

**University of Victoria  
Victoria, BC**



# **Final Report**

**Gen 8**

---

**StudyUp**

**Centralized UVic Study Room Booking System**



**University  
of Victoria**

CSC375 Introduction to System Analysis – Fall 2022

---



## Content

<b>1. Introduction</b>	<b>5</b>
<i>Executive Summary, Context and Need</i>	5
<i>Stakeholders</i>	6
<b>1.1.2 Project Overview</b>	7
<i>Project Summary</i>	7
<i>Project Goals, Business Outcomes and Objectives</i>	7
<b>1.1.3 Project Scope</b>	8
<i>Scope Definition</i>	8
<i>Boundaries</i>	8
<b>1.1.4 Project Risks, Assumptions, and Constraints</b>	9
<i>Risks</i>	9
<i>Assumptions</i>	10
<b>1.2 Project Approach</b>	11
<b>1.2.1 Roles and Responsibilities</b>	11
<b>1.2.2 Work Breakdown Structure</b>	11
<b>1.3 Milestones</b>	11
<b>3.4 Deliverables</b>	12
<b>2. Requirements</b>	<b>14</b>
<b>2.1 Requirements Specifications</b>	14
<b>2.1.1 Functional Requirements</b>	14
<i>Product</i>	14
<i>Security</i>	15
<i>Usability</i>	15
<b>2.1.1 Non-Functional Requirements</b>	16
<i>Compatibility</i>	16
<i>Reliability / Performance</i>	16
<i>Security / Privacy</i>	17
<i>Usability</i>	17
<b>2.2 Use Cases</b>	18
<b>2.2.1 Use Case Diagram</b>	18
<b>2.2.2 Use Case Specifications</b>	19
<i>UC-01. Log In</i>	19
<i>UC-02. View Study Rooms/Buildings</i>	23



<i>UC-03. Book Study Room</i>	27
<i>UC-04. Cancel Booking</i>	31
<i>UC-05. Manage the Availability of Rooms/Buildings</i>	34
<i>UC-06. Contact Help Desk</i>	38
<b>2.3 Domain Models - DFD</b>	43
<i>2.3.1 Context level Data Flow Diagram</i>	43
<i>2.3.2 Level 0 Data Flow Diagram</i>	44
<i>2.3.3 Level 1 Data Flow Diagram</i>	45
<i>Log In</i>	45
<i>Book Study Room</i>	46
<i>Cancel Booking</i>	47
<i>Manage the Availability of Rooms</i>	48
<i>Handling An Issue</i>	49
<b>3. Designs</b>	49
<b>4. Conclusions &amp; Recommendations</b>	51
<i>4.1 Conclusions</i>	51
<i>4.2 Recommendations</i>	51
<b>5. Member's Contribution</b>	52
<b>6. Appendices</b>	54
<i>Table of Figures</i>	54
<i>Glossary of Terms</i>	55



# 1. Introduction

## Executive Summary, Context and Need

On September 9th, Gen8 was tasked to investigate potential problems with the University of Victoria's (UVic) existing systems for study space booking and how improvements could be made. The systems were found to be fairly complicated and dispersed across various websites; with each site consisting of an arbitrary number of buildings and unique from one another. This particular problem correlates with UVic's request as with these current set of systems it can be challenging for students to find study spaces on campus, especially in an institution with over twenty thousand students enrolled.

To fully understand the cause of this issue, Gen8 performed a detailed review of these UVic systems to identify what other aspects could be improved on, determining:

- The systems are incompatible and vastly different from one another; with certain buildings having their own booking systems whereas others simply rely on Google Calendar to both track availability and book rooms.
- A lack of filtering options and room descriptions for particular sites. (e.g. UVic Library Web App)
- Certain sites experience malfunctions irregularly when trying to book a room, with asynchronous delays when browsing open availability.

A solution has been proposed by Gen8 to address these main issues of uniformity, accessibility, and overall user experience:

- A web application designed to unify UVic's pre-existing study space booking systems under one centralized system, consisting:
  - A user-friendly interface optimized to make the application easy to use for all students regardless of their technological literacy.
  - A filtering system to browse available listings with synchronous feedback.
  - The collection and analysis of user data for the purposes of maintaining and upgrading the application.
  - A database that organizes and analyzes user data for the purpose of upgrades to the application and general maintenance.

As an inevitable result of creating this web application, there will be a few risks to consider:

- By merging and unifying all pre-existing systems, the loss of previous data may occur.

Gen8 strongly believes that students will be able to comfortably schedule their study sessions if booking is centralized under a singular convenient source; with the inclusion of key elements such as filtering and synchronous feedback to ameliorate the overall user experience.



## Stakeholders

This project charter formally authorizes the existence of the project, StudyUp, and provides the project manager with the authority to apply organizational resources to project activities described herein. If there is a change in the project scope, the project charter will be updated and submitted for re-approval.

---

*Larios Vargas, Enrique*  
Executive Sponsor  
*Project Manager, University of Victoria*

*Enrique Larios*

October 7th, 2022

---

*Gilani Larimi, Niloofar*  
Project Sponsor  
*Subject Matter Expert, University of Victoria*

*Niloofar Gilani Larimi*

October 7th, 2022

---

*Senjaliya, Femina*  
Project Sponsor  
*Subject Matter Expert, University of Victoria*

*Femina Senjaliya*

October 7th, 2022

---

*Madduri, Sai Chandra*  
Project Sponsor  
*Subject Matter Expert, University of Victoria*

*Sai Chandra Madduri*

October 7th, 2022



## 1.1.2 Project Overview

### Project Summary

With students returning back to campus after COVID-19, study rooms are open again, and it is in high demand by the students for their own quiet study sessions, forming study groups with their friends, and more. The StudyUp system offers students at University of Victoria to book study rooms efficiently and easily, the features will include: filtering, searching and booking the study room, a library map, and where study rooms are located in different buildings on campus.

### Project Goals, Business Outcomes and Objectives

The current UVIC study room booking system is very out-dated, is not highly functional, moderate system usability difficulty, different buildings using different booking systems, confusion caused by the tight schedule design, and old user interface - which may cause students to confuse their time of booking and locations of each study room in which buildings. StudyUp aims to provide modern-style application for study room booking for the University of Victoria students and faster guide to the locations of each study room in each building on the campus.

The main project goals include realistic and efficient project planning and management, software development, easy usability and user-friendly design of the application, and frequent communication with the stakeholders to meet the objectives and goals, and to confirm the business aspect as well.

For this project to succeed, below are major goals the project team needs to achieve in order to manage the project and satisfy stakeholders.

No.	Goals	Objectives	Business Outcomes
1	Greater flexibility in responding to stakeholder requests and effective communication.	<ul style="list-style-type: none"><li>Accommodate for any requests for change unless it will impact the system and project negatively.</li></ul>	<ul style="list-style-type: none"><li>Client satisfaction.</li></ul>
2	Modern-style application for study room booking system.	<ul style="list-style-type: none"><li>Easy usability and friendly UI design can help users increase their interest in using the system.</li></ul>	<ul style="list-style-type: none"><li>Increase users - expected to show at least 30% of UVIC students to use this system after 6 months of implementation.</li></ul>



No.	Goals	Objectives	Business Outcomes
3	Efficient project planning and management	<ul style="list-style-type: none"><li>As the profit of this system is expected to be low to moderate (because the system is for students), it is important to set up a project plan that is efficient and manageable.</li></ul>	<ul style="list-style-type: none"><li>Reduced cost - at least 7% of the projected project cost.</li><li>Reduce time - at least 5% of projected completion time.</li><li>Efficient project management.</li></ul>

### 1.1.3 Project Scope

#### Scope Definition

A centralized study room booking web application will be introduced to students at UVic in booking study rooms across campus based on their time schedule and needs. It also supports an interface for UVic staff and faculties to manage the booking room system in their building. Crossed platforms like mobile apps, booking rooms for big events or classrooms as well as databases for recording booking rooms are out of scope for this project.

#### Boundaries

Activities In Scope	Activities Out of Scope
1. Implement a feature to check if users have a valid V number as the system is for UVIC usage only.	1. The system does not check whether a user logging in is an alumni (users with valid V number but not a student anymore).
2. Design a web application interface for study space booking system.	2. The study space booking system are not available on other platforms (mobile, desktop app, etc.).
3. Only students (undergrad & grad) are able to perform booking action.	3. Booking room feature will not be implemented for other types of users (staff, faculty members, etc.) .
4. UVIC staff can log in to manage the state and facilities of rooms in the building.	4. Databases for storing entries for booking records will not be implemented.



Activities In Scope	Activities Out of Scope
5. Design a user login system.	5. Advance authentication methods to enhance system security such as multi-factor authentication (MFA) will not be implemented.
6. The system only supports one time booking and booking within one week.	6. Repetitive booking and study room booking more than one week in advance is not supported.
7. The system will use the API provided by UVIC.	7. Implementing and maintaining the API is not supported.
8. Training program will be provided to the client team.	8. Communicate with users (students, staff, etc.).
9. Students can filter the rooms to fit their needs based on the size of the student group, facilities of the room.	9. StudyUp does not maintain the permission to use the facilities in the study rooms. To use the facilities in the room, students should contact the faculty member of the building where the room is located.
10. System can filter and suggest study rooms based upon the needs of the students within their program.	10. Research to determine each of the departments with study rooms available for students is out of scope for the project and should be conducted by UVic.

#### 1.1.4 Project Risks, Assumptions, and Constraints

##### Risks

No.	Risk Description	Probability (H/M/L)	Impact (H/M/L)	Risk Management Plan
1	Slow Implementation Time	M	H	- Start web app development with clear goals and objectives as soon as possible to minimize risk.
2	Lack of Data Synchronization	H	H	- Eliminate risk by partnering with existing systems.



No.	Risk Description	Probability (H/M/L)	Impact (H/M/L)	Risk Management Plan
3	Data Leak	M	H	<ul style="list-style-type: none"><li>- Mitigate risk by partnering with existing systems and decreasing use of third-parties, such as Sassafras.</li><li>- Limit data access on a need-to-know basis and group sensitive data into control access tiers.</li><li>- Regular encrypted back-ups.</li></ul>
4	Slow Client Training Time	M	L	<ul style="list-style-type: none"><li>- Mitigate slow training time by finishing the web app development sooner and training clients by establishing clear goals and objectives.</li></ul>
5	System Hack	L	H	<ul style="list-style-type: none"><li>- Mitigate system hacking by regularly changing passwords, updating anti-virus and anti-spyware softwares, and encrypting client data.</li></ul>
6	Poor User Interface	M	M	<ul style="list-style-type: none"><li>- Follow HCI guidelines to ensure the interface is user friendly.</li><li>- Improve web application interface by collaborating with the client team to conduct user experience surveys with students to get instance feedback.</li></ul>

### Assumptions

The following table lists the items that cannot be proven or demonstrated when this project charter was prepared, but they are taken into account to stabilize the project approach or planning.

No.	Assumptions
1	Creating a centralized web application by the Nov 25, 2022 deadline is possible.
2	Existing systems are willing to participate in data partnership.
3	Data leaks are mitigated if we partner with existing systems and limit data access on a need-to-know basis.



No.	Assumptions
4	The API for buildings' facilities is assumed to be provided by UVic, Gen8 will not be responsible for maintaining, updating the API.
5	Gen8 can retrieve the data related to the condition of the rooms and buildings through the API, such as the availability of the facilities, the numbers of study rooms available for booking, the status of the rooms (whether it is occupied or not), the location and size of the room, etc.
6	Gen8 will have access to the UVic student database in order to design the verification tool for the system.
7	Training program will be provided for the client team. Gen8 only collaborates with UVic to build the training and promoting program for the students (main users), staff and faculty members (admin).

## 1.2 Project Approach

### 1.2.1 Roles and Responsibilities

Project Role	Responsibilities	Assigned to
Project Manager	A project manager is responsible for overseeing both the planning and the implementation of the project.	Mary Pesado Kate Ueda
Tech Lead	The Tech Lead is responsible for ensuring the quality of the project's technology and overseeing all technical decisions.	Irene Duong
Software Engineer	The Software Engineer is responsible for designing the mechanisms and functions of the project.	Anthony Ho
UI & UX Designer	The UI & UX Designer is responsible for designing the project's user interface to enhance the user's visual experience.	Jooah Bae
Subject Matter Expert	The Subject Matter Expert is responsible for ensuring correctness of the project's deliverables.	Lore Schwartz
Business Analyst	The Business Analyst is responsible for analyzing all forms of data related to the project.	Randeep Laller



### 1.2.2 Work Breakdown Structure

- Create centralized study room web application
- Partner with existing systems to transfer and synchronize data
- Launch live web application for real time use
- Modify and maintain web application based on client feedback

### 1.3 Milestones

Milestones for the successful management of the project, from initiation to completion.

