

# SKIN CARE

## WEB APPLICATION PROJECT

SOFTWARE PROJECT 2

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# INTRODUCTION

# INTRODUCTION

## 1.1 PROBLEM STATEMENT

We all agree it is hard to figure out which products for your skin are suited to you, and it is hard to figure out what steps to take in your routine. The goal is to make the user feel more confident about their skin and improve any issues. Sure, there are sites like YouTube, Instagram, or TikTok where you can find recommendations from cosmetology influencers, but it takes a lot of time to watch all of them and find the right one.

## 1.2 OUR SOLUTION

The goal is to make the user feel more confident about their skin and improve any issues and design a web application that allows the user to gain access to a personalized skincare routine with the correct recommended products based on surveying their skin type/conditions.

- 1) The user will be asked to asked basic questions such as name, gender, age, etc.
- 2) The user can then select their skin type out of the options of normal, combination, oily, acne-prone, etc.
- 3) Based on the user input they will be recommended a new skincare routine and then a list of products that vary from drugstore to high-end brands so each user can purchase the products comfortably.
- 4) After the products result the user can start again and change their choices
- 5) The products are affordable based on the individual user's budget

Our web application is faster and more personalized than a social media or article recommendation, leaving you with better results for your skin.

## 1.3 PROJECT SCOPE

Reducing it down to the bones of the project, so as to not create any confusion. A user would be asked a series of questions and given a list of recommended products they could use based on the answers they provided.

- 1) Get recommendations,  
Based on the answers provided to the questionnaire.
- 2) A Wishlist,  
Where you can save individual products from searches to access anytime.
- 3) Filter products,  
In terms of price (possibly by company; drugstore, high-end?)

Things we would like to implement in the future but are not currently included.

- 1) Active URLs,  
We'd like to link products directly to vendors that sell them as well as provide information about their availability.
- 2) User Accounts,  
Have individual accounts to be able to migrate data between multiple devices and have a history of all previous searches saved.
- 3) Adaptability,  
We would like to make this available in more versions than its current form. In this way, it may be able to make it conform to more form factors.

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## PLANNING

# PLANNING

## 2.1 GENERAL APPROACH

Our plan from the beginning was to have at least one meeting a week, thanks to which we could be up to date on work and the report that we had just made. We divided the roles of our work by our skills, predispositions, and expectations, which we had established from the very beginning.

In the last month, the duration of the project, half of our group has stopped cooperating and did not provide their previously assigned work. They did not have any input on the project we present here, so we had to change our earlier plan and divide the entire project into not 4 but 2 people, which was quite a challenge.

We also always wanted our web application to be user-friendly and our users to feel comfortable using it, so we did a lot of surveys and user testing. Testers were selected from our target group - 18-25 women.

The surveys have been included in the appendix.

## 2.2 AGILE DEVELOPMENT TECHNIQUES

A few agile techniques that we used on our projects that directly contribute to accelerating the time to delivery and the increased quality of our product:

- Frequent inspection of the product and adaptation to the changes and input during the project
- Aligning development with customer needs and organizational goals
- Self-organization and accountability
- The user is always present - our product is especially user-friendly
- Focus on key planning events:
  - product planning
  - feature planning
  - iteration planning, etc.

## 2.3 GROUP MANAGEMENT

We decided to distribute our skills as appropriately as possible, but we still had shortcomings because half of the time we had to complete the project was divided into four people with different skills. In the last weeks, only two people worked on that, which did not always match our strong points, but we tried to quickly replenish our knowledge and help each other in all parts of the project, regardless of the division. Otherwise, we knew the final project would not be smooth and well done.

## 2.4 ROLES DURING THE PROJECT

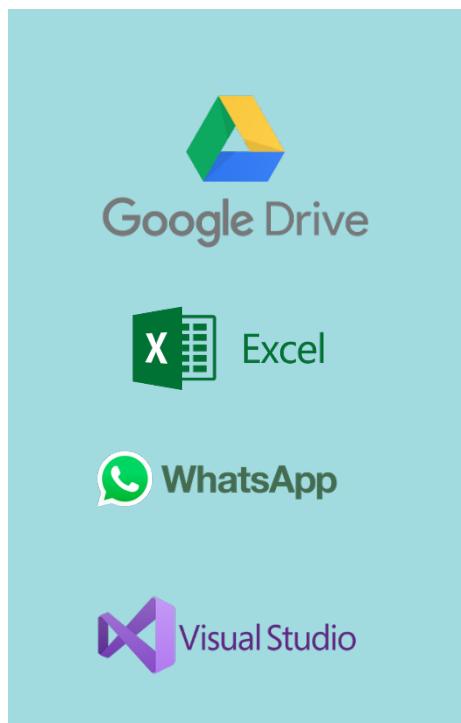
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<b>REPORT</b>	
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## 2.5 TIME MANAGEMENT

Time management in project planning is essential for that reason we organized weekly meetings that lasted from 1 to 2 hours. At meetings, we discussed the tasks we had to do from the previous week, the milestones we encountered, and assigned ourselves tasks for the next week so that everything was perfectly aligned and completed as planned during these 9 weeks that we had to complete our project. All the remaining work was formatting and minor tweaks that we coordinated over the phone. We had made a shared online document and kept each other aware of any changes we made.

The work has been much more intense in the last few weeks and for the last 2 weeks, meetings were held every day to check if everything was going according to plan and lasted 15/20 minutes

## 2.6 TECHNOLOGIES USED



to access the files and upload individual work

to schedule work

to communicate

to code

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RESEARCH  
&  
ANALYSIS

# RESEARCH AND ANALYSIS

## 3.1 EARLY ASSUMPTION TESTING

Skincare is a very broad field to be covering. The market is saturated with plenty of vendors and products. Cosmetics and personal grooming are a market that has only seen a massive demand and interest boom over the last few decades however, the market has truly flourished and become a sector worth billions of pounds. You can see its presence in the poorest of communities in smaller scales and much more prosperous ones with massive facilities, and services that stem from it to cater to people's needs. Herein lies the problem we have decided to try and tackle. The sheer magnitude of the industry leaves one baffled as to where to start. Many people simply just don't know where to start or what products tackle what kind of issues. This leads many people to just stick to what they are accustomed to using rather than seeking out something better suited to them.

This is something we hope we can remedy by providing tailored services to such people. We set out with the goal to make something that would provide people with products tailored to what they need. Admittedly, we would not be the first people to have conjured such a marvelous idea, but such services are far and few in between. As I have alluded to before, the sheer scale of the industry means even drugstores like boots and supermarkets like Tesco carry such products, not to mention dedicated shops such as Sephora and the likes of it. In this way we have plenty of companies that we would be generating traffic for by introducing people to new products that they will go for at these stores, either online or in person. For now, we may not be directly connecting the customer to these shops, but we hope to be able to do so in the future. We would achieve this by directly linking the products we recommend to these stores' websites. One product could have multiple vendors it could be purchased from. In this way is an invaluable trove of knowledge for users to continue using as well as a reliable method of transportation for bringing customers to these larger corporations.

Our service was not built after probing industries for a gap to exploit rather, to fill a gap that we as everyday people were already grappling with, after which we looked at how to make it profitable. It was not built expressly as the purpose of a money-making machine. To this end, we conducted a survey to better understand the needs of our users as well as our demographic. We inquired about what people would

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generally like to see in terms a result from the service rather than have them focus on specific features since we kept the basic concept of what we were trying to achieve as simple as possible. We also asked about people's genders. Our main pool of participants were fellow students in our university as that was the major demographic, we were most familiar with ourselves, in terms of dealing with as well as their needs. Aside from figuring out what these people wanted, the main thing we assessed through our survey was whether this was even something people would be interested in as traditionally people we talked to were doing their own research to figure out what best suited them in terms of products through various online resources.

## 3.2 MARKET ANALYSIS

To build further upon what I touched on earlier. Our research with our targeted users revealed many things to us. While our pool of survey rats was limited in size and age, and not all our data was formally recorded in our survey as much was inquired through informal conversation, our research was in-depth on the users' habits and need. We also made sure to cover different ethnicities as well as both genders since needs can vary based on such aspects. As you can see from our survey, the majority of our users are female by gender with little interest shown by people of the male variety. That is not to say we had no male engagement. We had a few males who took our survey. Many of whom we talked to that were not interested said that they currently had no routine of their own. A small majority said that they only have a very basic routine and had not considered expanding it.

In stark comparison to the males, almost all our female demographic had some sort of routine, in varying degrees. Some were simple while others consisted of many steps and stages. We also inquired as to how they had sourced the products they were using. They cited sources such as 'YouTube' and 'Instagram' amongst other social platforms like 'TikTok'. Only a small portion of them used more traditional methods such as blogs or product reviews left on product listings. This lead us to an interesting finding, the majority of these women were discovering new products through internet personalities on these social media platforms. They were only barely engaging if at all, with more traditional means of advertisements such as TV ads, billboards or even YouTube ads. Neither were they consistent with reading product reviews left on the product listings instead, choosing to rely on their internet personalities' reviews and opinions. While we were only able to speak to a handful of women much older than college students, they expressed how confusing it was to vet products from the plethora available and had themselves begun to move to a more social media-based approach.

