



SCSJ2203: Software Engineering

System Documentation

Staff Attendance System

Version 2.0

[PR 3 - Chap 3 until 7]

Date: 13/6/2021

School of Computing, Faculty of Engineering

Prepared by: Group 9

Revision Page

a. Overview

In this system documentation version 2.0, there are five parts involved: the System Architectural Design, Detailed Description of Components, Data Design, User Interface Design and Requirements Matrix. We have chosen the architectural style for our system and briefly explained the reason. Next, we describe the functional decomposition of subsystems in our component model by including class diagram and package diagram. We also describe the database involved for our system in data description and data dictionary. A system surely needs a well-designed interface so have come up with a proper and concise interface design.

b. Target Audience

The system documentation version 2.0 is dispensing for the stakeholders and the person involved throughout the system's implementation.

c. Project Team Members

Name	Role	Task	Status
Nursyahidatul Asyiqin binti Yusof	Senior software engineer	4.2.1, 5.1 and requirements matrix	Completed
Nurul Syamira binti Amat Jifri	Software engineer	4.2.2 and 5.2	Completed
PG Khairil Qayyiz bin PG Putra	Software Manager	4.2.3 and user interface design	Completed
Qudri Ameer bin Mohd Safiee	Senior programmer	3.2 and user interface design	Completed
All	-	4.1	Completed

d. **Version Control History**

Version	Primary Author(s)	Description of Version	Date Completed
Version 2.0	Nurul Syamira (Leader PR2)	Completed Chapter 3 and 4	06/06/2021
Version 2.0	Qudri Ameer (Leader PR3)	Completed Chapter 5, 6 and 7	13/06/2021

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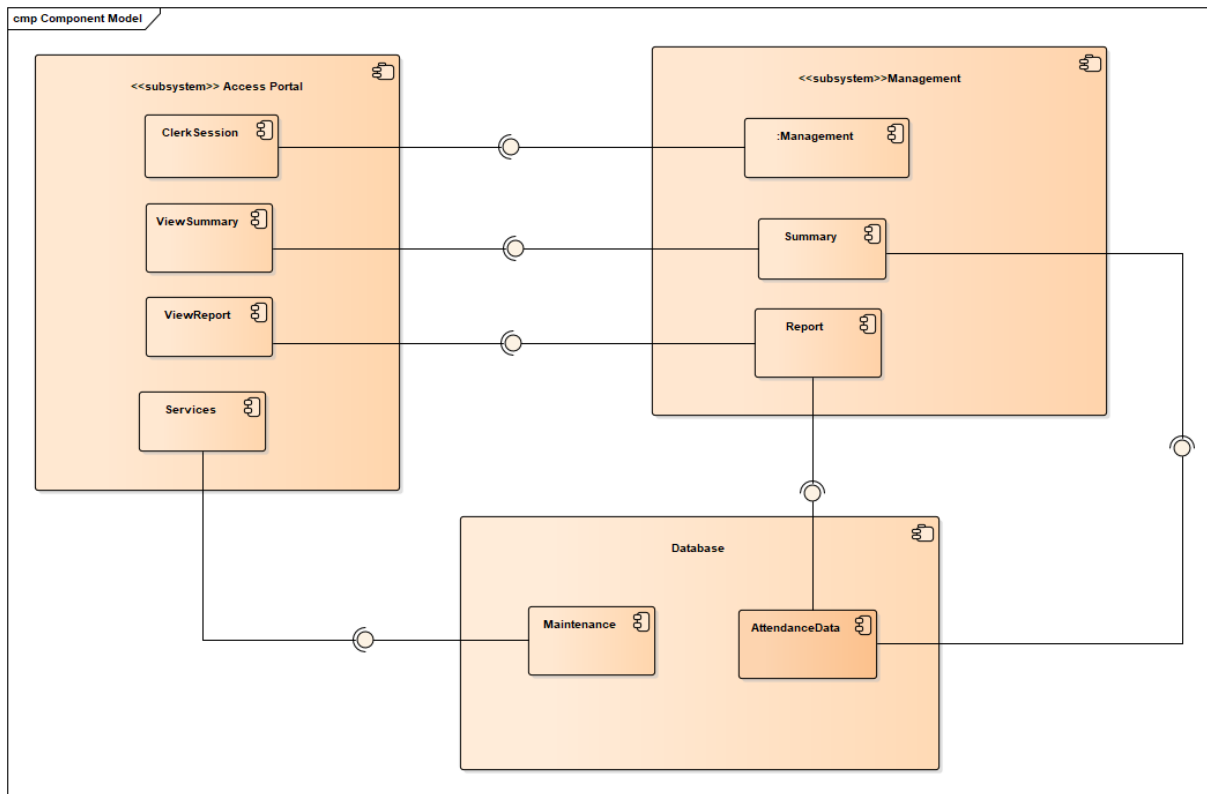


