

VEGAS EXPERIENCE: Application for the assistance of tourists in Las Vegas

Ana Julia Lima de Oliveira
Programa AMS | Etec-Fatec Zona Leste

Bianca Farias da Silva
Programa AMS | Etec-Fatec Zona Leste

Giovanna da Silva
Programa AMS | Etec-Fatec Zona Leste

Jeferson Roberto de Lima
Programa AMS | Etec-Fatec Zona Leste

Rogério Bezerra Costa
Programa AMS | Etec-Fatec Zona Leste

VEGAS EXPERIENCE: Aplicativo para a assistência de turistas em Las Vegas

VEGAS EXPERIENCE: Solicitud de asistencia turística en Las Vegas

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Abstract:

This work presents the development of an application to assist Brazilians visiting the city of Las Vegas, providing relevant information to enhance their experience in the city, including sights, restaurants, hotels, public transport, costs, conversation, travel packages, and other information. The main objective of this study is to facilitate the experience of Brazilians in this city in a practical and economical way, helping to overcome the difficulties encountered by them. Having access to this information in one place makes it easier to plan and make decisions while traveling. To solve these problems, some requirements were raised, and the methodologies used were qualitative-quantitative, with a form. These methodologies were essential to understanding the expectations of travelers, thus ensuring the effectiveness and relevance of the app's functionalities. In this way, the proposed solution not only solves the challenges faced by Brazilians in Las Vegas but also raises the level of travel, providing an enriching and highly personalized experience.

Resumo:

Este trabalho apresenta o desenvolvimento de um aplicativo para auxiliar brasileiros que visitam a cidade de Las Vegas, fornecendo informações relevantes para aprimorar sua experiência na cidade, incluindo pontos turísticos, restaurantes, hotéis, transporte público, custos, conversação, pacotes de viagens, entre outras informações. O principal objetivo deste estudo é facilitar a vivência dos brasileiros nesta cidade de forma prática e econômica, ajudando a superar as dificuldades encontradas pelos usuários. Ter acesso a essas informações em um só lugar facilita o planejamento e a tomada de decisões durante a viagem. Para solucionar esses problemas, foram levados em conta alguns requisitos e a abordagem utilizada foi a quali-quantitativa, por meio de formulário foram obtidos os dados desta pesquisa. Estes dados foram essenciais para compreender as expectativas dos viajantes, garantindo, assim, a eficácia e a relevância das funcionalidades do aplicativo. Desta forma, a solução proposta não só resolve os desafios enfrentados pelos brasileiros em Las Vegas, mas também eleva o nível das viagens, proporcionando uma experiência enriquecedora e altamente personalizada.

Resumen:

Este trabajo presenta el desarrollo de una aplicación para ayudar a brasileños que visitan la ciudad de Las Vegas, proporcionando información relevante para mejorar su experiencia en la ciudad, incluyendo atracciones turísticas, restaurantes, hoteles, transporte público, costos, conversación, paquetes de viaje, entre otras informaciones. El objetivo principal de este estudio es facilitar a los brasileños la experiencia en esta ciudad de forma práctica y económica y ayudar a superar las dificultades encontradas por los usuarios. Tener acceso a estas informaciones en un único lugar facilita la planificación y la toma de decisiones durante el viaje. Para resolver estos problemas, se tuvieron en cuenta una serie de requisitos y el enfoque utilizado fue el cualitativo-cuantitativo, utilizando un formulario para obtener los datos de esta investigación. Estos datos fueron esenciales para comprender las expectativas de los viajeros y garantizar así la eficacia y pertinencia de las funcionalidades de la aplicación. De este modo, la solución propuesta no sólo resuelve los retos a los que se enfrentan los brasileños en Las Vegas, sino que también eleva el nivel del viaje, proporcionando una experiencia enriquecedora y altamente personalizada.

