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Department of Computer Science
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COS301 - Software Engineering

Office Booker

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1 Introduction

1.1 Vision

Office Booker is a system that allows a user to interactively map out an office space and then book conference rooms and desks within the mapped-out office space. Many employees began working from home when the COVID-19 pandemic hit and thus a system is needed to help with organising who uses the limited office space and this is done through booking the desired space for the desired time.

1.2 Objectives

We, as Kryptos Kode, need to work diligently for the desired goal of creating the office Booker with a certain quality standard in place. By each sprint we should aim to have more fully functioning core requirements ready as well as some non-core requirements ready for the project to be completed on time with the necessary features implemented.

- The Office Booker should have a visual representation of the office for mapping out the space and its available resources.
- A way of selecting and booking slots in the office for use.
- A method of preventing other users that are not employees of the company from using the Booker for the company's office space.
- Able to view when spaces are available over a certain period of time.
- An office wide schedule view of bookings.
- Real time updates on the office slots availability.

Meeting these requirements will be the goal for creating the clients desired Office Booker

2 Class Diagram

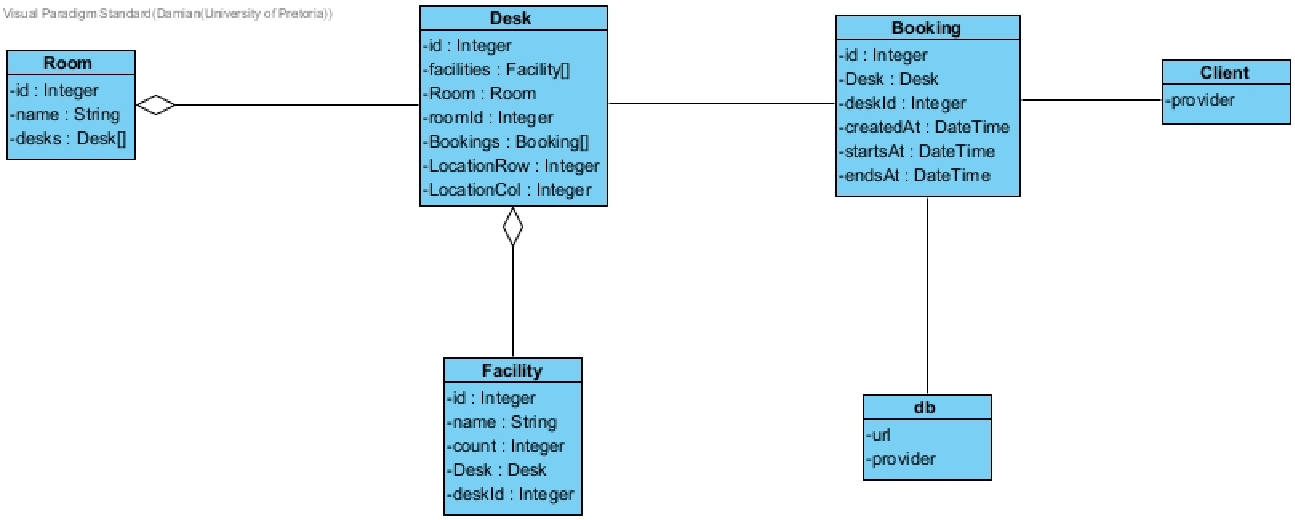

Figure 1: Class Diagram

3 User Characteristics

3.1 Employee

3.1.1 Purpose

An employee can book a slot to use in the office.

3.1.2 Technical Skills

- Internet literate to search the web application and use it for bookings.

3.1.3 Experience

Minimal experience required to use this app.

3.1.4 User Story

An employee would want to go in to the office but could find difficulty as others are trying to go in at the same time and there may not be enough room. Using the Office Booker the employee can securely select when what place they want to have in the office without causing any clashes.

3.2 Administrators

3.2.1 Purpose

The admins can use this to delete others bookings and make their own bookings like an employee could as well as allow bookings for guests.

3.2.2 Technical Skills

- The basics of internet related skills to search the web application and use it for bookings.
- Understanding of data and user management

3.2.3 Experience

Experience in administration to properly manage users bookings and allow guest bookings.

3.2.4 User Story

An Administrator of the Office Booker could see someone who does not honour their bookings is continuously making bookings and could choose to remove the employee who does not honour their bookings slot from them to prevent them from wasting a slot.

3.3 Guests

3.3.1 Purpose

Guests can request a slot to book that must be approved by an admin.

3.3.2 Technical Skills

- Internet literate to search the web application and use it for bookings.

3.3.3 Experience

Minimal experience required to use this app.

3.3.4 User Story

A Guest could want to come to the office but is not an employee in the company. The guest could make a request to the company to allow them to use a slot or room for when the guest makes a visit to the office. An Administrator could grant the request and the guest may now use their booked slot in the office.

