uOttawa

Deliverable D: conceptualization

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Summary

After listing the necessary design criteria to satisfy the needs of Shared Services of Canada each team member created a solution for 3 distinct concepts:

Subsystem 1: App interface.

Subsystem 2: reservation process.

Subsystem 3: software.

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1. Introduction:

This technical report contains the preliminary concepts for our problem statement. The following preliminary concepts were defined through a condensation, categorization and reconsideration process that used the concepts each team member meticulously developed for each of the three sub-systems previously defined. A final solution is then defined for our client, Shared Services Canada.

2. Research and analysis:

To gather as much data as possible for conceptualizing preliminary concepts, the team required a substantial dataset. This was achieved through a variety of research and data-gathering methods. Initially, we explored all necessary techniques and technologies essential for meeting the project's targeted specifications, informed by client interviews and requirements. This encompassed, among other factors, a localization system, alert and notification systems, and workspace type and details.

As an anecdote, we conducted comparative analyses of performance and computing properties across different workspace reservation systems. Our selection process also considered various user reviews and feedback. Comprehensive information on these aspects can be found in the tables provided below:

Spécifications \ Dispositif	Regus	TCC CANADA meet. collaborate. succeed.	LiquidSpace
Web Site	Regus.com	TCC.com	LiquidSpace.com
Renseigne sur le type d'espace de travail	Montre si l'espace est partagé ou privé	Montre si l'espace est partagé ou privé	Montre si l'espace est partagé ou privé
Information sur les autres places réservés	Montre combien des places sont réservés	Montre combien des places sont réservés	Montre combien des places sont réservés
Équipement	Web Site renseigne sur l'équipement	Web Site renseigne sur l'équipement	Web Site renseigne sur l'équipement
Privacité	Cabines pour les appels	Cabines pour les appels	Cabines pour les appels
Reserve	Pour 1 mois	Même espace pour un temp fixe	Pour n'importe quel date
Espace pour affaires personnelles	Espace personnel et permet personnaliser	Espace personnel	Espace personnel

Spécifications \ Dispositif	Importance (poids)	Regus	TCC CANADA meet. collaborate. succeed.	LiquidSpace
Web Site		Regus.com	TCC.com	LiquidSpace.com
Renseigne sur le type d'espace de travail	3	3	3	3
Information sur les autres places réservés	4	3	3	3
Équipement	3	3	3	3
Privacité	4	3	3	3
Reserve	5	1	3	2
Espace pour affaires personnelles	3	3	2	2
Total		56	63	58

Using the previous tables, it is apparent that the most functional reservation system for the purpose of this project is TCC Canada.

3. Clients and users:

Our client, Shared Services Canada, has articulated their requirements for a straightforward workspace reservation system that provides comprehensive workspace information. We have carefully analyzed their needs and categorized them based on priority:

1. The solution is easy to use.

2. The solution shows who has reserved (individual or group) a seat nearby.

3. The solution helps to navigate better in the reserved workspace.

4. The solution offers shared and private spaces to store personal belongings.

5. The solution can contain more information about the nature of workspaces (lighting, position, and size of the workstation).

6. The solution can show how the space is equipped.

7. The solution provides more intimate spaces for meetings and calls.

8. The solution allows reservations to be made more than 2 weeks in advance.

9. The solution has an easier check-in system.

10. The solution ensures that the user respects their reserved space.

The needs are organized in order of priority (1 being the most important).

The identified needs can be addressed through an application designed with a strong emphasis on user-friendly simplicity, speed, and the amount of information provided.

4. Problem statement:

Employees of Shared Services Canada need software that provides a better experience and more options for booking their workspaces. They also require arrangement of their workspaces to make them more comfortable and desirable. The solution must offer user-friendly software with additional features and better workspace arrangement.

5. Certain solutions to the problem statement:

5.1.   Solution 1 by : Chris Chantiri

5.1.1. Interface subsystem

Definition:

All graphic and textual elements which allow interaction between the user and the website, application or software.

Concept préliminaire:

Intuitive interface: The user interface should be simple, easy, with clear navigation and easily accessible features.

Advantages:

An easy-to-use system improves the overall employee experience, which can help improve their job satisfaction and comfort.

New employees can quickly understand how to use the system without the need for extensive training, reducing the cost and time associated with training.

