ARISTOTLE UNIVERSITY OF THESSALONIKI

DEPARTMENT OF INFORMATICS

MSc. TECHNOLOGIES OF INTERACTIVE SYSTEMS

Assignment 2: Designing an interactive system

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A.M.: 121

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1. Overview of the System

CamperKids is a system designed to help parents find and book summer camps for their children quickly and efficiently. It simplifies the process by providing a centralized platform like a marketplace, where camps can be searched, compared, and booked. The primary users are parents looking for safe summer camp options for their children that include various activities. The main functionalities of the system include:

- Search based on location and kid's age
- Filtering based on budget and specialized options
- Camp Profile that includes details of the camp with photos and reviews
- Messaging feature
- Booking and payment completed seamlessly through the app

Image 1.1: Camper Kids Logo

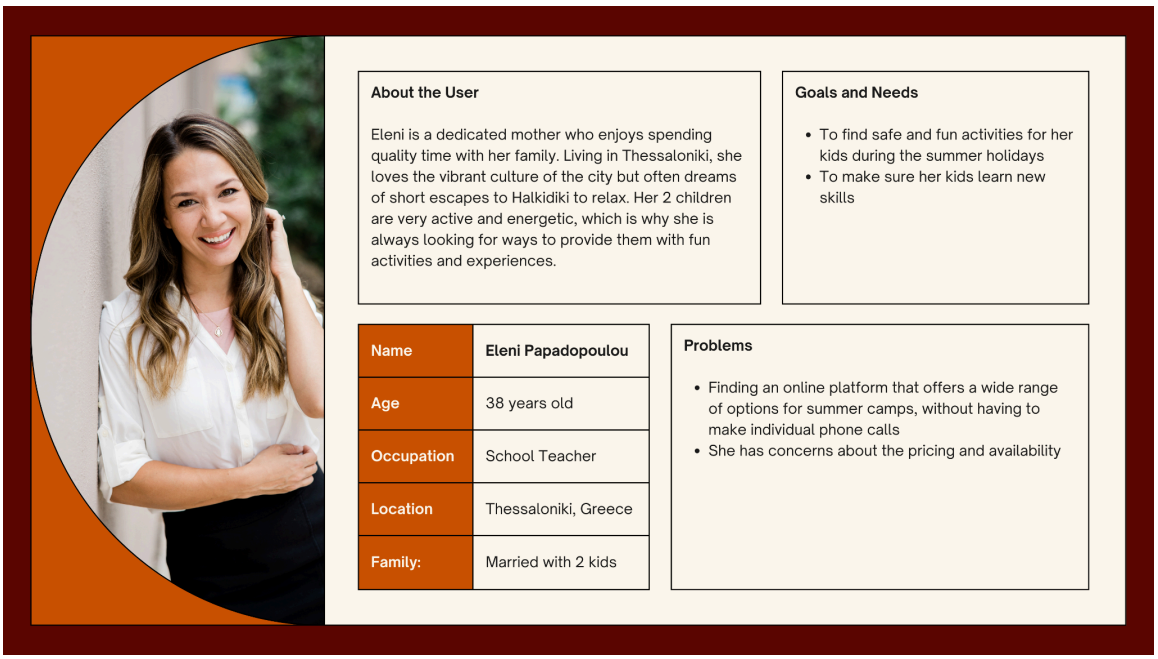
2. User Interaction Scenarios

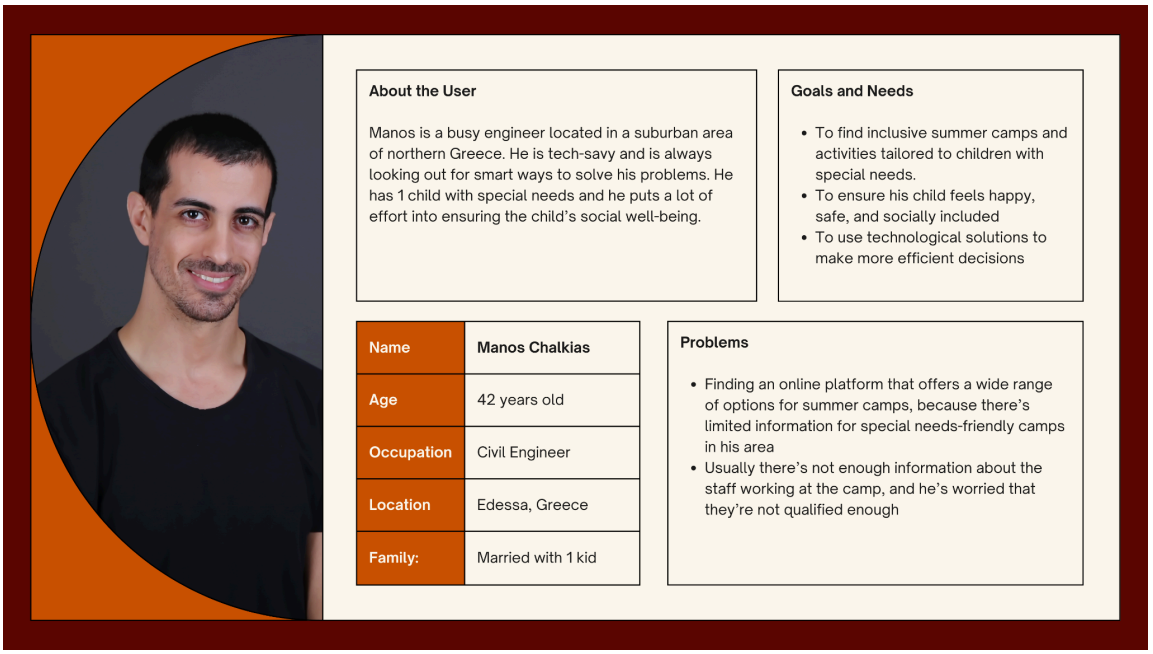
Based on the resources we have available, a good user scenario should be short, relevant and to the point. To be complete, it should give answers to some basic questions:

- Who is the user I'm designing for?
- What does this user want on my system?
- How is this user going to achieve his or her goals?
- Why does this user come to my site and not anywhere else?

2.1. User Personas

To be able to craft a solid user interaction scenario and answer the first question, we first need to introduce our personas. The personas represent our target group, which is parents looking for summer camp options for their children. These personas help us understand the potential user's needs, goals, and the challenges they face with the current process of finding a summer camp for their children. By understanding their behaviors, their pain points, and needs we can design a product that resonates with their expectations. Below we can find information about 2 individuals, Eleni and Manos, along with their goals, needs and problems.





2.2. User Scenarios

For the second question "What does this user want on my system?" we need to focus on what the users want to achieve by using our product. For the third question "How is this user going to achieve his or her goals?" we need to explore how the user will attempt to achieve their goals by using our product, to see if they have any limitations and understand how they will behave when using the app. For the final question, "Why does this user come to my site and not anywhere else?", exists to describe the motivation of each user when coming to use the app.

Parents find and booking a budget-friendly summer camp with engaging activities
Eleni wants to find a summer camp with engaging activities where her kids can learn new skills. Her budget is 500€ for a 2-week stay, and she prefers flexible payment options. Eleni has basic technology skills and uses her smartphone regularly to book activities. When searching for summer camps, she expects an intuitive interface that looks similar to other booking apps where she can quickly filter options by price and review descriptions and photos to decide whether to book. Once she finds a camp, she's expecting a clear and simple payment process. Previously, Eleni spent hours calling camps, comparing prices, and asking for discounts. A friend recently recommended Camper Kids, praising its ease of use and the straightforward payment process. She even offered to provide her with a referral code for a first time use discount. This offer made Eleni interested in trying out the Camper Kids app.