Figure 3.2: Component Diagram of <Staff Attendance System>

4. Detailed Description of Components

4.1 Complete Package Diagram

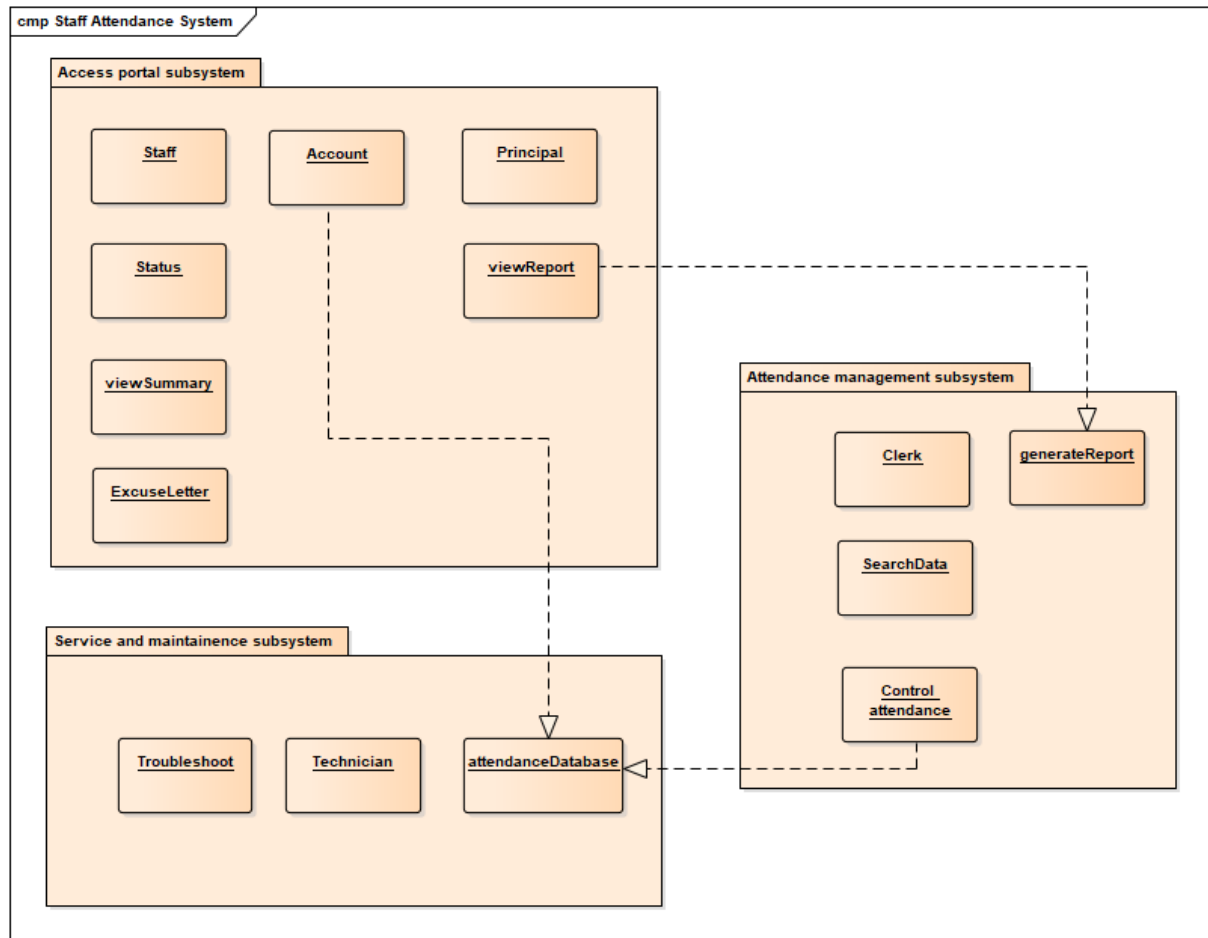


Figure 4.1: Package Diagram for **Staff Attendance System**

4.2 Detailed Description

4.2.1 P001: Portal Subsystem

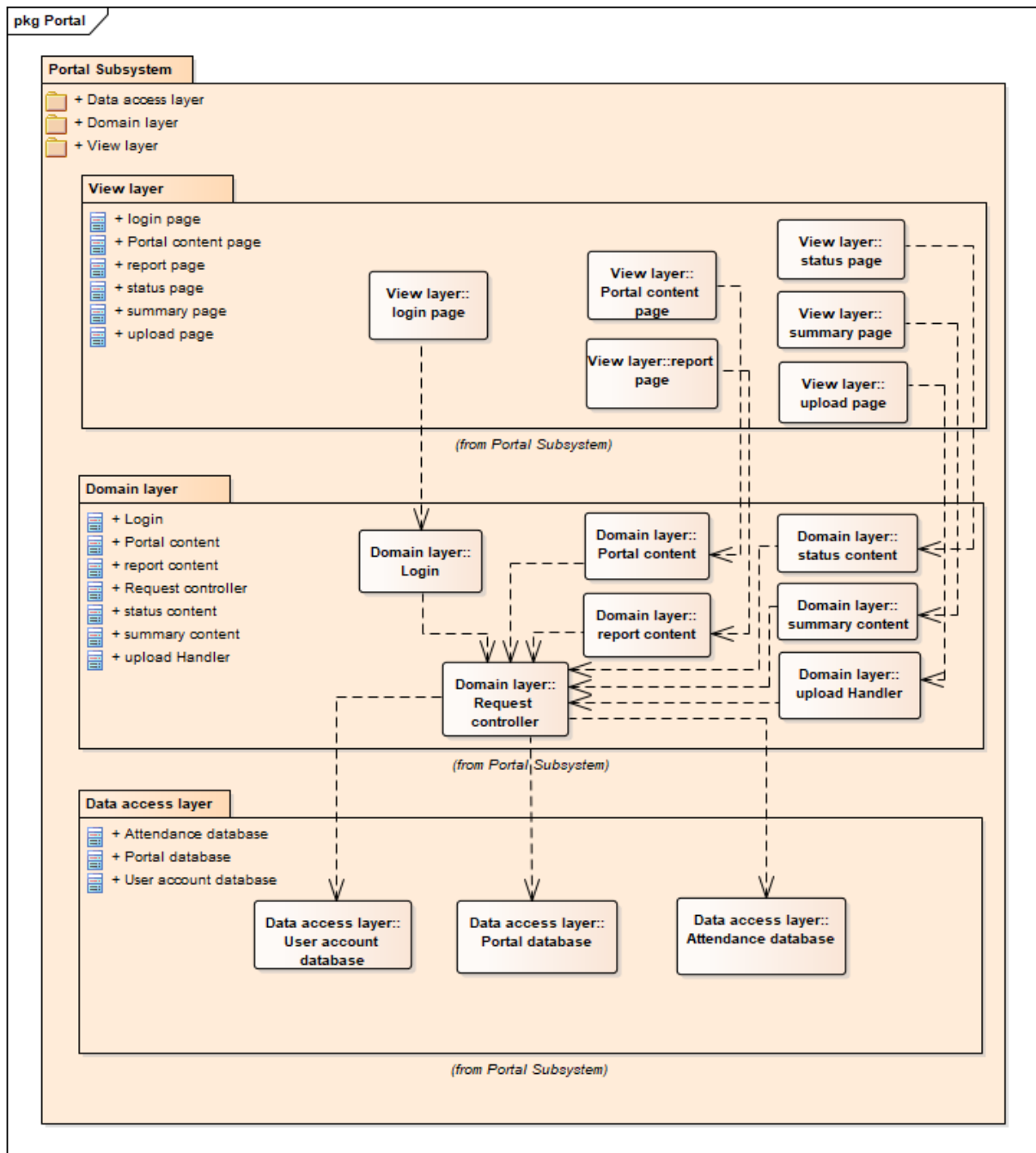


Figure 4.2: Package diagram for Portal Subsystem

4.2.1.1 Class Diagram

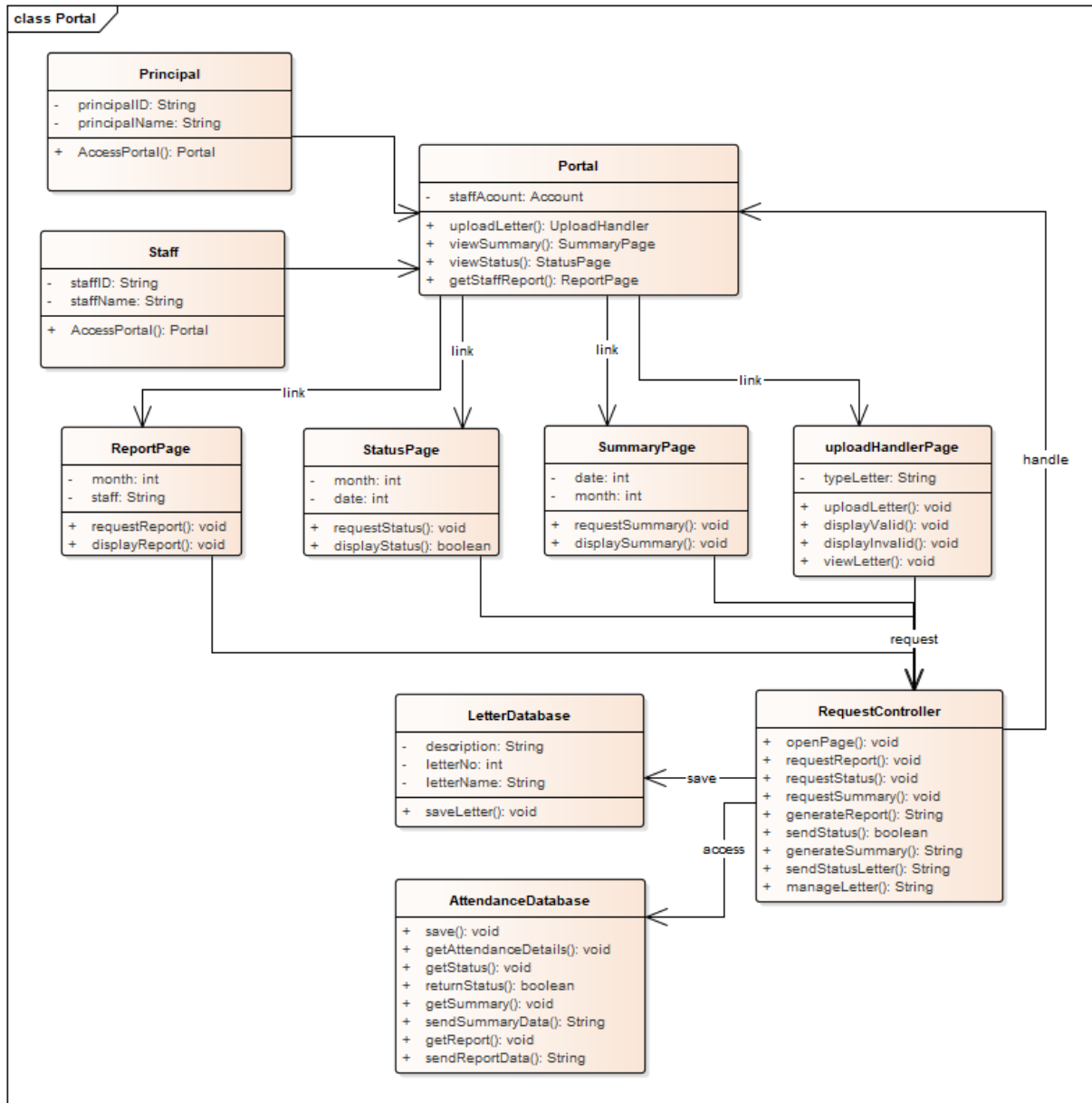


Figure 4.3: Class diagram for Portal Subsystem

Entity Name	Portal
Method Name	accessPortal
Input	Portal page request (insert staffID, password)
Output	Page redirect to the main portal page.
Algorithm	1. Start 2. Insert userID and password. 3. Display portal page. 4. User select case. 5. End

Entity Name	Letter
Method Name	requestSave
Input	description
Output	Complete upload letter
Algorithm	1. Start 2. Staff enter the upload file page. 3. Insert file with description. 4. Click “submit file”. 5. upload success, file saved database and display “Upload completed”.

	6. Else display “file unsuccessful to upload”. 7. End
--	--

Entity Name	Status
Method Name	requestStatus
Input	date, month
Output	Complete status
Algorithm	1. Start 2. Staff enter the status page. 3. Insert date and month. 4. Staff status displayed. 5. End

Entity Name	Summary
Method Name	requestSummary
Input	Date, month
Output	Display inquire on Summary
Algorithm	1. Start 2. Staff enter the summary page. 3. Insert date and month. 4. Staff monthly attendance summary displayed.

	5. End
--	--------

Entity Name	Report
Method Name	requestReport
Input	month
Output	staff report
Algorithm	1. Start 2. principal enters the report page. 3. Staff report displayed. 4. End

4.2.1.2 Sequence Diagram

a) SD001: Sequence diagram for [viewReport](#)

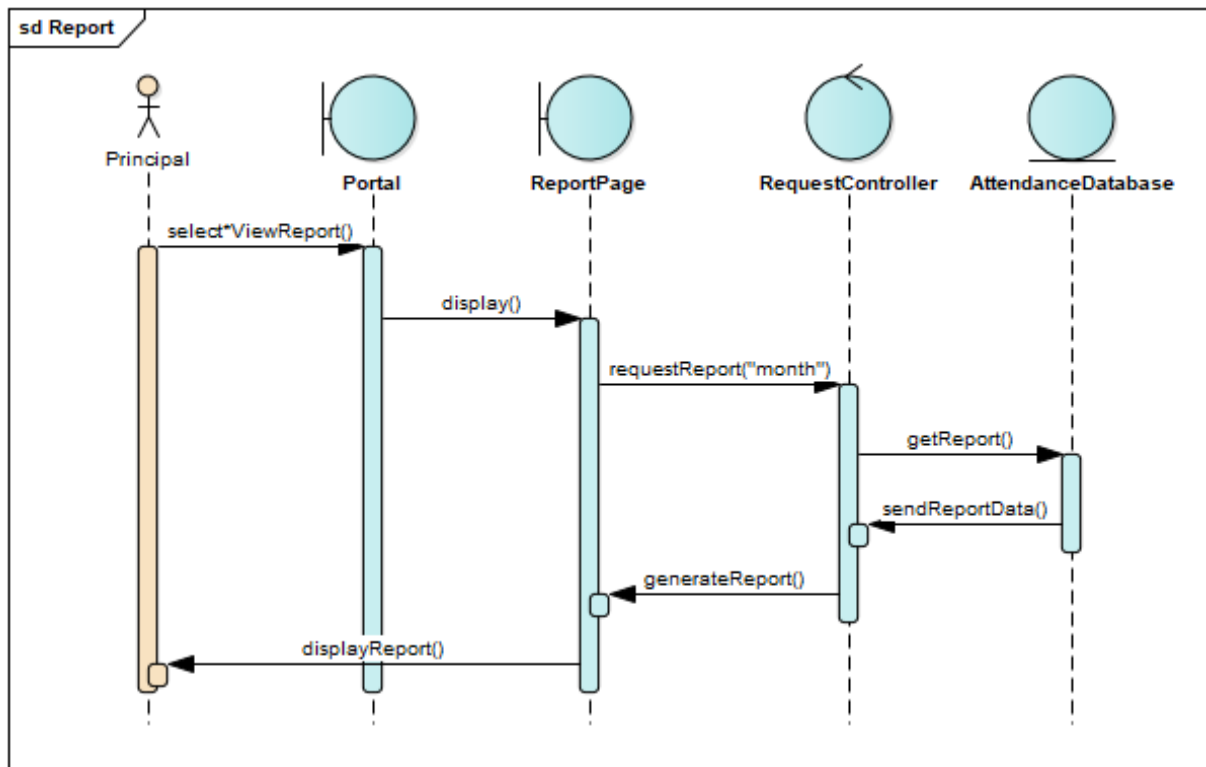


Figure 4.4: Sequence Diagram for [viewReport](#)

b) SD002: Sequence diagram for [viewStatus](#)