Even larger companies such as ‘Vouge’ and the likes had begun following this approach. Mimicking these content creators or sponsoring their products on their channels, has proven to be a successful model for them. Taking a look at a relatively small YouTube creator such as ‘Cassandra Bankson’, she is receiving views on average of a hundred thousand to five hundred thousand views per video

By now, we must have proven how popular these methods have been as well as how widespread they are, not to mention the consumer engagement in this industry. However, all these approaches are not perfect. There were two main reoccurring patterns, the first being how time-consuming the process of searching for products specific to their needs has been, shifting through multiple creators, watching their videos, and jumping across platforms. The second has been how limited this approach has kept their exposure to the range of products available on the market. Most people only explore what their trusted ‘internet personalities’ recommend to them. We hope to solve this by simplifying and greatly expediting the process. We will also give people the chance to diversify since we won’t be limiting the brands and types of products we recommend.

### 3.3 STAKEHOLDER ANALYSIS

#### Customers

As clarified before, there is a very evident gap in the market that we are now positioning ourselves to exploit. Our customers will not be expected to pay to use our service. Their traffic and engagement will however be the catalyst for our revenue generation through ads.

Since we are aiming for the demographic, we best understand, women aged from 18 to 28 who work or are students, this service will be built to best cater to them and with their preexisting knowledge of the industry in mind and as such may not be the most accessible to other users. Not to say that it will be difficult for anyone to just pick up and try.

#### Investors

We will be counting any individuals, parties, or corporations that contribute to our development, growth, and maintenance as investors. We will be counting

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parties who pay us to advertise on our platform as investors as well. Or anyone who chooses to provide us with startup capital if they like our work. That is not to say that financial support will be the only form of investment we consider. Any influencers or content creators operating on the platforms we discussed earlier, willing to promote our product without any financial compensation will also be considered as investors.

## Employees

Nothing costs more than personnel. The most valuable resource for a company is their employee's time. As such we intend to keep only the absolutely minimal number of people required to build, maintain and further the service on payroll. We believe that our scope and complexity is small enough to subsist of tiny team.

## Suppliers

We will be defining suppliers as a business or a person that makes goods supplies available to another business or service. These services for the time being will only be the internet infrastructure that will be facilitating our website by hosting it for example. This may expand to one day include the investors currently advertising their products with us one day should we choose to directly sell these products to customers.

## Communities

Here, we will be referring to the already existing groups of people that exist on platforms such as YouTube or Reddit. The very same internet personalities we spoke of as investors for promoting our service belong to such communities that consist of hundreds of other such creators/personalities as well as the people that consume the content they create. These people will be our greatest method of transportation for getting our name out as the participants of these very communities are our target users. Not to mention it is free or very cheap and efficient advertisement. The model is tried and tested; it works.

## Testers

The people who will be using our product through its various phases of development, as a finished prototype or new features. They help us identify

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deficiencies and gaps in our designs. They also point out shortcomings and faults in our working models. They also provide first and valuable feedback on new working features. For now, however, we only have fellow students and friends to act as our testers. As the application grows and more functionality is added, we hope to have more diverse group of testers to help better identify bugs and deficiencies as well as have more iterative prototypes for them to test.

## 3.4 FINANCIAL ASSUMPTIONS

We will be looking at the cost breakdown for building something as discussed and how those costs would change with time and scale.

For our minimum viable product (MVP),

This is currently the realistic description of our website. It is quite barebones and only provides its basic functionality.

- Considering this is just a university project, there are no real associated costs in a monetary sense currently.
- The student's time working on this, time is spent free of cost as a part of this course.
- The technologies used to facilitate this basic working version are all freeware or other such free services. From the programs it was developed on to the services or code packages it makes use of, are all provided as freeware. As of current, it is not hosted on the world wide web but locally instead, if it were to be, however, it would make use of free hosting services as well.

A real launch of a commercial service,

### Revenue

- Our revenue would be seriously capped in the beginning as a new service, we would not have a solid user base to count on or any advertisers to count on for advertising on our platform. These things would have to be made up for with heavy overhead costs to build up a reputation in the community and a userbase to generate revenue off of.

-Overhead costs. We would have to incur significant costs starting off.

- In this state, your only personnel cost would be someone maintaining the website.
- Hiring Internet personalities to promote our service would be a major cost for us, without getting our name into the community and being backed by faces people already trust, it will be a very difficult and time-consuming process. While this will be expensive, we believe that this high-risk high reward strategy will yield returns quicker than any other method and help build a solid user base we can rely on in the future as well.
- At this stage we will require a hosting service to run our website on, however the cost will be minimal as there is nothing that requires complex processing or massive amounts of storage.

### Long term liabilities

- We would need to diversify our portfolio to keep users invested and investors interested. This would mean we need to hire new personnel to develop and test new features. We could no longer subsist off a single person maintaining the web site.
- Our hosting costs would likely also increase as a result of the added complexity to our service and from the long-term running costs.

The long term is not all bad however, we are looking at new sources of income with new features being added. Presumably, we can also look at a larger and increasing pool of users with time to increase revenue from the sources we were already using to generate revenue.

## 3.5 STEEPLE ANALYSIS

### Society

While this industry of skincare has only seen a boom in the last few decades, it has existed in various forms through the centuries. And as time marches, we only find ourselves grappling with more and more environmental issues, diseases, and as unfortunate as it may be, standards and expectations to look a certain way.

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These things are unlikely to change anytime soon and as such, we can only expect demand to increase for such products and services and subsequently services stemming from them.

### Technological

We find ourselves in an increasingly digital world. We can also see from web traffic statistics that people are mainly accessing resources online through tablets, phones or computers. It is important that we not only develop ourselves to run perfectly on any of these form factors but to be able to be ready to morph to cater any new form of interaction technology such as VR. The pandemic has also forced more people online making this even more relevant now than just a few years ago.

### Economic

With the pandemic finally beginning to look like manageable and things moving back to normalizing. Sectors that did not do as well are seeing a comeback. While the industry specific to our application may have temporarily slowed down, overall, it did not shrink but change how it functioned. Many services and retail were moved online. While shops are open now, many consumers are holding onto their habits of finding what they need online. This works greatly in our favor. This will mean we can see a larger influx of users and traffic if we can get our service off the ground.

### Environmental

A carbon footprint is unavoidable, but we can be responsible about it. For starters we only have a basic web application which should have a minimal carbon footprint. We're not running a large, dedicated server that needs all that much processing power. We can also cut down on resource usage by making our code as efficient as possible, hopefully reducing the computer/servers processing load and thus cutting on power consumption.

### Political

We will of course regulate the products we recommend. Anything banned by our local government or containing such illicit materials will not be featured by us.

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## Legal

Data privacy is an issue that is of the utmost importance to us. While the details we hold for any given persona are minimal, does not mean they are sensitive data. Emails are personal and even their answers to our questions could allude to any medical issues they may have. Information of this nature should be kept encrypted and ideally, only be visible to the user, not even the admin. We will take all the security measures necessary to protect our users.

## Ethical

We will absolutely under NO circumstances share our user's data with any advertising services. In that sense, it would be good to avoid google ad sense which would track our user's data and build profiles of theirs based of them. We condone no such practices and will only generating money from ad space on our platform and will take the necessary precautions not to let a service that logs data from ad clicks, advertising onto our platform.

## 3.6 TAKEAWAY

We wanted a minimalistic approach; the whole idea was for this to be simple and fast. All you need to know is what it's supposed to do, and the rest can be easily navigated. Initially we intended for it to be perhaps far too simple, all you would be able to just do the questions and recommendations. This was however far too minimalist, and we decided to add a login system in the next iteration so that users can save their product recommendations since you can't be expected to remember a whole list of products. Not to mention, answering the questions every time would waste time and there's no guarantee that you would give the same answers evetime to get to a previous recommendation. It just wasn't as fast as we would like it to be. Logging in would hopefully make this a one button operation to see your previous list.

Further iterations of the web site were more polish on top of what we had such as adding pages to verify the user that they have successfully logged in or that their

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entered details are incorrect as opposed to just being taken straight to your account or seeing a red icon flash in the text bar. Otherwise, we have kept the interface relatively clean and uncluttered. We have also stuck to our minimal design and kept the flow of control small, and straight forward. Our interactive elements are also big, brightly colored and animated to make them more obvious.

We haven't achieved all our goals as perfectly as we would have liked and our recommendations aren't as specific or diverse as we would have liked, but that's something we hope to fix in further iterations.

