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COSBAS Functional Requirements Documentation

Git: `https://github.com/undecidables/Requirements-Documentation`
GitHub Organisation: `https://github.com/undecidables`

The Team:
Elzahn Botha *13033922*
Jason Richard Evans *13032608*
Renette Ros *13007557*
Szymon Ziolkowski *12007367*
Tienie Pritchard *12056741*
Vivian Venter *13238435*

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1 Introduction

In this section of the document we will identify and address a high level overview of the COSBAS (Computer Science Biometric Access System) system.

2 Vision and Objectives

2.1 Vision

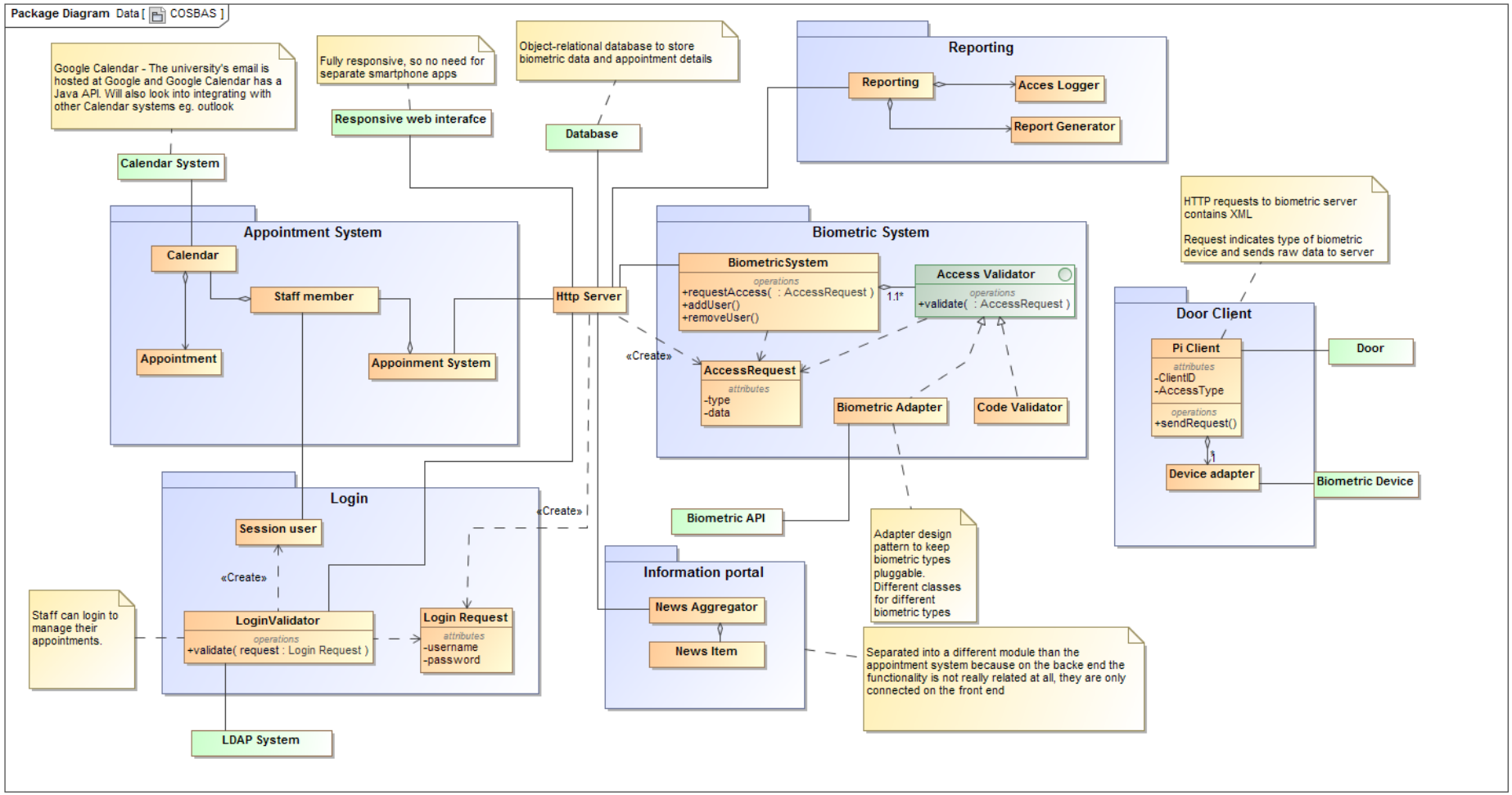
The vision of the COSBAS system is to create a biometric access control system that makes use of different biometric devices and the latest mobile technologies to grant access to visitors and staff members. The COSBAS system will also serve an information portal on the availability of staff and their schedules.

2.2 Objectives

The main objectives of the COSBAS system is:

- to provide secure biometric access to not only staff members of the department, but visitors as well.
- to provide information about the availability of the staff members.
- to provide the ability to make appointments by means of a web interface.

3 Domain Model



4 Appointments

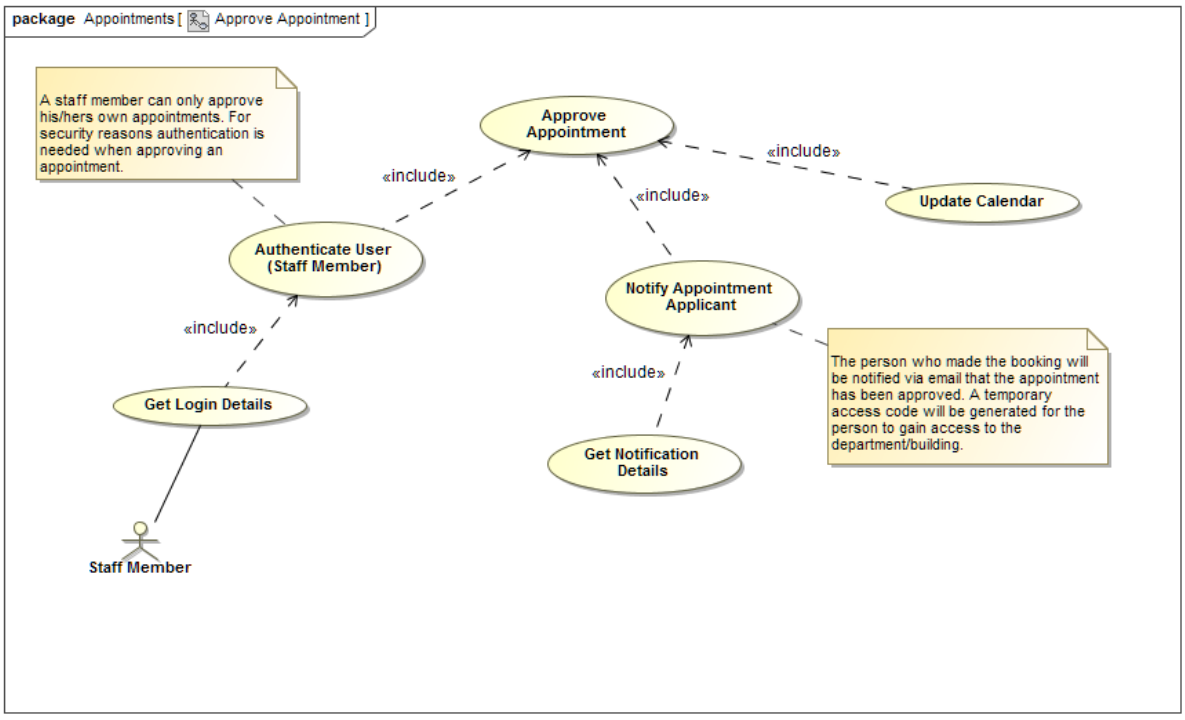
4.1 Approve Appointment

Priority: *Important*

4.1.1 Description

A person can book for an appointment with one of the staff members in the department/building. The particular staff member needs to approve such an appointment. A booking needs to be approved first by a staff member before the guest/visitor can gain access to the department/building.

4.1.2 Use Case diagram



4.1.3 Pre-/Post-Conditions

Pre-conditions:

- Staff member needs to be logged in to approve his/her own appointments.
- There should be a booking before an appointment can be approved.

Post-conditions:

- The staff member will become unavailable during that time.
- An email notification with an temporary access code is sent to the user who booked the appointment.

