SCHOOL OF COMPUTING (SOC)

STIA1113 PROGRAMMING 1

FIRST SEMESTER SESSION 2021/2022 (A211)

PROJECT (30%)

TOPIC:

UNIVERSITY

PREPARED FOR:

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GROUP 4

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1.0. Project's background

The aim of our project is to develop an online gateway or system for the university. The services provided in our system including employees' salary, student facilities, course registration, library fees and charge, and medical survey. Whether students, professors or administrative staff can use our system. All parties involved in the university can access to our system.

1.1. Employees' Salary

This system will calculate the net salary of employees based on the types of lecturers using their salary per hour and hour of work. Tables below show the types of lecturers, and they must use the information to key in the system.

Types of lecturers	Permanent Lecturer	Contract Lecturer	PTFT Lecturer
Work code	DPL45	DCL51	DP441
Salary per hour	RM132.00	RM85.00	RM63.00
Allowance	RM900	RM800	RM0

1.2. Student Facilities

The system will calculate the total balance fee student need to pay based on their college residential choice and the range of their total cocurricular mark.

College Residential

College Residential Choice	College Residential Name	Price
Choice 1	Syed Residential College	Notes: The price of the college is 3 times more than choice 2
Choice 2	Zain Residential College	RM160.99

Mark Division Table

Achievement	Category	Mark
Participation on residential college organization	**chairman**	**12**
	Deputy chairman	**10**
	Secretary	**8**
	Treasurer	**8**
	Committee member	**6**
Participation on university organization	**Chairman**	**15**
	Deputy chairman	**13**
	Secretary	**10**
	Treasurer	**10**
	Committee member	**8**
Excelled in academic	**CGPA 3.5 – 4.0**	**10**
Involvement in university club organization	**Chairman**	**10**
	Deputy chairman	**8**
	Secretary	**7**
	Treasurer	**7**
	Committee member	**5**
	participants	**3**
Involvement in university sport day	**Chairman**	**8**
	Deputy chairman	**7**
	Secretary	**6**
	Treasurer	**6**
	Committee member	**4**
	participants	**2**
Participation in university activity	**International level**	**10**
	National level	**8**

	University level	**7**

Student Benefit

Total Curricular Mark Range	Benefit
0-69	No discount
70-100	80% discount

1.3. Course Registration

The services provided under the course registration will be calculation of GPA and attendance rate. Tables below are the details of GPA and attendance rate calculation.

MARKS	GRADE POINT	
90 - 100	4.00	(Excellent)
80 - 89	4.00	(Excellent)
75 - 79	3.67	(Good)
70 - 74	3.33	(Good)
65 - 69	3.00	(Good)
60 - 64	2.67	(Satisfactory)
55 - 59	2.33	(Satisfactory)
50 - 54	2.00	(Pass)
45 - 49	1.67	(Fail)
40 - 44	1.33	(Fail)
35 - 39	1.00	(Fail)
0 - 34	0.00	(Fail)
0	0.00	(Barred)
0	0.00	(Withdraw)

Minimum passing GPA

Attended Times	Total Attend Times	Attendance Rate (%)
20	20	100
19	20	95
18	20	90
17	20	85
16	20	80
15	20	75
14	20	70
13	20	65
12	20	60
11	20	55
10	20	50
9	20	45
8	20	40
7	20	35
6	20	30
5	20	25
4	20	20
3	20	15
2	20	10
1	20	5
0	20	0

Minimum attendance rate

For a student to be able to register a second-level course, one must fulfill the requirements of the second-level course based on the performance on their pre-requisite course.

1.4. Library Fees and Charge

The librarian in a local university has made a decision to charge students who return books late to the library with a fine. The fine is different for every student. The base fine for each day late is RM1.00. An additional fine will be imposed based on the student's years of study. For first years, the additional fine is RM1.00 per day. For second years, the additional fine is RM2.00 per day. For third years, the additional fine is RM3.00 per day. If they have different books with different check out times, it will be calculated independent of each other.

Year of Study	1st Year	2nd Year	3rd Year
Base Fine Per Day	RM1.00	RM1.00	RM1.00
Additional Fine Per Day	RM1.00	RM2.00	RM3.00

1.5. Medical Survey

The program will list all schools with the percentage of students, total number of students, female students and male students who have anxiety and depression.

i. 100 students done the anxiety and depression test
ii. 25% out of all students have anxiety
iii. 32% out of all students have depression

Anxiety Test

School	Percentage Of Students (%)	Number Of Students	Female student	Male student
School of Law	1.25	5	5	0

School of Computing	2.25	9	6	3
School of Business	1.25	5	4	1
School of Accounting	1.50	6	4	2

Depression test

School	Percentage Of Students (%)	Number Of Students	Female student	Male student
School of Law	3.52	11	7	4
School of Computing	2.88	9	5	4
School of Business	1.92	6	4	2
School of Accounting	1.92	6	3	3