4 Requirements

4.1 Use Cases

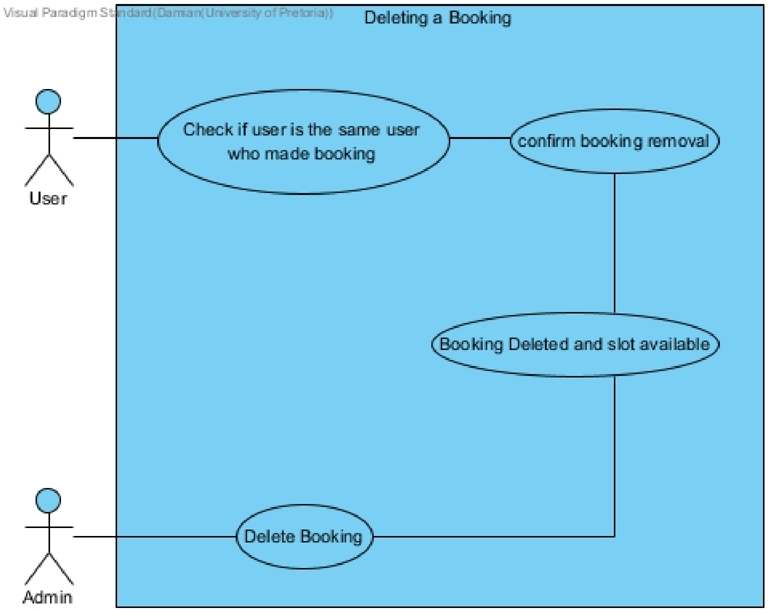
Visual Paradigm Standard(Damian(University of Pretoria))
Deleting a Booking
User
Check if user is the same user who made booking
confirm booking removal
Booking Deleted and slot available
Admin
Delete Booking

Figure 2: Deleting a Booking

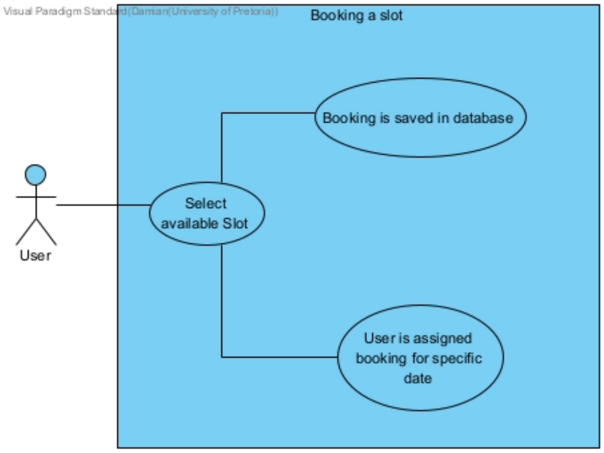
Visual Paradigm Standard(Damian(University of Pretoria))
Booking a slot
Booking is saved in database
User
Select available Slot
User is assigned booking for specific date

Figure 3: Adding a Booking

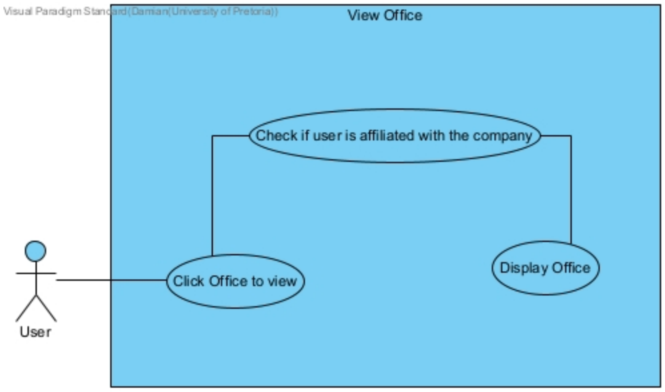
Visual Paradigm Standard(Damian(University of Pretoria))
View Office
Check if user is affiliated with the company
User
Click Office to view
Display Office

Figure 4: Viewing an Office Space

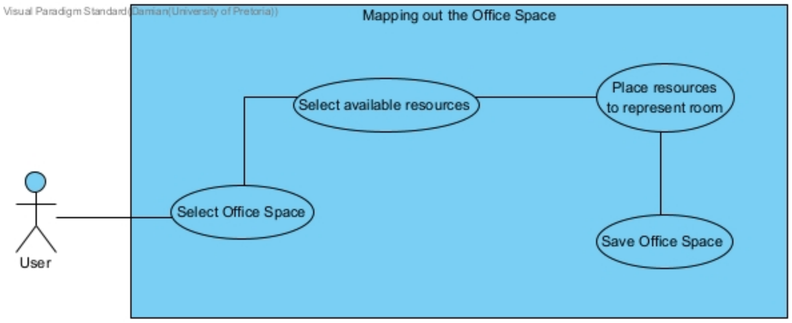
Visual Paradigm Standard(Damian(University of Pretoria))
Mapping out the Office Space
Select available resources
Place resources to represent room
User
Select Office Space
Save Office Space