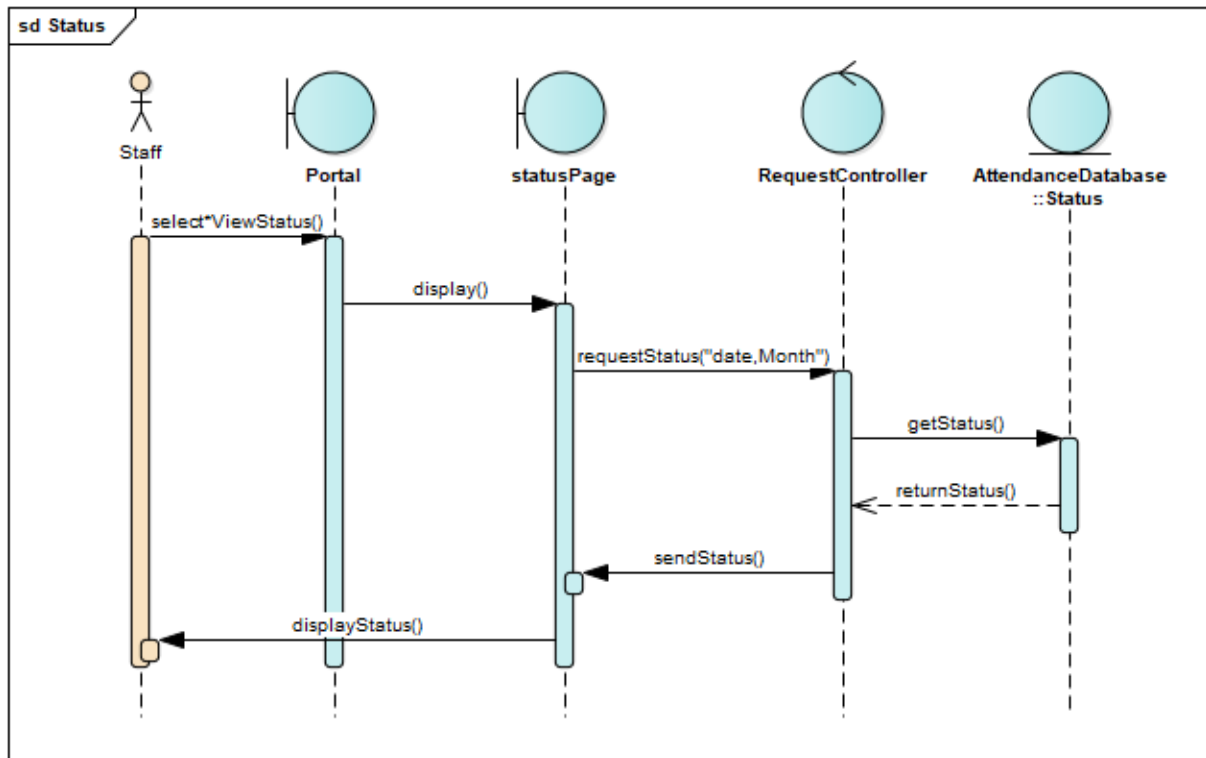


Figure 4.5: Sequence Diagram for [viewStatus](#)

c) SD003: Sequence diagram for [viewSummary](#)

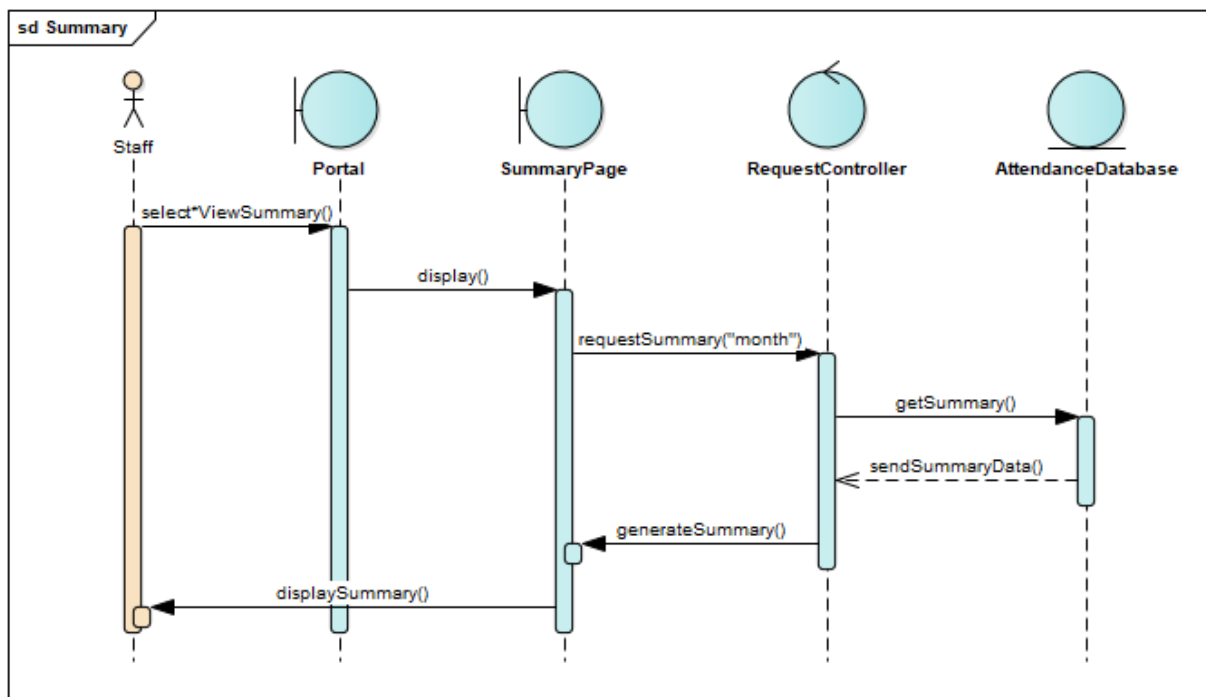


Figure 4.6: Sequence Diagram for [viewSummary](#)