1. INTRODUCTION

This work addresses an application to assist Brazilian tourists in their journey to the city of Las Vegas, considered the “City of Sin It” which is one of the top tourist destinations in the world. The proposal of the application arose from the analysis of the problems faced, through forms, by these people when planning to travel to the city, highlighting the difficulty of communication and adaptation. Understanding such difficulties encountered by the target audience, the creation of an application that assists presents itself as a solution to overcome such challenges. To solve the disadvantages of the city we get useful information for the application. The problems encountered, and requirements were raised for the creation of the application and how it could be used in everyday life effectively by the traveler. A survey was also carried out on the destination, to know the advantages and disadvantages of the city and get useful information for the application. Because, with the internet, tourists have access to information about the destinations they want to visit, including tourist attractions and other details about the destinations they want to visit, including tourist attractions and other details about the city or country (MARUJO, Maria, 2008. p.27).

The methodologies used were qualitative-quantitative, to understand the expectations and/or experiences of travelers, their needs, and possible difficulties, through forms and interviews with Brazilians who have already visited and/or intend to visit the city. The main objective of this work is to provide tourists with a comprehensive and practical solution by gathering all relevant information about tourist spots, hotels, travel packages, and shops, among other information, in a single application. With this tool, travelers will be able to explore the rich city's tourists offer efficiently, ensuring that your stay is enriching and adapted to your individual preferences. With the advancement of technology, the search for information in the tourism sector has become indispensable for travel planning, including details about destinations, products, and services (BOBSIN, Debora; MARCHESAN, Paula; MARCO, Daiana; TRAVERSO, Luciana Davi, 2020, p.18).

Given this, it is concluded that this tool will contribute significantly to improving the travel experience of tourists in Las Vegas so that they enjoy the wonders the city has to offer.

2. THEORETICAL BACKGROUND

This topic is dedicated to the theoretical basis of the work, addressing the main topics researched to solve the difficulties encountered.

2.1. USE CASE DIAGRAM

The use case diagram is a representation designed to illustrate how a system interacts with external actors through the functionalities or actions that the system provides. Below is the representation of the use case for the application, displaying the actions that can be performed by the actors (tourist, administrator, Awesome API, and Expo Speech API).

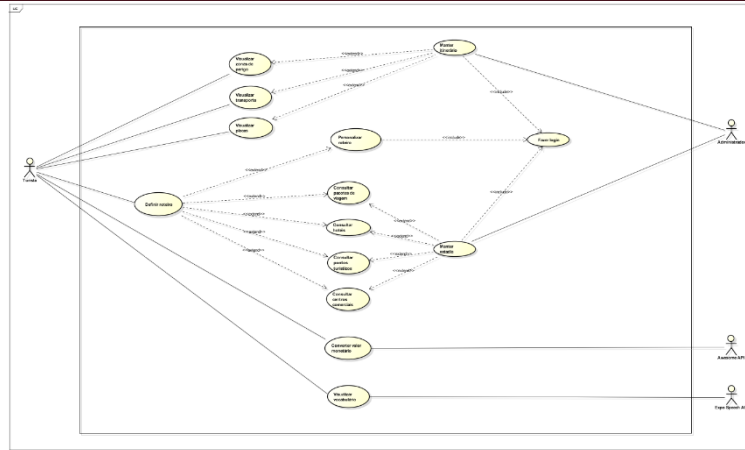


Figure 1 - Use Case Diagram: VegasExperience
Source: From the own author, 2023.

2.2. TOURISM AND TECHNOLOGY

The following will present the way in present the integration of technology in tourism was developed. Taking into account that the internet is the main target of help along with the impact of tourism-oriented devices and apps.

2.2.1. THE IMPACT OF DEVICES AND APP ON TOURISM

Tourism apps have been a great help in the ease of access to information, through these devices, travelers now have immediate access to relevant information about tourist destinations, including details about accommodations, sights, restaurants, transportation, and activities.