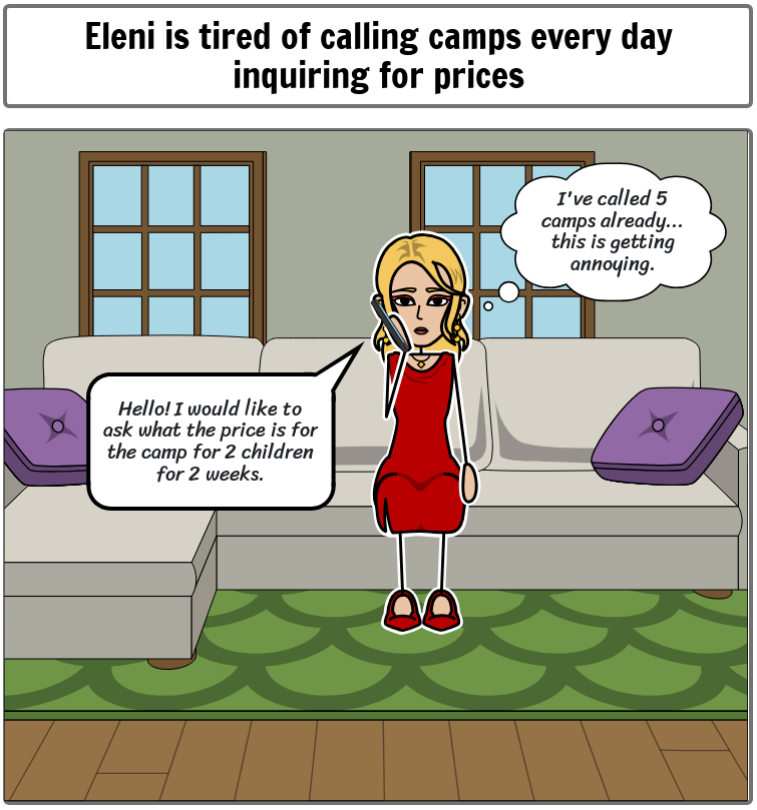
Parents finding and booking an accessible summer camp with qualified instructors for kids with special needs
Manos wants to find a summer camp for his kid with special needs that is inclusive, has appropriate activities and qualified instructors. He wants his kid to improve his social skills and make new friends in this environment. Manos has limited time and would like to find all the information consolidated in one place for fast comparison. He's interested in knowing each camp's policies, staff qualifications, and check reviews from other parents. He expects to be able to contact a camp with additional questions before booking. Once he has finalized his decision, he wishes for a straightforward payment process and confirmation. In Greece the options available for kids with special needs are limited. Manos would spend many hours researching online trying to find summer camps with qualified instructors. He eventually came across Camper Kids through an advertisement on social media, where certified psychologists gave detailed info about the platform, and he decided to download the app.

3. Low Fidelity Prototypes: Storyboarding

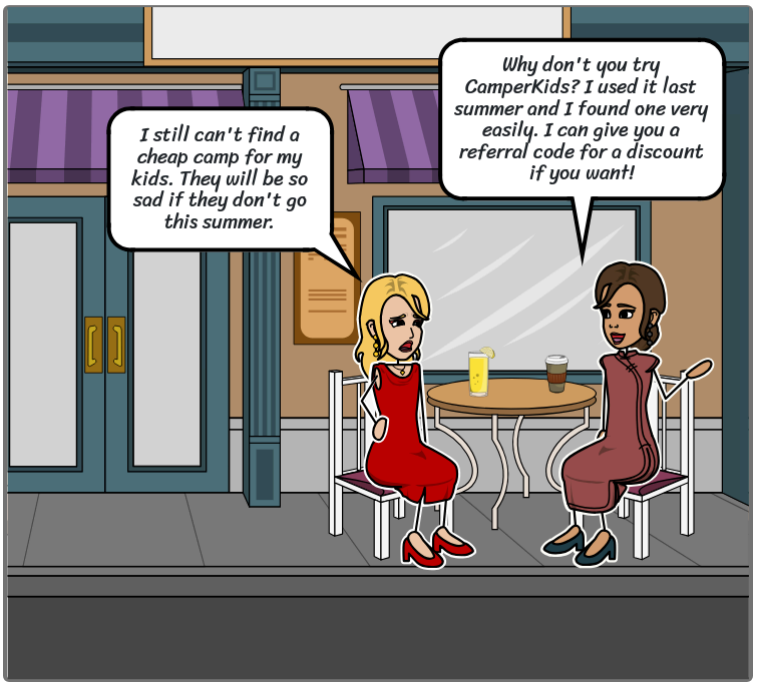
Storyboarding is an important part of design, as it demonstrates the main idea of the system, the problem it is created to solve and how different users with different needs interact with it. In this part of the assignment, I will present two storyboards, each created for the needs of our previously established personas, Eleni and Manos. The storyboards were created using the StoryboardThat software.

3.1. Storyboard 1

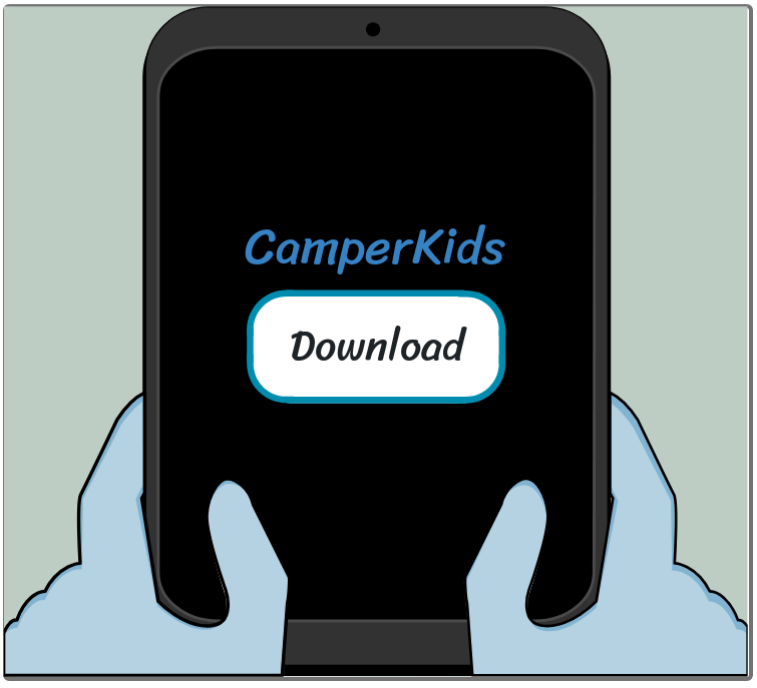
Eleni searching for an economical summer camp for her 2 kids



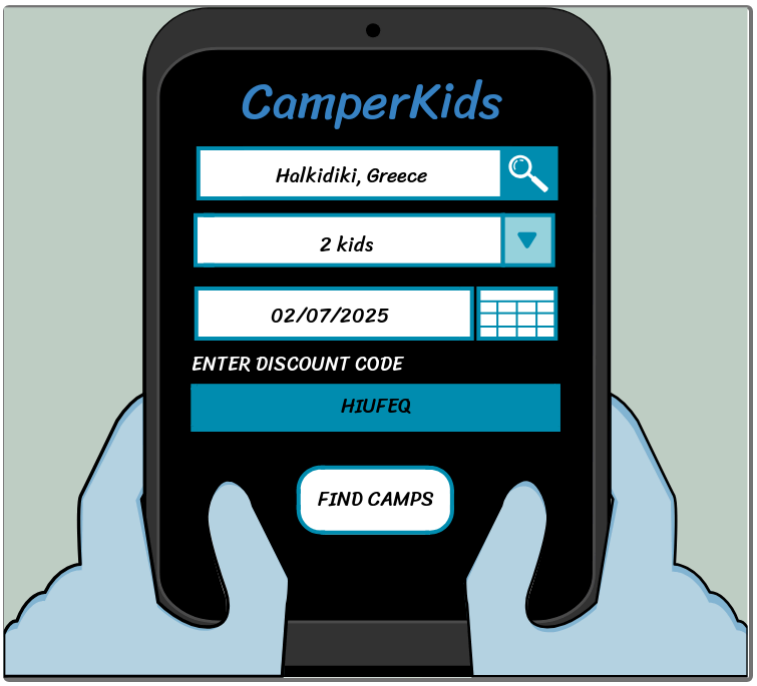
She shares her frustration with her friend, who proposes the Camper Kids app to her