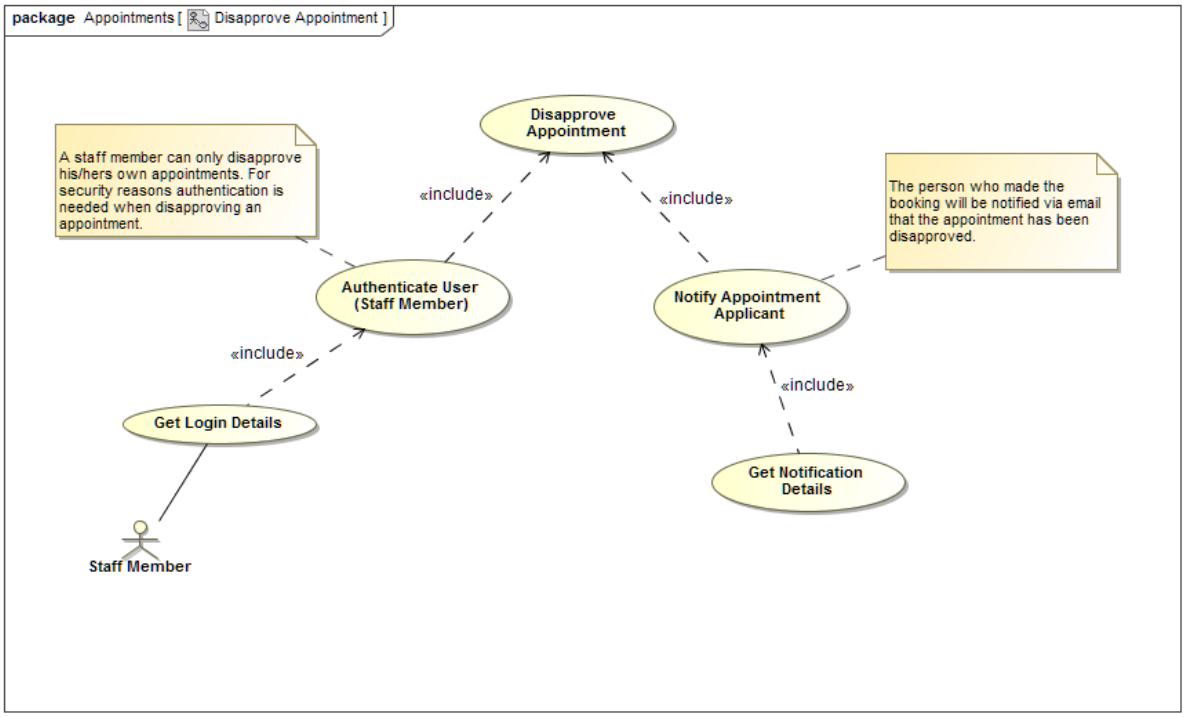
4.2 Disapprove Appointment

Priority: *Important*

4.2.1 Description

An appointment can be disapproved by a staff member. The user who booked for the appointment will be notified that the appointment has been disapproved.

4.2.2 Use Case diagram



4.2.3 Pre-/Post-Conditions

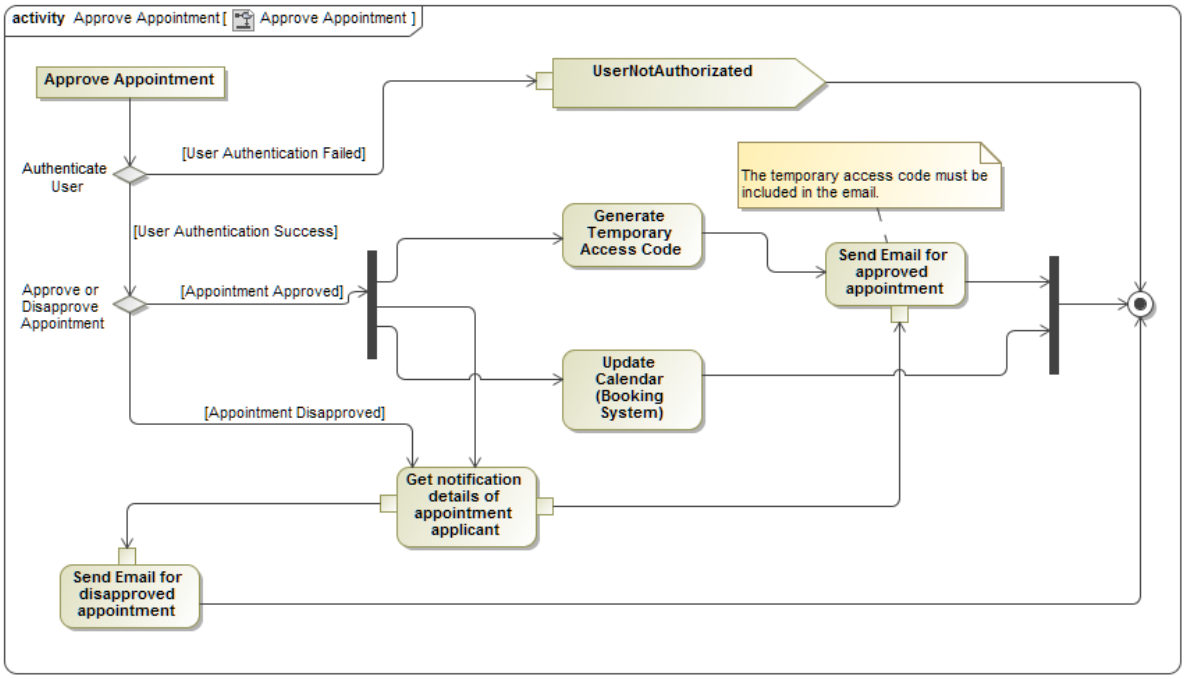
Pre-conditions:

- Staff member needs to be logged in to disapprove his/her own appointments.
- There should be a booking before an appointment can be disapproved.

Post-conditions:

- An email notification informing the user who made the booking that the appointment has been disapproved.

4.3 Process Specification for Approve and Disapprove Appointment



4.4 Requesting Appointment

Priority: *Important*

4.4.1 Description

This functionality allows a user of the system to request an appointment with a staff member that is also using system.

4.4.2 Pre-/Post-Conditions

Pre-conditions:

- Staff member must exist.
- Date and time of the requested appointment must be valid entries.

Post-conditions:

- Appointment will be saved for the staff member to approve or disapprove later on.
- User will receive an appointment identifier.
- Staff member is notified of the requested appointment.

4.5 Cancelling Appointment

Priority: *Important*

4.5.1 Description

This function allows the user to cancel an appointment they have made, or in the case of a staff member, that has been made with them. The user who made the appointment will use the appointment identifier to cancel the booking.

4.5.2 Pre-/Post-Conditions

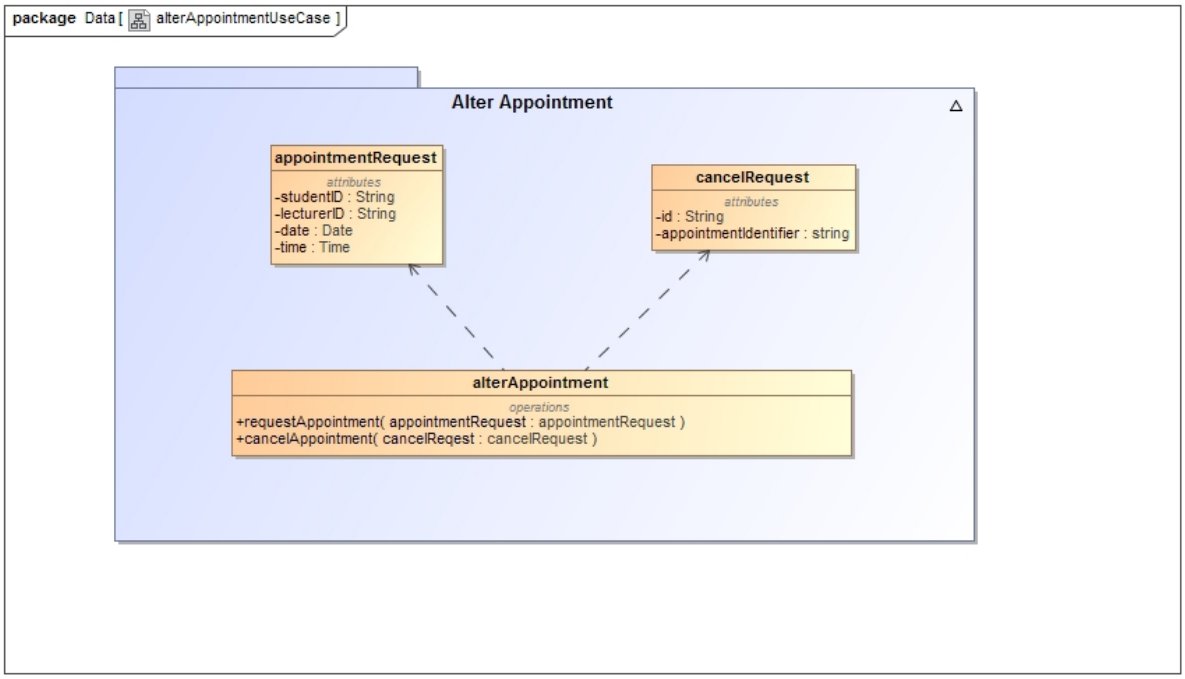
Pre-conditions:

- The appointment must exist.
- The user cancelling the appointment has to be the person that the appointment is with or the person who made it.

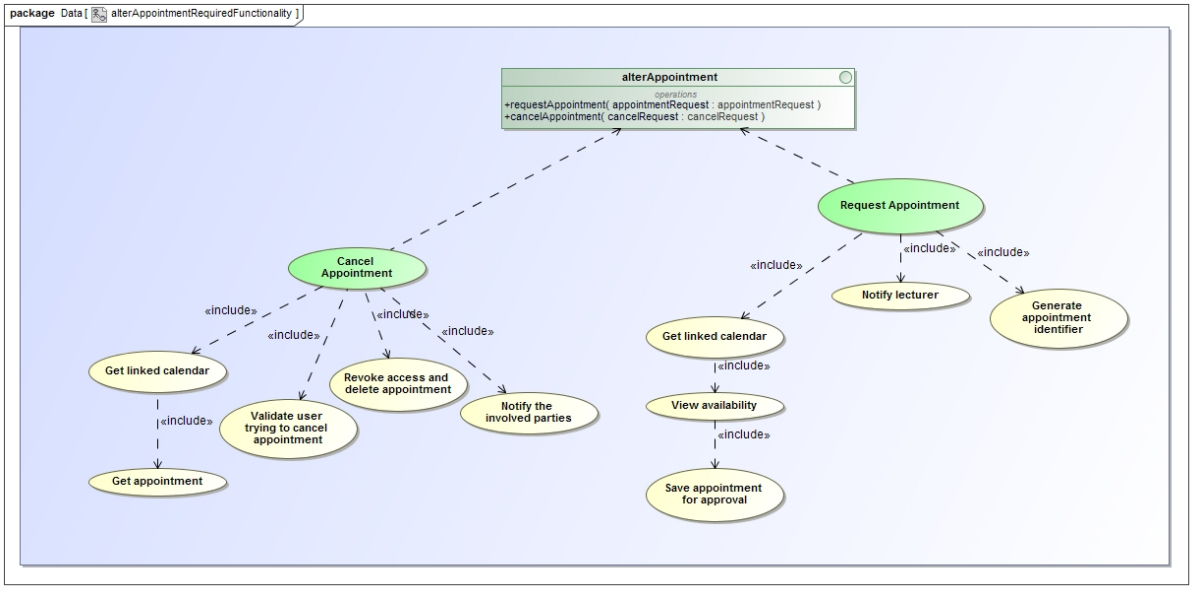
Post-conditions:

- The appointment will be cancelled.
- Both parties are notified.
- Access that was granted for the appointment is revoked.

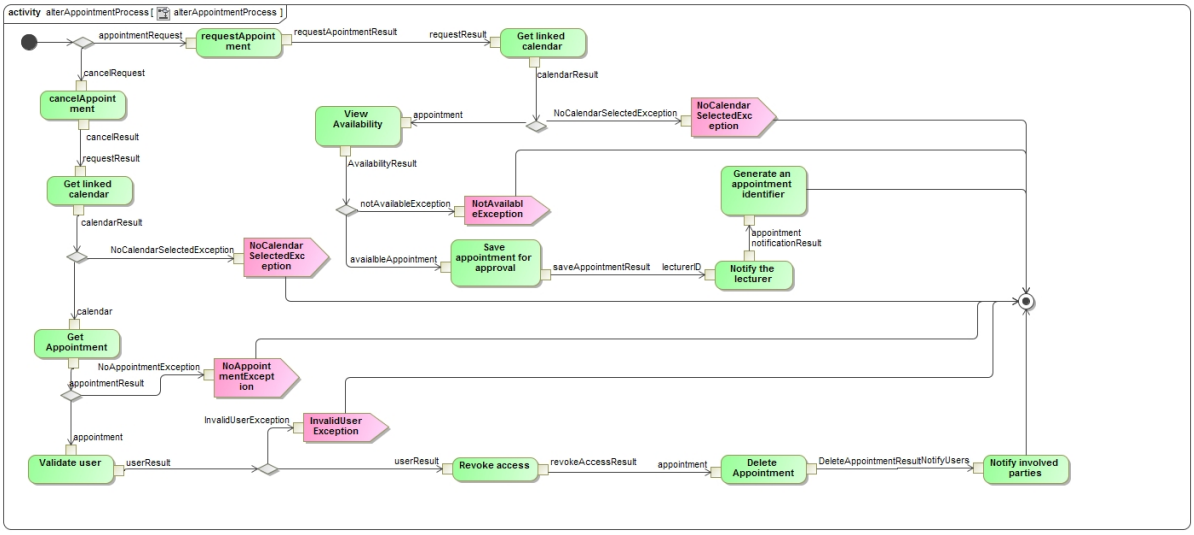
4.6 Use Case diagram for Requesting Appointment and Cancelling Appointment



4.7 Functionality for Requesting Appointment and Cancelling Appointment



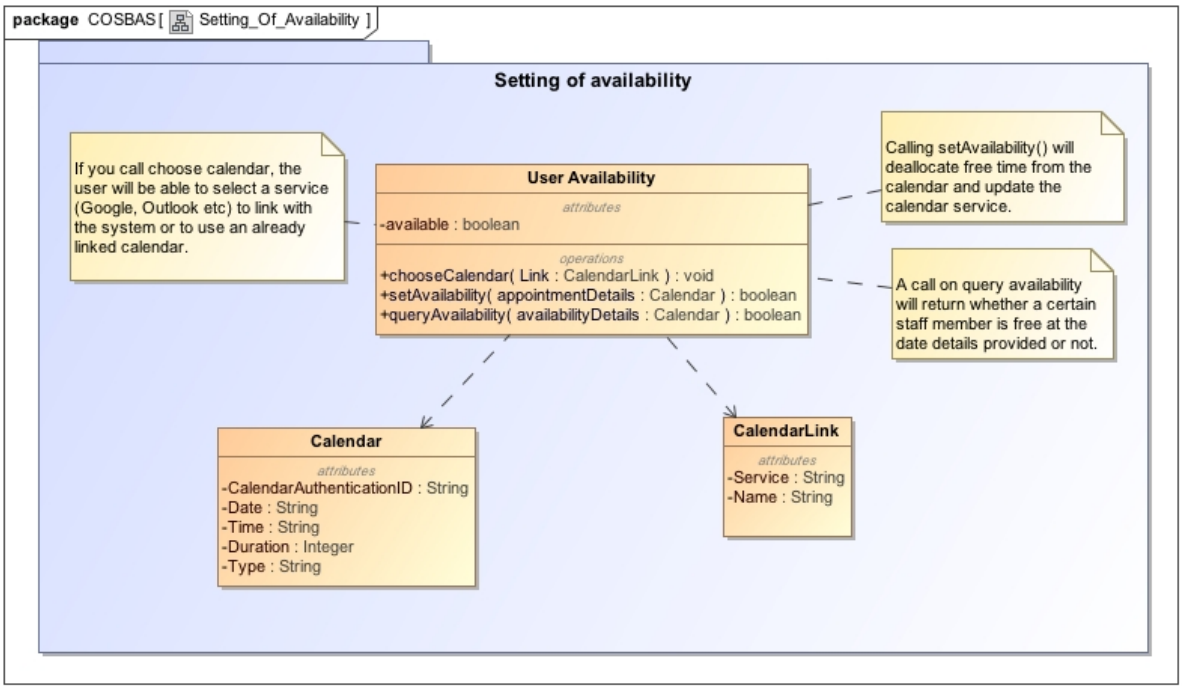
4.8 Process Specification for Requesting Appointment and Cancelling Appointment



