  - 4.1.1 SaaS Acquisition
  - 4.1.2 Up to date datasets
  - 4.1.3 Frequent app updates
  - 4.1.4 User friendly UI
- 4.2 Hardware
  - 4.2.1 PaaS Acquisition
  - 4.2.2 Maintenance

5. Database
- 5.1 Customized Cosmetic Service Database communication
- 5.2 Data Collection Software linked to customer service and
- 5.3 Database management/verification
- 5.4 Monitoring of current events

6. Graphical
- 6.1 Product info compared to user preference
- 6.2 5 star system in place to rate overall satisfaction with products
- 6.3 "I" Icon
- 6.4 How does the customized cosmetic service this report Icon

Gantt Chart

Task Name	Duration	Start	Finish	Predec
1. User Profile	10 days	Thu 3/23	Wed 4/5	
1.1 Develop Sign Up Screen	5 days	Thu 3/23	Wed 3/2	
1.2 Develop Login Screen	5 days	Thu 3/30	Wed 4/5	2
2. Generate Survey	15 days	Fri 3/24	Thu 4/13	
2.1 Develop a Customer Survey Screen	6 days	Thu 4/6/23	Thu 4/13/23	3
2.2 Set Up Survey database	6 days	Fri 4/14/	Fri 4/21/	5
2.3 Connect Survey database to User Profile	3 days	Mon 4/24/23	Wed 4/26/23	6
3. Searching	80 days	Mon 3/2	Fri 7/14/	
3.1 Develop Lab System	20 days	Thu 4/27	Wed 5/2	7
3.1.1 Connect Survey database to Lab System	10 days	Thu 5/25/23	Wed 6/7/23	9
3.1.2 Beauty Experts analysis	10 days	Thu 6/8/	Wed 6/2	10
3.2 Personal Product Selection	5 days	Thu 4/27	Wed 5/3	7
3.3 Capture Geolocation	5 days	Thu 6/22	Wed 6/2	12,11
3.4 Process Data and Results	10 days	Thu 6/22	Wed 7/5	11,12
3.5 Return Product Recommendations	20 days	Thu 6/22/23	Wed 7/19/23	11,12

Task Name	Duration	Start	Finish	Predec
4. System	120 days	Thu 3/23	Wed 9/6	
4.1 Software Management	30 days	Thu 3/23	Wed 5/3	
4.1.1 SaaS Acquisition	5 days	Thu 5/4/	Wed 5/1	17
4.1.2 Design User friendly UI	25 days	Thu 5/11	Wed 6/1	18
4.2 Hardware Management	30 days	Thu 3/23	Wed 5/3	
4.2.1 PaaS Acquisition	10 days	Thu 5/4/	Wed 5/1	20
4.2.2 Maintenance	20 days	Thu 5/18	Wed 6/1	21
5. Database	33 days	Sun 3/26	Tue 5/9/	
5.1 Cosmetic Service Database Communication	10 days	Thu 3/23/23	Wed 4/5/23	
5.2 Data Collection Software Integration	10 days	Thu 4/6/23	Wed 4/19/23	24
5.3 Database management and verification	8 days	Thu 4/20/23	Mon 5/1/23	25
5.4 Monitoring current events	5 days	Tue 5/2/	Mon 5/8	26
6. Graphical	60 days	Mon 3/2	Fri 6/16/	
6.1 Product Comparison Visualization	20 days	Thu 7/20/23	Wed 8/16/23	15
6.2 Implement Five Star Rating System	20 days	Thu 8/17/23	Wed 9/13/23	29
6.3 Create "I" Icon	10 days	Thu 9/14	Wed 9/2	30
6.4 Customized Cosmetic Service Report Icon	10 days	Thu 9/28/23	Wed 10/11/23	31

Critical Path

	Task Name	Duration	Start	Finish	Predecessors
2	1.1 Develop Sign Up Screen	5 days	Thu 23/3/23	Wed 23/3/29	
3	1.2 Develop Login Screen	5 days	Thu 23/3/30	Wed 23/4/5	2
5	2.1 Develop a Customer Survey Screen	6 days	Thu 23/4/6	Thu 23/4/13	3
6	2.2 Set Up Survey database	6 days	Fri 23/4/14	Fri 23/4/21	5
7	2.2 Connect Survey database to User Profile	3 days	Mon 23/4/24	Wed 23/4/26	6
9	3.1 Develop Lab System	20 days	Thu 23/4/27	Wed 23/5/24	7
10	3.1.1 Connect Survey database to Lab System	10 days	Thu 23/5/25	Wed 23/6/7	9
11	3.1.2 Beauty Experts analysis	10 days	Thu 23/6/8	Wed 23/6/21	10
15	3.5 Return Product Recommendations	20 days	Thu 23/6/22	Wed 23/7/19	11,12
29	6.1 Product Comparison Visualization	20 days	Thu 23/7/20	Wed 23/8/16	15
30	6.2 Implement Five Star Rating System	20 days	Thu 23/8/17	Wed 23/9/13	29
31	6.3 Create "I" Icon	10 days	Thu 23/9/14	Wed 23/9/27	30
32	6.4 Customized Cosmetic Service Report Icon	10 days	Thu 23/9/28	Wed 23/10/1	31
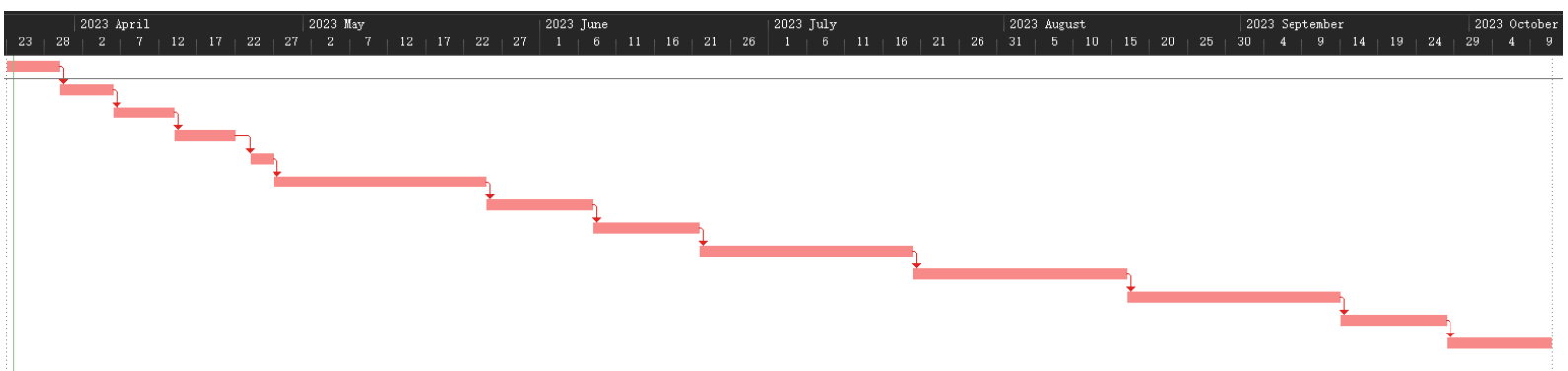
Critical Design Review (CDR)

