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Mobile Computing  
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Prof. Dr. Natividad Martínez Madrid

- Project documentation -

# Tourista

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**Abstract:** *Goal of this project is to design and develop an application to organize, plan and check information. The application contains a main page which is a feed where it is possible to check different plans already created by other users. As well as, the option of creating your own trip planning with location, description, notes and budget. This document describes the development of the application using React Native for Android and iOS devices.*

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## 1 Introduction

In this section, the idea and the motivation of the project are described.

### 1.1 Motivation

Many people love traveling around the world discovering new places and enjoying new experiences. This is what drives us. We are aware of the difficulties that first-time travelers find, indecision about destination choice or uncertainty about the budget available for the trip. As well as, the possibility of having in one place all the wonderful memories of the most significant trips of our lives.

Our application has been developed to address all those problems and make the process of planning a trip as easy as possible, providing examples from other experienced travelers with all their recommendations and keep saving all your memories.

### 1.2 Idea

The idea of this project is to develop a social media application where people can take ideas from other trip plannings created by other users where they can save the title of the trip, the location, a description, some notes about important things to know and also a budget of the trip.

Every user can create his/her own trip planning including the information stated before. As well as publish that trip in order to show it to other users who can save it to check the information about the trip later.

## 2 Goals of the project

The goal of the project is to create an application where people can save their information to create a trip planner. Furthermore, some ideas from other people could be looked up in order to improve their own trip planners.

### 3 Requirements analysis

In this section, some artifacts like storyboard, personas, user story and others are explained.

#### 3.1 Personas

There are two examples for personas to understand and empathize with their users' needs, goals, and behaviors.

Persona 1 (Mandy):

Key Characteristics:

- 35 years old
- Works as a flight attendant
- Spends a lot of time in social medias
- Travels very often
- History of being disappointed with idealized places
- Is known between her friends as their “personal travel guide”

Goals:

- Connect to travel enthusiasts like her
- Share her travel experience with others

Persona 2 (Samantha):

Key Characteristics:

- Enjoys learning different cultures
- Would like to eat good food
- Enjoys socializing

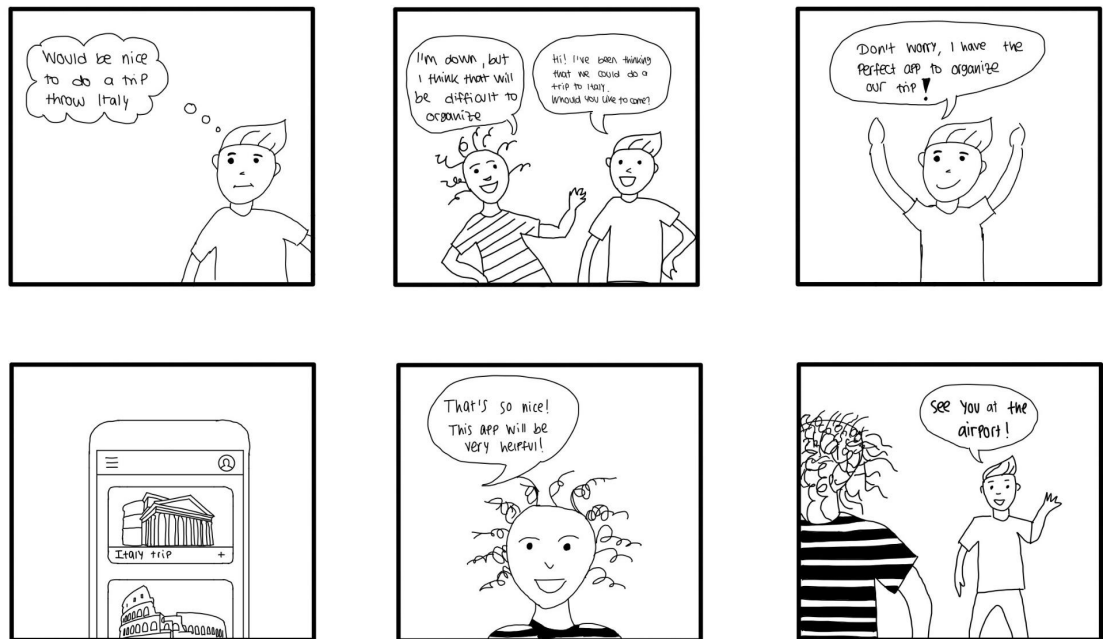
Goals:

- Getting recommendations for restaurants, hotels and attractions
- Planning a good trip

#### 3.2 Storyboard

Two story boards were created in order to reflect some quotidian situations in which the application could be helpful.

### 3.2.1 Storyboard 1



In this storyboard is shown the story of a friend who suggests to another friend doing a trip, his friend agrees, but he thinks that could be difficult to organize the trip due to the fact that they are first-time travelers. But the friend who proposes doing the trip has the perfect application to help them organize the trip. So finally they use Tourista for their trip planner and they go to the airport to start their amazing trip.

This is a representation of how Tourista could help people since the very beginning of the trip avoiding unexpected expenses and keeping in mind advice from other travelers.

### 3.2.2 Storyboard 2



This storyboard shows the story of two friends who are already on a trip but they are disappointed because of the bad organization that they have. But then, one of them finds Tourista on the app market, so they use the application in order to improve their organization and budget.

This is an example of how Tourista could help people to improve their trip and to have a better track of how much they are spending or the places that they have visited.

### 3.3 User stories

There are two user story examples from two personas to capture specific user needs, goals, or tasks that our software and product should fulfill. These user stories help prioritize development efforts by focusing on delivering value to the end user.

#### User Story (Mandy):

As a content creator, Mandy wants to post tips about how to prepare for visits to the places she has been to grow her impact/help others avoid the problems she went through in the past.

User Story (Samantha):

Samantha is a newly graduated student. Before starting to work in any company, she wants to discover the world for two years and she will be doing this for the first time. Since it is her first time abroad, she does not know exactly how to plan the trip and because she does not want to have a bad experience abroad, she is looking for a platform where she can get advice from experienced people and she wants to have an experience that she will remember these trips she has made. Hopefully she will be giving advices for other travelers in the future.

### 3.4 Requirements specification

Requirements specification provides a detailed description of the app's features, functionalities, and user interactions and outlines the specific needs and expectations of app users. It includes functional and non-functional requirements.

