CSC 440 - HCI

Term Project: Designing for KSU community

Dr. Abdurhman Alkhanifer

Group Number 8

Abdullah Bamukhayyar – 444101799
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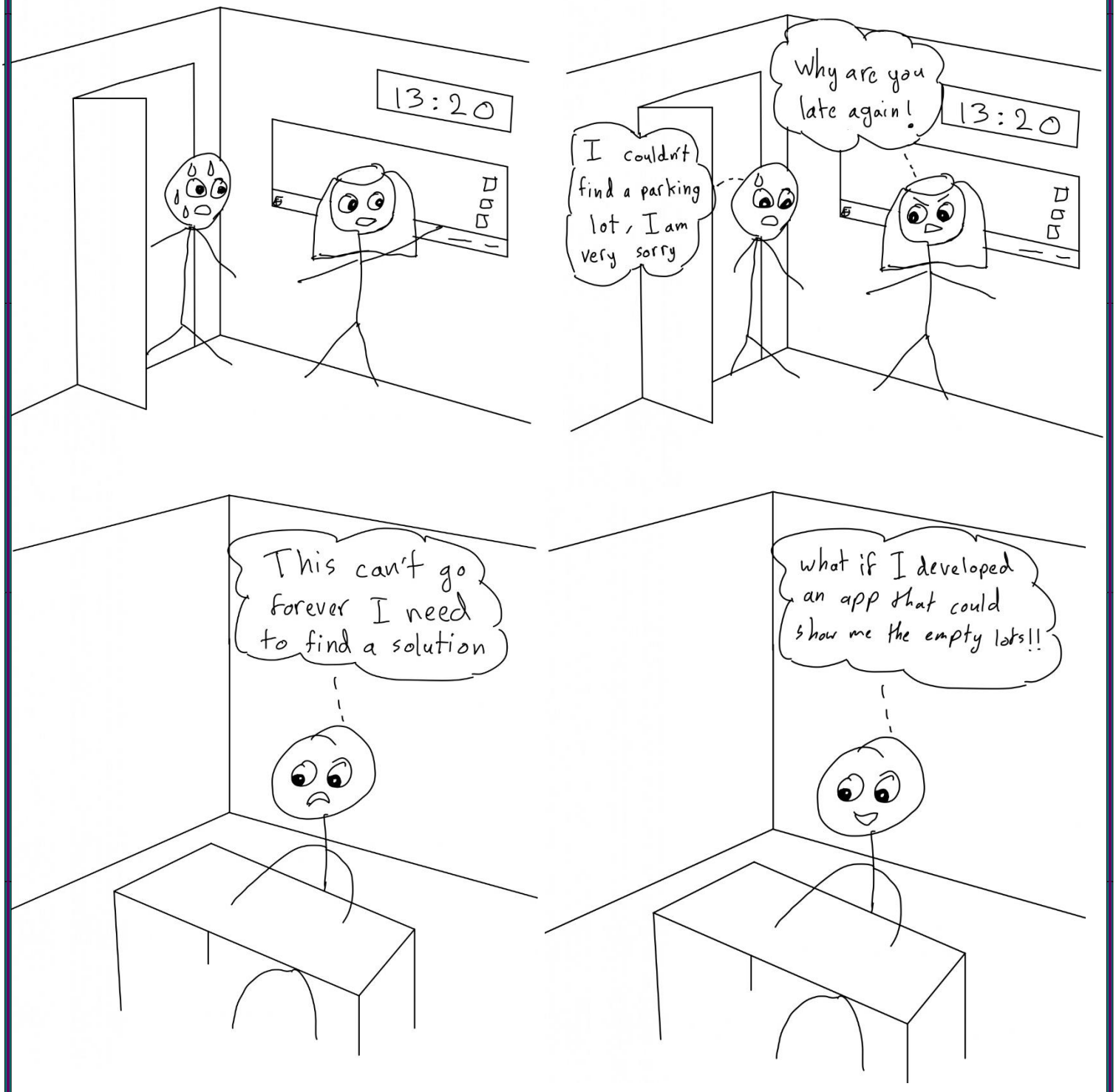
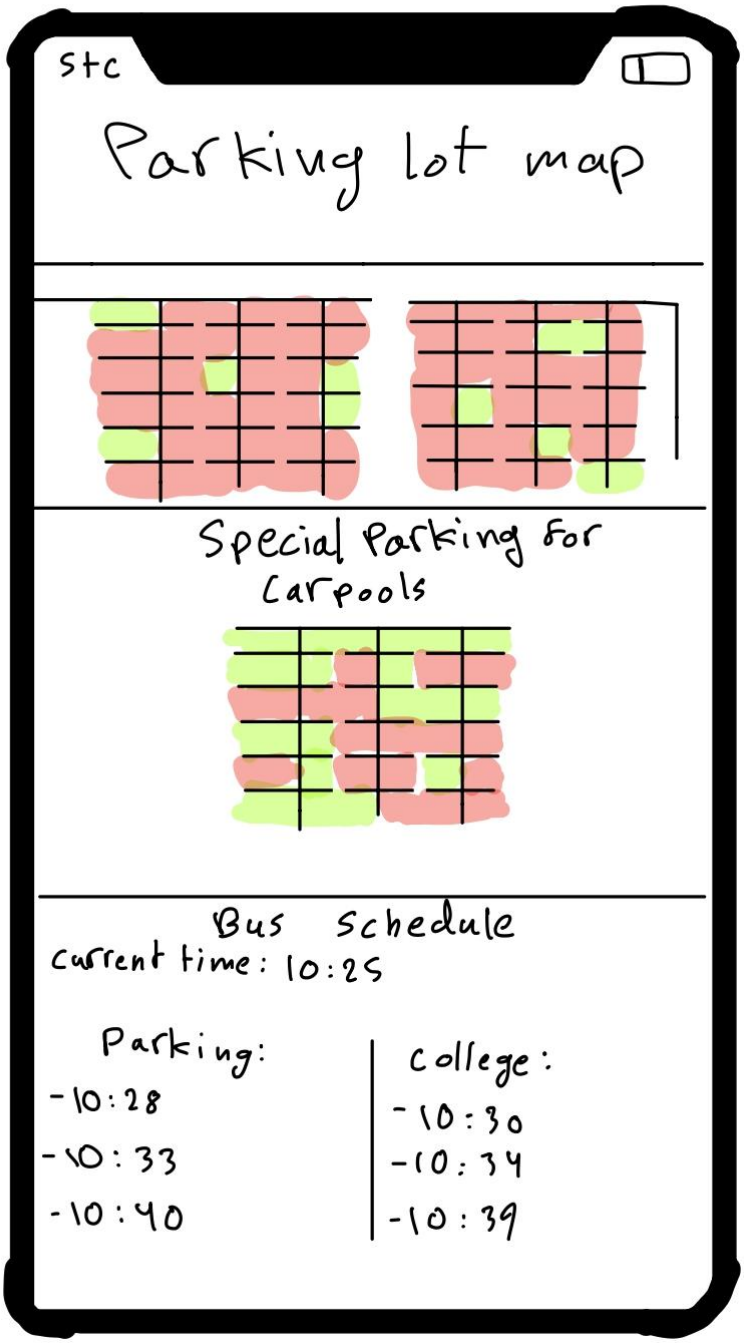
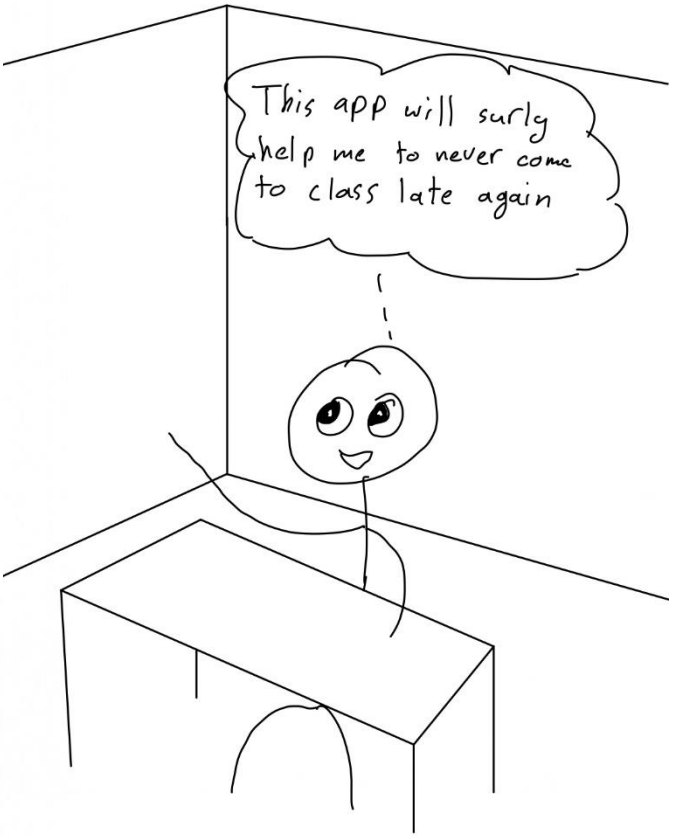
Parking Lot App

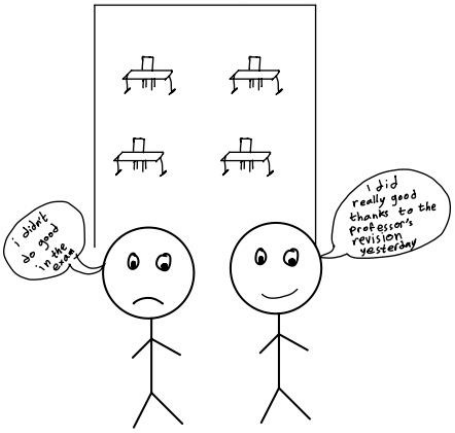


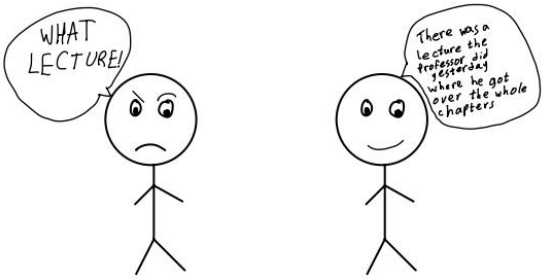
The App

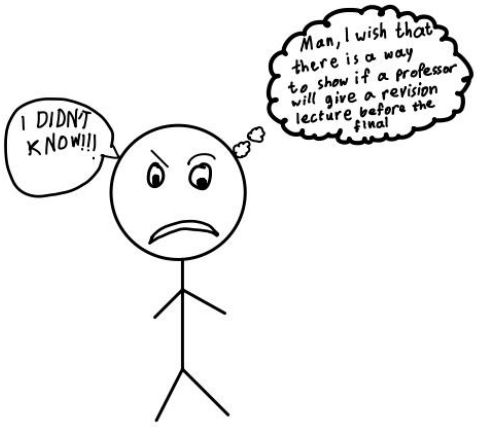

stc
Parking lot map
Special Parking for Carpools
Bus schedule
current time: 10:25
Parking:
-10:28
-10:33
-10:40
college:
-10:30
-10:34
-10:39