Disadvantages:

Simplicity can sometimes lead to lower security measures. A site that is too easy to use may be vulnerable to computer attacks or unauthorized access.

Too much simplicity in design can limit the options available to employees, because they might need more advanced features to meet their job needs.

Basic simulation exemple:
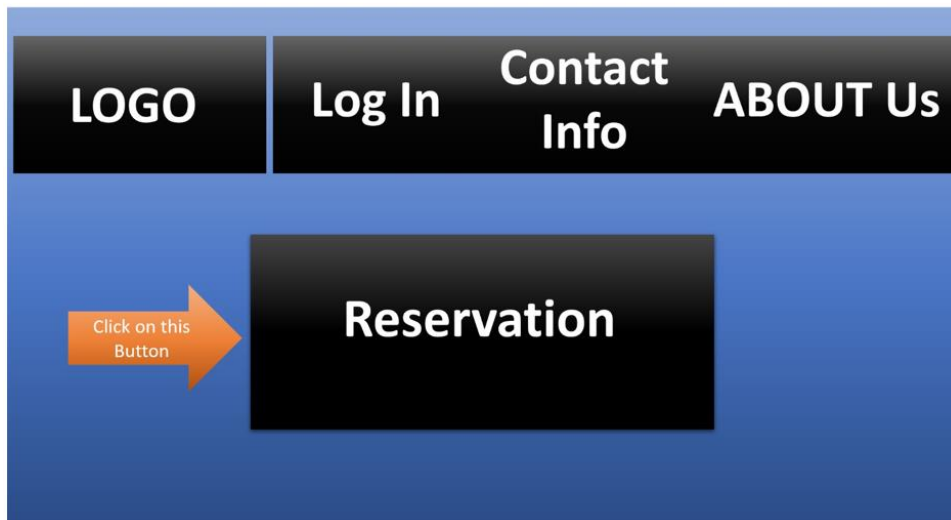
5.1.2. Reservation subsystem

Definition:

This subsystem allows employees to check the availability of meeting rooms, select the most suitable one for their meeting with the client, in other words this subsystem should also allow indicating the equipment available in the meeting room (keyboard, mouse, etc.).

Preliminary Concept:

Set up a shared calendar that is capable of recording information about available rooms, availability periods, and the ability to cancel reservations.

Advantages:

Booking Ease: Employees can easily reserve a room based on their availability and customer needs, simplifying the meeting planning process.
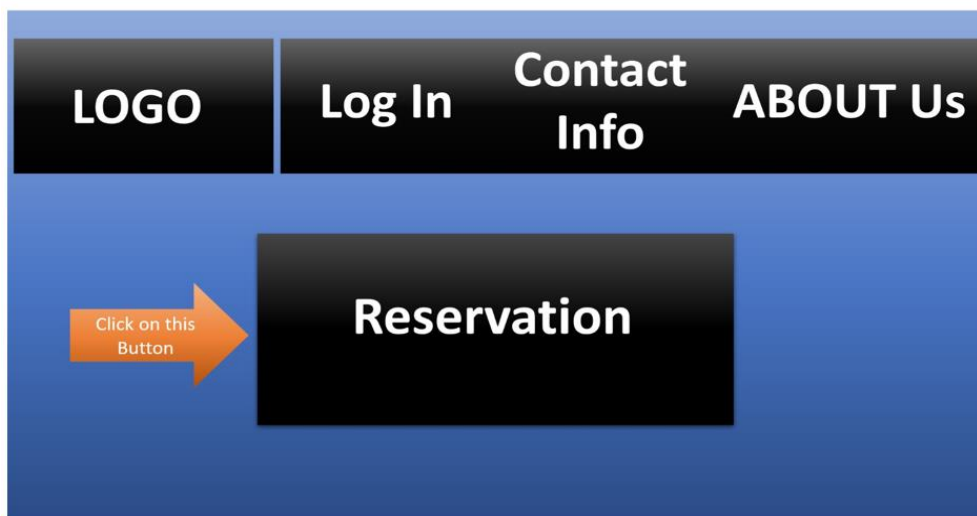
Reduction of booking conflicts: By having a calendar, the chances of booking conflicts are reduced which contributes to more efficient use of meeting rooms.
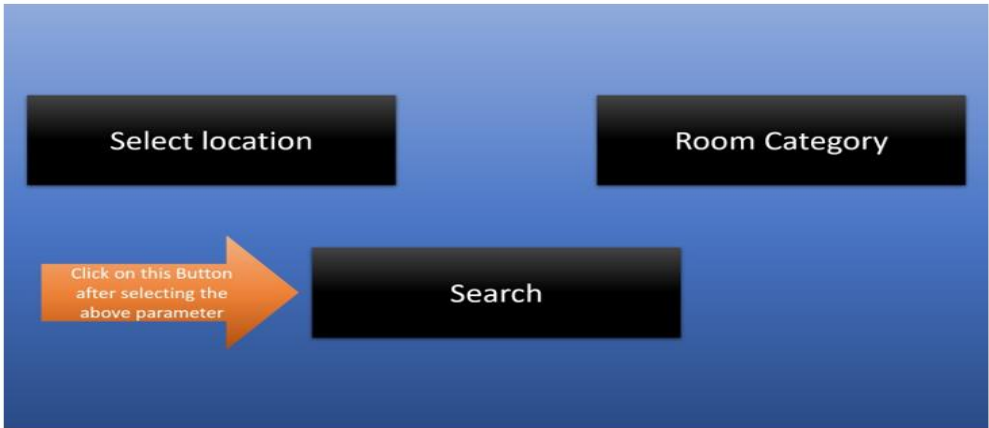
Disadvantages:

Technical issues: If the shared calendar system goes down, it can cause serious problems in scheduling meetings.

Training and Adoption: Some employees may need additional training to effectively use the calendar system (Example: Elderly people).

Basic simulation exemple:

5.1.3. Software subsystem

Definition:

Website software is the digital infrastructure that allows the site to operate, display pages, and provide interactive features to users.

Concept préliminaire:

Notifications and Reminders:
1) Use emails to send reservation confirmations, appointment reminders to employees, or to notify them of any other plan changes.

Advantages:

Emails are instant and allow for rapid communication which is important for booking and meeting confirmations.

Emails can be personalized to include details specific to the booking or meeting.

Disadvantages:

Risks of not reading, people often receive many emails, important emails may be ignored.

Accessibility: Some people may not have an email address or be uncomfortable with technology.

Emails can be costly for businesses.

2) SMS: Send text messages to employees and clients to remind them of appointments or notify them of any changes in plans

Advantages:

SMS messages are often faster and more direct than emails, are more likely to be read quickly, and they can be personalized.

Most people have phones and can receive text messages.

Disadvantage:

Possibility of non-delivery: There is always a risk that SMS messages may not be delivered correctly due to technical problems.

Costs: In some cases, sending SMS messages can incur costs for businesse

5.2.   Solution 2 by : Tchikangoua Djapa Cedric

5.2.1. Interface subsystem

Il s'agit du sous-système faisant référence a ce qui se referre à ce qu'il y aura comme écran d'interaction avec l'utilisateur. Il englobe tous les écrans qui seront présentés à l'utilisateur en en fonction de ses choix de navigation.

L'accent ayant été mis sur la simplicité, l'interface doit être le plus indicatif possible avec le moins de contrainte qu'il soit. Il ne doit pas non plus être alourdi avec des textes et figurines non indispensables.

Ce choix permettra à l'entreprise de réaliser une économie potentiellement considérable quant à cout de la formation des utilisateurs sur le nouveau produit pour les utilisateurs. Cependant, il est également nécessaire de mentionner que pour ce type de solution, la simplicité peut rimer avec niveau de sécurité moins élevé (même si cela n'est pas tout à fait le cas)

A l'ouverture de l'application, le système demande de s'authentifier ou de créer un compte si ce n'est pas encore fait.

Figure 1 : Étapes de connexion

L'application invite l'utilisateur à se connecter via un compte déjà existant ou sinon de créer un compte si ce n'est pas encore fait. Si la première étape est franchie, alors la page d'accueil apparait avec comme éléments principaux l'historique de réservations, les réservations en cours et tout ce qui est lié ç la gestion du compte utilisateur et modifiable par ce dernier lui-même.

