

The National University of Malaysia

TITLE: COLLEGE REGISTRATION SYSTEM

PROJECT TASK 2 - PROJECT REPORT

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YEAR : **SEMESTER 1 2020/2021**

SUBJECT CODE : TTTK - 2023

SUBJECT : OBJECT-ORIENTED SOFTWARE ENGINEERING

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COURSE : INFORMATION TECHNOLOGY (IT)

FACULTY : INFORMATION SCIENCE AND TECHNOLOGY

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1.0 PROBLEM STATEMENT

In Universiti Kebangsaan Malaysia (UKM) the place that the students live in is called residential college. For every beginning of the semester, the student needs to check-in and register physically in their college. During registration there are a lot of procedures that a student needs to do such as fill in the college information card, checking the condition of the room and et cetera.

Due to the pandemic of the Covid-19 situation in our country, Malaysia, our government had announced that Selangor state is now under Conditional Movement Control Order (CMCO) hence there is no in or out of state Selangor and the students who are outside of state Selangor are unable to register himself or herself due to the CMCO. On the other hand, for the students who are in Selangor state which can attend to UKM to register themselves will take a greater risk to expose themselves to the risk of getting Covid-19.

For many years, the college was letting the students register themselves in the college physically instead of online or other alternative and the current system in UKM regard to the college is 'ekolej'. In 'ekolej' there is a fewer option for students such as applying for a college and checking the application status and there is not any other information or function about the registration.

2.0 PROPOSED SOLUTION

2.1 Solution

To solve the problem that our group had proposed in the problem statement, our group are planning to design a system (College Registration System). With this system students can register themselves in their college online or virtually instead of physically during this pandemic and staff in the college also will find out that the system will smoothen their process of registration compare to the paper form information recorded while the students register physically.

The system will also include some of the functionality that eases the process of registration and some basic functionality such as paying for college fee, reporting for the college or room facility faulty and et cetera.

2.2 Intended Users

The intended users of the proposed system have two which includes students (UKM Undergraduates and Postgraduates) and staff (UKM College Staff).

2.3 Feature and Functionality

The features and functionalities that the proposed system is going to provide and for users include:-

Features	Functionality		
Y	App grant access to students with correct matrix number and password		
Login	App grant access to staffs with correct staff number and password		
Check-In and Check Out	Allow students to fill in the personal information for checking in Allow students to sign for checking out		
Check Out	Allow staffs to check the status of the students that had checked in or out		
eKewangan	1. Allow students to check and pay the college fee of their room type 2. Allow students to pay fine results of damage to the items in their room		
	Allow staffs to check the payment status of the students		
Item Charlist	Allow students to check and tick that the college items that they had received such as room key, college t-shirt and et cetera		
Checklist	Allow staffs to check the item that the students have or have not received		
eFACt	Allow students to make a report on the loss of key and damaged items		
eracı	Allow staffs to make checking of the report that made by students		
Log Out	Allow students to log out and save previous data in the app securely		
Log Out	Allow staffs to logout and save previous data in the app securely		

Table 1 Feature and Functionality

2.4 Responsible for the Development

Name	Matric No.	Feature / Functionality
Group	-	Login
Vincent Oui Guo Bin	A176165	Check-In and Check Out
Kok Yao Zhang	A176818	eKewangan
Teh Jun Ming	A176607	Item Checklist
Ong Jin Yuan	A175493	eFACt
Group	-	Log Out

 Table 2
 Responsible for the Development

3.0 DOMAIN MODEL

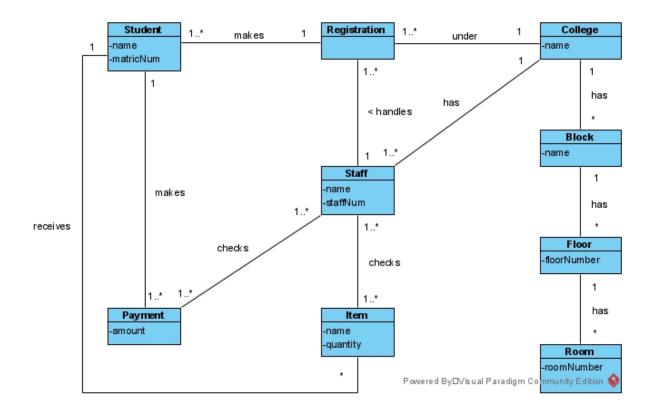


Figure 1 Domain Model

The diagram above is the domain model for the College Registration System. The purpose of the diagram is to show and explain the residential college structure, student and staff.

According to the diagrams above, a student can make a registration and a registration can be made by one or many students. Students class has attributes name and matric number. A student can receive many items and an item can be received by a student. Item class has attributes name and quantity. A student can make one or many payments and a payment can be made by a student. Payment class has an attribute amount. A registration can be handled by a staff and a staff can handle one or many registrations. Staff class has attributes name and staff number. A staff can check one or many payments and a payment can be checked by one or many staff. A staff can check one or many items and an item can be check by one or many staffs. A registration under a college and a college can handle one or many registrations. College class has an attribute name. A college has one or many staffs and a staff under a college. A college can have many blocks and a block under a college. Block class has an attribute name. A block can have many floors and a floor under a block. Floor class has an attribute floor number. A floor can have many rooms and a room under a floor. Room class has an attribute room number.

4.0 USE CASE DIAGRAM

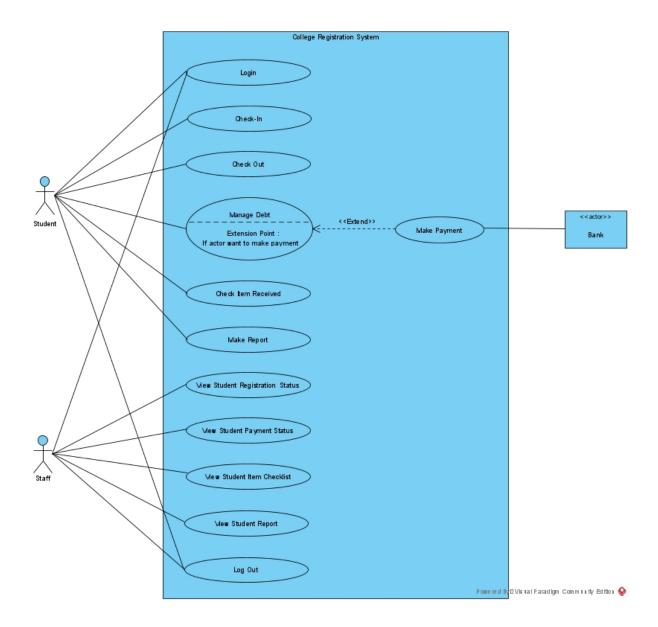


Figure 2 Use Case Diagram

A student uses the college registration system to log in their accounts, check-in, check out, view debt and make payment through the bank, check received item, make a report and log out. Staff uses the college registration system to log in their accounts, view students' registration status, view students' payment status, view students' item checklist, view students' report and logout.