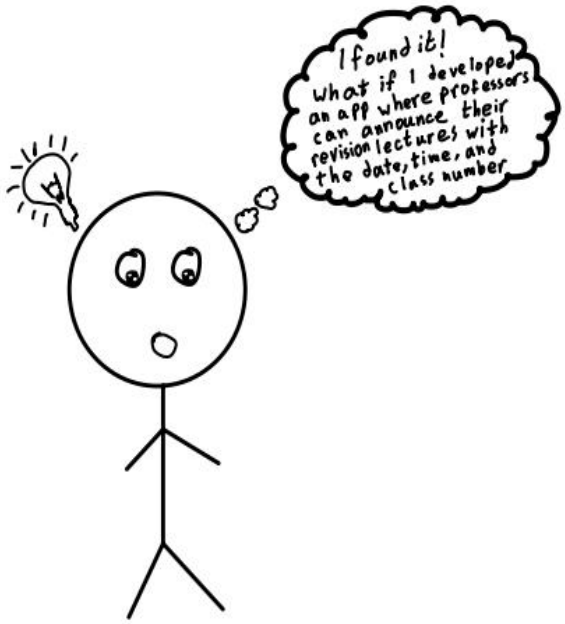

This app will surly help me to never come to class late again

Revision Lectures Announcer



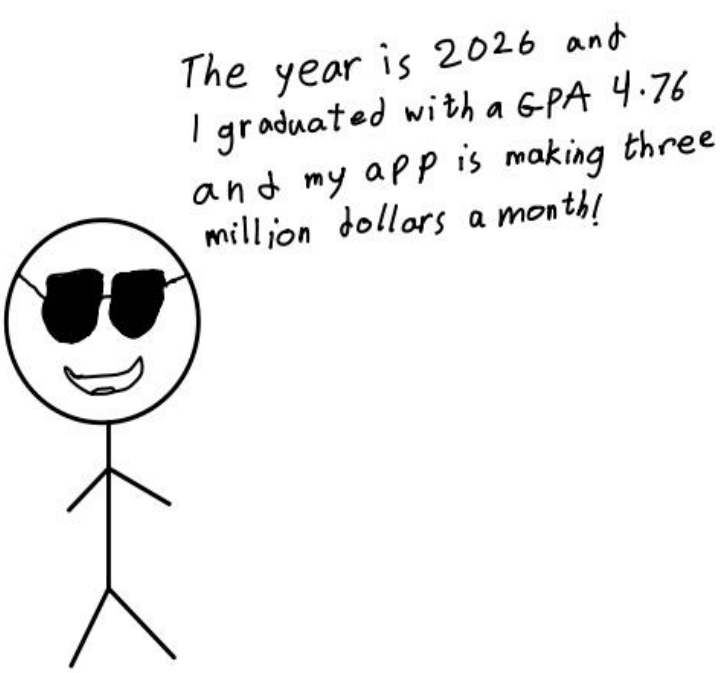




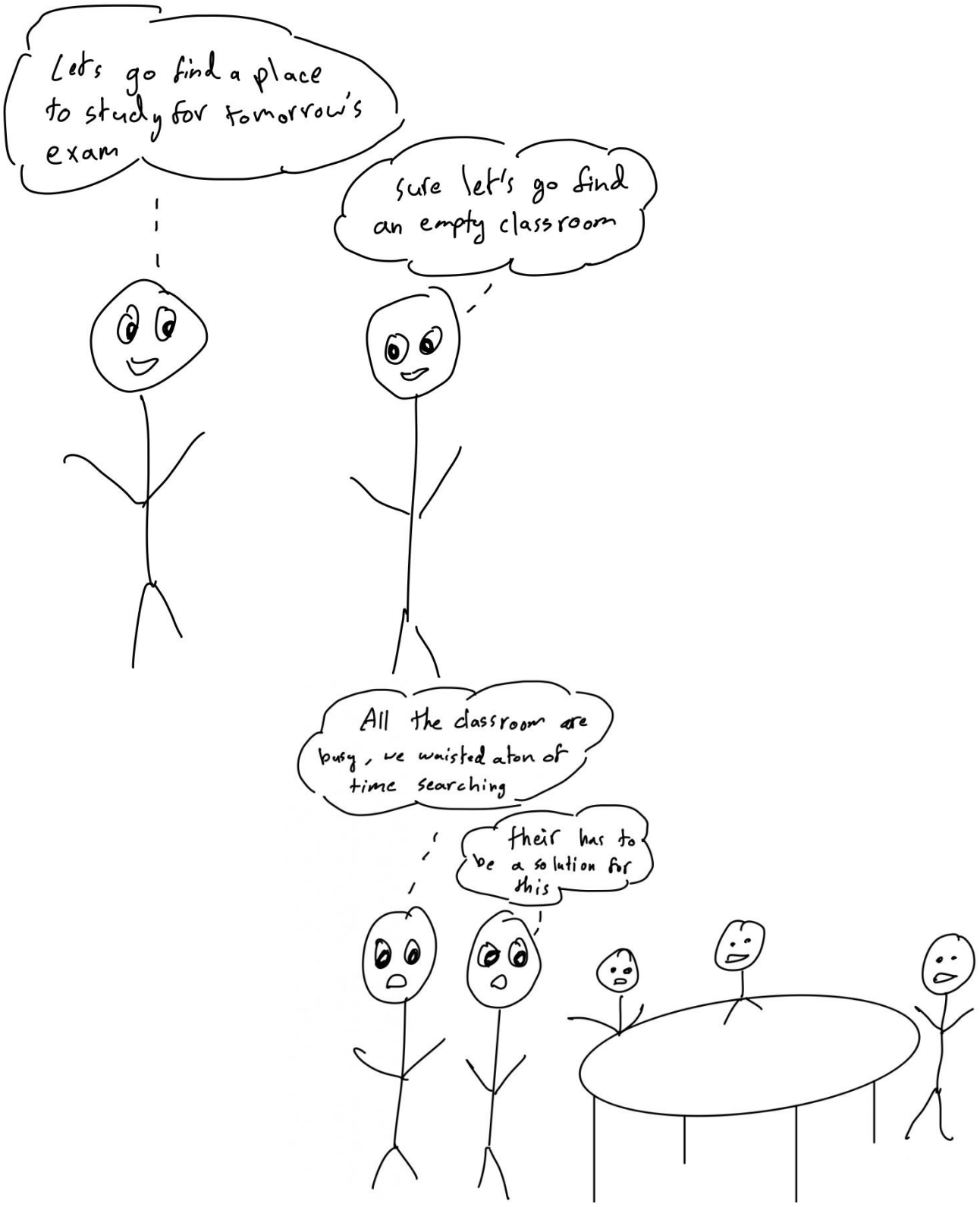

I found it!
What if I developed an app where professors can announce their revision lectures with the date, time, and the class number

STC
Title: Final Revision
Prof: Abdulrhman Alkhanifer
subject: CSC 440
Time: Tuesday 13:00-15:00
class014
Signup
Title: Final Revision
Prof: Abdulmajeed AlAmeer
subject: CSC111
Time: Sunday 9:00-10:00
Class001
Signup
Title: Final Revision
Prof: Abdulrhman Alsaudi
subject: CSC212
Time: 10:00-12:00
class062
Signup

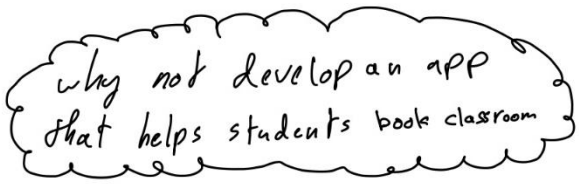
Four years later

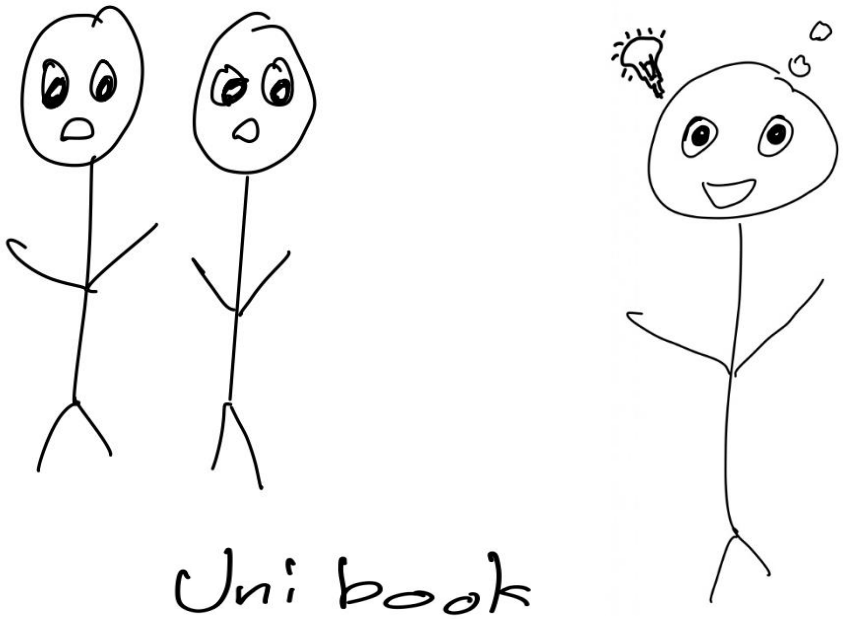


Classroom Booking



They are talking to eachother trying to find a solution





Uni book

Book A Classroom

Available times

10:30-11:30
11:30-12:30

notes...

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King Saud University

College of Computer and Information Sciences

CSC 440 – HCI

Group Number 8

KSU CAMPUS PARKING SURVEY

Dr. Abdurhman Alkhanifer

Abdullah Bamukhayyar – 444101799 Abdulmalik Alsaleh – 444102442 Haidar Alhassan - 444100670

OVERVIEW

Introduction

Survey questions and answers

Key points

Conclusion

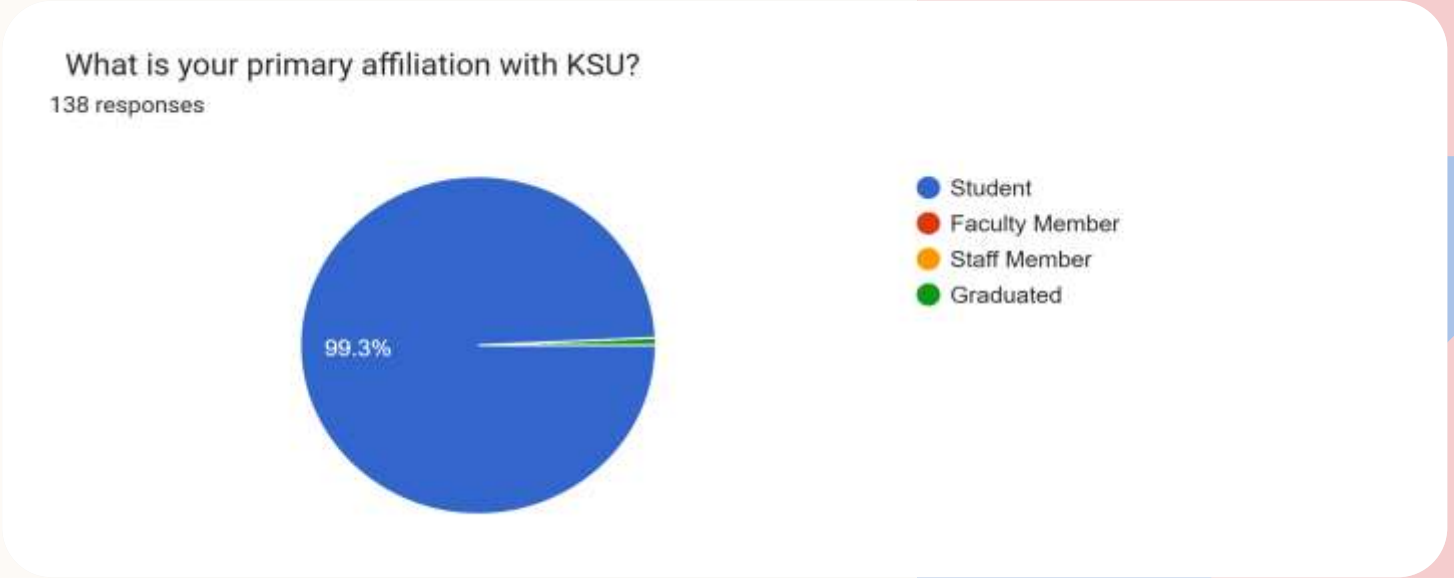
THE SURVEY

- Our survey aims to check if the parking is a real issue in the campus
- Checks who are the most affected by it
- What type of issues are they having
- And what are the possible solutions

DEMOGRAPHICS

All the responses came from students and 1 graduate

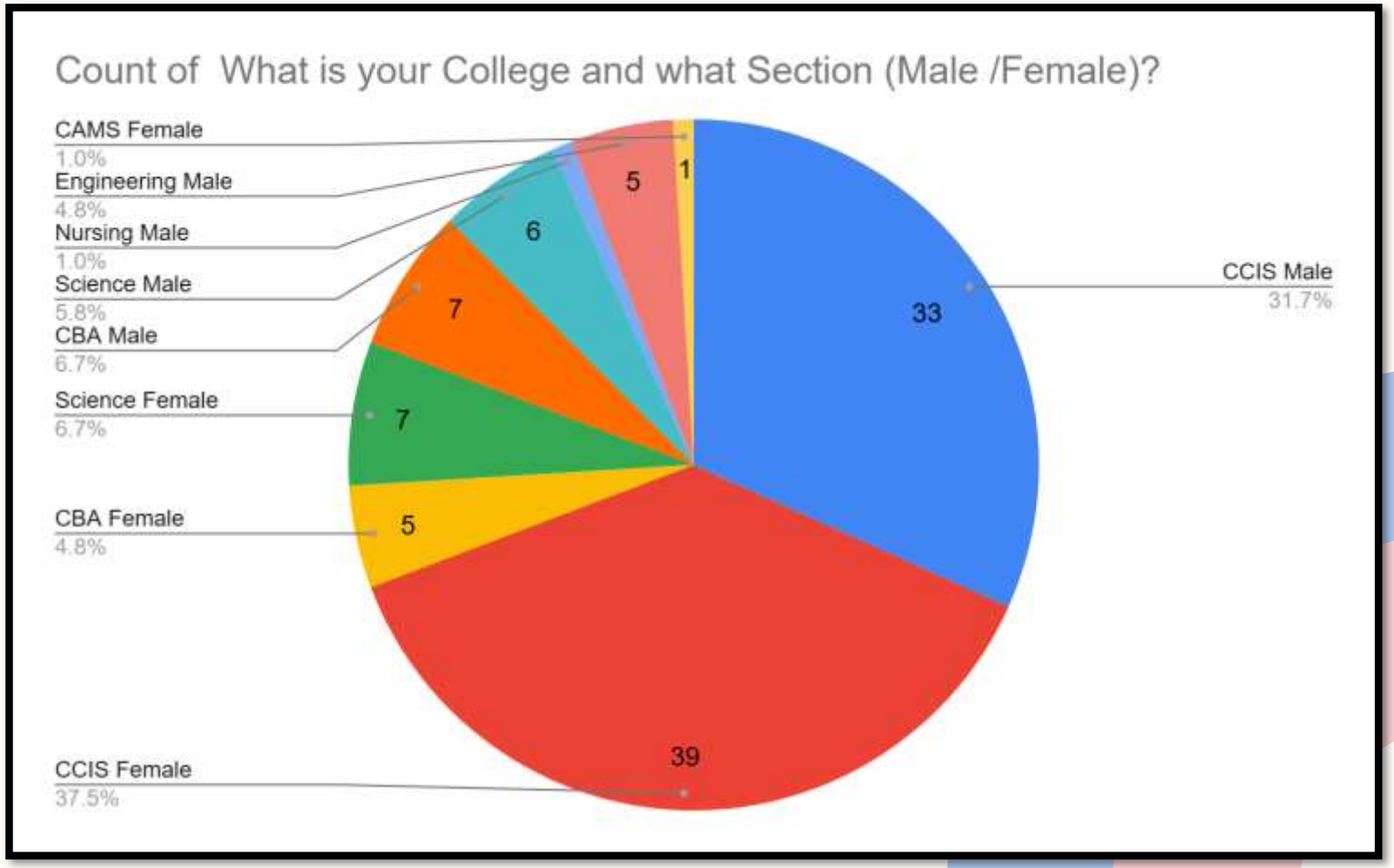
(Staff and Faculty members are not included in the survey)



