



Online Parking Reservation for University of Jeddah

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1. Task 1

Task 1 is all about the ideas, problems, and how to collect data from potential target users.

1.1 Introduction

1.1.1 General Idea

The general idea of this project is to offer a more developed and organized parking lot space system and more technology that eases the process of parking your car and choosing your parking slot online.

1.1.2 Targeted Users

This project targets students and staff members of the University of Jeddah.

1.1.3 Finding Users

Social media helps to spread the project all around so it's a helpful way to get the users attention by advertising about our project in University of Jeddah Clubs.

1.1.4 Main Problem

The main problem is randomly parking and sitting in the same parking slot for uncountably hours without needing them, which disturbs any other students who needs that park.

1.1.5 Collecting data

There are several ways to do that, one of them is to interview the students and by sharing google forms in University of Jeddah Clubs [here](#).

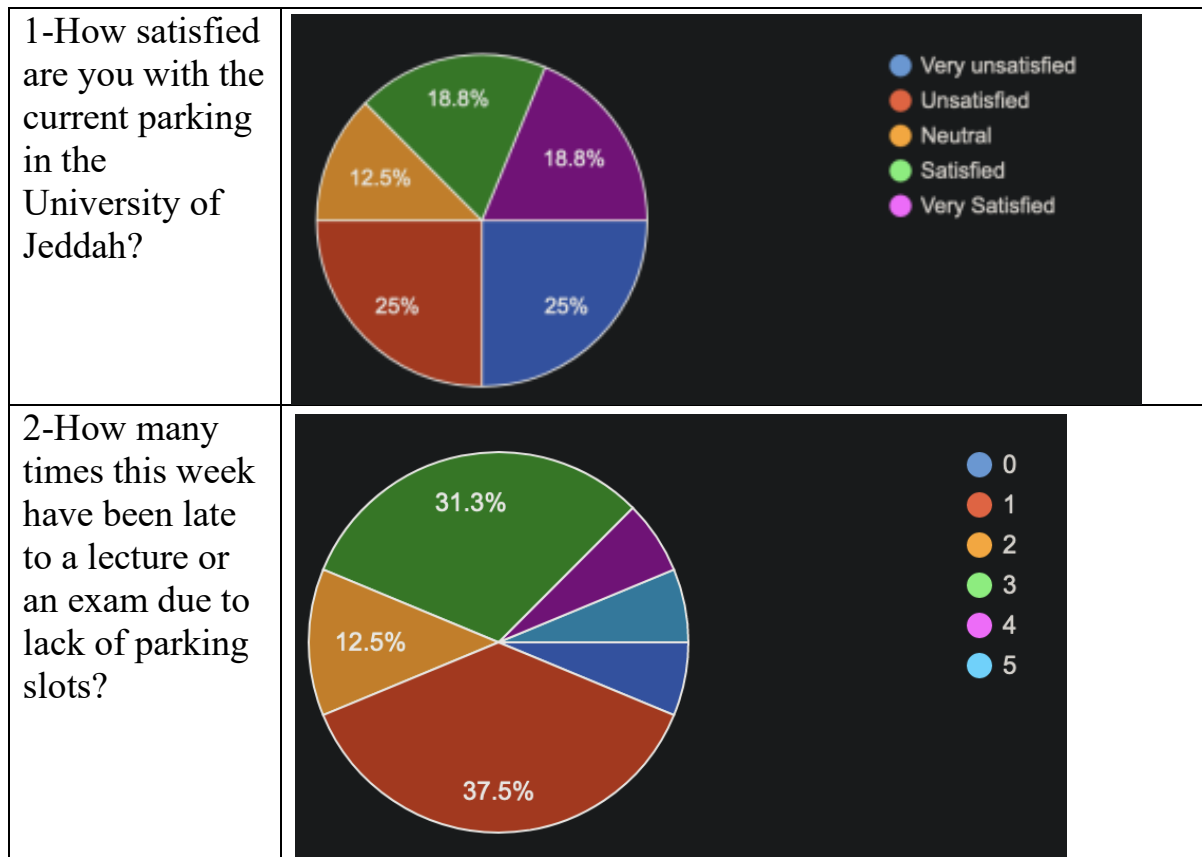
QUESTION	TYPE
How satisfied are you with the current parking in the University of Jeddah?	Multiple Choice
How many times this week have been late to a lecture or an exam due to lack of parking slots?	Multiple Choice
How many times did you come to University of Jeddah and did not find a parking nearby shaded parking?	Multiple Choice
How long does it take you to find a shaded parking place?	Multiple Choice
Do you think that providing additional parking slots will help students?	Yes or No
Would it be better if you knew where your parking spot was from home?	Yes or No
Do you think shaded parking fees should be charged to university students?	Yes or No
What is your opinion on having an app that reserves parking for you?	Short answer
How can we improve the parking in University of Jeddah?	Short answer