d) SD004: Sequence diagram for `uploadLetter`

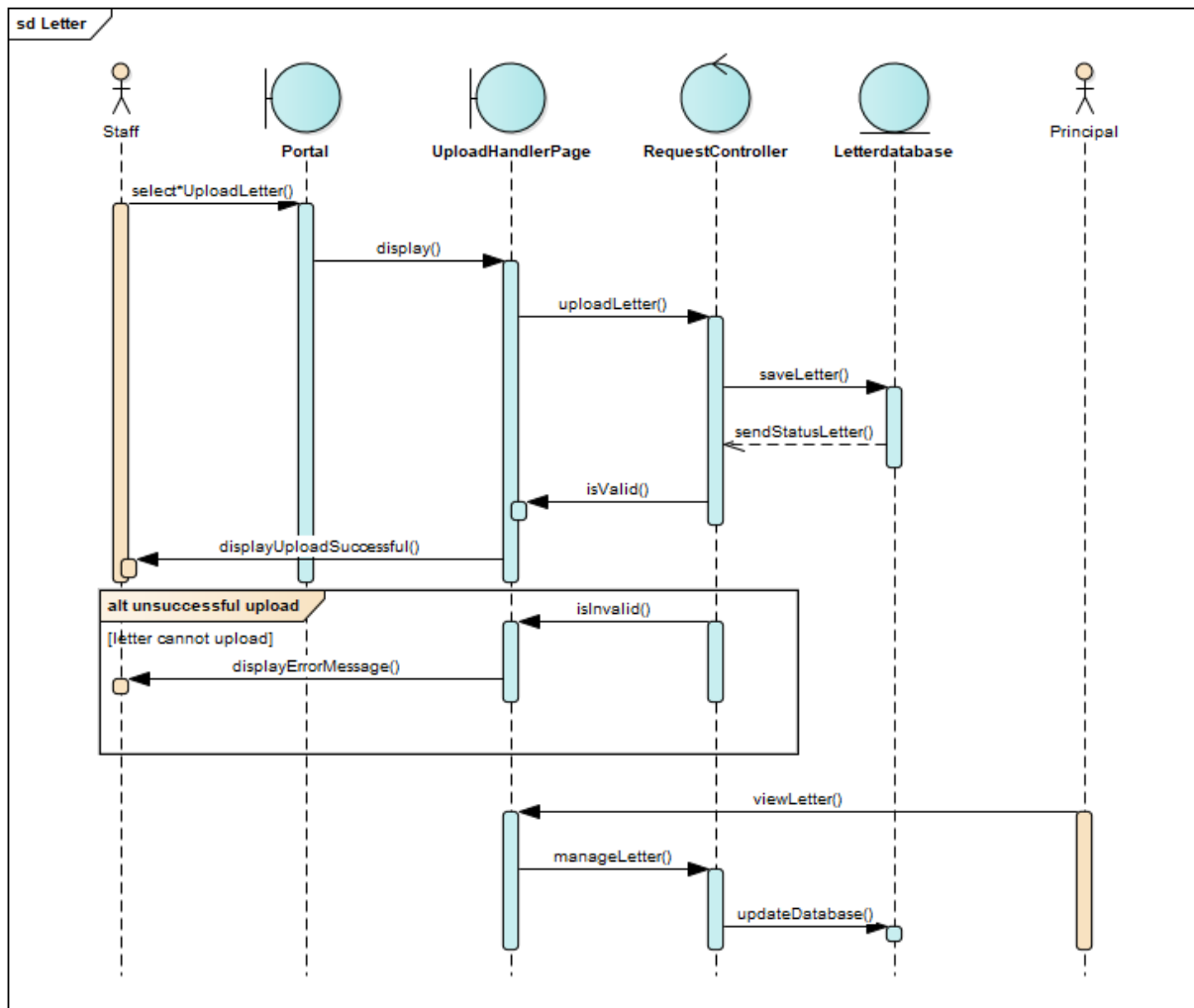


Figure 4.7: Sequence Diagram for `uploadLetter`

4.2.2 P002: Management Subsystem

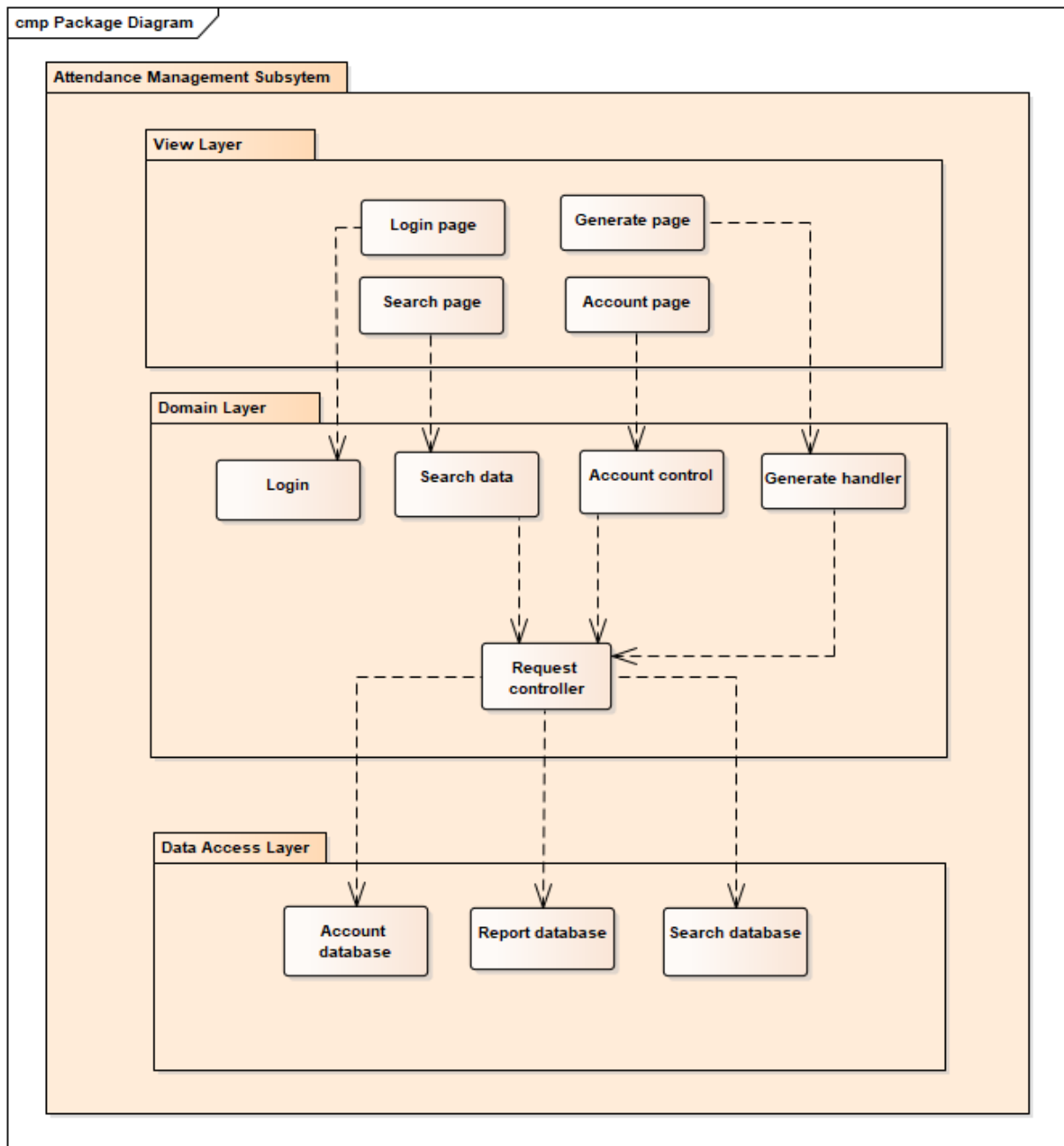


Figure 4.8: Package diagram for Attendance Management Subsystem

4.2.2.1 Class Diagram

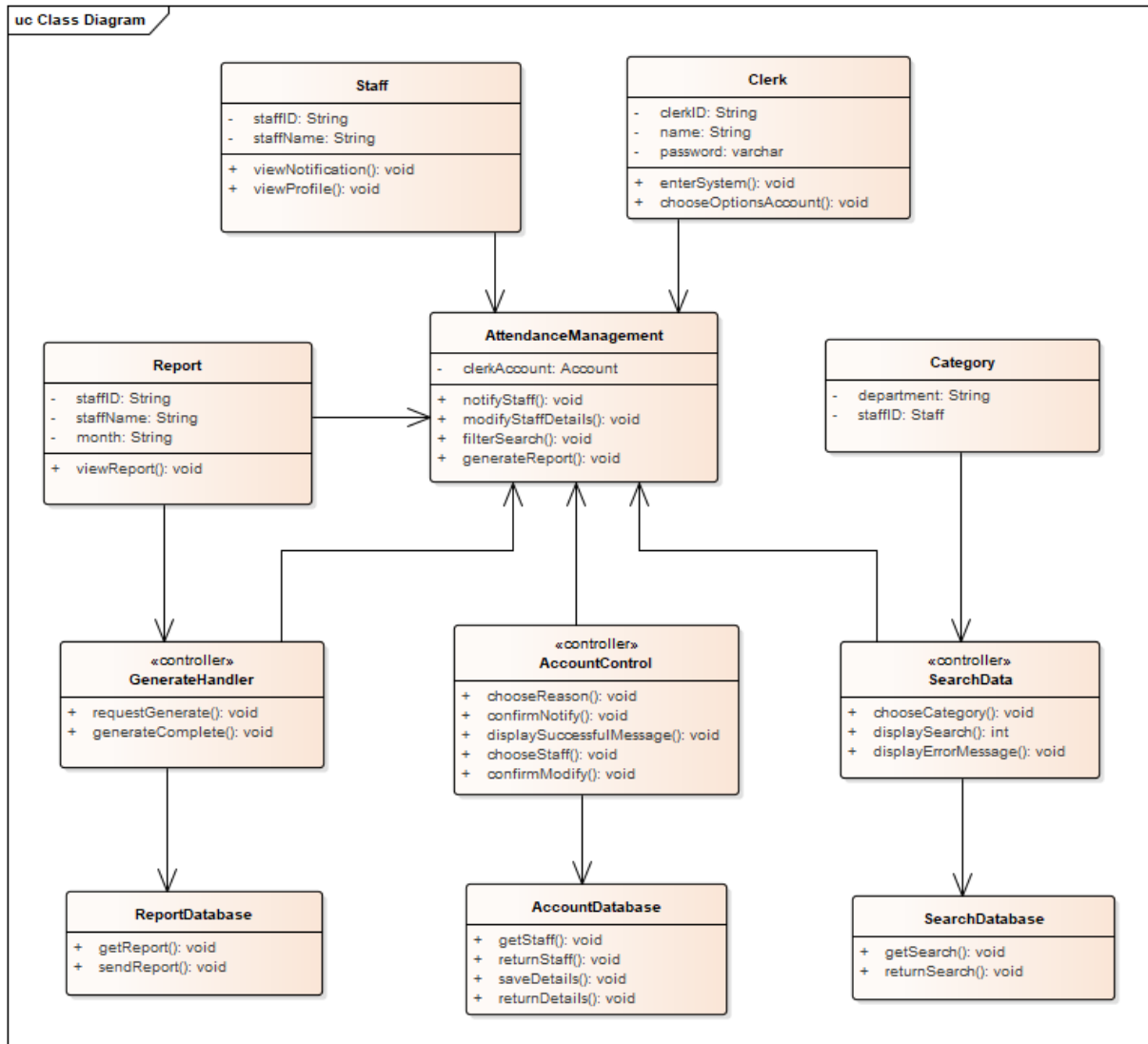


Figure 4.9: Class diagram for **Attendance Management Subsystem**

Entity Name	AttendanceManagement
Method Name	enterSystem()
Input	clerkID, password
Output	Display page

Algorithm	1. Start 2. Clerk insert ID and password 3. Display page 4. Clerk choose options 5. End
------------------	---