# 4

# APPLICATION REQUIREMENTS

# 4 APPLICATION REQUIREMENTS

In this topic of the report, we will discuss the functional and non-functional requirements of our application. These requirements provide us with more technical and specific details of the design, and functionality of the application than prototyping and design. In that sense, this can be harder to process since it is dense chunks of information. We will start by defining the difference between functional and non-functional requirements; this, hopefully, will make them easier to understand. Functional requirements can be looked at as product features that focus on the requirements of a user, like functionality the application should be able to perform. Whereas non-functional requirements would specify how the application should implement these, it is product properties and focuses on the user expectations i.e., user experience.

## 4.1 FUNCTIONAL REQUIREMENTS

Functional requirements will define the basic functionality of the application. These will tell what the system can do and in turn also, what it is not capable of performing. You can think of this in terms of a user's inputs. Such as a button the user may click to perform an action.

### 4.1.1 SYSTEM REQUIREMENTS

This 'application' will be built in the form of a web application. It should be accessible through any browser (chrome, safari), running on any operating system (windows, mac, android). As such the application is built to conform to any given modern screen size it is being loaded on.

It should not require any kind of specialized hardware to operate. It should run more than well enough on any modern processing device, provided the device is at least up to the caliber of your average mobile phone or laptop. Since this is a web-based application, any problem in the user's internet connection will have severely detrimental effects on the usage of the application.

## 4.1.2 USER REQUIREMENTS

This will define a user's interaction with the application.

Lines beginning with “\*” indicate that they are not implemented yet or are future additions.

### WELCOME SCREEN:

- Short instructions welcoming the user.
  - A user will see a small window pop up with a welcome message.
  - The window will be animated along with a button at the bottom that the user can click to dismiss it.
- A static graphic in the middle of the page.
- A large button at the bottom of the page (is this still a button now?)
  - The button will be accompanied by an animation, prompting the user to click the button.
  - The button click itself will have a short animation before the user is moved to the next page.

### ACCOUNTS:

- Will be presented right after the welcome screen.
  - The user will be given the option to either login into an existing account, continue as a guest (without logging in), or register and create an account.
  - The user must select an option to continue, each button will be presented as a button.
- Registering with the system.
  - The user will be taken to a new screen where they can enter information to create a new account that they can repeatedly use.
  - In the instance that a user enters information that is already registered with the system, a window will pop up telling the user that these credentials are already in use. It can be dismissed by clicking away.

- Login using existing credentials.
  - The user will be directed to a new screen where they can input their credentials and access their existing account.
  - A window will pop up to inform the user that there are no matching accounts if they enter incorrect credentials.
- Once logged into an account.
  - The user will find themselves on another new screen with two options in the form of buttons.
  - One button will take them to the questionnaire, the start of the recommendation process.
  - The second button will allow the user to skip the questionnaire and jump to the last list of recommendations they received when they completed the survey.
- Continuing as a guest.
  - Makes a jump to the start of the questionnaire page.
  - The quickest option as it requires no text input.
  - Robs the ability of the user to see the previous list of recommendations.
- Design.
  - The text input will be in text fields that will be labeled when empty to inform what information needs to be provided.
  - Each of these screens will be flanked by static graphics.
  - Will be navigated using buttons.

## QUESTIONNAIRE:

- Will be comprised of multiple pages.
- The first page is seen by the user (or possibly as a pop-up window).
  - Will show an infographic (static) that will explain how the process will work.
  - Can be dismissed by tapping a button at the bottom of the page/window.
- Structure for each page questions page will be iterative.
  - Static graphics flanking the corners of the screen.
  - Text at the top of the page in the form of a question.
  - Multiple containers containing text, these signify the answers and can be clicked to select.
  - Depending on the response needed for each question, a single container can be selected or, multiple can.
  - To represent a selected container, a container will be highlighted when clicked.
  - A button at the bottom of the page that will move the user to the next question. The button will say next.

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## ANALYZATION:

- Will only be displayed after the user has clicked next on the last question.
- Will have static graphics flanking the bigger (animated? To represent loading) graphic in the middle.
- Text at the bottom telling the user their results are being fetched.
- A point of note, this page will only be transitional. It is not something the user will be able to interact with.

## RECOMMENDATIONS:

- The data displayed on this page will be dynamic.
  - The data that will be displayed will change based on the answers to the questions in the previous pages.
- The data will be presented as a scrollable grid of products.
  - Each box in the grid will hold information about a specific product. Like a picture and a name.
  - Each box can be clicked to bring up more information about that product
- At the end of the list will be a button that can be clicked to restart the entire process.

## 4.1.3 ADMIN PRIVILEGES:

Most of the data being presented will be hardcoded and pulled from a fixed database. As such, there is no real need for admin intervention aside from maintenance. Even the process for recommendations is fixed and will not be changing unless an admin is implementing new features.

- Expanding or shrinking database.
  - As product recommendations will be kept as data and fetched from the database when it is required, an admin would be responsible for maintaining the validity of that data. If a product in the database

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was discontinued by its manufacturer, that product must be deleted from the database. Or if new products had to be added to the database, an admin would have to enter the relevant data in a table in the database.

- Or if there if a user reaches out to request their account be deleted and their information is removed from the database. That would have to be done by an admin who can access and manipulate the database.
- Implementing new features.
  - This would be the only instance in which the process of the application may change, but more realistically, any new additions in the form of features won't drastically alter the flow of execution of the application if at all.

## 4.2 NON-FUNCTIONAL REQUIREMENTS

These will not have any bearing on what the application will be capable of but they will make it easier to understand how the application will work. As mentioned before in functional requirements, if the user was to click a button, this would define properties such as the size, shape, font of the button, or how long a click must take to process and return its response.

### SECURITY:

The server on which the application will be running, as well as the computer or server in which the database is stored, will be hidden away from the user. These aspects will not be visible to the user in any way, shape, or form. The application itself will have no access to the source code of the application and will only allow users to interact with it in the way it is intended to function. \*We will account details encrypted on our server so that in the unlikely instance that an unauthorized person does access our database, our user's information remains secure.

### USABILITY:

- The application's main language will be English since it is being developed for an English medium organization.

- The layout of the application will be spaced out and, use bright colors and big sizes on a plain background for elements that can be interacted with. This will hopefully make touch/click targets more apparent to users and make it easier to navigate the application.
- Our use of infographics and animations should make it easier for a user to understand how to use the application and more appealing to navigate.
- We have the appropriate error checks in place to make sure the application will only accept the correct inputs. We achieve this by only letting the users respond in clicks/taps, with minimum input from the user. There is nothing to type. Even so, the relevant areas of failure have been covered and we have made sure that the application will resume from an appropriate state if it were to encounter such an error.

## ACCESSIBILITY:

- We also plan to keep our interface minimal, this should, in theory, make our pages less information-dense and easier to read, with text scattered far from each other and in as few words as necessary.
- We are taking care to use colors that are easier on the eyes as well as making sure not to use big or jarring animations that might discomfort a user.
- The only necessary input required is the use of a mouse or screen to click/tap elements, thus should be more disabled-friendly (Assuming they access the application as a guest each time).

## SYSTEM:

The application is designed to run on the web browser and is compatible with every major market browser and operating system.

## ETHICS:

We will not be collecting any personal data aside from the answers provided in the questionnaire which will be entirely anonymous if given as a guest or, a user's name and email if they are registered. Questionnaire answers are only used once to generate relevant recommendations, then deleted. Therefore, you need to retake the questionnaire every time you need to view new recommended products. \*The previous recommendations that a user can fetch is a saved list of products and not a result of reprocessing their previous answers as we do not store that data\*. As it stands, we are aiming to and have as such designed, our application to only target young adults as our market research has also stated; them being our demographic.

5

PROTOTYPING  
&  
ITERATION

# 5 PROTOTYPING & ITERATION

## 5.1 CONCEPT

Our concept's purpose is to make finding a daily skincare routine and relevant products easier to do. Our team also thinks it is important to receive the correct advice catered to your specific needs. For example, by selecting your skin type, skin goals, etc users can be ensured to have a personal and accurate product and routine recommendation based on their problems and expectations. The goal is to make the users of our web application more confident about their skin by helping to improve its conditions with good prices because we want to connect our website with products from Drugstore to find the best deals.

In the first concept, we wanted to add even more advanced personalization of the needs and problems of skin users by adding the face scan analysis, but our team decided to withdraw from it as part of the group was affected by COVID with all symptoms unable to function normally, our work plan for the project was postponed by one month.

In the beginning, we also considered the connection with specialists - dermatologists and cosmetologists with whom the user could contact for a paid consultation to analyze their skin issues and concerns, but this also overreaches our skills and capabilities. We still believe that it would be a great idea and easy access to this type of consultation is very needed.