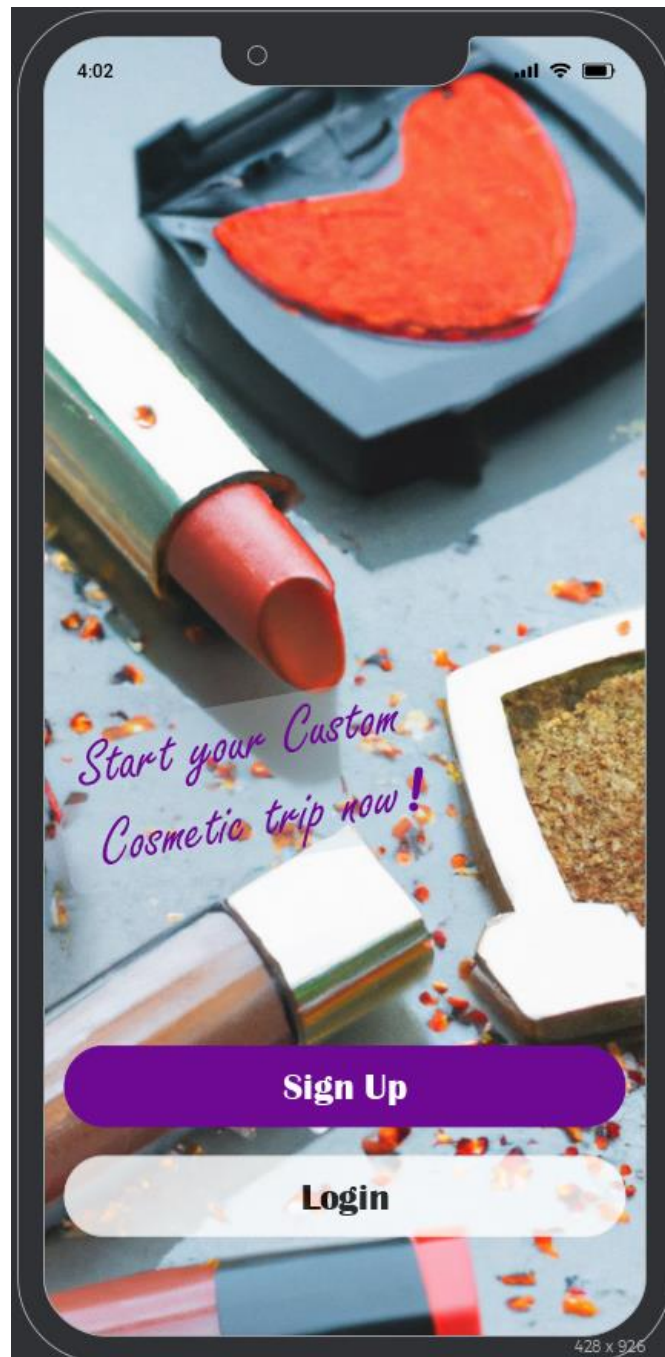## U/I screens mapped to WBS system requirements, features, functions

Requirement 1: Welcome screen

- **Feature:**

Welcome screen is the interface when customer first open this app and it will show the icon and slogan of our system.

- **Function:**

Including "Sign Up" and "Login" button for customer to choose how to join in this system.

Requirement 2: Login screen

- **Feature:**

The Login screen is for the old customers (the customers who already have an account) to enter their Account number: Email address and the password. And if some customer forgot their password, they can click to reset the password.

- **Function:**

The Email address input textbox; the password input textbox; the reset password link; the login button; the "Sign up" link for those who want to create a new account.
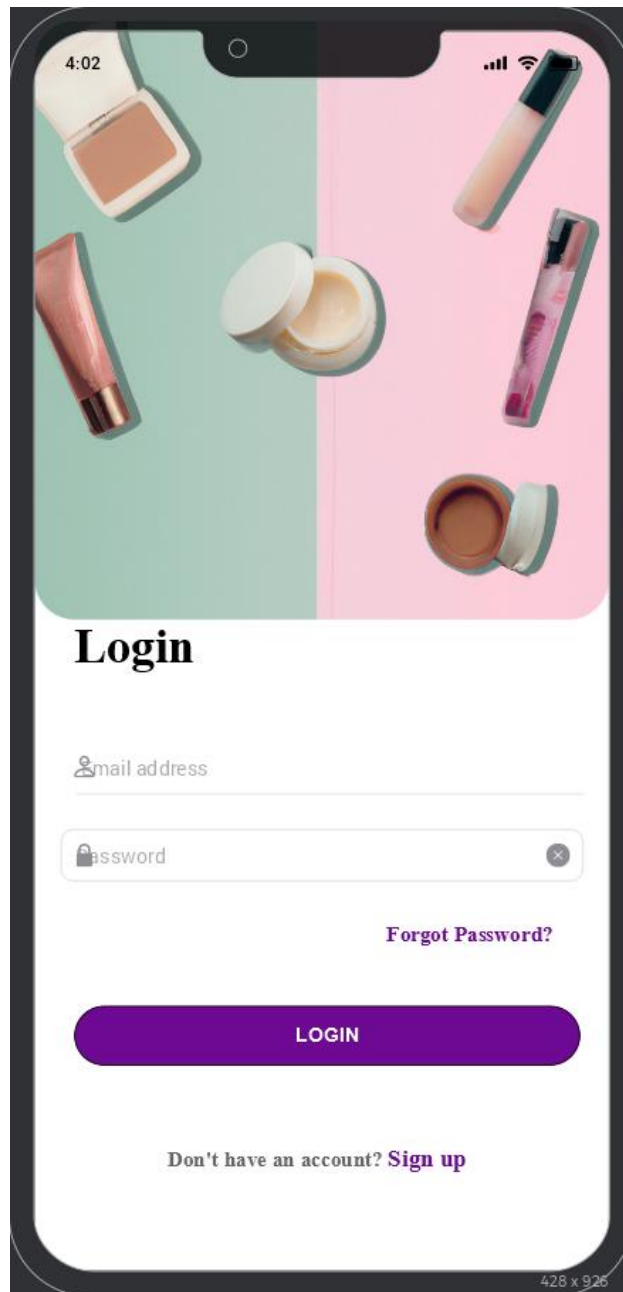
Requirement 3: Sign Up screen