5.0 USE CASE SPECIFICATION

5.1 [Use Case 1] Login Use Case Specification

ID:	UC-1		
Title:	Login		
Description:	Student / Staff enters their valid	Matric Number / Staff Number	
_	and password to login the syste	m.	
Primary Actor:	Student / Staff		
Precondition:	-		
Postcondition:	Student / Staff successfully log	in the system.	
Main Success Scenario:	Actor	System	
	2. Student / staff enters Matric Number / Staff Number and password.	1. System asks for Matric Number / Staff Number and password. If Matric Number / Staff Number and Password is valid: 3. System displays "Successfully Login the System" message.	
Alternative Scenario:	Actor	System	
		If Matric Number / Staff Number and Password is not valid: 3a. System displays "Error: Invalid Matric Number / Staff Number or Password" message.	

Table 3 Login Use Case Specification

5.2 [Use Case 2] Log Out Use Case Specification

ID:	UC-2		
Title:	Log Out		
Description:	Student / Staff logs out from the system.		
Primary Actor:	Student / Staff		
Precondition:	Student / Staff has successfully	logged into the system.	
Postcondition:	Student/Staff successfully logg	ed out from the system.	
Main Success Scenario:	Actor	System	
	1. Student / staff selects "Log Out" option.		
	3. Student / Staff enters the answer.	2. System asks for confirmation to log out.	
		If confirmation is true :	
		4. System displays "Successfully log out" message.	
Alternative Scenario:	Actor	System	
		If confirmation is false: 4a. System cancels log out	

Table 4 Log Out Use Case Specification

5.3 [Use Case 3] Check-In Use Case Specification

ID:	UC-3		
Title:	Check-In		
Description:	Student checks-in college.		
Primary Actor:	Student		
Precondition:	Student has successfully logge	ed into the system.	
Postcondition:	Student successfully checked-	in college.	
Main Success Scenario:	Actor	System	
	1. Student selects "Check-in" option. 2. System asks for personal information. 3. Student enters personal information. 4. System displays "You have successfully check-in college" message.		
Alternative Scenario:	Actor	System	

Table 5 Check-In Use Case Specification

5.4 [Use Case 4] Check Out Use Case Specification

ID:	UC-4		
Title:	Check Out		
Description:	Student checks out from the co	ollege	
Primary Actor:	Student		
Precondition:	Student has successfully logge	ed into the system and checked-in	
	college.		
Postcondition:	Student successfully checked	out from the college.	
Main Success Scenario:	Actor	System	
	 Student selects "Check Out" option. Student enters the answer. 	 System asks for confirmation to check out from college. If confirmation is true: System displays "You have successfully check out from college" message. 	
Alternative Scenario:	Actor	System	
		If the confirmation is false:	
		4a. System cancels check out.	

Table 6 Check Out Use Case Specification

5.5 [Use Case 5] View Student Registration Status Use Case Specification

ID:	UC-5		
Title:	View Student Registration Status		
Description:	Staff view students' registration status using the system.		
Primary Actor:	Staff		
Precondition:	Staff has successfully logged i	into the system.	
Postcondition:	Staff successfully view studen	ts' registration status.	
Main Success Scenario:	Actor	System	
	 Staff selects "Registration Status" option. Staff selects the option. Staff selects a matric number from the students' matric number list. 	 System asks staff to select between Check-In and Check Out. If staff selects Check-In: System displays students' matric number list who had checked in. System displays the selected student's personal information. 	
Alternative Scenario:	Actor	System	
Antenative Section 10.	5a. Staff selects a matric number from the students' matric number list.	If staff selects Check Out: 4a. System displays students' matric number list who had checked out. 6a. System displays the selected student's personal information.	

 Table 7
 View Student Registration Status Use Case Specification

5.6 [Use Case 6] Manage Debt Use Case Specification

Manage Debt Student manages debt using the student Student has successfully logged student successfully manages that	into the system.
tudent tudent has successfully logged tudent successfully manages th	into the system.
tudent has successfully logged tudent successfully manages the	-
tudent successfully manages the	-
•	neir debt.
Actor	
	System
. Student selects eKewangan" option.	2. System displays payment list.
Student selects their desire ayment from the payment ist to view its details.	
	4. System displays the payment details.
f student wants to make ayment:	
Student selects "Make ayment" option.	
	5. System proceeds to "Make payment" use case.
Actor	System
f a	Student selects their desire ayment from the payment st to view its details. Student wants to make ayment: Student selects "Make ayment" option.

 Table 8
 Manage Debt Use Case Specification

5.7 [Use Case 7] Make Payment Use Case Specification

ID:	UC-7		
Title:	Make Payment		
Description:	Student makes the payment for their debt using the system.		
Primary Actor:	Student		
Precondition:	Student has successfully logged	d into the system.	
Postcondition:	Student successfully makes pay	ment.	
Main Success Scenario:	Actor	System	
	2. Student enters payment information.	 System asks for payment information. If payment information is valid: System displays "Payment Successful" message. 	
Alternative Scenario:	Actor	System	
		If payment information is not valid: 3a. System displays "Payment Denied" message.	

 Table 9
 Make Payment Use Case Specification

5.8 [Use Case 8] View Student Payment Status Use Case Specification

ID:	UC-8		
Title:	View Student Payment Status		
Description:	Staff views students' payment	status using the system.	
Primary Actor:	Staff		
Precondition:	Staff has successfully logged in	nto the system.	
Postcondition:	Staff successfully views studen	its' payment status.	
Main Success Scenario:	Actor	System	
	 Staff selects "eKewangan" option. Staff selects a matric number from the students' matric number list. 	2. System displays students' matric number list.4. System displays the selected	
		student's payment status.	
Alternative Scenario:	Actor	System	

 Table 10
 View Student Payment Status Use Case Specification

5.9 [Use Case 9] Check Item Received Use Case Specification

ID:	UC-9		
Title:	Check Item Received		
Description:	Student checks the item they had received using the system.		
Primary Actor:	Student		
Precondition:	Student has successfully log	ged into the system.	
Postcondition:	Student successfully checks the item they had received.		
Main Success Scenario:	Actor	System	
	 Student selects "Item Checklist" option. Student selects the item that they had received. 	2. System displays item checklist.	
Alternative Scenarios:	Actor	System	

Table 11 Check Item Received Use Case Specification

5.10 [Use Case 10] View Student Item Checklist Use Case Specification

ID:	UC-10	
Title:	View Student Item Checklist	
Description:	Staff view students' Item Checklist using the system.	
Primary Actor:	Staff	
Precondition:	Staff has successfully logged into the system.	
Postcondition:	Staff successfully view students' Item Checklist.	
Main Success Scenario:	Actor	System
	Staff selects "Item Checklist" option. Staff selects a matric number from the students' matric number list.	2. System displays students' matric number list.4. System displays the selected student's item checklist.
Alternative Scenarios:	Actor	System

Table 12 View Student Item Checklist Use Case Specification

5.11 [Use Case 11] Make Report Use Case Specification

ID:	UC-11		
Title:	Make Report		
Description:	Student makes report on the loss of the room key or damage of the room facilities using the system.		
Primary Actor:	Student		
Precondition:	Student has successfully logged into the system.		
Postcondition:	Student successfully makes report.		
Main Success Scenario:	Actor	System	
	1. Student selects "eFact" option. 3. Staff selects a matric number from the students' matric number list. 5. Student enters their details.	2. System asks student to select the issue that they want to report. If student selects report loss of room key: 4. System asks for student details (Matric Number, Name, Phone Number, Room Number, When they lose the key). 6. System displays "You have successfully reported your issue and we will help you as soon as possible" message.	