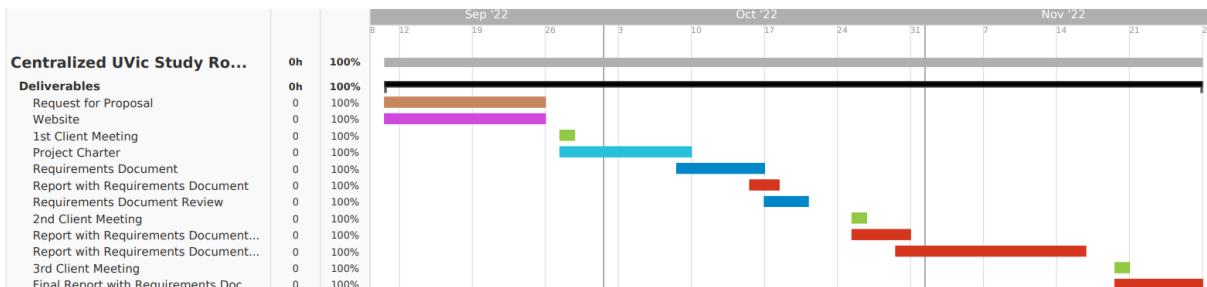
Project Milestones	Description	Date
Phase 1: Documenting Business Requirements	Translation of the requirements document into technical specifications for StudyUp web application	Oct 18th, 2022
Phase 2: Requirements Document, and Use Cases	Project requirements are defined, statement of StudyUp's purpose, goals, and objectives, and what are needed in order to successfully meet the requirements. Use case is written to describe how the users of StudyUp (UVIC students) will use the system to perform the task (booking study rooms at UVIC libraries) to meet the purpose of the project (study room is booked and guided)	Oct 28th, 2022
Phase 3: Domain Models	Description of the conceptual model, connected to real-world entities, attributes, data, behaviors of the system, and the relationships between them.	Nov 15th, 2022
Phase 4: User Interface (UI) Modeling	Development of the user-end of the system, design the UI of the system so the system can be user-friendly and easy-to-learn. Ensure the UI features do what the users expect when they use each feature and provide the right response.	Nov 18th, 2022
Phase 5: User Interface (UI) Prototypes	Mock-up of the UI for the system. Aims to ensure the usability, visualization, and utilization of the system are as expected from the users' perspective, ensuring the system is easy-to-learn.	Nov 18th, 2022



Phase 6: Final Report and Project Presentation, and closing of the Project	Prepare the final report to document the project success, what went good and what went wrong, which solutions were used and how they went. The final report is documented for the future project planning, for the increased chance of successful project management and implementation. Once the project is presented to the stakeholders successfully, it will be implemented and the project will be closed - after closing, management of the implemented application is required as a follow-up.	Nov 26th, 2022
--	---	----------------

### 3.4 Deliverables

A list of project deliverables.



Deliverable	Due Date
Request for Proposal (RFP)	Sept 23th, 2022 at 5pm
Website	Sept 23th, 2022 at 5pm
1st Client Meeting	Sept 27th, 2022
Project Charter	Oct 7th, 2022 at 5pm
Requirements Document	Oct 14th, 2022 at 5pm



Deliverable	Due Date
Request for Proposal (RFP)	Sept 23th, 2022 at 5pm
Website	Sept 23th, 2022 at 5pm
Report with Requirements Document	Oct 17th, 2022 at 5pm
Requirements Document Review	Oct 19th, 2022 at 5pm
2nd Client Meeting	Oct 25th, 2022
Report with Requirements Document, and Use Cases	Oct 28th, 2022 at 5pm
Report with Requirements Document, Use Cases, and Domain Models	Nov 15th, 2022 at 5pm
3rd Client Meeting	Nov 18th, 2022
Final Report with Requirements Document, Use Cases, Domain Models, and UI Models	Nov 25th, 2022 at 5pm

## 2. Requirements

### 2.1 Requirements Specifications

2.1.1 Functional Requirements		M	S	C	W
Product					
1.1	The system will be able to filter room listings based on input fields of the following: <ul style="list-style-type: none"><li>• Building type and floor</li><li>• Facility type</li><li>• Day</li><li>• Week</li></ul>	X			
1.2	The system will have a default landing page of available room listings on the current day in calendar format.		X		



2.1.1 Functional Requirements		M	S	C	W
1.3	The system will require a user's Netlink ID to sign in to use the web application, such as to book/cancel rooms.	X			
1.4	A confirmation email will be sent directly to the user's email (either school or personal) with any additional information related to the booking, such as: <ul style="list-style-type: none"><li>• Booking ID</li><li>• Student ID or Staff ID</li><li>• Building type and floor</li><li>• Facility type</li><li>• Date</li><li>• Booked Time</li></ul>	X			
1.5	The system will allow users to book study rooms for a maximum of 5 consecutive hours.	X			
1.6	The system only shows room availability within one week and allows users to book a study room one week in advance.	X			
1.7	After 30 minutes of inactivity, the system will check and prompt the user with a popup window to see whether they would like to continue their existing session or sign off.			X	
1.8	Immediately upon entering the web application, the system will display all current available study spaces.		X		
1.9	UVic Faculty and Staff (e.g., Teaching Assistants, Professors, Librarians, etc.) will be able to register a booking for themselves.	X			
1.10	System handlers must be able to login with UVic credentials to update the listings regularly or make any changes to the current listings.	X			
1.11	If the user logs out while performing a booking action, their information will be temporarily saved and the user can continue the booking session when they log in again.		X		
1.12	The system will prompt an alert if the room, that the user chooses but has not been at the confirming step in the booking process yet, is booked by another user.	X			
1.13	Users should be able to cancel bookings on their own.		X		
<b>Security</b>					



<b>2.1.1 Functional Requirements</b>		M	S	C	W
2.1	The system must log users out after 1 hour of inactivity.		X		
<b>Usability</b>					
3.1	When the system rejects a booking, the system shall guide the user to resolve the cause of the issue. For example: <ul style="list-style-type: none"><li>● Highlighting mandatory input fields that were missed by the user.</li><li>● Displaying error messages in layman's terms.</li></ul>		X		
3.2	The system shall direct the user to a webpage indicating that their session has timed out. For example: <ul style="list-style-type: none"><li>● On the same webpage, a popup prompt to ask users to sign in again to continue to use the service.</li></ul>			X	
3.3	Users can save and mark their favorite spots for efficient booking.			X	
3.4	Users can view their booking history.			X	
3.5	The system shall have a report/help button for users to contact the help desk in case any problems occur or a bug is found.	X			

<b>2.1.1 Non-Functional Requirements</b>		M	S	C	W
<b>Compatibility</b>					
4.1	The system shall be compatible with common browsers (e.g., Chrome, Firefox, Edge, Safari, Opera, etc.). <ul style="list-style-type: none"><li>● Chrome 64.0.3282 and later versions.</li><li>● Firefox 58 and later versions.</li><li>● Edge 88 and later versions.</li><li>● Safari 12.1.2 and later versions.</li><li>● Opera 54 and later versions.</li></ul>	X			
4.2	The system shall run on web browsers on the following operating systems: Windows, MacOS, or Linux. <ul style="list-style-type: none"><li>● Windows 7 and later versions.</li><li>● macOS 10.12 Sierra and later versions.</li><li>● Linux 18 and later versions.</li></ul>	X			



<b>2.1.1 Non-Functional Requirements</b>		<b>M</b>	<b>S</b>	<b>C</b>	<b>W</b>
4.3	The system shall run and be properly formatted on mobile web browser (iOS and Android) <ul style="list-style-type: none"><li>• iOS 11 and later versions.</li><li>• Android 9.0 and later versions.</li></ul>	X			
<b>Reliability / Performance</b>					
5.1	The system will display available room listings for booking with a latency of less than 5 minutes.		X		
5.2	The system must be able to handle high-volume booking requests of approximately more than 10,000 requests during peak periods of midterm seasons and can adapt to drastic load changes without affecting the quality of operations.	X			
5.3	The system should be checked and maintained at least every 6 months and takes no longer than 8 hours for maintenance.	X			
5.4	The web application must be operational 24 hours, 7 days a week; apart from site maintenance/updates (which can only take preferably up to a maximum of 1-2 hours at night).	X			
5.5	The system will contain all data and methods from pre-existing booking systems, including information on each specific study room and booking ability.	X			
<b>Security / Privacy</b>					
6.1	The system must regularly perform encrypted data backups of sensitive user information.		X		
6.2	Users can log in with a maximum of 2 devices.		X		
6.3	The web application will follow all UVic's policies, such as its Protection of Privacy and Access to Information policy, guaranteeing the safety of the Netlink accounts' personal information stored (e.g., student personal/school information, passwords, rooms previously booked, etc).	X			
<b>Usability</b>					
7.1	The system shall score at least 90 on the Lighthouse Performance test to ensure that users can navigate the information and other booking details on the website seamlessly.		X		



<b>2.1.1 Non-Functional Requirements</b>		M	S	C	W
7.2	The system shall score at least a 70/100 on the System Usability Scale (SUS) to achieve average usability standards.		X		
7.3	Users <ul style="list-style-type: none"><li>• <u>With</u> prior experience of interacting with the system shall be able to book a room within 10 minutes.</li><li>• <u>Without</u> prior experience of interacting with the system shall be able to book a room within 20 minutes.</li></ul>			X	
7.4	Users can cancel their booking 30 minutes in advance.		X		
7.5	Once a study room is chosen to be booked, the user will need to confirm their booking, which will remain reserved for a duration of 20 minutes prior to the final confirmation.		X		



## 2.2 Use Cases

### 2.2.1 Use Case Diagram

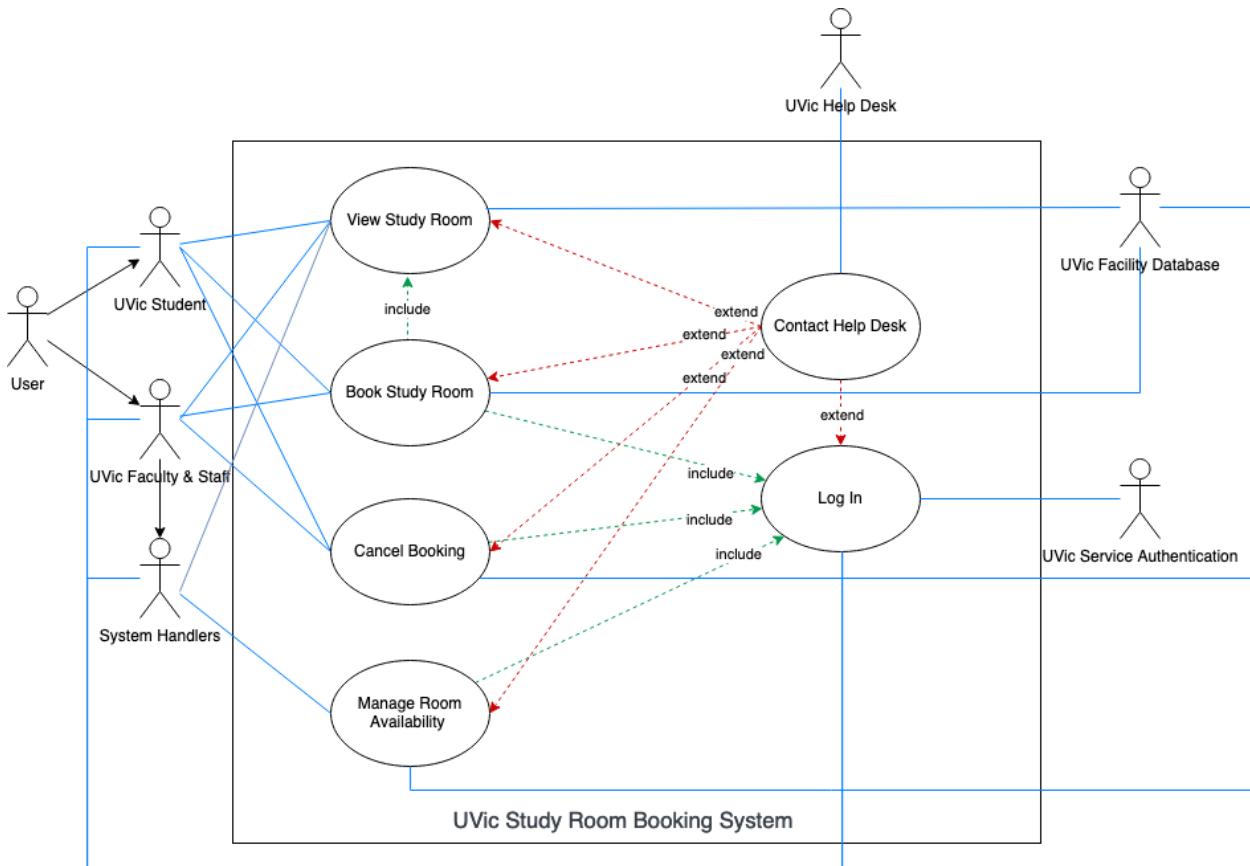


Figure 1.1 - Use Case Top Level Diagram for StudyUp



## 2.2.2 Use Case Specifications

### UC-01. Log In

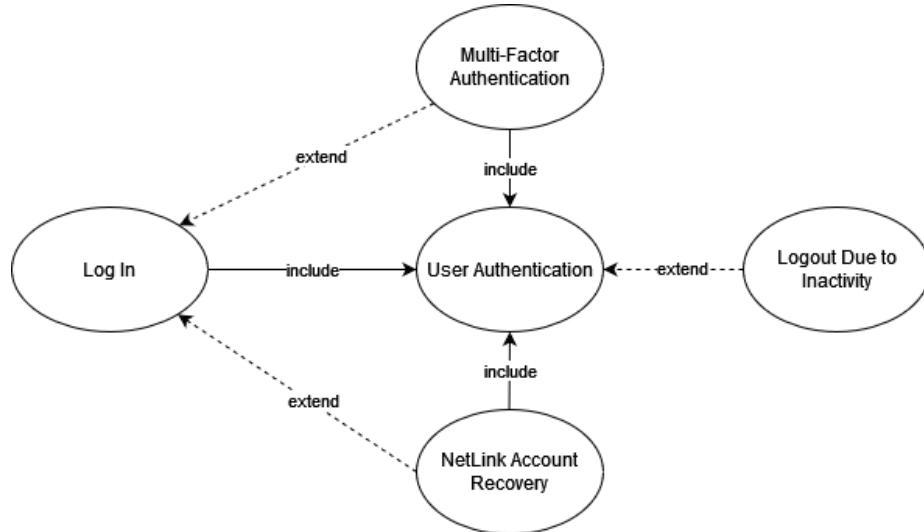


Figure 1.2 - LogInUser Exploded Diagram

Name of Use Case:	LogIn		Use Case ID:	UC-01		
Created by:	Gen8	Last Updated By:		Kate Ueda		
Date Created:	25/10/2022	Last Revision Date:		27/10/2022		
Description:	To offer access to the study room booking system, the system authenticates the user by checking their student, staff, or faculty identification number and logs users into the web application for study room booking services.					
Actors:	UVic Staff & Faculty, System Handlers, UVic Students, and UVic Service Authentication					
Preconditions:	The user has a valid Netlink account.					
Postconditions:	The user is now logged into the system.					