Eleni downloads the app



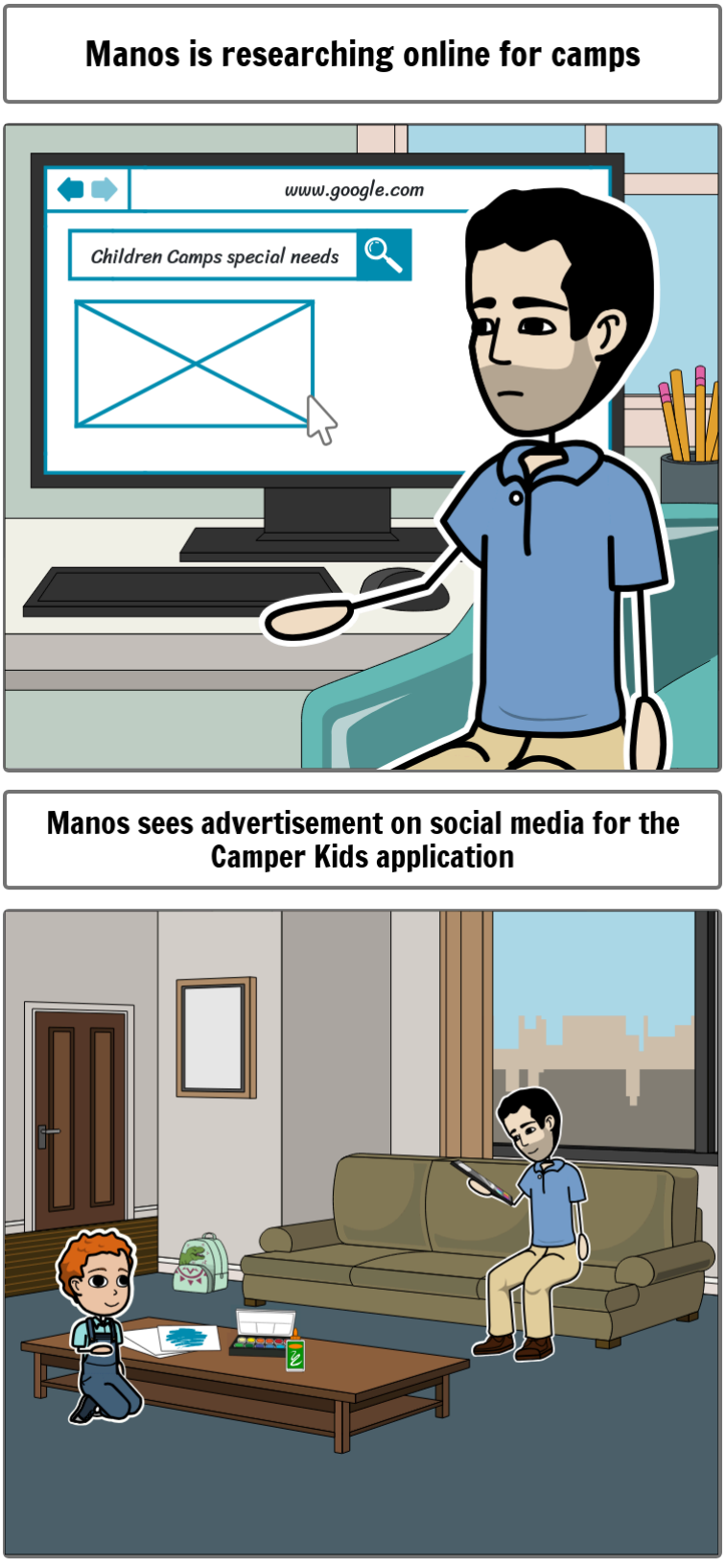
Eleni is searching for a camp based on her needs



Eleni thanks her friend for helping her

3.2. Storyboard 2

Manos booking a summer camp for his special needs son

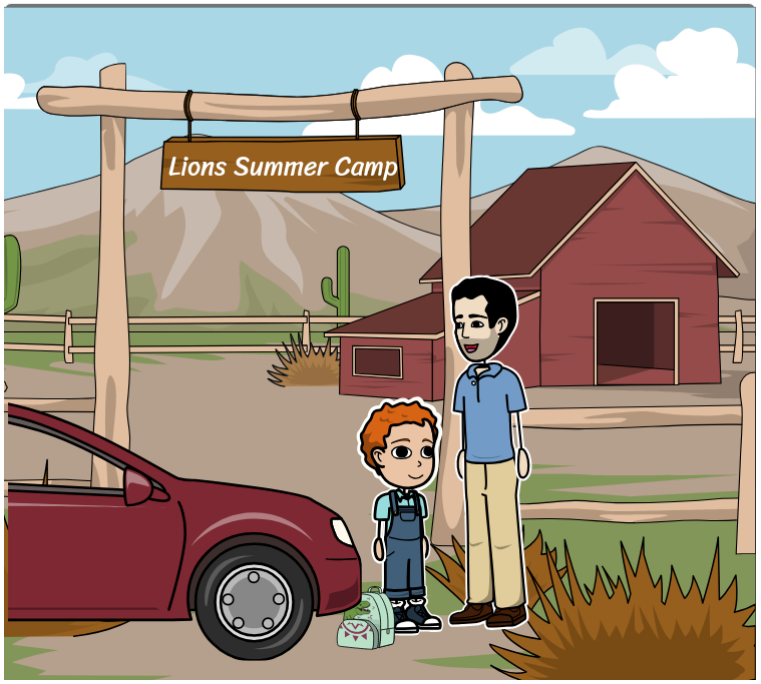


He downloads the app and begins his search

He starts messaging with a camp

He is satisfied by the responses, decides to book the camp for his son

Drives his son to camp



4. High Fidelity Prototypes: Interactive Mockups

Figma File

For the purposes of this assignment, the design software tool Figma was used. The Figma file consists of 4 pages, 2 of those being the flows for each of our personas (Eleni, Manos), one with the components created for the interfaces and one with the redesigned mockups after the usability testing was conducted. Additionally, for the completion of this task and to improve the aesthetic of the design, the following libraries were used:

- AirBnb UI Kit
- iOS Status Bar
- iOS 15 UI Kit
- Apple Pay & Google Play Buttons
- Material 3 Design Kit

For the images within the application, I used stock images from FreePik. The logo was created with Canva, the typography used is Apple's designed typeface San Francisco. I tried to keep a consistent color palette throughout the app, these are the colors used in the majority of the frames.

Image 4.1.: Color Palette

4.1. Eleni's Flow

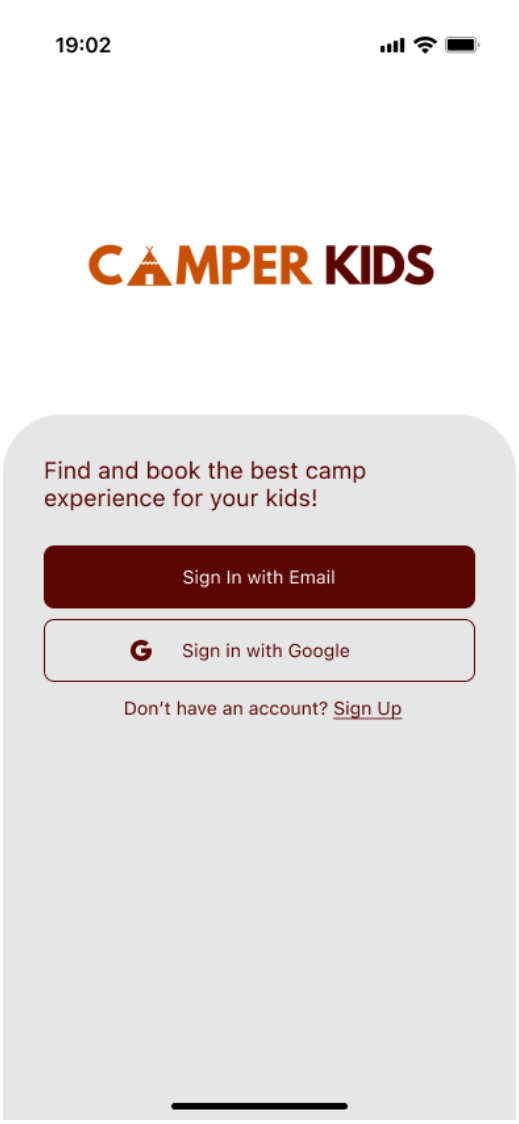
In the previous section we gave a thorough view of Eleni, our first persona. We have identified the major problems she's facing with the current processes and we have established what her needs are. During the design process I tried to incorporate features that best align with Eleni's needs. This is why Eleni's flow includes the following:

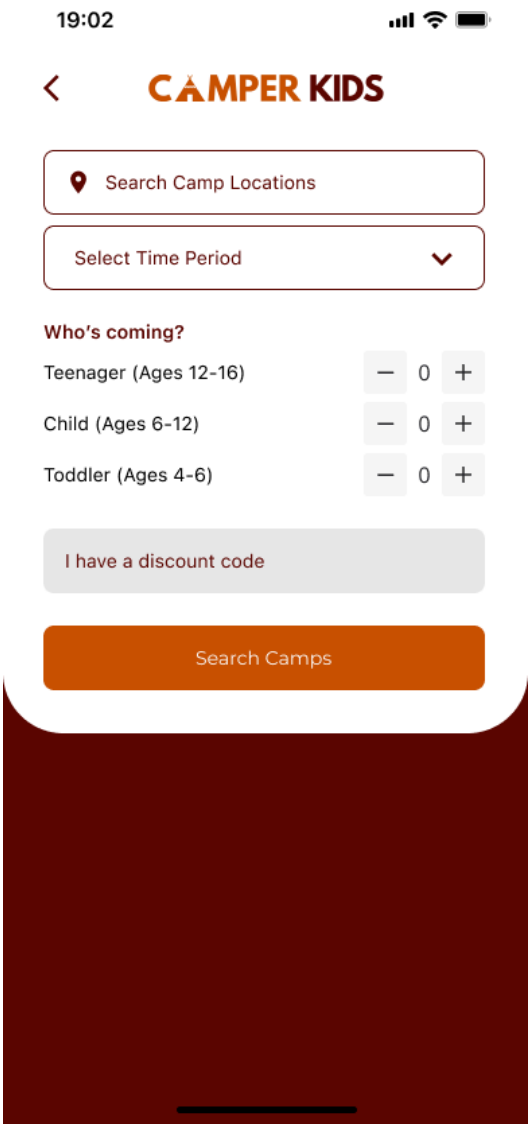
- Sorting & Filtering by price
- Straightforward payment and booking process

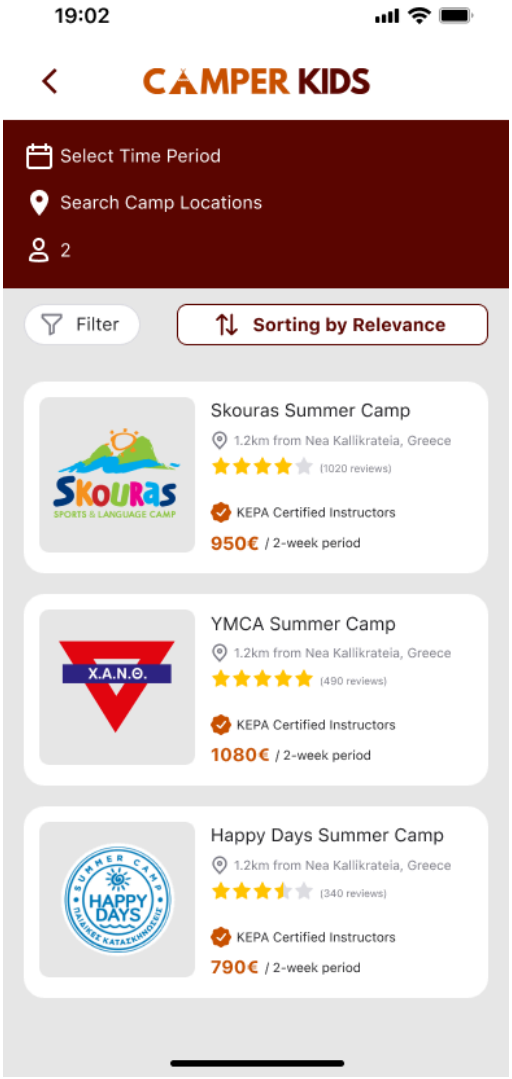
Link to Prototype

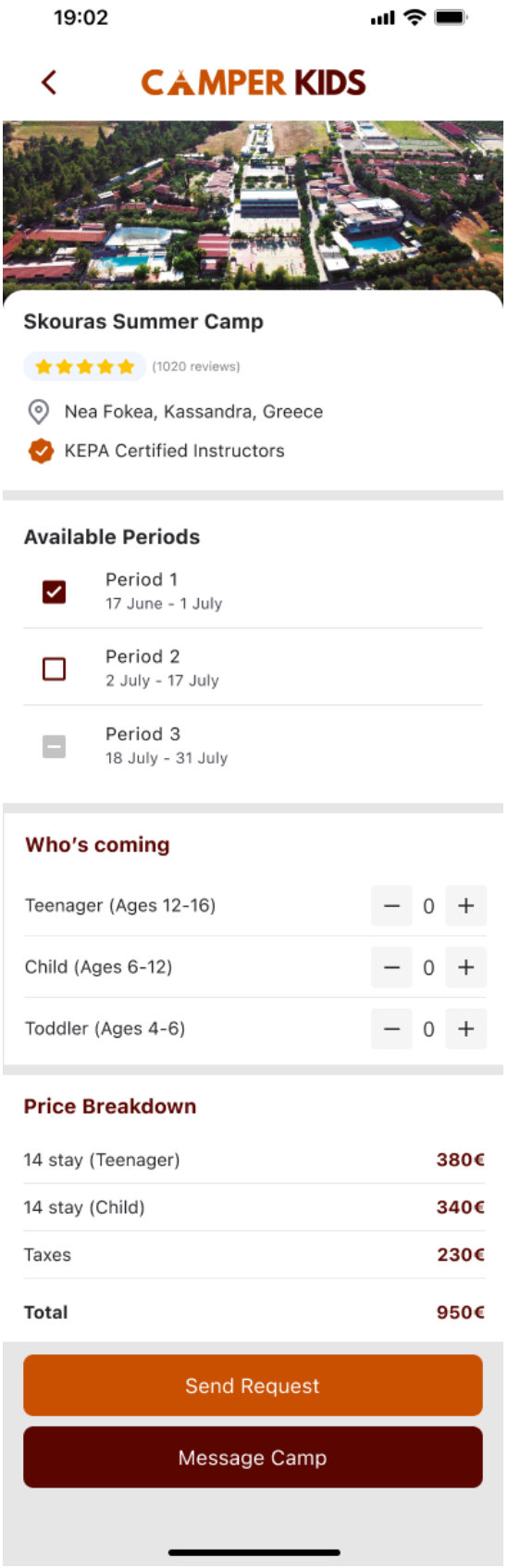
To explain how these mockups are interconnected, on the first page we can select the option to Sign In. Once we have Signed In, we can see a simple and easy to use homepage that provides a search feature and helps the users specify the location of the camp, the time period, how many kids are going to camp and their ages, and they also have