Alternative Scenarios:	Actor	System
		If student selects report damage of room facilities: 4a. System asks for facility damage details (Room Number, Facility Damage, Description of facility damage).
	5a. Student enters facility	
	damage details.	6a. System displays "You have
		successfully reported your issue and we will help you within 3
		working days" message.

Table 13 Make Report Use Case Specification

5.12 [Use Case 12] View Student Report Use Case Specification

ID:	UC-12		
Title:	View Student Report		
Description:	Staff views students' report using the system.		
Primary Actor:	Staff		
Precondition:	Staff has successfully logged into the system.		
Postcondition:	Staff successfully views students' report.		
Main Success Scenario:	Actor	System	
	 Staff selects "eFact" option. Staff selects a report from the students' report list. 	2. System displays students' report list.4. System displays the selected student's report details.	
Alternative Scenario:	Actor	System	

Table 14 View Student Report Use Case Specification

6.0 SYSTEM SEQUENCE DIAGRAM

6.1 [Use Case 1] Login System Sequence Diagram

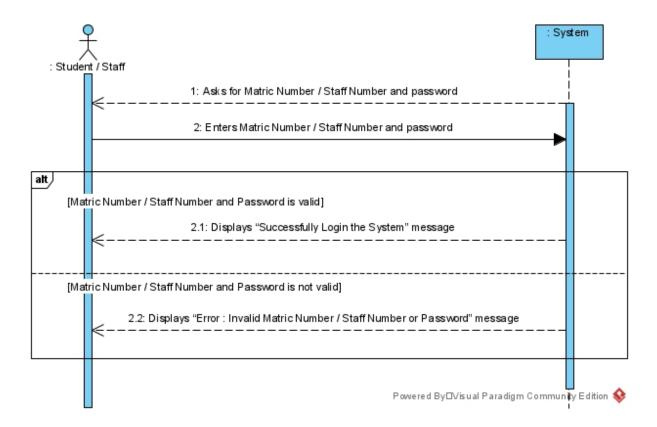


Figure 3 Login System Sequence Diagram

6.2 [Use Case 2] Log Out System Sequence Diagram

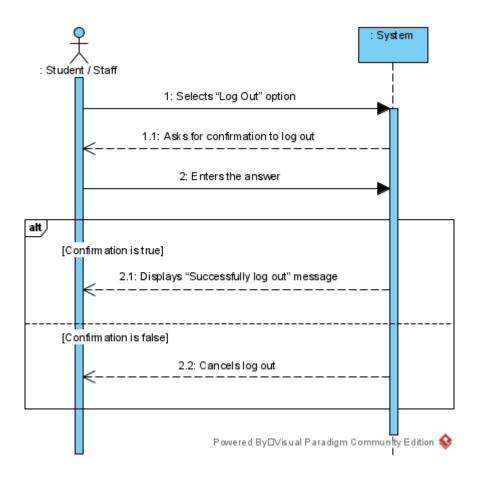


Figure 4 Log Out System Sequence Diagram

6.3 [Use Case 3] Check-In System Sequence Diagram

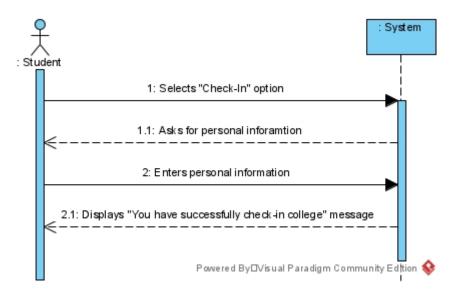


Figure 5 Check-In System Sequence Diagram

6.4 [Use Case 4] Check Out System Sequence Diagram

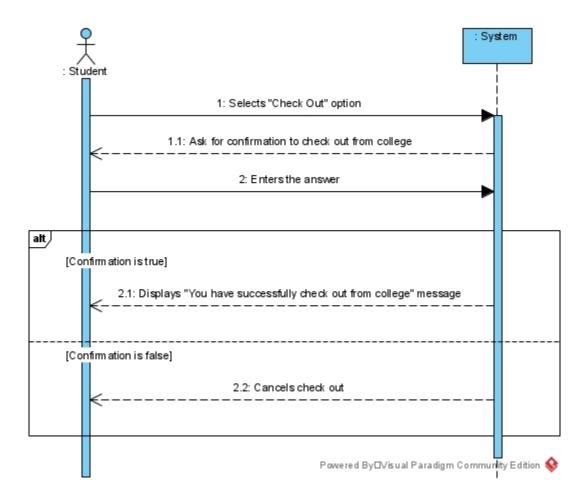