Main Flow:	<ol style="list-style-type: none"><li>1. The user is taken to the UVic login portal where they can enter their login details</li><li>2. The user is asked to input their Netlink ID and passphrase.</li><li>3. <b>IF</b> the user input is validated after pressing the 'Sign In' button:<ol style="list-style-type: none"><li>3.1 The user is now logged into the system.</li><li>3.2 The user can log in with a maximum of two devices.</li></ol></li><li>4. <b>ELSE:</b><ol style="list-style-type: none"><li>4.1 The user is asked to put their information again.</li></ol></li></ol>
Alternate Flow:	<ol style="list-style-type: none"><li>1. <b>WHILE</b> the user forgets their passphrase in Main Flow 1:<ol style="list-style-type: none"><li>1.1 The user can attempt to recover their account.</li></ol></li><li>2. <b>WHILE</b> the user has enabled multi-factor authentication (MFA) on their account after Main Flow 3:<ol style="list-style-type: none"><li>2.1 The user can follow the multi-factor authentication process during their login session.</li></ol></li></ol>

<b>Name of Use Case:</b>	UserAuthentication		<b>Use Case ID:</b>	UC-01.1		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Kate Ueda			
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	27/10/2022			
Description:	The UVic login portal grants the user a certificate during a login attempt and the UVic service authentication system uses the certificate to provide the user a token to allow access to the UVic login portal.					
Actors:	UVic Staff & Faculty, System Handlers, UVic Students, and UVic Service Authentication					
Preconditions:	The unauthenticated user is attempting to access the UVic login portal.					
Postconditions:	The authenticated user is successfully logged into the system.					



Main Flow:	<p>1. <b>WHILE</b> the user attempts to access the UVic login portal by providing their Netlink ID and passphrase:</p> <ol style="list-style-type: none"><li>1.1 The user retrieves a certificate from the UVic portal.</li><li>1.2 The UVic service authentication system asserts the user's identity with the certificate and provides an authentication token.</li><li>1.3 The authentication token grants the user access to the UVic login portal.</li><li>1.4 The user is brought to UC-01 Main Flow 3.1.</li></ol>
Alternate Flow:	None.

<b>Name of Use Case:</b>	InactivityLogout		<b>Use Case ID:</b>	UC-01.2		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>		Kate Ueda		
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>		27/10/2022		
Description:	The system logs out the user after one hour of inactivity.					
Actors:	UVic Staff & Faculty, System Handlers, UVic Students, and UVic Service Authentication					
Preconditions:	The user must not interact with the system for over an hour.					
Postconditions:	The user is logged out of the system.					
Main Flow:	<p>1. <b>WHILE</b> the user remains inactive in the system:</p> <ol style="list-style-type: none"><li>1.1 The system logs the user out.</li><li>1.2 The user is taken to the UVic Login Portal at UC-01 Main Flow 1.</li></ol>					
Alternate Flow:	None.					

<b>Name of Use Case:</b>	NetLinkAccountRecovery		<b>Use Case ID:</b>	UC-01.3		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>		Kate Ueda		
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>		27/10/2022		
Description:	The user can attempt to recover their passphrase if they have forgotten it.					
Actors:	UVic Staff & Faculty, System Handlers, UVic Students, and UVic Service Authentication					
Preconditions:	The user cannot log in and they don't remember their account passphrase.					



Postconditions:	The user has recovered their account passphrase.
Main Flow:	<ol style="list-style-type: none"><li>1. <b>WHILE</b> the user forgets their passphrase in UC-01 Main Flow 1:<ol style="list-style-type: none"><li>1.1 The user hits the 'Forgot your password?' link to recover their password.</li><li>1.2. The user is taken to the NetLink account recovery page.</li><li>1.3. The user follows the instructions of the page to recover their password.</li><li>1.4. The user is taken to the UVic login portal in UC-01 Main Flow 1.</li></ol></li></ol>
Alternate Flow:	None.

Name of Use Case:	MultiFactorAuthentication		Use Case ID:	UC-01.4		
Created by:	Gen8	Last Updated By:	Kate Ueda			
Date Created:	25/10/2022	Last Revision Date:	27/10/2022			
Description:	The UVic service authentication system requires the user to present a combination of two or more credentials to verify their identity for login.					
Actors:	UVic Staff & Faculty, System Handlers, UVic Students, and UVic Service Authentication					
Preconditions:	The user is attempting to login after providing their authenticated Netlink ID and passphrase.					
Postconditions:	The user's second credentials are verified and they are able to successfully log in.					
Main Flow:	<ol style="list-style-type: none"><li>2. <b>WHILE</b> the user has enabled multi-factor authentication (MFA) on their account after UC-01 Main Flow 3:<ol style="list-style-type: none"><li>2.1. A pop-up tab will ask the user during their login session to follow the MFA process, such as opening an authenticator application.</li><li>2.2. The user is now logged into the system and taken to UC-01 Main Flow 3.1.</li></ol></li></ol>					
Alternate Flow:	None.					



### UC-02. View Study Rooms/Buildings

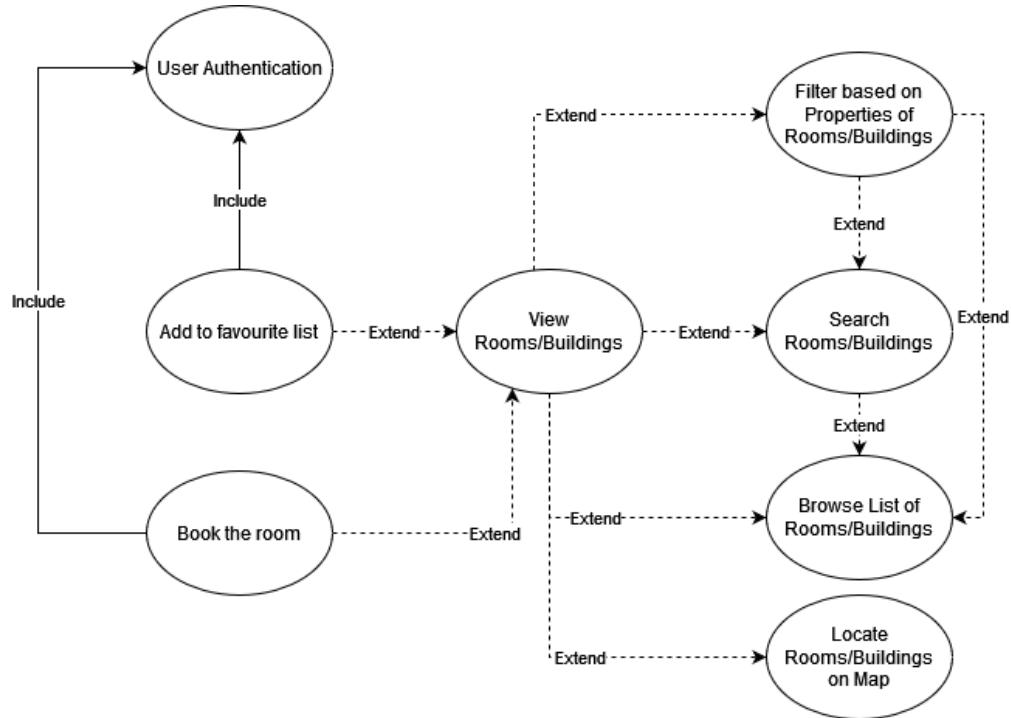


Figure 1.3 - ViewRooms/Buildings Exploded Diagram

Name of Use Case:	ViewStudyRoom		Use Case ID:	UC-02		
Created by:	Gen8	Last Updated By:	Irene Duong			
Date Created:	25/10/2022	Last Revision Date:	25/10/2022			
Description:	Once the system grants the user access, the user can view and book available study rooms.					
Actors:	UVic Student, UVic Staff & Faculty, System Handlers, UVic Facility Database					
Preconditions:	The user is on the landing page.					
Postconditions:	None.					



Main Flow:	<ol style="list-style-type: none"><li>1. The user wants to view the available study rooms that offer study room booking service.</li><li>2. <b>IF</b> the user has any conditions/preference for the study rooms:<ol style="list-style-type: none"><li>2.1. They can filter their search based on the facility and condition of the rooms. (UC-02.3)</li><li>2.2. They can view the list of rooms based on the building.</li></ol></li><li>3. <b>IF</b> the user chooses to display results in grid view or list view:<ol style="list-style-type: none"><li>3.1 <b>IF</b> the user views the building:<ol style="list-style-type: none"><li>3.1.1 <b>FOR EACH</b> of the buildings: The user can see a summary of the building. The user can see the name of the building. The user can see the number of total study rooms of the building. The user can see the images of the building.</li><li>3.2 <b>IF</b> the users view the study room:<ol style="list-style-type: none"><li>3.2.1 <b>FOR EACH</b> of the study room: The user can see a summary of the study room. The user can check the floor and building that the study room is located in. The user can see the facilities of the room (size, devices such as projectors, accessibility needs, etc.). The user can see the next available time slots to book the room.</li></ol></li></ol></li></ol></li></ol>
Alternate Flow:	<ol style="list-style-type: none"><li>1. The user can view a room or building that they booked before:<ol style="list-style-type: none"><li>1.1. The user goes to User Preference -&gt; Booking History.</li></ol></li><li>2. The user can view a room or building that they marked/added as their favorite study spot.<ol style="list-style-type: none"><li>2.1. The user goes to User Preference -&gt; Favourites.</li></ol></li></ol>

<b>Name of Use Case:</b>	SearchRoomsBuildings		<b>Use Case ID:</b>	UC-02.1		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b> Irene Duong				
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b> 25/10/2022				
<b>Description:</b>	Users can perform search actions to find the room they want to view.					
<b>Actors:</b>	UVic Student, UVic Staff & Faculty, System Handlers, UVic Facility Database.					



Preconditions:	The user has any conditions/preference for the study rooms they want to find.		
Postconditions:	None.		
Main Flow:	<ol style="list-style-type: none"><li>1. The users locate the search box on the page.</li><li>2. The users fill the box with the building's name or room name.</li><li>3. The users hit the “Search” button.</li><li>4. The system will display the list of results.</li></ol>		
Alternate Flow:	None.		

<b>Name of Use Case:</b>	FilterPropertiesOfRooms/Buildings		<b>Use Case ID:</b>	UC-02.2		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong			
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022			
Description:	Users can perform filter actions to find the room they want to view.					
Actors:	UVic Student, UVic Staff & Faculty, System Handlers, UVic Facility Database.					
Preconditions:	A list of rooms is displayed for users.					
Postconditions:	Filter is applied successfully.					
Main Flow:	<ol style="list-style-type: none"><li>1. The users locate the filter tool at the top or left of the list.</li><li>2. They can filter based on the facility and condition of the rooms.<ol style="list-style-type: none"><li>2.1 Users can filter based on the size of the rooms.</li><li>2.2 Users can filter based on the time slots they want to view</li><li>2.3 Users can filter based on the facility of the rooms (projector, etc.)</li><li>2.4 Users can filter based on the distance to a location.</li></ol></li><li>3. The users can choose how many rooms are displayed on the page.</li><li>4. The users hit “Apply” to apply the filter.</li><li>5. The system displays the list fitting user preference.</li></ol>					
Alternate Flow:	None.					