- **Feature:**

The Sign-up screen is for the new customers to enter create a new account, the customer should enter their first and last name for the delivery products, the email address for login the app, phone number, password, and the delivery address.

- **Function:**

The first name input textbox; The last name input textbox; The Email address input textbox; The phone number input textbox; The password input textbox; Two Address input textboxes; The city input textbox; The selection box for choosing the States; The Zip code input textbox; The Create Account button; The Login link; The privacy term link.

Requirement 4: Reset password screen

- **Feature:**

  This requirement including three different screens.

  4.1 The "forgot password screen" is the screen showed when customer click the "Forgot password" link, the customer will enter their account number which is the Email address to let us send the verify coder to their email.

  4.2 The second screen is "verify code screen", when customer received the verify codes, they can enter the codes here can jump to the next step, if they don't receive the codes, they can click the resend link at the bottom.

  4.3 The last screen is the "Reset password screen", when they success to verify the code we sent to them, this screen will show their Email address, and they can enter their new password, additionally, it will require them to retype the new password again to prevent they will forget again.
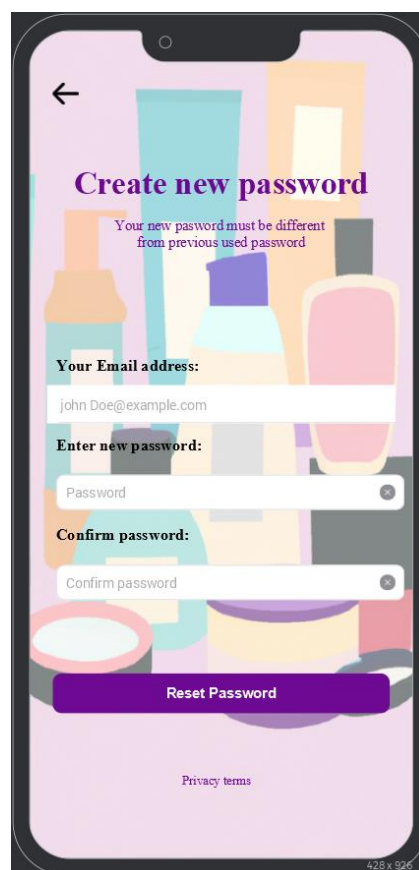
- Function:

4.1: The return button; The Email address input textbox; The send codes button; The privacy terms link.
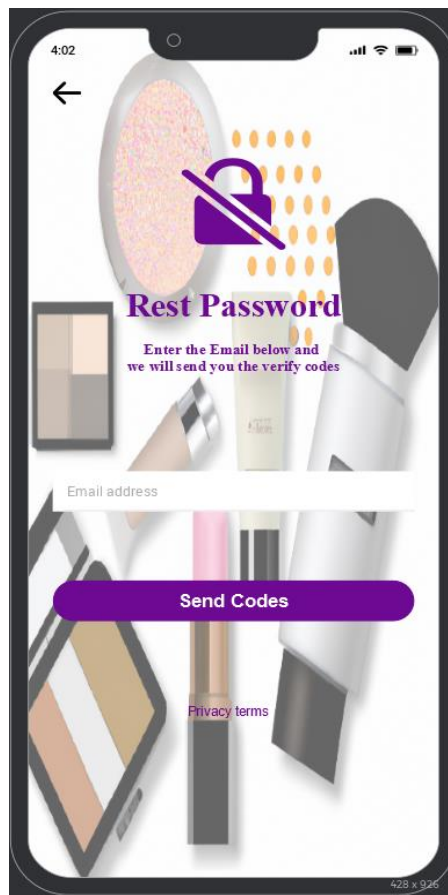
4.2: The return button; The five digits number input textbox; The verify button; The resend link.

4.3: The return button; The Email address output textbox; The enter new password input textbox; The confirm password input textbox; The reset password button; The privacy terms link.
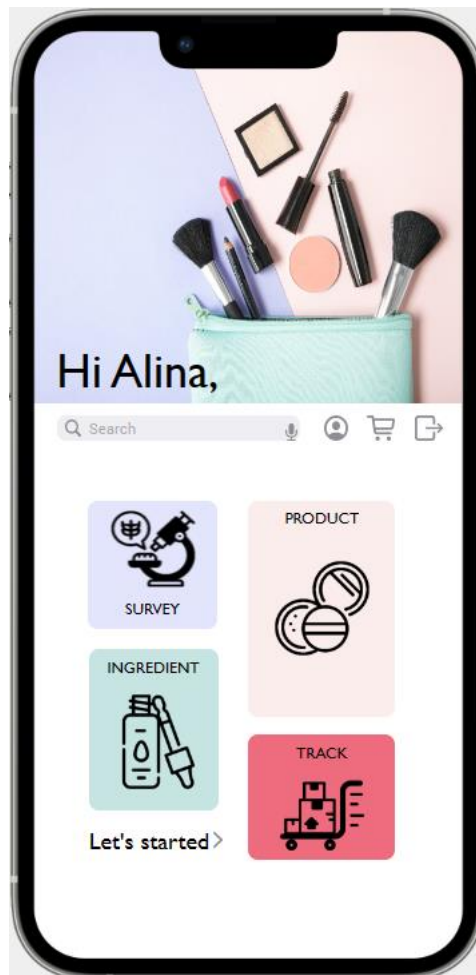
Requirement 5: Dashboard for user

- **Feature:**

A dashboard for the user to go to all functions of the application.

