Campus resource management system

Phase 2

Subject: System Analysis and Design

Code: SECD2613

Section 07

Prepared by

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Overview of the project:

This project is designed to solve this university systems issues. The main focus of the project is to deliver IS that handles large amounts of data and automates most of the processes to reduce errors. This project covers four important areas to enhance its processes: Facility and booking management, Event management, student management and communication and notification.

Problem statement:

The current system suffers from frequent input errors and delaying of processes and the system output is usually similar or close to its input due to lack of critical processes. The system also lacks some essential technical hardware equipment, while depending mainly on human workforce without much computerized intervention.

Not to mention that the system is difficult to use for new users.

Proposed solutions:

To develop more advanced subsystems that can function together to maximize the output of the program, reduce the input errors, speed up the processes and can ease the management processes.

Information gathering process:

We used 3 methods to gather information about the current system and what the users want in the new system (2 interactive methods and 1 UNOBTRUSIVE).

The methods are:

1. Interview.
2. Questionnaire.
3. Investigation.

1. Interview:

We interviewed KLG management to get information about current system and the questions they could not answer we asked them to pretend they are working at the management and the system is mostly manual.

We used pyramid approach in most of modules (subsystems) questions. These are the questions we asked them with the answers:

Facility Booking and Management:

1. How many facilities do u have?
    a. 20.
2. Where can users locate information about available facilities?
    a. They must come to the management office.
3. How would you describe your users' experience?
    a. It is not that good because the users have to go through files or schedules manually to get the information about a facility
4. Is there any place for users to give feedback, complaints or add suggestions?
    a. No.
5. Do you think the users prefer the old system or do they want a new system?
    a. They definitely would like a new automated system.

Event Management:

1. How many events do you host per month?
    a. About 5 – 20 events.
2. The average number of attendees?
    a. About 30-50 attendees.
3. Do you keep track of the attendance?
    a. Through a list and must check if the attendee is in the registered list.

4. If yes, do you record the attendee's data?
    a. No, but I suggest adding it in the new system so it is used for some kind of analysis.
5. How do receive feedback from the users?
    a. No.
6. Are users generally satisfied or dissatisfied with the current system?
    a. They are not satisfied.

Student Management:

1. How do you enroll new students?
    a. They must come to the office and submit their data.
2. Where are the student records stored?
    a. In a database.
3. How do you manage these records?
    a. The officer has to search for student record manually and then edit the student data
4. How do you register courses for students?
    a. The students must come to the office and provide the courses they want to register for, then the officer will input their data in the database and provide the users with a schedule.
5. can the students access their data? If yes, where can they find it and how can they access it?
    a. Yes, they can, but they have to come to the office too.
6. Are there any complaints from users (students or administrators)? What are the complaints?
    a. Yes, they do not like the current manual system and would like a new automated system, provide an easy way to access and manipulate data and better database organization.

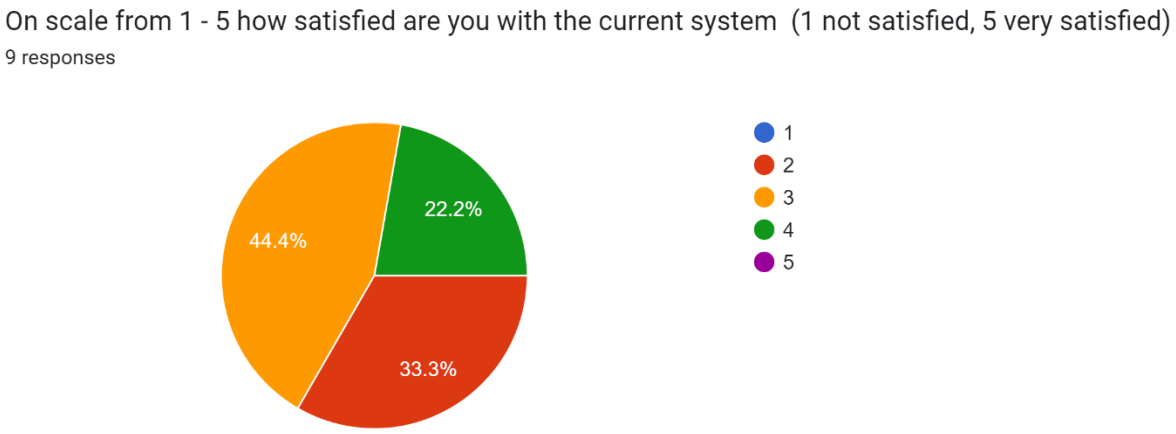
Communication and notification management:

1. How do you communicate with your coworkers in the same facilities?
    a. They use different methods of communication that includes email,

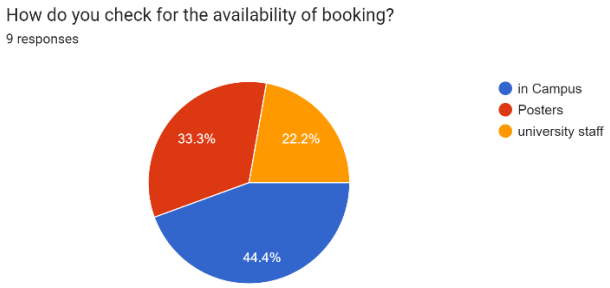
    Messaging apps and physical contact
2. How do you communicate with the students?
    a. We communicate with the student Through student email or academic adviser or through e-learning
3. Have you ever faced problems with communication with workers/students?
    a. Yes, we had some issues with delivering important messages because the student didn't read his email or we were unable to get to him.
4. How do you deal with Urgent Info that needs to be sent right away?
    a. We use the hot dialing number to get the management urgently and for the student we contact his mentor or advisor.

2. Questionnaire:

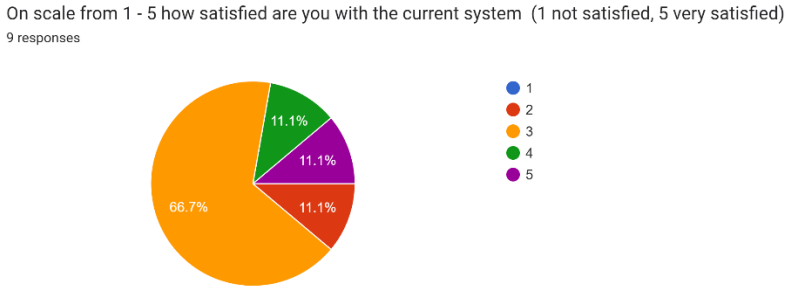
We asked some members of the KLG management and some students to fill our questionnaire and we got the following results:



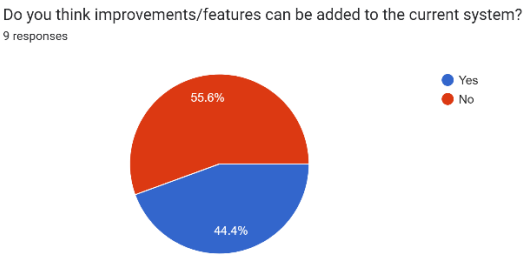
Most of the respondents are not satisfied or somewhat satisfied with the current booking management system.



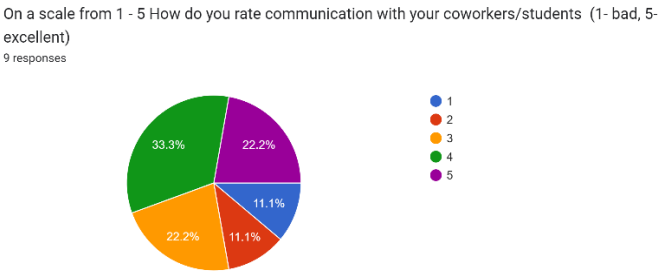
Almost half of the respondents must come to the campus to check of facility availability.



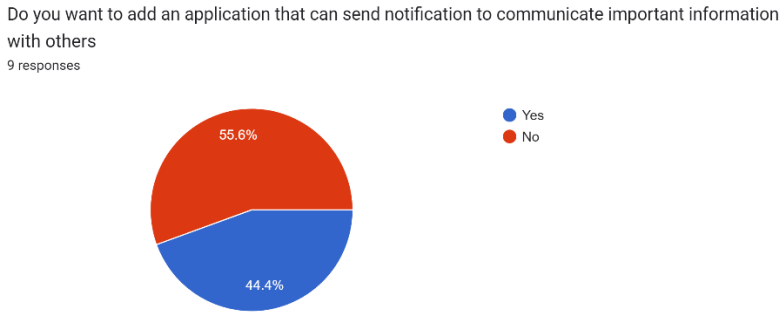
For the event management system most of the respondents are somewhat satisfied with the current system but we asked them if they would like some updates and they won't mind it.



For student management system you can see more than half of the respondents think there is a room for improvement.



For communication and notification management system you can see more than half of the respondents have a bad to decent communication experience.



You can see more than half of the respondents want to a new software application that can handle the communication matters.