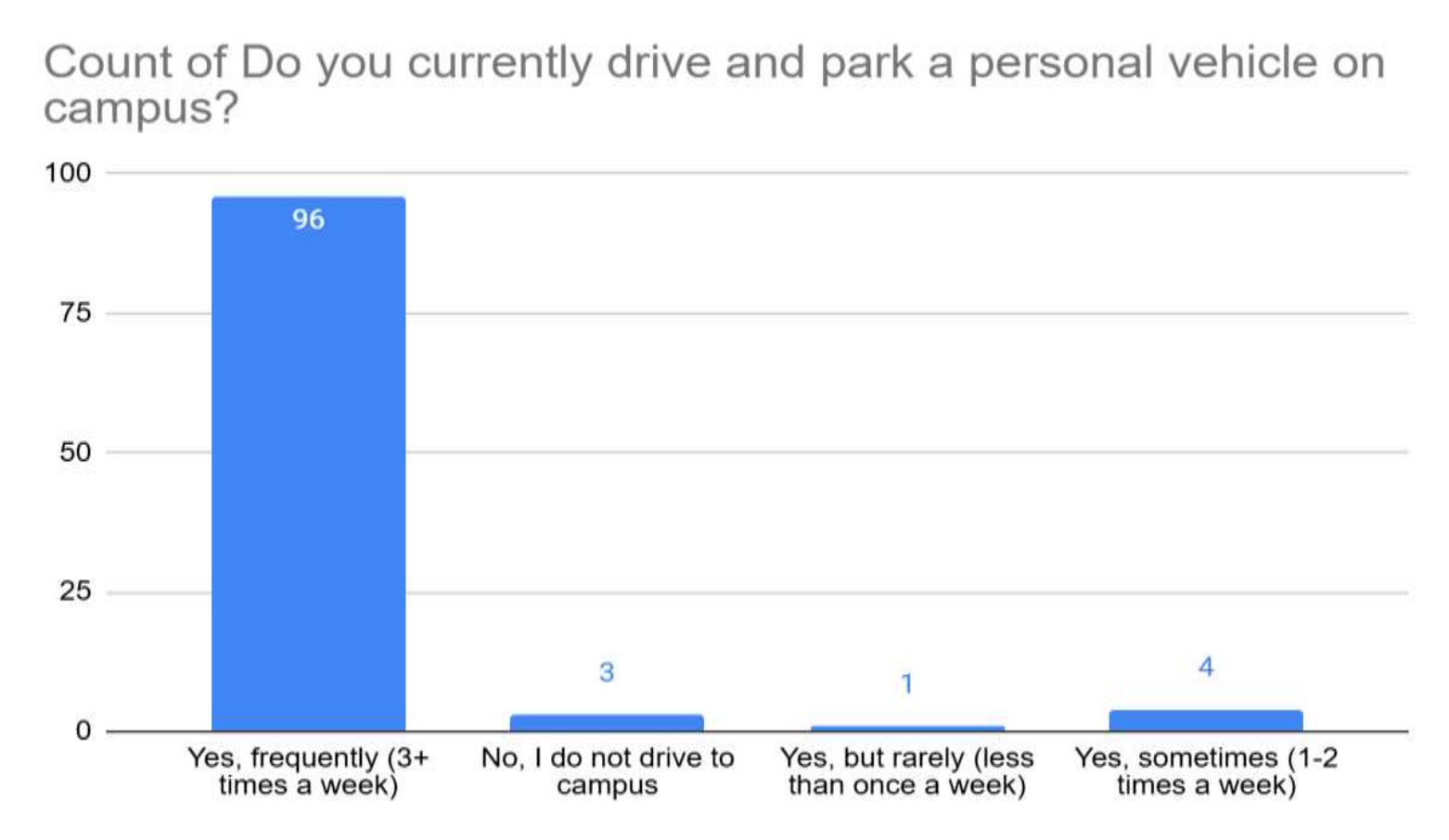
PREPROCESSING AND ORGANIZING THE DATA

We removed all the irrelevant data and odd responses, and we are left with 104 students.

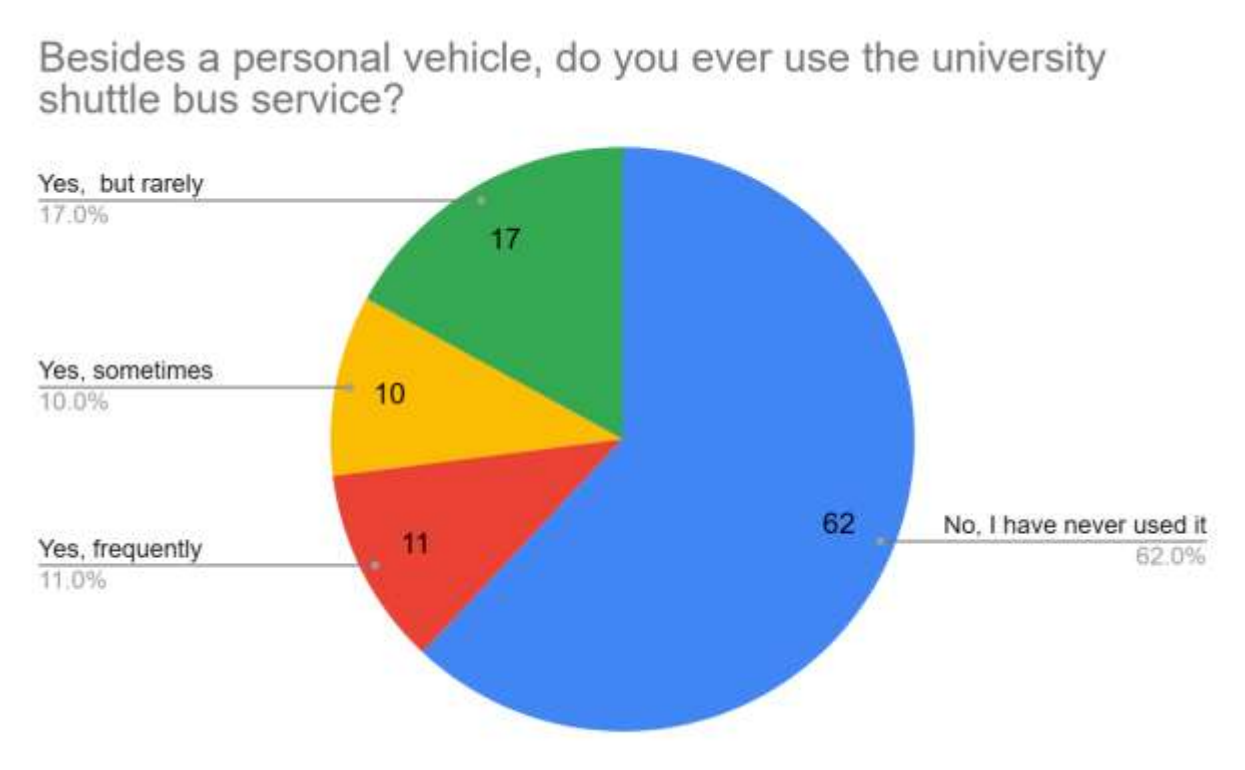
Nearly third of the answers came from CCIS Males section while another third came from the Female section.

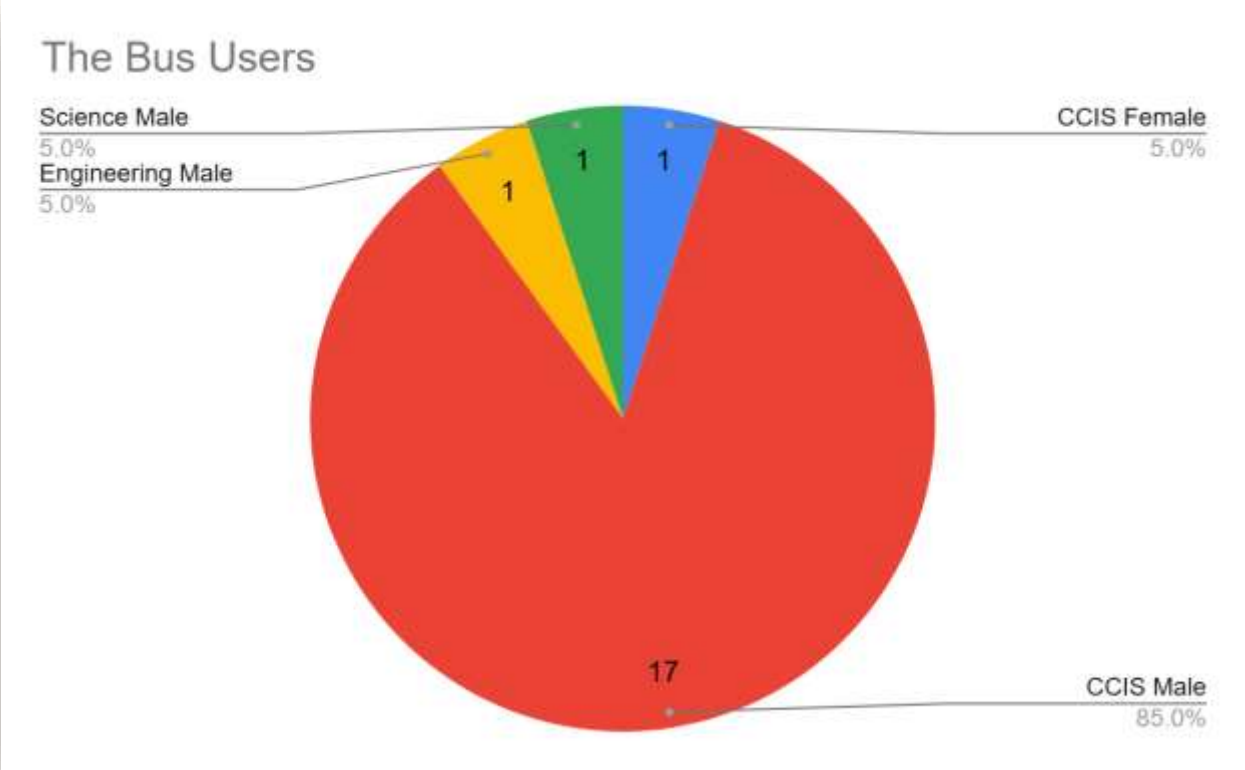


APPROX 92% OF STUDENTS DRIVE THERE CAR REGULARLY TO CAMPUS



CCIS MALE USERS MAKE UP MOST OF THE BUS USERS

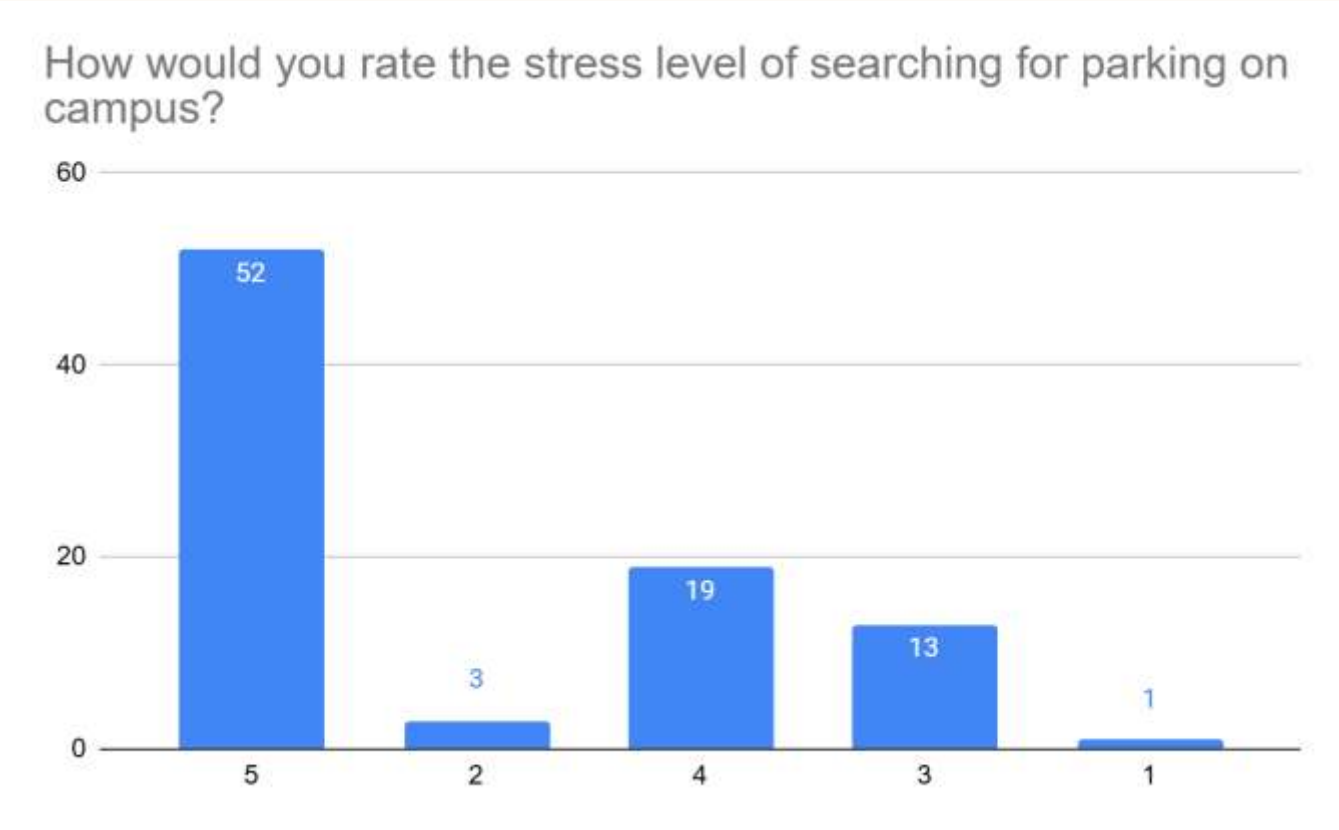




PARKING EXPERIENCE

- A Whopping 52% spend more than 10 minutes to find a parking lot
- And 87% spend more than the world average time to find a parking lot in college (approx. 5 min)

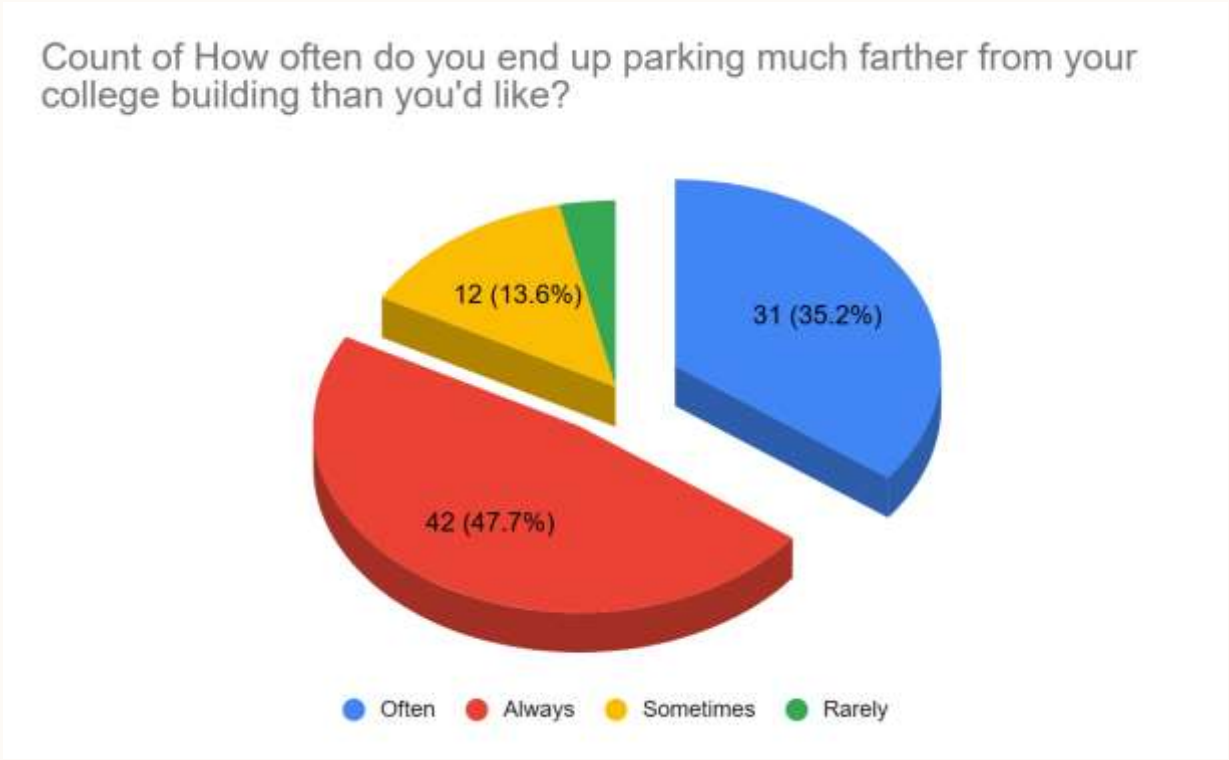
STRESS LEVEL



Feeling stressed before going to classes have many negative effects on the students and the numbers here are concerning to say the least.