Entity Name	Staff
Method Name	notifyStaff()
Input	notifyReason
Output	Receive notifications
Algorithm	1. Start 2. Clerk enter Account page 3. Choose notifyStaff options 4. Choose staff 5. Choose reasons to notify the staff 6. Notifications send to the staff 7. End

Entity Name	Staff
Method Name	modifyStaffDetails()
Input	staffID, staffName
Output	New staff details saved in database

Algorithm	1. Start 2. Clerk enter Account page 3. Choose modifyStaffDetails options 4. Choose staff 5. Insert details to be modified 6. Details updated 7. End
------------------	--

Entity Name	Clerk
Method Name	filterSearch()
Input	department, staffID
Output	Search results displayed
Algorithm	1. Start 2. Clerk enters Search page 3. Search keyword 4. Search displayed 5. End

Entity Name	Report
Method Name	generateReport()
Input	month
Output	Generated report is saved in chosen directory
Algorithm	1. Start 2. Clerk enters Generate page 3. Choose month 4. Generate report

	5. End
--	--------

4.2.2.2 Sequence Diagram

a) SD005: Sequence diagram for `notifyStaff`

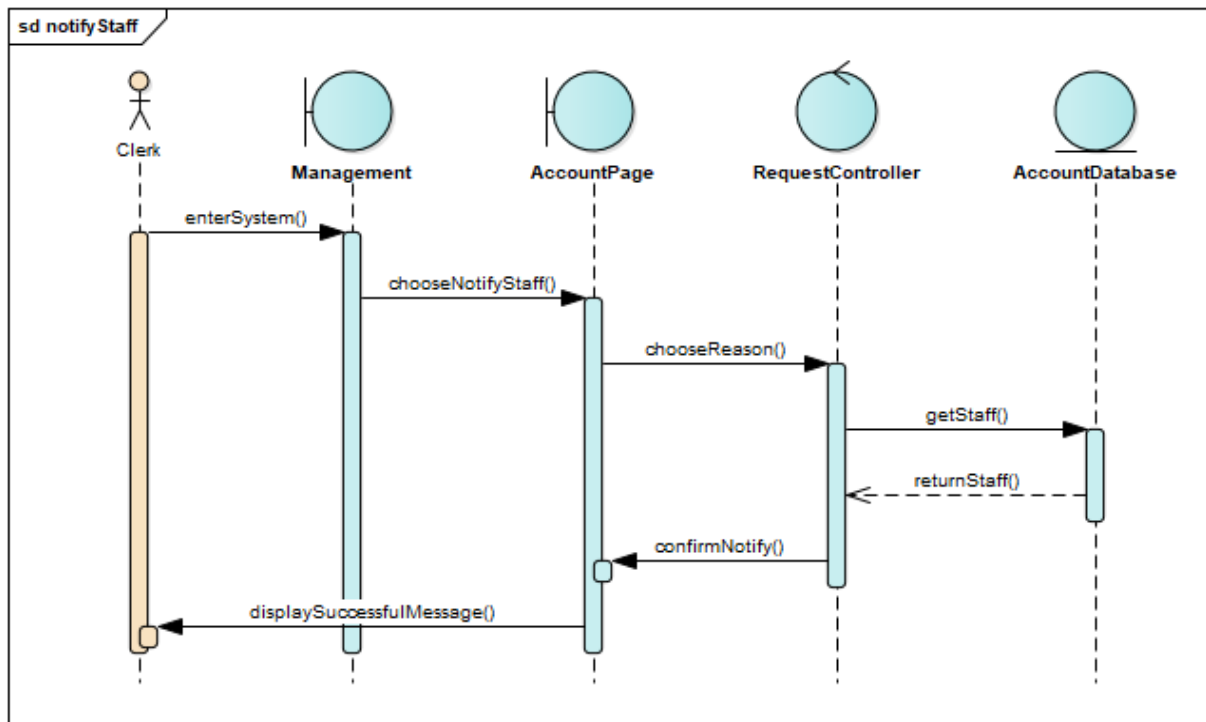


Figure 4.10: Sequence Diagram for `notifyStaff`

b) SD006: Sequence diagram for `modifyStaffDetails`

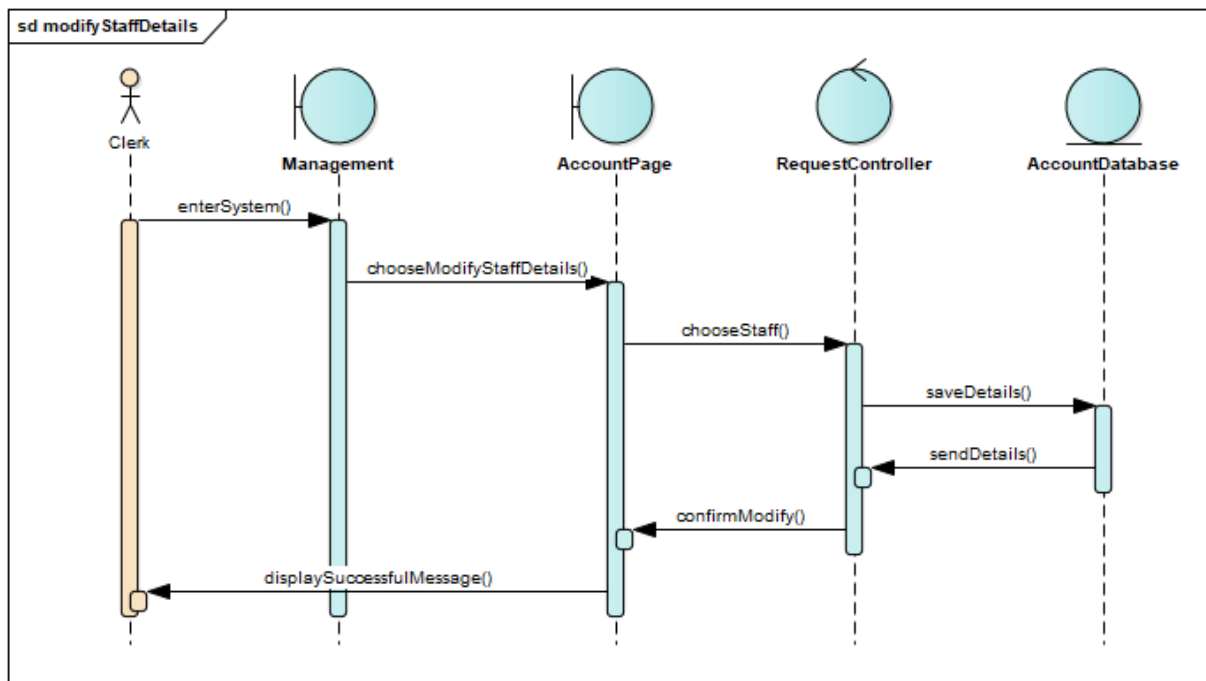


Figure 4.11: Sequence Diagram for `modifyStaffDetails`

c) SD007: Sequence diagram for [filterSearch](#)

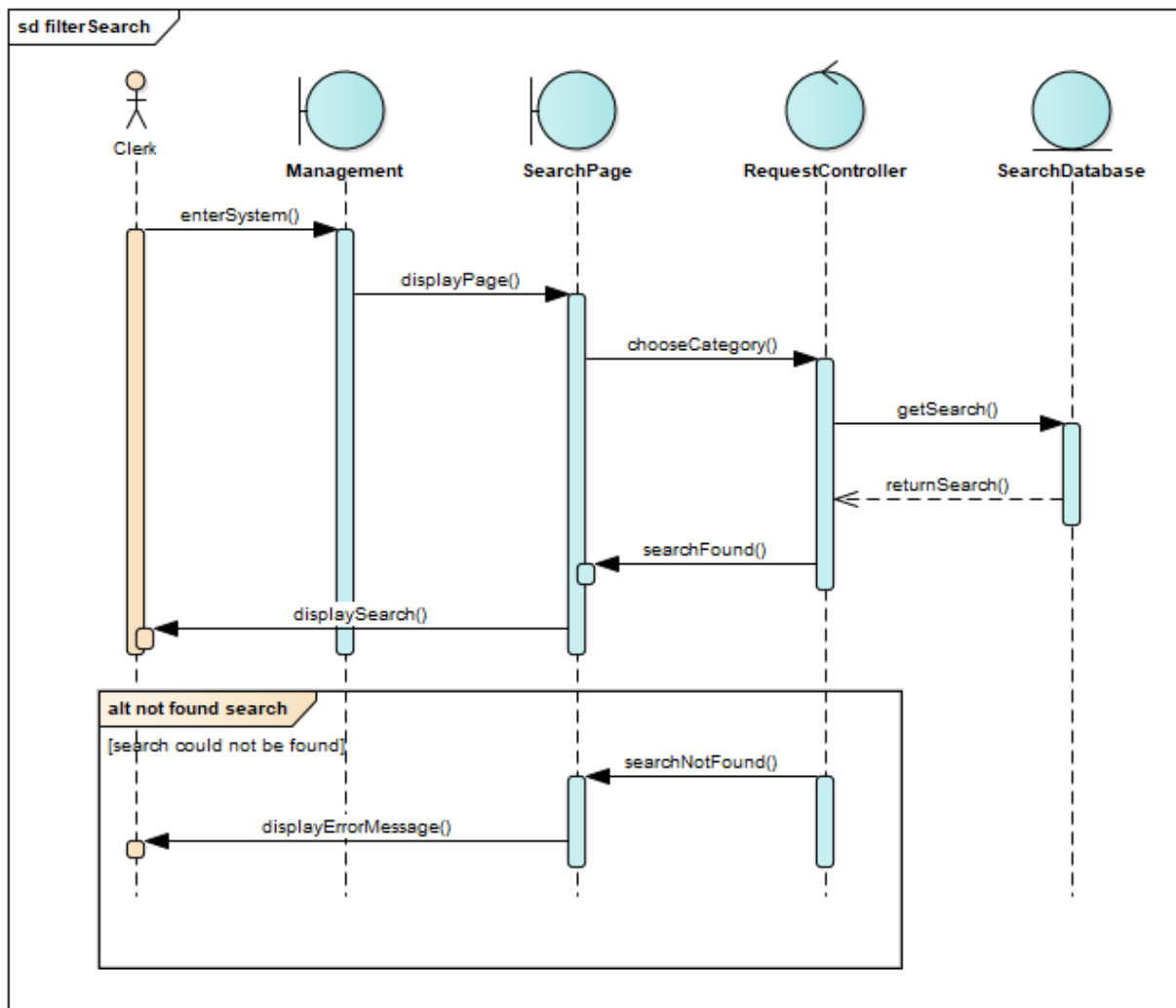


Figure 4.12: Sequence Diagram for [filterSearch](#)