3. Investigation:

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Universiti Teknologi Malaysia
81310 Johor Bahru
Johor, Malaysia
Tel: +607-553 3333

ARN No : **B232420446**
Passport No. :**P10289794**

01 January 2024

Eyad Aimen Elsheikh Khalil
UNIT 5, BUILDING NO 6790, KING ABDULAZIZ STREET
AL TAFEER
65528 AL BAHA
AL BAHA
SAUDI ARABIA

Dear Sir/Madam,

OFFER OF UNDERGRADUATE ADMISSION FOR ACADEMIC SESSION 2023/2024, SEMESTER II

We are pleased to offer you a place in our undergraduate programme as follows:

Faculty	:	**Faculty of Computing**
Programme	:	**Bachelor of Computer Science (Software Engineering) with Honours**
Programme Code	:	**SECJH**
Campus	:	**UTM Johor Bahru**
Status	:	Full-time
Duration	:	**8 Semesters**
Prerequisite	:	**Pass Bridging Programme (Please read Annex I)** Students must register at the reception venue and submit their passports for the student pass application. However, the Bridging Programme classes will be conducted in UTM Johor Bahru.
Online Pre-registration date	:	**19 - 29 February 2024**
Online Pre-registration link	:	**https://edaftar.utm.my/** **(*Student must complete this online registration before the reception date*)**
Reception Date	:	**06 March 2024 (Wednesday)** **(*Student must bring original documents listed in Annex I for verification purposes*)**
Venue	:	UTM International, Level 2, Block S19, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor
Time	:	**09:00 AM - 4:00 PM**
Fees	:	**Registration** : MYR 6,152.00 **Service Fees** : MYR 1,417.00 **Study Fees (Bridging)** : MYR 3,900.00 **Personal Bond** : MYR 1,500.00

Total fees can be added here

This offer is subject to the following conditions:

a) Agree to and satisfy the terms and conditions stated hereunder and in **Annex I**.

b) Undergo a medical check-up in Malaysia arranged by UTM to certify that you are in good health to accept the offer. The university reserves the right to withdraw this offer or terminate your study if you are found to suffer from or a carrier of infectious diseases, or suffer from a medical condition requiring continuous medical care or fail the prerequisites for a medical condition requiring continuous medical care that will adversely affect your study at UTM. Please refer to **Annex II** for details.

c) The offer of admission is not inclusive of a student pass, a Malaysian government requirement for all international students. Students are required to apply for a Visa Approval Letter (VAL) before entering this country. The charges for visa applications are to be paid separately from tuition fees. Please refer to **Annex III** for details

d) Change of programme of study is not allowed.