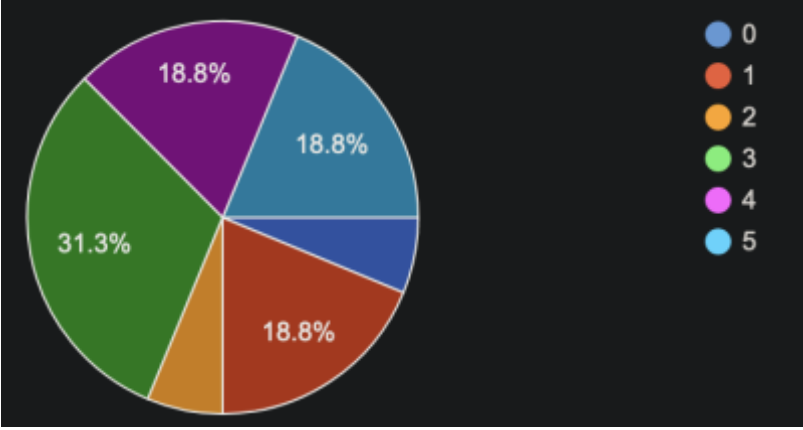
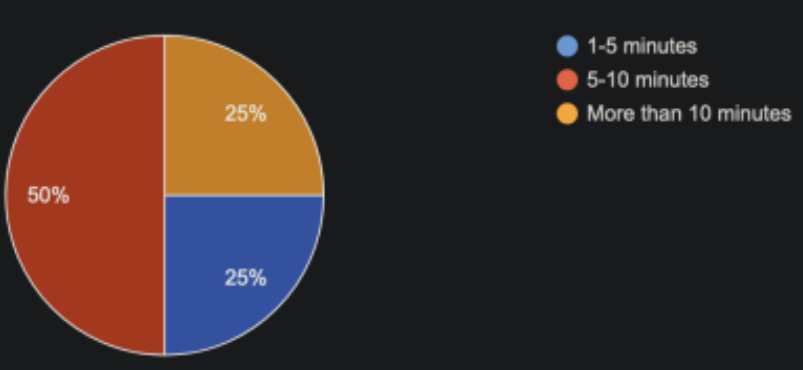
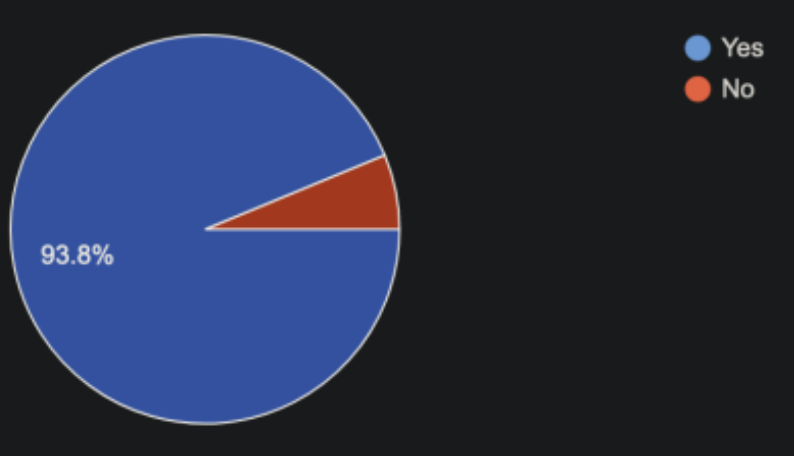
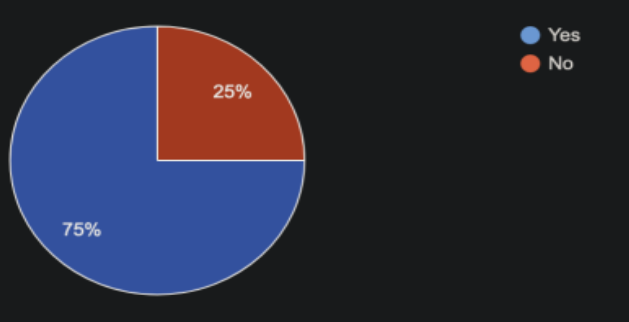
2. Task 2