More than 80% of the students feel stressed over searching for a parking lot.

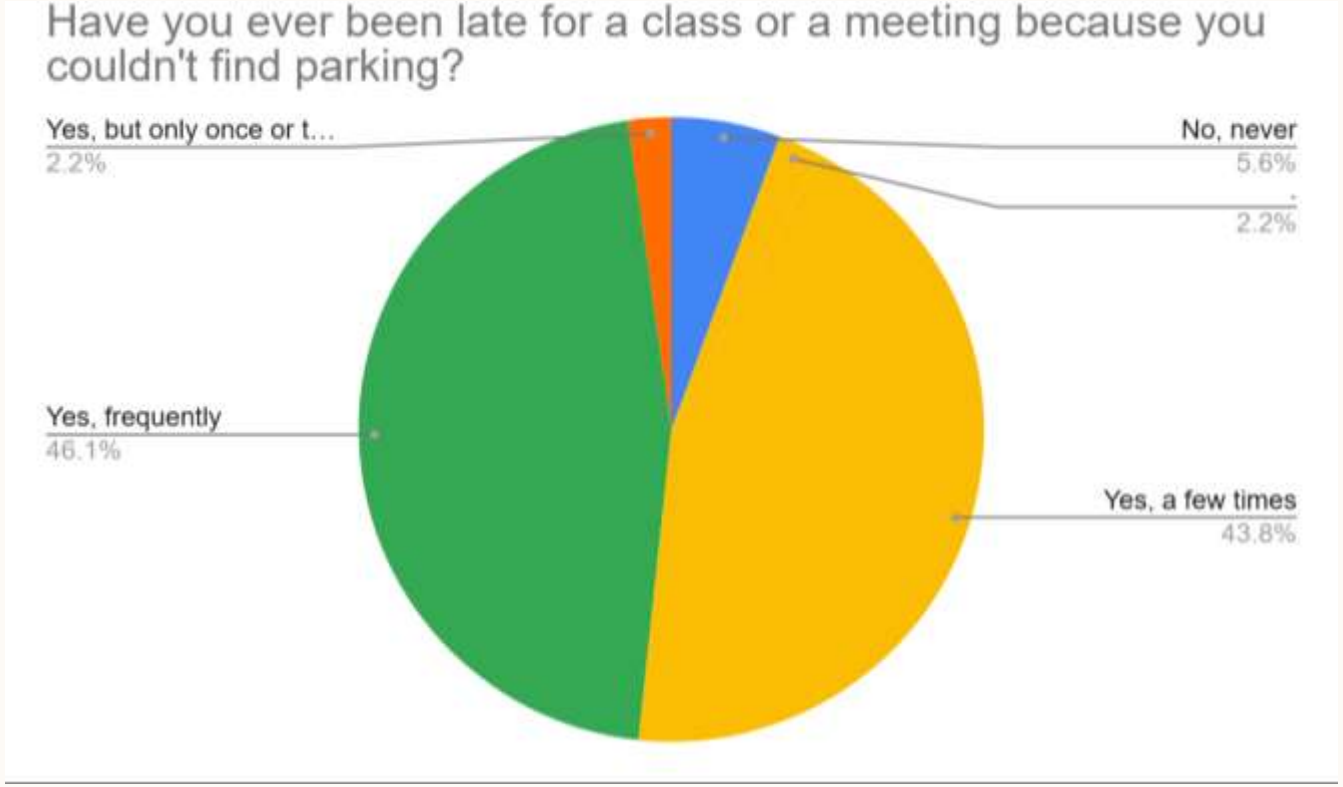
HOW FAR STUDENTS PARK



83% of student more than often park far away form their Ideal parking space

STUDENTS ARRIVING LATE

And to no surprise wasting too much time trying to find a parking lot led to more than 90% being late.



HOW STUDENTS MANAGE THE PROBLEM

Most of the students just give up to a further parking area which will waste even more time driving there and walking from that far distance.

Some students wait in the car until someone leaves, some keep going around and around.

WHATS THE STUDENTS BIGGEST FRUSTRATION

We asked the students this questions and got 61 valid responses.

From that we got the three most common problems students have.

- First, Private drivers take most of the Female parking lots, but this is irrelevant to us since it’s not our main focus.
- Secondly, ALL the male CCIS students gave a simple answer, they don’t have a designated parking lot.
- Thirdly, Students complained about wasting too much time driving around to find an empty lot.

From your perspective, what is the biggest frustration with the current parking situation at KSU?

88 responses

يوجد مساحه فاضيه عند بوابه ٣ وبامكانهم اضافة ١٠ مواقف اضافيه ولكن لا اعلم لماذا لم يخططون الارض وارى احيانا بعض الطلاب يركنون سياراتهم فيها ويأتون لمخالفتهم لا اعلم لماذا علما انهم لايضايقون السيارات وفيه مساحه حره بامكان الجميع المرور منها وبهذه الحاله الطالب متظرر بالحالتين مخير يتاخر عن الكلاس ويخسر درجات او يتخالف مالياً وهذا امر غير مرضي

Not knowing where the available parking spots are

No parking area for computer science college

Not enough parking spaces in gate 3, it can't hold the number of girls who drive.

Parking is open and not in a building -> intense heat |||||| parking doesn't have floors -> you will u
quite far from your college

The parking spot for gate 3 is small

الأمن بزياده مشددينها في اماكن فاضيه وعادي الواحد يوقف فيها بس هم يخالفون

It is very far from my college

We need parking spots near CCIS College.

No parking for college of computer science

Not enough close parking

Extremely smallllll parking lot , raneem service makes no sense , not all the spots have shades over them which also makes no sense?????

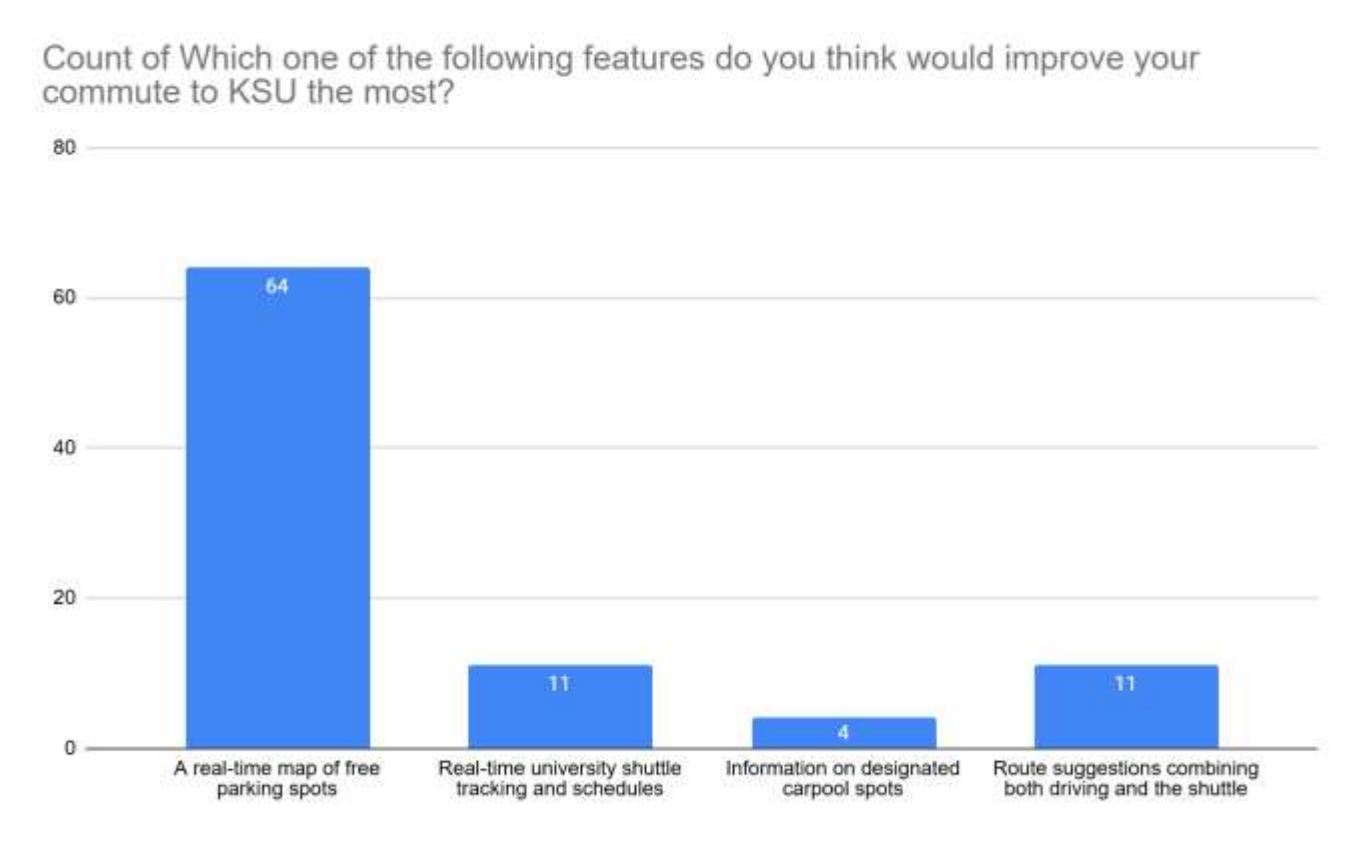
Bad

When I arrive at 7:45 and the parking is full 😨

My biggest frustration is the limited number of parking spaces which fill up quickly during peak hours, and the underutilized areas, and the lack of shaded spots, which is especially challenging given the very hot weather

I would like to report an issue regarding the limited parking spaces for the female students' section

POSSIBLE SOLUTIONS



- Most of the students want a real-time map of the parking spots.
- The 11 students who chose a real-time UNI shuttle tracking and schedules nearly 80% of them were CCIS male students. Which shows the need for them to have a bus schedule.

THE STUDENTS' THOUGHTS AND SUGGESTIONS

We asked the student: Imagine you use this app for a month. What would make you recommend it to your friends?

We got many answers, here are the main ones

- Ease of use, User friendly, simple.
- Accurate, works real-time, clearly shows available spots.
- Saves time.
- Shuttle times are accurate.

ISSUES THAT WOULD MAKE NOT USE THE APPLICATION

We asked them again:

What problem or issue would make you stop using such an app?

90%-95% of the responses were about the app being inaccurate/giving false information, and if the app contains a lot of bugs, and if it’s not efficient enough (doesn’t actually save time).

If these issues occur the students will most likely not use it.

THANK YOU

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TASK ANALYSIS

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TASK: 1. LOGIN

1.1. LAUNCH SAHALAT APPLICATION
1.2. SELECT LANGUAGE (OPTIONAL)
    1.2.A. TAP GLOBE ICON.
    1.2.B. CHOOSE PREFERRED LANGUAGE (ENGLISH/ARABIC).
1.3. TAP "GET STARTED" BUTTON.
1.4. ENTER CREDENTIALS.
    1.4.A. TAP "UNIVERSITY EMAIL" FIELD.
    1.4.B. TYPE KSU EMAIL.
    1.4.C. TAP "PASSWORD" FIELD.
    1.4.D. TYPE PASSWORD.
        1.4.D.1. TOGGLE VISIBILITY ICON TO SEE THE PASSWORD.
1.4.E. TAP "LOGIN" BUTTON.

TASK: 2. RESERVE A PARKING SPOT (CORE FUNCTION).

2.1. TAP ON “PARKING RESERVATION" IN HOME PAGE.

- 2.2. CHOOSE DESTINATION
  - 2.2.A. VIEW "SELECT COLLEGE" LIST.
  - 2.2.B. SEARCH FOR COLLEGE.
    - 2.2.A.1. TAP SEARCH BAR.
    - 2.2.B.2. ENTER YOUR COLLEGE OR WRITE A KEYWORD
  - 2.2.C. SELECT YOUR COLLEGE.
  - 2.2.D. TAP "NEXT" BUTTON.
- 2.3. SELECT PARKING SLOT
  - 2.3.A. VIEW PARKING SLOTS.
    - 2.3.A.1. VIEW MAP KEY “GREEN, YELLOW, RED”.
  - 2.3.B. ADJUST MAP VIEW (IF NEEDED).
    - 2.3.B.1. TAP "+" BUTTON TO ZOOM IN.
    - 2.3.B.2. TAP "-" BUTTON TO ZOOM OUT.
  - 2.3.C. TAP ON GREEN SLOT TO RESERVE.
    - 2.3.C.1. VIEW YELLOW SLOT (SELECTED).
    - 2.3.C.2. VIEW BOTTOM POPUP APPEARS WITH SLOT DETAILS (E.G., "SLOT A4-8").
  - 2.3.D. TAP "NEXT" IN THE BOTTOM.
- 2.4. CONFIRM RESERVATION
  - 2.4.A. VIEW "PARKING DETAILS" SCREEN.
  - 2.4.B. REVIEW INFORMATION.
    - 2.4.B.1. VERIFY SPOT NUMBER.
    - 2.4.B.2. CHECK WALKING DISTANCE (E.G., "3 MINUTES").
  - 2.4.C. READ WARNING (10 MIN HOLD TIME).
  - 2.4.D. TAP "CONFIRM RESERVATION" BUTTON.
- 2.5. VIEW RESERVATION DETAILS PAGE.
  - 2.5.A. CHECK HOLD TIMER (COUNTDOWN 10:00).
  - 2.5.B. NAVIGATE TO SPOT.
    - 2.5.B.1. TAP "NAVIGATE" BUTTON (OPENS GOOGLE MAPS)..
  - 2.5.D. TAP "DONE" BUTTON TO RETURN TO DASHBOARD.