<b>Name of Use Case:</b>	BrowseListOfRooms/Buildings		<b>Use Case ID:</b>	UC-02.3
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong	
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022	



Description:	Users can scroll to view the list of the rooms.
Actors:	UVic Student, UVic Staff & Faculty, System Handlers, UVic Facility Database.
Preconditions:	None.
Postconditions:	None.
Main Flow:	<ol style="list-style-type: none"><li>1. The list of rooms is displayed for the user.</li><li>2. Users can choose to switch between grid or list view.</li><li>3. Users can scroll to view the list of rooms.</li><li>4. Users can move to the next page by hitting the arrow button at the end of the page, or go to a specific page.</li></ol>
Alternate Flow:	None.

<b>Name of Use Case:</b>	LocateRooms/BuildingsOnMap		<b>Use Case ID:</b>	UC-02.4		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong			
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022			
Description:	Users can scroll to view the list of the rooms.					
Actors:	UVic Student, UVic Staff & Faculty, System Handlers, UVic Facility Database.					
Preconditions:	None.					
Postconditions:	None.					
Main Flow:	<ol style="list-style-type: none"><li>1. Users choose to view the map of UVic.</li><li>2. Users can perform actions on map:<ol style="list-style-type: none"><li>2.1. Users can drag the map to locate the building.</li><li>2.2. Users can zoom in/out map to view.</li></ol></li><li>3. <b>IF</b> users hovers on the building:<ol style="list-style-type: none"><li>3.1. A tooltip shows the name of the building and number of available study spaces.</li></ol></li><li>4. <b>IF</b> users click on the building:<ol style="list-style-type: none"><li>4.1. Users can view the information of the building as described in step 3.1 of UC-02.</li></ol></li></ol>					
Alternate Flow:	None.					



Name of Use Case:	AddToFavouriteList		Use Case ID:	UC-02.5		
Created by:	Gen8	Last Updated By:	Irene Duong			
Date Created:	25/10/2022	Last Revision Date:	25/10/2022			
Description:	Users can add room to their favourite list.					
Actors:	UVic Student, UVic Staff & Faculty, System Handlers, UVic Facility Database.					
Preconditions:	The user is viewing a room.					
Postconditions:	The room is added to the user's favourite list successfully.					
Main Flow:	1. When viewing a room, users can hit the “Heart” icon. 2. The room is added to the user's favourite list.					
Alternate Flow:	None.					

### UC-03. Book Study Room

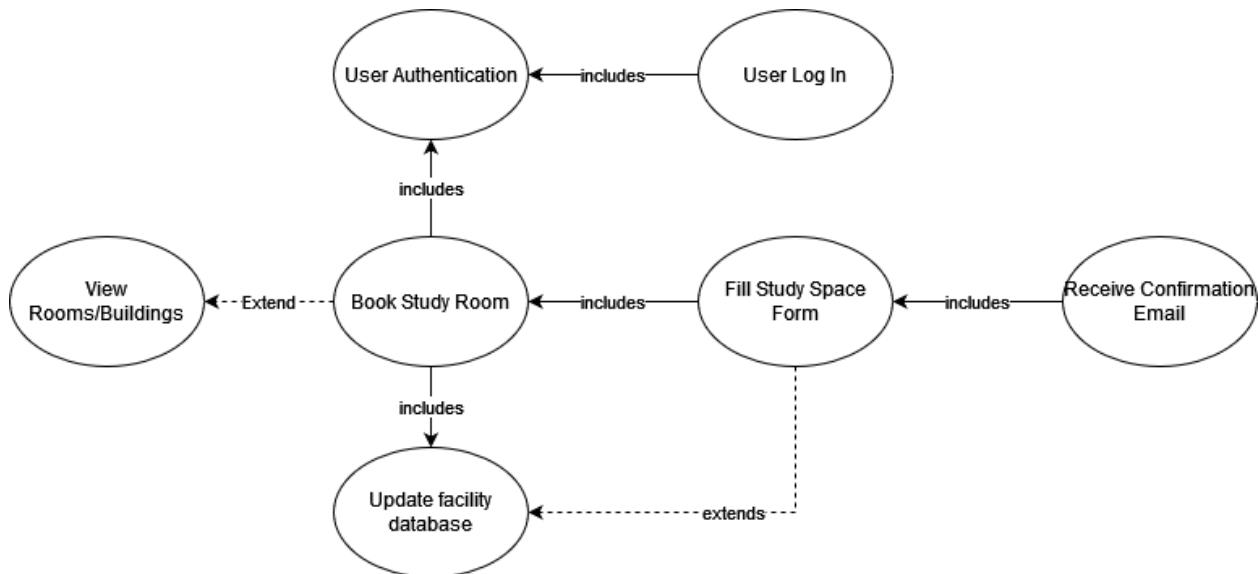


Figure 1.4 - BookStudyRoom Exploded Diagram



Name of Use Case:	BookStudyRoom		Use Case ID:	UC-03		
Created by:	Gen8	Last Updated By:	Lore Schwartz			
Date Created:	27/10/2022	Last Revision Date:	27/10/2022			
Description:	The user will be able to reserve a study room for a predetermined period of time.					
Actors:	UVic Student, UVic Faculty & Staff, UVic Facility Database					
Preconditions:	The user must be logged into the system and has decided upon their choice of room, study period, and duration of their session.					
Postconditions:	None.					
Main Flow:	<ol style="list-style-type: none"><li>1. The user selects the “Book” button.</li><li>2. The system temporarily reserves the room for 20 minutes.</li><li>3. The user must complete the mandatory form regarding session details (UC-03.1).</li><li>4. <b>WHILE</b> the form has not been successfully completed, or the information they input is incorrect:<ol style="list-style-type: none"><li>4.1 The user will be prompted to reinput their data.</li></ol></li><li>5. The form is successfully completed by the user.</li><li>6. The user finalizes their booking by confirming their inputted information.</li><li>7. The system recognizes that the study space is officially booked.</li><li>8. Use Case 03.3 is triggered and the system updates the study spaces availability for that specific time slot.</li><li>9. The system will display to users that the study space has been booked.</li><li>10. Use Case 03.2 is triggered and a confirmation email is sent to inform the user the details of their booking.</li></ol>					
Alternate Flow:	<ol style="list-style-type: none"><li>1. <b>IF</b> The user fails to complete the form within the allotted 20-minute grace period<ol style="list-style-type: none"><li>1.1. The space is available to be booked again by other users and the use case ends.</li></ol></li><li>2. <b>ELSE</b> The user successfully completes the form and officially books their selected study space.<ol style="list-style-type: none"><li>3. The system saves the booking and is subsequently updated.</li></ol></li></ol>					



<b>Name of Use Case:</b>	FillStudySpaceForm		<b>Use Case ID:</b>	UC-03.1		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Lore Schwartz			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	28/10/2022			
Description:	The user fills out a form regarding session details to officially book the study space booking.					
Actors:	UVic Student, UVic Faculty & Staff, UVic Facility Database					
Preconditions:	1. The user must be logged into the system. 2. The user must attempt to book a study space prior to this use case.					
Postconditions:	None.					
Main Flow:	1. The user is prompted to fill out a form regarding session details. 2. The user confirms the date and duration for the study room to be booked. 2.1. <b>WHILE</b> the time slot is not correct or exceeds the limitation: 2.1.1 The booking action cannot be performed. 2.1.2 The user will be prompted to edit the duration of their booking as it currently exceeds the given limitation. 3. <b>IF</b> the form is successfully completed by the user: 3.1 UC-03.3 IF Alternate Flow Path is triggered. 3.2 The use case ends. 3.3 The user is returned to Use Case 03. 4. <b>ELSE</b> 4.1 UC-03.3 IF Alternate Flow Path is triggered. 4.2 The use case ends.					
Alternate Flow:	None.					

<b>Name of Use Case:</b>	ReceiveBookingConfirmationEmail		<b>Use Case ID:</b>	UC-03.2
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Anthony Ho	
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	27/10/2022	
Description:	The user will receive an email regarding session details to their booked study space.			



Actors:	UVic Student, UVic Faculty & Staff, UVic Facility Database
Preconditions:	1. The user must be logged into the system and has confirmed their study space session.
Postconditions:	None.
Main Flow:	<ol style="list-style-type: none"><li>1. The user receives an email (to either their school or personal email) from the system regarding the session details.<ol style="list-style-type: none"><li>1.1 The email includes the Booking ID of the session.</li><li>1.2 The email includes the time the user performed the booking action.</li><li>1.3 The email includes the Student/Staff ID of the user.</li><li>1.4 The email provides the Building, Floor, and Facility Type of the study space.</li><li>1.5 The email provides the Date and Time booked for the session.</li><li>1.6 The email provides verbal confirmation that the study space was successfully booked by the user.</li></ol></li></ol>
Alternate Flow:	None.

<b>Name of Use Case:</b>	UpdateFacilityDatabaseAfterBooking		<b>Use Case ID:</b>	UC-03.3		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Anthony Ho			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	27/10/2022			
Description:	The system will update the availability of the existing study spaces.					
Actors:	UVic Student, UVic Faculty & Staff, UVic Facility Database					
Preconditions:	1. An attempt to book a study space prior has finished or been in progress.					
Postconditions:	None.					



Main Flow:	<ol style="list-style-type: none"><li>1. The system will check if the StudySpace Form has been completed.</li><li>2. The system will book the user's selected study space according to the form's details and update the UVic facility database that the status of the study space is unavailable.</li><li>3. The Gen8 system schedule is updated to represent the fact that the designated study room has been booked at the allotted time decided upon by the user.</li><li>4. No other users will be permitted to attempt to book this study space during the designated time.</li></ol>
Alternate Flow:	<ol style="list-style-type: none"><li>1. <b>IF</b> The user has prompted a form to be filled, the user's selected study space will be temporarily reserved and canceled 20 minutes afterwards. The use case then ends.</li><li>2. <b>ELSE</b> The form has been completed and the user successfully completes the form and officially books the study space.</li><li>3. The system is subsequently updated.</li></ol>

#### UC-04. Cancel Booking

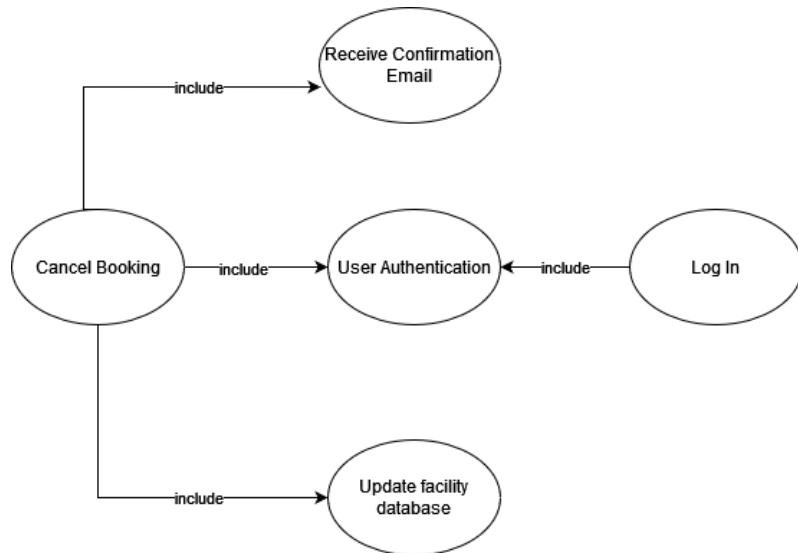


Figure 1.5 - CancelBooking Exploded Diagram



<b>Name of Use Case:</b>	CancelBooking		<b>Use Case ID:</b>	UC-04		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Randeep Singh Laller			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	27/10/2022			
Description:	The system allows users to cancel a confirmed booking.					
Actors:	UVic Student, UVic Faculty & Staff, UVic Service Authentication, UVic Facility Database					
Preconditions:	The user must have a confirmed booking.					
Postconditions:	The booking is canceled.					
Main Flow:	<ol style="list-style-type: none"><li>1. The user wants to cancel a booking.</li><li>2. The user goes to the booked room list.</li><li>3. The user selects the reservation that needs to be canceled.</li><li>4. The user presses the “Cancel” button.</li><li>5. <b>IF</b> the user is canceling the booking before 30 minutes of the reservation time:<ol style="list-style-type: none"><li>5.1 The user gets a popup to confirm the action as this cannot be undone.</li><li>5.2 The user confirms the action.</li><li>5.3 The booking is canceled.</li><li>5.4 The user receives an email to confirm their cancellation request.</li></ol></li><li>6. <b>ELSE</b> the system doesn't allow the user to cancel the booking.<ol style="list-style-type: none"><li>6.1 The user gets a popup that the cancellation cannot be done.</li></ol></li></ol>					
Alternate Flow:	None.					

<b>Name of Use Case:</b>	ReceiveCancellationConfirmationEmail		<b>Use Case ID:</b>	UC-04.1		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Randeep Singh Laller			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	27/10/2022			
Description:	The system sends a detailed email to the user to confirm their cancellation for the study space.					
Actors:	UVic Student, UVic Staff & Faculty, UVic Service Authentication, UVic Facility Database					
Preconditions:	The user must have canceled the booking.					