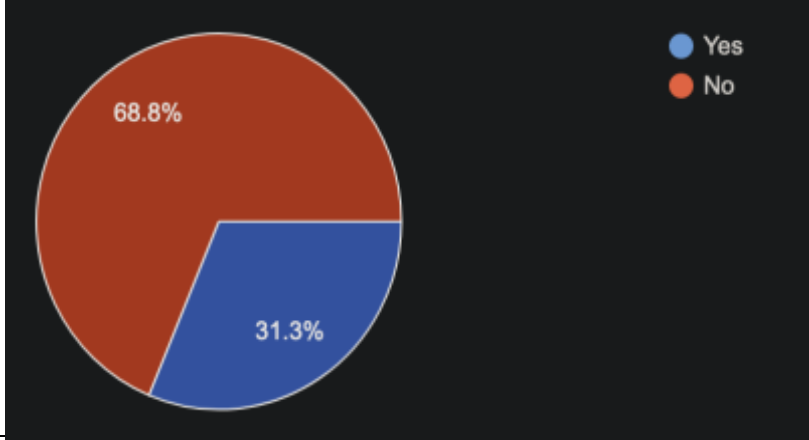
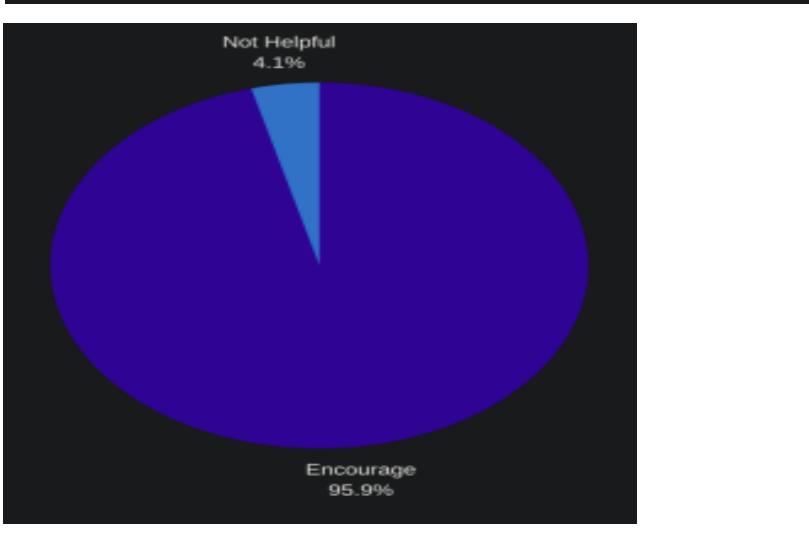
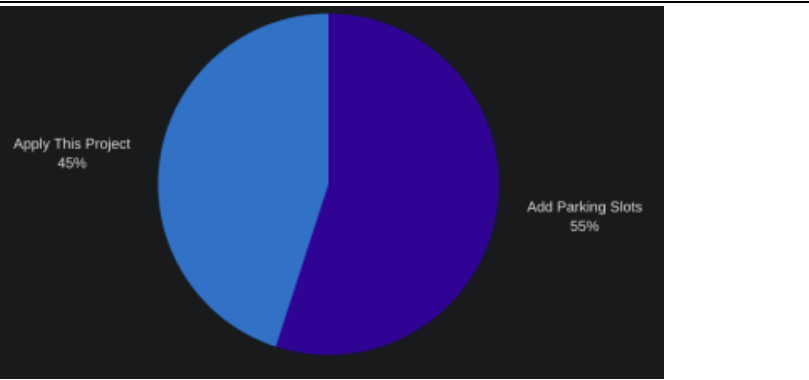
In Task 2, we will be extracting data from the surveys and interviews, and then derive the needs of the targeted user. After that we will be identifying insights, where we will finally define tasks for our application.