#### 3.4.1 Functional requirements

Functional requirements define what the app should do and specify its intended functionalities. The functional requirements of the application are as follows:

High Level of Importance:

- M1 - Sign in and Sign up
- M2 - Create trip plan (spots,dates,notes)
- M3 - Feeds in Home Screen (trips)
- M4 - Save/Unsave Trips
- M5 - Upload photos
- M6 - Search Engine

Low Level of Importance:

- N1 - ToDo lists in create trips
- N2 - Budget lists in create trips
- N3 - Share link
- N4 - Report Posts
- N5 - Weather forecast



### **3.4.2 Non-functional requirements**

Non-functional requirements define how the app should behave, perform, and operate, focusing on aspects beyond its specific functionalities. The non-functional requirements of the application are as follows:

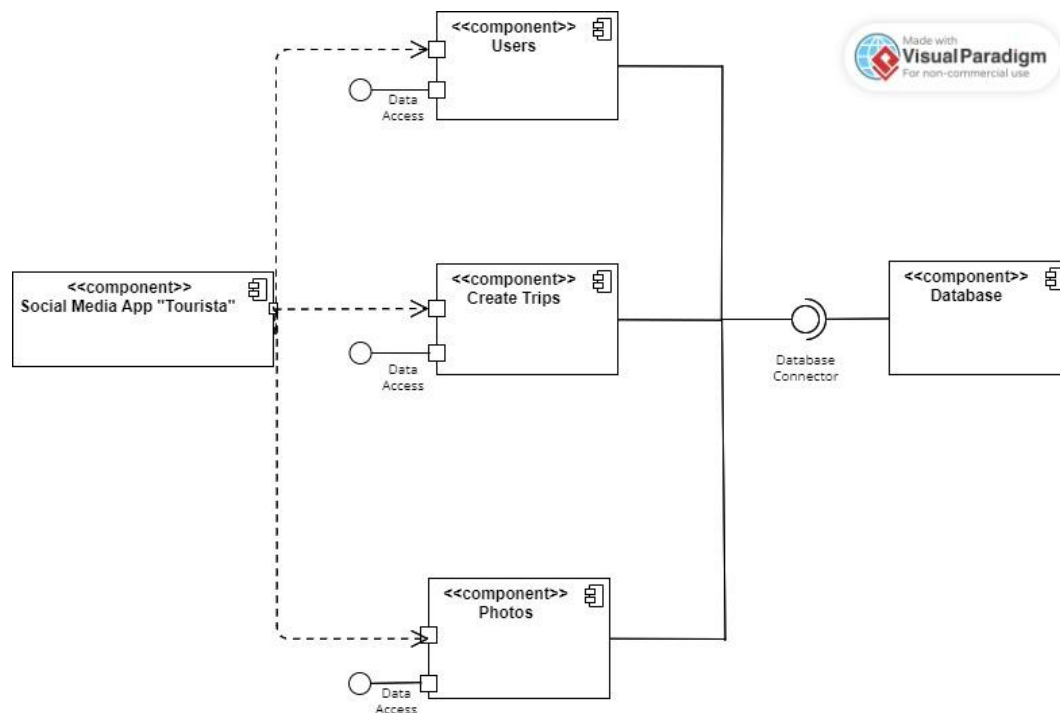
- Usability: The app's interface should be easy to navigate, allowing users to complete tasks without having an issue.
- Privacy: The users may not access other users' profiles and posts.
- Compatibility: The app should be compatible with the latest smartphone platforms (IOS and Android).

## 4 Conceptual model of the solution

In this section, some artifacts like activity diagram, user diagram, sequence diagrams and mockups of our application.

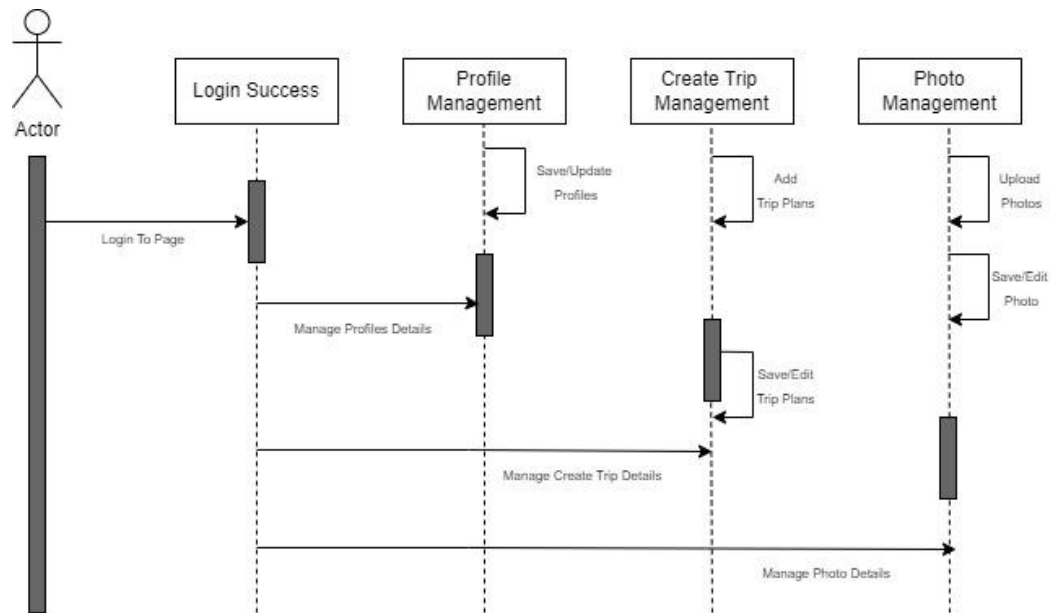
### 4.1 Components diagram

This is a component diagram of Social Media App “Tourista” which shows components provided and required relationships between the User, Create Trips and Media (Photos).



### 4.2 Sequence diagram

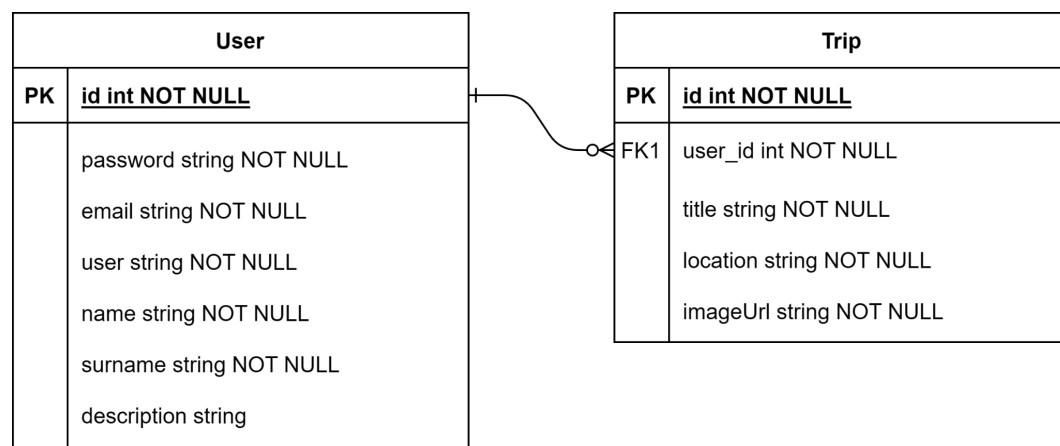
This is the Sequence diagram of Social Media App “Tourista” which shows the interaction between the objects of Profiles, Create Trip (Post), Photos.



### 4.3 ER diagram

Each *User* must have a unique *id*, a *password*, an *email*, an *user(name)* which represents their nickname, *name* which is their forename, and *surname*. It is optional to also have a small *description* that is going to show up in the user profile. Each *User* can have many trips.

Each *Trip* must have a unique *id*, *title*, *location*, *imageUrl*, and a reference to the *user* the trip belongs to. Each *Trip* is associated to one and only one user.