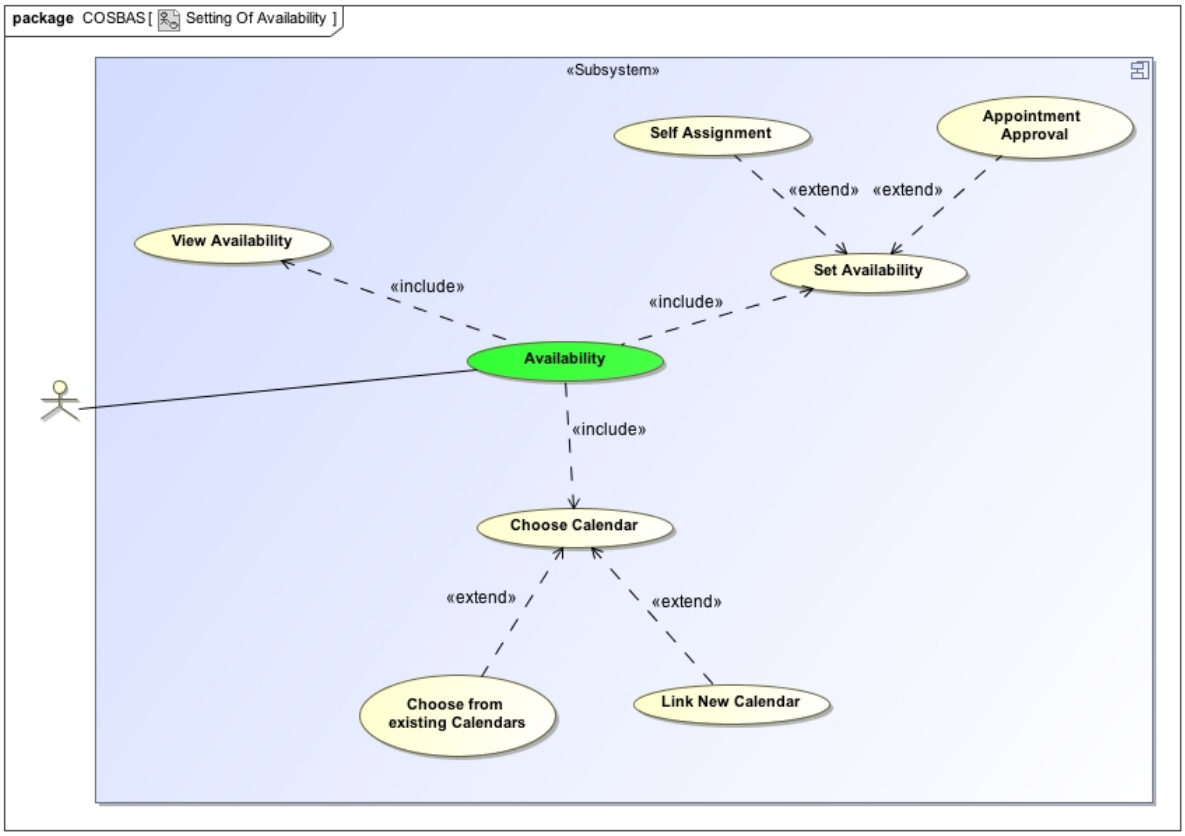
5 Availability

The following functionality of creating and setting availability will only be available to staff members. Users who are not authorised by the system will be granted read-only privileges.

5.1 Use Case Diagram



5.2 Module Functionality



5.3 Choose Calendar

Priority: Important

5.3.1 Description

An authorised user of the system should be able to select which calendar account to associate with the system. If the user chose a linked service, then that service needs to be authenticated.

5.3.2 Pre-/Post-Conditions

Pre-conditions: The user should be logged into the system and already have a calendar account from the linked services (Google & Outlook).
Post-conditions: Once the user has chosen the calendar to associate with the system, all updates in availability will be amended in that specific calendar.

5.4 View Availability

Priority: Important

5.4.1 Description

Both the authorised user and a non-authorised user (or guest) should be able to have a read-only functionality of viewing the availability of the associated staff member on their calender.

5.4.2 Pre-/Post-Conditions

Pre-conditions: An associated calendar for the staff member should exist.
Post-conditions: Be able to see whether the associated staff member has an appointment at a certain date and time or if they are free for appointments.

5.5 Set Availability

Priority: Important

5.5.1 Description

The authorised user should be able to set whether they are available at a certain date or time or if they have an appointment at a specific date or time. This can be set by the staff member himself/herself or by the approval of an appointment.

5.5.2 Pre-/Post-Conditions

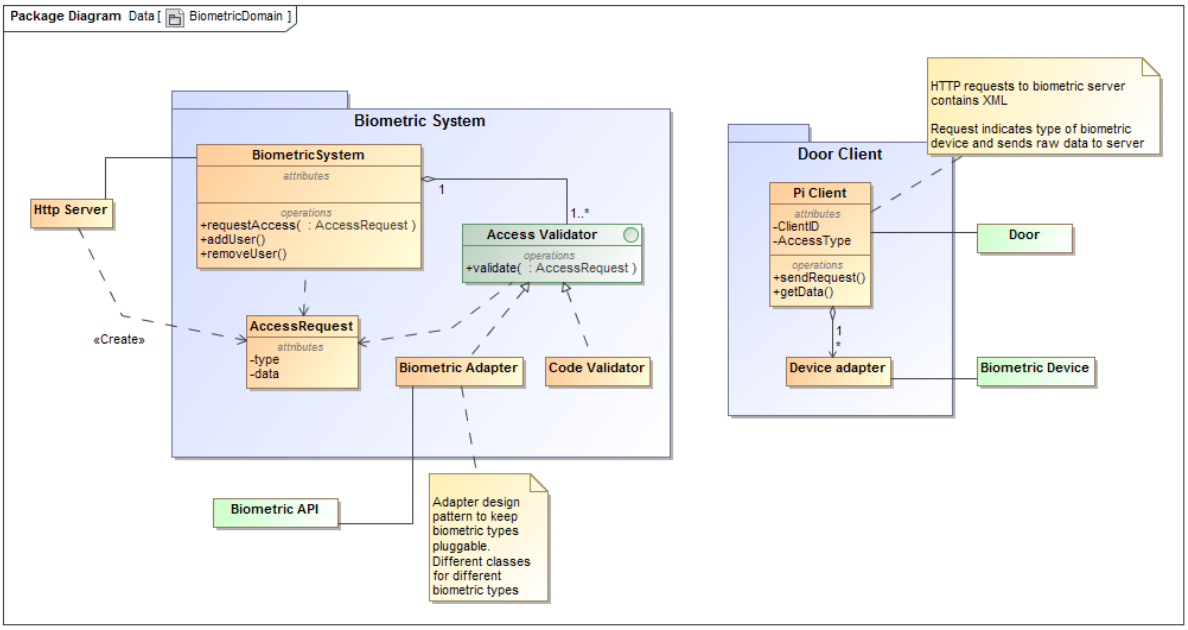
Pre-conditions:

- The user should be logged in.
- A calendar should exist.

Post-conditions: The linked calendar should be updated with the particulars specified by the authorised user. (CRUD of appointments).