A tecnologia é uma grande aliada quando o turista coloca o pé no destino. Na palma da mão, esses aplicativos ajudam o viajante a procurar o melhor restaurante, ter acesso à agenda de eventos da cidade, além de ajudar na comunicação em outra língua. (GRASSI, Ana, 2019).

A relevant feature mentioned is the ability to assist in communication in other languages. By making translations and tools available for multilingual communication, the app helps to overcome language barriers, thus facilitating interaction with residents, health care providers services, and even other tourists.

These technological tools not only simplify practical and simple tasks but also enrich the cultural experience, promoting immersion and interaction in a new environment.

2.3. TOURISM IN LAS VEGAS

In this section, it will present how tourism is applied in the city of Las Vegas.

2.3.1. TOURIST ATTRACTIONS IN LAS VEGAS

The city of Las Vegas is known for its incredible array of themed hotels, nightclubs, shows, casinos, and concerts featuring renowned musical artists (ARAÚJO, 2020).

Known as the "Sin City" or entertainment, the Las Vegas Strip boasts great world shows, shows, luxury restaurants, and vibrant. In addition, the city is also home to a variety of museums, art galleries, and other activities.

2.3.2. TECHNOLOGY APPLIED TO TOURISM IN LAS VEGAS

The tourism sector has made use of technologies to search for information about the planning of your trip, making it an essential activity for the search for destinations, products, and services (BRAMBILLA, et al, 2020, p. 18).

The city of Las Vegas has benefited from the use of technology to enhance the experience for tourists and ensure a memorable stay in the city. One example is the development of a specialized app that offers detailed information about attractions, restaurant options, and the ability to make reservations directly from your smartphone. With the aid of this technology, visitors can plan their activities and explore the locality with greater comfort and convenience.

3. MATERIALS AND METHODS

For the development of the application, the following technologies were used:

3.1. UNIFIED MODELING LANGUAGE

The Unified Modeling Language (UML) is a notation language used to model and document designs.

According to Guedes (2011), a system must have detailed, objective, and up-to-date documentation so that the information can be maintained without producing new errors by correcting old ones. The main objective is to facilitate communication between those involved, enabling an effective and standardized understanding of project requirements and intents. UML plays a key role in providing a unified view of a system through structural and behavioral diagrams, allowing you to visually represent the structure and behavior of the system in system understandable.

According to Guedes (2011), UML diagrams can highlight the system at different levels such as structural organization, the behavior of a specific process, the definition of an algorithm, and the physical needs of the system.

3.2. ASTAH COMMUNITY

This visual modeling tool is used to create diagrams that aid in software development and systems engineering. There are various types of diagrams such as class diagrams, sequence diagrams, use case diagrams, activity diagrams, and more. They are useful for visually representing the structure and behavior of a system, thus documenting its functionalities and facilitating its development.

According to Brondani, Arend, Souza, and Pires (2013, p. 1, XAVIER; SILVA, 2019, p. 17), The Astah Community tool is known for its practicality and simplicity in creating diagrams.

3.3. VISUAL STUDIO CODE

Visual Studio Code is a free editor that is available on all operating systems and contains native support for several languages. It has several extensions available available to improve the experience of the developer who has no intention of using languages with native support (MENARIM; XAVIER, 2019). Currently, the respective publisher is the most popular choice among software developers, as it offers a flexible platform for writing and editing code in various programming languages such as JavaScript, Python, C++, Java, HTML, CSS, and React Native.