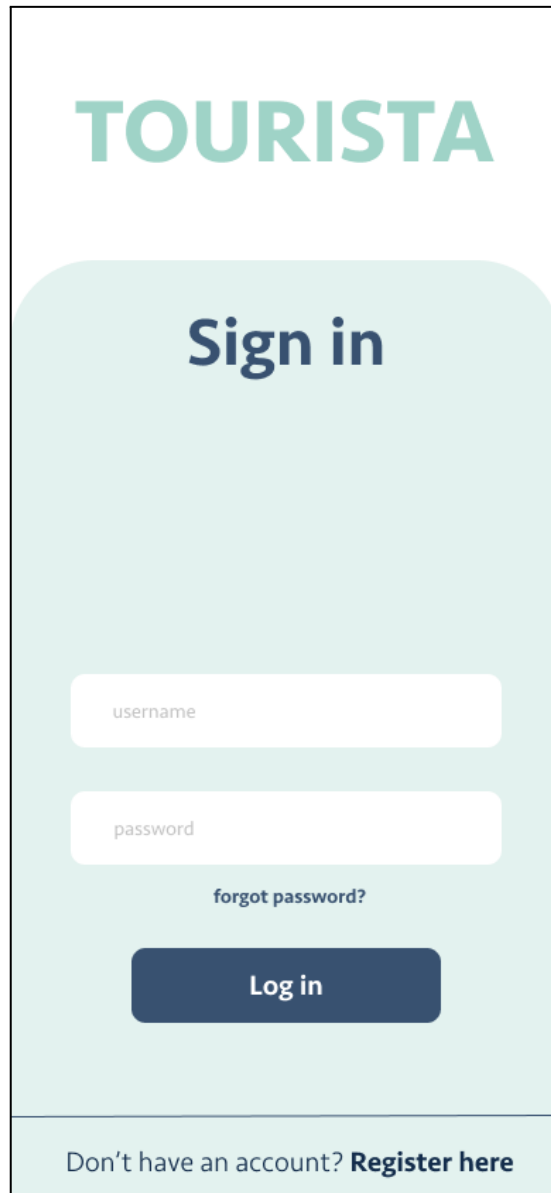


## 4.4 Mockup

The tool used to create the mockup of the application is figma and here will be compared some of the different ideas developed for the design of our project. All the images shown in this section are only mockups and they are not the final version of the design of the application.

### 4.4.1 Login Screen

This is the mockup of the Login Screen, is the first screen that is shown when an user opens the application. At the top of the screen is written the name of the app: "Tourista" and below that, the form for the login which contains the options to write the username and the password. Moreover, there is the option to ask for a new password in case that the user has forgotten his/her password. As well as, the Login button which sends the information introduced by the user to Firebase and checks if everything is good. At the very bottom of the screen, the button for register is shown in case that the user does not have an account and he/she wants to create one.



The image shows a mobile application screen for 'TOURISTA'. At the top, the word 'TOURISTA' is displayed in a large, bold, teal font. Below this, the text 'Sign in' is centered in a bold, dark blue font. There are two white input fields with rounded corners: the first is labeled 'username' and the second is labeled 'password'. Below the password field, the text 'forgot password?' is centered in a small, dark blue font. A dark blue button with the text 'Log in' in white is positioned below the 'forgot password?' link. At the bottom of the screen, a light blue bar contains the text 'Don't have an account? Register here' in a dark blue font.

**TOURISTA**

**Sign in**

username

password

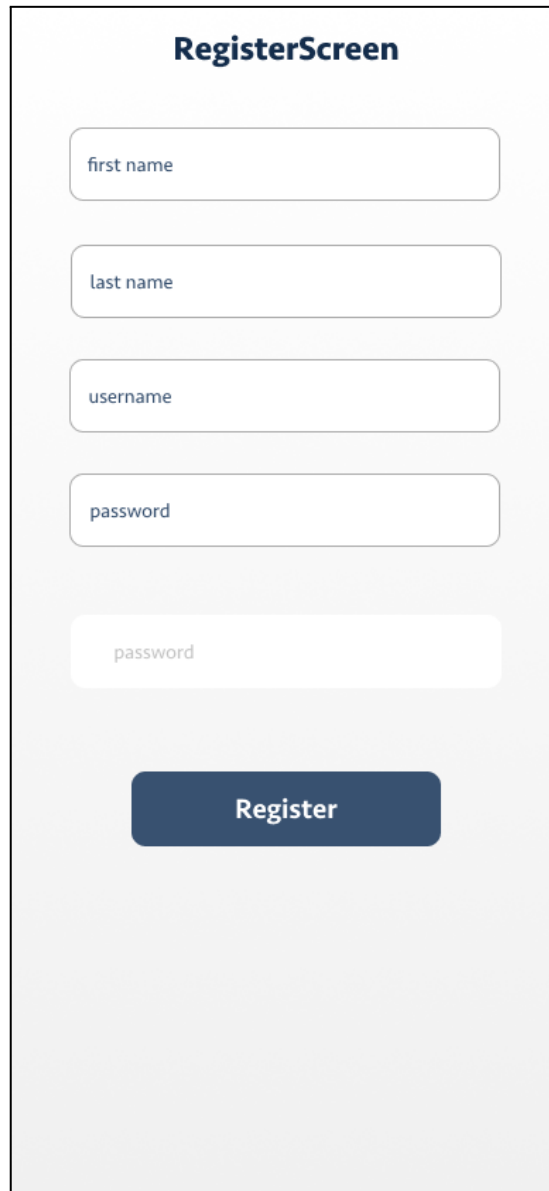
forgot password?

**Log in**

Don't have an account? **Register here**

#### 4.4.2 Register Screen

This is the mockup of the Register Screen, in this screen the user sees a form with different inputs such as: name, surname, email, username, password, etc. Then, this form is sent to the database where all the data is stored.



The mockup shows a vertical form titled "RegisterScreen". It contains five input fields: "first name", "last name", "username", "password", and another "password" field. Below the fields is a dark blue "Register" button.