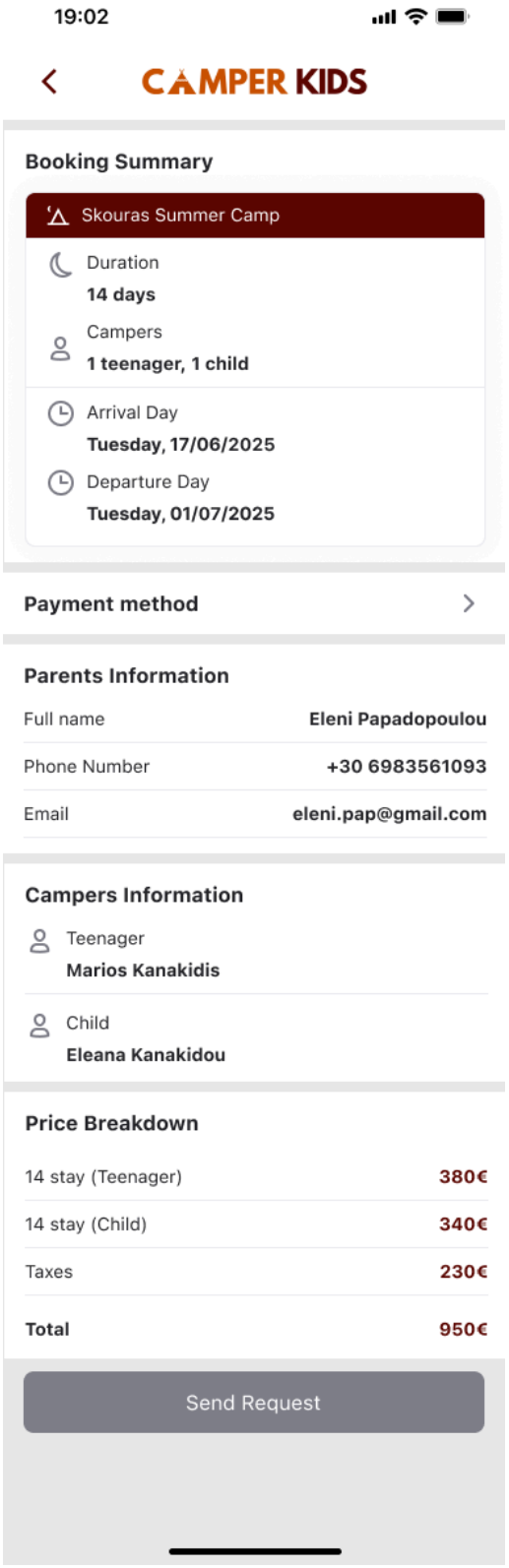
the option to add a discount code. After this, they are met with a list of results along with their prices, where they can filter by price and add specified options, as well as sort the results based on price, relevance and reviews. Once the user has selected a camp, they can see additional information, select their desired time periods and view the price breakdown. At this point the user can either message the camp for additional questions, or directly send them a booking request. In our case, Eleni would like to directly send the booking request, so she will proceed with that option and be able to review all the information about the booking. After that, she can proceed to paying the amount due, using either Apple Pay or Google Pay for simplicity. Finally, she will send the request to the camp and will be met with a confirmation page.

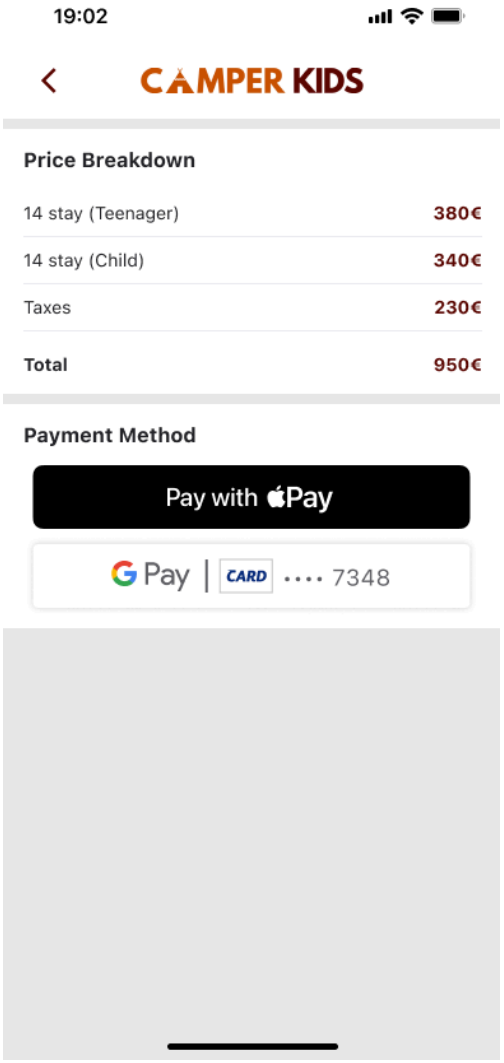


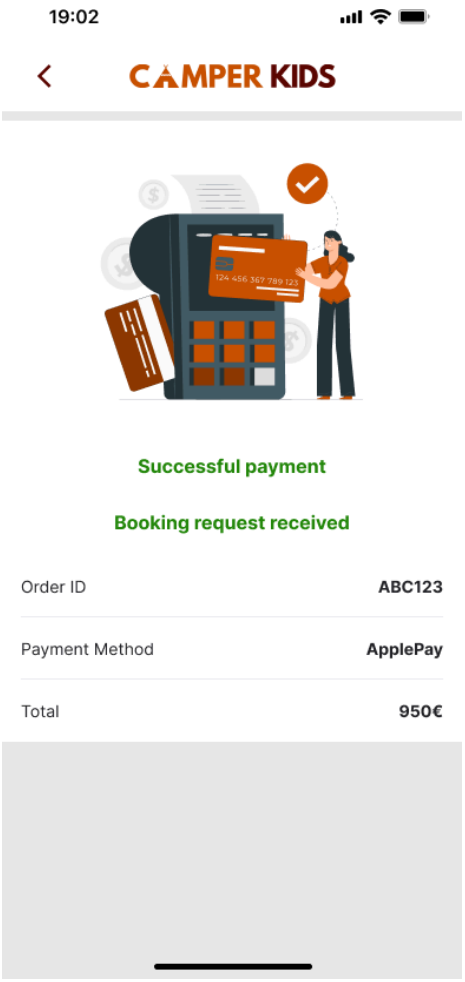



19:02
CAMPER KIDS
Select Time Period
Search Camp Locations
2
Filter
Sorting by Relevance
Skouras Summer Camp
1.2km from Nea Kallikrateia, Greece
(1020 reviews)
KEPA Certified Instructors
950€ / 2-week period
YMCA Summer Camp
1.2km from Nea Kallikrateia, Greece
(490 reviews)
KEPA Certified Instructors
1080€ / 2-week period
Happy Days Summer Camp
1.2km from Nea Kallikrateia, Greece
(340 reviews)
KEPA Certified Instructors
790€ / 2-week period


19:02
CAMPER KIDS
Skouras Summer Camp
(1020 reviews)
Nea Fokea, Kassandra, Greece
KEPA Certified Instructors
Available Periods
Period 1
17 June - 1 July
Period 2
2 July - 17 July
Period 3
18 July - 31 July
Who's coming
Teenager (Ages 12-16) 0
Child (Ages 6-12) 0
Toddler (Ages 4-6) 0
Price Breakdown
14 stay (Teenager) 380€
14 stay (Child) 340€
Taxes 230€
Total 950€
Send Request
Message Camp


19:02
CAMPER KIDS
Booking Summary
Skouras Summer Camp
Duration
14 days
Campers
1 teenager, 1 child
Arrival Day
Tuesday, 17/06/2025
Departure Day
Tuesday, 01/07/2025
Payment method
Parents Information
Full name
Eleni Papadopoulou
Phone Number
+30 6983561093
Email
eleni.pap@gmail.com
Campers Information
Teenager
Marios Kanakidis
Child
Eleana Kanakidou
Price Breakdown
14 stay (Teenager)
380€
14 stay (Child)
340€
Taxes
230€
Total
950€
Send Request


19:02
CAMPER KIDS
Price Breakdown
14 stay (Teenager)
380€
14 stay (Child)
340€
Taxes
230€
Total
950€
Payment Method
Pay with Pay
Pay | CARD •••• 7348