2.0. Program Descriptions

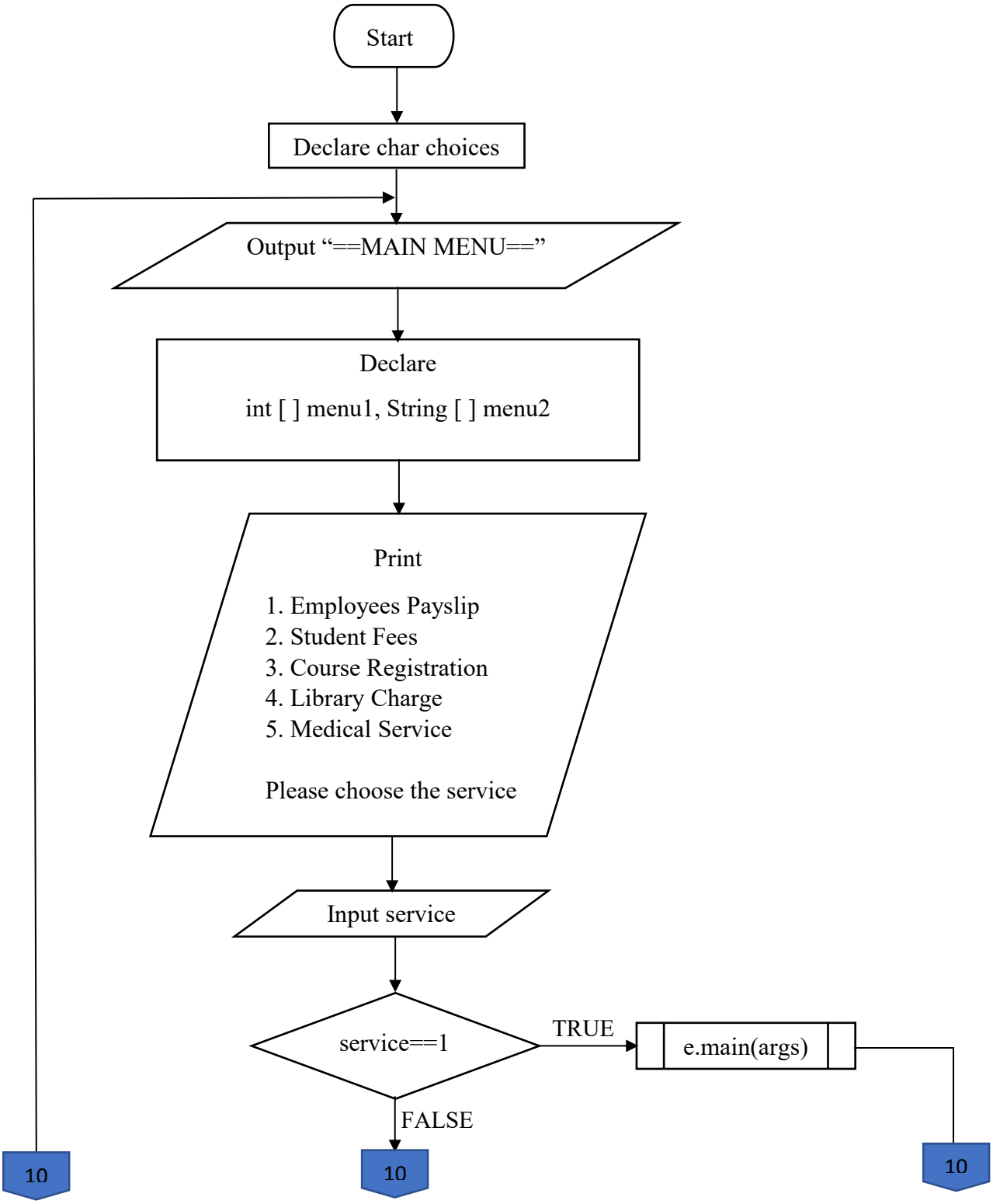
2.1. Main Menu

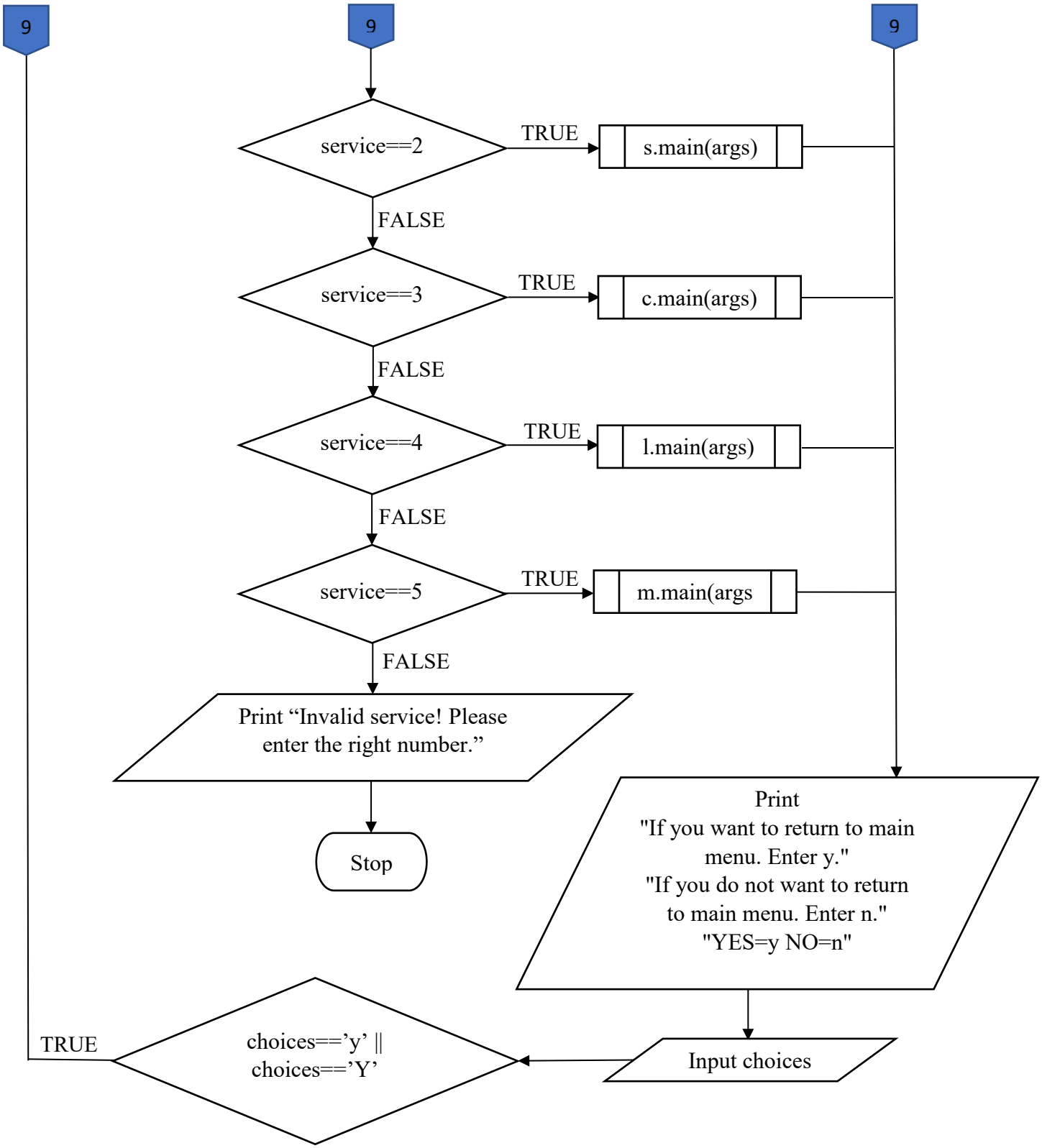
PSEUDOCODE

```
START

    Declare choices

    Do

    OUTPUT "==MAIN MENU=="

        Declare

        int [ ] menu1 = {1,2,3,4,5}

        String [ ] menu2 = {"Employees Payslip","Student Fees","Course
                                Registration","Library Charge","Medical Service"}

            OUTPUT "1. Employees Payslip"

            OUTPUT "2. Student Fees"

            OUTPUT "3. Course Registration"

            OUTPUT "4. Library Charge"

            OUTPUT "5. Medical Service"

            OUTPUT "Please choose the service."

            INPUT service

                IF (service==1)

                    employees e = new employees()

                    CALL e.main(args)

                ELSE IF (service==2)

                    student s = new student()
```

```
                    CALL s.main(args)
                    ELSE IF (service==3)
                        course c = new course()
                    CALL c.main(args)
                    ELSE IF (service==4)
                        library l = new library()
                    CALL l.main(args)
                    ELSE IF (service==5)
                        medical m = new medical()
                    CALL m.main(args)
                    ELSE
                    OUTPUT “Invalid service! Please enter the right
                        number."
                    ENDIF
            OUTPUT "If you want to return to main menu. Enter y."
            OUTPUT "If you do not want to return to main menu. Enter n."
            OUTPUT "YES=y NO=n"
                INPUT choices
        WHILE choices=='y' OR choices=='Y'
STOP
```

FLOWCHART


Start
Declare char choices
Output "==MAIN MENU=="
Declare
int [ ] menu1, String [ ] menu2
Print
1. Employees Payslip
2. Student Fees
3. Course Registration
4. Library Charge
5. Medical Service
Please choose the service
Input service
service==1
TRUE
e.main(args)
FALSE
10
10
10