**RegisterScreen**

first name

last name

username

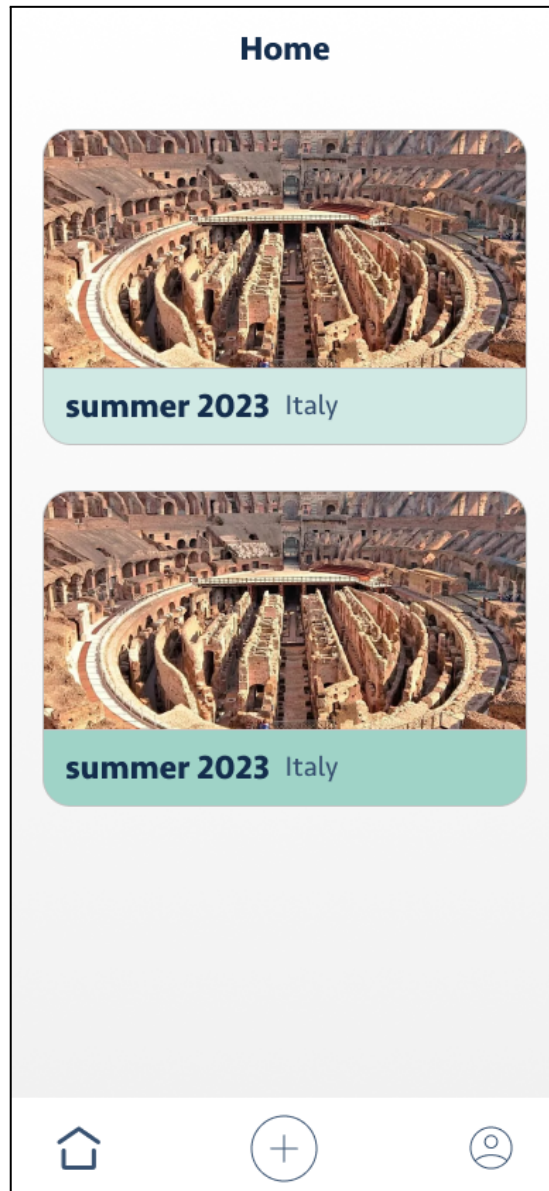
password

password

**Register**

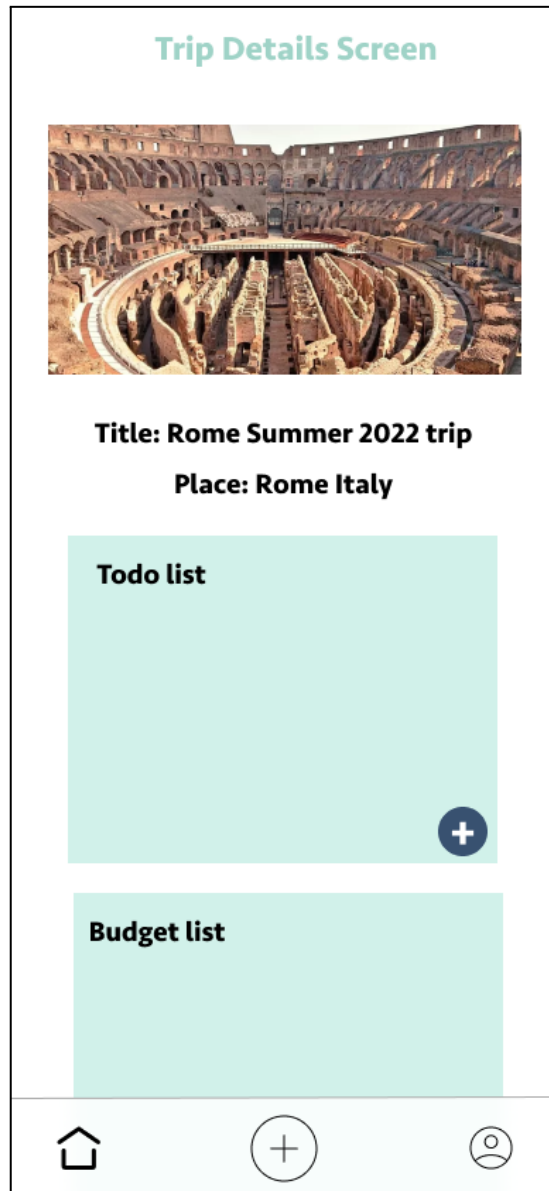
#### 4.4.3 HomeScreen

This is the mockup of the Home Screen, in this screen are shown the different trips uploaded by the users that the main user of the application follows. By clicking on one of the trips, the TripDetailsScreen is opened.



#### 4.4.4 TripDetailsScreen

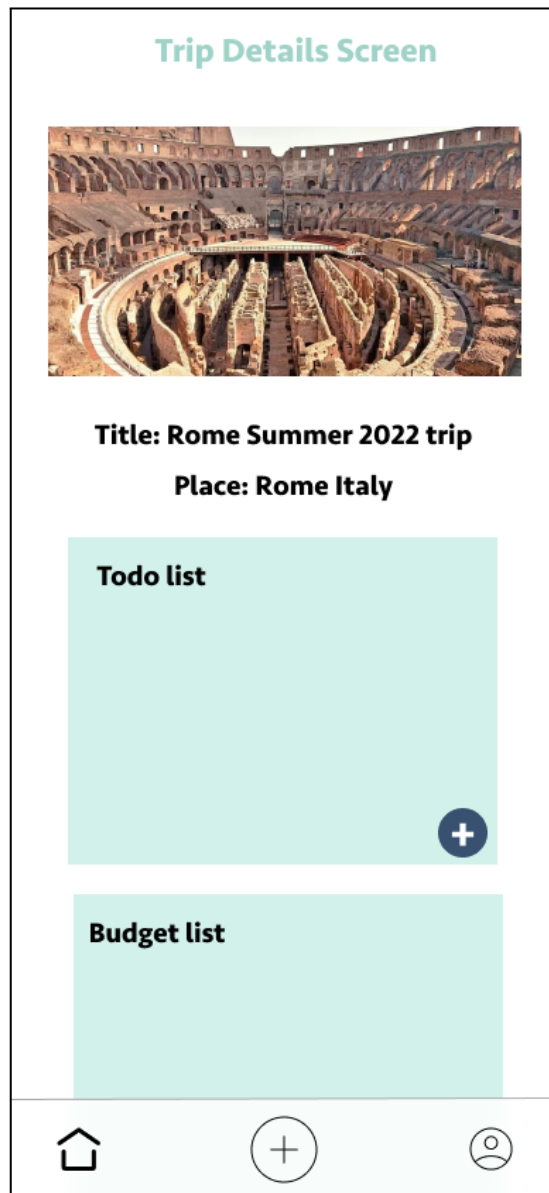
This is the mockup of the Trip Details Screen, in this screen are shown the details of the trip selected in the Home Screen. Here are shown details like title, place, to-do and budget list. As well as, a button to save the trip in SavedTripsScreen.





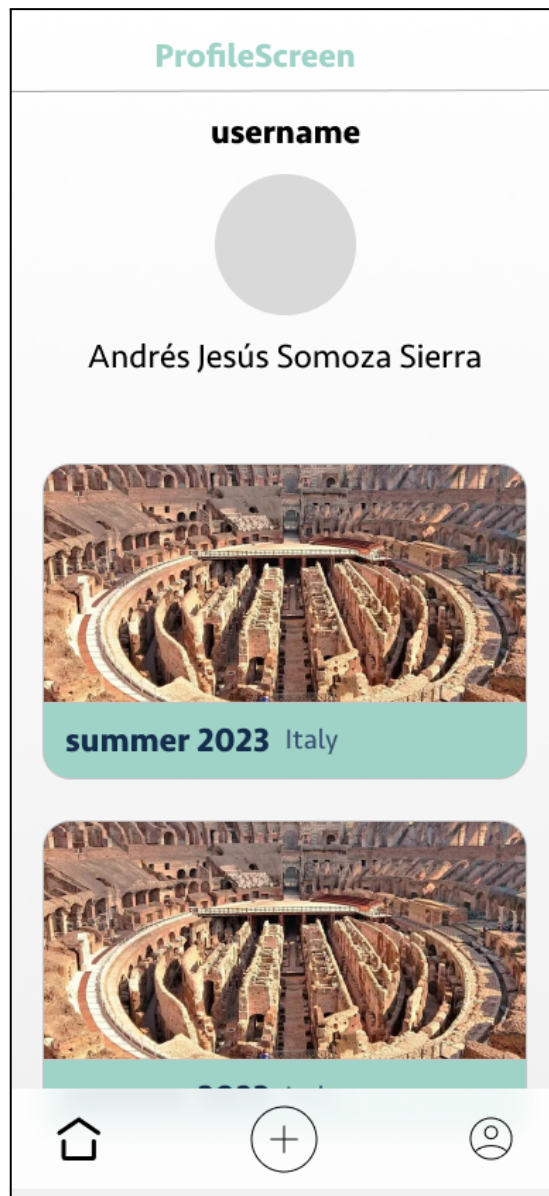
#### 4.4.5 CreateTripScreen

For the Create Trip Screen, the mockup used is the one created for the TripDetailsScreen due to the fact that the organization of these screens is the same, the difference is this case is that for the CreateTripScreen, the different fields such as location, title, description, notes and so on, are empty ready to be fulfilled by the user, and in the TripDetailsScreen the fields are already fulfilled by the owner of the trip.