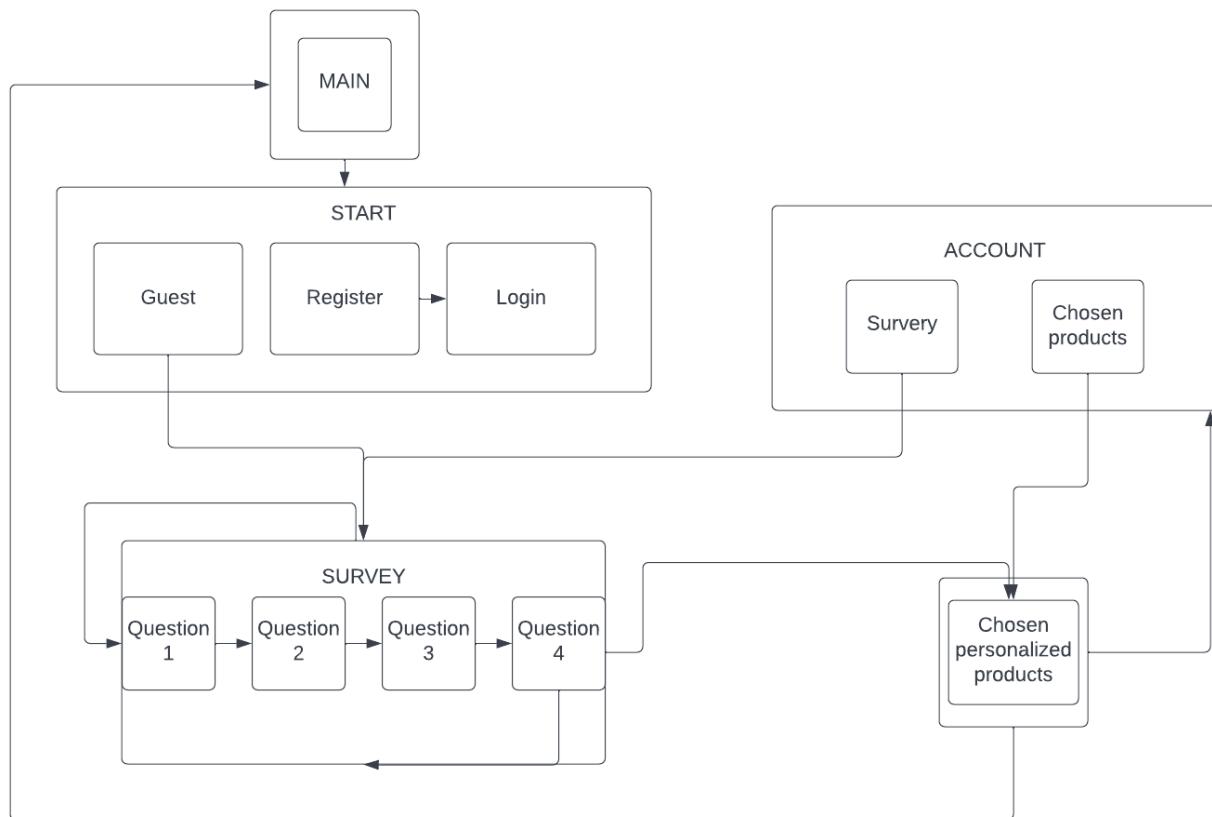


At the end of our concept, we have ended up only interviewing our users by the survey where they can choose between given diseases and goals that directly concern them. It is also a very accurate and sufficient process to find the right products to help users with their daily skincare routine, and it is also problem-solving.

## 5.2 USER INTERFACE

In the beginning, we designed an application with three different pages, but we simplified it to one page to make the use of it easier and shorten it for the user.

The UML diagram below illustrates the user experience interactions with our web application:



- 1) Main page - which describes what the application is about and lets the user start interaction
- 2) Start page – The user can choose to continue as a guest or log in/register
- 3) Account – user can start the survey or see products chosen before
- 4) Survey – 4 questions with multiply choice
- 5) Chosen personalized products – chosen based on the answers

## 5.2.2 USER INTERFACE – ITERATION

1) In the first iterations there was no navbar



2) We decided to add the navbar for a quicker way to start over and get to the main page. Our navbar is only the logo and when the user clicks it he goes back to the main page



## 5.2.2 USER INTERFACE – FUTURE WORK

For the future, we are satisfied with our user-friendly layout and see no major update in later iterations unless a new feature is added.

## 5.3 LANDING PAGE

### 5.3.1 LANDING PAGE – CONCEPTION

The landing page should provide the introduction to the web application's purpose and its main pages. In our first drafts, we showed an example without an explanation of the purpose of our application, just a start button, and a logo. In the development phase, we focused more on that, and we added text explaining what it is and how the application can help the user.

#### SKIN CARE



*Let's start*

### 5.3.2 LANDING PAGE – ITERATION

In iteration 1, we added text explaining what it is and how the application can help the user because most of the target audience we showed the application to at first glance stated that they would not know what it is about and would not use it because of that.

#### SKIN CARE



*Are you looking for the best product for your skin? Great, you've come to the right place!*  
*Thanks to our survey, you can finally find out which products are best for your skin. We will choose the most suitable, personalized offer of products for you.*

*Let's start*

#### SKIN CARE



*Are you looking for the best product for your skin? Great, you've come to the right place!*  
*Thanks to our survey, you can finally find out which products are best for your skin. We will choose the most suitable, personalized offer of products for you.*

*Let's start*

### 5.3.3 LANDING PAGE – FUTURE WORK

We do not plan any updates and we focused to keep it simple and clear for everyone as our user wants it.

## 5.4 START PAGE

### 5.4.1 START PAGE – CONCEPTION

We did not plan to add this page as well as login or register but we did the survey where our target group decided that they need their account page to come back to chosen products whenever they want without retaking the survey.

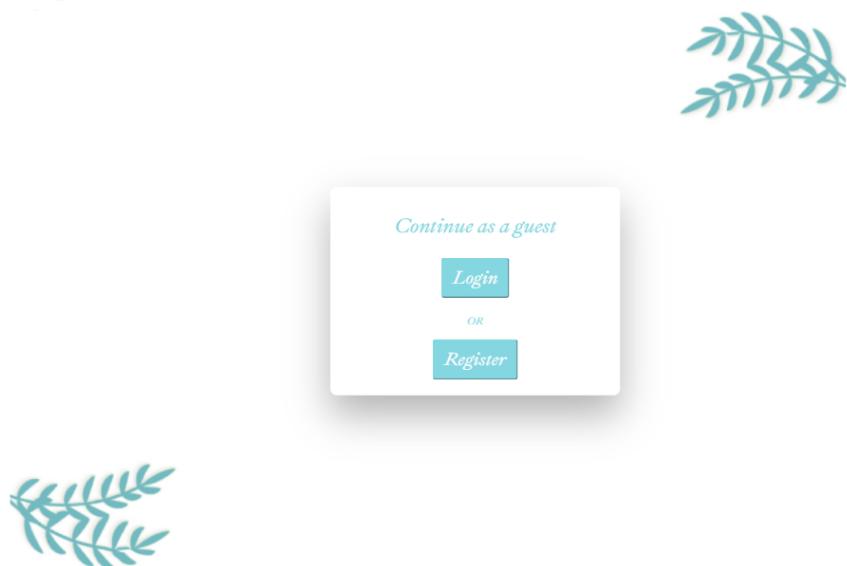
#### SKIN CARE



### 5.4.2 START PAGE – ITERATION

We changed the design to look more advanced and clearer.

#### SKIN CARE



## 5.4.3 START PAGE – FUTURE WORK

We plan to add a possibility to log in via G-mail and Facebook.

## 5.5 LOGIN & REGISTER PAGE

### 5.5.1 L&R PAGE – CONCEPTION

We do not always want users to expand the database on their own but during the analysis of the survey, we found that many of our future users want to have their choices saved in one place and do not want to take the survey every time when they are using our web application.

### 5.5.2 L&R PAGE – ITERATION

In the interaction, we implement a new fresh, more advanced design that appears with animation on the user screen

#### SKIN CARE



A wireframe diagram of a registration form. It features three rounded rectangular input fields stacked vertically, each containing placeholder text: "Username", "Password", and "Login". The entire form is enclosed in a light blue rounded rectangle.



rtboard – 11

#### Register

Username

E-mail

Password

REGISTER

[Do you already have an account?](#)

#### SKIN CARE



A wireframe diagram of a login form. It features three rounded rectangular input fields stacked vertically, each containing placeholder text: "Username", "E-mail", and "Password". Below these fields is a button labeled "Register". The entire form is enclosed in a light blue rounded rectangle.



## 5.5.3 L&R PAGE – FUTURE WORK

We plan to implement a possibility to log in with Facebook, G-mail, or Twitter to make that even easier for the user.