9
9
9
service==2
TRUE
s.main(args)
FALSE
service==3
TRUE
c.main(args)
FALSE
service==4
TRUE
l.main(args)
FALSE
service==5
TRUE
m.main(args
FALSE
Print “Invalid service! Please enter the right number.”
Stop
Print "If you want to return to main menu. Enter y." "If you do not want to return to main menu. Enter n." "YES=y NO=n"
Input choices
choices==’y’ || choices==’Y’
TRUE

DESCRIPTION

```
1  import java.util.Scanner;
2  public class MainMenu {
3
4      public static void main(String[] args) {
5          // TODO Auto-generated method stub
6
7          Scanner menu=new Scanner (System.in);
8          char choices;
9
10         do {
11
12             System.out.println ("==MAIN MENU==");
13             int [] menu1= {1,2,3,4,5};
14             String [] menu2= {"Employees Salary","Student Facilities","Course Registration","Library Fees and Charge","Medical Survey"};
15             System.out.println (menu1[0]+". "+menu2[0]);
16             System.out.println (menu1[1]+". "+menu2[1]);
17             System.out.println (menu1[2]+". "+menu2[2]);
18             System.out.println (menu1[3]+". "+menu2[3]);
19             System.out.println (menu1[4]+". "+menu2[4]);
20             System.out.println ("Please choose the service.");
21             int service=menu.nextInt();
```

At first, scanner is used to read the user input. By using a do-while loop, user would be able to use the system until user is satisfied. Coding at the start would be the title of "==MAIN MENU==" following by the integer type array of 'menu1' and string type array of 'menu2'. The arrays declared are used to list the numbers and the name of every topic that enable user to choose from our system.

The 'menu1' represents the numbers of the topics and 'menu2' represents the name of the topics. Since the rules of array set that the number elements will start from zero. Hence, the numbers in coding will start from 0 to 4 concluding in 5 statements. Therefore, the system will print out "1. Employees' Salary", "2. Student Facilities", "3. Course Registration", "4. Library Fees and Charge" and "5. Medical Survey".

```
System.out.println ("Please choose the service.");
int service = menu.nextInt();

    if(service==1) {
        employees e = new employees();
        e.main(args);
    }
    else if(service==2) {
        student s = new student();
        s.main(args);
    }
    else if(service==3) {
        course c = new course();
        c.main(args);
    }
    else if(service==4) {
        library l = new library();
        l.main(args);
    }
    else if(service==5) {
        medical m = new medical();
        m.main(args);

    }
    else {
        System.out.println("Invalid service! Please enter the right number.");
    }
```

After that, the system prompt user by stating “Please choose the service”. So, an integer type of variable call ‘service’ was created that will only read number as command. The ‘menu.nextInt()’ is a method of a Scanner object that reads the input.

Next is the if-else statement in the selection control structure. This is used to bring users to enter to the selected topic and continue to make their orders. For instance, if the ‘service’ equals to 1, then the system will print out the contents and details of the method of ‘employees()’. And the command will be executed with each different number inputted by user as 2 is ‘student()’, 3 is ‘course()’, 4 is ‘library’ and 5 is ‘medical()’.

```
            System.out.println();
            System.out.println("If you want to return to main menu. Enter y.");
            System.out.println("If you do not want to return to main menu. Enter n.");
            System.out.println("YES=y       NO=n");
            choices=menu.next().charAt(0);


    }
    while (choices=='y' || choices=='Y');

}
```

At the bottom part of "==MAIN MENU==" will be a set of instructions for user to select. The system asks user "If you want to return to main menu. Enter y.", "If you do not want to return to main menu. Enter n." and "YES" equals to 'y' while "NO" equals to 'n'. As the data type of char choices has been declare, we set the user to input 'y' or 'n' and declaring the 'menu. next().charAt(0)' to read the input value. The do-while condition will be triggered as long as user input value of 'y' or 'Y'.

2.2. Employees' Salary

```
import java.util.ArrayList;
public class employees {

    public static void welcome(){

        employees e=new employees();
        System.out.println ("Welcome!");
        System.out.println ("This system will help you to calculate your net salary.");
        System.out.println ("Please enter your details and you may refer to the information below.");
        System.out.println ("All information is entered into a system for future use. Thank you.");
        String [] types= {"PERMANENT LECTURER", "CONTRACT LECTURER", "PTFT LECTURER"};
        String [] workCode= {"DPL45","DCL51","DPP441"};
        String [] hourSalary= {"RM132.00", "RM85.00", "RM63.00"};
        String [] allow= {"RM900.00", "RM800.00","RM0.00"};

            for (int i=0;i<1;i++) {
                e.line();
                System.out.println ("|  TYPES OF LECTURER  |      " + types[0] + "     |  " + types[1] + "  |  " + types[2] + "   |");
                e.line();
                System.out.println ("|      WORK CODE      |           " + workCode[0] + "          |       " + workCode[1] + "       |     " + workCode[2] + "      |");
                e.line();
                System.out.println ("|   SALARY PER HOUR   |         " + hourSalary[0] + "         |       " + hourSalary[1] + "      |     " + hourSalary[2] + "     |");
                e.line();
                System.out.println ("|      ALLOWANCE      |         " + allow[0] + "          |       " + allow[1] + "      |      " + allow[2] + "     |");
                e.line();
            }

    }
```