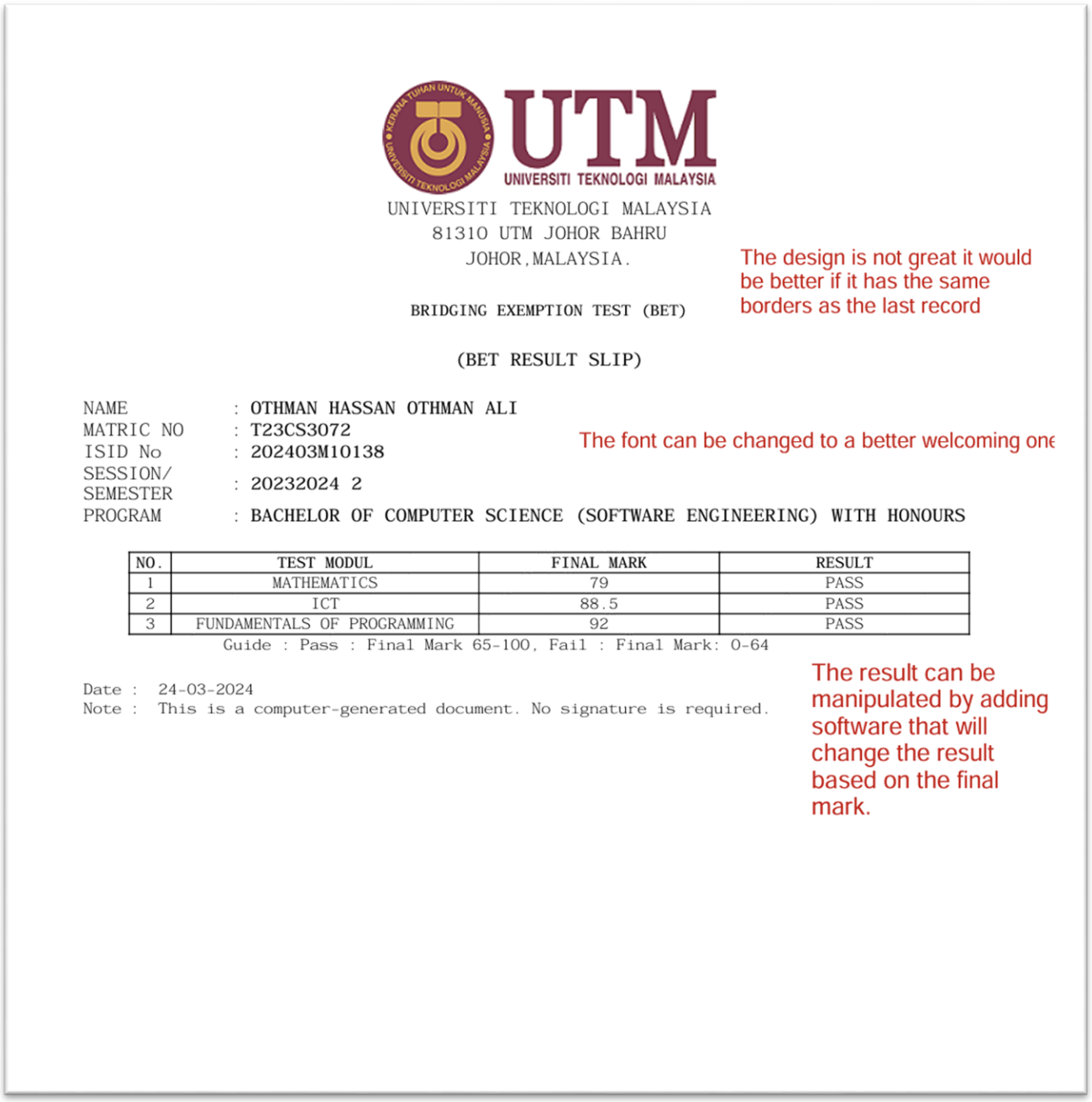
e) Tuition fees and mode of payment are stipulated in **Annex IV**.

This offer is only valid for one semester. Please notify us if you decide to defer the registration to the following semester. Kindly confirm your acceptance of this offer **as soon as possible**. For academic calendar, kindly visit the UTM website https://amd.utm.my/academic-calendar/.

We look forward to welcoming you to UTM. For further information, please do not hesitate to contact us at ugrad@utm.my.

I, who uphold trust,

(FATIN NABIHAH BINTI ROSLI)
Assistant Registrar
Student Recruitment and Admission Section (SRAdS)
Academic Management Division
Department of Registrar
Universiti Teknologi Malaysia
For Vice Chancellor



UNIVERSITI TEKNOLOGI MALAYSIA
81310 UTM JOHOR BAHRU
JOHOR, MALAYSIA.

The design is not great it would be better if it has the same borders as the last record

BRIDGING EXEMPTION TEST (BET)

(BET RESULT SLIP)

NAME : OTHMAN HASSAN OTHMAN ALI
MATRIC NO : T23CS3072
ISID No : 202403M10138
SESSION/ SEMESTER : 20232024 2
PROGRAM : BACHELOR OF COMPUTER SCIENCE (SOFTWARE ENGINEERING) WITH HONOURS

The font can be changed to a better welcoming one

NO.	TEST MODUL	FINAL MARK	RESULT
1	MATHEMATICS	79	PASS
2	ICT	88.5	PASS
3	FUNDAMENTALS OF PROGRAMMING	92	PASS

Guide : Pass : Final Mark 65-100, Fail : Final Mark: 0-64

Date : 24-03-2024
Note : This is a computer-generated document. No signature is required.

The result can be manipulated by adding software that will change the result based on the final mark.

Overall, the records are good and there is no mistakes in numbers and important data but it can be improved if it can be generated via software that can make all the records and files consistent in style and decrease the need

Requirement Analysis:

Based on the information gathered we found information about current business processes, functional requirements, and non-functional requirements.

Current business Process and workflow:

Facility booking and reservation management subsystem:

In this subsystem we have 2 main entities student and booking management officer, so the processes are as follows:

1. Student: can book campus resources such as sport fields, libraries, restaurants, entertainment facilities, classrooms, etc..., they also can make all types of facility reservations as an example rooms reservations, suites reservations and facility reservations.

2. Booking management officer: can check the availability of facilities, confirm or deny reservations, issuing reservation slip containing information about the users, the reserved facility and the date, and can be stored in reservation data store.