d) SD008: Sequence diagram for `generateReport`

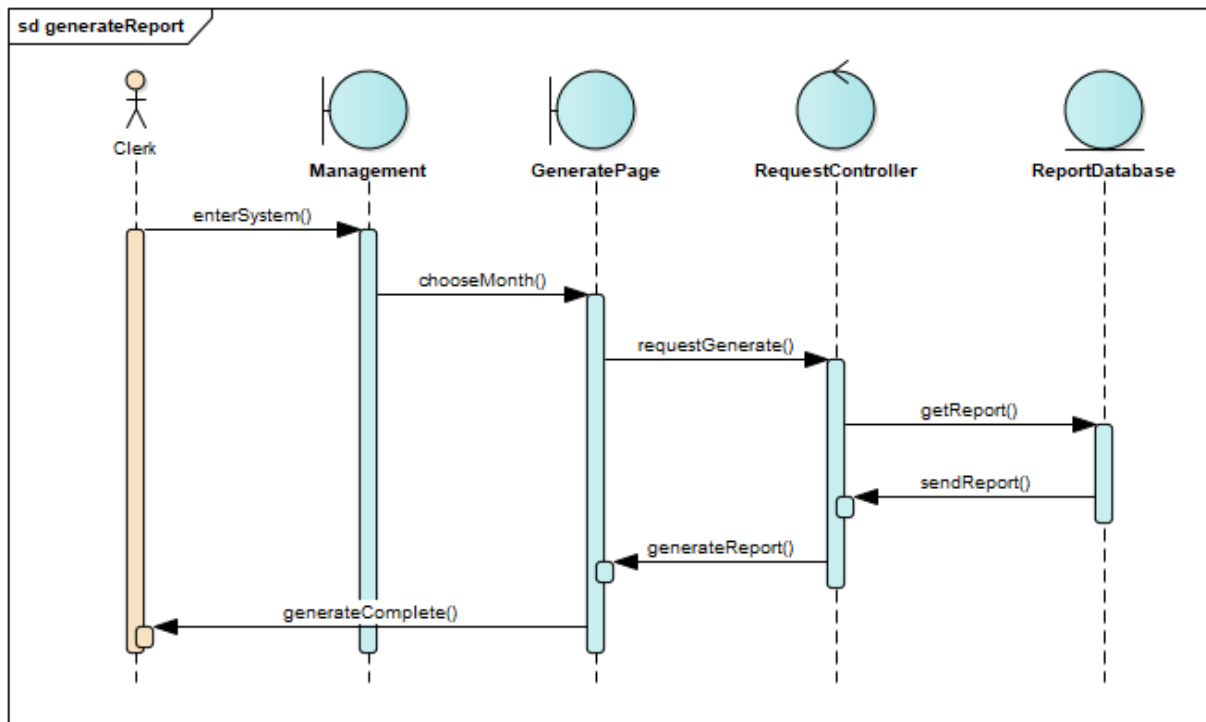


Figure 4.13: Sequence Diagram for `generateReport`

4.2.3 P003: Service and Maintenance Subsystem

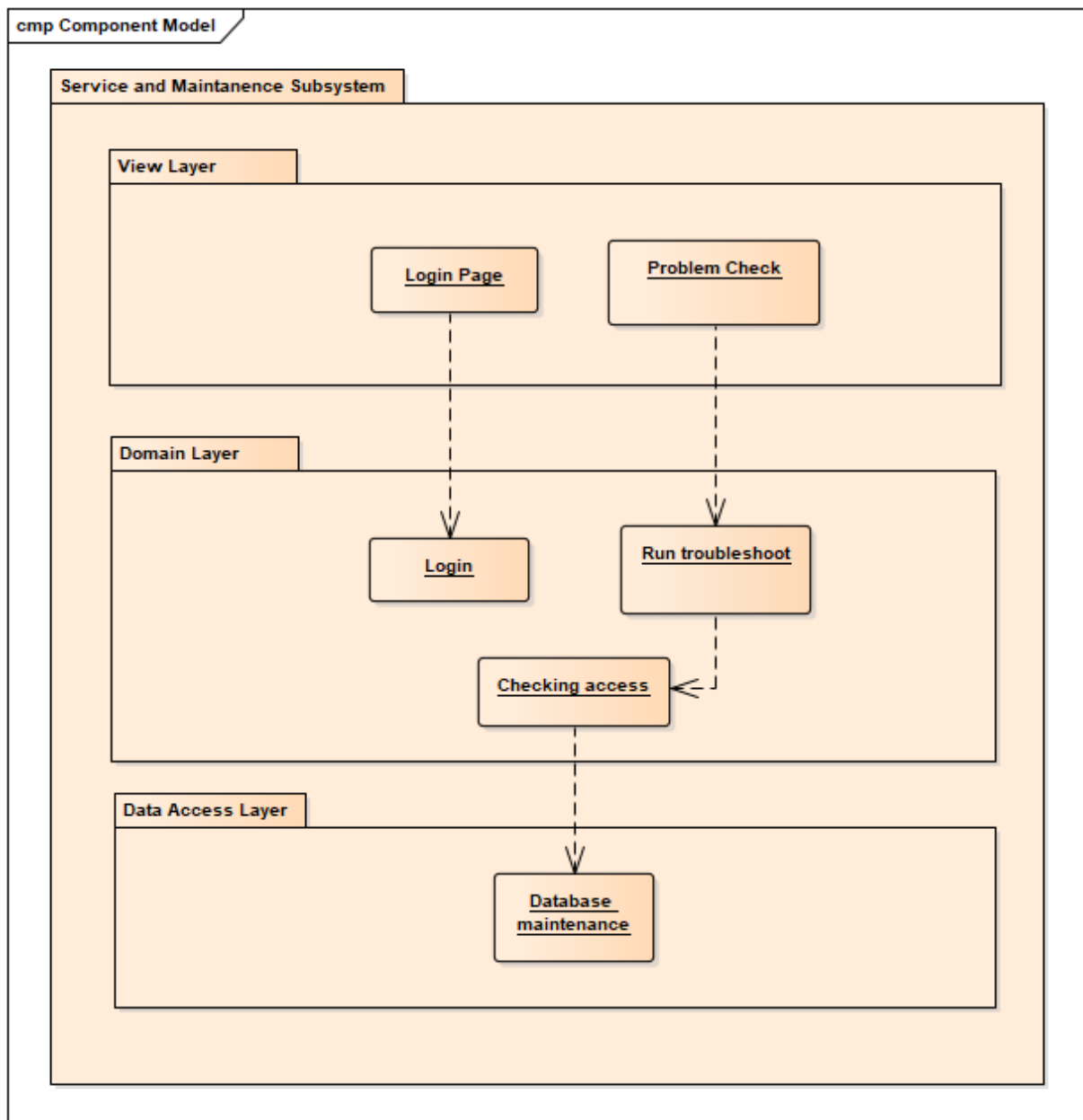


Figure 4.14: Package diagram for Service and Maintenance Subsystem

4.2.3.1 Class Diagram

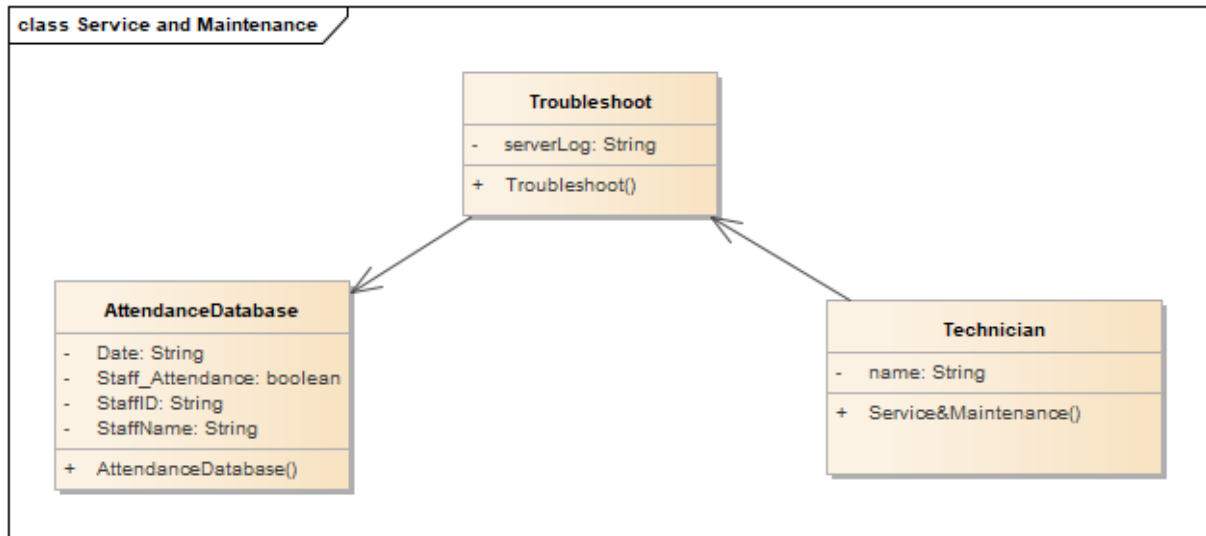


Figure 4.15: Class diagram for Service and Maintenance Subsystem

Entity Name	Technician
Method Name	Troubleshoot
Input	Identify problem
Output	Issue fixed
Algorithm	1. Start 2. Technician access troubleshoot system. 3. Technician access database system. 4. Troubleshoot system display problem solution 5. End