- **Functions:**

Search bar, shortcut to profile, cart, logout button, link to survey, product, ingredient check, delivery tracking.
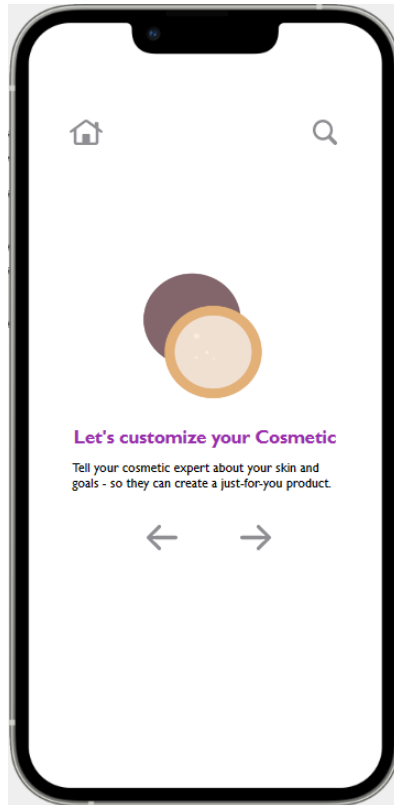

**Requirement 6: A survey to identify customers' preferences.**

- **Feature:**

A list of questions to get information of customers' skin type, makeup frequency and preference.
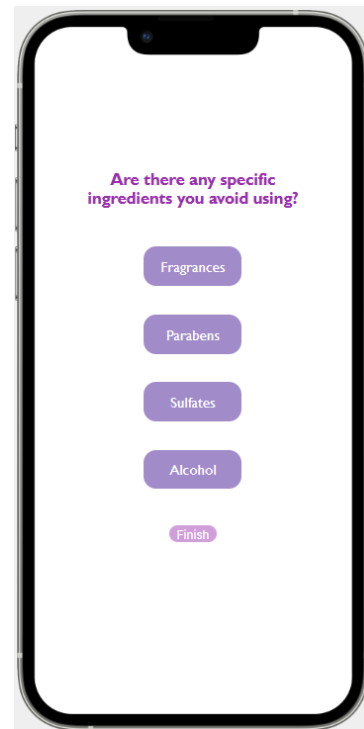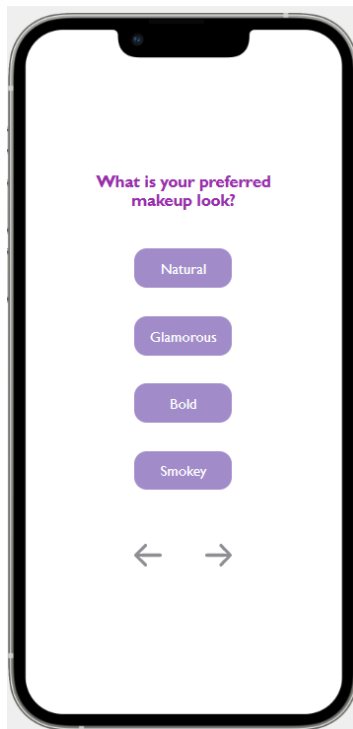
- **Functions:**
    - o   A welcome page for the survey, an arrow to move to the next part of the survey, homepage button, search button.

o A list of questions, arrows to go forward or backward, "finish" button at the last question.
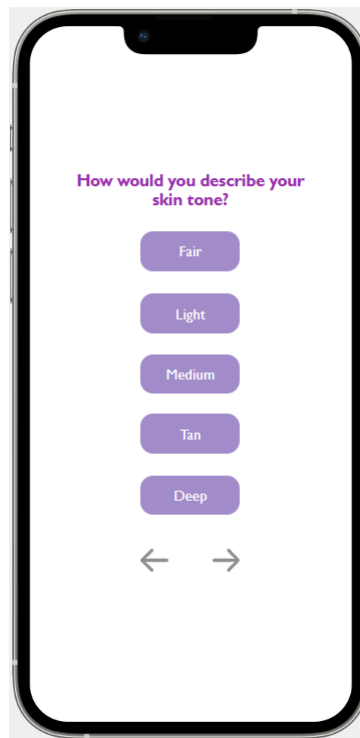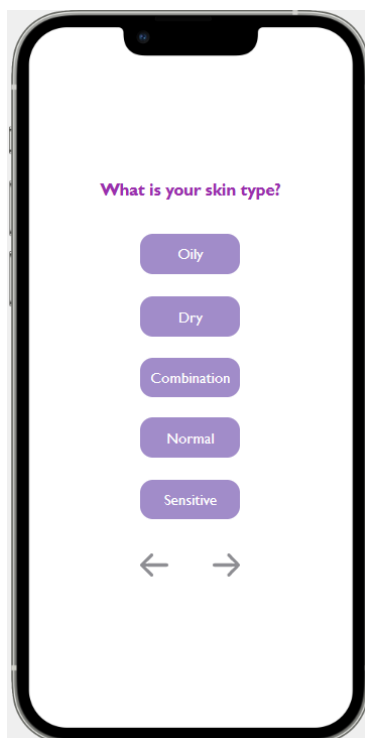
Requirement 6: Search page.

- **Feature:**

The search/browsing page allows users to search for and purchase products which match their liking.