Figure 6 Check Out System Sequence Diagram

6.5 [Use Case 5] View Student Registration Status System Sequence Diagram

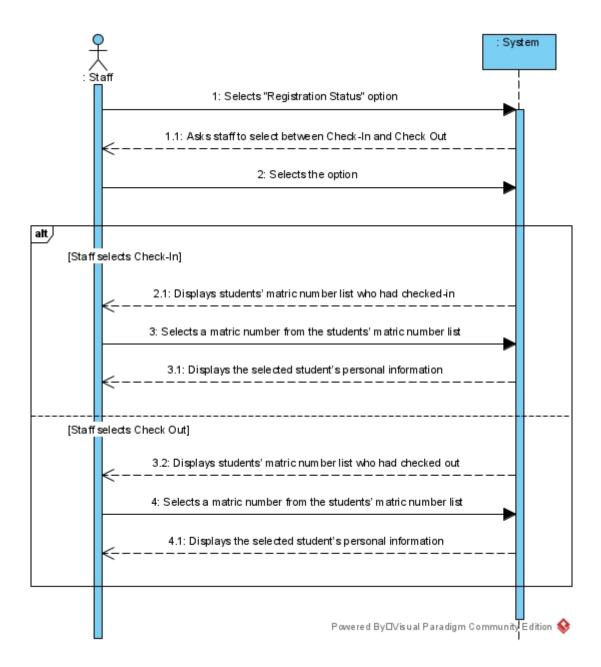


Figure 7 View Student Registration Status System Sequence Diagram

6.6 [Use Case 6] Manage Debt System Sequence Diagram

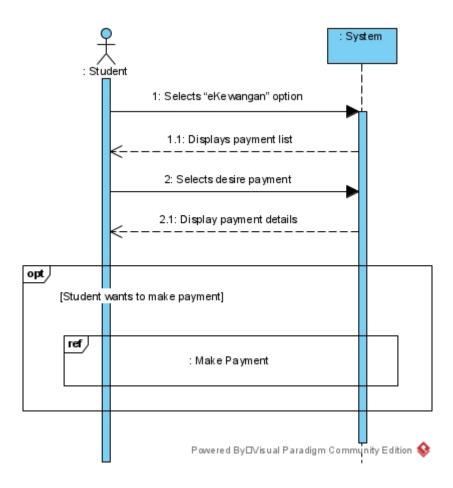


Figure 8 Manage Debt System Sequence Diagram

6.7 [Use Case 7] Make Payment System Sequence Diagram

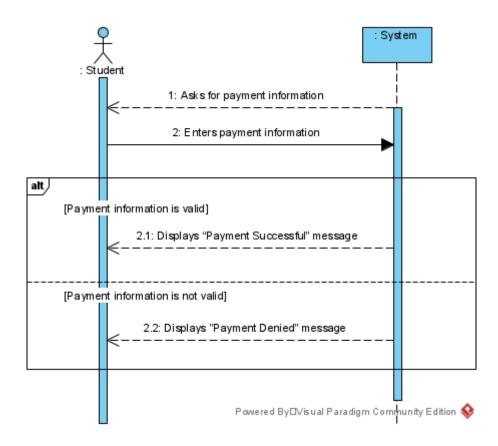


Figure 9 Make Payment System Sequence Diagram

6.8 [Use Case 8] View Student Payment Status System Sequence Diagram

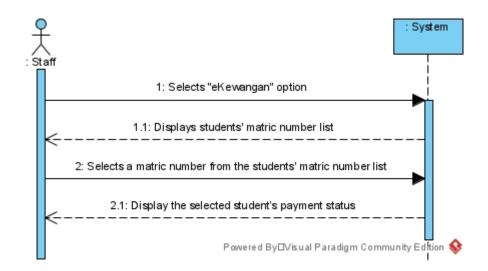


Figure 10 View Student Payment Status System Sequence Diagram

6.9 [Use Case 9] Check Item Received System Sequence Diagram

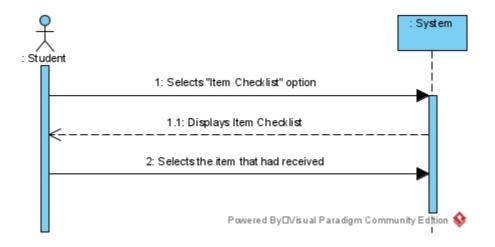


Figure 11 Check Item Received System Sequence Diagram

6.10 [Use Case 10] View Student Item Checklist System Sequence Diagram

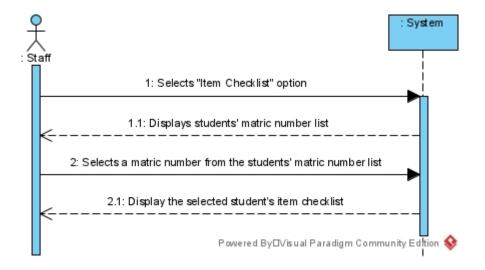


Figure 12 View Student Item Checklist System Sequence Diagram

6.11 [Use Case 11] Make Report System Sequence Diagram

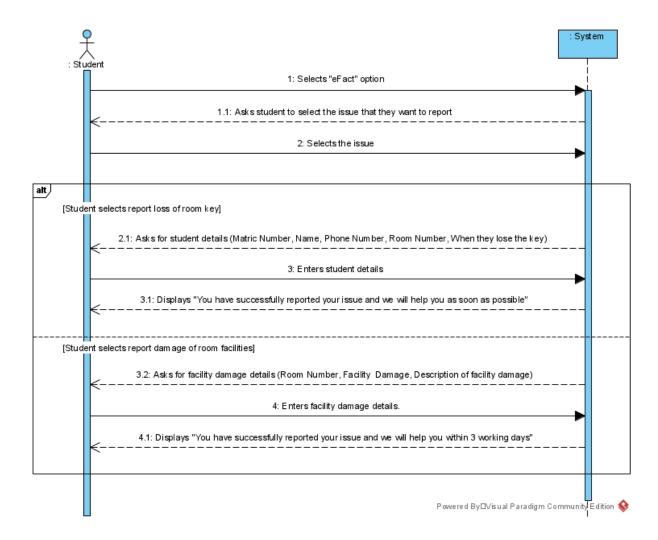


Figure 13 Make Report System Sequence Diagram

6.12 [Use Case 12] View Student Report System Sequence Diagram

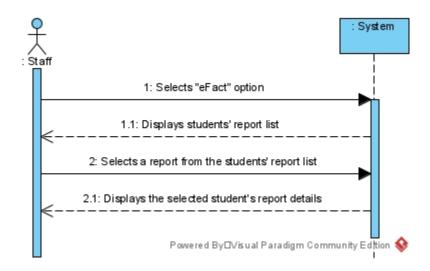


Figure 14 View Student Report System Sequence Diagram

7.0 CLASS DIAGRAM

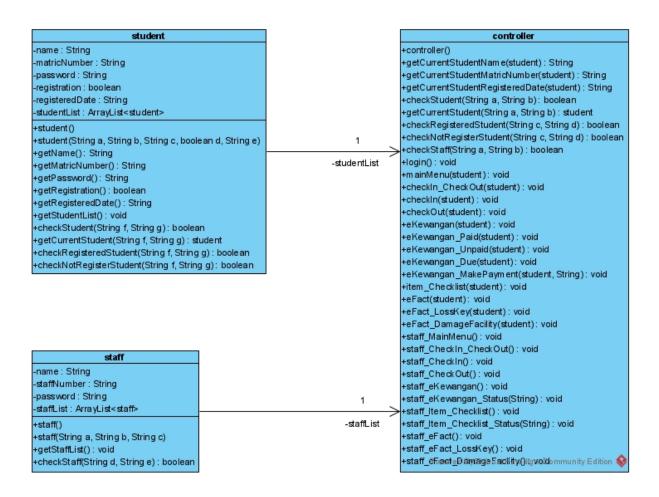


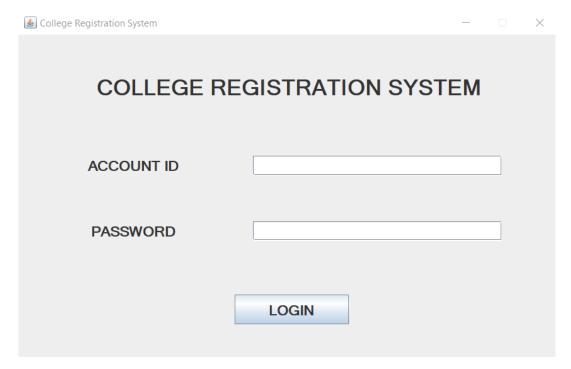
Figure 15 Class Diagram

The diagram above shows the Design Class Diagram of the College Registration System.