5.2.2. Reservation subsystem

Il s'agit ici de mettre en place des règles et critères de réservations qui permettront d'assurer une gestion efficace de l'ensemble du système d'allocation des pièces et locaux.
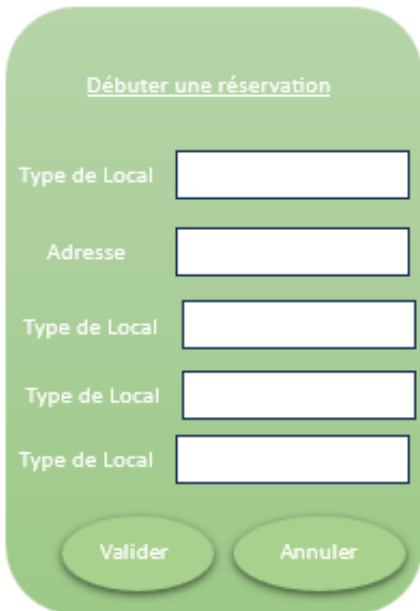
Figure 2 : Gestion des réservations

Après avoir cliqué sur « Mes réservations », il est demande de choisir entre annuler ou débuter une réservation et puis c'est à l'utilisateur de rentrer les paramètres correspondants.

En réservant, l'utilisateur est invite à choisir parmi les options présentées dans la liste déroulante se trouvant devant chaque paramètre (cela étant fonction aussi de la disponibilité des éléments désirés)

Pour l'un comme pour l'autre, une notification mail et/ou SMS sera envoyée informant de l'action qui vient d'être effectue.

L'avantage majeur avec ceci est l'uniformisation des procédés, évitant ainsi des dysfonctionnements tels que des réservations multiples. Cependant les limites concernent l'aspect selon lequel une fois une réservation annulée (même par inadvertance), il n'y a pas de possibilité de faire un retour arrière.

5.2.3. Software subsystem

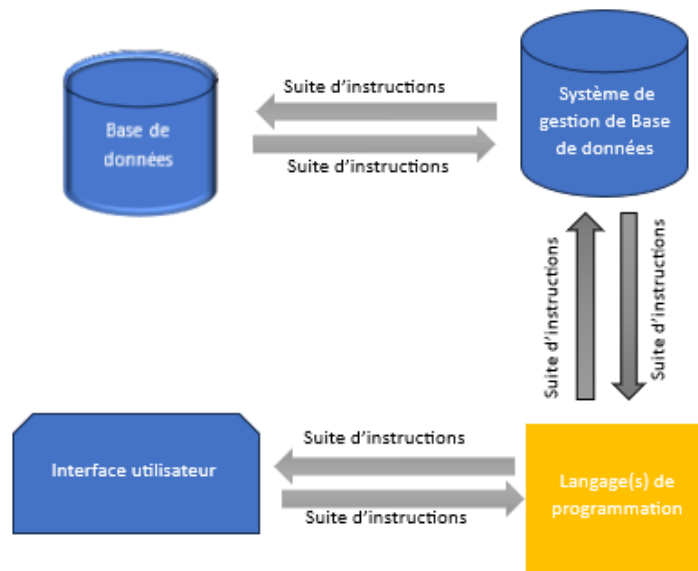Il s'agit de constituer les différentes bases de connées avec lesquels l'application devra interagir

Figure 3 : Synoptique sous-système software

Dans ce cas, on fait appel à une série d'intermédiaires ente l'utilisateur et la base de données qui stockera toutes les informations a sauvegarder, allant des enregistrements jusqu'aux informations sur les locaux répertoriés.

Grace au système de gestion de base de données, on a une interaction rapide et efficace avec la base de données centrale ce qui entraine un temps de réponse aux requêtes très court. Cependant, si un seul élément du dispositif présente un dysfonctionnement, c'est tout le système qui sera mis à mal.

5.3. Solution 3 by Mohamed Boustta:

5.3.1. *Interface subsystem:*

My app interface consists of 2 main screens:

-the first in a login page consisting of 2 options:

- Login : this button allows the user the access his account using a professional email and a password.
- Register : this button allows the user to register to the app and it requires a list of information from the user including full name, email address, phone number (used to send SMS confirmation), postal code (used to suggest workspaces based on the user's location) and password.

-after the registration process a screen shows up whit 2 reservation options, one for a meeting room and another for a private workspace. The screen also includes additional options as mentioned in the following sketch:

Figure 3.1: app interface proposition.

5.3.2. Reservation subsystem

The reservation process is straightforward and offers users multiple options to ensure that the space they select aligns with their preferences.

Step 1 : After the user selects a meeting room or a private workspace a screen shows up containing options about the space he desires and the screen includes

- Date and time
- Location preference
- Space type (this includes options like : silent space, public/private space, lighting type...)