3.4. REACT NATIVE

This framework is used for the development of cross-platform applications (Microsoft Windows, Linux, MacOS) allowing developers to write code and deploy it to Android and iOS devices. According to

Bezerra and Viana (2021), React offers building blocks in its applications and stands out for allowing the use of the web technology stack in the creation of applications for native JavaScript speakers. By using JS and its libraries (which are responsible for the functionality of the application), React Native offers a unique approach not using traditional HTML or CSS tags. Its main advantages are the ability to convert the developed code to the native language of the operating system and enable integration with native APIs.

```
JS Appjs > ...
1 import React from 'react';
2 import { View, StyleSheet } from 'react-native';
3 import Formulario from './formulario';
4
5 const App = () => {
6   return (
7     <View style={styles.container}>
8       <Formulario />
9     </View>
10  );
11 };
12
13 const styles = StyleSheet.create({
14   container: {
15     flex: 1,
16     justifyContent: 'center',
17     paddingHorizontal: 16,
18   },
19 });
20
21 export default App;
```

Figure 2 - Example of a login form in React Native
Source: From the own author, 2023.

```
JS formulario.js > ...
1 import React, { useState } from 'react';
2 import { View, TextInput, Button } from 'react-native';
3
4 const Formulario = () => {
5   const [login, setLogin] = useState('');
6   const [senha, setSenha] = useState('');
7
8   const handleCadastro = () => {
9     console.log('Login:', login);
10    console.log('Senha:', senha);
11    // Lógica para lidar com o cadastro do usuário
12  };
13
14  return (
15    <View>
16      <TextInput
17        placeholder="Digite seu login"
18        value={login}
19        onChangeText={setLogin}
20      />
21      <TextInput
22        placeholder="Digite sua senha"
23        secureTextEntry
24        value={senha}
25        onChangeText={setSenha}
26      />
27      <Button title="Cadastran" onPress={handleCadastro} />
28    </View>
29  );
30 };
31
32 export default Formulario;
```

Figure 3 - Continuation of the login form in React Native
Source: From the own author, 2023.

In this example we have a Login Form using the React Native language, each tag composes an element for the formation of the form, namely:

- `<View>`: Used to create a layout structure and group other components together. In the example, we're using `<View>` it to wrap the input fields of text and the button;
- `<TextInput>`: Creates text input fields where users can type information;
- Placeholder: Defines sample text that is displayed in the input field when it is empty. In the example, we define "Digite seu login" and "Digite sua senha" as placeholders for the respective fields;
- Value: Used to set the value of the input field. In the example, we're setting the values of the login and password fields with the states "login" and "senha", respectively;
- `OnChangeText`: It is an event handler called whenever the text within the input field changes;
- `<Button>`: Creates a button in the app;
- Title: Sets the text that will be displayed on the button.

When run by the Android Studio emulator, we will get the following result:

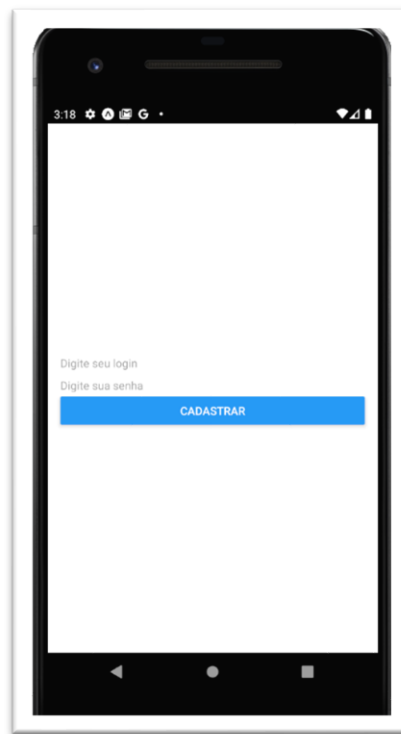


Figure 4 - Code Result
Source: From the own author, 2023.

3.5. STYLESHEET

It is an API used to style components. Allowing you to define styles using JavaScript objects, including properties such as color, size, and margin. StyleSheet also supports cascading styles and improves application performance. In short, it's a tool for creating consistent styles. Apply them to the components in React Native.