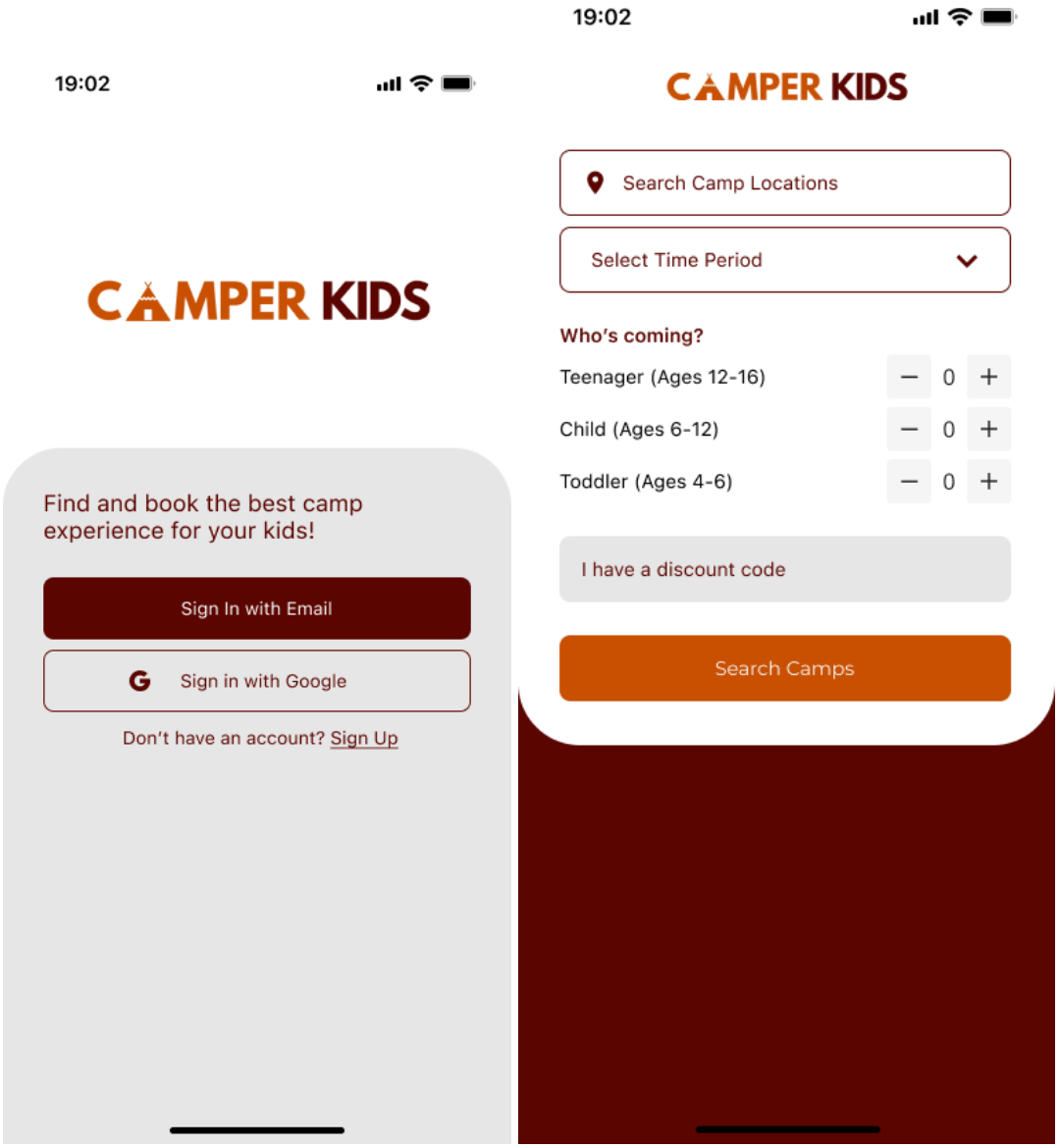


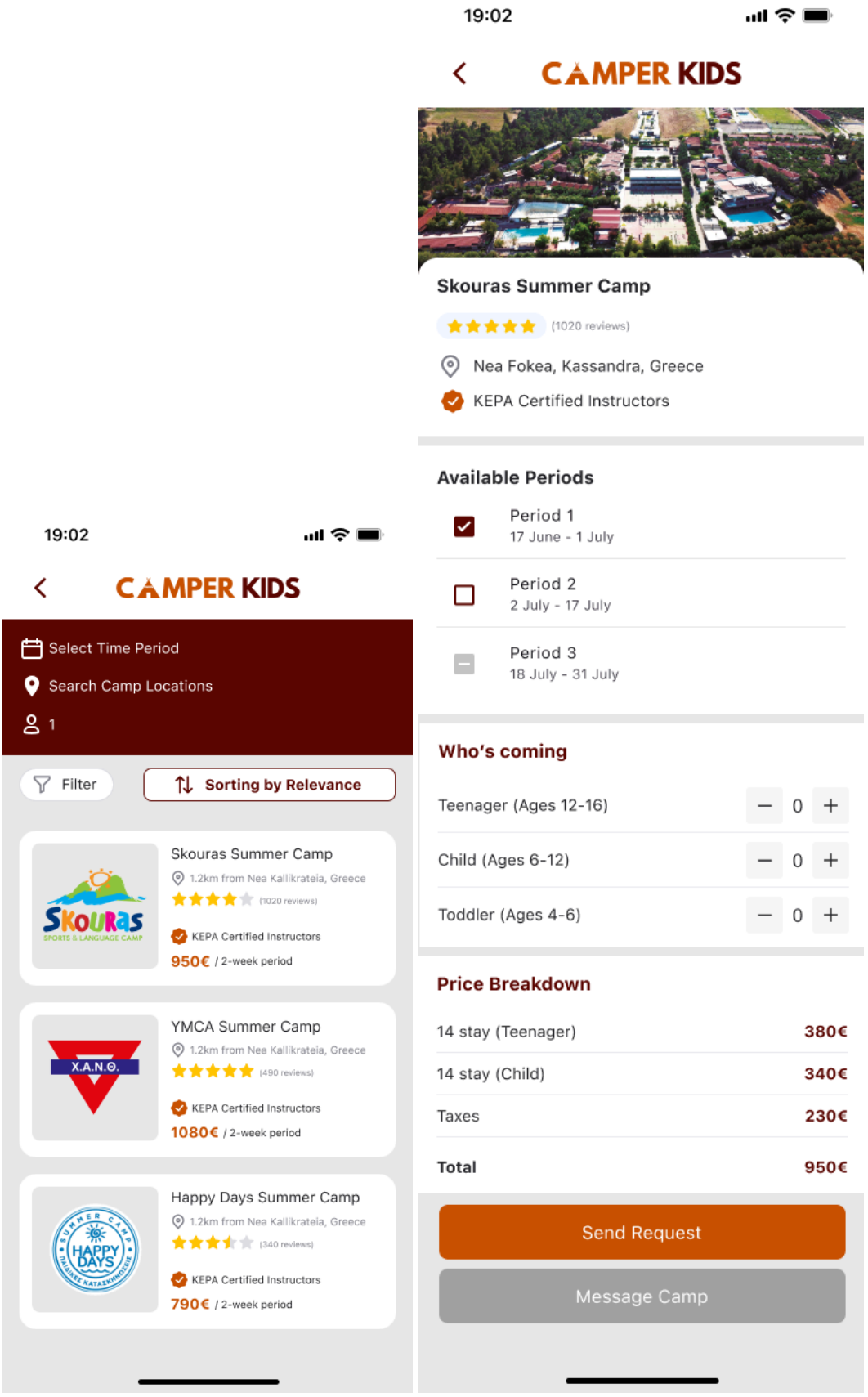
4.2. Manos Flow

Our next persona, Manos, is looking for a more specialized product to cater to his and his family's needs. More specifically, he is looking for camps with qualified instructors for kids with special needs, he wants to be able to read reviews and send messages to the camp. All of these features have been incorporated into Manos' flow.

Link for Prototype

The main view for Manos remains the same as before. He can log in, search for a camp, sort and filter the results. In the filters section he can find an option to select to view camps that cater to kids with special needs. Once he finds a camp, he can check reviews from previous parents and he can also send a message to the camp to ask questions before booking.


19:02
CAMPER KIDS
Find and book the best camp experience for your kids!
Sign In with Email
Sign in with Google
Don't have an account? Sign Up
19:02
CAMPER KIDS
Search Camp Locations
Select Time Period
Who's coming?
Teenager (Ages 12-16) 0
Child (Ages 6-12) 0
Toddler (Ages 4-6) 0
I have a discount code
Search Camps