- **Function:**

The page suggests data based on survey data and results, which are sent to a team of specialists who then recommend specific products catered to a consumer's needs. Alongside specialist recommendations, consumers have a direct option to browse for products themselves if they find that the recommendations simply do not meet their standards.
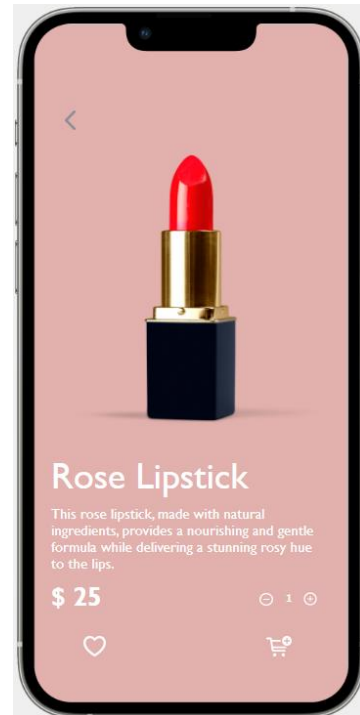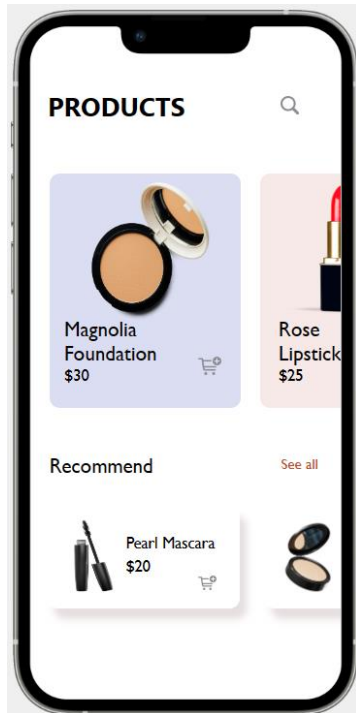
Requirement 7: Customer Service

- **Feature:**

A place for customers to leave reviews and ratings of products purchased.

- **Function:**

The review displays the name of the user, the rating that the user gave, and their review. The review is available for anyone to see on the website.

Input – Customers search for a specific product	→	Process – Website direct customer to product chosen	→	Output – Customers are able to browse reviews of specific product.

Customer Review

Anonymous ★★★★½

It was truly shocking that Custom Cosmetics were able to find a product that actually matched my skin color!

Lydia Grove ★★★☆☆

This product wasn't much different from other products i've tried. I guess my expectations were to high because I was hoping for a product that would make me look like I'm not even wearing makeup.

Kate Winslow ★★★★★

This may actually be the best thing created in a very long time! This product blends perfectly with my skin and comes off easily as well.

Janet Jackson ★☆☆☆☆

This was a complete waste of my time! It took them 2 weeks just to send my package. And when I finally got the package, it wasn't even the right order. Never shopping here again!

Test Readiness Review (TRR)

Overview of System Coverage

The purpose of this system is to allow the website to be able to process the information sent from customers and transmitting that information to suppliers in order to receive products specifically made for each customer. The system will achieve this goal by including a survey in the website that customers must complete before receiving their personal products. Once the survey is completed, it will then be gathered by the system and arranged in groups with customer name, skin color, and skin conditions being main key points. Once the data is arranged properly, it will be sent to various supplying companies depending on the data. For example, a customer with a lighter skin tone and clear skin would be sent to supplier A, whereas, another customer with a different skin tone and acne would be sent to supplier B. The reason for this is to be able to have access to all types of skin care products so that customer satisfaction can be met.

Personnel

This system's personnel will consist of members who possess the skill of data processing as well as a supplier outreach team whose goal is to suppliers and try to create a relationship with them that allows us to receive their items.

Location

The system's testing will occur online on a public website that can be accessed through mobile devices, computers, and tablets.

Equipment

As stated earlier, customers will need either a mobile device, computer, or tablet that is able to connect to the internet.

Methods

Data processing is used and is key in making sure the system runs smoothly. After collecting data from each customer's survey, The data is separated into groups of data that match each other.

System Test Case Descriptions

1. *Accessibility requirement*

   Isabelle called her mom the other day because she wasn't able to access the website to purchase new makeup. Her mom responded and explained to her that it was because Isabelle's internet was not working and therefore the website did not show up. Once Isabelle got the internet fixed, she logged into her account that she created since she is a reoccurring customer.

2. *Data requirement*

   Mandy was scrolling down the list of our most compatible skin products. She found that she thought was interesting and decided to buy it without completing the survey. When she tried it for the first time, she got an allergic reaction as it turns out that she has a skin condition where her face will swell whenever she is exposed to any lemon scent. Had she completed the survey and included that piece of information, the product she bought wouldn't have been an option for her.

3. *Customer service requirement*

   After the swelling went away from her face, Mandy made sure to leave a review expressing her disappointment and anger because she felt that the ingredients in the product should have been more apparent. The feedback was received by the system and part of the personnel began working to improve size of the ingredients section on every product.

Functions

The system collects customer data and uses it to create individual beauty profiles.

The system uses advanced algorithms and technology to formulate customized cosmetics products that are designed to meet the customer's specific needs and preferences.

The system ensures that the customized cosmetics products are delivered to the customer's address in a timely and efficient manner.

The system allows customers to adjust their product selection and delivery schedule as needed.

The system provides customer support by phone, email, or live chat to answer any questions or concerns customers may have.

Mapped User Stories

Requirement 1: The system should allow customers to create their profile and beauty profile.

- *Feature:* Onboarding process.

- *Function:* The onboarding process should ask customers about their skin type, skin concerns, and beauty preferences and use this information to create their individual beauty profile.

Requirement 2: The system should create personalized cosmetics products based on the customer's individual beauty profile.

- *Feature:* Product Creation.

- *Function:* The system should use advanced technology and algorithms to formulate customized cosmetics products that are designed to meet the customer's specific needs and preferences.

Requirement 3: The system should deliver the customized cosmetics products to the customer's address.