Figure 5: Mapping out Office Space

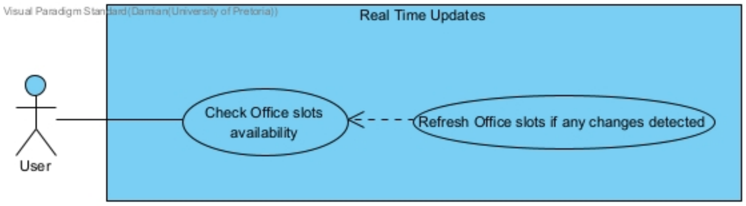
Visual Paradigm Standard(Damian(University of Pretoria))
Real Time Updates
User
Check Office slots availability
Refresh Office slots if any changes detected

Figure 6: Real Time updates of the Office space slots Availability

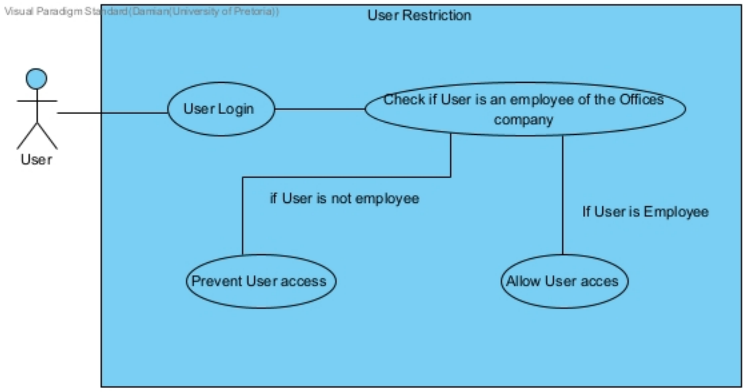
Visual Paradigm Standard(Damian(University of Pretoria))
User Restriction
User
User Login
Check if User is an employee of the Offices company
if User is not employee
If User is Employee
Prevent User access
Allow User acces

Figure 7: Prevent Users that are not employees from making Bookings

4.2 Functional Requirements

- FR1: A visual representation of the office to map out its resources IE desks, monitors, meeting rooms.
- FR2: A way of selecting and booking slots in the office for use.
- FR3: A method of preventing other users that are not employees of the company from using the Booker for the company's office space.
- FR4: Able to view when spaces are available over a certain period of time.
- FR5: An office wide schedule view of bookings.
- FR6: Real time updates on the office slots availability.

4.3 Non-Functional Requirements

- NFR1: The ability to allow guests to request a slot to book.
- NFR2: A recommendation system to suggest meeting rooms for team meetings.
- NFR3: The option to import a SVG image to be used to map out the floor plan.
- NFR4: The ability to rate employees on their rate of honouring their bookings.
- NFR5: The ability to book a slot and send invites to work colleagues to join the slot.
- NFR6: Utilising an AI to predict the availability of rooms depending on the past usage of said room.

4.4 Subsystems

4.4.1 Deleting a Booking: U1

The system can delete a booking when an admin chooses to remove it or the employee who made the booking can delete it. It uses the same data as the user adding a booking. The user should be able to select a booking and remove their own booking unless they are an admin in which they can remove any users booking. It uses the following data:

- Slot
- Date

4.4.2 Adding a Booking: U2

The system can add a booking when the slots have been selected for a specific date. It uses the following data:

- Slot
- Date

The user selects a slot and it is added to the system for a specific date for the user to use in the office.

4.4.3 Viewing an Office Space: U3

The system allows users to view the office space and its resources. The system shows all bookings made and all slots that are still available for users to make use of. It uses the following data:

- Office Space

4.4.4 Mapping out Office Space: U4

The system allows administrators to map out an office space and its resources to allow users to make bookings. The Admin will designate the slots for desks as well rooms for booking. It uses the following data:

- Office Space

4.4.5 Real Time updates of the Office space slots availability: U5

When a booking occurs whilst another user is viewing a slot, the availability should update in real time to show that someone has booked the slot. It uses the following data:

- Office Space

4.4.6 Prevent Users that are not employees from making Bookings: U6

If a user is not an employee of a specific company, they cannot make bookings for that company's office space. It uses the following data:

- Office Space

5 Quality Requirements

5.1 Reliability: Q1

It is of utmost importance that the service is reliable considering the expected activities that will be performed. All services with this application must function without flaw as it could cause issues for users and give unreliable data. The server must aim to be up and running 99% of the time.

5.2 Extensibility: Q2

The application should be able to handle numerous requests from a large number of users without having to sacrifice any performance and reliability of the system. An extensible feature should be improved and expanded upon when there is an option for a better solution.

5.3 Performance: Q3

The application needs to fulfill the requirements and perform to a high-level. Users of the system should be able to use the applications functions as they are intended.

5.4 Usability: Q4

The system should be easy to use for the average modern employee with basic computer skills. The system should have a dynamic and simple interface that makes it easy for the user to follow along.

5.5 Security: Q5

Security is important to maintain a confidential platform where user data is not exposed and privacy is a priority. Authentication and verification will be used against the back-end.

6 Trace-ability Matrix

-	U1	U2	U3	U4	U5	U6
Q1	X	X	X	X	X	X
Q2		X	X		X	X
Q3	X	X	X	X	X	X
Q4	X	X	X	X	X	X
Q5				X		X