6 Biometric Access

This module encapsulates functionality regarding validating biometric data or temporary access code to give staff members or visitors access to the Computer Science Department

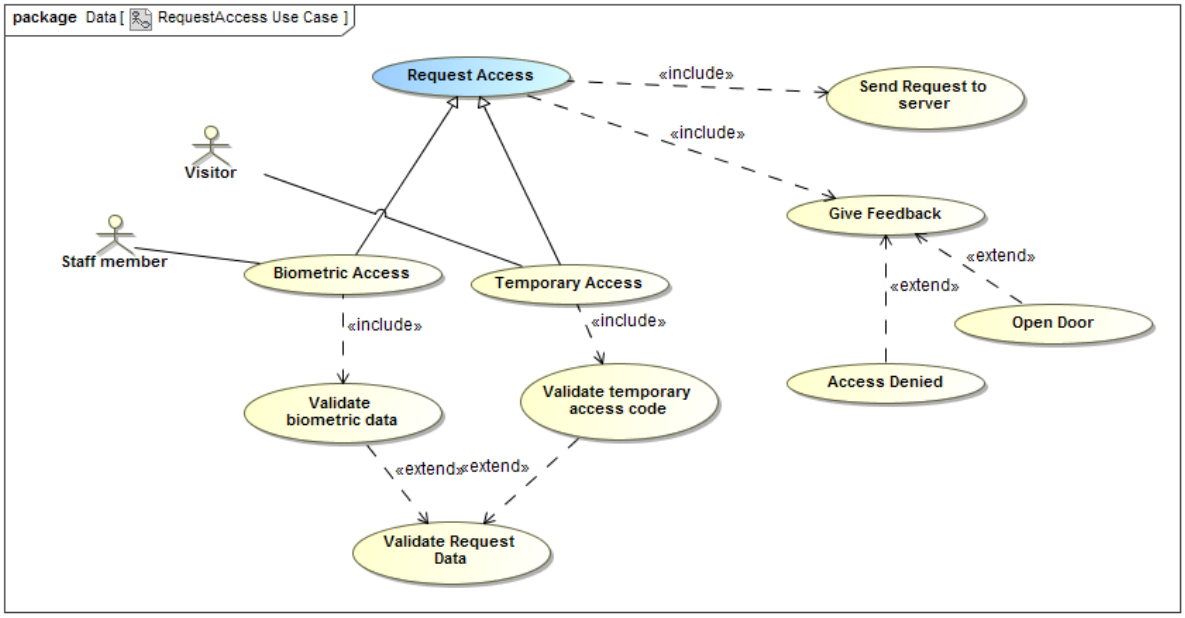


6.1 Request Access

Priority: *Critical*

Staff Access A staff member can gain access at a door using biometrics.
Visitor Access A visitor can enter the department by entering their temporary access code at the door.

6.1.1 Use Case diagram



6.1.2 Pre-/Post-Conditions

Staff Access Pre-conditions:

- Staff member must be registered on the system.
- Biometric data must validate correctly.

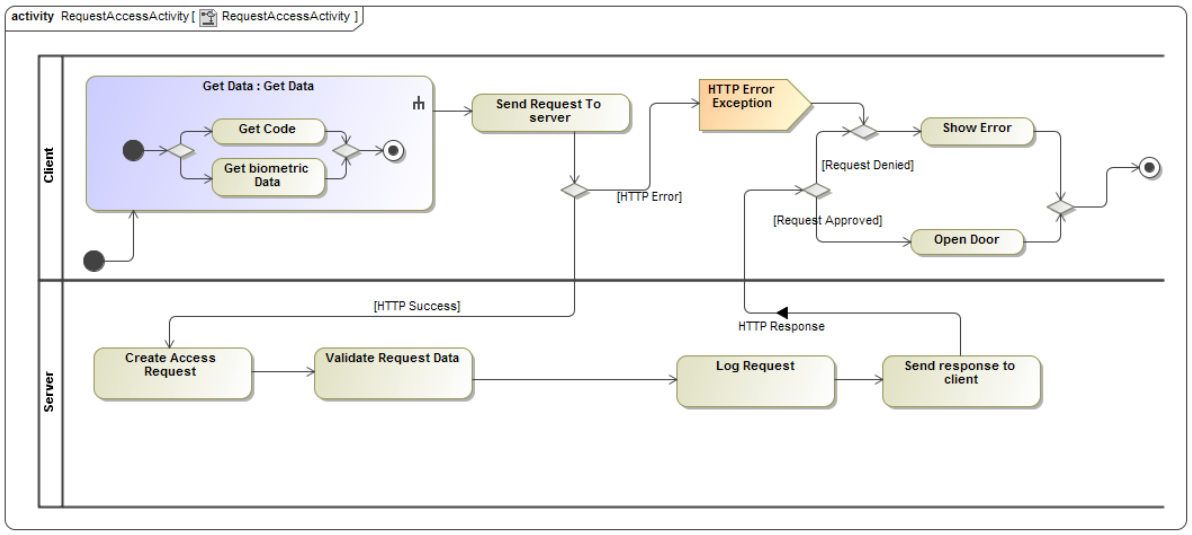
Visitor Access Pre-conditions:

- Visitor needs to have an appointment.
- Temporary access code should be valid.

Post-conditions:

- User gains access (building door will be opened)
- Access logged

6.1.3 Process Specification



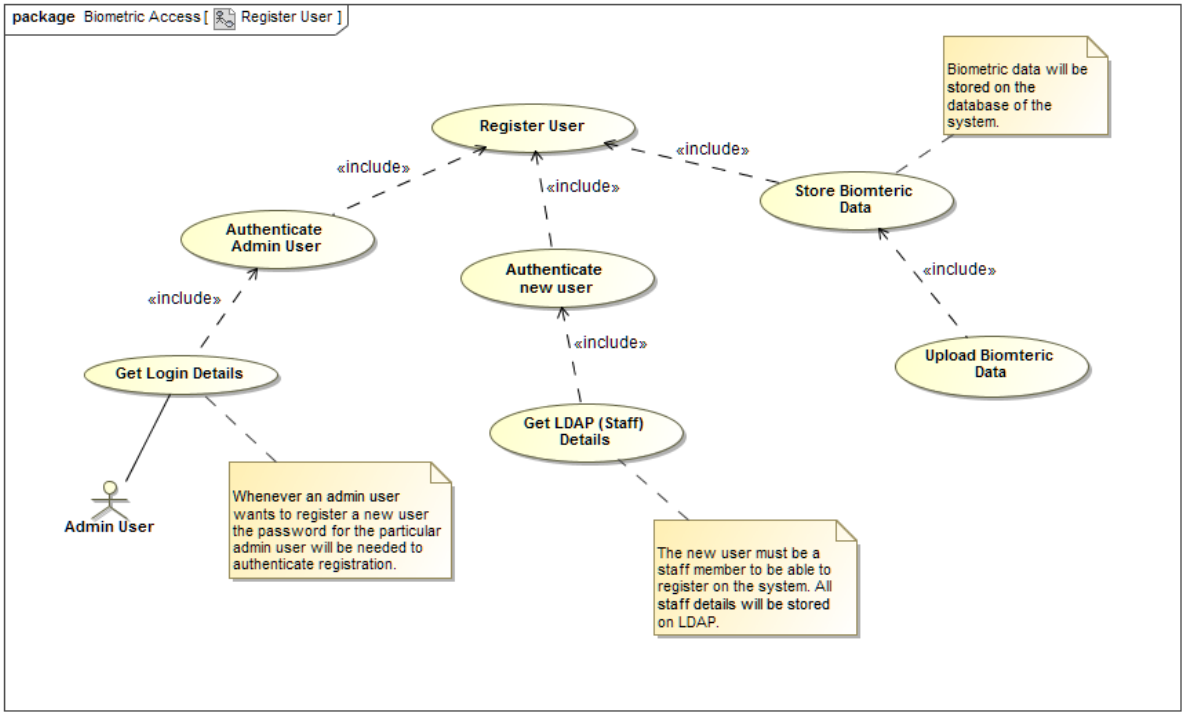
6.2 Register User

Priority: *Critical*

6.2.1 Description

To register a user on the system is the same as to store biomteric data of the user on the database. Staff members needs to store their biomteric data to gain access to department/building. There will be an administrator (admin user) that will handle all the registration of users on the system.