2.1 Data Visualization

2.1.1 Charts



<p>3-How many times have you come to the University of Jeddah and did not find a parking nearby shaded parking?</p>	 <table border="1"> <thead> <tr> <th>Number of Times</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>18.8%</td> </tr> <tr> <td>1</td> <td>18.8%</td> </tr> <tr> <td>2</td> <td>18.8%</td> </tr> <tr> <td>3</td> <td>31.3%</td> </tr> <tr> <td>4</td> <td>18.8%</td> </tr> <tr> <td>5</td> <td>18.8%</td> </tr> </tbody> </table>	Number of Times	Percentage	0	18.8%	1	18.8%	2	18.8%	3	31.3%	4	18.8%	5	18.8%
Number of Times	Percentage														
0	18.8%														
1	18.8%														
2	18.8%														
3	31.3%														
4	18.8%														
5	18.8%														
<p>4-How long does it take you to find a shaded parking place?</p>	 <table border="1"> <thead> <tr> <th>Time Duration</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>1-5 minutes</td> <td>25%</td> </tr> <tr> <td>5-10 minutes</td> <td>50%</td> </tr> <tr> <td>More than 10 minutes</td> <td>25%</td> </tr> </tbody> </table>	Time Duration	Percentage	1-5 minutes	25%	5-10 minutes	50%	More than 10 minutes	25%						
Time Duration	Percentage														
1-5 minutes	25%														
5-10 minutes	50%														
More than 10 minutes	25%														
<p>5-Do you think that providing additional parking slots will help students?</p>	 <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>93.8%</td> </tr> <tr> <td>No</td> <td>6.2%</td> </tr> </tbody> </table>	Response	Percentage	Yes	93.8%	No	6.2%								
Response	Percentage														
Yes	93.8%														
No	6.2%														
<p>6-Would it be better if you knew where your parking spot was from home?</p>	 <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>75%</td> </tr> <tr> <td>No</td> <td>25%</td> </tr> </tbody> </table>	Response	Percentage	Yes	75%	No	25%								
Response	Percentage														
Yes	75%														
No	25%														

<p>7-Do you think shaded parking fees should be charged to university students?</p>	 <p>A pie chart with a dark background. The blue slice represents 'Yes' at 31.3%, and the orange slice represents 'No' at 68.8%. A legend in the top right corner shows a blue dot for 'Yes' and an orange dot for 'No'.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Yes</td><td>31.3%</td></tr><tr><td>No</td><td>68.8%</td></tr></tbody></table>	Response	Percentage	Yes	31.3%	No	68.8%
Response	Percentage						
Yes	31.3%						
No	68.8%						
<p>8-What is your opinion on having an app the reserves parking for you?</p>	 <p>A pie chart with a dark background. The purple slice represents 'Encourage' at 95.9%, and the blue slice represents 'Not Helpful' at 4.1%.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Encourage</td><td>95.9%</td></tr><tr><td>Not Helpful</td><td>4.1%</td></tr></tbody></table>	Response	Percentage	Encourage	95.9%	Not Helpful	4.1%
Response	Percentage						
Encourage	95.9%						
Not Helpful	4.1%						
<p>9-How can we improve the parking at the University of Jeddah?</p>	 <p>A pie chart with a dark background. The purple slice represents 'Add Parking Slots' at 55%, and the blue slice represents 'Apply This Project' at 45%.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Add Parking Slots</td><td>55%</td></tr><tr><td>Apply This Project</td><td>45%</td></tr></tbody></table>	Response	Percentage	Add Parking Slots	55%	Apply This Project	45%
Response	Percentage						
Add Parking Slots	55%						
Apply This Project	45%						