Postconditions:	The system sends the detailed email successfully.
Main Flow:	<ol style="list-style-type: none"><li>1. The user receives an email (to either their school or personal email) from the system regarding the session details.<ol style="list-style-type: none"><li>1.1 The email includes the Booking ID that the user canceled.</li><li>1.2 The email includes the time the user performed the cancel action.</li><li>1.3 The email includes the Student/Staff ID of the user.</li><li>1.4 The email provides the Building, Floor, and Facility Type of the study space.</li><li>1.5 The email provides the Date and Time slot of the study space that the user booked .</li><li>1.6 The email provides verbal confirmation that the study space was successfully canceled by the user.</li></ol></li></ol>
Alternate Flow:	None.

<b>Name of Use Case:</b>	UpdateFacilityDatabaseAfterCanceling		<b>Use Case ID:</b>	UC-04.2		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b> Randeep Singh Laller				
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b> 27/10/2022				
Description:	The system updates the current listings after a booking is canceled.					
Actors:	Uvic Facility Database					
Preconditions:	The booking is canceled by the user.					
Postconditions:	The current listings are updated successfully.					



Main Flow:	<ol style="list-style-type: none"><li>1. The booking is canceled by the user.</li><li>2. <b>IF</b> the listing is still valid:<ol style="list-style-type: none"><li>2.1 The system adds the listing to the current listings for users to book.</li></ol></li><li>3. <b>ELSE</b> The listing is archived.</li><li>1. The system will check if the cancellation request is valid.</li><li>2. The UVic facility database will update the status of the study space to available.</li><li>3. The Gen8 system schedule is updated to represent the fact that the designated study room has been booked at the allotted time decided upon by the user.</li><li>4. Other users now can book this study space during the designated time.</li></ol>
Alternate Flow:	None.

### UC-05. Manage the Availability of Rooms/Buildings

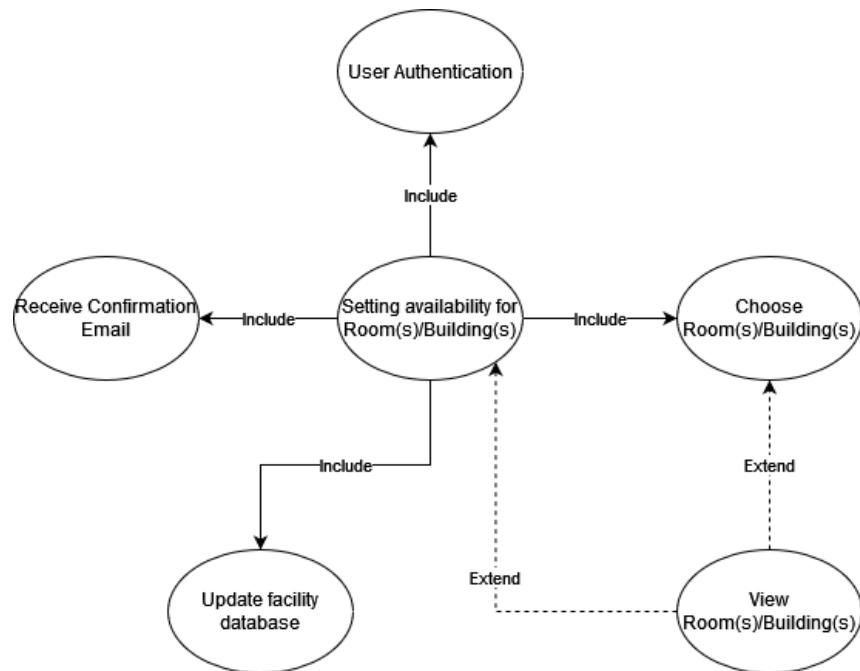


Figure 1.6 - ManageRooms/BuildingsAvailability Exploded Diagram



<b>Name of Use Case:</b>	ManageRoomsBuildingsAvailability		<b>Use Case ID:</b>	UC-05		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong			
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022			
Description:	<p>The user manages the availability of the rooms or buildings. For example, if the faculty wants to organize some events in some study rooms, they may want to manage the system to make these rooms unavailable for the students to book for a period of time. Or the actor can set some rooms only available for booking in some period of the year (for example, near the exam season).</p>					
Actors:	System handlers, UVic Facility Database					
Preconditions:	System handlers have a valid Netlink account and are logged into the system.					
Postconditions:	None.					
Main Flow:	<ol style="list-style-type: none"><li>1. The user chooses room(s) to manage as described in UC-05.1</li><li>2. The user update the availability for the set of room(s) as described in UC-05.2</li><li>3. The user receives an email to confirm the change (UC-05.3)</li><li>4. <b>IF</b> the user confirms their choice:<ol style="list-style-type: none"><li>4.1 The new setting is saved.</li></ol></li><li>5. <b>ELSE</b><ol style="list-style-type: none"><li>5.1 No change is made.</li></ol></li></ol>					
Alternate Flow:	None.					

<b>Name of Use Case:</b>	ChooseRoom(s)/Building(s)		<b>Use Case ID:</b>	UC-05.1		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong			
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022			
Description:	The user chooses a set of rooms or buildings to update the availability.					
Actors:	System handlers, UVic Facility Database					
Preconditions:	System handlers have a valid Netlink account and are logged into the system.					
Postconditions:	None.					



Main Flow:	1. The user chooses the building they want to update.  1. The user chooses the room(s) to manage:  1.1. The user can choose a room based on its property. 1.2. The user can choose a set of rooms based on some conditions: 1.2.1. These rooms have the same facilities. 1.2.2. These rooms are on the same building/floors.
Alternate Flow:	None.

<b>Name of Use Case:</b>	SettingAvailabilityForRoom(s)/Building(s)	<b>Use Case ID:</b>	UC-05.2
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022
Description:	The user updates the availability of the set of rooms that they choose in UC-05.1.		
Actors:	System handlers, UVic Facility Database		
Preconditions:	System handlers have a valid Netlink account and are logged into the system. System handlers performed UC-05.1.		
Postconditions:	The new settings are applied to the chosen room(s) successfully.		
Main Flow:	1. The user can set availability for the rooms:  1.1. The user can set the room (un)available for booking in a period of time. 1.2. The user can set the room (un)available for booking in a repeated period of time. 1.3. The user can set the room (un)available for booking permanently. 1.4. The user can set the room (un)available for booking for some type of students (for example, students in that department, master students only, etc.).  3. The user is asked to confirm their action.		
Alternate Flow:	None.		

<b>Name of Use Case:</b>	ReceiveManagementConfirmationEmail	<b>Use Case ID:</b>	UC-05.3
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong



<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>	25/10/2022
Description:	The system handlers will receive an email to confirm the change they made to the list of rooms.		
Actors:	System handlers, UVic Facility Database		
Preconditions:	System handlers performed UC-05.2.		
Postconditions:	System handlers receive an email confirming their action successfully.		
Main Flow:	<ol style="list-style-type: none"><li>1. The user receives an email from the system regarding the session details.<ol style="list-style-type: none"><li>1.1 The email includes the ID of the session.</li><li>1.2 The email includes the time the user performed the management action.</li><li>1.3 The email includes the ID of the user.</li><li>1.4 The email provides the Building, Floor, and Facility Type of the room(s) the user updated.</li><li>1.5 The email provides verbal confirmation that the change is updated.</li></ol></li></ol>		
Alternate Flow:	None.		

<b>Name of Use Case:</b>	UpdateFacilityDatabaseAfterManaging		<b>Use Case ID:</b>	UC-05.4		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>		Irene Duong		
<b>Date Created:</b>	25/10/2022	<b>Last Revision Date:</b>		25/10/2022		
Description:	The system handlers will receive an email to confirm the change they made to the list of rooms.					
Actors:	UVic Facility Database					
Preconditions:	System handlers confirm their choice in UC-05.2.					
Postconditions:	The database is updated successfully.					
Main Flow:	<ol style="list-style-type: none"><li>1. The system will check if the management request is valid.</li><li>2. The UVic facility database will update the status of the study spaces that the user made change.</li><li>3. The Gen8 system schedule is updated to represent the new schedule changed by the user.</li></ol>					
Alternate Flow:	None.					



### UC-06. Contact Help Desk

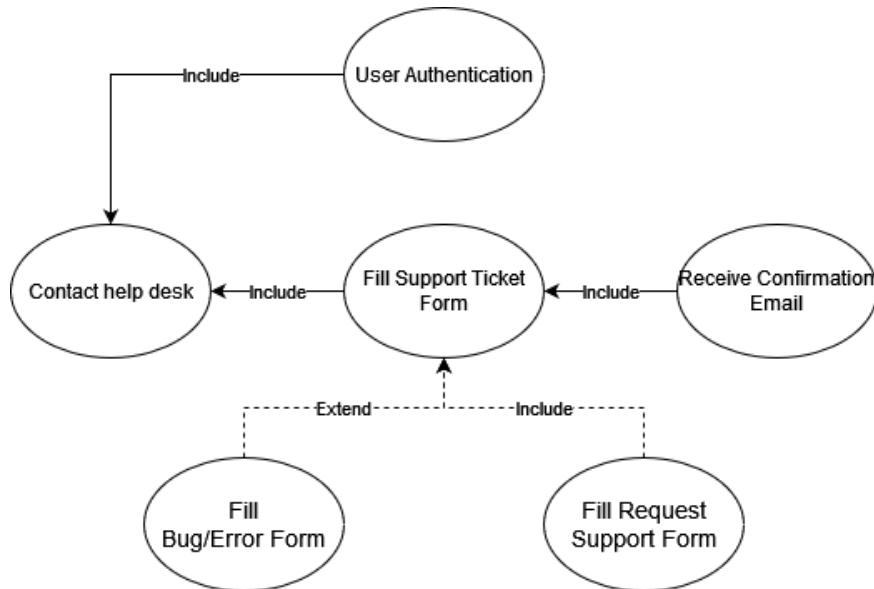


Figure 1.7 - ContactHelpDesk Exploded Diagram

Name of Use Case:	ContactHelpDesk		Use Case ID:	UC-06		
Created by:	Gen8	Last Updated By:	Irene Duong			
Date Created:	25/10/2022	Last Revision Date:	25/10/2022			
Description:	Users can contact the help desk for support if they have any difficulty while using the system.					
Actors:	UVic Students, UVic Staff & Faculty, System handlers, UVic Help Desk, UVic Authentication Service					
Preconditions:	UVic Students, UVic Staff & Faculty, System handlers have a valid Netlink account and are logged into the system.					
Postconditions:	UVic Help Desk receives the ticket from UVic Students, UVic Staff & Faculty, or System handlers.					



Main Flow:	<ol style="list-style-type: none"><li>1. The user presses the “Contact for support” button.</li><li>2. The user is asked to choose the type of support from UVic Help Desk as described in UC-06.1.</li><li>3. The user is taken to UC-06.2 or UC-06.3 based on their selection.</li><li>4. The user is taken to a page showing that their request was submitted successfully.</li><li>5. The user receives an email to confirm that their request has been sent to the UVic help desk.</li></ol>
Alternate Flow:	<ol style="list-style-type: none"><li>1. The user can contact UVic Help Desk directly in person (in Clearihue Building) and remotely (by email or phone).</li></ol>

<b>Name of Use Case:</b>	SelectHelpType	<b>Use Case ID:</b>	UC-06.1
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Jooah Bae
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	28/10/2022
Description:	The user clicks the 'Contact Help Desk' button. Then the user selects the help desk type from the two choices: Report a bug and/or error, or request help with the system.		
Actors:	UVic Students, UVic Staff & Faculty, System handlers, UVic Help Desk, UVic Authentication Service		
Preconditions:	1. The user must be logged into the system with a valid NetLink ID.		
Postconditions:	1. The user should be on the form to either report a bug/or error or request help after the selection.		
Main Flow:	<ol style="list-style-type: none"><li>1. The user is prompted to fill out a help form regarding errors, bugs, or requests for help.</li><li>2. <b>WHILE</b> the user is not logged in:<ol style="list-style-type: none"><li>2.1 The user is prompted to log in.</li></ol></li><li>3. User selects the type of help from the two options: ‘Report Bug or Error’, or ‘Request Help’ with the website.<ol style="list-style-type: none"><li>3.1 The user is returned to use case UC-06.2 or UC-06.3, according to their help type selection.</li></ol></li></ol>		
Alternate Flow:	None.		



<b>Name of Use Case:</b>	FillBugAndErrorHelpDeskForm		<b>Use Case ID:</b>	UC-06.2		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Jooah Bae			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	28/10/2022			
Description:	The user fills out a form reporting system errors, or bugs with the system and submits the form.					
Actors:	UVic Students, UVic Staff & Faculty, System handlers, UVic Help Desk, UVic Authentication Service					
Preconditions:	<ol style="list-style-type: none"><li>1. The user must be logged into the system.</li><li>2. The user has selected the help type of 'Report Bug or Error' from UC-06.1</li></ol>					
Postconditions:	<ol style="list-style-type: none"><li>1. The report from the user is submitted.</li><li>2. UVic Help Desk receives the bug/error ticket.</li><li>3. The system sends out a confirmation email to the user.</li></ol>					
Main Flow:	<ol style="list-style-type: none"><li>1. The user is prompted to fill out a form regarding the error or bug.<ol style="list-style-type: none"><li>1.1 <b>WHILE</b> the user is timed out or logged out due to inactivity:<ol style="list-style-type: none"><li>1.1.1 The user is prompted to log in.</li></ol></li></ol></li><li>2. The user needs to fill in the required fields:<ol style="list-style-type: none"><li>2.1. The user needs to fill in their information (Name, Email, etc.)</li><li>2.2. The user needs to fill in description of the problem:<ol style="list-style-type: none"><li>2.2.1. A brief description about the issue to provide the help desk with some context of what the issue is.</li><li>2.2.2. Steps to reproduce the issue (if possible)</li></ol></li><li>2.3. The user can submit documents to clarify their request (images, videos, etc.)</li></ol></li><li>3. The user hits the "Submit" button.</li><li>4. The form is sent to UVic Help Desk.</li></ol>					
Alternate Flow:	None.					