Student Class has the attributes name, matricNumber, password and registeredDate in String, attribute registration in Boolean and attribute studentList in ArrayList<student>. Besides, Staff Class has the attributes name, staffNumber and password in String and attribute staffList in ArrayList<staff>. On the other hand, studentList (attribute in Student Class) is a reference to an object of Controller Class and staffList (attribute in Staff Class) is a reference to an object of Controller Class too.

8.0 SAMPLE OUTPUT

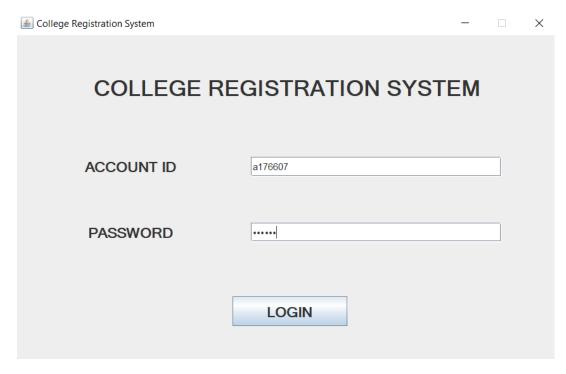
College Registration System Login Screen



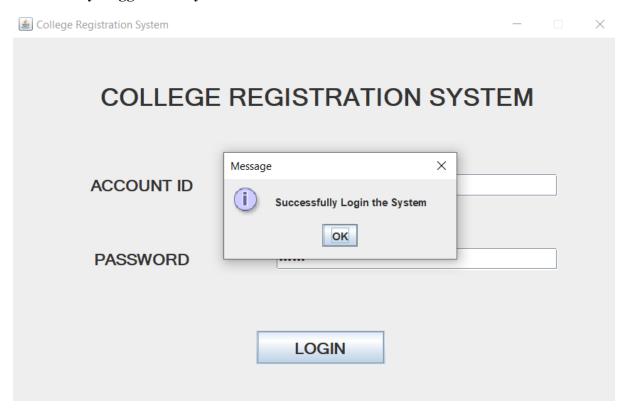
Login Information : Student

Account ID: A176607 / A176165 / A176818 / A175493

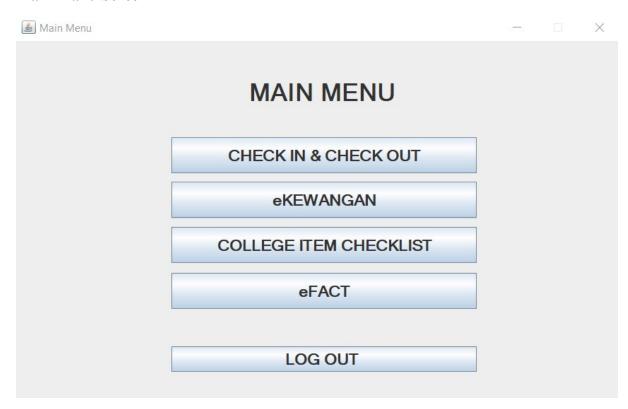
Password: 123456



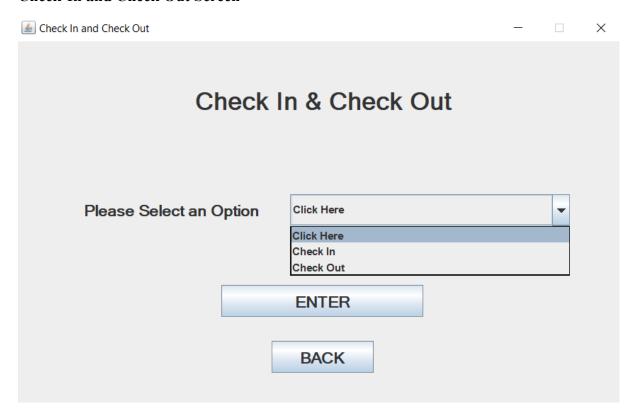