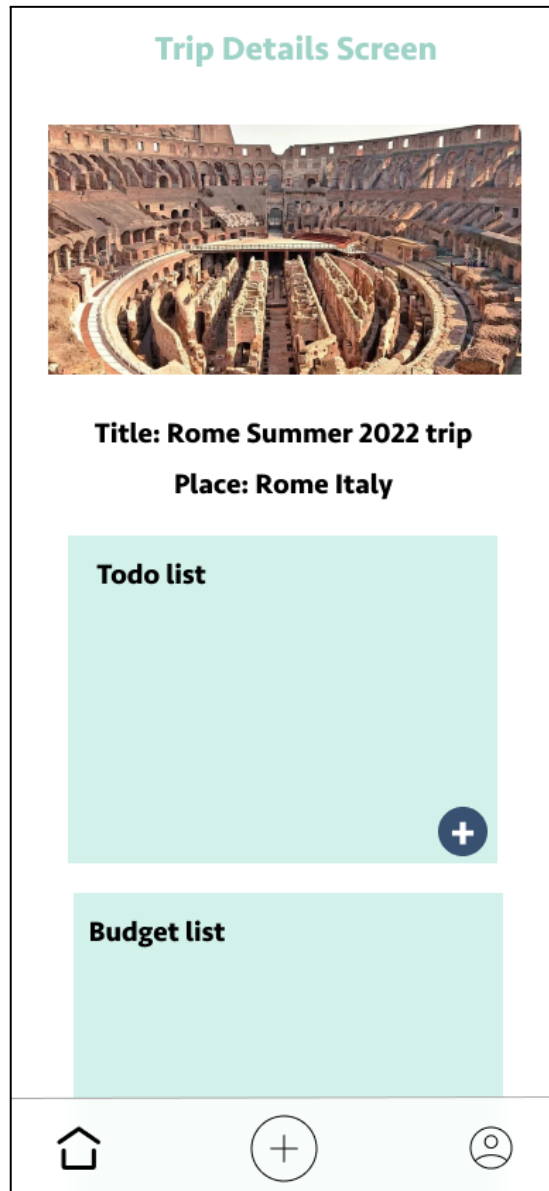
#### 4.4.6 ProfileScreen

This is the mockup of the Profile Screen, at the top is placed the username of the user logged in, below that the profile picture, and below the profile picture is shown the complete name of the user and a little description. Moreover, all the trips created by the logged in user are shown at the bottom of the screen.



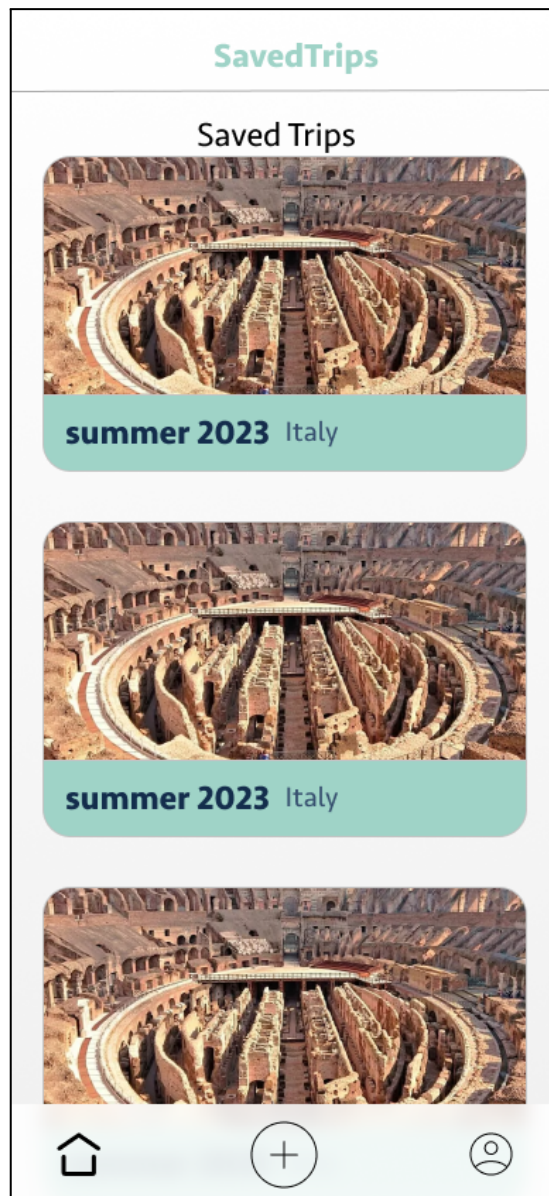
#### 4.4.7 ModifyTripScreen

This is the mockup of the Modify Trip Screen, this screen is really similar to the CreateTripScreen and to the TripDetailsScreen so the mockup used is the same of those two screens. In this screen the logged in user is able to make changes to his own trip description.



#### 4.4.8 SavedTripsScreen

This is the mockup of Saved Trips Screen, in this screen are shown all the trips saved by the logged in user in case that the user thinks they would be useful in the future to plan a trip by his/her own. At the top is the title of the screen and below that, all the trips saved by the logged in user are shown.



## 5 Design and Implementation

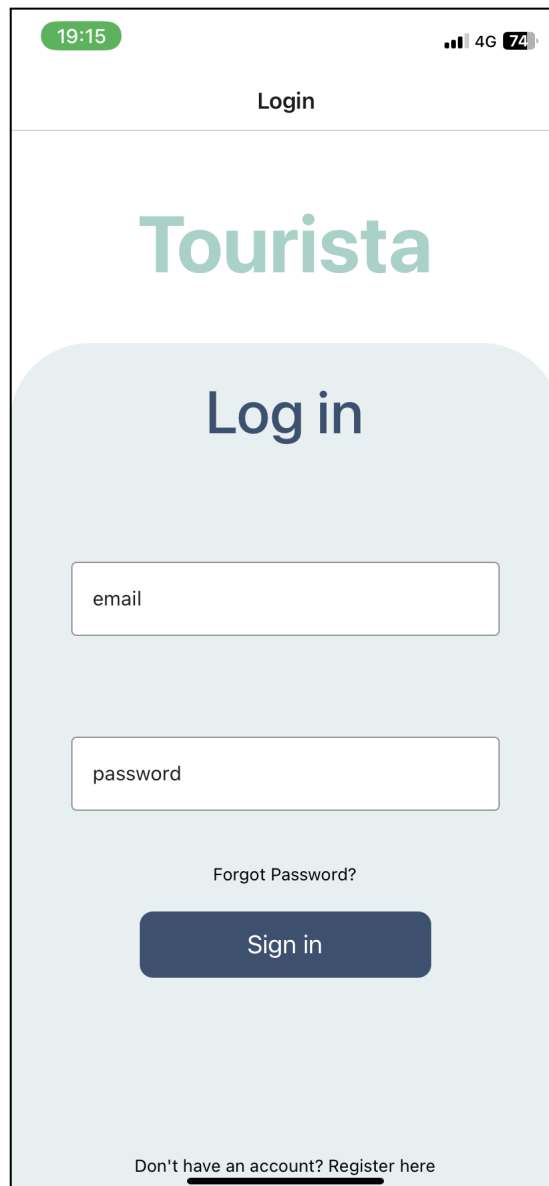
In this section is shown the final design of the application and the details of the implementation are explained.