- Period (morning, afternoon or full day)

Step 2: a screen shows up contaning a map and a list of the rooms meeting the user's requirements.

Step 3: after the user choses his desired workspace a confirmation tab shows up containing a picture of the offic and a list of the facilities included in the workspace and a confirmation button.

Step 4: the user receives and email and/or an SMS of a comfirmation ticket containing the reservation time, date , and number of the room.

5.3.3. Software subsystem

Using android studio as a programming environment and sharepoint as a database, the solution is going to consist of a mobile app compatible with both android and IOS users and ensures that the solution is user-friendly , simple, and most importantly effiective and time efficient.

5.4. Solution 4 by Renato:

5.4.1. Interface subsystem

The mobile app, when first downloaded, will firstly ask for the user to set up their account. To do so, the user must introduce their full name and create a password, as well their professional email will be asked for, and a personal email could be added as well, for backup purposes. The user's phone number will also be asked for, this will be for backup purposes as well and to facilitate login in the future.

Once the mobile application is opened, it will take you to the homepage, which is also signalized by a house icon (⌂) in the bottom part of the application. The homepage of the app shows all the reservations made for the month, which if pressed, their details are shown. These reservations are shown as a list.

From the homepage of the mobile app the user has access to other main parts of the app, such as the reservation page, settings and account, and reservation history where previous reservations are shown. All this is signalized again by icons.
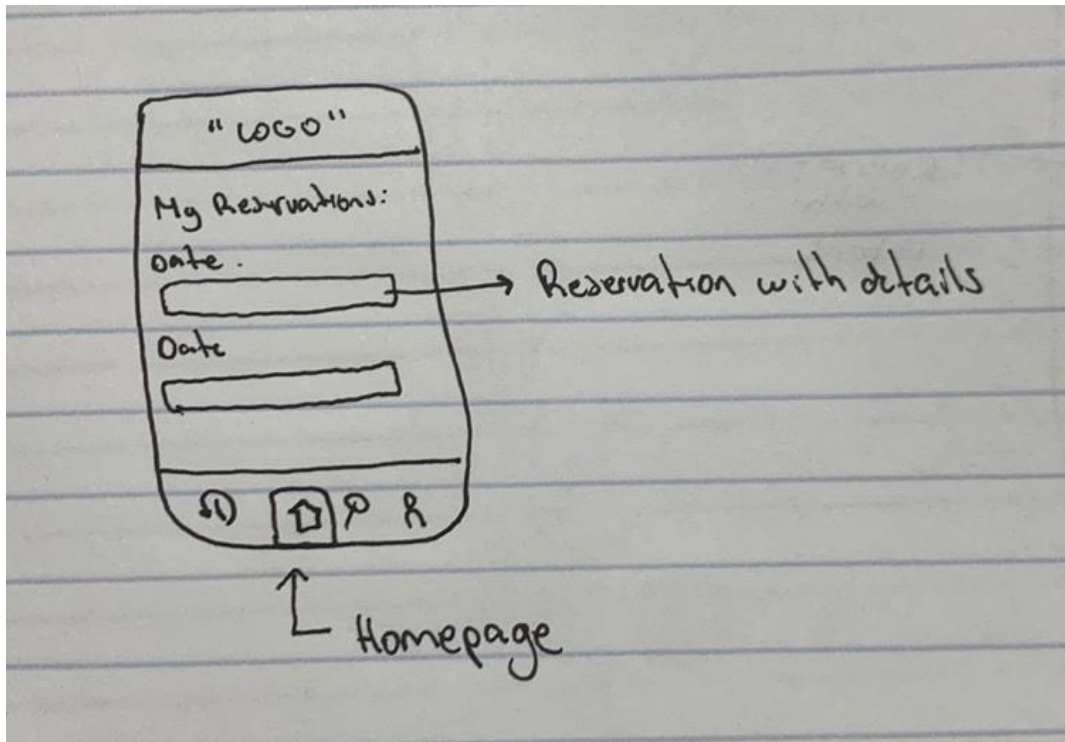
5.4.2. Reservation subsystem

To make a reservation in the mobile app, you will have to press the search tool icon (🔎). That will take you to the reservation page, where a search bar will appear. In the search bar you can either type in the name of the building if known, or a list of all the offices will show. To facilitate the search, there will be filters that can be applied, to make finding a workspace easier.