## 5.6 ACCOUNT PAGE

### 5.6.1 ACCOUNT PAGE – CONCEPTION

SKIN CARE



The account page is the page where users can start the new survey and have their products chosen before

SKIN CARE



Chosen products

Start survey

### 5.6.2 ACCOUNT PAGE – ITERATION

We have changed the design on every page to be more modern and with animation when it appears.

Start survey

OR

Chosen products



### 5.6.3 ACCOUNT PAGE – FUTURE WORK



- Favourites - possibility to add some chosen products to the favourite page to get easy access to the favourite ones.
- Account details - possibility to change the password and details

## 5.7 SURVEY PAGES

### 5.7.1 SURVEY PAGES – CONCEPTION

The concept of the survey pages was to determine what the user is struggling with thanks to the questions about problems and goals and the selection of given answers from the chosen provided. We can help find out how skin he is, what he is struggling with, and what he wants to achieve.

### 5.7.2 SURVEY PAGES – ITERATION

The only iteration we had was to add a navbar - a logo to get the user faster to the main page, the same as every page in our application.

## SKIN CARE



What's your skin type?

[back](#)      [next](#)

### 5.7.3 SURVEY PAGES – FUTURE WORK

We consider adding more answer choices and their specifications.

## 5.8 CHOSEN PRODUCTS

### 5.8.1 CHOSEN PRODUCTS – CONCEPTION

Originally, the recommendations should have been based entirely on the given answers. Therefore, we did not consider many customization options.

### 5.8.2 CHOSEN PRODUCTS – ITERATION

The only thing we changed is as on every page – logo/navbar added.

#### SKIN CARE

			
Neutrogena Hydro Boost Body Gel Cream 400ml	L'Oreal Paris Revitalift Filler Renew Replumping Serum	La Roche-Posay HyaluB5 Hyaluronic Acid Plumping Serum 30ml	CeraVe Reparative Hand Cream for Dry & Rough Hands 50ml

We hope you're satisfied!

[start again](#)

### 5.8.3 CHOSEN PRODUCTS – FUTURE WORK

- More products - from different stores, more exclusive
- Hyperlinks to products in the stores
- Favourites - possibility to add some chosen products to the favourite page to get easy access to the favourite ones.

## 5.9 APPLICATION NAME

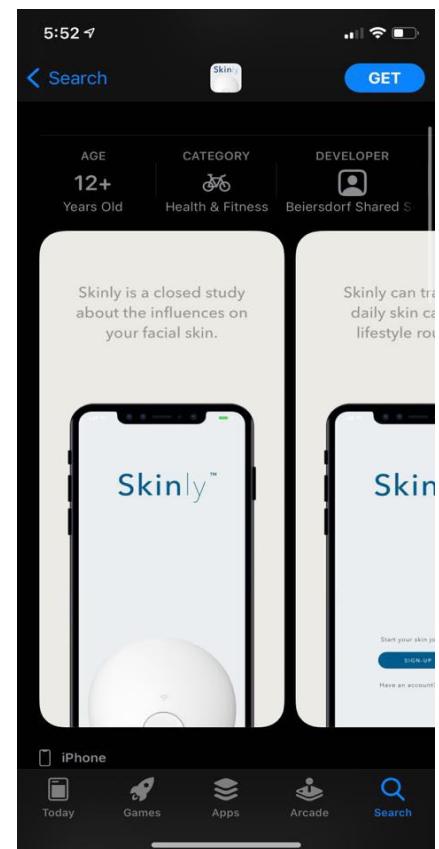
### 5.9.1 APPLICATION NAME – CONCEPTION

Firstly, we thought about “SKINLY” the combination of the words - SKIN and SIMPLY, because we always wanted our application to be as simple and user friendly as it is possible, and SKIN is because the whole application is about directly skin issues solver. Unfortunately, it was already existing on AppStore.

### 5.9.2 APPLICATION NAME–ITERATION

Finally, we decided on "SKIN CARE" because this is what our application is about - looking after our skin and implementing a routine to solve problems related to it with the right products.

# SKIN CARE



### 5.9.3 APPLICATION NAME – FUTURE WORK

Our target audience whom we asked for their opinion in the surveys is very convinced to our application name which is also our logo.

6

# SYSTEM REQUIREMENTS

# 6 SYSTEM DEVELOPMENT

It is worth mentioning here, how exactly we are running our web application. Initially we tried to run it on Igor (the universities server) to have a live version when we made our first iteration. We used bootstrap to just develop a few html pages to test things out, but bootstrap didn't play well with Igor and neither did our images after we uploaded them to Igor using FileZilla. This forced us to instead work on our web application on a local level where we used our laptops as temporary web servers. We wrote our code in VScode and npm installed several packages in the VScode terminal to equip our machines with the necessary components to be able to develop our web site on them. We also installed mySQL from oracle to have a local database server for your web site to use. (We will leave a list of all the things we installed through VScode's terminal, a brief description of what they do and whatever else to make our program run at the end of this report)

## 6.1 FRONT END

Our UX / UI design is very straightforward and concrete, and we have created our website accordingly. The most important factor that we all agreed with the front end was that our website must be responsive and well suited to each device.

We decided to achieve this responsiveness by using Bootstrap without any template. Wiktoria, who did it herself, already used it to create simple websites before, and she also has managed it this time with our application thanks to the easily accessible knowledge.

We combined Bootstrap with HTML, and visual and aesthetic effects were developed in CSS, which we can see from the start page, where we can see the stylish box with buttons, which we add for each page, changing only the content. The design was chosen by our target group of users. Thanks to this, we obtained consistency between all pages of our application.

---

Another aspect that we added in CSS is the colour change of the answers selected in the questionnaire, thanks to which they become more transparent and visible.

## 6.1.1 TESTING PERFORMANCE AND RESPONSIVENESS

We tested the application on different devices, including Windows PC, MacBooks, tablets and iPhones, and Samsung smartphones.

During the test, we focus on the loading time - how fast everything appears and how checking boxes on the questionnaire pages are working. The application's performance has always been exemplary on each of the devices and was comparable to other sites on the internet, which is less than 2 seconds.

Due to the simplicity of our application, the rendering time of the page should not be problematic unless we introduce the intended features in the future, but for now, we are peaceful about it.

The tools of the Google Chrome inspector allow us to simulate typical screen sizes of mobile devices, which makes it very useful for us to customize the responsive layout for each device, which, as we noted at the beginning of this chapter, was especially important to us.

## 6.2 MIDDLEWARE

The best way to define middleware would be to say it is software that lies between an operating system and the applications running on it. Essentially functioning as hidden translation layer, middleware enables communication and data management for distributed applications. However, our implementation is far more basic than this since all its doing is handling the html that makes up the front end of our web site

and the mySQL database's data on the back end. Also, ejs is the templating engine we're using to handle our html.

```
app.get('/register', function (req, res) {
  |  |  res.render('register.ejs', tempData);
  |);

app.post('/registering', function (req, res) {
  //saving in the database
  let sqlquery = "INSERT INTO userinfo (username, email, password) VALUES (?,?,?);";
  // execute sql query
  let newrecord = [req.body.username, req.body.email, req.body.password];
  db.query(sqlquery, newrecord, (err, result) => {
    if (err) {
      |  |  |  return console.error(err.message);
    }
    else
      //res.send(' The following user has been registered, user: '+ req.body.username);
      res.render('registering.ejs');
    });
});
```

Above is a picture from our middleware layer. As you can see, it is making use of more than one type of code. The main body of the code is written JavaScript while it is executing a few lines of SQL in the body. The framework we are making use of is express.js. Express is a node.js web application framework. It is also what we make use of to host our web application for testing purposes. Express also handles the traffic routing for us. As you can see in the image above, at the reference /register, it renders the page named register.ejs in our app.get command. It handles what page needs to be rendered with each redirection from the front end this way.

It is doing for more than just trafficking and rendering here though. If take a closer look at the app.post command here, we will see the most vital function the middle ware performs for us, allowing communication between layers. In this specific instance it is dealing with an input on the front end. The user will fill the required fields with information and submit it. That information will reach the middle ware who will then convert this information into an SQL query for the backend to understand and ask the database to store it in the appropriate database.