2.2 Project Pre-requirements

2.2.1 Needs and Insights

NEEDS	INSIGHTS
1- To park their car faster	<ul style="list-style-type: none"> - A red/green light above each shaded parking spot could be useful. - An app that provides clear direction using a map to the reserved parking spot.
2- To have an available parking slot that has been already reserved	<ul style="list-style-type: none"> - University could provide each student a shaded parking spot with their student ID for a fee. - An app that provides students with available parking so they can reserve it. - Organizing the parking with numbers and alphabets where each group of students have a letter for their own.
3- To not waste time searching for one	<ul style="list-style-type: none"> - Rearrange student schedules so at no giving time, all the shaded parking spots are taken. - App that shows students all the available parking spots so they can park wherever they want and not waste time looking for a parking.
4- To provide an additional parking slot that is available any time	<ul style="list-style-type: none"> - Already there are adequate parking spots, but they are not shaded, so adding a shade for them would help reduce the parking problem. - Using a nearby empty space as parking spots and provide transportation to the university's buildings.
5- To park the car near university's buildings	<ul style="list-style-type: none"> - Most parking slots near the building are already reserved for the university staff. Adding additional parking for students with high GPA could be a solution. - Parking nearby the university and then going as a group of students in the same class.
6- To choose your parking slot online from any smart device	<ul style="list-style-type: none"> - Developing an app for smart phones could help manage this problem and it is not costly. - Using university's apps such as "my future" and adding new features for solving the parking problems.
7- To have well maintained and fixed parking slots	<ul style="list-style-type: none"> - Small fee for parking management app could help on maintenance.
8- To have labeled and organized parking slot for each line	<ul style="list-style-type: none"> - Using new technologies such as barcodes that can be scanned when a student parks to inform the app users that this spot is taken. - Using letters, alphabets, or colors as organizing signs.

2.2.2 Tasks Solutions

Below are the solutions we will be implementing.

- Our first task is to divide the University of Jeddah's parking slots into segments, and each segment will be organized using letters, numbers, and colors as organizing signs.
- Then, we will be working on an extension that allows the user to see, reserve all available parking spots. It will also allow user to Cancel an existing reservation.
- After that, we will implement our solution as an extension to "my future" app
- Next, on each parking slots there will be a red/green light above each shaded parking spot that shows whether parking is available or not.
- Finally, A device that scans barcodes on each parking segment that will scan the reservation barcode, turn the light to red, and informs the app users that the spot is taken.