These filters can be:

- Location
- Private or shared space
- Meeting room
- Workspace
- Time of reservation
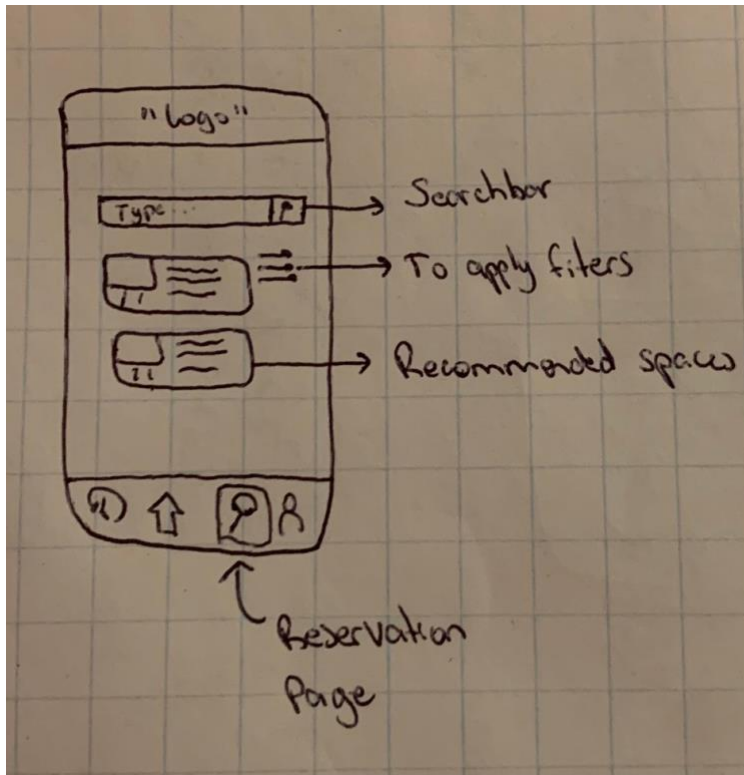
5.4.3. Software subsystem

The mobile app, to works at its best, is an app that's compatible with both Android and iOS, to allow all different phone users have the same experience.

As for the programming and development process, we will be using Android Studio to achieve the desired functionalities and the visual aspect as well.

Android Studio has been taken in consideration due to its broad range of capabilities for an app design and the learning process of their program isn't as complicated as other coding languages.

6. Evaluation selection based on design criteria:

Design Criteria	Importance	Chris	Mohamed	Renato	Cedric
Security	5	3	3	3	3
Simplicity	4	3	3	3	3
user information	3	2	3	2	2
alerts	4	2	3	2	2
flexibility	5	3	2	2	3
workspace information	5	2	3	3	2
reliability	2	2	2	2	2
workspace availability	4	2	2	2	3
reservation information	4	2	3	3	3
reservation process	3	3	2	3	3
reserved seats	4	3	3	2	2
adaptability	4	2	2	2	2
Total =		115	123	115	119

7. Final solution:

7.1.1. Interface subsystem

The proposed app interface consists of 2 main screens:

-the first in a login page consisting of 2 options:

- Login : this button allows the user the access his account using a professional email and a password.
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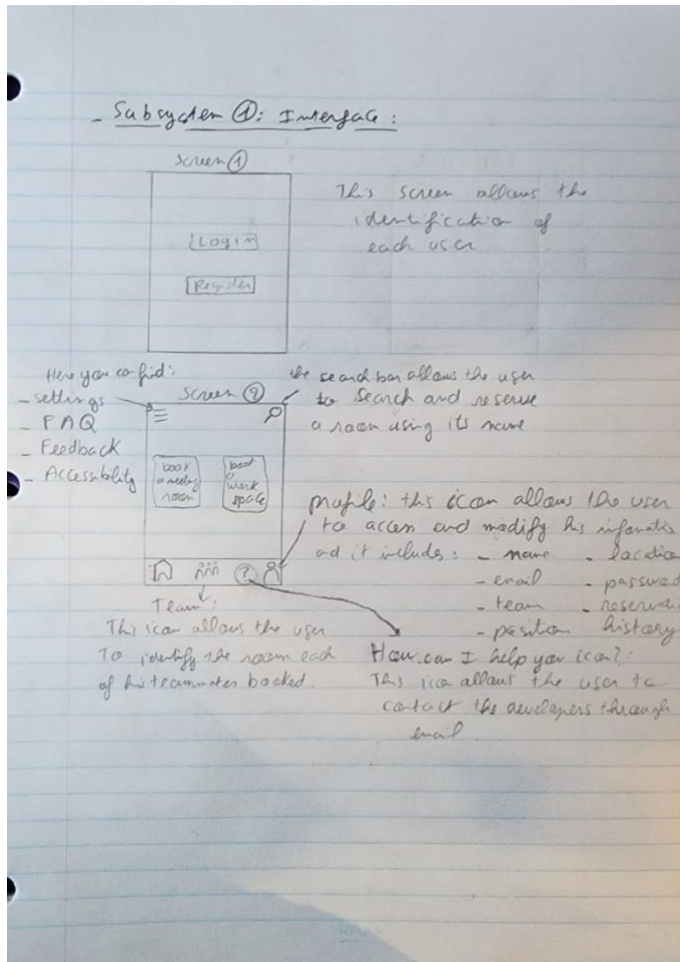
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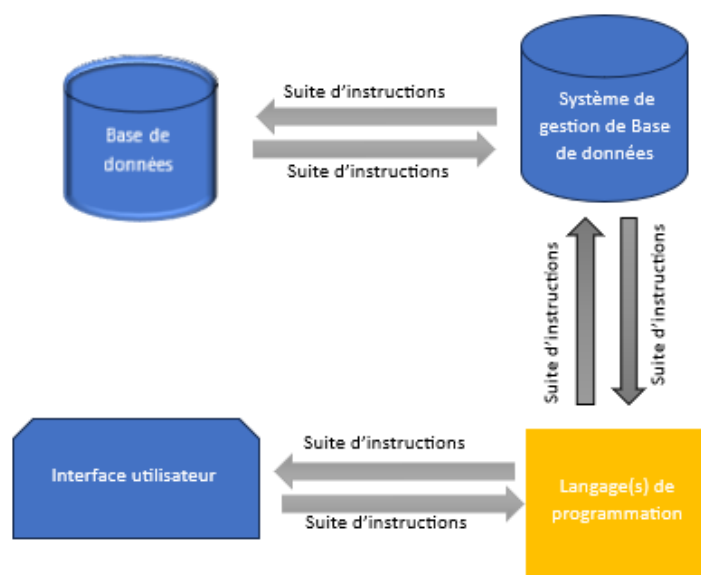
7.2. Final solution advantages and disadvantages:

➢ Advantages

- Enhanced Efficiency: The app streamlines the process of reserving workspace by offering a user-friendly interface and customizable options, reducing the time and effort required for employees to find suitable workspace for their needs.

- Improved User Experience: Employees can easily find, and book workspace tailored to their preferences, leading to higher satisfaction and engagement with the workplace environment.

- Flexibility and Customization: The app offers a range of options for workspace reservation, including meeting rooms and private workspaces, as well as customizable preferences such as location, space type, and period.

- Remote Access: Employees can access the app from anywhere with an internet connection, allowing for remote reservation of workspace even when they are not physically present in the office.

➢ disadvantages

- Data Privacy Concerns: Collecting personal information such as email addresses, phone numbers, and postal codes during the registration process raises concerns about data privacy and security.

- Technical Issues: Like any digital platform, the app may experience technical issues, glitches, or downtime, which could disrupt the reservation process and impede users' ability to book workspace effectively.

- Cost Considerations: there may be hidden costs associated with user support, training, and data storage, which could cause a challenge, especially with our 100$ budget.

- Dependency on Technology: The app relies heavily on technology for its functionality, which may pose challenges for employees who are not comfortable or familiar with using mobile applications.

8. Conclusion and recommendations:

Overall, the proposed app not only enhances the user experience but also contributes to optimizing workspace utilization and promoting productivity. With its user-friendly interface, seamless reservation process, and compatibility across mobile platforms, the app stands poised to revolutionize how employees interact with and reserve workspace, ultimately facilitating a more flexible and efficient work environment.

9. References:

1. Rhee, Matthew. "Instagram Interface Analysis." *Medium*, Medium, 8 Dec. 2021, https://medium.com/@matthewrhee2023/instagram-interface-analysis-7ae99f186112