6.2.2 Use Case diagram



6.2.3 Pre-/Post-Conditions

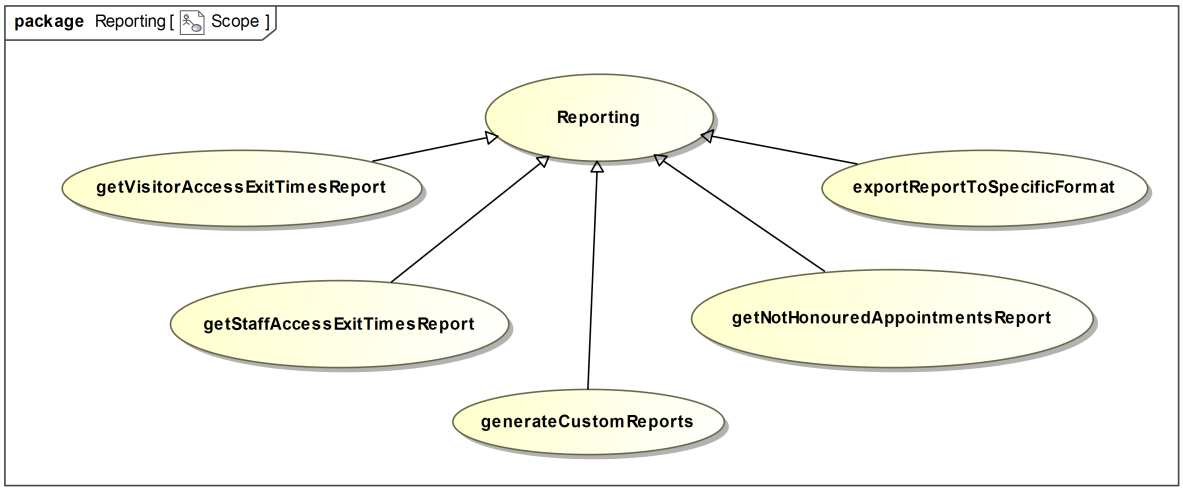
Pre-conditions:

- Administrator (admin user) needs to be logged in to register a user.
- The user being registered should be authenticated by means of LDAP.
- The user being registered must be a staff member.

Post-conditions:

- The staff member is registered on the system with his/hers own biometric data.
- The staff member will be able to gain access to department/building by means of the biometric device.

7 Reporting



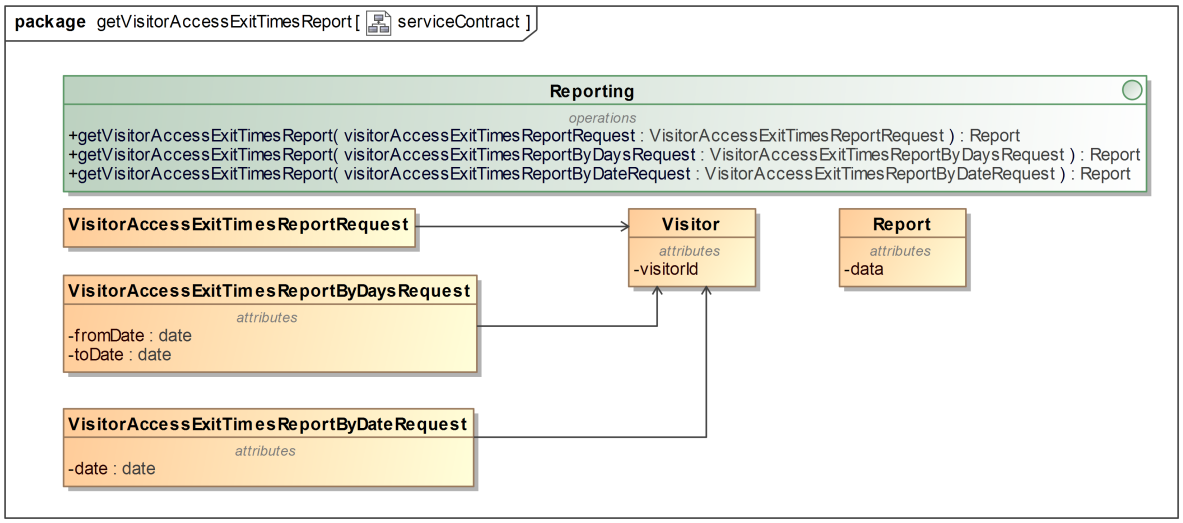
7.1 Get Visitor Access Exit Times Report

Priority: *Important*

7.1.1 Description

The getVisitorAccessExitTimes function allows a user to query the access and exit times of a specific visitor.

7.1.2 Service Contract



7.1.3 Pre-/Post-Conditions

Pre-conditions:

- User must be logged in.

- User must have the correct authorization to make use of this function.
- Visitor must exist.
- Date must be valid.

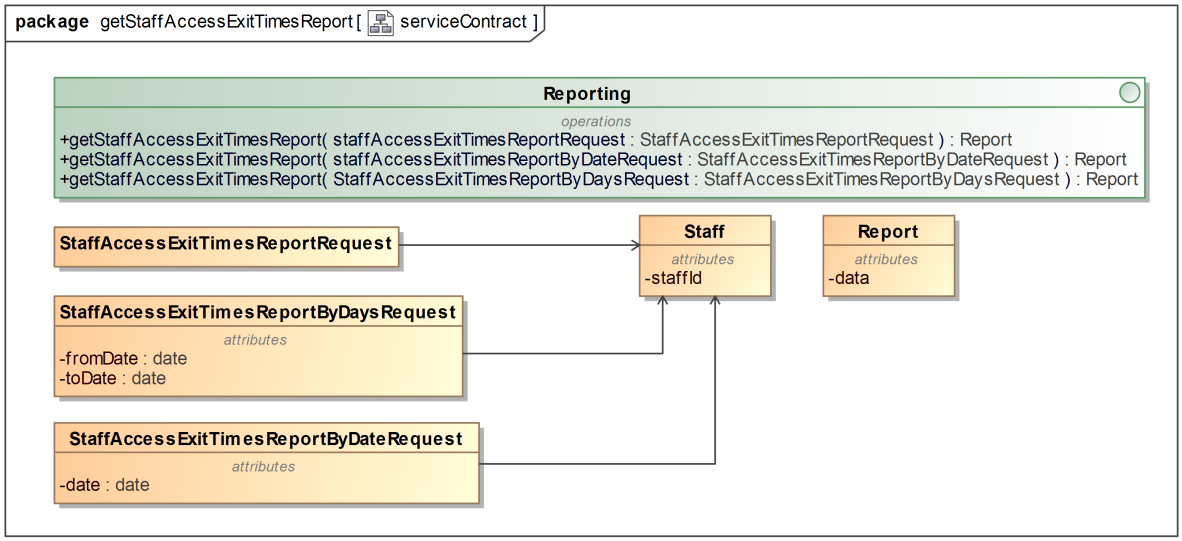
7.2 Get Staff Access Exit Times Report

Priority: *Important*

7.2.1 Description

The getStaffAccessExitTimes function allows a privileged user(e.g: Head of Department) to query the access and exit times of a specific staff member.

7.2.2 Service Contract



7.2.3 Pre-/Post-Conditions

Pre-conditions:

- User must be logged in.
- User must have the correct authorization to make use of this function.
- Date must be valid.
- Staff member must exist.

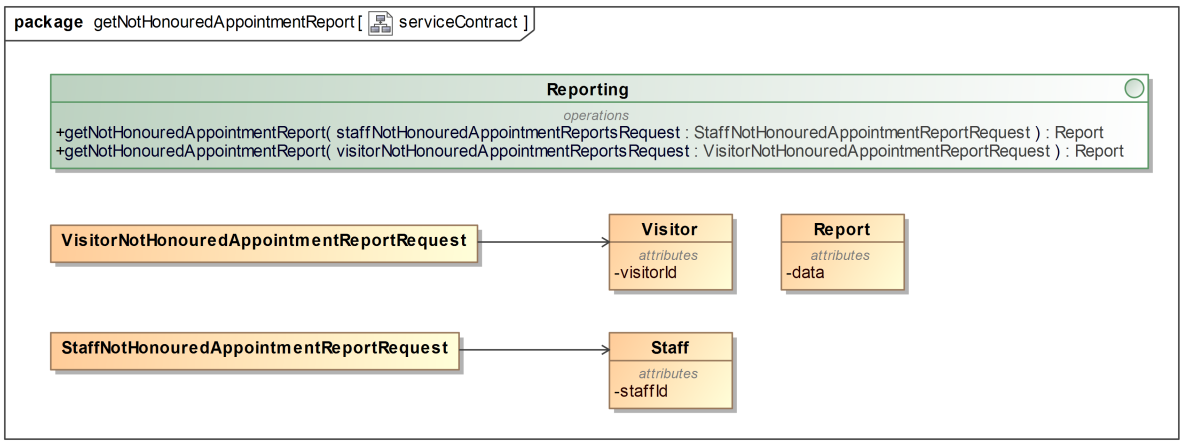
7.3 Get Not Honoured Appointments Report

Priority: *Important*

7.3.1 Description

The getNotHonouredAppointments function provides the user with a means of querying a visitor's or staff member's not honoured appointments.