<b>Name of Use Case:</b>	FillRequestHelpDeskForm		<b>Use Case ID:</b>	UC-06.3		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Jooah Bae			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	28/10/2022			
Description:	The user fills out a form requesting for help with the system and submits the form.					
Actors:	UVic Students, UVic Staff & Faculty, System handlers, UVic Help Desk, UVic Authentication Service					
Preconditions:	<ol style="list-style-type: none"><li>1. The user must be logged into the system.</li><li>2. The user has selected the help type of 'Request Help' from UC-6.1</li></ol>					
Postconditions:	<ol style="list-style-type: none"><li>1. The report from the user is submitted.</li><li>2. UVic Help Desk receives the request ticket.</li><li>3. The system sends out a confirmation email to the user.</li></ol>					
Main Flow:	<ol style="list-style-type: none"><li>1. The user is prompted to fill out a form regarding their request for help with the system.<ol style="list-style-type: none"><li>1.1 <b>WHILE</b> the user is timed out or logged out due to inactivity:<ol style="list-style-type: none"><li>1.1.1 The user is prompted to log in.</li></ol></li><li>2. The user needs to fill in the required fields:<ol style="list-style-type: none"><li>2.1. The user needs to fill in their information (Name, Email, etc.)</li><li>2.2. The user needs to fill in description of the problem:<ol style="list-style-type: none"><li>2.2.1. A brief description about the issue to provide the help desk with some context of what the issue is.</li><li>2.2.2. Steps that the user made (if possible).</li><li>2.2.3. Goal that the user wants to achieve.</li></ol></li><li>2.3. The user can submit documents to clarify their request (images, videos, etc.)</li></ol></li><li>3. The user hits the "Submit" button.</li><li>4. The form is sent to the UVic Help Desk.</li></ol></li></ol>					
Alternate Flow:	None.					



<b>Name of Use Case:</b>	ReceiveSupportConfirmationEmail		<b>Use Case ID:</b>	UC-06.4		
<b>Created by:</b>	Gen8	<b>Last Updated By:</b>	Irene Duong			
<b>Date Created:</b>	27/10/2022	<b>Last Revision Date:</b>	27/10/2022			
Description:	The system sends a detailed email to the user to confirm their support ticket has been received by UVic Help Desk.					
Actors:	UVic Student, UVic Staff & Faculty, UVic Help Desk					
Preconditions:	The user must submit a support ticket to the UVic Help Desk prior.					
Postconditions:	The system sends the detailed email successfully.					
Main Flow:	<ol style="list-style-type: none"><li>1. The user receives an email (to either their school or personal email) from the system regarding the session details.<ol style="list-style-type: none"><li>1.1 The email includes the Ticket ID.</li><li>1.2 The email includes the time the user performed the request action.</li><li>1.3 The email includes the Student/Staff ID of the user.</li><li>1.4 The email contains a copy of the description of the ticket.</li><li>1.6 The email provides verbal confirmation that the support ticket was successfully submitted to the UVic help desk by the user.</li></ol></li></ol>					
Alternate Flow:	None.					