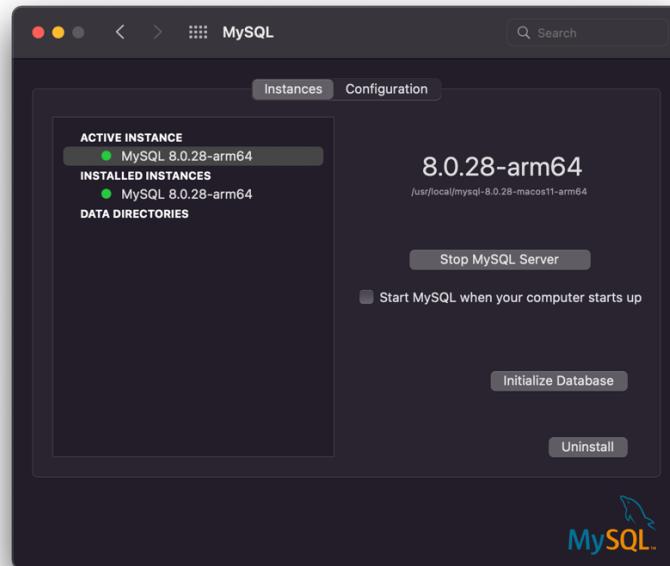
Vice versa, if the front end was requesting data from a database in the back end, it would all have to be facilitated by the middleware. The front end would pass its request to the middleware who will translate it and pass it onto the backend.

When the backend sends the requested information back, it'll give it to the middleware which will also any exceptions if they were passed to it. If not, it will convert the data and pass it on to the front end to be displayed for the user. If an exception is passed to the middle ware, it will display the error in your terminal/console or pass it on to the front end to be displayed as a session message.

Hopefully you can see how integral the middleware is. You could call it the backbone of the program or the glue that holds all the various components together.

## 6.3 BACKEND

We are making use of a mySQL server running locally on our laptops. This server holds our databases in addition to where we store our collected data.



```
[mysql]> select * from userinfo;
+----+-----+-----+-----+
| id | username | email           | password |
+----+-----+-----+-----+
| 1  | umar     | usul@gold.com   | dogge    |
| 2  | NULL     | NULL            | NULL     |
| 3  | Poopy    | butthole@gold.com | butt    |
| 4  | TestName | test@gold.com  | testing  |
+----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
[mysql]> describe userinfo;
+-----+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key  | Default | Extra       |
+-----+-----+-----+-----+-----+-----+
| id    | int    | NO   | PRI   | NULL    | auto_increment |
| username | varchar(40) | YES  |        | NULL    |              |
| email  | varchar(50)  | YES  |        | NULL    |              |
| password | varchar(20) | YES  |        | NULL    |              |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
[mysql]>
[mysql]> show tables
[    -> ;
+-----+
| Tables_in_skincare |
+-----+
| userinfo           |
+-----+
1 row in set (0.01 sec)
```

```
[mysql]> show databases
[    -> ;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| performance_schema |
| skincare        |
| sys            |
+-----+
5 rows in set (0.01 sec)
```

We decided to go with mySQL because we had experience using it. It had also previously proven itself to be a fast and reliable choice. Normally, we would not walk you through every single line of code but since this only exists only locally on our machines. It is not like other code we can hand over. That is why we felt it was necessary to show what we were making use off.

The only thing we are storing in our database is the user's details for the purposes of the login system. That is why the table possesses only a primary key and no foreign keys since there is no other table it needs to link to. And as you can see in the second image from the top, those are all the details of the users currently registered with our system. The first line is test data we manually inserted to test the system and the line after null is data that was registered with system through a browser.

It may be worth mentioning that in the file index.js, where the connection to the database is made. It is using the details of the local database mentioned here.

## 6.4 USABILITY TESTING

To start, we should define what usability testing is. Usability testing is the practice of testing how easy a design is to use for a user by letting users test them. Our few testers were told that they answer questions to get products recommended for their skin. Testing of this sort has been very limited due to time and personnel constraints. We were not able to test the application through its various stages of design iteration. Our testing was carried out on the entirety of the application by allowing users to use it supervised and give feedback once they were done.

We found two issues through this manner of testing. The first being that not every touch target was apparent to our users. They mistook buttons for plain text and never attempted to even click them. This forced them down routes that should have been optional. The second was the login system. While there is nothing wrong with the functionality of the system, the flow of the control for the pages seemed to somewhat confuse them since the pages for account, login, register and their associated prompts looked very similar to them.

## 6.5 UNIT TESTING

Component testing checks individual parts of the application in isolation to see if they return the desired output. This is done in a white box testing style since the code remains visible and accessible to the tester.

In this manner we tested the login system and the questionnaire as two separate units to see if they will function as stand-alone units. The goal was to see if the login system would perform as expected by logging users in on its own and seeing if the questionnaire would still take answers to questions and return an output. We were pleased to see that even when completely separated from each other, they were functioning as was expected of them.

---

## 6.6 TESTING PERFORMANCE AND LAYOUT RESPONSIVENESS

Another way of looking at this may be as UI testing. It tests as the name implies how responsive the application's UI is to being rescaled when used on devices with different form factors such as phones or tablets. We also check how stable the application remains on these different devices as well as how reliable the performance (speed) stays.

Since we were running this locally on our laptops, the halfway solution we came up with to test scalability was rapidly resizing our browser windows as well as just using it in smaller windows. From our tests, we can conclude that in terms of scalability, the website is responsive. It is quick to scale to conform to the new size. It has no trouble upscaling to a bigger size however, when it comes to sizes smaller than a big phone, because of the images we're using as graphics, it has trouble scaling. But we can safely conclude that as long as the screen stays the size of a small tablet or a big phone, there will be no issues in scalability.

If we talk about performance, it has remained very consistent throughout. Each change in page happens in a matter of mere seconds, regardless of the window size. The only noticeable delay is when logging in, but after a little more testing, we chalked it up to the time of the animation rather than the page actually showing any sluggish performance. We could speed it up by speeding up the animations but chose not to since we liked how it looked. Not to say that to say that it was actually slow, just comparatively.

7

# EVALUATION & CONCLUSION

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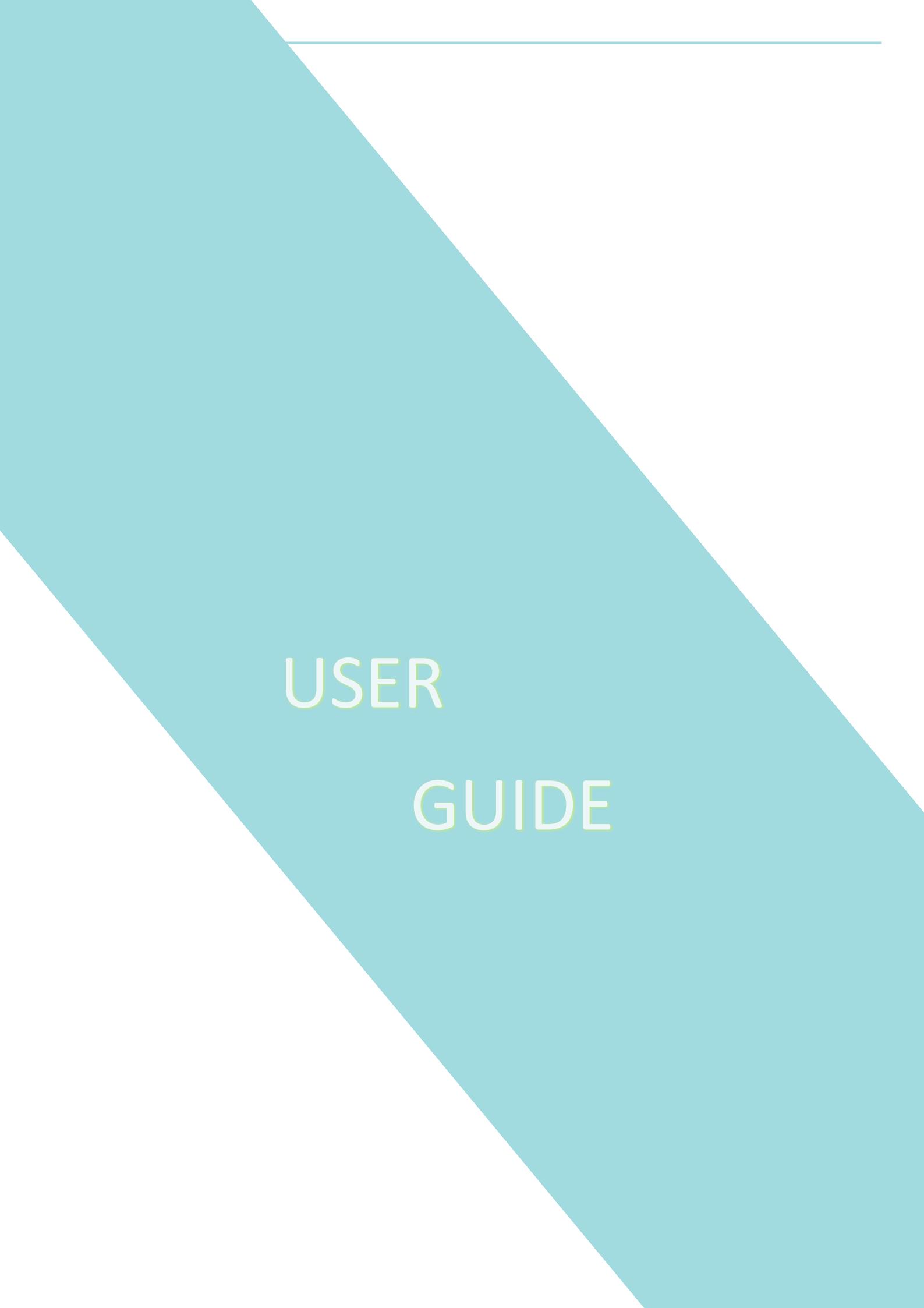
## 7 EVALUATION AND CONCLUSION

Our main assumption to which we adjusted various changes was definitely to create a user-friendly web application with an easy-to-use, eye-pleasing layout and responsiveness so that every user could have the same feeling when using our web application.