- *Feature:* Product Delivery.

- **Function:** The system should ensure that the customized cosmetics products are delivered to the customer's address in a timely and efficient manner.

Requirement 4: The system should provide customer support.

- **Feature**: Customer Support.

- **Function:** The company should provide customer support by phone, email, or live chat to answer any questions or concerns customers may have.

Mapped Use Cases

Requirement 1: The system should allow customers to create their profile and beauty profile.

- **Feature:** Onboarding process.

- **Use Case:** Customer signs up for the service and completes the onboarding process, which includes answering questions about their skin type, skin concerns, and beauty preferences.

Requirement 2: The system should create personalized cosmetics products based on the customer's individual beauty profile.

- **Feature:** Product Creation.

- **Use Case:** The system uses the customer's individual beauty profile to create customized cosmetics products that meet their specific needs and preferences.

Requirement 3: The system should deliver the customized cosmetics products to the customer's address.

- **Feature:** Product Delivery.

- **Use Case:** The customized cosmetics products are packaged and shipped to the customer's address in a timely and efficient manner.

Requirement 4: The system should provide customer support.

- **Feature:** Customer Support.

- *Use Case:* The customer contacts customer support by phone, email, or live chat to ask questions or express concerns about their products or subscription.

Test Cases

- Use Case: Customer signs up for the service and completes the onboarding process, which includes answering questions about their skin type, skin concerns, and beauty preferences.
  - Test Case: The system accurately captures and stores the customer's profile information, including skin type, skin concerns, and beauty preferences.
- Use Case: The system uses the customer's individual beauty profile to create customized cosmetics products that meet their specific needs and preferences.
  - Test Case: The system accurately formulates customized cosmetics products that are designed to meet the customer's individual needs and preferences.
- Use Case: The customized cosmetics products are packaged and shipped to the customer's address in a timely and efficient manner.
  - Test Case: The products are packaged securely and shipped within the specified time frame, and the customer receives the products in good condition.
- Use Case: The customer contacts customer support by phone, email, or live chat to ask questions or express concerns about their products or subscription.
  - Test Case: The customer support team responds promptly and effectively to the customer's inquiry or concern, providing accurate and helpful information and resolving any issues in a satisfactory manner.

User Acceptance Tests

1. Customers can access the website and get started by creating an account.

In order for the system to flourish, it is imperative that customers are able to access the website. From there, creating an account is important because it allows the customer's data to be saved. Although it is not required, creating an account is advised so that you don't have to input the same data every time you enter the website.

2. Customers are able to view the survey form and fill it out.

Surveys are key in the process of this system because it is the best way to receive data and information from the customers. If customers can't access a survey, not only will the accuracy of the personalized products decrease, but it will also hinder the customer satisfaction rate since there is no way to discover how the product worked for the customer.

3. After a completed survey, customers receive products personalized to them.

In between the process of completing a survey and receiving a product, data must be collected and organized so that the right information goes to the correct supplier. Once a customer receives their product, a feedback form will be made available in order to determine what needs to improve within the system.

System Specification Review (SSR)

Introduction:

In our System Specification Review, we will try to map each part of hardware, software, personnel, facilities, licenses to the Requirements, Features, and Functions. Thus, we will deliver the equipment list and cost model into each requirement. Besides, the cost of other equipment and overhead cost will demonstrate independently.

1. **Personalized product recommendations**

    1.1. Features: Skin analysis

    Function: Capture high-resolution images of customers' skin.

    1.1.1. Hardware: Skin analysis devices.

These devices will capture high-resolution images of customers' skin, enabling the system to analyze skin conditions accurately. They are required to collect accurate and reliable data, which will be used to create personalized cosmetics products.

- Type: VISIA Complexion Analysis System

- Brand: Canfield Scientific

- Model: VISIA Gen7

- Price: Approximately $30,000 before tax

- Amount: 1

    1.1.2. Personnel: Skincare specialists to operate skin analysis devices

They have expertise in skin care techniques, products, and ingredients. They advise customers on appropriate skincare routines, analyze skin types and conditions, and recommend personalized cosmetic products based on individual needs.

- Average salary of $4,000 per month

- Amount: 1

1.2. Function: Process skin analysis data

1.2.1. HW: High-performance computers

These computers can handle large volumes of data, such as skin analysis, customer preferences, and historical sales data. These computers can process and analyze the data efficiently and quickly, enabling the creation of accurate and personalized product recommendations.

- Type: Workstation

- Brand: Dell

- Model: Precision 5820 Tower

- Price: $2,000 per workstation (depends on the specific Customization)

- Amount: 2

1.2.2. SW: Data processing software

This software is used to collect, organize, and analyze customer data, such as skin types, preferences, and order history. This software helps identify patterns and trends, which can be used to improve the Customized Cosmetic Service and personalize product recommendations.

- Type: Data analysis software

- Brand: IBM

- Model: SPSS Statistics

- Price: $99 per user per month

- Amount: 2 user licenses

1.2.3. Personnel: Data analysts to review and interpret data

They have strong analytical and problem-solving skills, as well as expertise in data analysis tools and techniques. They collect, process, and interpret large amounts of customer data to

identify trends, patterns, and insights that can improve the effectiveness of the Customized Cosmetic Service.

- Average salary of $6,000 per month

- Amount: 2

1.3. Function: Run custom algorithms for product recommendation

1.3.1. SW: Custom software for skin analysis and product recommendation

This custom-built application is designed to process customer data, run advanced algorithms for product recommendations, and manage user accounts. It has user-friendly interface and system layout, allowing application to easy navigation for user and efficient manage data.

- Type: Bespoke software

- Price: Different based on scope and complexity. Range from $50,000 to $200,000

1.3.2. Personnel: Software developers to create and maintain recommendation algorithms

The skilled software developers with experience in programming languages such as Python, JavaScript, and SQL are responsible for creating and maintaining our application. They ensure its functionality, security, and user-friendliness, and implement updates and new features as needed.