Successfully Logged into System



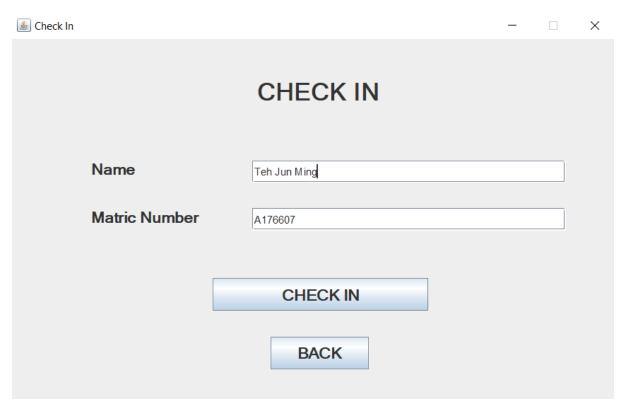
Main Manu Screen



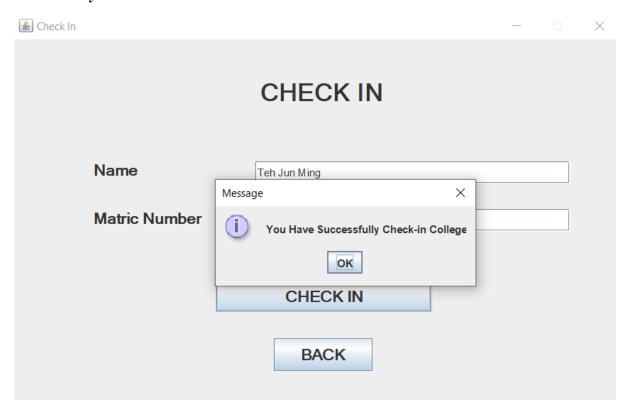
Check-In and Check Out Screen



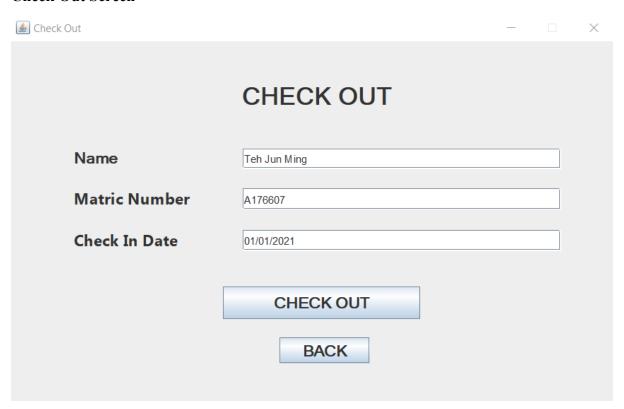
Check-In Screen



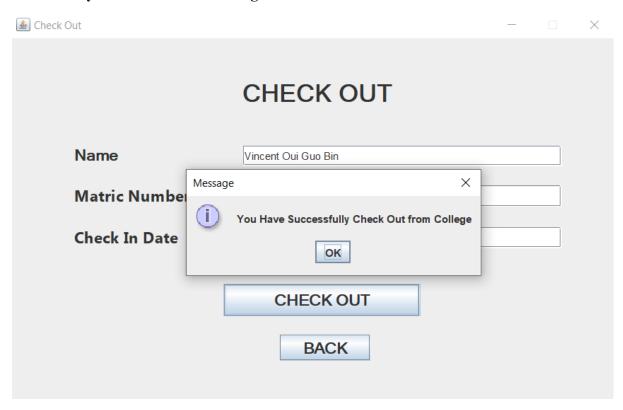
Successfully Check-In



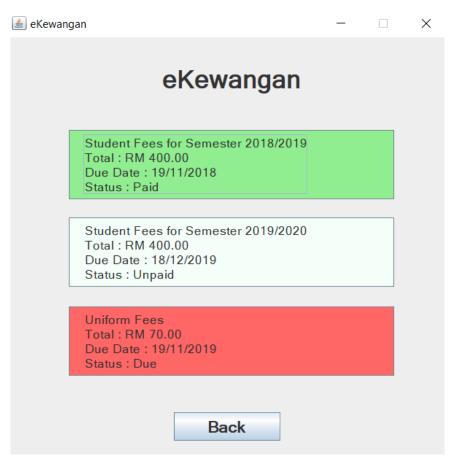
Check Out Screen



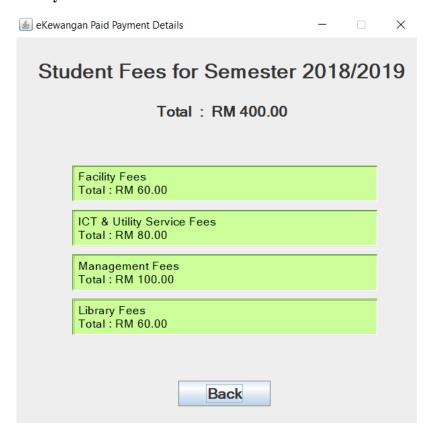
Successfully Check Out from College



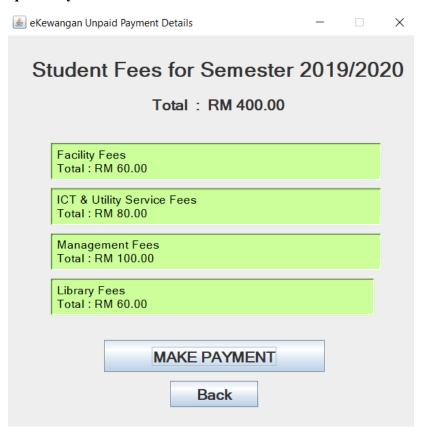
eKewangan Screen



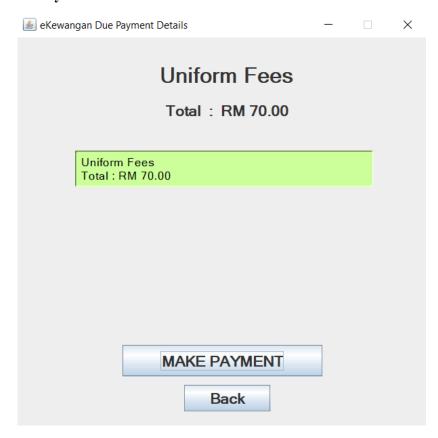
eKewangan Paid Payment Details Screen



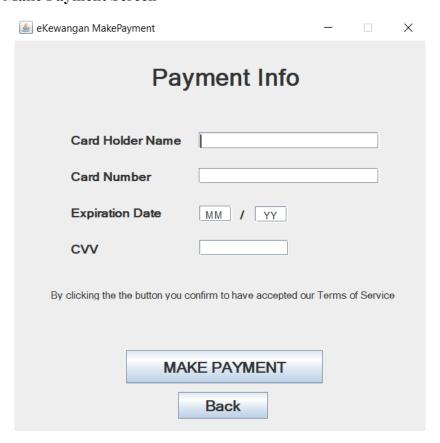
eKewangan Unpaid Payment Screen



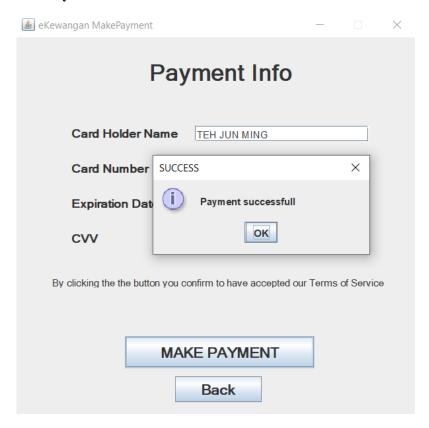
eKewanagn Due Payment Details Screen



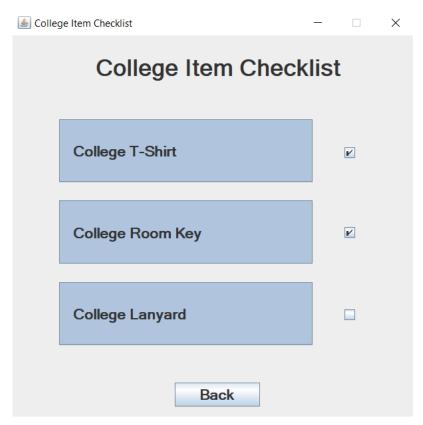
eKewangan Make Payment Screen