How our project has evolved at each stage is described in each of the above chapters

Factors that we must consider in the future are more careful group selection and planning, our teamwork was not perfect, but it certainly evolved to a plus at the end of the project.

It was definitely a challenge for us. We are not completely satisfied with the final effect and there are some things that we would like to change but we are very grateful that we have chance to do this despite the obstacles encountered along the way and numerous changes.



A large, solid teal diamond shape is positioned in the center of the page, oriented diagonally from the top-left corner to the bottom-right corner. It serves as a background element for the title text.

# USER GUIDE

---

# USER GUIDE

## How to create an account/register

Click ‘Let’s start’ on the main page and then select the REGISTER button to create your account.

## How to log in to your account

Click ‘Let’s start’ on the main page and then select the LOG IN button.

## How to start a survey without an account

Click ‘Let’s start’ on the main page and then select the ‘Continue as a guest’ button and start a survey.

## How to see products chosen before

Log in to your account and on the account, page click the ‘Chosen products’.

## How to start a new survey

If you already log in, you just need to click to SKINCARE logo which takes you to the account page, and then click the ‘Start survey’ button.

If you want to start the survey without an account, you just need to click ‘Continue as a guest’ and then survey appears.

---

# APPENDIX

# APPENDIX

## EARLY ASSUMPTION TESTING

Questions Responses 14

Responses 14 Average time to complete 01:03 Status Active

Skin Care Questionnaire

Review answers Post scores Open in Excel

1. How old are you?

More Details

Under 18	0
18-24	13
25-34	1
35-44	0
45-54	0

14

Latest Responses "Female" "Female"

2. What is your gender ?

More Details Insights

3. Do you find it difficult to know which skin products to use?

More Details Insights

Yes	10
No	4

14

4. Do you follow a skincare routine?

More Details Insights

Yes	7
No	7

5. Would you follow a skincare routine if you were provided with one?

More Details Insights

Yes	13
No	1

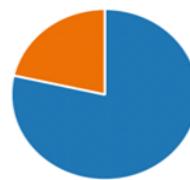


6. If provided a skincare routine would you prefer it to be simple or more detailed?

[More Details](#)

 Insights

<span style="color: blue;">●</span> Simple	11
<span style="color: orange;">●</span> Detailed	3

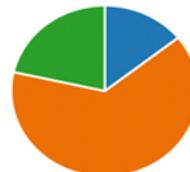


7. How much would you be willing to spend on your skincare routine per month?

[More Details](#)

 Insights

<span style="color: blue;">●</span> up to £10	2
<span style="color: orange;">●</span> up to £25	9
<span style="color: green;">●</span> up to £50	3
<span style="color: red;">●</span> £50 +	0



8. Do you prefer drugstore products or high-end products?

[More Details](#)

 Insights

<span style="color: blue;">●</span> Drugstore	5
<span style="color: orange;">●</span> High-end	1
<span style="color: green;">●</span> both	8



9. Have you used a skincare app before?

[More Details](#)

<span style="color: blue;">●</span> Yes	0
<span style="color: orange;">●</span> No	14



10. If you were to use a skincare app what would you be looking to get out of it?

[More Details](#)

<span style="color: blue;">●</span> Improve overall skin health	8
<span style="color: orange;">●</span> Fix skin conditions such as acne	4
<span style="color: green;">●</span> Find products for your skin type	7
<span style="color: red;">●</span> Start a structured skin care ro...	8
<span style="color: purple;">●</span> other	0



1

Which font do you prefer?

1

SKIN CARE

2

SKIN CARE

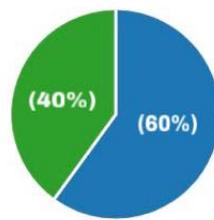
3

skin care

1. Which font do you prefer?

[More Details](#)

- 1
- 2
- 3



2

Which theme do you prefer? \*

1



2



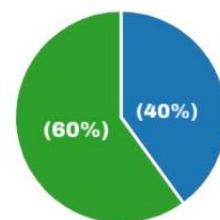
3



2. Which theme do you prefer?

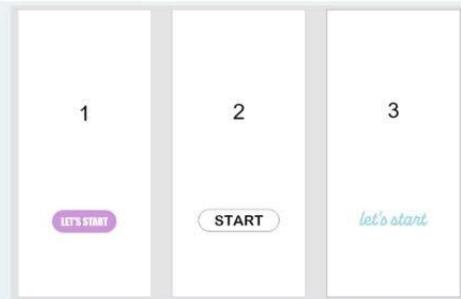
[More Details](#)

- 1
- 2
- 3



3

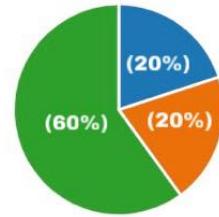
Which button do you prefer? \*



3. Which button do you prefer?

[More Details](#)

- 1
- 2
- 3



4

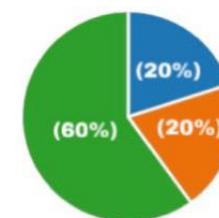
Which one do you prefer? \*



4. Which one do you prefer?

[More Details](#)

- 1
- 2
- 3



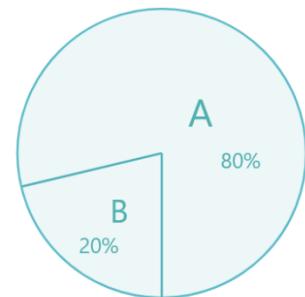
## ASSUMPTION TESTING

- 1 → Do you think SKIN CARE is an appropriate name for our app or should we change it?

A Yes, it is perfect

B No, you should change it

**OK ✓**

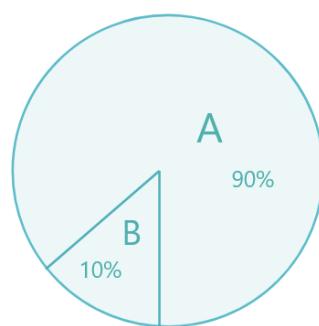
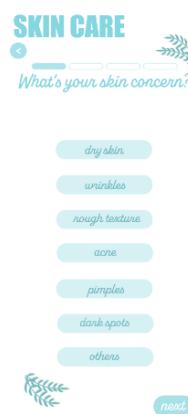


- 2 → Do you find it useful to have the logo as a navbar? \*

Y Yes

N No

**OK ✓**



- 3 → Do you find the description on the LANDING PAGE useful?

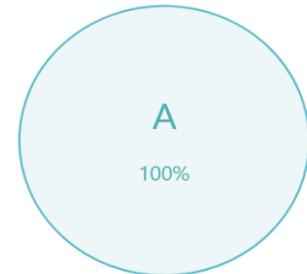
Y Yes  
 N No  
**OK ✓**

### SKIN CARE



Are you looking for the best product for your skin? Great, you've come to the right place! Thanks to our survey, you can finally find out which products are best for your skin. We will choose the most suitable, personalized offer of products for you.

*Let's start*

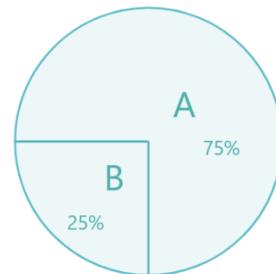


- 4 → Do you find it useful to have an account in our app to see your chosen products whenever you want?

### SKIN CARE

Y Yes  
 N No  
**OK ✓**

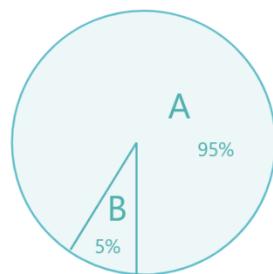
*Chosen products*  
*Start survey*



- 5 → Which design do you like more?