## 2.3 Domain Models - DFD

### 2.3.1 Context level Data Flow Diagram

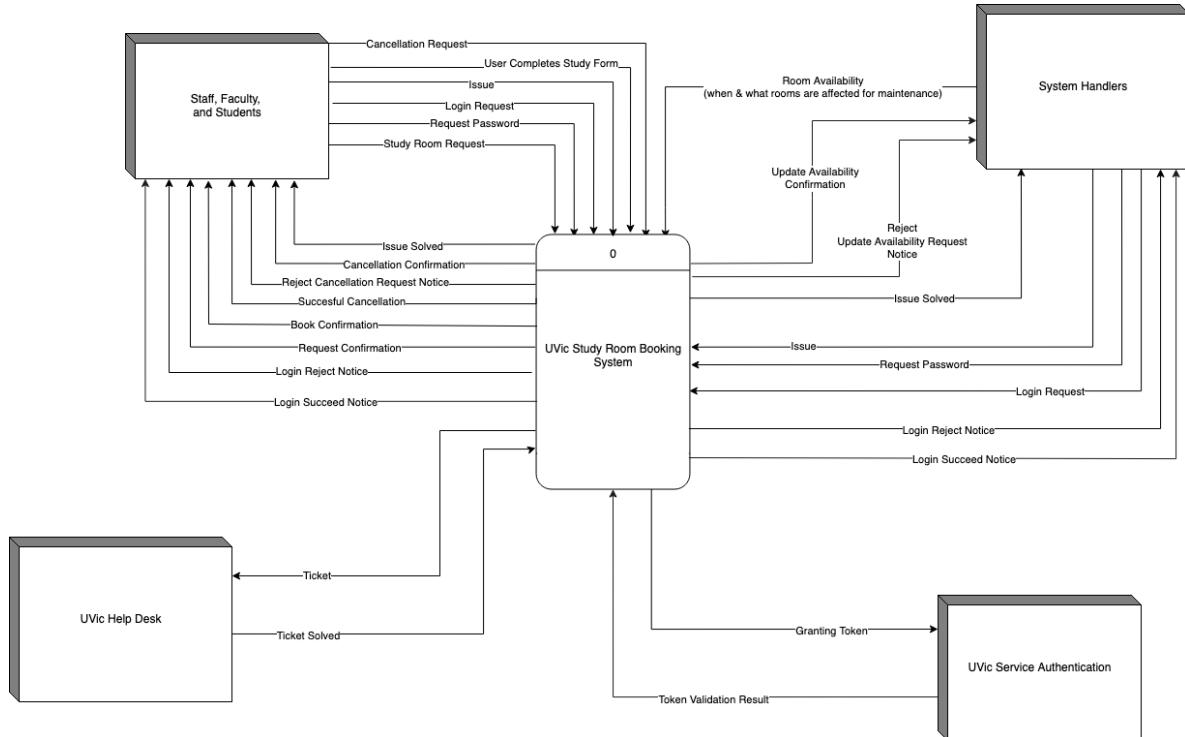


Figure 2.1 - Context Diagram for StudyUp



### 2.3.2 Level 0 Data Flow Diagram

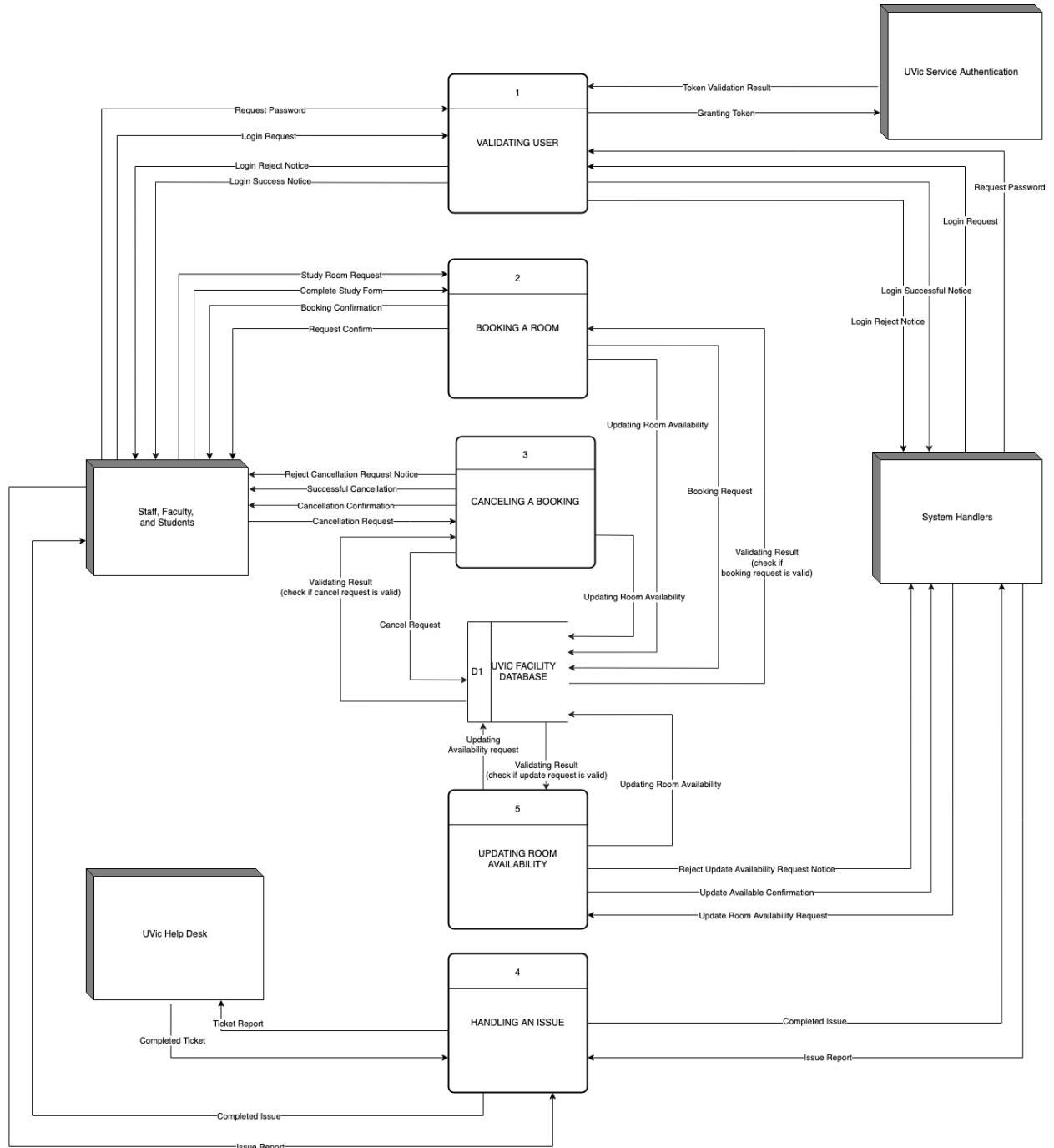


Figure 2.2 - Level 0 Data Flow Diagram for StudyUp



### 2.3.3 Level 1 Data Flow Diagram

#### Log In

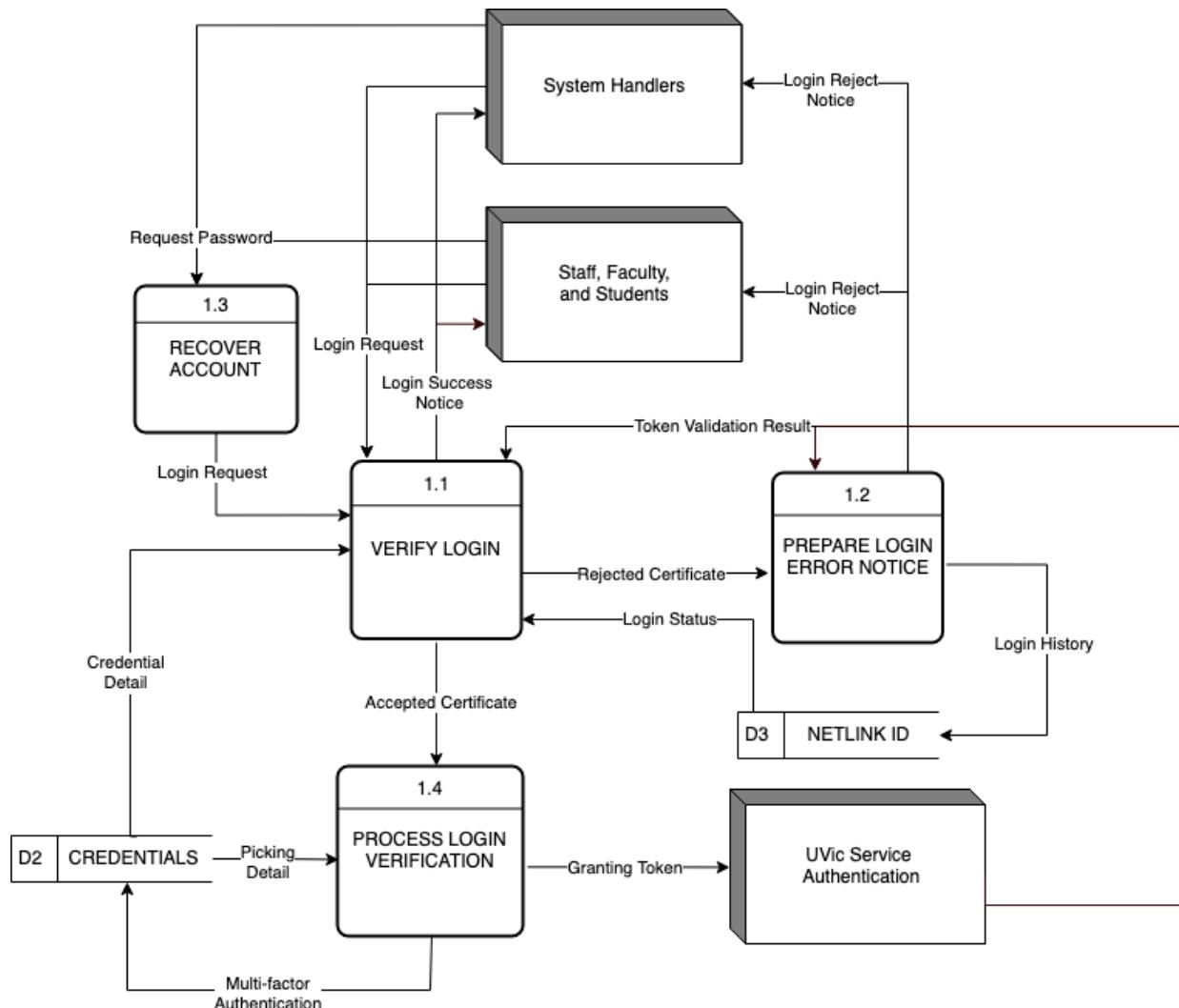


Figure 2.3 - Validating User Data Flow Diagram



## Book Study Room

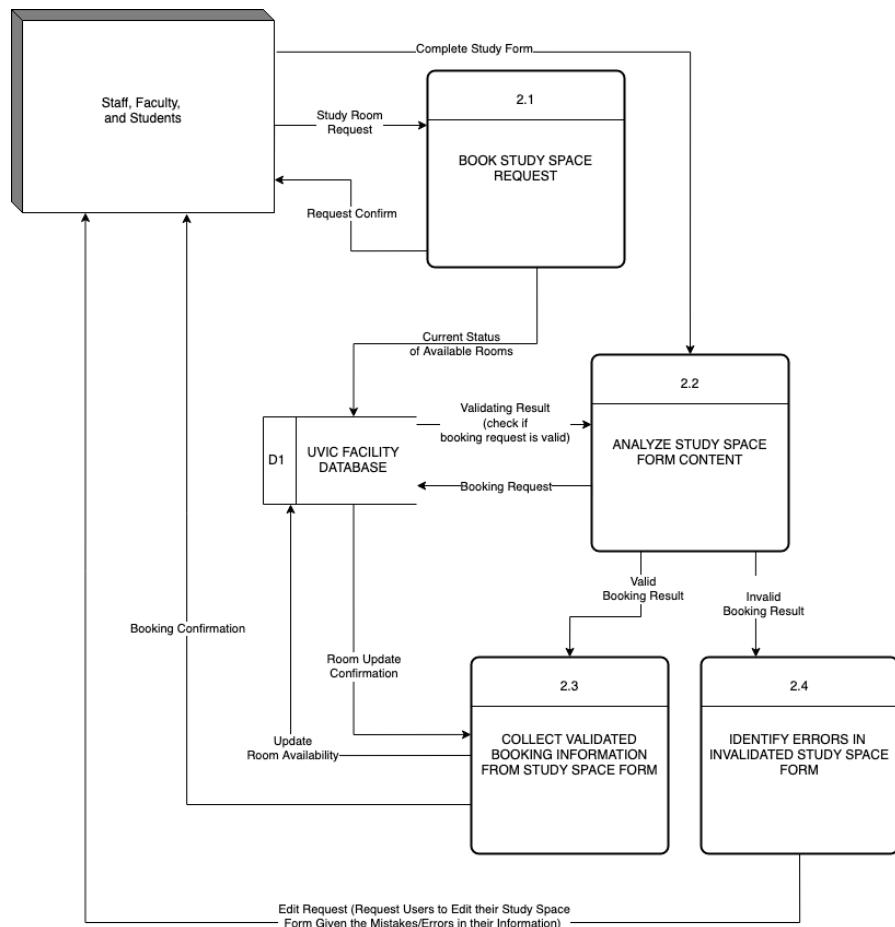


Figure 2.4 - Booking A Study Room Data Flow Diagram



## Cancel Booking

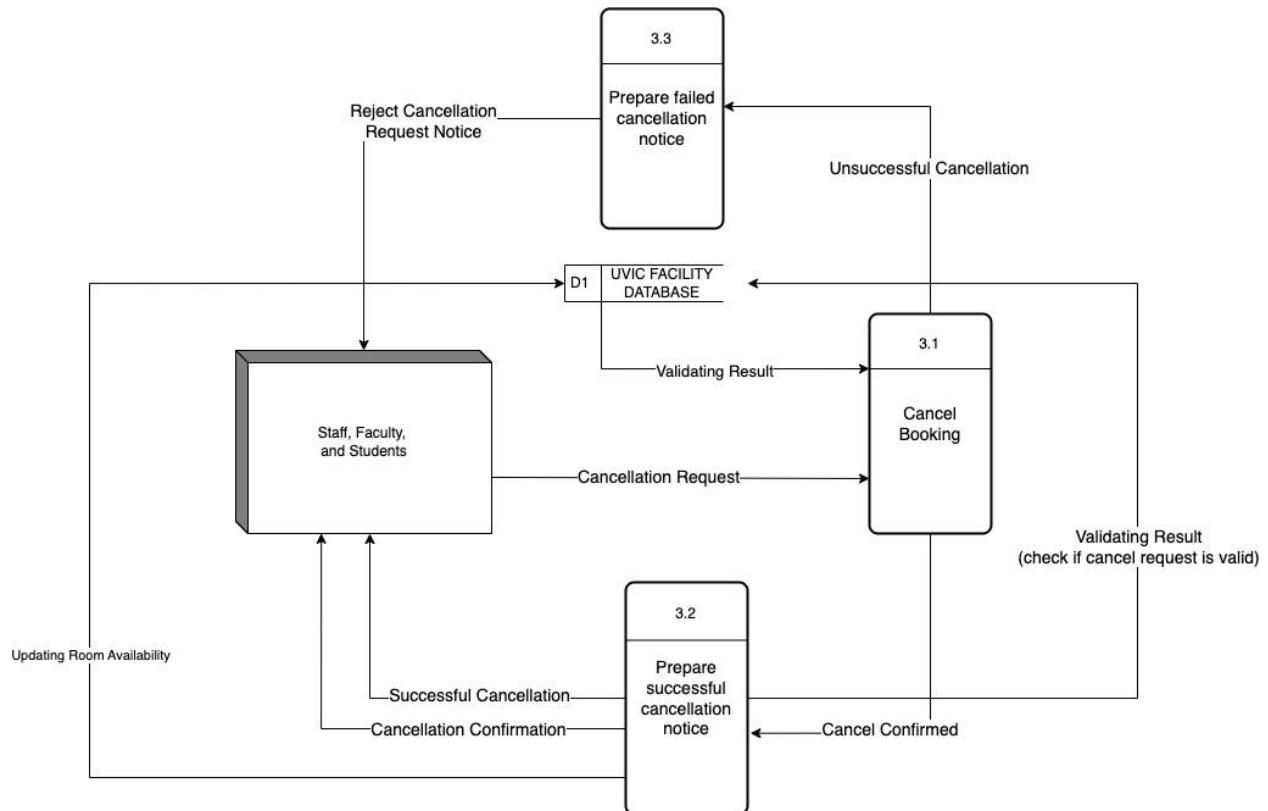


Figure 2.5 - Cancel Booking Data Flow Diagram



## Manage the Availability of Rooms

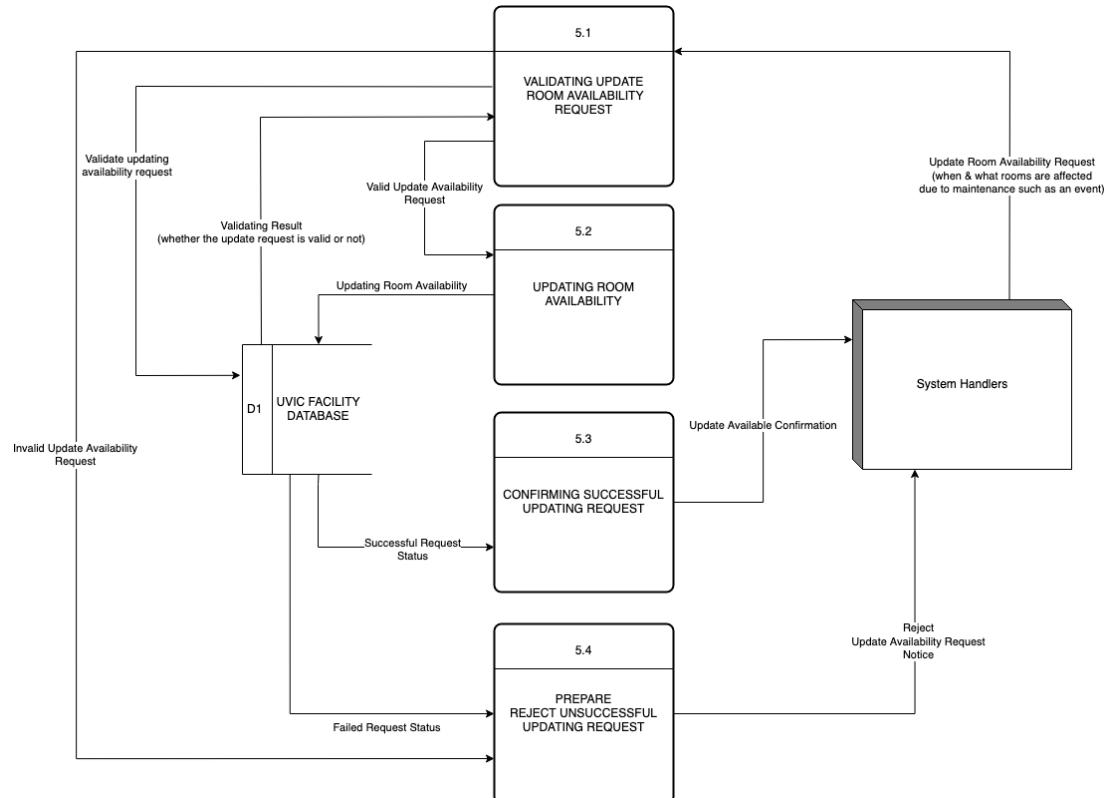


Figure 2.6 - Manage Rooms/Buildings Availability Data Flow Diagram



## Handling An Issue

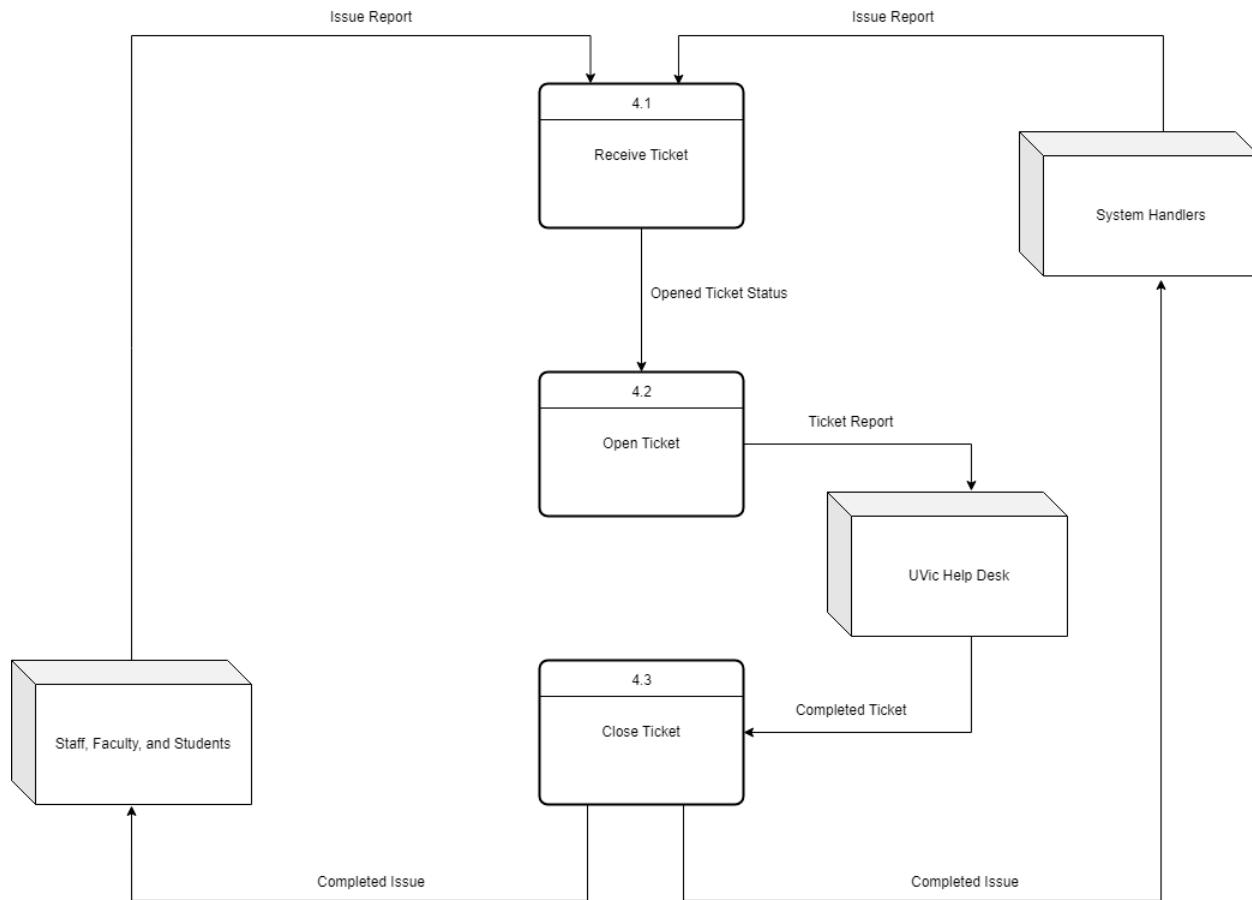


Figure 2.6 - Handling An Issue Data Flow Diagram

## 3. Designs

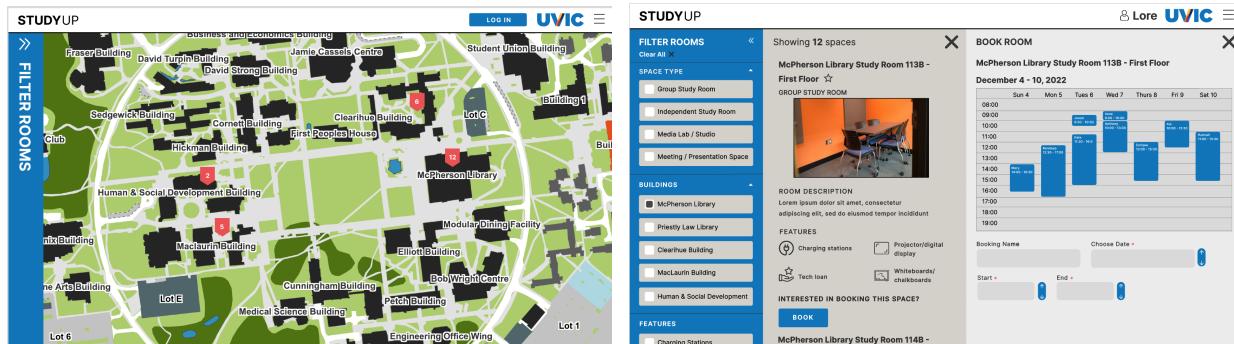




Figure 3.1 - View/Search Study Rooms UI Prototype  
a) full screen map. b) campus map with filter tool.  
c) campus map with room detail information.

Figure 3.2 - Book Study Room UI Prototype  
a) study room booking form. b) confirmation  
notification after booking. c) new change is reflected  
on the calendar.

Figure 3.3 - Log In UI Prototype

Figure 3.4 - Account Setting UI Prototype

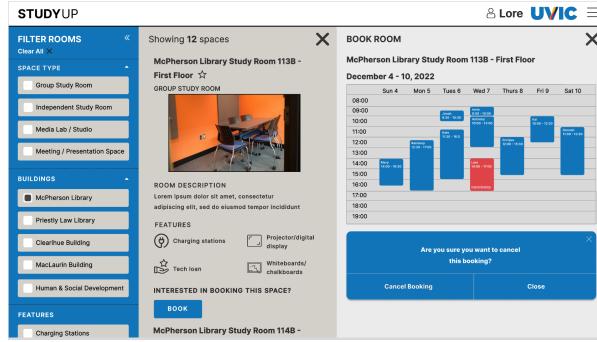


Figure 3.5 - Cancel Booking UI Prototype

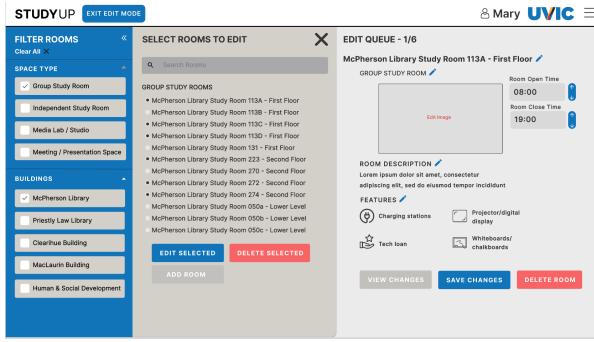


Figure 3.6 - Manage Room/Building UI Prototype

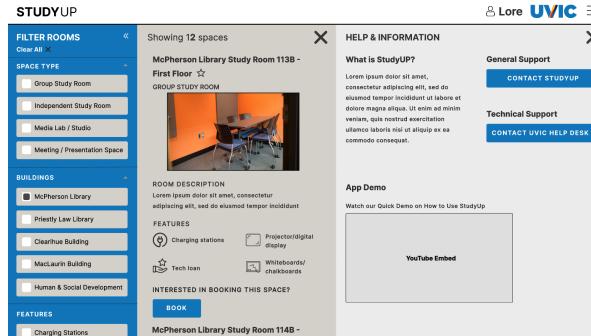


Figure 3.7 - Contact Help Desk UI Prototype

## 4. Conclusions & Recommendations

### 4.1 Conclusions

The objective of this experience was to provide students with the opportunity to collaborate and co-design a tentative solution to a technical problem related to the University. The technical problem our team decided to approach was the University's current study space booking system, as it was considered to be rather complicated and scattered across various websites depending on the building selected. The tentative solution suggested by our team involved developing a centralized booking system in conjunction with the merger and unification of all pre-existing systems to streamline and optimize the user experience. In the development and analysis of our conceptual solution, we found that it was feasible in actual practice, especially when examining other Universities' study space booking systems and during the process of formulating and analyzing our project's requirements.

### 4.2 Recommendations

Expand the study booking to allow students to book an open study space where:



- They can share the topic of the group study and invite other students to join. E.g: a student books a room for CSC320 class and sets the status “Public”.
- Other students can join any open study space that has the topic they are interested in. E.g: a student sees a public booked room open for CSC320 course and decides to join

Expand the system for students' events booking recurrently, such as club meetings.

Improve the communication between the system handlers and students/staff when there is any change to the booked rooms.

Provide more tools for system handlers to manage the facilities of the room.

## 5. Member's Contribution

Members	Tasks
Jooah Bae	<ul style="list-style-type: none"><li>- Participated in most required sessions including client meetings, work sessions, and group meetings unless I was unable to make it due to circumstances.</li><li>- Proofread and provided suggestions for final revisions for most documents.</li><li>- Worked with the contents of the website.</li><li>- Worked on the Project Charter; 2.2, 2.3, 3.3.</li><li>- Suggested recommendations for Requirement Document.</li><li>- Worked on the Use Case 06 and its Domain Model deliverables - UVic Help Desk including the DFD and diagram.</li><li>- Contributed ideas for UI Prototype.</li></ul>
Irene Duong	<ul style="list-style-type: none"><li>- Created, set up, and maintained the website;</li><li>- attended all the in class work sessions, client and team meetings;</li><li>- contributed to, did final edits on and revised Charter;</li><li>- contributed to, helped with proofreading of Requirement deliverables;</li><li>- created UC-02 View Study Room, UC-05 Manage the Availability of Rooms/Buildings, contributed on UC-06 Contact Help Desk, did final edits on and revised the Requirement and User Cases deliverable;</li><li>- contributed to the Context level and level 1 DFD, created Manage the Availability of the Rooms DFD, gave feedback on other's DFD, did final edits on and revised the Requirement, User Cases, and Domain Model deliverable;</li><li>- contributed ideas for the UI Prototype;</li><li>- worked on the final report with Anthony Ho;</li></ul>



Members	Tasks
	<ul style="list-style-type: none"><li>- presented the final presentation with Mary Pesado and Lore Schwartz.</li></ul>