### 5.1 Design

In the following subsections, the final design of the different screens of the application is shown and explained.

#### 5.1.1 Login Screen

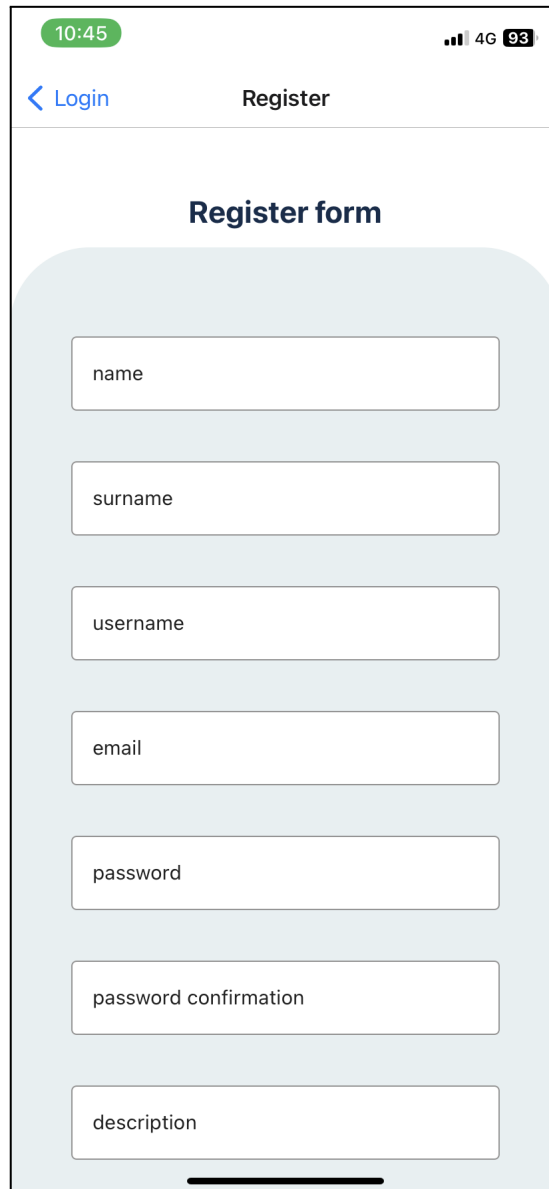
This is the final design of the Login Screen, where a form is used to input the data for the log in. There are also 3 different buttons: one for log in, another to ask for a new password and the last one to create a new account in case that the user wants to register in the app.



The screenshot displays the 'Login' screen of the 'Tourista' application. At the top, the status bar shows the time '19:15', 4G connectivity, and a battery level of 74%. The app's title 'Login' is centered at the top. Below it, the 'Tourista' logo is prominently displayed in a teal color. A light blue rounded rectangle contains the 'Log in' text in a dark blue font. Underneath, there are two white input fields with rounded corners, labeled 'email' and 'password'. A link for 'Forgot Password?' is positioned below the password field. A dark blue 'Sign in' button is centered below the input fields. At the bottom, a link reads 'Don't have an account? Register here'.

### 5.1.2 RegisterScreen

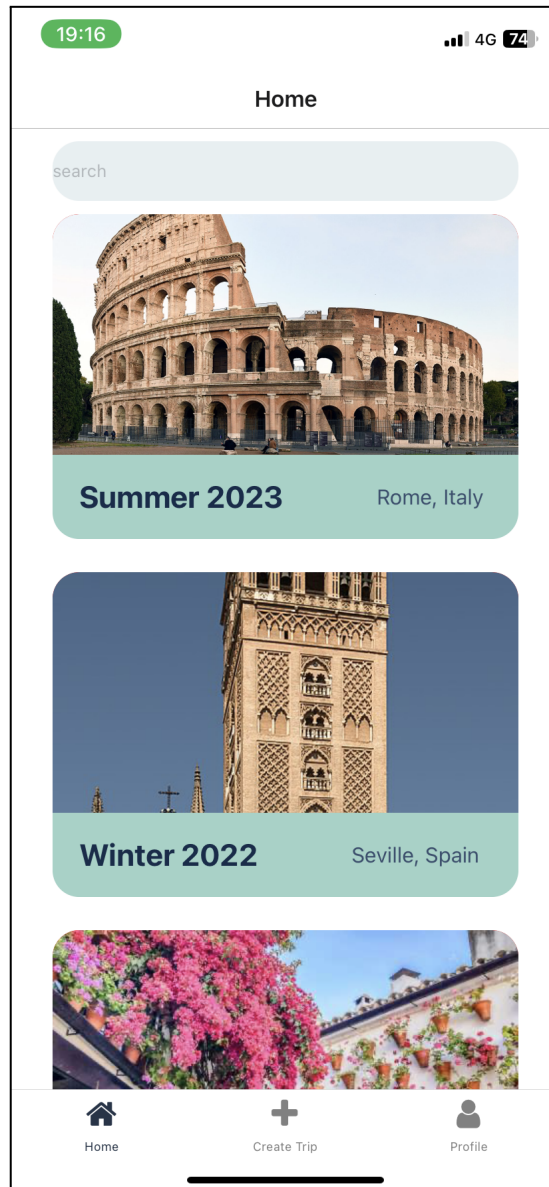
This is the final design of the RegisterScreen, there is a form to fulfill in order to create a new account on the application, the data written on the input fields is sent to firebase to register the data of the new user. At the bottom there is a button which sends that data to register the new user.



The image shows a mobile application screen for registration. At the top, the status bar displays the time 10:45, 4G signal, and 93% battery. Below the status bar, there is a navigation bar with a blue back arrow and the text "Login" on the left, and the text "Register" on the right. The main content area has a light blue background with a white rounded rectangle containing the registration form. The form is titled "Register form" in bold. It contains seven input fields, each with a placeholder label: "name", "surname", "username", "email", "password", "password confirmation", and "description". At the bottom of the screen, there is a black horizontal bar representing the home indicator.