- Average salary of $ 7,500 per month

- Amount: 1

1.4. Licenses: Software licenses for development tools and platforms

2. Secure storage and management of customer data

2.1. Feature: Customer profile creation

Function: Store customer data, product information, and order history

2.1.1. HW: Enterprise Servers

The Serves can store large amount of customer data, including images, customer files, product information and history data. They are essential for hosting the Customized Cosmetic Service application, processing customer data, and running the algorithms for product recommendations.

- Type: Rack Server

- Brand: Dell

- Model: PowerEdge R740

- Price: $4,000 per Server (depends on configuration)

- Amount: 1

2.1.2. SW: Database management software

The database management system allows for efficient storage, retrieval, and management of customer data, product information, and other relevant data.

- Type: Database software

- Brand: Oracle

- Model: Oracle Database

- Price: $47,500 per processor

- Amount: 1 processor license

2.1.3. Personnel: Database administrators to manage and secure customer data

Database administrators manage and maintain the database systems that store customer data, product information, and other relevant data for the Customized Cosmetic Service. They ensure data integrity, security, and efficient access to information.

- Average salary of $8,000 per month

- Amount: 1

2.2. Licenses: Database software licenses

The database management software licenses ensure compliance with copyright laws and allow the business to utilize these tools for managing customer data.

3. Efficient customer relationship management

3.1. Feature: Customer support

Function: Manage customer relationships, handle support requests, and track customer interactions

3.1.1 SW: CRM software

The customer relationship management software helps manage customer profiles, track customer interactions, and provide efficient customer support. It offers various tools for marketing, sales, and customer service management.

- Type: Customer relationship management software

- Brand: Salesforce

- Model: Salesforce Sales Cloud

- Price: $75 per user per month

- Amount: 5 user accounts (depends on company size)

3.1.2. Personnel: Customer support representatives

Assist customers with any questions or concerns, help them navigate the platform, and address any issues related to their personalized products.

- Average salary of $3,000 per month

- Amount: 4

3.1.3. Facilities: Office space

A comfortable and well-equipped office space provides a productive environment for employees to work, collaborate, and hold meetings. It also places necessary equipment, such as computers, servers, and networking devices. Additionally, costs associated with setting up and maintaining the office space, such as furniture, utilities, and maintenance are considered.

- The cost of office space varies greatly depending on the location. In Tampa or Clearwater, prices are around 40$ per square foot per year --- 3.3$/ft^2 per month.

- Area: About 5,000 ft^2; Total rent fee for a month is 16,500$ per month

Refer to sections 6 and 7 for detailed costs associated with furniture, utilities, and maintenance.

3.1.4 Licenses: CRM software licenses

Required to legally use the software needed for managing customer data and running our platform.

3.2. Feature: Order management

Function: Track orders and coordinate with manufacturing and shipping team.

3.2.1 HW: Office computers, printers, and phones

These computers are essential for staff to access and manage the Customized Cosmetic Service platform, process customer data, and handle customer support.

Type: Office computers

- Brand: Dell
- Model: Inspiron
- Price: $900 (Only Desktop)
- Amount: 10 (Depends on number of employees)

Type: Office monitors

- Brand: Dell
- Model: P2319H
- Price: $189
- Amount: 10 (Depends on number of desktops)

Type: Office Printers

- Brand: HP

- Model: Office Jet Pro 9025e

- Price: $320

- Amount: 2

Type: Corded Phones

- Brand: AT&T

- Model: ML17929

- Price: $55

- Amount: 10 (Depends on number of employees)

3.2.2. Personnel: Order management staff

They are responsible for processing customer orders, ensuring accurate product customization, and coordinating with production and shipping departments. They ensure that orders are fulfilled accurately and delivered in a timely manner.

- Average salary of $3,500 per month

- Amount: 5

4. Effective team collaboration and project management

4.1. Feature: Team collaboration

Function: Collaborate and track progress on various tasks and projects

4.1.1. SW: Project management software

Project management software helps the team collaborate and track progress on various tasks and projects. It helps ensure projects are completed on time, within budget, and with the desired outcomes.

- Type: Project management software

- Brand: Atlassian

- Model: Trello Business Class

- Price: $10 per user per month

- Amount: 10 user licenses

4.1.2. Personnel: Project managers

They oversee the planning, execution, and completion of various projects related to the Customized Cosmetic Service. They coordinate with different departments, manage resources and timelines, and ensure that projects are completed on time and within budget.

- Average salary of $7,000 per month
- Amount: 1

4.1.3. Licenses: Project management software licenses

5. Fast and reliable communication between hardware and software components

5.1. Feature: Network infrastructure

Function: Ensure fast and secure data flow within the system

5.1.1 HW: Network switches and routers

Essential for connecting servers, computers, and other devices, ensuring a seamless flow of data within the system.

Type: Gigabit Ethernet Switch

- Brand: Cisco
- Model: Catalyst 2960-X
- Price: $1,200 per switch
- Amount: 3 switches

Type: Route

- Brand: Cisco
- Model: Cisco ISR 1100
- Price: $1,000 per router
- Amount: 1 router

5.1.2 SW: Enterprise-grade internet connection

It ensures fast, reliable, and secure data transmission for our service. It supports the real-time exchange of information between different systems and departments, enabling smooth communication and collaboration.

Type: Internet Service Provider

Brand: Comcast Business

Model: Gigabit Internet

Price: $129 per month

5.1.3 Personnel: Network administrators

Network administrators are responsible for the design, implementation, and maintenance of the organization's network infrastructure. They ensure that networking devices, such as routers and switches, are configured correctly and securely, and they monitor network performance to maintain smooth operations.

- Average salary of $6,500 per month (can be outsourced)

5.1.4 Facilities: Server rooms and data centers

Including in the Office Space.

5.1.5 Licenses: Network management software licenses

6. Other Equipment

6.1. Office furniture:

Costs can vary by the number of staffs and area of office, but a typical office setup with a desk, chair, and storage might cost around $1,000 per employee.

6.2. Utilities:

Costs for electricity, water, and internet can range from a few hundred to over a thousand dollars per month, depending on equipment, usage and area.