Anthony Ho	<ul style="list-style-type: none"><li>- Participated in all Client Meetings and a minimum of one work session per deliverable.</li><li>- Good portion of the website in terms of coding (website structure; errors), writing (majority of text), and edits.</li><li>- Worked on Project Charter Original Sections 1.2 (Executive Summary), 1.3, and 3.1.</li><li>- Provided feedback to work for fellow Analyst Team Members.</li><li>- Contribution to Requirement Deliverables in terms of revising a good portion of the individual requirements.</li><li>- Worked with Lore Schwartz to create Book Study Room Use-Case Specifications and Diagrams (UC-03; UC-03.1 to 0.33) and Book Study Room DFD.</li><li>- Worked on the Final Report with Irene Duong.</li></ul>
Randeep Laller	<ul style="list-style-type: none"><li>- Worked on the RFP as a client, attended all the team and client meetings;</li><li>- helped with proofreading of the deliverables;</li><li>- worked on the requirements for the projects;</li><li>- created cancel room use case diagram and specifications,</li><li>- created the cancel room DFD;</li><li>- made sure the final prototype matches the use cases and requirements;</li><li>- made the final presentation slides with Mary Pesado.</li></ul>
Mary Pesado	<ul style="list-style-type: none"><li>- Established communication platform for the team;</li><li>- conducted/facilitated meetings, assigned team roles and delegated tasks;</li><li>- contributed to the RFP;</li><li>- conducted deep analysis of current systems with Lore Schwartz;</li><li>- edited deliverables, contributed to Requirements &amp; clients feedback document;</li><li>- created Validating User DFD with Kate Ueda;</li><li>- created the final prototype with Lore Schwartz, and</li><li>- presented for the final presentation with Lore Schwartz and Irene Duong.</li></ul>
Lore Schwartz	<ul style="list-style-type: none"><li>- Good portion of the RFP;</li><li>- participation in client meetings;</li><li>- along with Mary Pesado conducted a deep analysis of current systems;</li></ul>



Members	Tasks
	<ul style="list-style-type: none"><li>- did final edits on, and submission of, group deliverables;</li><li>- did the first presentation;</li><li>- took the role of prototype handler/presenter for the final presentation;</li><li>- worked on requirements, assisted in creation of use case diagram, created Book Study Room (UC-03) use case diagram;</li><li>- worked with Anthony Ho to create the Book Study Room DFD, and</li><li>- worked with Mary Pesado to create the Final Prototype.</li></ul>
Kate Ueda	<ul style="list-style-type: none"><li>- Contributed in the client and team meetings;</li><li>- proofread and revised deliverables such as the project charter, requirements, use case specifications and diagrams, domain models, and final report;</li><li>- contributed to the submission of a group deliverable;</li><li>- contributed to the first presentation, website, project charter 2.4 and 3.2, functional and non-functional requirements, and ideas for the prototype;</li><li>- created use case specifications (UC-01, UC-01.1, UC-01.2, UC-01.3, UC-01.4) and use case diagram for LogIn;</li><li>- created Validating User DFD with Mary Pesado.</li></ul>

## 6. Appendices

### Table of Figures

Gantt Chart	13
Use Case Top Level Diagram for StudyUp	18
LogInUser Exploded Diagram	19
ViewRooms/Buildings Exploded Diagram	23
BookStudyRoom Exploded Diagram	27



CancelBooking Exploded Diagram	31
ManageRooms/BuildingsAvailability Exploded Diagram	34
ContactHelpDesk Exploded Diagram	38
Context Diagram for StudyUp	43
Level 0 Data Flow Diagram for StudyUp	44
Validating User Data Flow Diagram	45
Booking A Study Room Data Flow Diagram	46
Cancel Booking Data Flow Diagram	47
Manage Rooms/Buildings Availability Data Flow Diagram	48
Handling An Issue Data Flow Diagram	49
View/Search Study Rooms UI Prototype	49
Book Study Room UI Prototype	49
Log In UI Prototype	50
Account Setting UI Prototype	50
Cancel Booking UI Prototype	51
Manage Room/Building UI Prototype	51
Contact Help Desk UI Prototype	51

## Glossary of Terms

---

Term	Definition
Sassafras Service	Third party vendor/company that provides service to manage IT Asset inventory through lifecycle management, purchase tracking, usage monitoring, and flexible reporting.



Term	Definition
API	Stands for application programming interface, which is a set of definitions and protocols for building and integrating application software.
Lighthouse Performance test	Lighthouse is an open-source, automated tool for improving the quality of web pages. It evaluates the website with a score from 5 categories: Performance, Accessibility, Best Practices, SEO and PWA.
Study Form	A mandatory online form that the user must complete regarding session details and inputtable fields.
Ticket/Report	An email sent to staff/faculty regarding system malfunctions.
Succeed/Reject Notice/Message	A message sent to either the user or staff/faculty regarding system requests.
Granting Token	Login token containing user related information is sent from User Verification Process to UVic Authentication Service.
Multi-factor authentication (MFA)	An authentication method that requires the user to provide two or more verification factors to gain access to a resource such as an application
Booking Result	The outcome of the user's request to reserve a study space.
Room Availability	The database of study spaces; room statuses are updated according to successful/canceled bookings of study spaces.