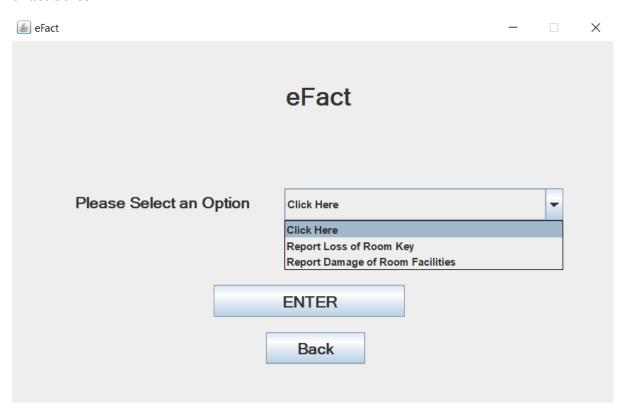
Successfully Make Payment



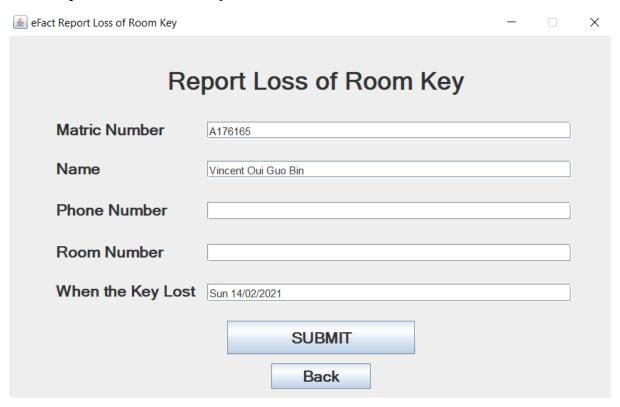
College Item Checklist Screen



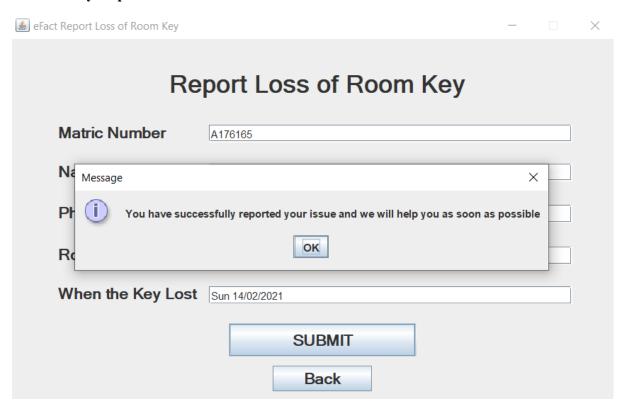
eFact Screen



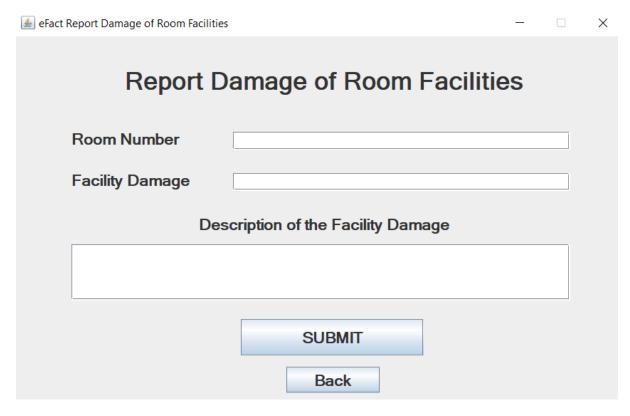
eFact Report Loss of Room Key Screen



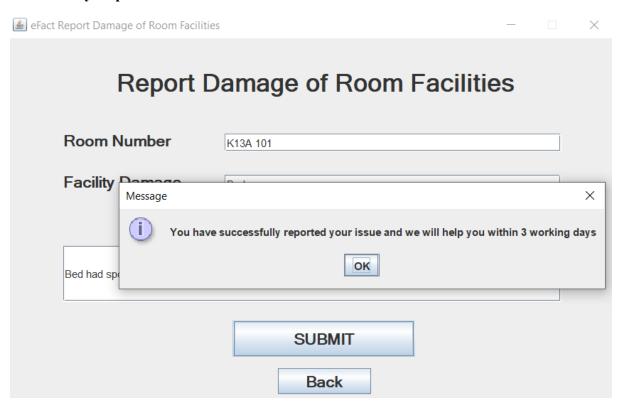
Successfully Report the Issue



eFact Report Damage of Room Facilities Screen



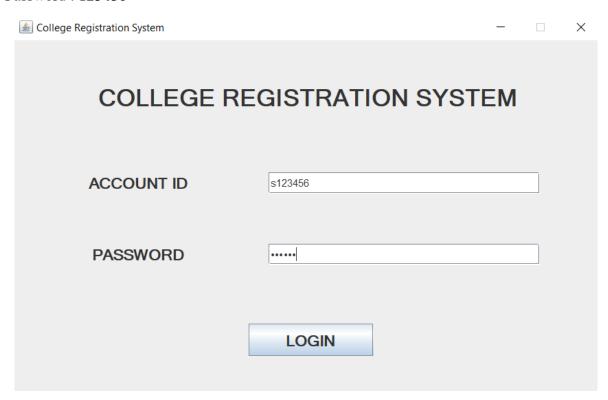
Successfully Report the Issue



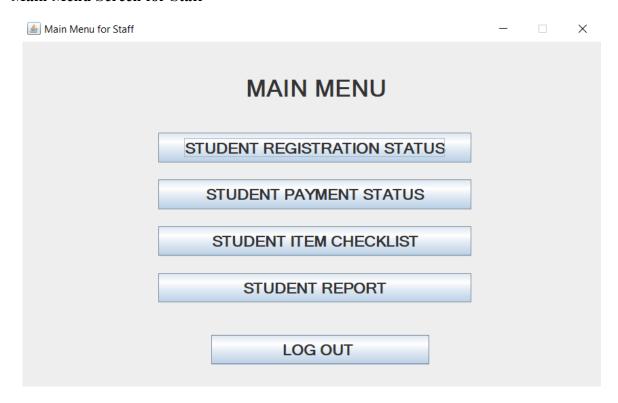
Login Information : **Student**

Account ID: S123456 / S234567

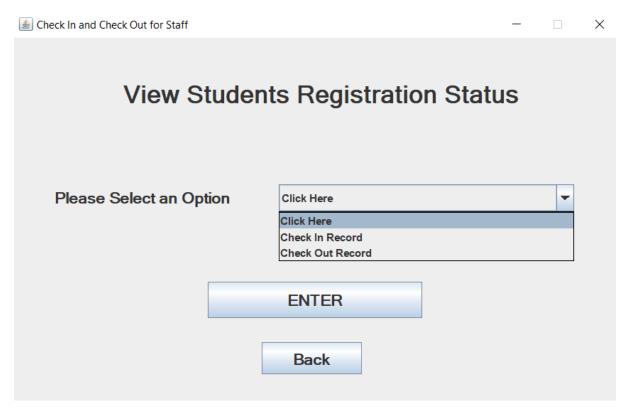
Password: 123456



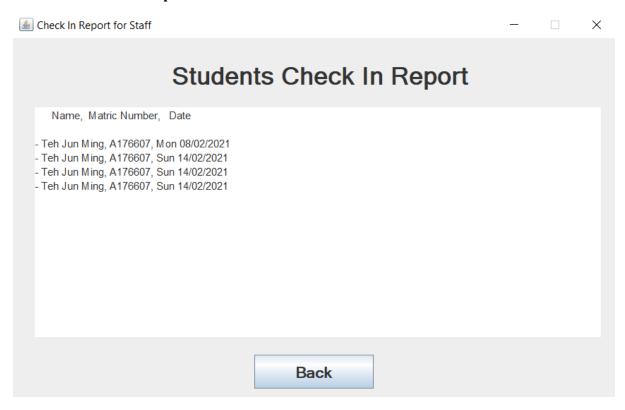
Main Menu Screen for Staff



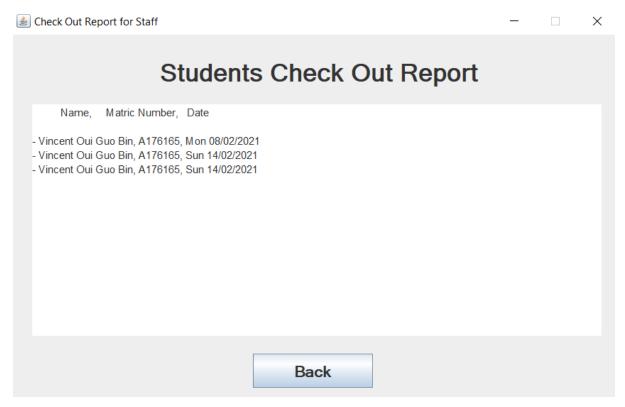
View Students Registration Status Screen for Staff