TASK: 3. VIEW BUS SCHEDUALE

- 3.1. TAP ON “BUS SCHEDULE” IN HOME PAGE.
- 3.2 LOCATE YOUR BUS STOP.
  - 3.2.A. TAP THE PIN FOR THE DESIRED STOP (BLUE ICON).
- 3.3. VIEW THE STOP DETAILS.
  - 3.3.A. EXPAND THE DRAWER
  - 3.3.B. VIEW NEXT BUSES SUMMARY
  - 3.3.C. TAP “VIEW FULL SCHEDULE” BUTTON.
    - 3.3.C.1. SCROLL THROUGH THE ROUTE LISTS.
    - 3.3.C.2. TAP BACK TO RETURN TO THE MAP

TASK: 4. EXPLORE CAMPUS MAP.

- 4.1. ACCESS THE MAP
  - 4.1.A. FROM HOME TAP "MAP" ICON IN BOTTOM NAVIGATION BAR.
- 4.2. VIEW MAP.
- 4.3. VIEW MAP KEYS.
  - 4.3.A. VIEW BLUE ICON (BUS STOPS).
  - 4.3.B. VIEW GREEN ICON (PARKING SPOTS).
- 4.4. ENABLE SHARE LOCATION
  - 4.4.A. CLICK ON BLUE LOCATION BUTTON (TOP RIGHT) TO TOGGLE ON/OFF LOCATION.

TASK: 5. MANAGE USER PROFILE & HISTORY

- 5.1. ACCESS PROFILE
  - 5.1.A. FROM HOME TAP "PROFILE" ICON IN BOTTOM NAVIGATION BAR.
- 5.2. VIEW YOUR PERSONAL DETAILS.
  - 5.2.A. VIEW NAME, STUDENT ROLE, AND KSU ID.
- 5.3. REVIEW RESERVATION HISTORY
  - 5.3.A. SCROLL THROUGH APST RESERVATIONS.
    - 5.3.A.1. VIEW RESERVATIONS DETAILS.
- 5.4 LOGOUT
  - 5.4.A. SCROLL TO BOTTOM OF PROFILE.
  - 5.4.B. TAP "LOGOUT" BUTTON.

TASK: 6. CONFIGURE APP SETTINGS

- 6.1. ACCESS SETTINGS
  - 6.1.A. FROM HOME PAGE TAP "SETTINGS" (GEAR ICON).
- 6.2. CUSTOMIZE UI
  - 6.2.A. NAVIGATE TO APPEARANCE MENU.
  - 6.2.B. SELECT THEME (LIGHT MODE / DARK MODE / SYSTEM DEFAULT).
- 6.3. CONFIGURE ACCESSIBILITY
  - 6.3.A. NAVIGATE TO ACCESSIBILITY MENU.
  - 6.3.B. ADJUST "TEXT SIZE" SLIDER.
  - 6.3.C. SELECT "COLOR BLINDNESS" MODE.

THANK YOU

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SAHALA T

The Supervision of:
Dr.Abdulrhman Alkhanifer

Done by: **Abdullah Bamukhayyar – 444101799**

Abdulamlik AlSaleh – 444102442

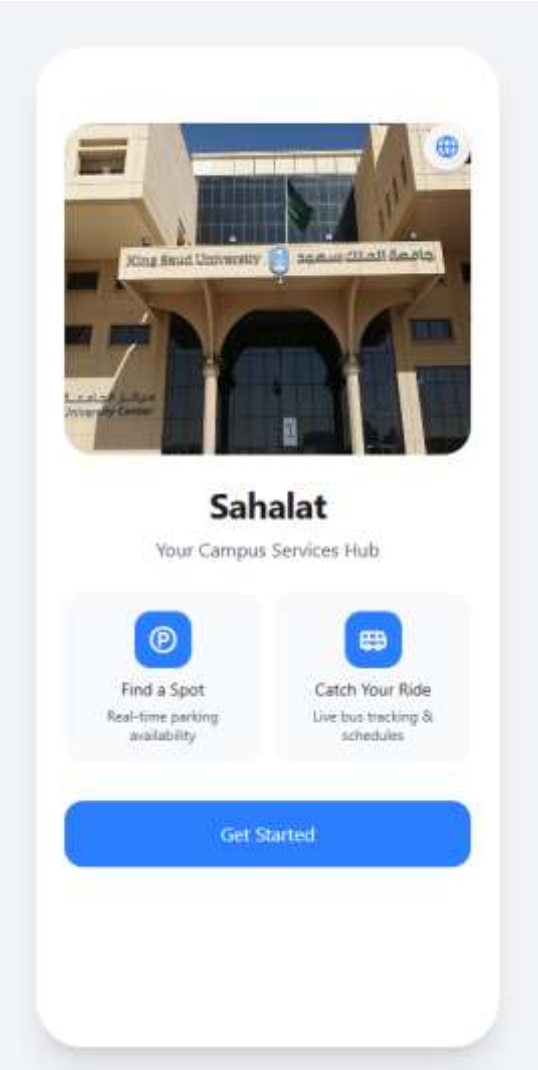
Haidar Alhassan - 444100670

SAHALAT: Campus Navigation & Efficiency

SAHALAT our navigation application designed specifically to improve the daily life and efficiency of KSU students, by giving them the option to reserve a parking slot and view the bus schedule.

We used Figma as our prototyping tool.

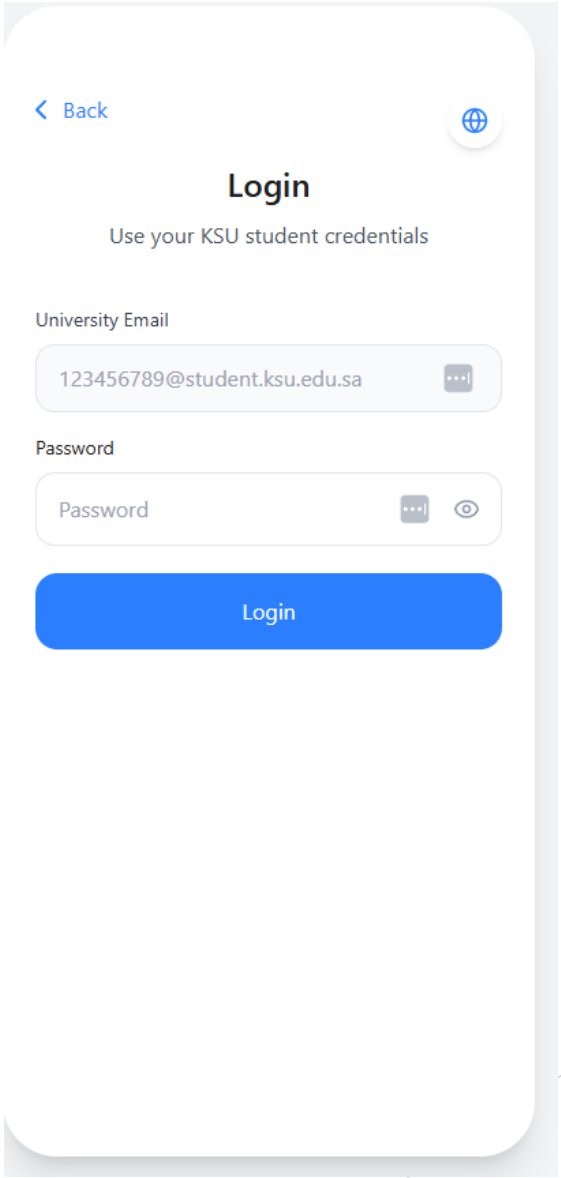
The start page



- The initial entry point of the application.
- It includes a language toggle (English, Arabic, etc.) in the top corner and a "Get Started" button to initiate the user journey.

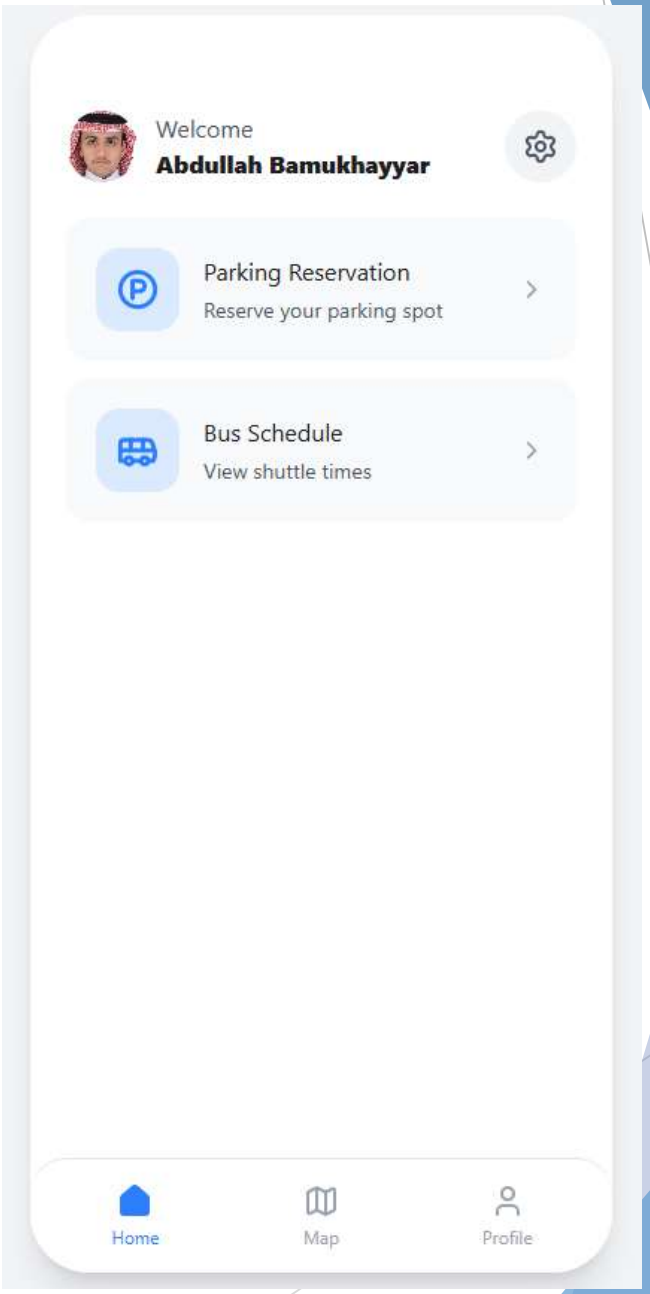
Login Page

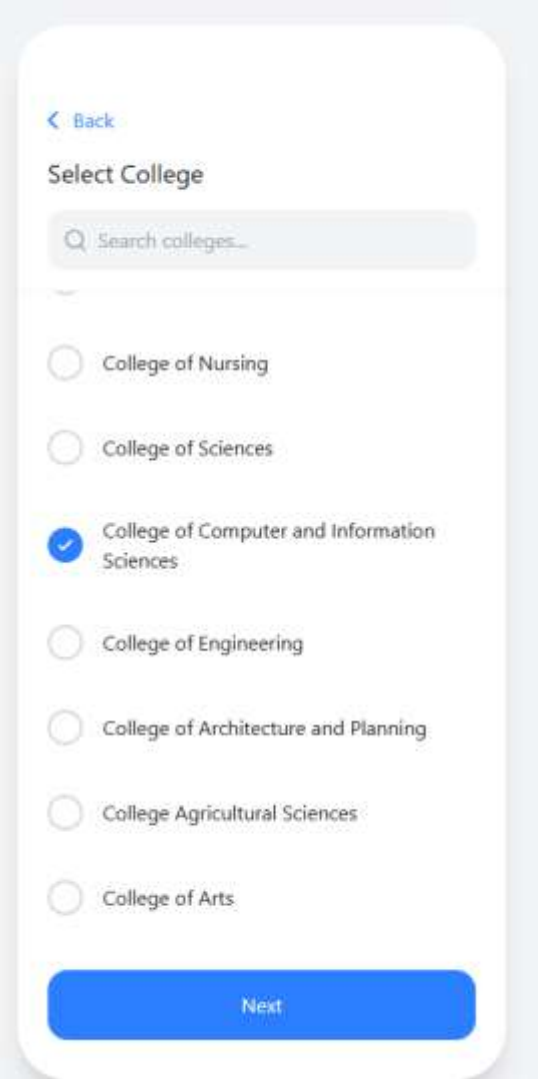
- A simple login page requiring KSU student email and password.
- It includes fields for the university email and password, with visibility toggles for security



Home Page

- The central hub for the user, above is a welcome message and the student's name.
- It provides quick access cards to the two main features: "Parking Reservation" and "Bus Schedule ".
- A bottom navigation bar for easy switching between Home, Map, and Profile.