- `OnPress`: It's an event handler called when the button is pressed. In the code used as an example, we're calling the handle register function when the "Cadastrar" button is pressed.
- `<View style={styles.container}>`: This property was used to apply styles to the `<View>` component. In the example, the style property is defined with the `styles.container` style object. Styles are defined using the `StyleSheet.create()` function.

- `styles.container`: The `styles.container` object is defined using the `StyleSheet.create()` function. It contains the style definitions for the `<View>` component.
- `flex`: It is used to define how a component expands to fill the available space.
- `justifyContent`: It is used to align content vertically within the `<View>` component.
- `paddingHorizontal`: Defines the horizontal internal spacing of the `<View>` component. In this case, we are setting it to 16 to provide spacing around the content.
- The statement `const App = () => {}` defines a constant named `App` that contains a functional component. This function is a functional component in React Native.

Within the `App` function, we are returning a `<View>` element that wraps the `<Formulario>` component. This defines the basic structure of the application, where the tag will be rendered inside a `<View>`. The `<Formulario>` component contains text input fields and the "Cadastrar" button.

The `App` function also has a style defined through the `styles.container` property. This style, defined using the `StyleSheet.create()` function, controls the appearance of the `<View>` component, allowing it to occupy all available vertical space and center the content vertically.

In summary, `const App = () => {}` is the declaration of a functional component in React Native that defines the basic structure and style of the application, rendering the `<Formulario>` component inside a `<View>`.

```
C:\Users> dti > JS App.js > [0] default
1  import React from 'react';
2  import {View, StyleSheet, Text } from 'react-native';
3  import Formulario from './formulario';
4
5  const App = () => {
6    return(
7      <View style={styles.container}>
8        <View style={styles.navbar}>
9          <Text style={styles.navbarTitle}>Login</Text>
10       </View>
11       <Formulario />
12     </View>
13   );
14 };
15
16 const styles = StyleSheet.create({
17   container: {
18     flex: 1,
19     backgroundColor: '#F5F5F5',
20   },
21   navbar: {
22     height: 64,
23     justifyContent: 'center',
24     alignItems: 'center',
25     backgroundColor: '#FF5722',
26   },
27   navbarTitle: {
28     fontSize: 20,
29     fontWeight: 'bold',
30     color: '#FFFFFF',
31   },
32 });
33 export default App;
```

Figure 5 - Code Styling using StyleSheet
Source: From the own author, 2023.

```
1 import { View, Button, TextInput, StyleSheet } from 'react-native'
2 import React, {useState} from 'react'
3
4 const Formulario = () => {
5   const [login, setlogin] = useState('');
6   const [senha, setSenha] = useState('');
7
8   const handleCadastro = () => {
9     console.log('Login', login);
10    console.log('Senha', senha);
11  };
12
13
14  return (
15    <View style={styles.FormularioContainer}>
16      <TextInput style={styles.textInput}
17        placeholder="Digite seu login"
18        value={login}
19        onChangeText={setlogin}
20      />
21      <TextInput style={styles.textInput}
22        placeholder="Digite sua senha"
23        secureTextEntry
24        value={senha}
25        onChangeText={setSenha}
26      />
27      <Button title="Cadastrar"
28        onPress={handleCadastro}
29        color="#FF5722"
30      />
31    </View>
32  );
33 };
34
35
36 const styles = StyleSheet.create({
37   formularioContainer: {
38     marginTop: 16,
39     paddingHorizontal: 16,
40
41   },
42   textInput: {
43     height: 40,
44     borderColor: "#CCCCCC",
45     borderWidth: 1,
46     marginBottom: 12,
47     paddingHorizontal: 8,
48     fontSize: 16,
49     marginTop: 10,
50   },
51 });
52
53 export default Formulario
```

Figure 6 - Styling Continuation.
Source: From the own author, 2023.