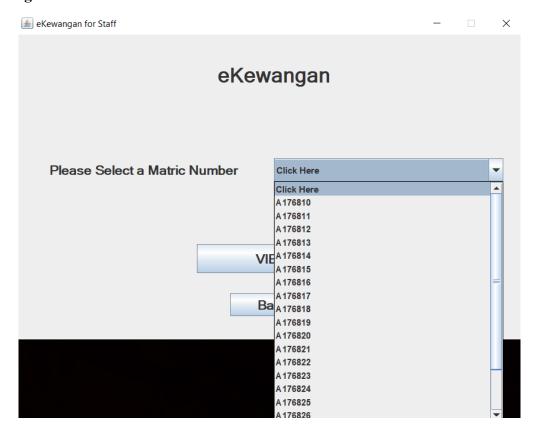
Students Check-In Report Screen for Staff



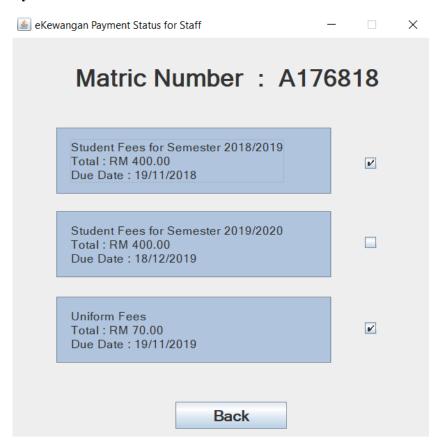
Students Check Out Report Screen for Staff



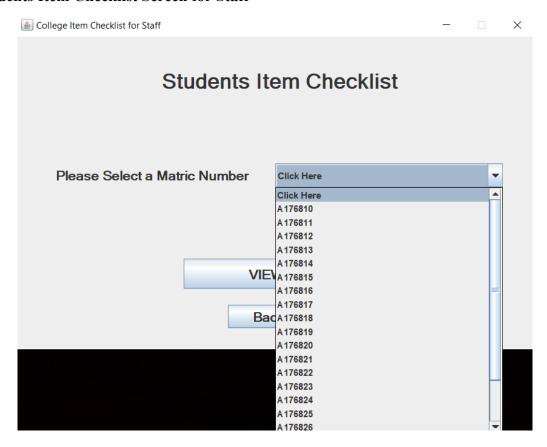
eKewangan Screen for Staff



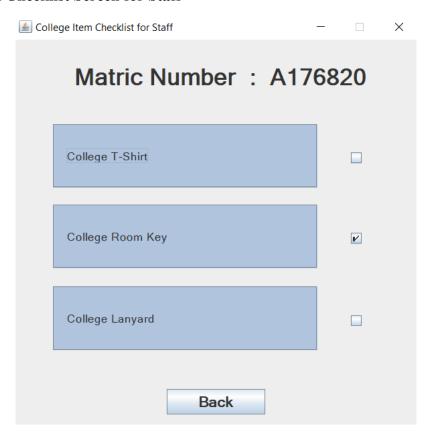
eKewangan Payment Status Screen for Staff



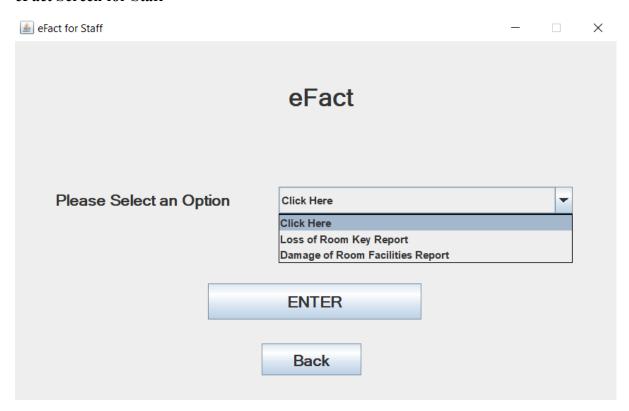
Students Item Checklist Screen for Staff



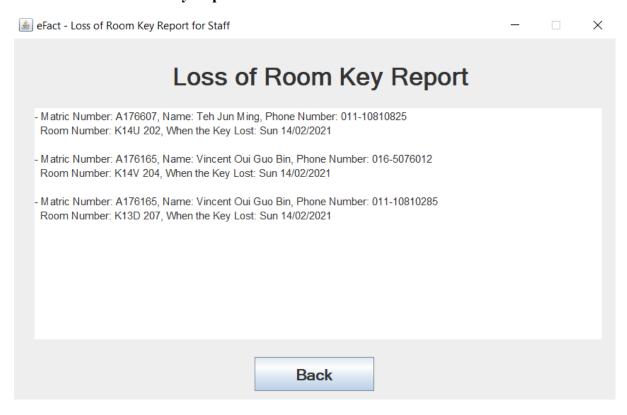
College Item Checklist Screen for Staff



eFact Screen for Staff



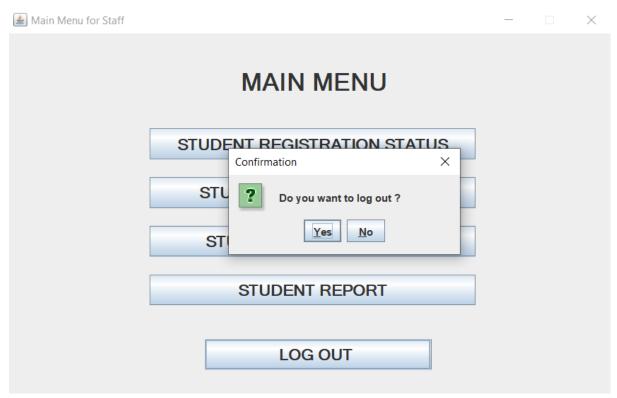
eFact - Loss of Room Key Report Screen for Staff



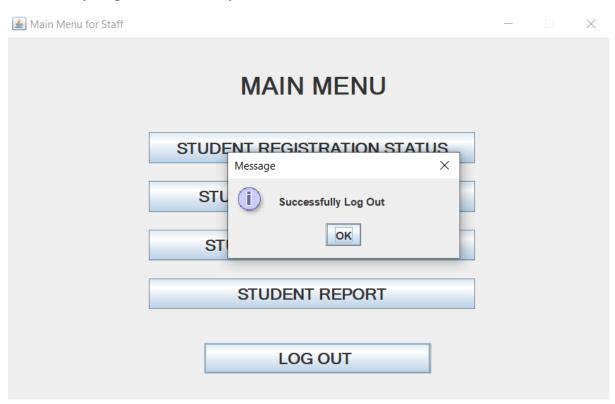
eFact - Damage of Room Facilities Report Screen for Staff



Log Out Confirmation



Successfully Log Out from the System



College Registration System Login Screen