The workflow:

The student goes to the booking management office. Then the student provides his/her information including name, ID. Then the student provides the reservation details, including date and what facility wants to book. Then the officer checks for the availability of the requested facility. Then the officer provides information about if the facility is available on that date or not to the student. And then the officer asks the student if they would like to confirm the reservation. If the student confirms the officer will issue a slip containing the information about the reservation

and make another copy to store it and change the availability of the facility.

Functional requirements:

1. Input:
    a. Student information.
    b. Reservation details.
2. Process:
    a. Checking for facility availability.
    b. Confirming reservation.
    c. Issuing slip.
3. Output:
    a. Slip.

Non-functional requirements:

1. Performance:

    The performance is not good, since the officer must search for facility availability manually and the officer might make some mistakes when issuing the slip.

2. Control:

    If the facility is not available, the reservation cannot be confirmed and the student cannot make a reservation on the specified date.

Event management subsystem:

In this subsystem we have 2 main entities student and event management officer, so the processes are as follows:

1. Student: can register for the events.
2. Booking management: can make schedules for upcoming events, manage events for the students to register and can

confirm registration for students and prints a paper with the attendance list.

The workflow:

The student goes to the event management office. Then the student provides his/her information including name, ID. Then the student provides the event details that wishes to go to. Then the officer checks the event information. Then the officer registers the student for the event. The officer confirms the registration for and student and the student's information in the attendance list. In the same day as the event the officer prints a list of the students that can enter the event.

Functional requirements:

Input:

b. Student information.
c. Event details.

1. Process:
    a. Checking for facility availability.
    b. Confirming event registration.
    c. Writing student name in the attendance list.
2. Output:
    a. Attendance list.

Non-functional requirements:

1. Performance:

    The performance is decent, since there are not many events and a mistake can take place only if the officer wrote student information wrong.

2. Control:

After checking for event information, if there is no event with the received information the officer cannot confirm the registration and the student cannot register for the event.

Student management subsystem:

In this subsystem we have 2 main entities student and administrator, so the processes are as follows:

1. Student: can enroll for the university, register for courses, access schedule and academic profile.
2. Booking management officer: can complete Enrollment of new students, complete course registration for students, manage student records (edit, store, delete, show it to the student) and manage student activities.

The workflow:

The student goes to the administrator's office. Then the student provides his/her information including name, passport, faculty and etc... (for enrollment). The administrator takes the information to complete the enrollment. Then the administrator issues student card with the student ID for the student after the enrollment confirmation, issues a slip for the student and creates a student record for the student that also includes the student academic profile. The administrator provides information about available courses that the student can register for and the limit for credit hours. Then the student chooses the courses he/she would like to register for. Then the administrator registers the courses for the students and stores it in the student record. Finally, the

administrator gives the student the schedule for the registered courses.

Functional requirements:

1. Input:
    b. Student information.
    c. Courses details.
2. Process:
    a. Enrolling the new student.
    b. Issuing student card.
    c. Registering courses.
    d. Storing student information and registered records.
    e. Providing student with the schedule
3. Output:
    a. Enrollment slip.
    b. Student card.
    c. Schedule.

Non-functional requirements:

1. Performance:

    The performance is not good, due to the large number of new students that want to enroll. The current system is not good in terms of organizing and storing the student records, so the administrator must search it manually and modify it.

2. Control:

    If the student information is not completed or the student did not pay for the enrollment the enrollment cannot be completed. If the student exceeds his/her credit hour limit the student cannot complete the registration unless he/she

reduces the number of courses, he/she would like to register for

Communication and notification management subsystem:

In this subsystem we have 3 main entities student, management, and other stakeholders.

The Workflow:

The current system includes Communication Between:

Management-Stakeholders:

Management takes the hard-copied data and summarizes it to write a report which is submitted to the stakeholders via email, and it includes brief info of the benefits, complaints and materials used in each time.

Management-Students:

Students communicate with the management to get specific info about current availability of courses and important dates in the future, they communicate via email or phone calls.

Management-Management:

Management members communicate within themselves in case of complications in the registration process of students or when finding difficulties with the stakeholders.

Also, the students can communicate with each other for group projects or research or just for activities.

There are also some cases where the data delivery should be urgent and done now. The management uses a hot dialing number to deliver such information.

Functional requirements:

1. Input:
    a. Data for summarization.
    b. Student information (contact information, results).
2. Process:
    a. Summarizing data.
    b. Sending result to students or other management departments.
3. Output:
    a. Summarized data.
    b. Student results information.