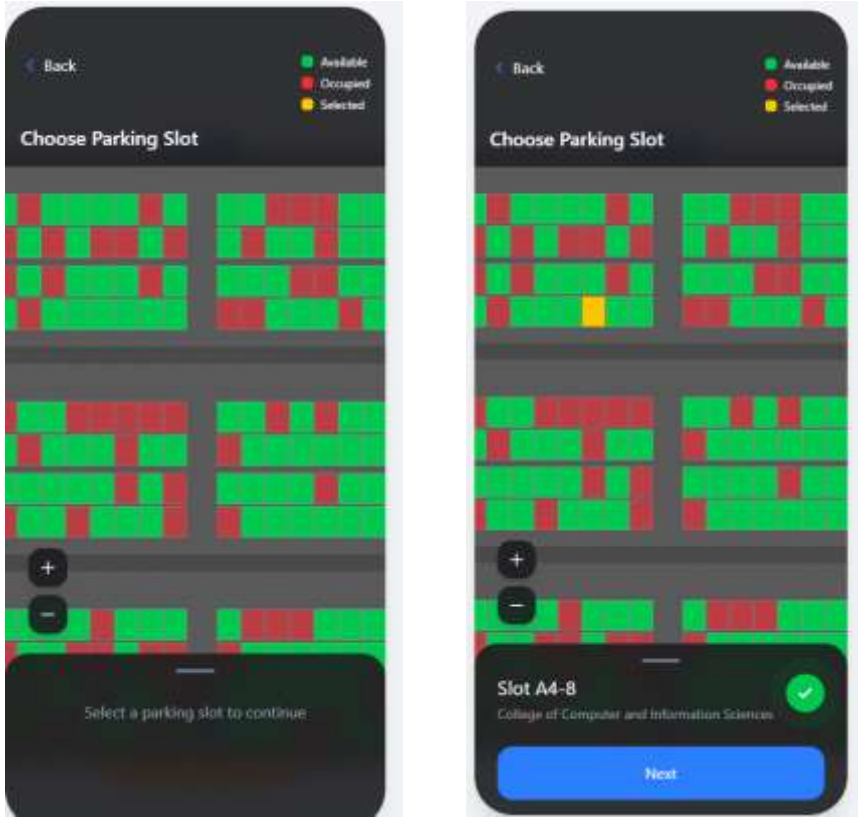




Select College:

- After clicking parking reservation will be transferred into select college page
- A searchable list view that allows students to filter parking locations by their specific college

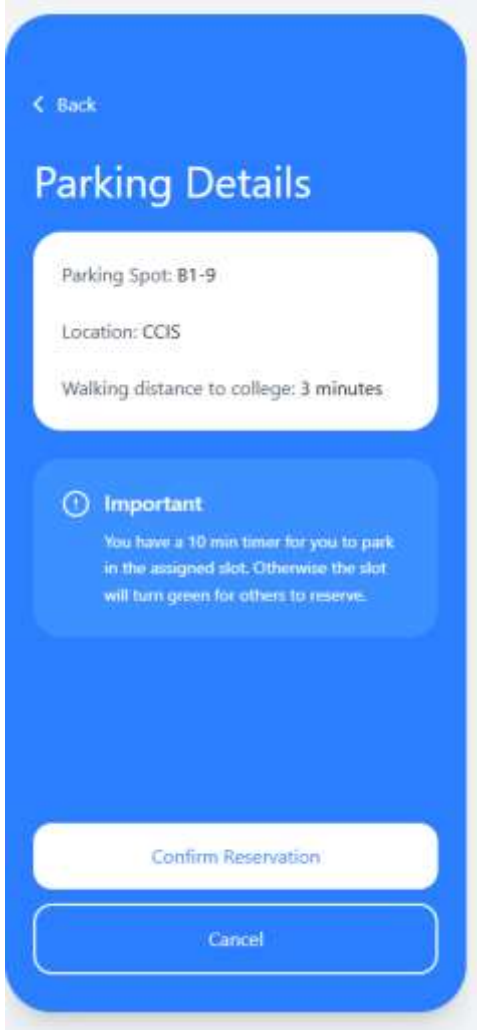
Choose Parking Slot

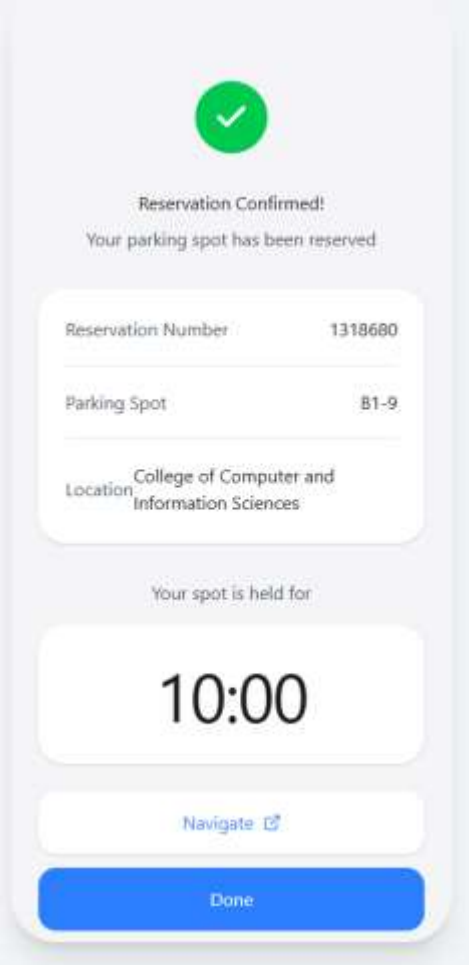


- An interactive visual grid representing the parking lot.
- It uses color-coding to indicate status.
- Users can zoom in/out and tap a specific slot to view its details (e.g., Slot A4-8) in a slide-up drawer.

Parking Details

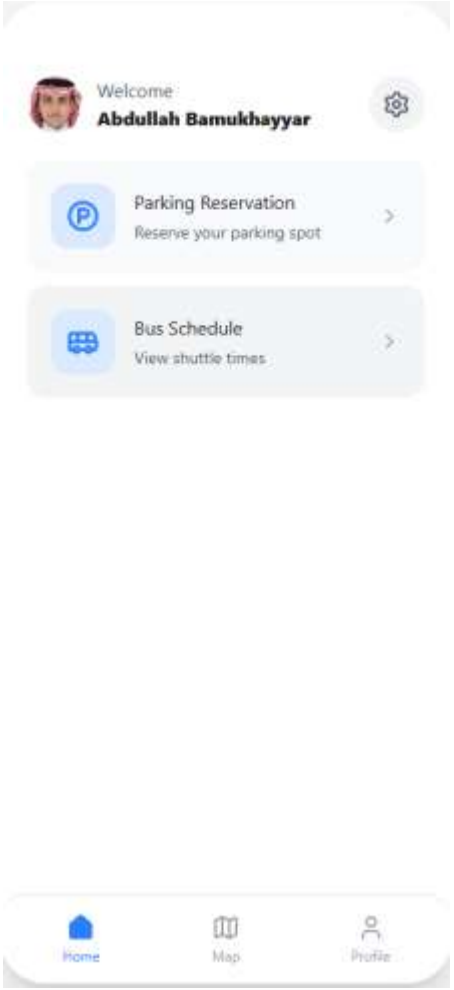
- A summary screen displayed before finalization.
- It confirms the selected spot, location, and estimated walking distance to the college.
- It also includes an important warning about the 10-minute hold timer.

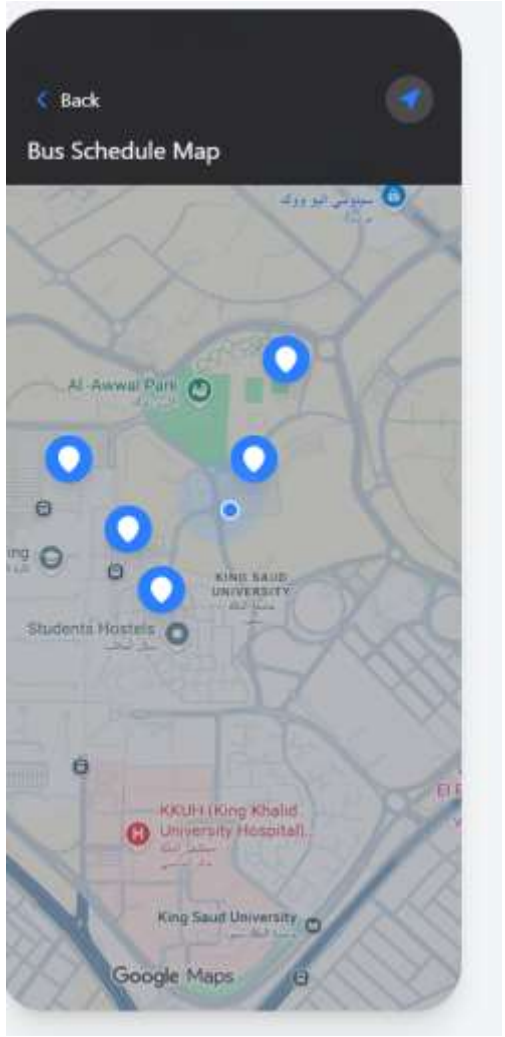




Reservation Confirmed

- A success screen with a green checkmark (success feedback).
- It displays the reservation number and a countdown timer (10:00) indicating how long the spot is held.
- A "Navigate" button links to external maps for driving directions.

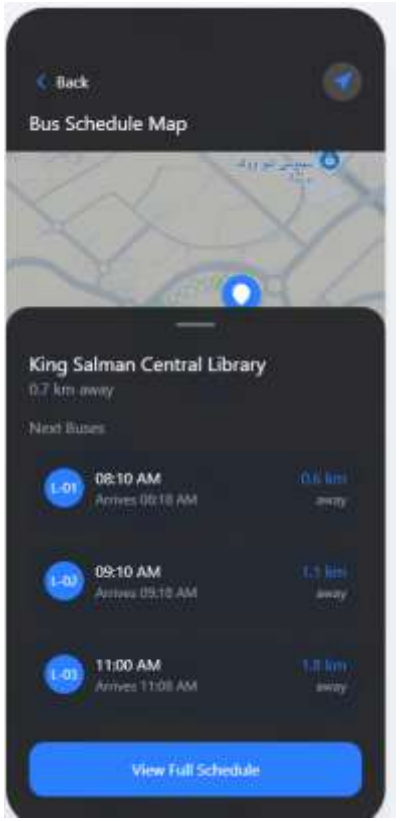


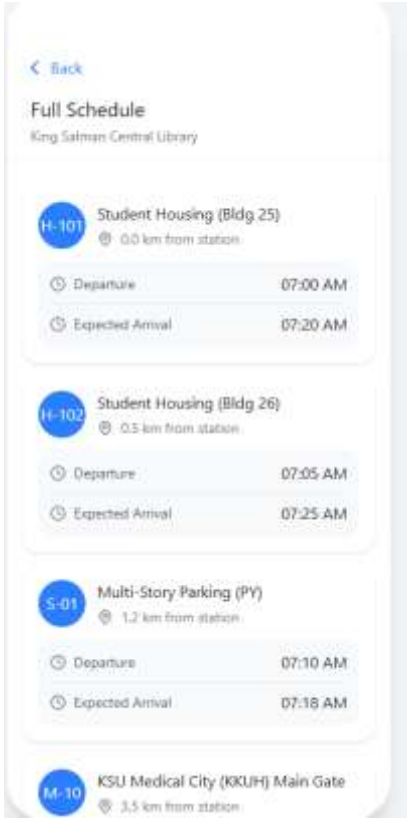


Bus Schedule Map

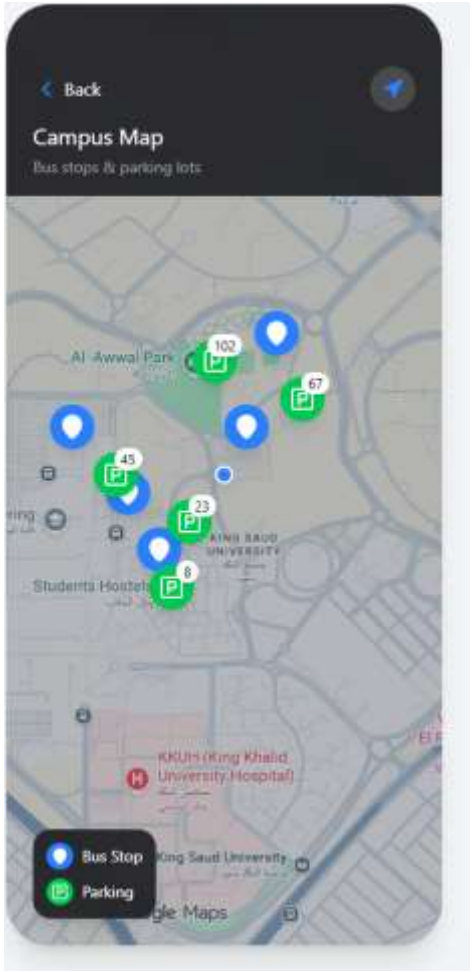
- A map interface showing the real-time location of bus stops (marked with blue pins).
- Tapping a pin opens a bottom drawer showing the specific stop name (e.g., King Salman Central Library) and a summary of the next arriving buses.

Bus’s Full Schedule





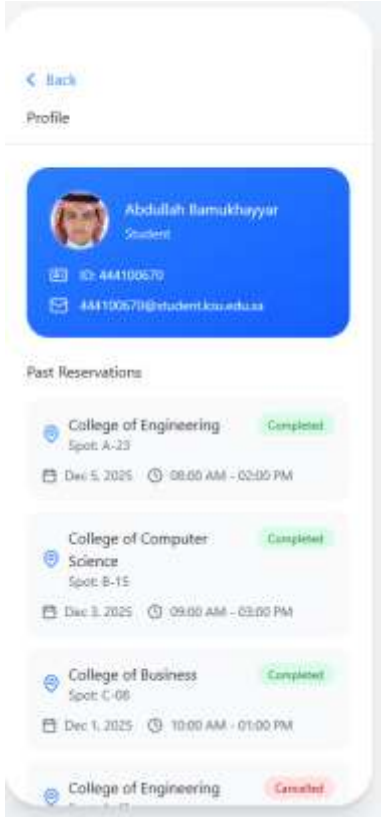
- A detailed timeline view for a specific bus route.
- Lists all stops with precise departure and expected arrival times.

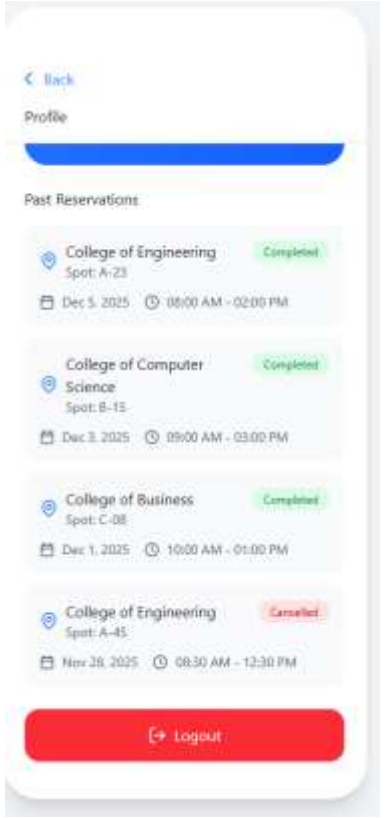


Campus Map

- A general map of the university campus featuring all the bus stops and parking slots around campus.