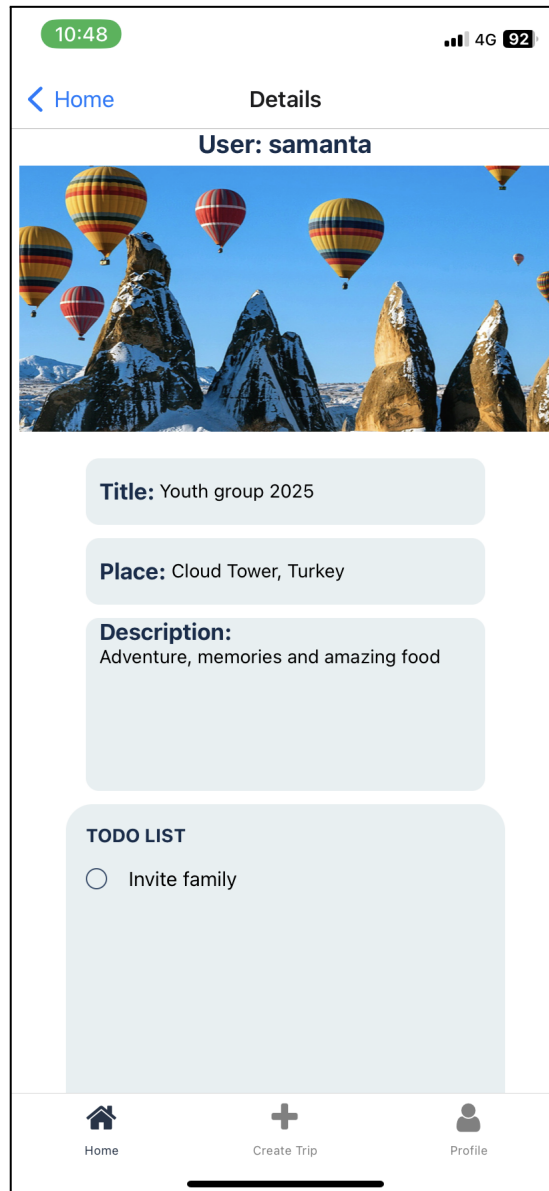
### 5.1.3 HomeScreen

This is the final design of the HomeScreen, in this screen are shown the different trips uploaded by the users that the main user of the application follows. By clicking on one of the trips, the TripDetailsScreen is opened.



#### 5.1.4 TripDetailsScreen

This is the final design of the TripDetailsScreen, in this screen are shown the details of the trip selected in the Home Screen. Here are shown details like title, place, to-do and budget list. As well as, a button to save the trip in SavedTripsScreen.





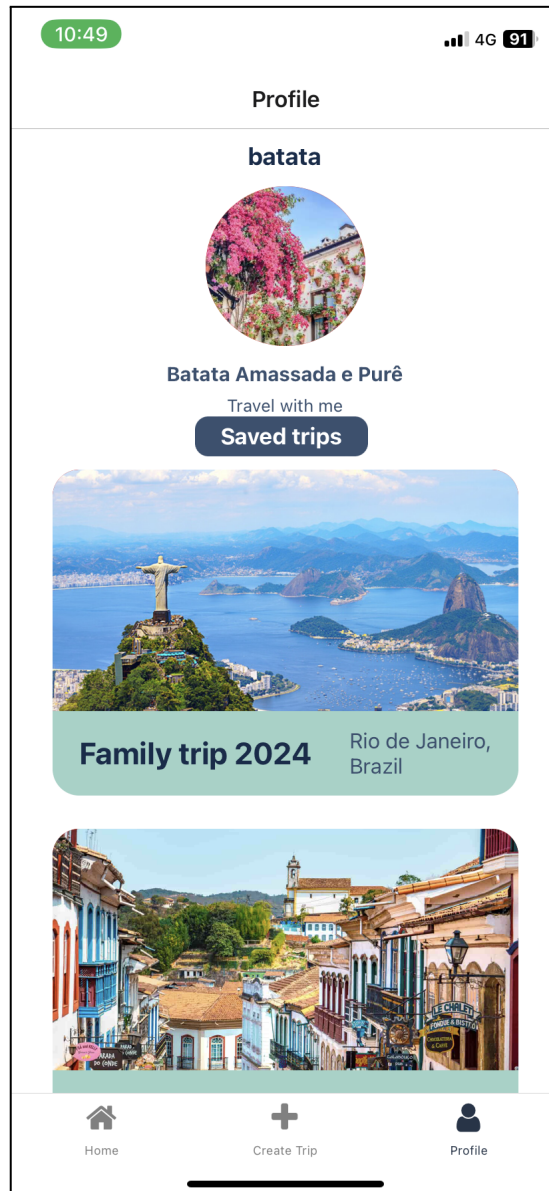
### 5.1.5 CreateTripScreen

This is the final design of CreateTripScreen, at the top of the screen is placed the option to add the main picture of the trip, and below that there is a form to fulfill in order to add the details to the trip such as the title, the place, the details, the notes and the budget. As well as the button to save the details of the trip.

The image shows a mobile application interface for creating a trip. At the top, the status bar displays the time 19:30, 4G signal, and 67% battery. The app title 'Create Trip' is centered at the top. Below the title is a large square placeholder for a trip image. Underneath the image placeholder are three text input fields labeled 'Title', 'Location', and 'Description'. Below these fields is a 'TODO LIST' section with a light blue background, containing a 'New todo' input field and an 'Add' button. Below the 'TODO LIST' is a 'BUDGET LIST' section, also with a light blue background. At the bottom of the screen is a navigation bar with three icons: a house icon labeled 'Home', a plus icon labeled 'Create Trip', and a person icon labeled 'Profile'.

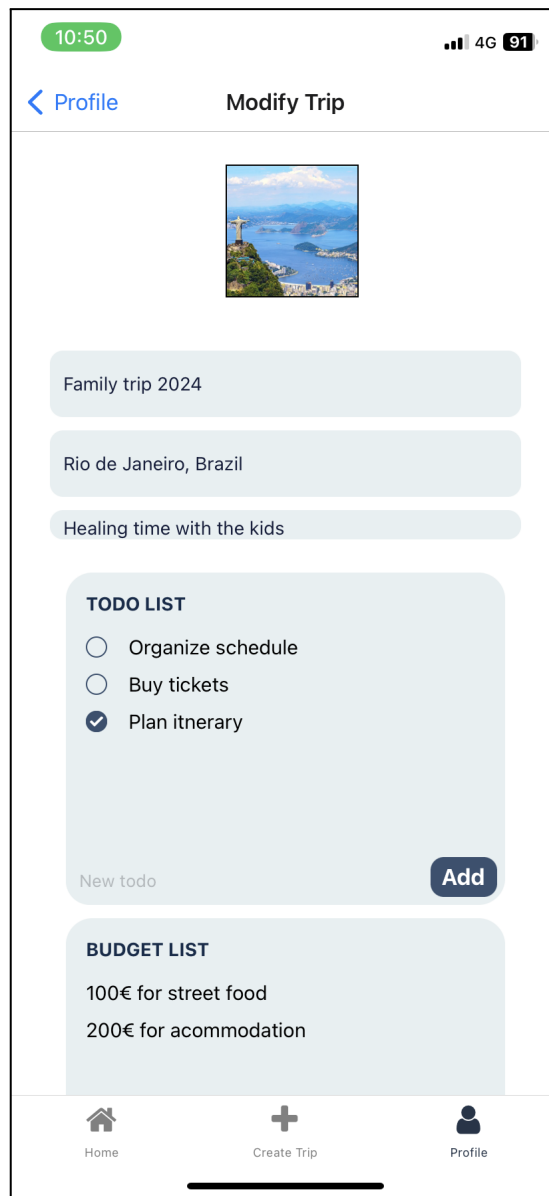
### 5.1.6 ProfileScreen

This is the final design of the ProfileScreen, at the top is placed the username of the user logged in, below that the profile picture, and below the profile picture is shown the complete name of the user and a little description. Moreover, all the trips created by the logged in user are shown at the bottom of the screen.