6.3. Supplies:

Costs for consumables like paper, printer cartridges, cleaning supplies, and other office supplies may take $15 per employee per month.

7. Overhead cost

7.1. Insurance:

- General liability insurance: $150 per month

- Property insurance: $130 per month

Total Insurance Cost: $280 per month

7.2. Marketing:

- Basic online marketing: $1,000 per month

- Social media advertising: $2,000 per month

- Content marketing: $1,500 per month

- Email marketing: $500 per month

Total Marketing Cost: $5,000 per month

7.3. Maintenance:

- Equipment maintenance (computers, servers, printers, and network devices): $300 per month

- Software maintenance (updates, patches, and support): $200 per month

- Facility maintenance (office space, furniture, and other amenities): $400 per month

Total Maintenance Cost: $900 per month

Conclusion

We tried to provide a comprehensive analysis of the hardware, software, personnel, facilities, licenses, and other equipment required for the successful implementation of our Customized Cosmetic Service. And we also tried to identify and map the costs associated with each requirement, feature, and function to ensure efficient allocation of resources and budgeting. Based on our analysis, the total estimated costs for the project are as follows:

1. **Initial investment cost (need plus the part of recurring cost)**

Hardware: $54,770

Software: $147,500

Office furniture: $16,000

2. **Recurring cost**

- Software: $673 per month

- Personnel: $74,500 per month

- Facilities: $16,500 per month

- Overhead Costs: $7080 per month (Varies depending on insurance coverage, marketing campaigns, and maintenance costs and periods)

- Supplies: $210 per month

These costs will change based on factors such as the number of employees, the location of the office space, the scope and complexity of the custom software, and the chosen marketing strategy.

Implementation Readiness Review (IRR)

Installation

Version 1.1 will be available for installation through both the App Store and Google Play Store for mobile devices running iOS 15 and newer or Android Pie and newer. The application will require user approval to access the phone's geolocation data.

Transition

There is no existing system. Future transitions and updates will be phased through either the App Store or Google Play Store through software updates.

Training

In version 1.1, all user training will occur on the user's device via pop-up tutorials on using the application (searching, survey features). In version 1.2, user training will be expanded via in-app customer service features and a general app tutorial during the application's initial start after the update. All in-app training will be no more than 60 seconds in duration.

Maintenance

The upkeep of hardware given to team members will be outsourced to IBM technicians, while the software producer's customer service will handle maintenance for the software provided to employees. Regular security maintenance will be carried out for the application, with necessary security patches applied through the corresponding application store. The Customized-Cosmetics research team will be responsible for maintaining the data sets, including the Barcode data set, preferences data sets, and end user information, which will be remotely manipulated through the chosen SaaS provider's website to ensure that all relevant data is fully synchronized.

Support

When version 1.2 is launched, Customized-Cosmetics clients will have access to customer service through an in-app feature. Automated chat services will help customers to locate

relevant troubleshooting articles and FAQs. Communication with customers will be handled using HubSpot's free Customer Relationship Management suite, which can accommodate up to 1,000,000 users at no cost, and additional services will be procured when needed. HubSpot will be used to search service tickets and to send mass emails addressing common problems, enabling our limited staff to handle a large number of customer concerns. Live chat support will be provided to all US-based users when Customized-Cosmetics 2.0 is launched.

Version and Update Rollout Plan (ALM)

May 2023

- Customized-Cosmetics 1.1
    - Search
    - Survey
    - Lookup
    - Scan
    - Report

January 2024

- Customized-Cosmetics 1.2
    - In-app Customer Service
    - Enriched in-app training
        - Tutorial Screens
    - Update Survey
    - Update Security Patch

March 2024

- Customized-Cosmetics 2.0
    - In-store inventory feature
    - URL search feature

- o Update Security Patch

May 2024

- Customized-Cosmetics 2.0

    - o VR makeup trial

    - o Shopping List Generator

Update Security Patch

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Meeting Minutes

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1. **1/18 Meeting Minutes**

a. Our group name is Standing Bulls, and members are:

- Hoai Thuc Nhi Le – Team Lead

- David Sanfeliz

- Kuo Zhao

- Sidney Emelle

b. Recap:

- We had our first meeting at 1st floor USF Library from 3:45 PM to 4:45 PM.

- We have decided that our meeting will be 3:45 PM to 4:45 PM every Wednesday at USF Library.

- Communication method: GroupMe and weekly meeting

- Brainstormed about Business Problem Statement:

  - Gaming industry

  - Console sales

  - Sales in music industry

  - Recruitment System

  - Payroll system

Assigned task for Project Failure Articles Discussion

2. **2/15/2023 Meeting Minutes**

a. Attendance

- Sidney, David, Hoai, Kuo

b. Recap:

- After discussing and researching, we decided to choose the topic for Elevator Pitch is about the Customized Cosmetics System.

- Assigned role to write for the Elevator Pitch.

3. 2/22/2023 Meeting Minutes

a. Attendance

- All members

b. Recap:

- Revised the Elevator Pitch and assigned roles for SRR: Requirements and Stakeholders.

4. 3/1/2023 Meeting Minutes

a. Attendance

- All members

b. Recap:

- Revised Elevator Pitch to prepare for SRR: Requirements and Stakeholders.

5. 3/15/2023

a. Attendance

- All members

b. Recap:

- Revised SRR: Requirements and Stakeholders:

  - Rewrite Business Problem – Nhi

  - Add CSCI matrix – Sidney.

- Assigned roles for Preliminary Design Review (PDR):

  - SOW and Scope – Nhi

  - WBS: Kuo

  - Gantt Chart – David

6. 3/29/2023 Meeting Minutes

a. Attendance

- All members

b. Recap:

- Draft UI design for the system

- Design UI for each requirement for CDR:

    o Create User Profile – Kuo

    o Create Survey – Nhi

    o Search engine – Kuo

    o Customer service – Sidney

7. 4/19/2023 Meeting Minutes

a. Attendance

- All members

b. Recap:

- Update User Stories and Use Cases

- TRR – Sidney and David

- SSR – Kuo

- IRR – Nhi