First, we start with the first method which is *welcome*. This method is used for displaying welcome messages for the user. It also will display the table that contains information that may user be use for filling their detail. The details in the table will be displayed by using an array that stored the information of the lecturer's work code, salary per hour and allowance.

```
    public static void line() {
        for (int i=0; i<96; i++) {
            System.out.print ("_");
        }
        System.out.println(" ");
    }
```

Next method is *line*. This method is used for displaying a line to create a table. It's using for loop which will execute the line (_) while i is less than 96. Loop will continue until at last the test condition is false and the loop quits.

```
    private String id,name,workCode,monthOfpayment;
    private float basicSalary,epf,socso,allowance,amountOfdeduction,netsalary;
    private long ic;
    private int hour,salaryPerhour;
```

This is the list of private statements that we use in *userinfo* method. That is used for keyword that specifies access level and provides with some control over which variables and methods are hidden in a class.

```java
public static void userinfo() {
    Scanner sc=new Scanner(System.in);
    String code1="DPL45";
    String code2="DCL51";
    String code3="DP441";
    String code;
    System.out.println();
    System.out.println ("Enter your name:");
    String name=sc.nextLine();
    System.out.println ("Enter your identification card number:");
    long ic=sc.nextLong();

    System.out.println ("Enter the month of payslip you want:");
    ArrayList<String> monthOfpayment = new ArrayList<>();
        for(int i = 0; i < 1; i++) {
            monthOfpayment.add(sc.next());
        }

    System.out.println ("Enter your work code:");
    String workCode=sc.next();
    if (workCode==code1) {
        code="DPL45";
    }
    else if (workCode==code2) {
        code="DCL51";
    }
    else if (workCode==code3) {
        code="DP441";
    }

    System.out.println ("Enter your hour of work for this month:");
    int hour=sc.nextInt();
    System.out.println ("Enter your salary per hour:");
    System.out.print ("RM");
    int salaryPerhour=sc.nextInt();
    System.out.println ("Enter your allowance");
    System.out.print ("RM");
    double allowance=sc.nextDouble();

    double basicSalary=(salaryPerhour*hour)+allowance;
    double epf=0.1*basicSalary;
    double socso=0.005*basicSalary;
    double amountOfdeduction=epf+socso;

     double netsalary=basicSalary-amountOfdeduction;


     System.out.println("*****************************************************************************************");
     System.out.println("                PAYSLIP "+ monthOfpayment + ", 2021");
     System.out.println("*****************************************************************************************");
     System.out.println ("NAME: "+name + "                    WORK CODE: "+workCode);
     System.out.println ("NRIC NO: "+ic);
     System.out.println ();
     System.out.printf ("===EARNINGS===");
     System.out.println ();
     System.out.printf ("BASIC SALARY: RM%.2f",basicSalary);
     System.out.println ();
     System.out.printf ("ALLOWANCE: RM%.2f", allowance);
     System.out.println ("\n");
     System.out.printf ("===DEDUCTION===");
     System.out.println ();
     System.out.printf ("EPF: RM%.2f",epf);
     System.out.println ();
     System.out.printf ("SOCSO: RM%.2f",socso);
     System.out.println ();
     System.out.printf ("AMOUNT OF DEDUCTION: RM%.2f",amountOfdeduction);
     System.out.println ();
     System.out.println("*****************************************************************************************");
     System.out.printf ("            NET SALARY: RM%.2f",netsalary);
     System.out.println ();
     System.out.println("*****************************************************************************************");
}
```

In *userinfo* method, this is used to print out the details of the user where the users need to key-in their information. The program will print out the details on the pay slip consist of name, ic number, month of pay slip, work code, hour of work for month, salary per hour, and allowance. For work code, user must insert their correct work code as the system will ask users to enter their work code. If the work code is equal to code1 or code2 or code3, it will print out the representative code. This is because we have declared and initialize String code1= “DPL45”, String code2= “DCL51” and String code3= “DPP441”. And then, after the system receives information like hours, salary per hour and allowance, the system will calculate the net salary. And finally, the system will display the pay slip.

```
116
117⊖    public static void main(String[] args) {
118         Scanner sc=new Scanner (System.in);
119         char choose;
120
121             employees e=new employees();
122             e.welcome();
123             e.userinfo();
124
125             System.out.println ();
126             System.out.println ("Do you want to return to main menu?");
127             System.out.println ("Press Y considered as yes and N vice versa.");
128             choose=sc.next().charAt(0);
129
130             if (choose=='y' || choose=='Y') {
131                 MainMenu m = new MainMenu();
132                 m.main(args);
133             }
134         do {
135             System.exit(0);
136         }
137         while (choose!='y' || choose!='Y');
138
139         sc.close();
140     }
141
142
143 }
```

Lastly, in the main method we will print out the *welcome* and *userinfo* method. Class declaration is provided as we use *main* method as the main class. And then, system will ask user if they want to return to main menu or not. System will give a choice to user by enter ‘N’ or ‘Y’. If user choose ‘Y’, the system will return to main menu by declare the class of main menu in the system and if user choose ‘N’, the system will stop and exit.