4.2.3.2 Sequence Diagram

a) SD009: Sequence diagram for **Troubleshooting**

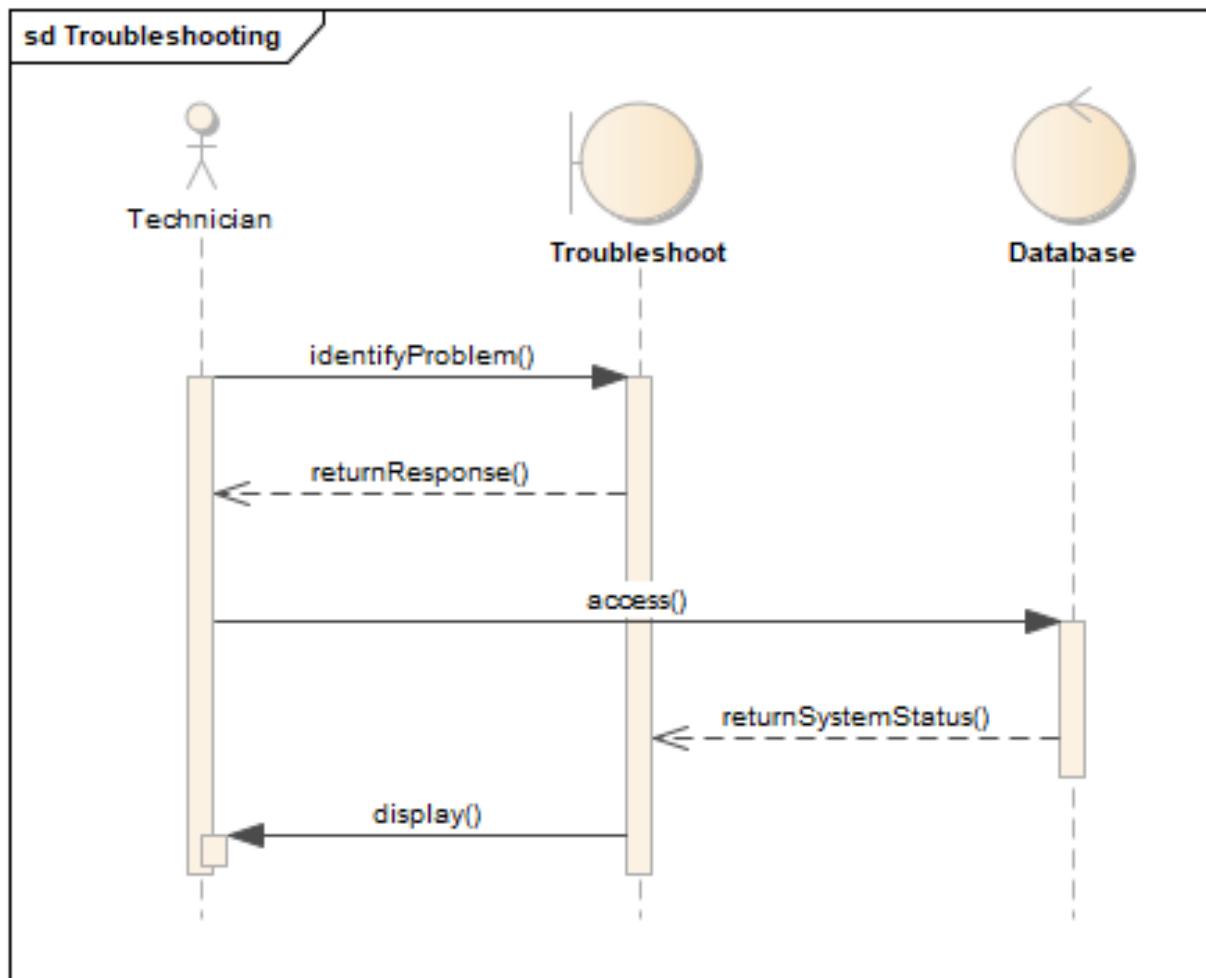


Figure 4.13: Sequence Diagram for **Troubleshooting**

5. Data Design

5.1 Data Description

The major data or systems entities are stored into a relational database named as [StaffAttendance](#) comprises 10 entities.

Entity Name	Description
Staff	Stores all data related to staff for login and access the system.
Clerk	Stores all data related to the clerk for login and access to the system.
Principal	Stores all the data related to principal for login and access the system.
Technician	Stores all the data related to technicians for login and access to the system.
Attendance	Stores the attendance details related to the staff
Summary	Stores all the data required to let staff to generate reports of their own attendance.
Status	Stores all the data required to let staff to view the status of their own attendance.
Letter	Stores the excuse file and detail file uploaded by the staff.
Report	Stores all the data required to let the principal generate the report of staff attendance.

5.2 Data Dictionary

List of the system entities along with their types and description.

5.2.1 Entity: **Attendance**

Attribute Name	Type	Description
attendanceID	varchar(10)	Unique attendance id for each staff
date	date	date for each staff attendance

5.2.2 Entity: **Clerk**

Attribute Name	Type	Description
userID	varchar(7)	Unique identifier for clerk
password	varchar(20)	Password for login into system
name	String	Name of clerk
email	varchar(50)	Email for clerk

5.2.3 Entity: **Letter**

Attribute Name	Type	Description
refNo	varchar(10)	Unique identification of letter
name	String	Title of the letter
description	String	Description of the letter
date	date	A date letter was upload

5.2.4 Entity: **Principal**

Attribute Name	Type	Description
userID	varchar(7)	Unique identifier for principal
password	varchar(20)	Password for login into system
name	String	Name of principal
email	varchar(50)	Email for principal

5.2.5 Entity: **Report**

Attribute Name	Type	Description
reportID	varchar(10)	Unique identifier for report
date	date	Date when report is generate
name	String	Report name

5.2.6 Entity: **Staff**

Attribute Name	Type	Description
userID	varchar(7)	Unique identifier for staff
password	varchar(20)	Password for login into system
name	String(50)	Name of staff
email	varchar(50)	Email for staff
department	String	Name of department staff work.

5.2.7 Entity: **Summary**

Attribute Name	Type	Description
summaryID	varchar(10)	Unique identifier for summary
date	date	Date when summary is generate

5.2.8 Entity: **Status**

Attribute Name	Type	Description
date	int	status date
statusResult	Boolean	status condition

5.2.9 Entity: **Technician**

Attribute Name	Type	Description
userID	varchar(7)	Unique identifier for technician
password	varchar(20)	Password for login into system
name	String(50)	Name of technician
email	varchar(50)	Email for technician

6. User Interface Design

6.1 Overview of User Interface

Generally, the interface of our system can be divided to 4 different user views which are for the staff, principal, clerk and technician. Users will be directed to a different interface after they login with their own username and password. Every of the page is just for showing the concept of our system.