- `const styles = StyleSheet.create({})`: Creates a style object named `styles` using the `StyleSheet.create()` function. This function is used to create optimized style objects in React Native.
- `formularioContainer: {}`: Defines a style object named `formularioContainer` that contains the styles for the form container.
- `marginTop: 16`: Adds a 16-unit spacing above the form.
- `height: 40`: Sets the height of text input fields to 40 units.
- `border-color: #CCCCCC`: Sets the border color of text input fields to `#CCCCCC`.
- `borderWidth: 1`: Sets the border thickness of text input fields to 1 unit.
- `margin-bottom: 12`: Adds a 12-unit spacing below the text input fields.
- `paddingHorizontal: 8`: Adds an 8-unit internal horizontal spacing to the text input fields.
- `font-size: 16`: Sets the font size of text input fields to 16 units.
- `font-family: Arial`: Sets the font family of text input fields to Arial.

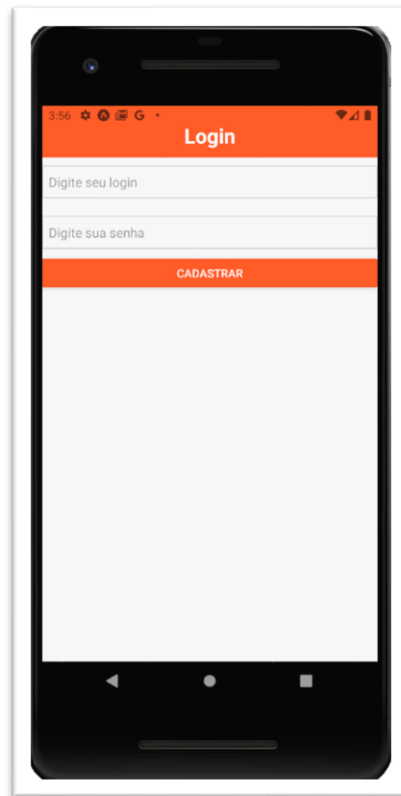


Figure 7 - Result of the form using React Native with StyleSheet
Source: From the own author, 2023.

3.6. EXPO

The Expo platform is a tool used in mobile development with React Native that allows easy access to the native APIs of the devices without having to install any dependency or change native code (FUENTES, 2023). Expo is a framework that simplifies the development of applications, thus helping in the productivity of a project. It is possible to develop applications for iOS, Android, and the web, from the same base of JavaScript/TypeScript code, as it supports programming using the Android emulator, such as Android Studio, or even the smartphone.

3.7. ANDROID STUDIO

Android Studio is an integrated development environment, that is, it is a software that has several features which are usually used separately in a single place. It provides you with the tools you need for building applications for all types of Android devices (GONÇALVES, 2016, p.28). It has features such as a code editor, an Android device emulator, and a debugging tool to fix errors. It also allows you to organize the project and improve performance. The Android emulator was used, it allows you to test and preview the running application without the need to own a physical device, offering a variety of device options, with different sizes and configurations.

3.8. FIREBASE CLOUD FIRESTORE

When it comes to storing and accessing data in the cloud for Apple, Android, and web apps, Cloud Firestore is a great option because it offers a straightforward way to use data through its native tools. According to Google Firebase (2022), Firebase offers support for mobile and web devices even without an internet connection, making it possible to create responsive applications that work regardless of network latency or internet connectivity.

Firebase Cloud Firestore is a NoSQL database offered by Google Firebase. It is a document bank, where data is stored in documents, which are organized into collections.

According to Google Firebase (2022), Firebase stores different types of data, such as strings, simple numbers, and complex objects, facilitating the database structure according to the application model. One of its most important features is that it is capable of handling a large amount of data.

3.9. FIGMA

This cloud-based interface design and prototyping tool allows professionals to work directly in the browser.

Its main proposal is to facilitate integration and collaboration between the teams that participate in the project (MENDES, et al, 2019, p. 08). With it, professionals have the opportunity to build complete projects, such as websites and applications. No matter the level of complexity, whether simple or elaborate, it allows you to explore interface design and create complete flows to the fullest.