2.3. Student Facilities

```
package Topic_University;
import java.util.Scanner;
public class Student {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner scan = new Scanner(System.in);
        int choice; double balanceFee; double collegeFee = 160.99; ; int sem; String nationality;


          String []national = {"Malaysia", "Foreigner"};



              System.out.println("Based on the info please key in your choice in the next question.");
              System.out.println("------------------------------------------------------ ");
              System.out.println(" For Malaysian please key in number 0 ");
              System.out.println(" For foreigner please key in number 1 ");
              System.out.println("------------------------------------------------------ ");
              System.out.println("Please key in your nationality : ");
              int number = scan .nextInt();
              System.out.println(national [number]);


                    if (number==0){
                malaysian();

                    }
                    else if (number==1){
                        foreign();


                    }
```

Firstly, all the variables that consist of a few data types such as int, double and string were declared at the beginning of the coding before the main method. Int choice was declared as it is for college residential choice, double balanceFee for the total balance fee, double collegeFee for the college residential fee, int sem for student current semester and lastly string nationality which consist of two nationalities, a Malaysian or a foreigner. There are two methods in the main methods which is *foreigner* and *Malaysia.* The main method national, a new String [] is declared which holds the array and have its elements inputted which is “Malaysia” and “Foreigner”.

```
    }
    public static void foreign() {
              Scanner scan= new Scanner(System.in);


              int number; int choice; double balanceFee; double collegeFee = 160.99; String nationality; String name; int sem;

     System.out.println("Welcome to UUM Portal.");
     System.out.println("Please make sure you complete all part.");
     System.out.println("---------PART 1---------");
     System.out.println("\nPlease key in your detail");
     System.out.println("Name: ");
     name = scan.nextLine();


                 System.out.println("Semester: ");
     sem = scan.nextInt();
```

In the foreign method, the system will print out “Welcome to UUM Portal” to welcome the student. Then, scanner is used to get the input from users. System will print out a few questions about student’s details to the users in the program. Students need to key in their details.

```
System.out.println("Based on the info below please answer the next question.");
    System.out.println("-------------------------------------------------------------------------------------------------------------------------------");
    System.out.println("For foreigner/International Student you are given only one choice of residential college to choose:");
    System.out.println("  OPTION 1 - SYED RESIDENTIAL COLLEGE");
    System.out.println("NOTES: THE SYED RESIDENTIAL COLLEGE WILL CHARGE YOU THREE TIMES MORE THAN ZAIN RESIDENTIAL COLLEGE PRICE");
    System.out.println("-------------------------------------------------------------------------------------------------------------------------------");
    System.out.println("Please key in your choice:");
    choice = scan.nextInt();


  balanceFee = (collegeFee*3);
  balanceFee = balanceFee;
  System.out.println("Your current balance fee is: " +balanceFee);

  System.out.printf("The balance fee that you need to pay is: %.2f\n" ,balanceFee);
```

After students have done key in all their details the system will print out the info that students need to take note of before answering the next question. The notes mention that a foreign student can only choose choice 1 (Syed Residential College) as their college residential choice. The system will print out the output asking the students to key in their answer. The system will then calculate the current balance fee. As mentioned in the notes, the system will calculate the collegeFee times 3 because choice 1 has charged students 3 times more than choice 2 then the system will print out the current balance fee.

```
            System.out.println("---------PART II---------");
            System.out.println("Based on the info below please answer the next question.");
            System.out.println("-----------COCURICULUM MARK RANGE-----------");
            System.out.println("Number 1- TOTAL COCURICULUM MARK FROM 0 TO 10");
            System.out.println("Number 2- TOTAL COCURICULUM MARK FROM 11 TO 20");
            System.out.println("Number 3- TOTAL COCURICULUM MARK FROM 21 TO 30");
            System.out.println("Number 4- TOTAL COCURICULUM MARK FROM 31 TO 40");
            System.out.println("Number 5- TOTAL COCURICULUM MARK FROM 41 TO 50");
            System.out.println("Number 6- TOTAL COCURICULUM MARK FROM 51 TO 60");
            System.out.println("Number 7- TOTAL COCURICULUM MARK FROM 61 TO 69");
            System.out.println("Number 8- TOTAL COCURICULUM MARK FROM 70 TO 80");
            System.out.println("Number 9- TOTAL COCURICULUM MARK FROM 80 TO 90");
            System.out.println("Number 10- TOTAL COCURICULUM MARK FROM 90 TO 100");
System.out.println("Please key in the number based on the range of your total cocuriculum mark:");
                number = scan.nextInt();
```