Non-functional requirements:

1. Performance:

    The current performance of the sub-system is slow due to data redundancy and the data is separated between the email, messaging applications and the database.

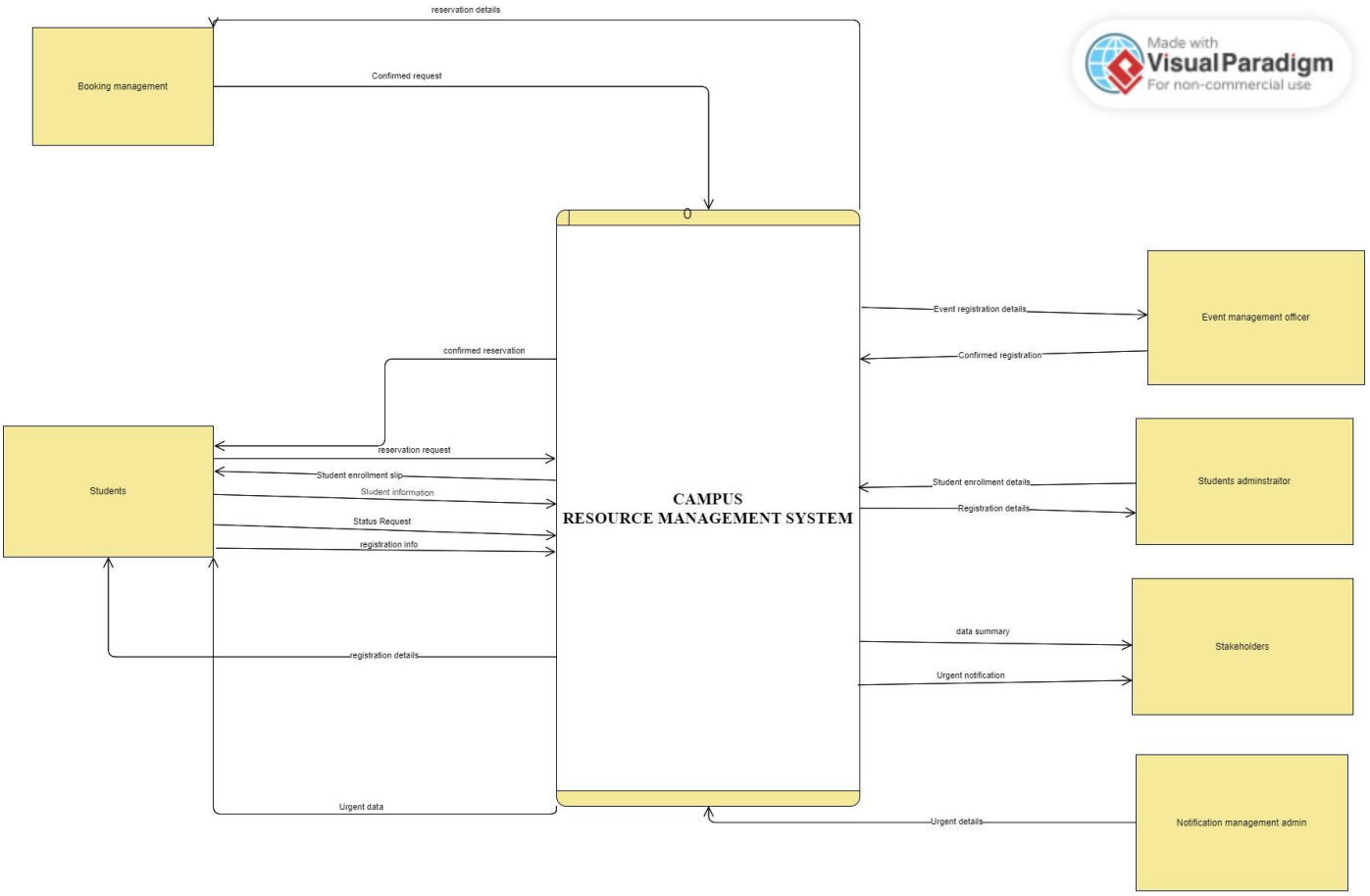
2. Control:

    There are also some cases where the data delivery should be urgent and done now. The management uses a hot dialing number to deliver such information.