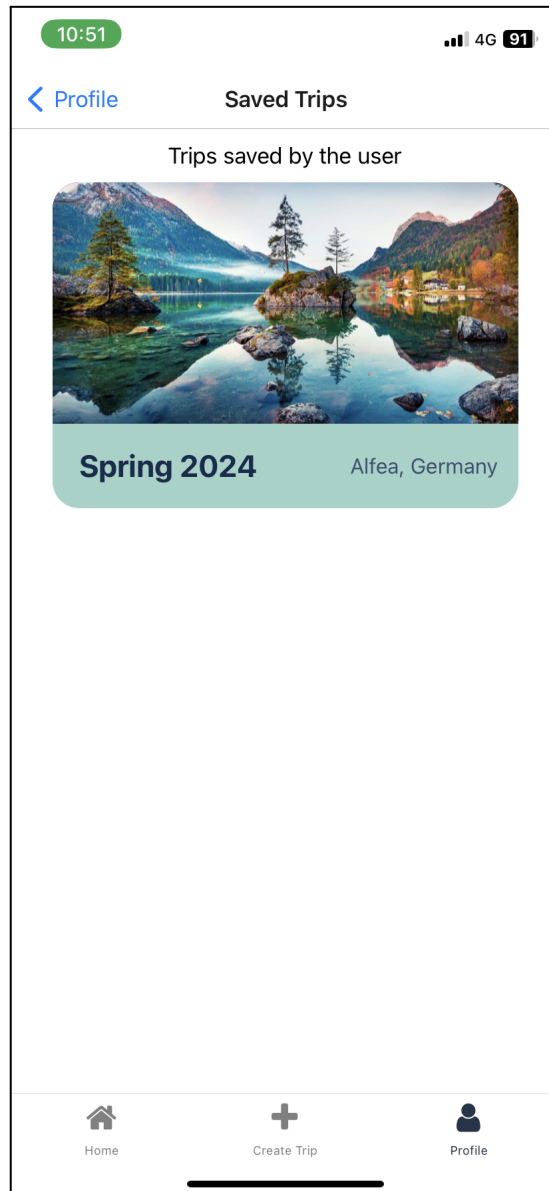
### 5.1.7 ModifyTripScreen

This is the final design of the ModifyTripScreen, at the top is shown the main image of the trip and below this, the form with the information introduced in the creation of the trip, this information could be edited. As well as the notes and budget lists. At the bottom of the screen there is a button which saves the information modified in case that some of the information of the trip has been modified.



### 5.1.8 SavedTripsScreen

This is the final design of the SavedTripsScreen, in this screen are shown all the trips saved by the logged in user in case that the user thinks they would be useful in the future to plan a trip by his/her own. At the top is the title of the screen and below that, all the trips saved by the logged in user are shown.



## 5.2 Implementation

In this section, all the details about the react components created for the project and the implementation details are explained.

### 5.2.1 Components

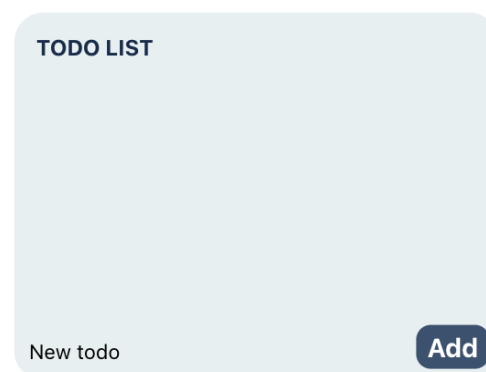
For the development of this application, some components have been designed with react native in order to reuse them instead of programming them everytime that they are needed.

#### 5.2.1.1 Notes component

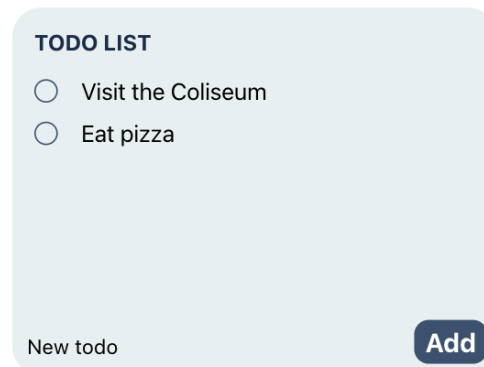
A notes section was needed for this project in order to save some information about a trip. This section will be used in every screen related with the creation, modification or details of a trip, so the following component has been created to cover this necessity.

This component is a main view, with the text at the top which says “TODO LIST” and below that there is a “Flat List” which renders every Todo created. At the bottom of the main view, there is an input with a tag New todo, where the text that the user wants to introduce is written, at the right of this input, is placed the button to add the to do to the todo list.

This screenshot is an example of how the todo list looks like when is empty:



This screenshot is an example of how the todo list looks like when it has some information inside:



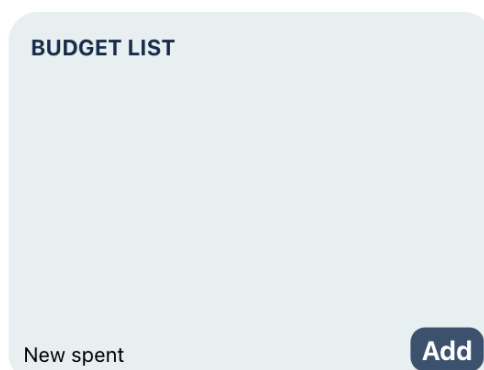
This component has a NoEdit variable, which is used in the TripDetailsScreen in order to not let an user who does not own the trip, modify it.

#### 5.2.1.2 Budget component

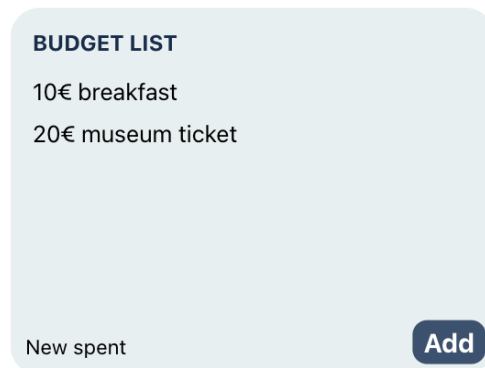
A budget section was needed for this project in order to save some expenses done during the trip. This section will be used in every screen related with the creation, modification or details of a trip, so the following component has been created to cover this necessity.

This component is a main view, with the text at the top which says "Budget List " and below that there is a "Flat List" which renders every expense created. At the bottom of the main view, there is an input with a tag New expense, where the text that the user wants to introduce is written, at the right of this input, is placed the button to add the expense to the budget list.

This screenshot is an example of how the budget list looks like when is empty:



This screenshot is an example of how the budget list looks like when it has some expenses added:



This component has a NoEdit variable, which is used in the TripDetailsScreen in order to not let an user who does not own the trip, modify it.

## 6 Declaration on oath

Hereby declare that I have written the present work on my own, that I have not used any external help other than that declared and that all helping material and sources used for the work have been properly named and referenced.

I am aware that an untruthful declaration will be considered as a deceit.

Reutlingen, 5 July 2023      Signature (Andrés Jesús Somoza Sierra)

Reutlingen, 5 July 2023      Signature (Iago Izidório Lacerda)

Reutlingen, 5 July 2023      Signature (Macit Salur)

## References

<https://react.dev/reference/react/useContext>  
<https://firebase.google.com/docs/firestore>