19:02
CAMPER KIDS
Skouras Summer Camp
(1020 reviews)
Nea Fokea, Kassandra, Greece
KEPA Certified Instructors
Available Periods
Period 1
17 June - 1 July
Period 2
2 July - 17 July
Period 3
18 July - 31 July
Who's coming
Teenager (Ages 12-16) 0
Child (Ages 6-12) 0
Toddler (Ages 4-6) 0
Price Breakdown
14 stay (Teenager) 380€
14 stay (Child) 340€
Taxes 230€
Total 950€
Send Request
Message Camp
19:02
CAMPER KIDS
Select Time Period
Search Camp Locations
1
Filter
Sorting by Relevance
Skouras Summer Camp
1.2km from Nea Kallikrateia, Greece
(1020 reviews)
KEPA Certified Instructors
950€ / 2-week period
YMCA Summer Camp
1.2km from Nea Kallikrateia, Greece
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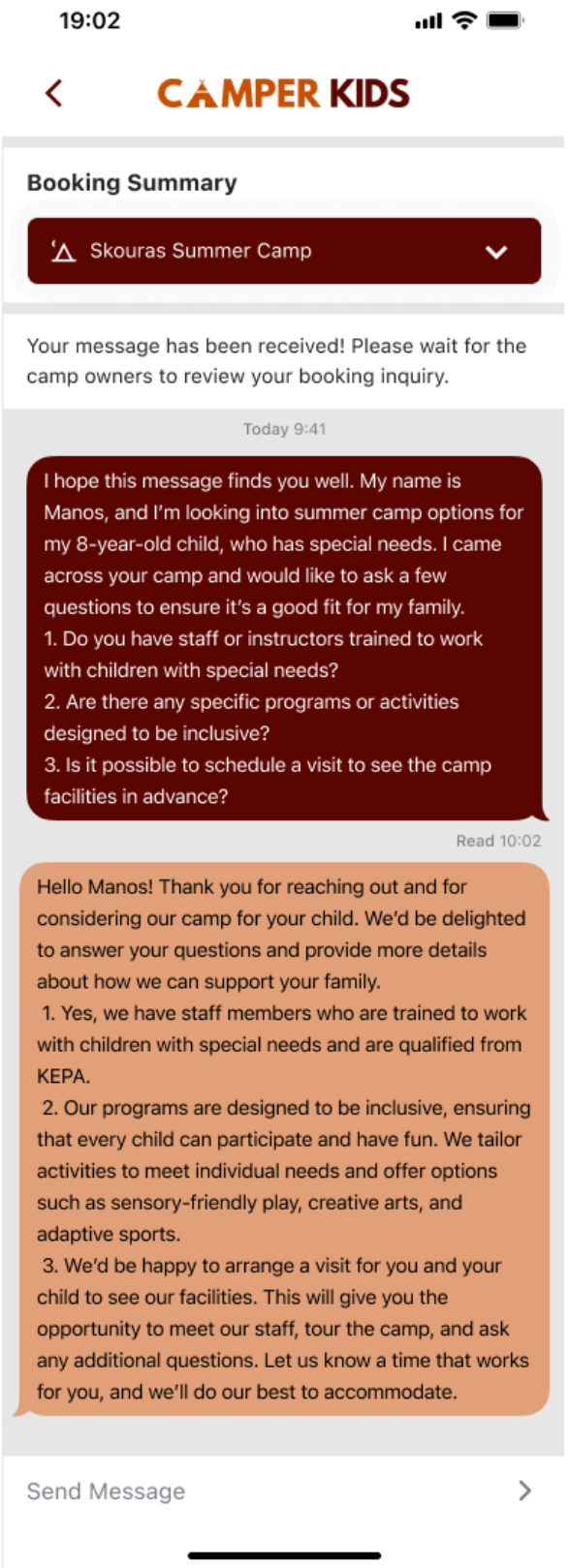
KEPA Certified Instructors
1080€ / 2-week period
Happy Days Summer Camp
1.2km from Nea Kallikrateia, Greece
(340 reviews)
KEPA Certified Instructors
790€ / 2-week period


19:02
CAMPER KIDS
Booking Summary
Skouras Summer Camp
Your message has been received! Please wait for the camp owners to review your booking inquiry.
Today 9:41
I hope this message finds you well. My name is Manos, and I'm looking into summer camp options for my 8-year-old child, who has special needs. I came across your camp and would like to ask a few questions to ensure it's a good fit for my family.
1. Do you have staff or instructors trained to work with children with special needs?
2. Are there any specific programs or activities designed to be inclusive?
3. Is it possible to schedule a visit to see the camp facilities in advance?
Read 10:02
Hello Manos! Thank you for reaching out and for considering our camp for your child. We'd be delighted to answer your questions and provide more details about how we can support your family.
1. Yes, we have staff members who are trained to work with children with special needs and are qualified from KEPA.
2. Our programs are designed to be inclusive, ensuring that every child can participate and have fun. We tailor activities to meet individual needs and offer options such as sensory-friendly play, creative arts, and adaptive sports.
3. We'd be happy to arrange a visit for you and your child to see our facilities. This will give you the opportunity to meet our staff, tour the camp, and ask any additional questions. Let us know a time that works for you, and we'll do our best to accommodate.
Send Message

19:02

CAMPER KIDS

Skouras Summer Camp

(1020 reviews)

Nea Fokea, Kassandra, Greece

KEPA Certified Instructors

9.2

Excellent

From 1020 reviews

Cleanliness	★★★★★
Activities	★★★★½
Staff	★★★★½
Food	★★★½☆

Maria Nikolaou — 16/09/2024

9.0/10

The staff were very hospitable and lovely. My kids had a very good time at this camp.

Zisis Pantidis — 16/09/2024

8.2/10

There's a plethora for activities suitable for all kids. The food needs improvement.

Katerina Felidou — 16/09/2024

9.5/10

Our kids have been visiting this camp for many years. We love that it is clean and the staff is always very attentive to the children's needs.

5. Remote User Testing of Prototypes

To evaluate the ease of use of the product we need to perform remote user testing sessions. User testing will help us understand how people engage with the app from their point of view and through their feedback we will know which parts of the design are good, and which ones require improvements. For this assignment, the method of user testing used is an unmoderated usability study. In this particular type of study, the user is not guided by a moderator. The participants are given some time to examine and explore the product on their own time and comment on the problems they faced and highlight the sections they liked.

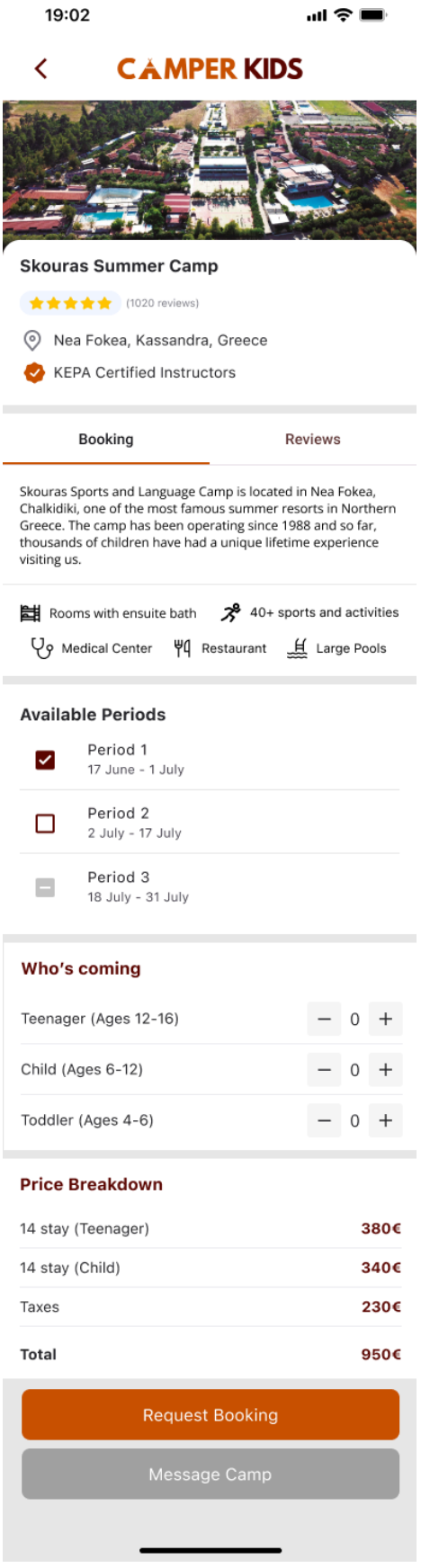
All the findings of this user testing session have been documented in the table below.

Name	Age	Children	Positive Comments	Negative Comments
Fani	32	Yes (3yrs)	1. Liked the filters for price 2. Liked the colors	The camp profile needs more information about the facility and activities they provide
Tasos	38	Yes (1, 5 yrs)	1. Found the navigation easy	The reviews section should be more easily accessible
Maria	61	Yes	1. Everything looks good 2. Easy to navigate 3. Liked the simple payment options	Found the two buttons “Send Request” and “Message Camp” confusing

From the comments the participants made we needed to make two improvements:

1. Include more information about the camp in the camp profile page
2. Find a better, more intuitive way to display the reviews
3. Rename the primary button on the booking page to accurately explain its function

To accomplish this, I made some adjustments to the design. In the camp profile page I added a section with a short description of the camp, and some icons with labels for the facilities and services provided. Additionally, I included 2 tabs to make it visible to the user that by switching the tabs they can see either the booking options or the reviews. Finally, I changed the label of the primary button on the booking page to “Request Booking” to have it more focused on the main action.