7.3.2 Service Contract



7.3.3 Pre-/Post-Conditions

Pre-conditions:

- User must be logged in.
- User must have the correct authorization to make use of this function.
- Visitor or Staff must exist.

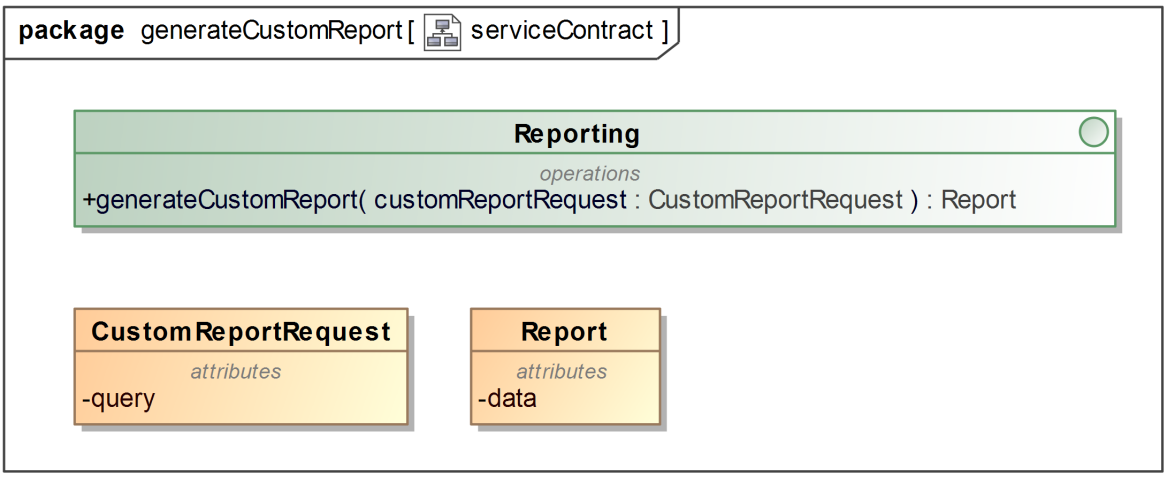
7.4 Generate Custom Reports

Priority: Nice to have

7.4.1 Description

The generateCustomReports function allows the user to create a custom report based on a query provided by the user.

7.4.2 Service Contract



7.4.3 Pre-/Post-Conditions

- User must be logged in.
- User must have the correct authorization to make use of this function.
- Query must be valid.

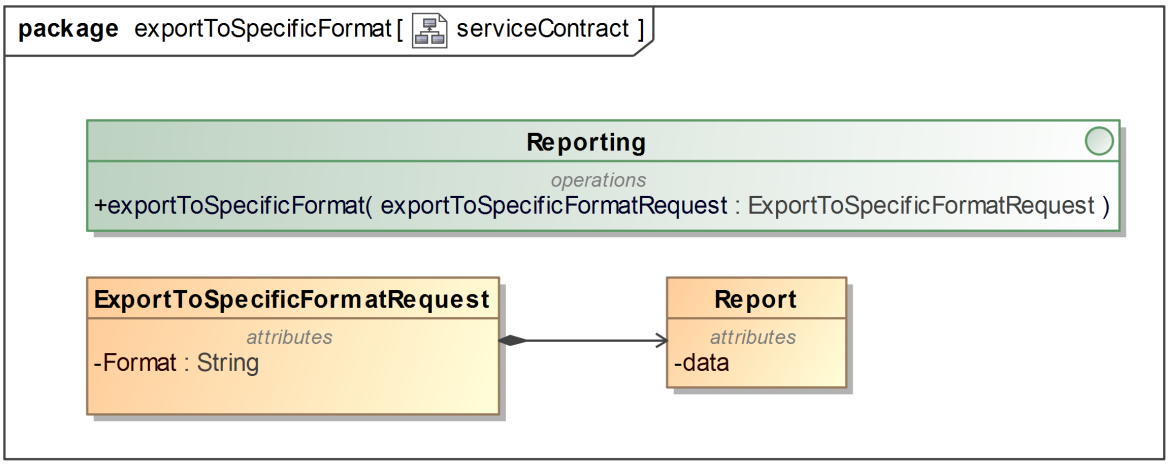
7.5 Export Report To Specific Format

Priority: Nice to have

7.5.1 Description

The exportReportToSpecificFormat function will allow the user to export a report to a specific format which will be specified by the user.

7.5.2 Service Contract



Pre-conditions:

- The format specified by the user is supported by the system.
- User must be logged in.

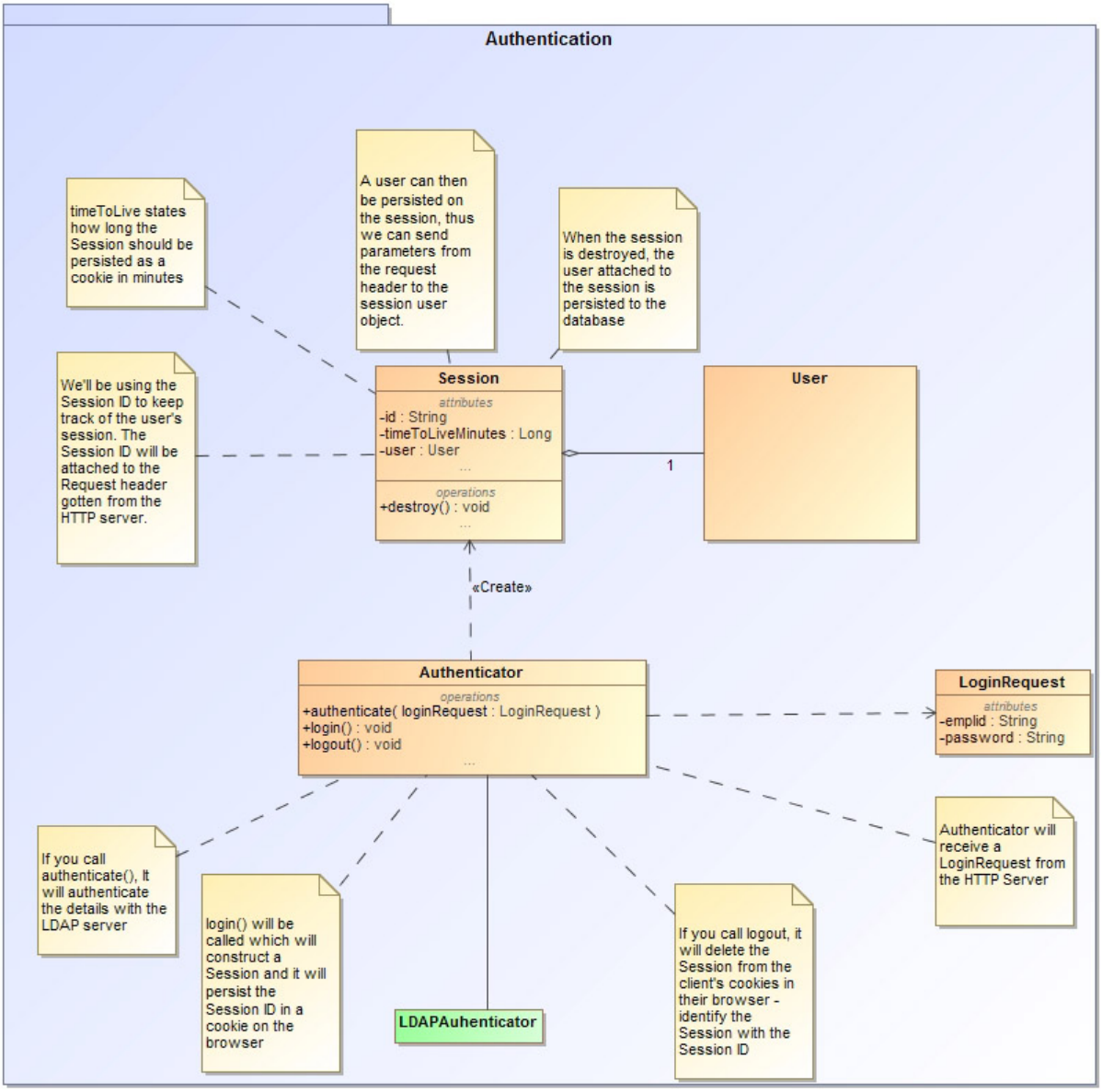
8 Authentication

8.1 Authenticate

Priority: *Critical*

8.1.1 Description

The following section will describe functionality around logging staff members in and out of the web-portal. Note: The use case, process specification and data structure requirements posted in Authenticate encapsulates all use cases under the authentication functionality.