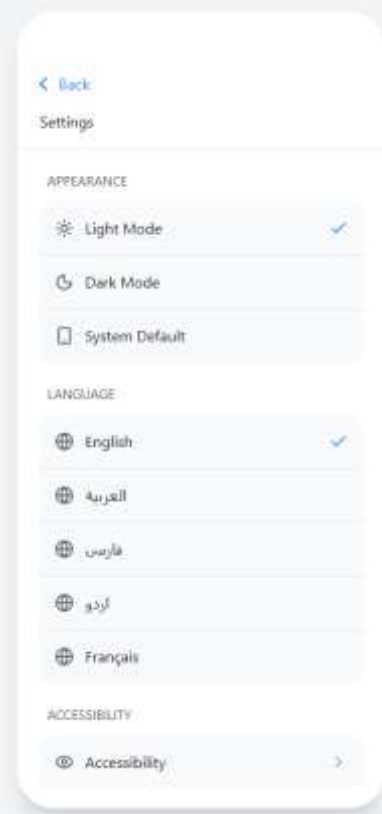
Profile

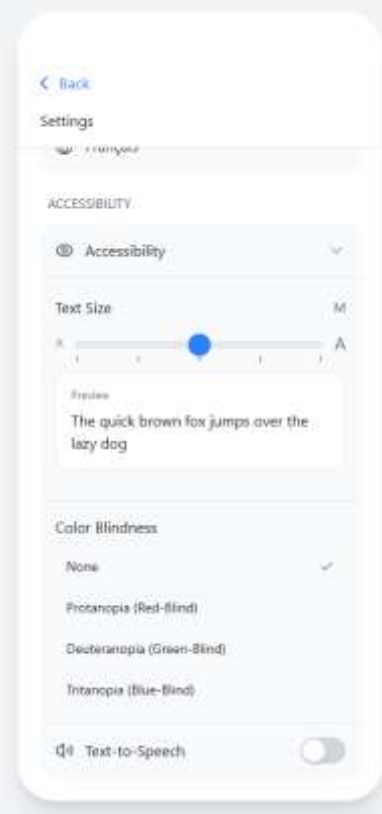




- The user's personal account page displaying their photo, student ID, and email.
- "Past Reservations" list tracking reservation history with status tags (Completed/Cancelled).
- Logout button at the bottom.

Settings & Accessibility





- A list of configurations allowing the user to customize the app experience.
- A dedicated section for accessibility needs.
- It features a slider to adjust text size and specific color filters (e.g., Protanopia) to help users with color blindness and a text to speech feature for users in need.

Thank you

جامعة الملك سعود
King Saud University

College of Computer and Information Sciences

CSC 440- HCI
Group Number 8

SAHLAT

The Supervision of:
Dr.Abdulrhman Alkhanifer

Done by: Abdullah Bamukhayyar – 444101799

Abdulamlik AlSaleh – 444102442

Haidar Alhassan - 444100670

PROMO VIDEO

TEST PLAN AND OBJECTIVES

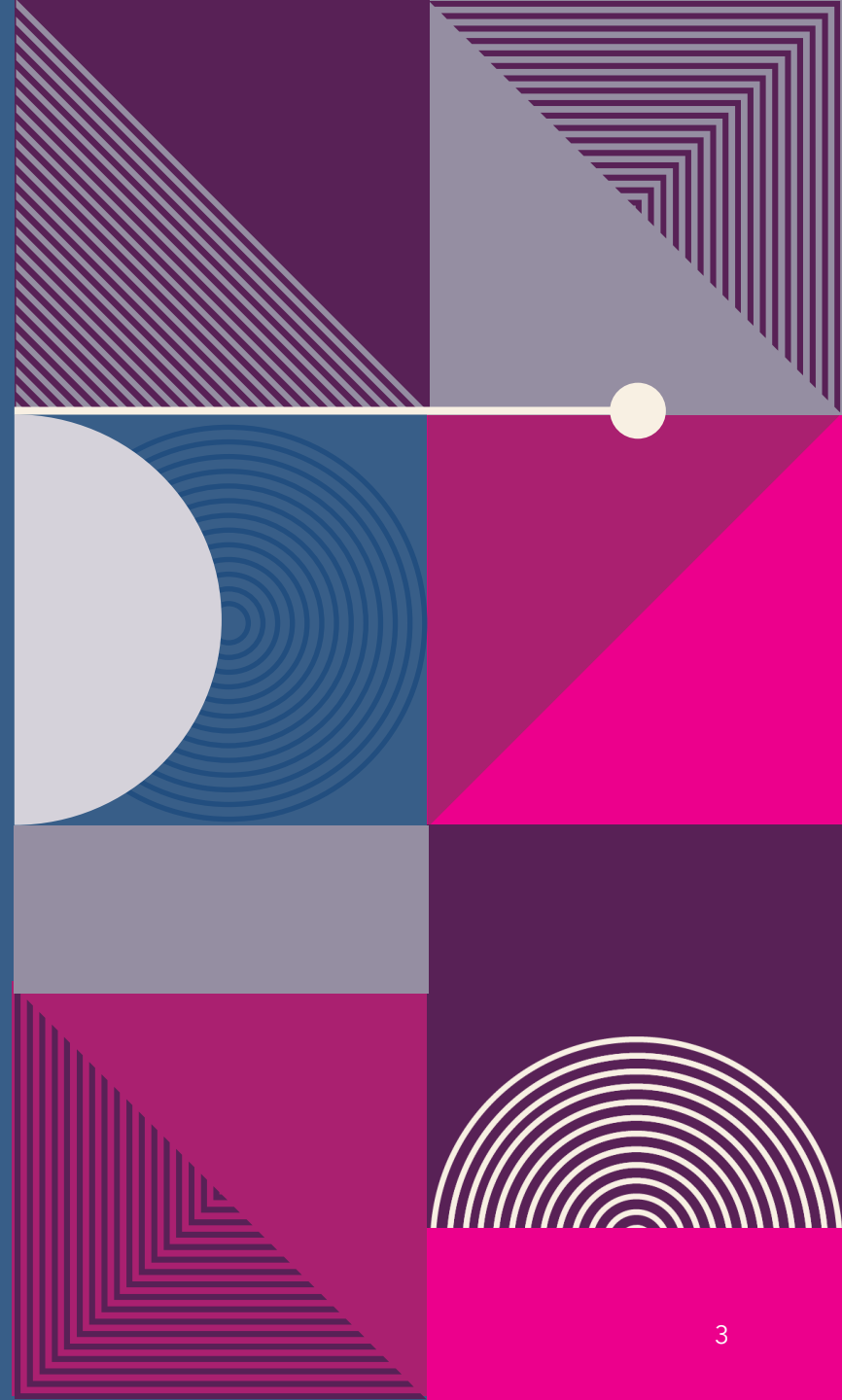
Our main objectives:

- Can the user easily use the app without errors
- Can the user efficiently use the app (low task completion time)

Participants Profile: We tested 10 KSU students, all from CCIS college, all male.

Tasks tested:

- Task1: Log in the app
- Task2: Apply your preferred settings
- Task3: reserve a parking spot
- Task4: view bus routes leading to your college
- Task5: view your past reservations
- Task6: logout of the app



METRICS

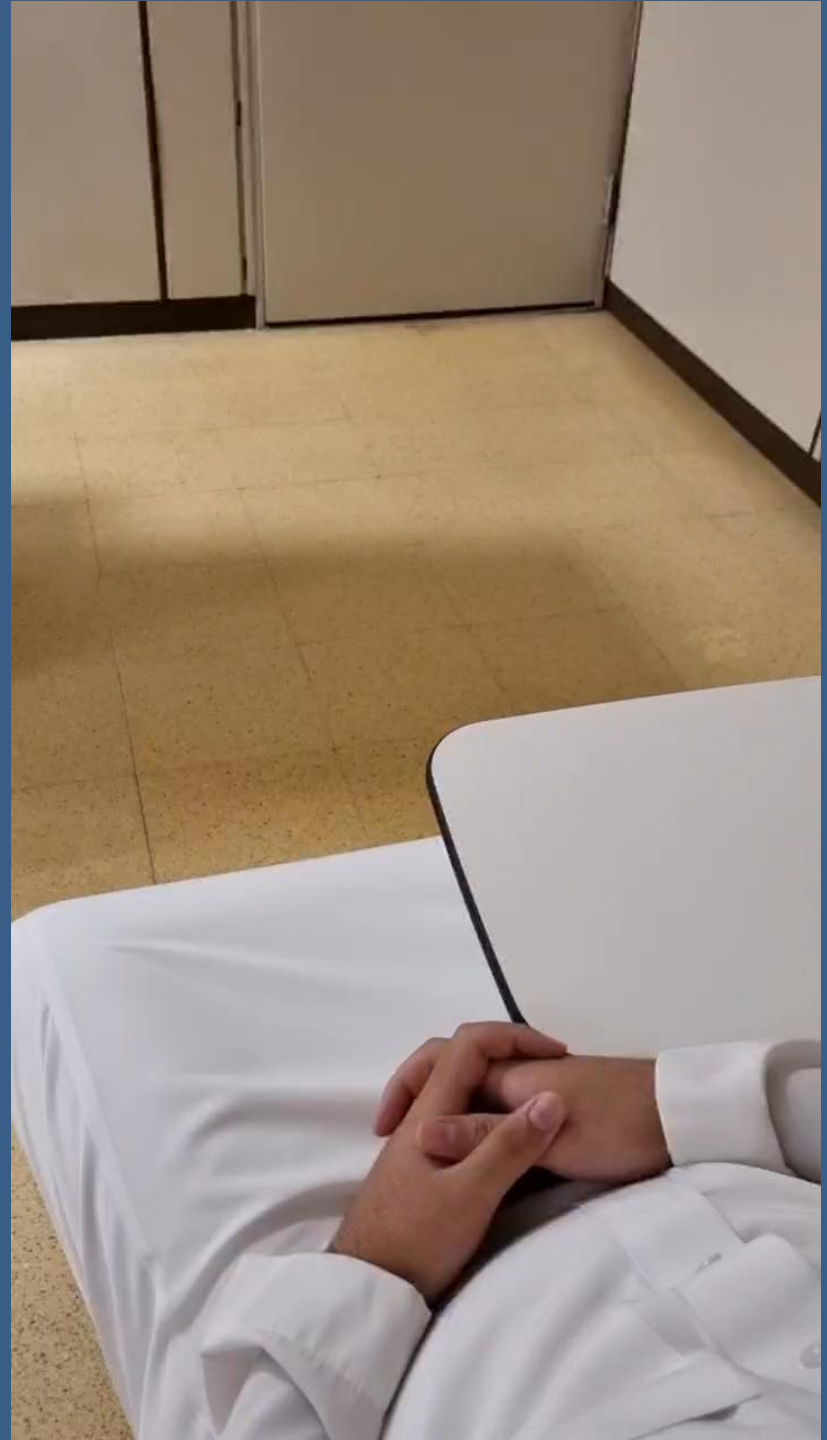
Quantitative Metrics:

- Time on task
- Error rate
- Amount of help asked
- Succes rate

Qualitative Metrics:

- From 1-5:
  - How smooth was thew app experience?
  - How usually will you use this app on daily basis?
- Any suggestions from the user

A VIDEO OF ONE OF OUR TESTING SAMPLES



PROTOCOLS

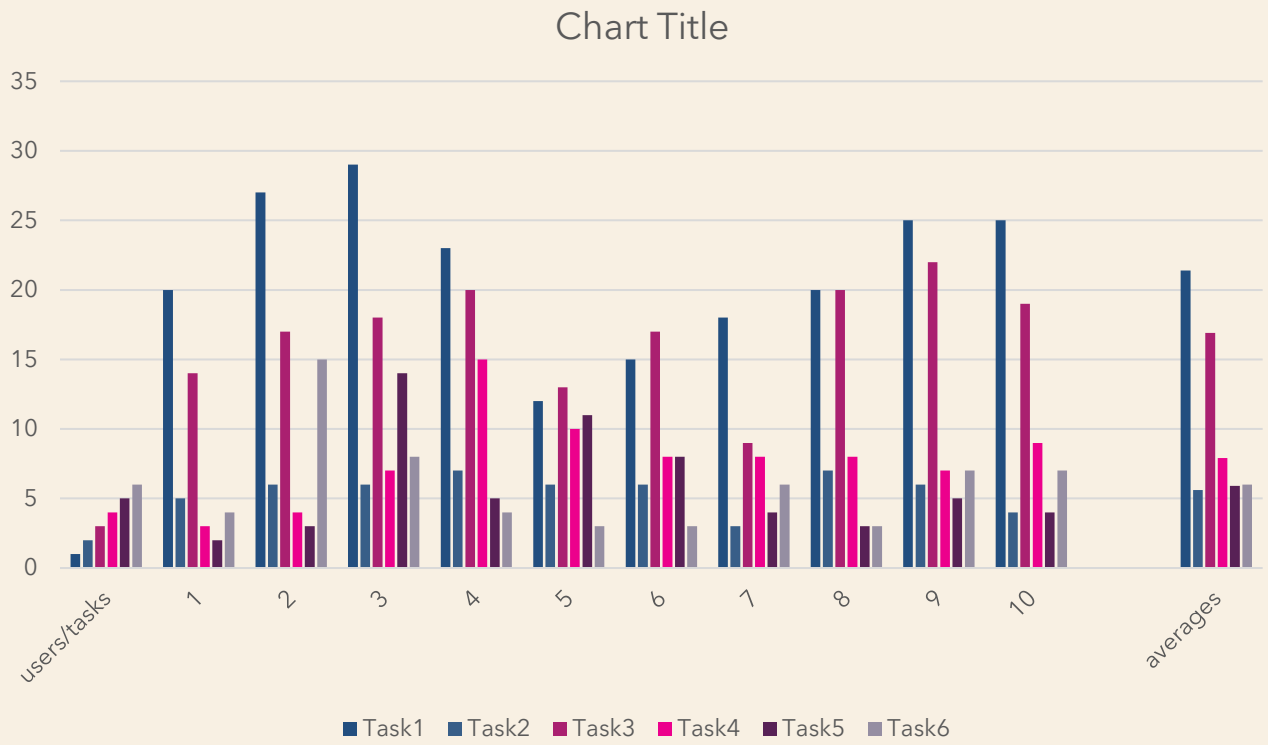
All students had the same environment:

- Same script
- Same tasks
- Same lighting
- Same time of the day
- Same chair

DATA ANALYSIS AND RESULTS

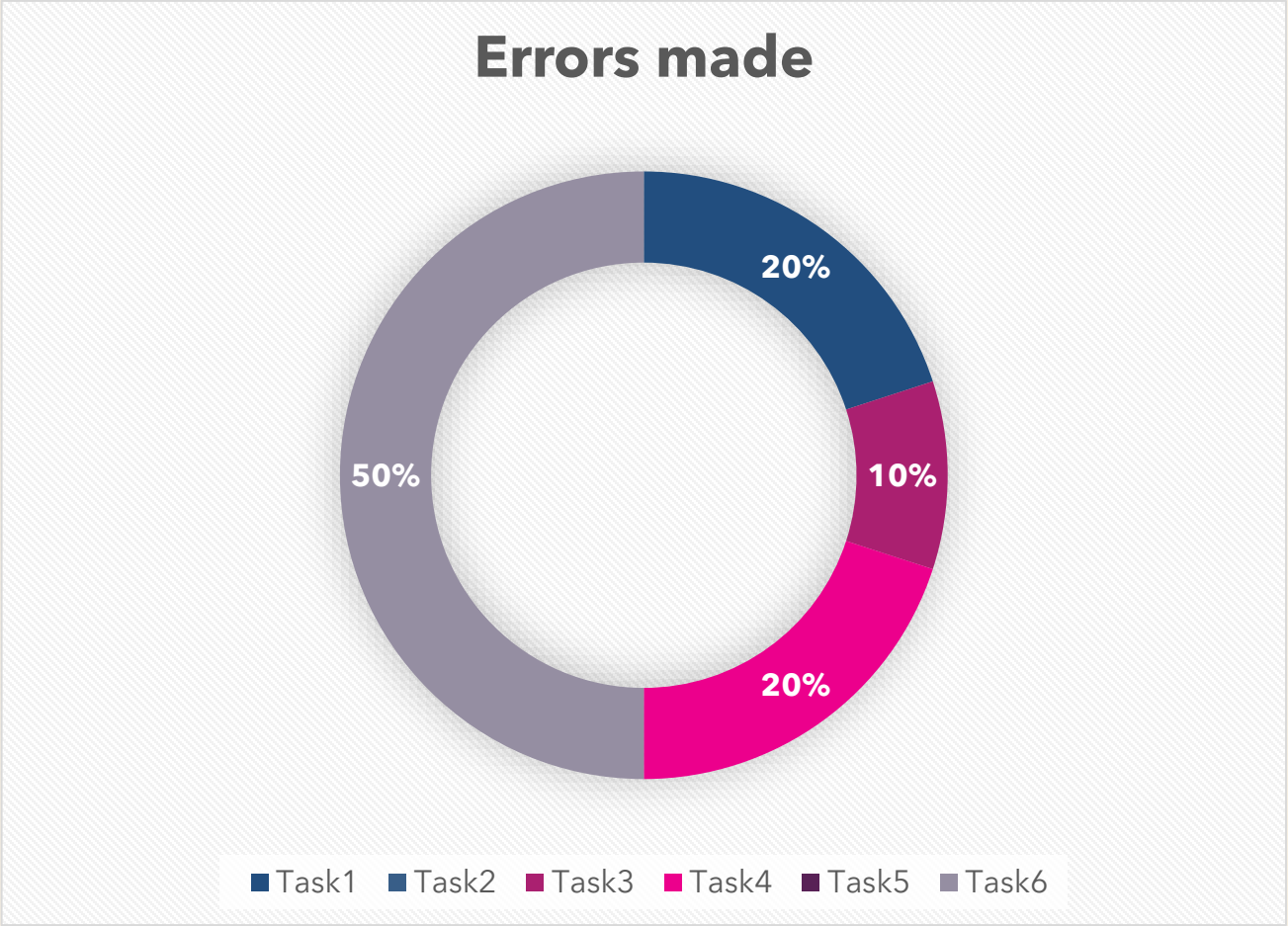
The longest task by far was loging in on average it took 21.4 second. Which is normal due to a lot of typing needed.

However, the most unexpected task that took longer than expected was loging out.



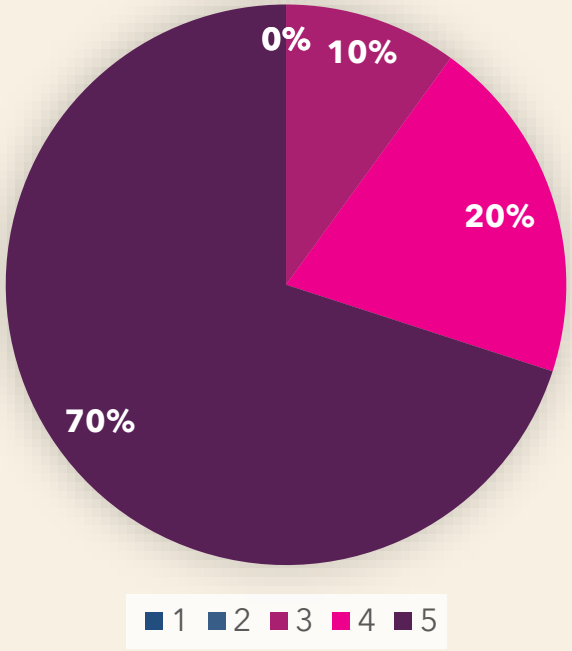
DATA ANALYSIS AND RESULTS

- On average each student made 0.9 errors in the 6 tasks given to them. With a success rate of 83.33%.
- Only 0.4 helps where used on average per student.
- Approximately 50% of errors made was in the last task (Logout), which that there is a critical problem.

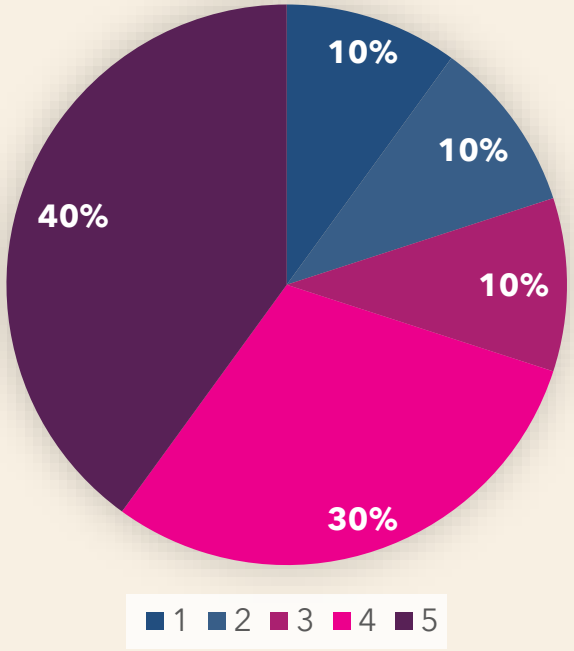


QUALITATIVE DATA:

Ease of use



Use in daily basis



90% of the users we tested said their experience in the app was smooth and easy.

70% of the user said they would most probably use it in daily basis.

2 of the users we tested uses the metro as their mean of transportation which justify the outlie in the chat.

On Average:

Ease of use: 4.6 Daily basis: 3.8

QUALITATIVE DATA:

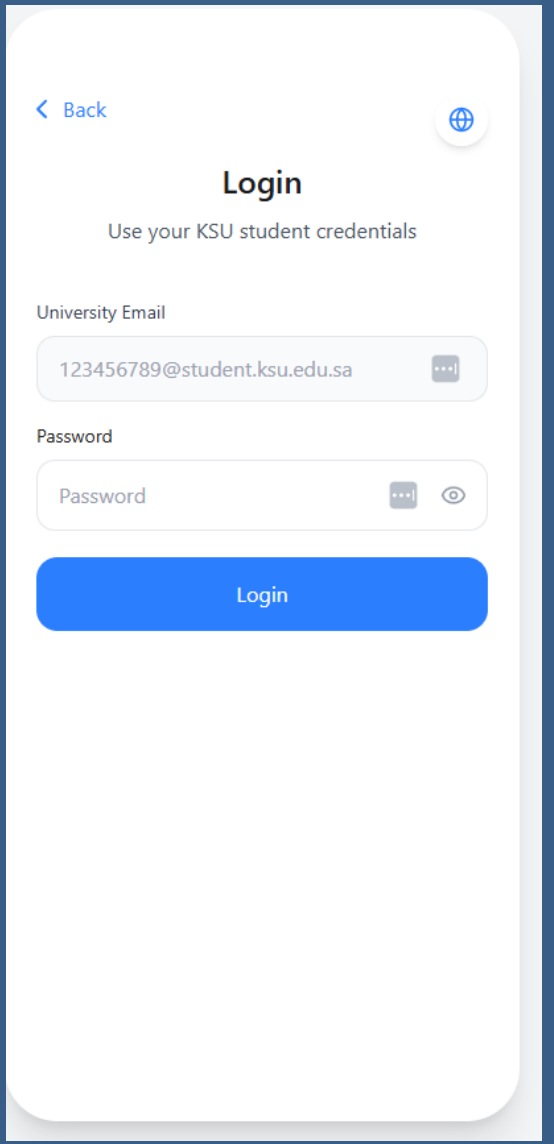
Recommendations given by the users:

- Place the logout in a better place.
- More guidance inside the app.

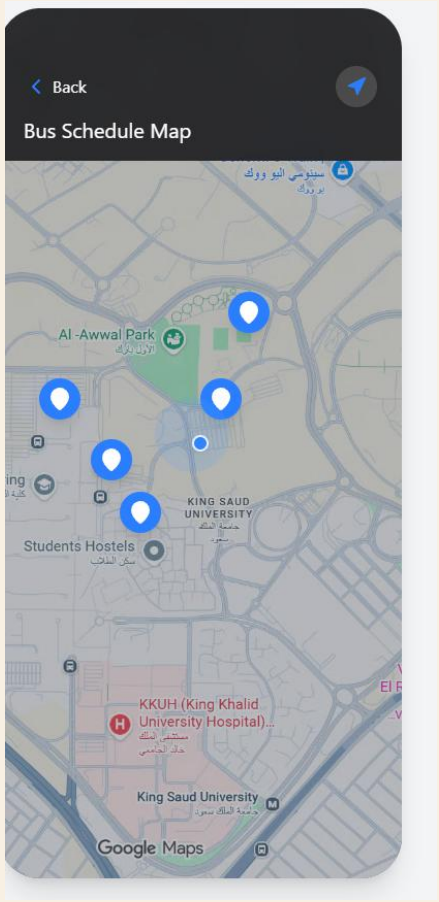
KEY FINDINGS & DESIGN EVOLUTION

- In the Login page students tend to not read that they have to login user their student credentials (KSU email) and just immediately type their personal emails.

- For the design evolution we should put a warning symbol next to it or the text to bold red to grab the user attention



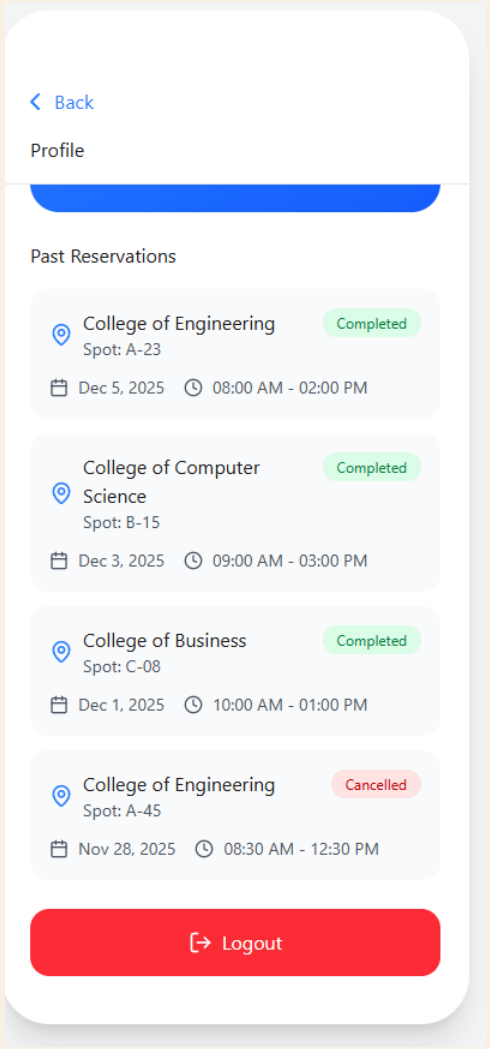
KEY FINDINGS & DESIGN EVOLUTION

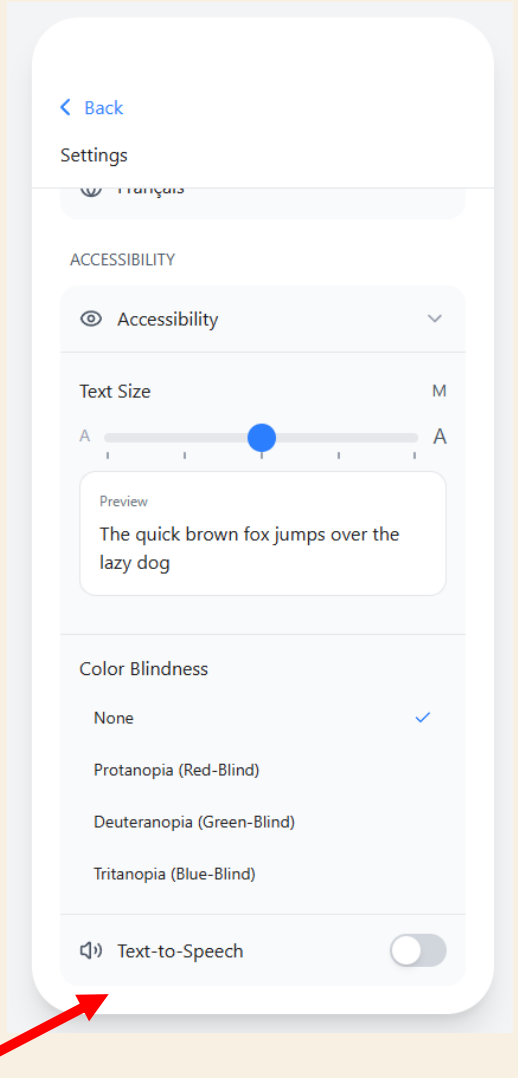


- Unlike the parking slots map we didn't add a zoom in/out feature in the bus stops map. Initially we thought it was unscary but turns out 30% of students tried to zoom in here and couldn't.
- For future, we would add the zoom in/out which will turn out to be helpful.

KEY FINDINGS & DESIGN EVOLUTION

- Perhaps on of our most important findings was the logout errors.
- Since 50% of the users clicked on setting rather than profile to logout, we would add a logout button in the settings tab too.
- This would solve the issue and raise success rates





REFLECTION & CONCLUSION

The high “Ease of use” and the high success rates confirms that the app is intuitive and clear.

Even simple tasks like logout could frustrate the users that’s why testing is crucial.

For future work we would implement the fixes and test it with even larger group of people.

THANK YOU