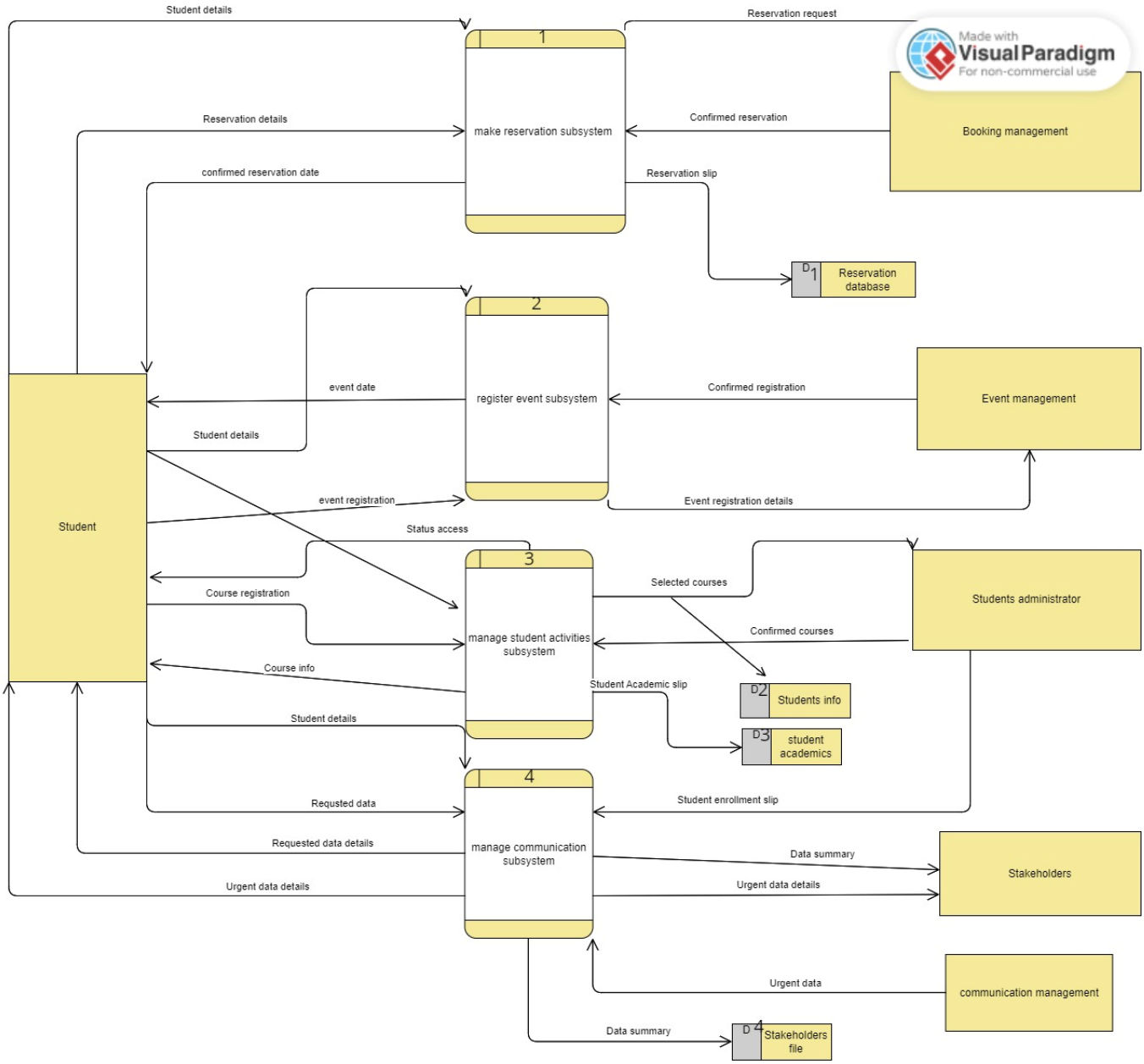
DFD:

We could not find the same shapes for entities and data stores stated in the slides, so we used these ones.