8.1.2 Pre-/Post-Conditions

Pre-conditions:

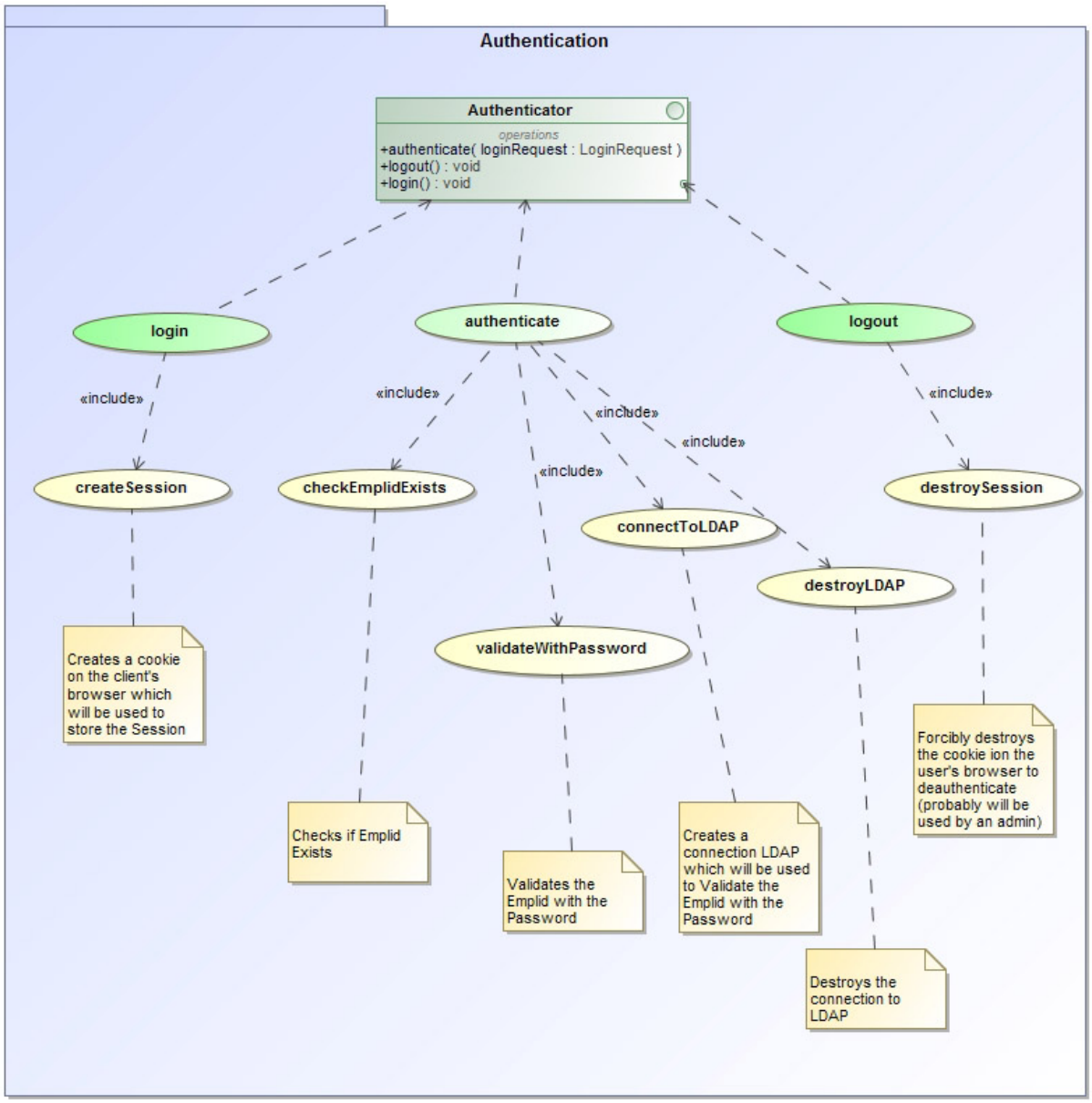
- A user must have an EMPLID from the University of Pretoria

- A user must have an associated password for their EMPLID from the University
- A successful connection to LDAP is important
- A user must be registered as a staff member on LDAP
- A successful validation response after an LDAP authentication is needed to authenticate a user

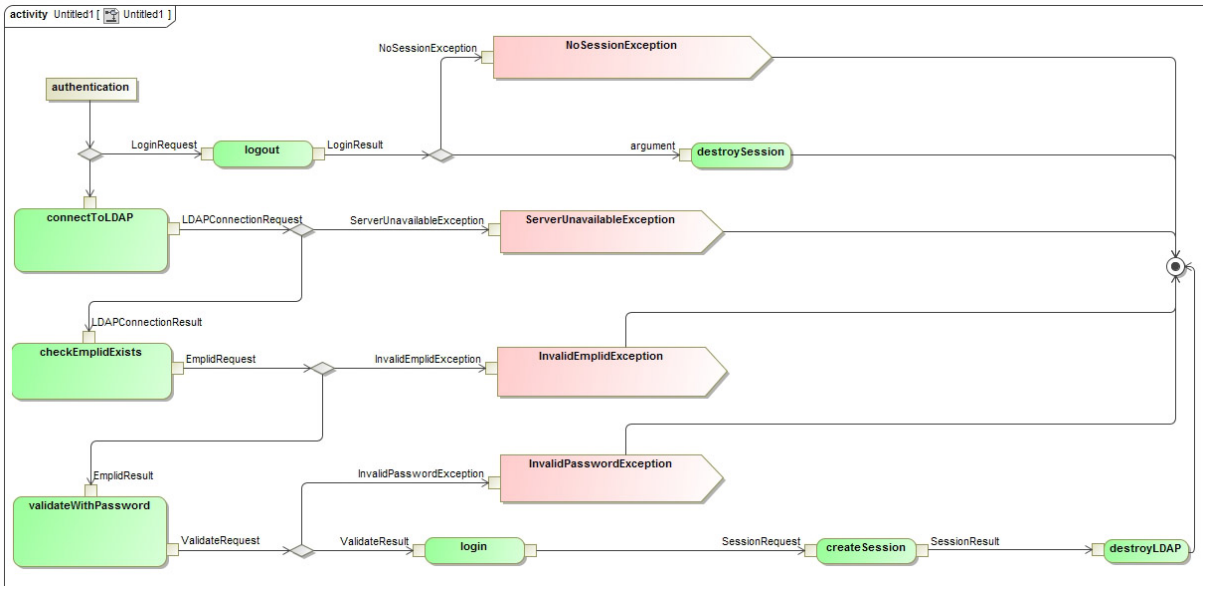
Post-conditions:

- A user is successfully authenticated on the server

8.1.3 Functionality



8.1.4 Process Specification



8.2 Log In

Priority: *Critical*

8.2.1 Description

A user must be logged into the system once they have been authenticated. A user is logged in by creating a cookie containing the session ID.

8.2.2 Pre-/Post-Conditions

Pre-conditions:

- A user must have been successfully authenticated by the system to be logged in.

Post-conditions:

- A user is successfully logged in and can thus access features which require authentication.
- A user is taken to the booking management page on the website

8.3 Log Out

Priority: *Critical*

8.3.1 Description

The system must be able to log a user out. A user is logged out by destroying the cookie containing their session ID.

8.3.2 Pre-/Post-Conditions

Pre-conditions:

- The user must be logged in.

Post-conditions:

- A user is successfully logged in and can thus access features which require authentication.
- A user is taken to the booking management page on the website