3.10. WIREFRAMES

The low-fidelity wireframe is a simple representation of the application layout, focused on the structure and arrangement of elements, without visual details, while the high-fidelity wireframe is a detailed visual representation of the application design.

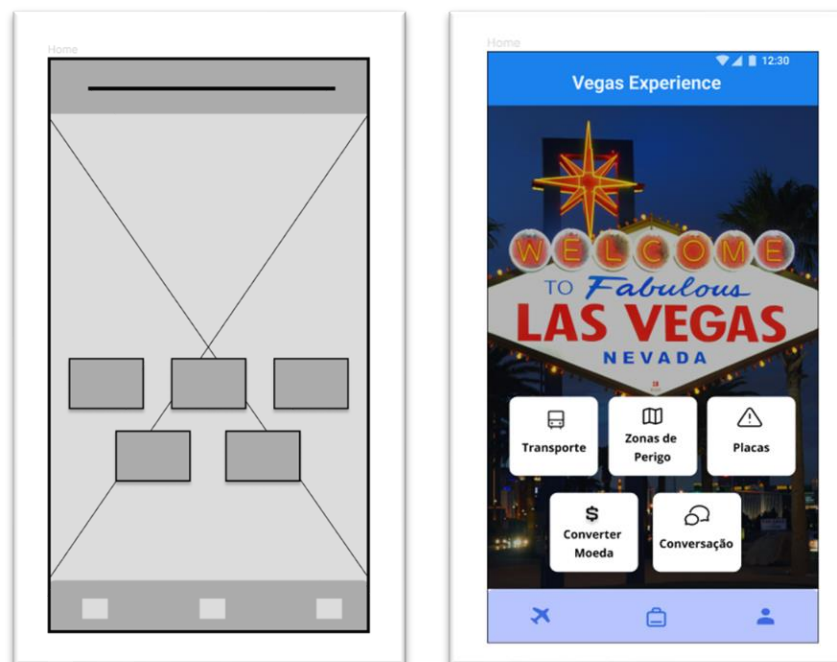


Figure 8 - Low and High Fidelity Wireframe: Home
Source: From the own author, 2023.

This is the Vegas Experience home page, where tourists can access the following screens: Transport, Danger Zones, Signs, Conversation and Convert Currency. On the tab bar, the middle button takes you to the "Select Itinerary" screen, where you can access the Hotels, Tourist Spots, Shopping Centers, and Travel Packages screens. If you are logged in, you can favorite the items on these screens. The button on the right takes you to the "Profile" screen, where you can log in and view all saved items.

3.11. GRAPH

A graph is a structure that stores and represents data in a way that emphasizes relationships between objects, using nodes and edges to describe them.

According to Paniz (2016), in a graph-oriented database, there are no tables, documents, or any other structure comparable to a conventional table. In this type of database, all elements are represented as nodes or relationships.

Neo4j, for example, is a graph-oriented database management system. In it, there are only two types of data, as mentioned previously. Each node can be compared to a document in MongoDB, allowing the inclusion of varied attributes of different types. Relationships, on the other hand, require a reference to connect the nodes, something that is common or that establishes a relationship between them.

Below is the graph representation of the application, built based on data stored in our database. The same explanation of nodes, relationships, and roles as mentioned previously applies to this representation.