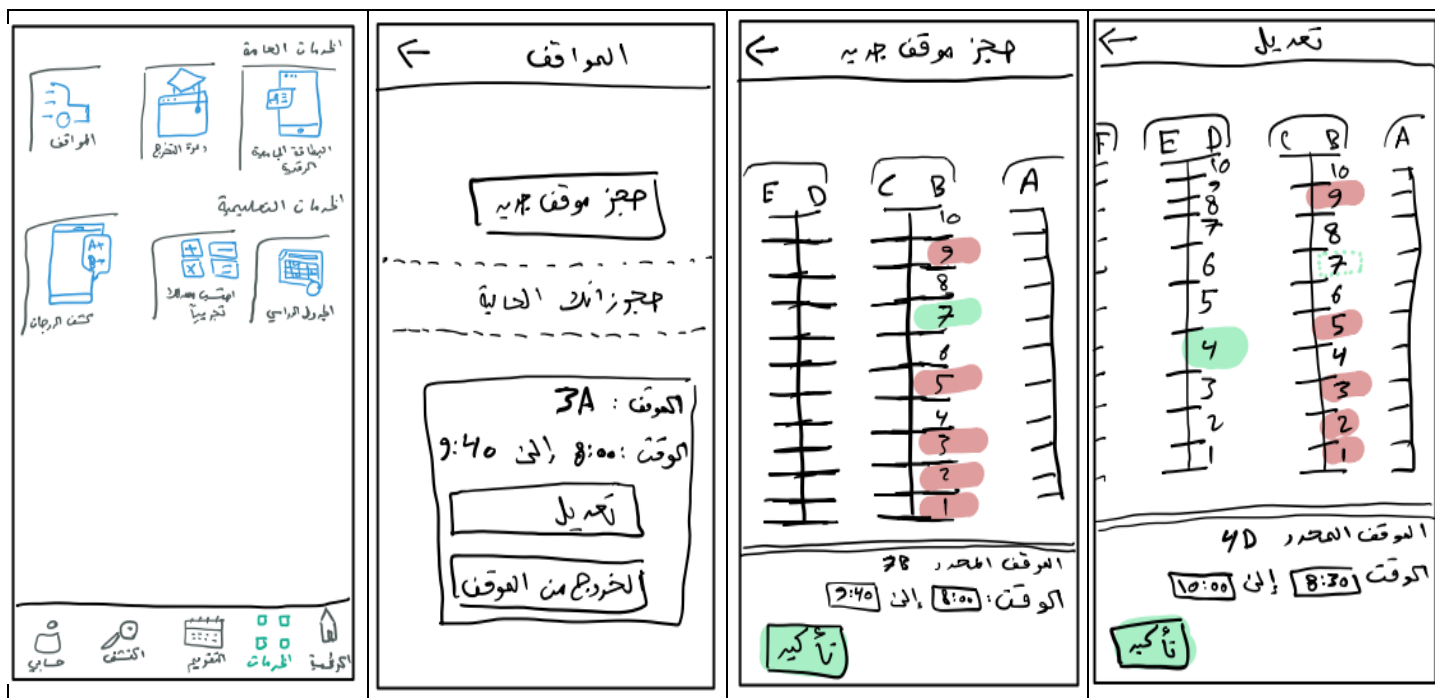
3. Task 3

In Task 3 we will be focusing on low-fidelity prototypes. Our prototype will focus on distinct tasks with a caption of each screen or components. In addition to a justification on how our design will meet the user requirements.

3.1 Prototyping

3.1.1 Low-Fidelity Prototype

1- The first page shows the icon of our extension within the "My Future" app where we show and offer all our features after clicking the icon.	2- The second page (After clicking the icon) shows the ability to appoint, edit, and get all your parking slots, also in every parking slot there is more information of the parking slot like the slot name, time, and to exit the parking slot.	3- The third page (After clicking "reserve a new parking slot") shows all available and unavailable parking slots within the university range, where green refers to available and red to unavailable. Also, the ability to choose a time and confirm the appointment.	4- The fourth page (After clicking "Edit parking slot") shows a page that is like page 3, where it offers all available and unavailable parking slots, so you can click one and edit the parking slot to refer to the new one
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3.1.2 Design Justification


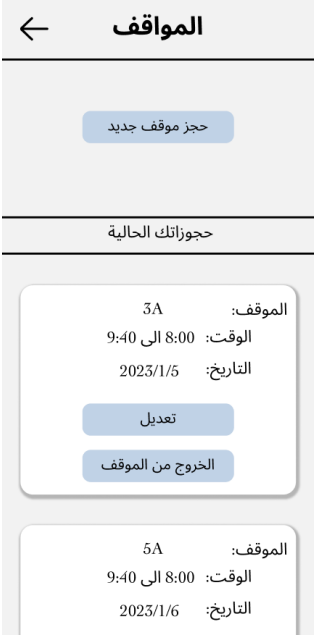
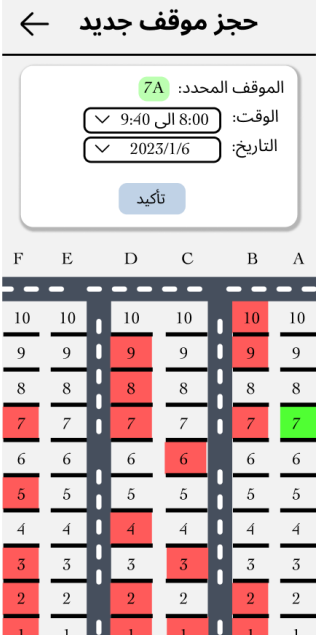