Part II consists of the info of the range of total cocurricular marks that will be printed out. Based on the info students were asked to key in the number to show their total cocurricular mark range.

```
switch (number) {
    case 1:
        System.out.println("TOTAL COCURICULUM MARK FROM 0 TO 10");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 2:
        System.out.println("TOTAL COCURICULUM MARK FROM 11 TO 20");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 3:
        System.out.println("TOTAL COCURICULUM MARK FROM 21 TO 30");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 4:
        System.out.println("TOTAL COCURICULUM MARK FROM 31 TO 40");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 5:
        System.out.println("TOTAL COCURICULUM MARK FROM 41 TO 50");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 6:
        System.out.println("TOTAL COCURICULUM MARK FROM 51 TO 60");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 7:
        System.out.println("TOTAL COCURICULUM MARK FROM 61 TO 69");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 8:
        System.out.println("TOTAL COCURICULUM MARK FROM 70 TO 80");
        System.out.println("Congratulation you have successfully receive 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 9:
        System.out.println("TOTAL COCURICULUM MARK FROM 81 TO 90");
        System.out.println("Congratulation you have successfully receive 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 10:
        System.out.println("TOTAL COCURICULUM MARK FROM 91 TO 100");
        System.out.println("Congratulation you have successfully receive 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    default:
        System.out.println("Please enter valid number");
```

By using switch, student's answer from the previous question will be operated. The system will print out the output based on the number.

```
        }

        if(number == 8 || number==9 || number==10){
            balanceFee = (collegeFee*3);
         balanceFee = (balanceFee*0.2);

       System.out.printf("The balance fee that you need to pay is: %.2f\n" ,balanceFee);
```

```
        System.out.println("-------------------------------------------------------------------------");
        System.out.println();
        System.out.println("Student's Details");
        System.out.println("Name: \t \t \t \t \t" +name);
        System.out.println("Semester: \t \t \t \t" +sem);
        System.out.println("Nationality: \t \t \t\tForeigner ");
        System.out.println("College Residential choice: \t \t" +choice);
        System.out.println("Total Balance Fee: \t \t \tRM" +balanceFee);
        System.out.println();
        System.out.println("-------------------------------------------------------------------------");
}
```

```
          else {
           balanceFee = (collegeFee*3);
        System.out.println("The balance fee that you need to pay is: " +balanceFee);

        System.out.println("-------------------------------------------------------------------------");
        System.out.println();
        System.out.println("Student's Details");
        System.out.println("Name: \t \t \t \t \t" +name);
        System.out.println("Semester: \t \t \t \t" +sem);
        System.out.println("Nationality: \t \t \t\tForeigner ");
       System.out.println("College Residential choice: \t \t" +choice);
       System.out.println("Total Balance Fee: \t \t \t" +balanceFee);
       System.out.println();
       System.out.println("-------------------------------------------------------------------------");

         }
         }
```

If the student key in number below than 8 and between 1 to 7 showing that the student gets curricular mark below than 70, the system will calculate the total balance fee without 80% of discount. Besides if the students key in number 8,9 or 10 the 80% of discount will be calculated together in the calculation. The system will display all the output at the end of the session. The total balance fee which has been calculated before will also be displayed. The main method ends.

```
public static void malaysian(){
 int number; int choice;  double balanceFee = 0; double collegeFee = 160.99; int totalCocuMark = 0; String nationality; String name; int sem;
 Scanner scan = new Scanner(System.in);

System.out.println("Welcome to UUM Portal.");
System.out.println("Please make sure you complete all part.");
System.out.println("---------PART 1---------");
System.out.println("\nPlease key in your detail");
System.out.println("Name: ");
name = scan.nextLine();

      System.out.println("Semester: ");
      sem = scan.nextInt();

   System.out.println("Based on the info below please answer the next question.");
      System.out.println("-------------------------------------------------------------------------------------------------------------------------------------------");
      System.out.println("For Malaysian student you are given to choose your college residential based on the option given:                                          ");
      System.out.println("  OPTION 1 - SYED RESIDENTIAL COLLEGE \nNotes: This option will charge three time more than option 2          ");
      System.out.println("  OPTION 2 - ZAIN RESIDENTIAL COLLEGE \t\tRM160.99                                                                                    ");
      System.out.println("-------------------------------------------------------------------------------------------------------------------------------------------");
      System.out.println("Please key in your choice:");
```