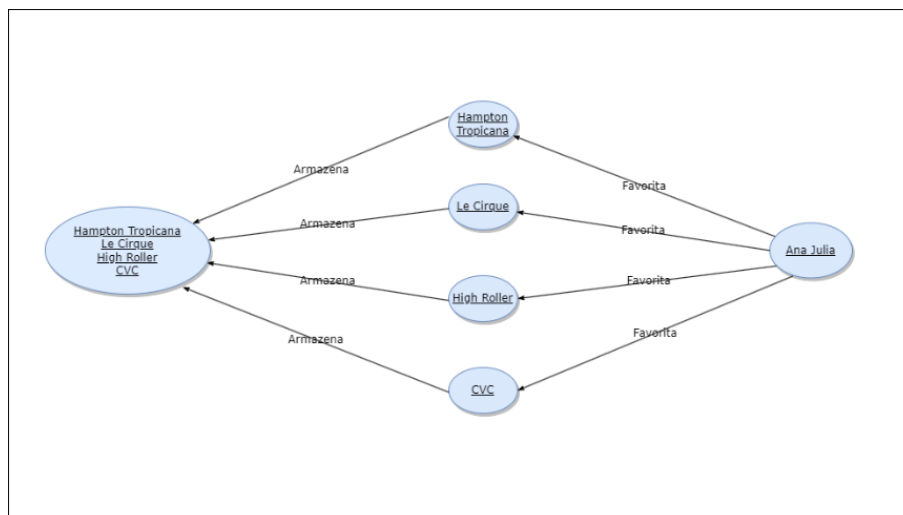


Figure 9 - Application Graph
Source: From the own author, 2023.

4. RESULTS AND DISCUSSION

Given the information presented about the difficulties faced by Brazilian tourists abroad and the constant advancement of technology in the tourism sector, the proposed application offers a quick and efficient solution to these needs. Our main attractions lie in the ability to convert the value in reais that a tourist has to dollars. In addition, we offer a rich learning experience through dialogues and phrases used in everyday American life, allowing tourists to enhance their vocabulary. This is facilitated by the available audio. This statement was supported through presentations to mentors, tests, surveys, and data collection through forms, proving its effectiveness.

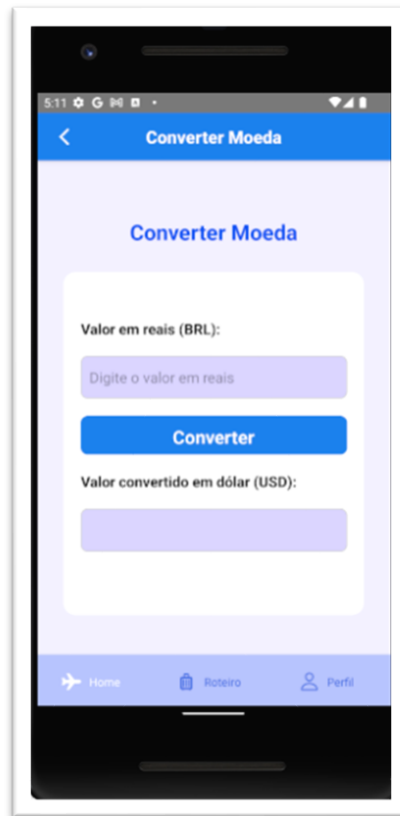


Figure 10 – Result of application differential screens
Source: From the own author, 2023.

5. CONCLUSION

Given the problem presented regarding the difficulties faced by Brazilian tourists abroad, qualitative and quantitative research was carried out to understand their needs in depth.

By gathering updated data on tourist attractions, accommodation and travel packages, it was analyzed that the problems faced by tourists were caused by linguistic and economic barriers. Technology has been an ally in reducing these barriers or even canceling them, being able to gather information that helps tourists during their stay.

Given these difficulties, an application was developed with the aim of minimizing your problems and making to minimize your problems and make this information accessible during the trip. The developed application presented several functionalities that aim to overcome the identified difficulties. With guides to restaurants, hotels, tourist attractions, events, and shopping centers, it provides Brazilian tourists with easy access to relevant information about Las Vegas. Additionally, resources have been created to help overcome the language barrier, ensuring effective communication during your stay.

It is concluded that the Las Vegas tour guide app plays an important role in improving the experience of Brazilian tourists, aiming to offer visitors a memorable and enriching journey in the city, providing accurate information and useful resources.

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