19:02
CAMPER KIDS
Skouras Summer Camp
(1020 reviews)
Nea Fokea, Kassandra, Greece
KEPA Certified Instructors
Booking
Reviews
Skouras Sports and Language Camp is located in Nea Fokea, Chalkidiki, one of the most famous summer resorts in Northern Greece. The camp has been operating since 1988 and so far, thousands of children have had a unique lifetime experience visiting us.
Rooms with ensuite bath
40+ sports and activities
Medical Center
Restaurant
Large Pools
Available Periods
Period 1
17 June - 1 July
Period 2
2 July - 17 July
Period 3
18 July - 31 July
Who's coming
Teenager (Ages 12-16)
0
Child (Ages 6-12)
0
Toddler (Ages 4-6)
0
Price Breakdown
14 stay (Teenager)
380€
14 stay (Child)
340€
Taxes
230€
Total
950€
Request Booking
Message Camp

6. Statistical Analysis of UX Data

In this part of the assignment, we are going to analyze and interpret the data provided to make informed decisions and assumptions. As explained by the description, 90 participants each perform 5 tasks in 3 separate systems, one of which is our own and the other 2 are considered competitive systems. Each row in the dataset represents the mean number of errors a user made in a system.

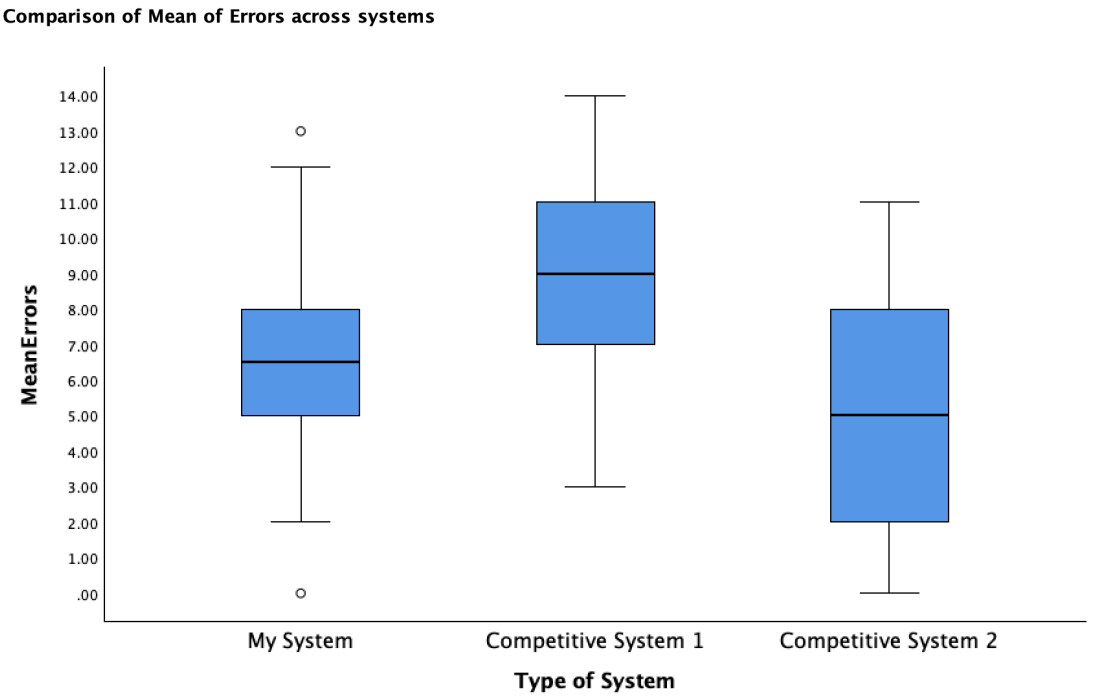
6.1. Measures of Central Tendency and Dispersion

To display the measures of central tendency and dispersion that are most appropriate for the collected sample data, we will utilize some of the functions provided by the SPSS software. The measures of central tendency are highlighted in blue and are the mean and median. From the results we can derive the following conclusions: Competitive System 1 shows higher error rates across all measures (mean, median), indicating that our system and Competitive System 2 perform better. Competitive System 2 has the lowest average of errors, outperforming our system. Although our system and Competitive System 2 have several similarities, the data indicates that Competitive System 2 is slightly more effective than ours.

The measures of dispersion describe how spread out the data values are around the mean and they provide insight into the variability of the dataset. In our example, we are utilizing the standard deviation, variance, range, min and max. From the results we can see that Competitive System 2 has the most spread out values because of its large variance and standard deviation. On the other hand, Competitive System 1 seems to have the most clustered values. Our system falls in the middle of those two. When it comes to the range and the extremums, both our system and Competitive System 2 include participants with 0 errors. Competitive System 1 has the highest maximum value, but its minimum is also higher than the others.

	My System	Competitive System 1	Competitive System 2
Mean	6.37	8.87	5.40
Median	6.50	9.00	5.00
Std. Deviation	2.82	2.40	3.46
Variance	7.96	5.77	11.97
Range	13.00	11.00	11.00
Minimum	.00	3.00	.00
Maximum	13.00	14.00	11.00

Given that we need to present an appropriate graph that supports a first imprecise inference for the population, it's important to choose a visualization that allows for easy comparison between the three systems. In my opinion, the best option to display the measures indicated above for all 3 variables are boxplots. Boxplots are a good choice because they show the main differences between the three systems. They display the median, spread, and any outliers, making it easy to compare the performance of each system. This helps us quickly see on which system users made fewer errors and had more consistent results.



6.2 Inferential Statistics and Hypothesis Testing

In order to perform inferential statistics and hypothesis testing on our data, we first need to define our dependent and independent variables. The dependent variable is the mean number of errors. The system type (My System, Competitive System 1, Competitive System 2) is the independent variable. By defining these variables we can also define the Null Hypothesis which states:

Null Hypothesis (H_0): There is no significant difference in the mean number of errors across the three systems.

Afterwards we can proceed with analyzing the dataset statistically using One-Way ANOVA to either accept or reject the Null Hypothesis. The reason behind choosing this type of statistical test is because it is used to compare means across three or more groups, using different participants' measurements for every system.

In order for the ANOVA test to produce valid results, we first need to check the assumption of normality by performing a Shapiro-Wilk test. The Shapiro-Wilk test is a

hypothesis test used to assess whether the sample data comes from a normally distributed population. The results indicated that the assumption of normality was met for all groups:

- My System: $p = .711$
- Competitive System 1: $p = .618$
- Competitive System 2: $p = .116$

Since $p > .05$ for all groups, the null hypothesis of normality could not be rejected, suggesting that the mean error scores are normally distributed for each system.

A one-way between-subjects ANOVA was conducted to compare the effect of system type on the mean number of errors across the three systems: My System, Competitive System 1, and Competitive System 2. There was a significant effect of system type on the mean number of errors, $F(2, 87) = 11.203$, $p < .001$. Post hoc comparisons using the Bonferroni test indicated that the mean error rate for Competitive System 2 ($M = 5.40$, $SD = 3.46$) was significantly lower than both My System ($M = 6.37$, $SD = 2.82$), $p = .004$, and Competitive System 1 ($M = 8.87$, $SD = 2.40$), $p < .001$. Additionally, users of My System had made significantly fewer errors than the ones in Competitive System 1, $p = .004$. There was no significant difference in error rates between My System and Competitive System 2, $p = .613$. The null hypothesis, stating that there is no significant difference in the mean number of errors across the three systems, was rejected based on the results of the one-way ANOVA. This indicates that the type of system has a significant effect on the number of errors made by users.

References

How to design user scenarios: best practices and examples. (n.d.). Copyright © Justinmind 2025. All Rights Reserved. https://www.justinmind.com/blog/how-to-design-user-scenarios/

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