- The latest version of our application will provide new solutions for multiple issues, such as random parking. Many users have complained about how poorly designed the parking system is and how slow it is.
- Based on the user's needs, we observed that they want to park their car faster. Therefore, we have decided to implement a red/green light above each shaded parking spot so it would be much easier for the user to find a parking spot from a far distance.
- We also added the ability for the user to see all available parking spots and to reserve them. This results in fast parking instead of wasting valuable time searching for a slot. All in all, this will satisfy the user requirement, by saving user time and ousting the chaos.

4. Task 4

Task 4 is all about converting low-fidelity prototype to high-fidelity and making it interactive as well as running. Moreover, a short document explaining each designed interface of the application.

4.1 Prototyping

4.1.1 High-Fidelity Prototype

The first page Contains the icon for our extension within the "My Future" app, which allows access to all our features when the icon is clicked.	The second page Provides the option to schedule, edit, and view all your parking slots with all information about it, such as the slots name, time, and option to exit the parking spot after clicking the icon.	The third page (After clicking on "Reserve a new parking slot") All available and unavailable slots map appears at the bottom, where green refers to available and red to unavailable, with the confirmation box, date, and slot at the top of the page.	The fourth page (After clicking "Edit parking slot") display a page that is like the previous page, where it offers all available and unavailable parking slots, so you can click one and edit the parking slot to refer to the new one which appears in yellow .
 <p>The first page displays two main sections: 'الخدمات العامة' (General Services) and 'الخدمات التعليمية' (Educational Services). The general services section includes icons for 'المواقف' (Parking), 'دعوة التخرج' (Graduation Invitation), and 'البطاقة الجامعية الرقمية' (Digital University Card). The educational services section includes icons for 'كشف الدرجات' (Grade Release), 'احتساب معدل التحصيلي' (GPA Calculation), and 'الجدول الدراسي' (Class Schedule). At the bottom, there is a navigation bar with icons for 'الرئيسية' (Home), 'الخدمات' (Services), 'التقويم' (Calendar), 'اكتشف' (Discover), and 'حسابي' (My Account).</p>	 <p>The second page, titled 'المواقف' (Parking), shows a list of parking slots. The first slot is '3A' with a time of '9:40 إلى 8:00' and date '2023/1/5'. It has buttons for 'تعديل' (Edit) and 'الخروج من الموقف' (Exit Parking). The second slot is '5A' with a time of '9:40 إلى 8:00' and date '2023/1/6'.</p>	 <p>The third page, titled 'حجز موقف جديد' (Reserve New Parking Slot), shows a confirmation box at the top with 'الموقف المحدد: 7A', 'الوقت: 9:40 إلى 8:00', and 'التاريخ: 2023/1/6'. Below is a map of parking slots labeled F, E, D, C, B, A. Slot 7A is highlighted in green, indicating it is available.</p>	 <p>The fourth page, titled 'تعديل موقف' (Edit Parking Slot), shows a confirmation box at the top with 'الموقف السابق: 2E', 'الموقف المحدد: 7A', 'الوقت: 9:40 إلى 8:00', and 'التاريخ: 2023/1/6'. Below is a map of parking slots labeled F, E, D, C, B, A. Slot 7A is highlighted in yellow, indicating it is the selected slot for editing.</p>

4.1.2 Application Design Justification

A parking app for a university would be a valuable tool for both students and staff. It would provide real-time information on parking availability, allowing users to easily find open spots and avoid parking congestion. Additionally, the app could include features such as parking reservation and a map of parking lot locations.

An app would also provide a more efficient and convenient alternative to traditional parking management methods. For example, digital parking permit purchases and manual enforcement. This would save time and resources for both the university and its users.

All in all, a parking app for a university would greatly improve the parking experience for students and staff, increase sustainability on campus, and streamline parking management.