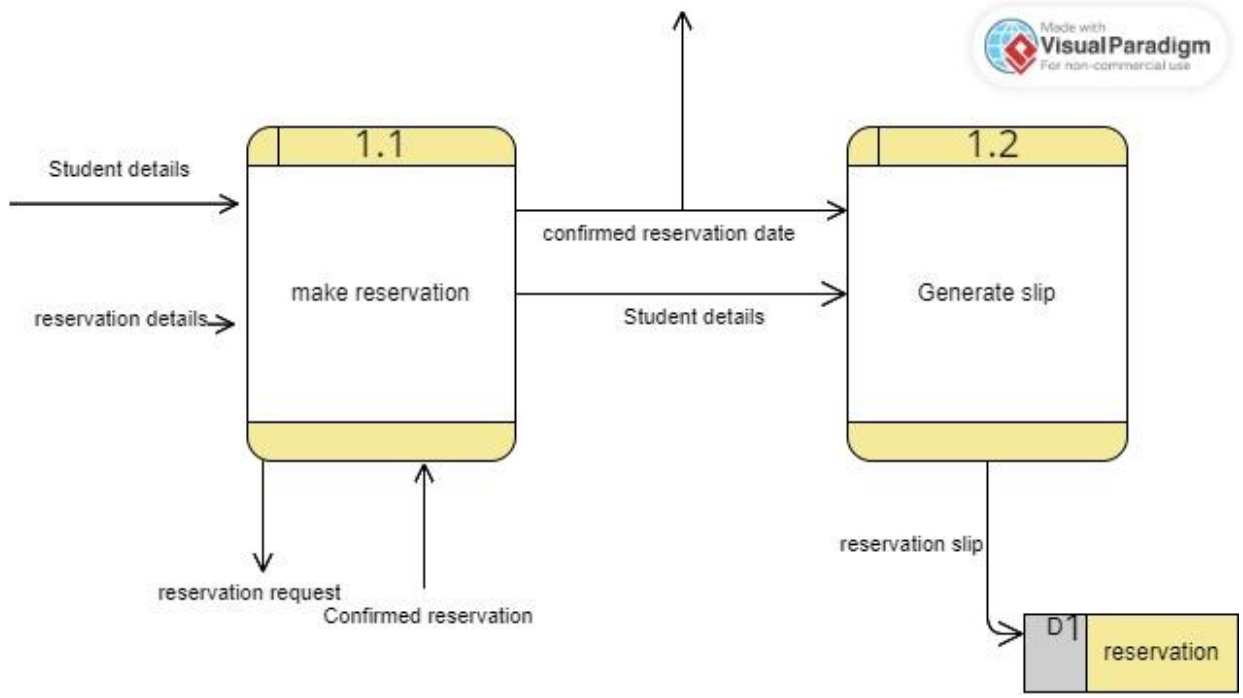
DFD CONTEXT DIAGRAM



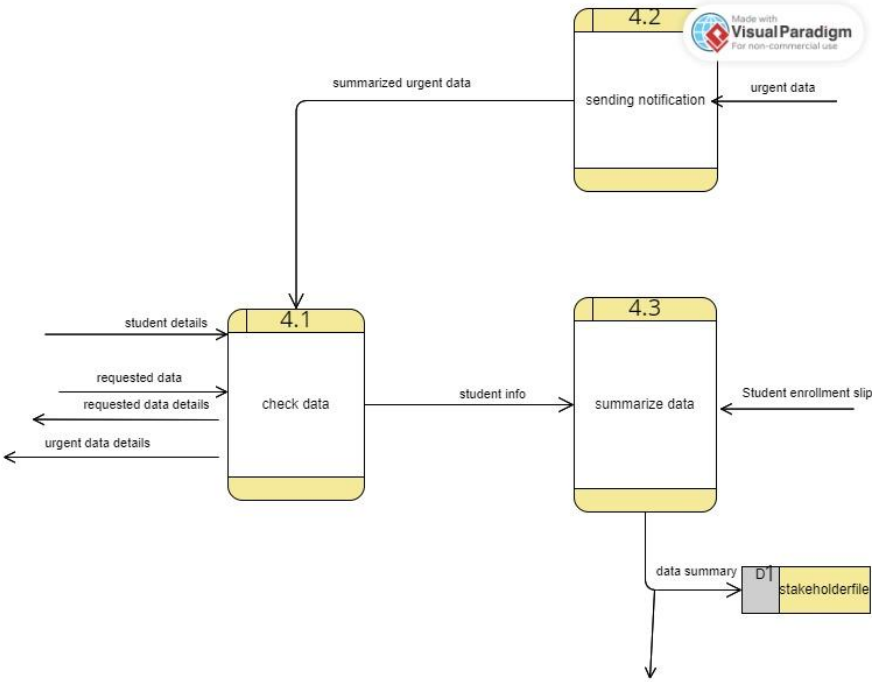
DFD ZERO DIAGRAM FOR THE SYSTEM



Facility booking and reservation management subsystem child diagram



Communication and notification management subsystem Child diagram



Summary:

Based on the requirements gathering and analysis, you can see that the current system is not bad but requires some automation in some processes. Such as: calculating the prices, producing slips, storing and organizing data and search for records to manipulate data.

We can also see that more than half of the users would like to change and improve the current system so that they can handle any situation.