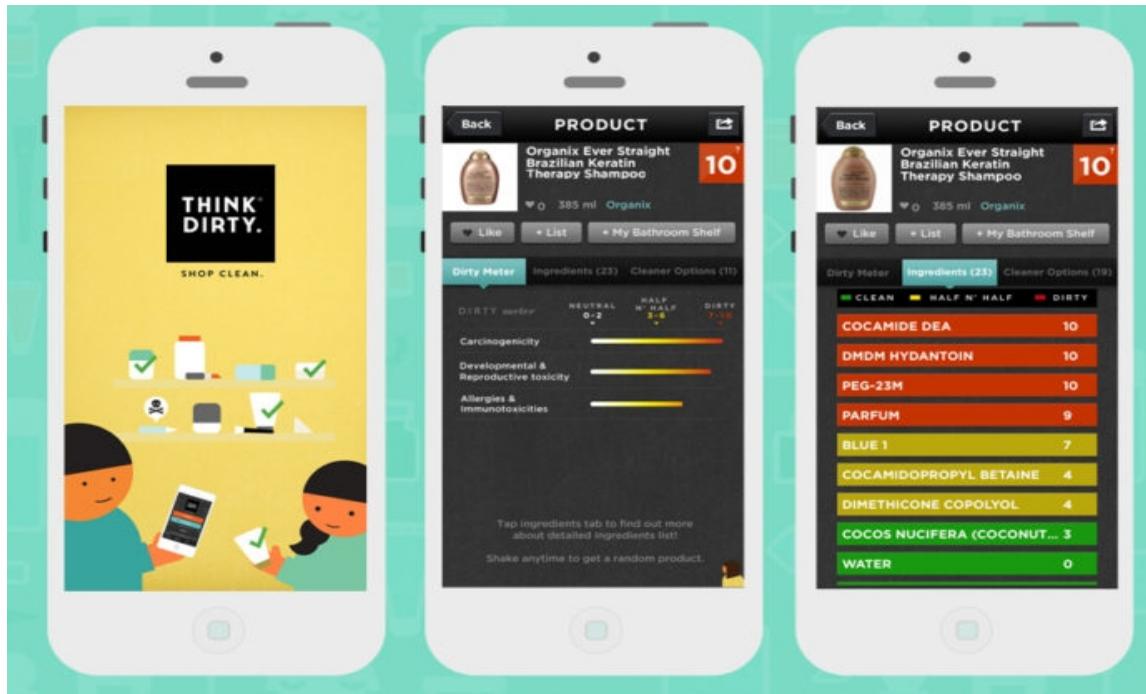
**A choice 1**

**B choice 2**



# MARKET RESEARCH

## THINK DIRTY



## WHAT AND HOW DO THEY DO?

- identifies and assesses any potentially risky or “toxic” ingredients in beauty and skincare products by scanning barcodes on the products.
- create a list of the chosen products from random stores.
- PAID

## REVIEW OF THEIR APPLICATION

- Apple AppStore, they have a star rating of 4.7/5 with 2.1k total reviews.
- The good reviews are focused on the possibility to find good products for your needs without toxic ingredients
- The bad reviews are focused on the chaos of the application, products are do not segregated

## OUR MAIN CONCERNS ABOUT THE APP

- Application purpose and how to use it is not clear to the user
- Products are from random stores

# MDacne

## WHAT AND HOW DO THEY DO?

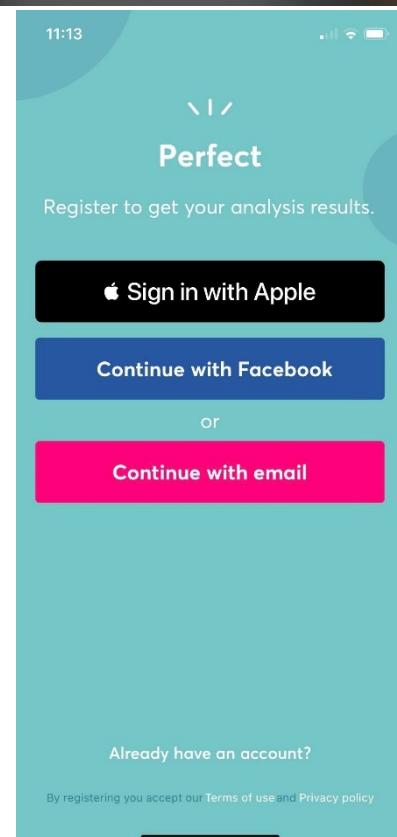
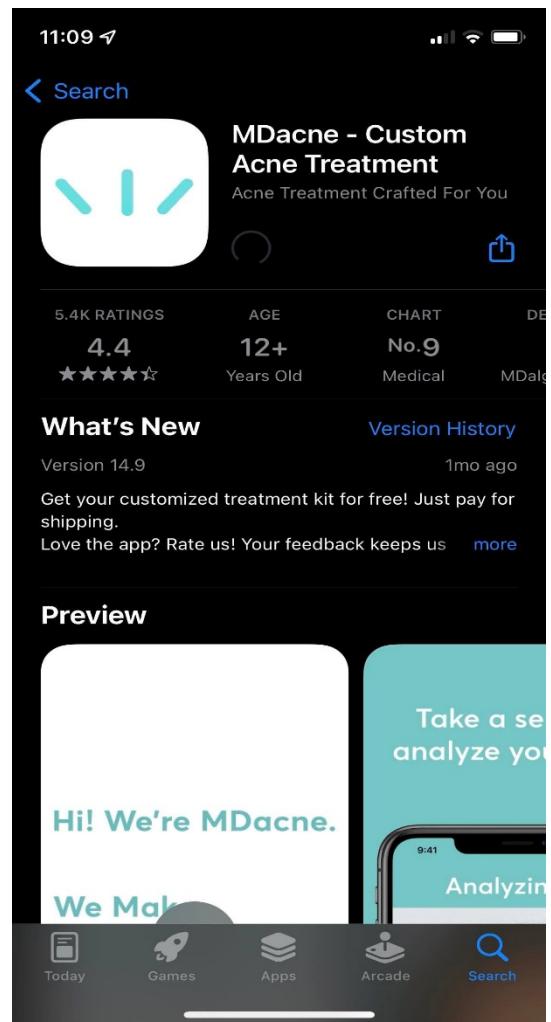
- analyse your skin and provide you with a full analysis of your skin
- 1-on-1 chat support with a dermatologist
- Based on your skin analysis, you'll receive a customized product from their MDacne brand formulated to achieve your skincare goals
- PAID

## REVIEW OF THEIR APPLICATION

- Apple AppStore, they have a star rating of 4.4/5 with 5.4k total reviews.
- The good reviews are focused on the free trial and that those products are working well on the user's skin.
- The bad reviews are focused on products treatment that made users' acne worse than ever, and that payment was failed but the app has taken money from the bank.

## OUR MAIN CONCERNS ABOUT THE APP

- Only three products for one, specific type of skin
- Only one brand
- To have analysis results you need to have an account



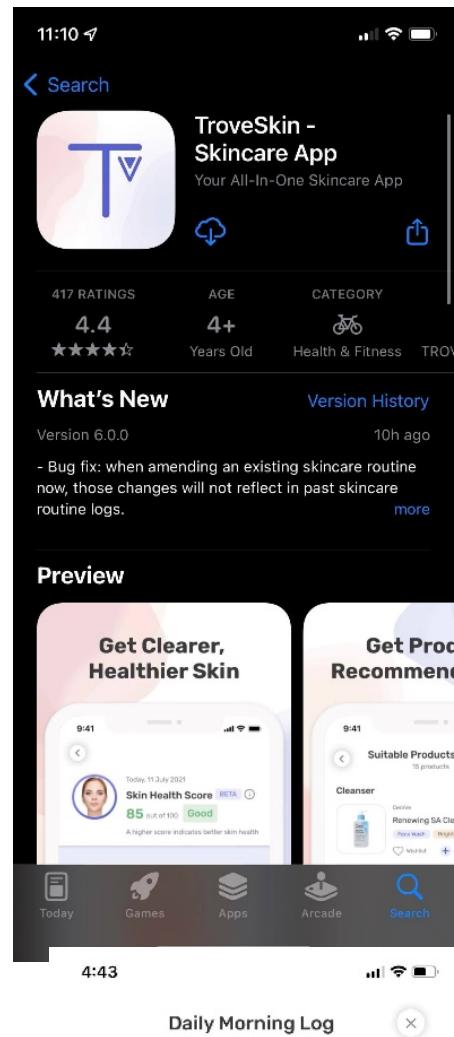
# TroveSkin

## WHAT AND HOW DO THEY DO?

- Get products and skincare recommendations based on face selfie
- Track product expiry dates
- Connection with other skincare lovers
- PAID

## REVIEW OF THEIR APPLICATION

- Apple AppStore, they have a star rating of 4.4/5 with 417 total reviews.
- The good reviews are focused on the possibility of tracking the progress of your skin and controlling your product's expiry dates
- The bad reviews are focused on the complicated mechanizes and slow loading



## OUR MAIN CONCERNS ABOUT THE APP

- App is too complicated what's affects the user's experience
- Slow



# REFERENCES

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