6.2 Screen Images

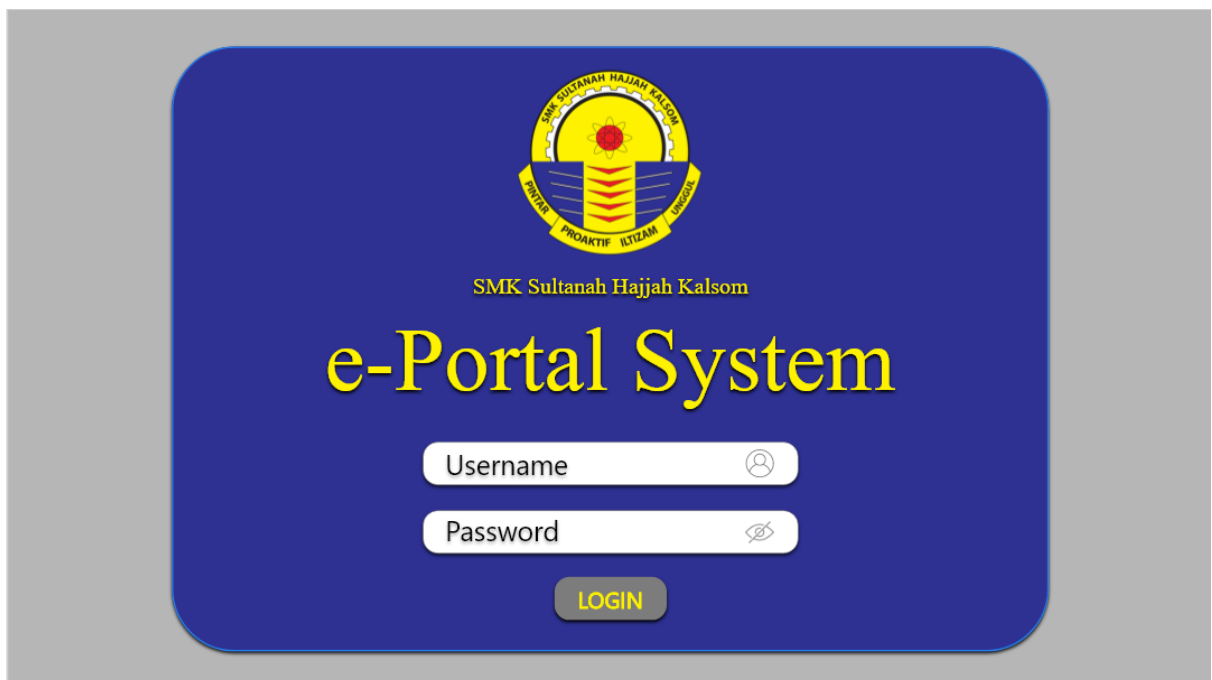


Figure 6.1: Portal System Login Page



Figure 6.2: Staff Portal Menu Page

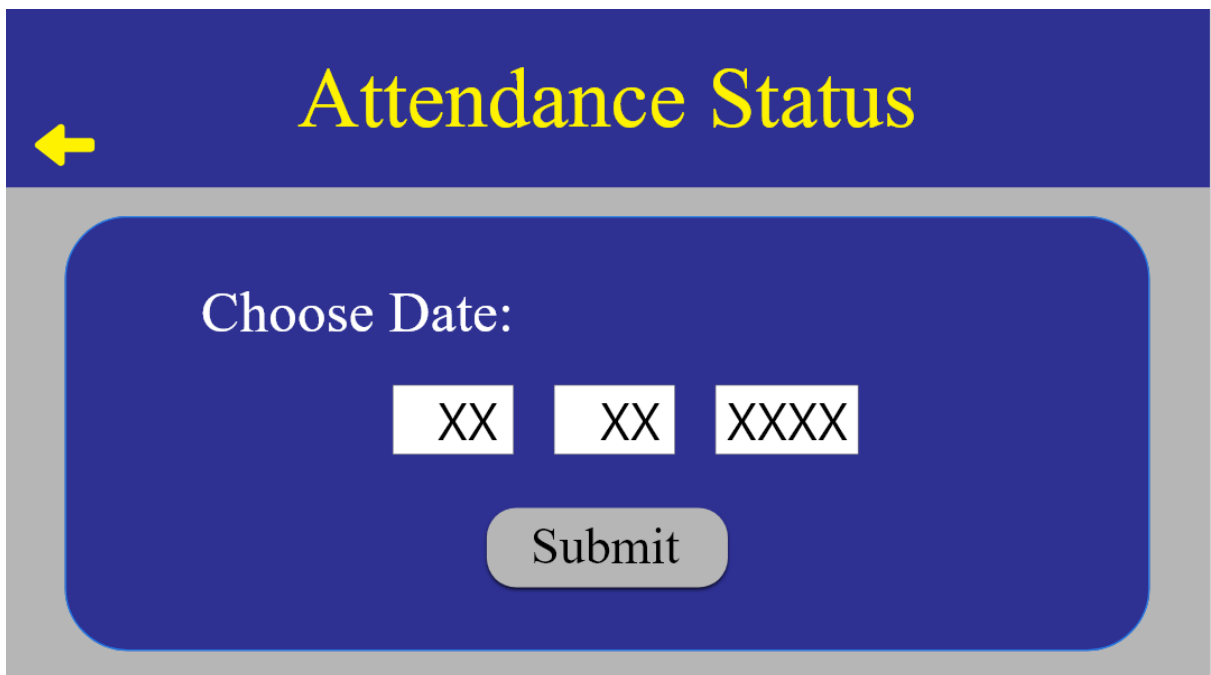


Figure 6.3: Staff Portal Attendance Status Page



The image shows a web interface for an attendance summary. At the top, a dark blue header contains a yellow left-pointing arrow and the title "Attendance Summary" in yellow serif font. Below the header is a light gray background with a dark blue rounded rectangle. Inside this rectangle, the text "Choose month for the summary:" is in white serif font and is enclosed in a blue rectangular box. Below this text is a grid of 12 buttons, each representing a month: "01-January", "02-February", "03-March", "04-April", "05-May", "06-June", "07-July", "08-August", "09-September", "10-October", "11-November", and "12-December". The "04-April" button is highlighted with a yellow border. Below the grid is a "Submit" button.

Attendance Summary

Choose month for the summary:

01-January 02-February 03-March 04-April 05-May 06-June 07-July 08-August 09-September 10-October 11-November 12-December

Submit

Figure 6.4: Staff Attendance Summary Page



The image shows a web interface for uploading a letter. At the top, a dark blue header contains a yellow left-pointing arrow and the title "Upload Letter" in yellow serif font. Below the header is a light gray background with a dark blue rounded rectangle. Inside this rectangle, the text "Upload your file here:" is in white serif font. Below this text is a large white rounded rectangle for file upload. At the bottom of the rectangle is a "Send" button and a toolbar with icons for text formatting (underline, bold, italic), link, unlink, emoji, image, video, and a trash icon.

Upload Letter

Upload your file here:

Send

Text formatting icons: underline, bold, italic, link, unlink, emoji, image, video, trash.

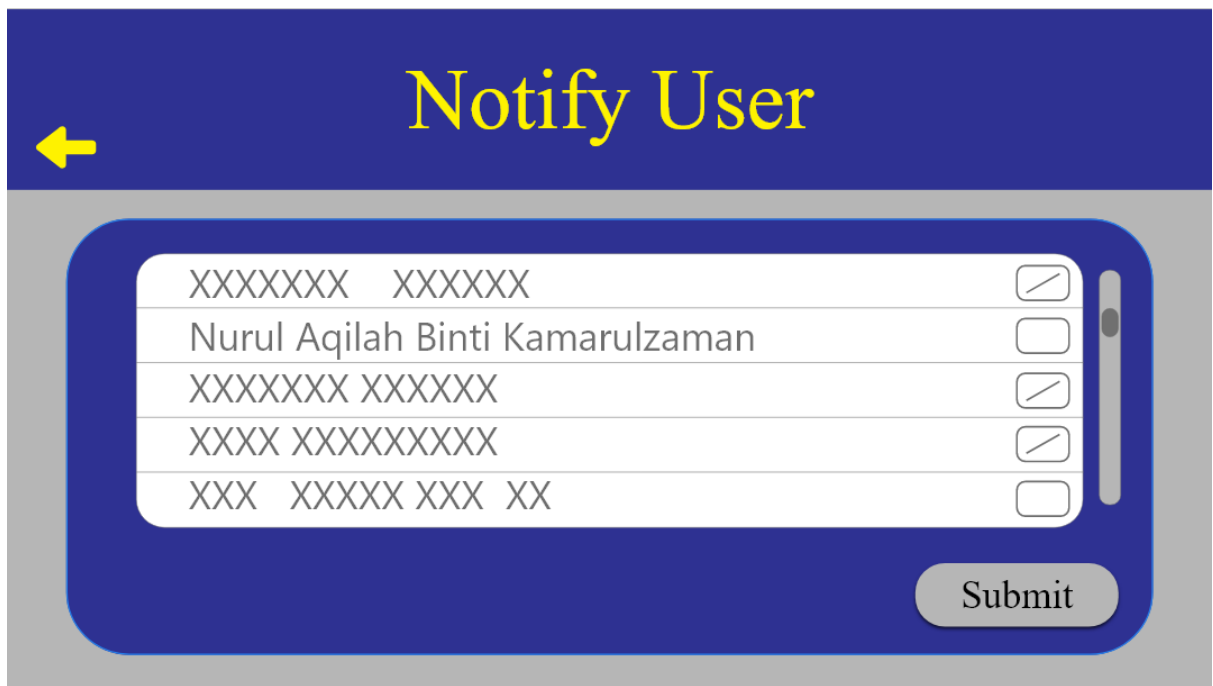
Figure 6.5: Staff Upload Letter Page



Figure 6.6: Clerk Portal Menu Page



Figure 6.7: Clerk Modify Staff Details Page



The image shows a mobile application screen titled "Notify User" in a yellow serif font on a dark blue background. A yellow arrow icon is in the top left corner. Below the title is a white rounded rectangle containing a list of five users. Each user entry has a name and a checkbox on the right. The first checkbox is checked with a diagonal line. The second checkbox is empty. The third checkbox is checked. The fourth checkbox is checked. The fifth checkbox is empty. A vertical scrollbar is on the right side of the list. At the bottom right of the white rectangle is a grey "Submit" button.

User Name	Notify
XXXXXXXX XXXXXX	☒
Nurul Aqilah Binti Kamarulzaman	☐
XXXXXXXX XXXXXX	☒
XXXX XXXXXXXXXXXX	☒
XXX XXXXX XXX XX	☐

Submit

Figure 6.8: Clerk Notify User Page



The image shows a mobile application screen titled "Generate Report" in a yellow serif font on a dark blue background. A yellow arrow icon is in the top left corner. Below the title is a white rounded rectangle containing the text "Choose month:". Below this text is a grid of 12 buttons, each representing a month. The buttons are arranged in three rows of four. The first row contains "01-January", "02-February", "03-March", and "04-April". The second row contains "05-May", "06-June", "07-July", and "08-August". The third row contains "09-September", "10-October", "11-November", and "12-December". The "04-April" button is highlighted with a yellow border. At the bottom center of the white rectangle is a grey "Submit" button.

Choose month:

01-January	02-February	03-March	04-April
05-May	06-June	07-July	08-August
09-September	10-October	11-November	12-December

Submit

Figure 6.9: Clerk Generate Report Page



Figure 6.10: Principal Menu Page



Figure 6.11: Principal View Attendance Report Page



Figure 6.12: Technician Menu Page

7. Requirements Matrix

The sequence diagrams for each use case vs. corresponding classes are as below.

	S t a f f	C l e r k	P r i n c i p a l	T e c h n i c i a n	R e p o r t	S u m m a r y	S t a t u s	L e t t e r	C a t e g o r y	R e a s o n	M a i n t e n a n c e
P001, UC005, SD001			x		x						
P001, UC002, SD002	x					x					
P001, UC004, SD003	x						x				
P001, UC003, SD004	x		x					x			
P002, UC006, SD005	x	x								x	
P002, UC009, SD006	x	x									
P002, UC008, SD007		x							x		

P002, UC007, SD008		x			x						
P003, UC010, SD009				x							x