The second method is Malaysian. In this method, the system will print out “Welcome to UUM Portal” to welcome the student. Then, scanner is used to get the input from users. System will print out a few questions about student’s details to users in the program. Students need to key in their details. After students have done key in all their details the system will print out the info that students need to take note of before answering the next question. The notes mention that Malaysian students are given to choose between two choices which is choice 1 (Syed Residential College) or choice 2 (Zain Residential College) as their college residential choice. The system will print out the output asking the students to key in their answer. The system will then calculate the current balance fee. As mentioned in the notes, the system will calculate the collegeFee times 3 if student key in number 1 because choice 1 has charged students 3 times more than choice 2 and the system will print out the current balance fee. But if the student key in number 2 the system will calculate the current balance fee and print out the current balance fee.

```
            choice = scan.nextInt();


            if(choice != '1')
           {
           balanceFee = (collegeFee);
           System.out.println("Your current balance fee is: " +balanceFee);
           }else if(choice =='1') {
            balanceFee = (collegeFee*3);
               System.out.println("Your current balance fee is: " +balanceFee);
               System.out.printf("The balance fee that you need to pay is: %.2f\n" ,balanceFee);

           }

              System.out.println("---------PART II---------");
           System.out.println("Based on the info below please answer the next question.");
           System.out.println("-----------COCURICULUM MARK RANGE-----------");
System.out.println("Number 1- TOTAL COCURICULUM MARK FROM 0 TO 10");
           System.out.println("Number 2- TOTAL COCURICULUM MARK FROM 11 TO 20");
           System.out.println("Number 3- TOTAL COCURICULUM MARK FROM 21 TO 30");
           System.out.println("Number 4- TOTAL COCURICULUM MARK FROM 31 TO 40");
           System.out.println("Number 5- TOTAL COCURICULUM MARK FROM 41 TO 50");
           System.out.println("Number 6- TOTAL COCURICULUM MARK FROM 51 TO 60");
           System.out.println("Number 7- TOTAL COCURICULUM MARK FROM 61 TO 69");
           System.out.println("Number 8- TOTAL COCURICULUM MARK FROM 70 TO 80");
           System.out.println("Number 9- TOTAL COCURICULUM MARK FROM 80 TO 90");
           System.out.println("Number 10- TOTAL COCURICULUM MARK FROM 90 TO 100");
              System.out.println("Please key in the number based on the range of your total cocuriculum mark:");
           number = scan.nextInt();
```

If and else if was used, the system will calculate current balance fee based on the number that student key in. Part II consists of the info of the range of total cocurricular marks will be printed out. Based on the info students were asked to key in the number to show their total cocurricular mark range.

```
switch (number) {
    case 1:
        System.out.println("TOTAL COCURICULUM MARK FROM 0 TO 10");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 2:
        System.out.println("TOTAL COCURICULUM MARK FROM 11 TO 20");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 3:
        System.out.println("TOTAL COCURICULUM MARK FROM 21 TO 30");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 4:
        System.out.println("TOTAL COCURICULUM MARK FROM 31 TO 40");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 5:
        System.out.println("TOTAL COCURICULUM MARK FROM 41 TO 50");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 6:
        System.out.println("TOTAL COCURICULUM MARK FROM 51 TO 60");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 7:
        System.out.println("TOTAL COCURICULUM MARK FROM 61 TO 69");
        System.out.println("Sorry you failed to get 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 8:
        System.out.println("TOTAL COCURICULUM MARK FROM 70 TO 80");
        System.out.println("Congratulation you have successfully receive 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 9:
        System.out.println("TOTAL COCURICULUM MARK FROM 81 TO 90");
        System.out.println("Congratulation you have successfully receive 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    case 10:
        System.out.println("TOTAL COCURICULUM MARK FROM 91 TO 100");
        System.out.println("Congratulation you have successfully receive 80% discount.");
        System.out.println("The system will calculate your balance fee");
        break;
    default:
        System.out.println("Please enter valid number");
```

By using switch, student's answer from the previous question will be operated. The system will print out the output based on the number.

```
        break;
}


        if(number ==8 || number==9 || number==10) {
         balanceFee = (balanceFee*0.2);
        }else {
         balanceFee = balanceFee;

            System.out.printf("The balance fee that you need to pay is: %.2f\n" ,balanceFee);
        }
```

By using if else, the total balance fee that student need to pay is calculated. 80% of discount will be calculated together in the calculation if the student has key in number between number 8 to number 10. Besides, if the students key in number beside than number 8,9 and 10, no discount will be given and the calculation will not include the discount. The system will print out the balance fee.

```
        System.out.println("--------------------------------------------------------------------------");
        System.out.println();
        System.out.println("Student's Details");
        System.out.println("Name: \t \t \t \t \t" +name);
        System.out.println("Semester: \t \t \t \t" +sem);
        System.out.println("Nationality: \t \t \t\tMalaysia");
        System.out.println("College Residential choice: \t \t" +choice);
        System.out.println("Total Balance Fee: \t \t \t" +balanceFee);
        System.out.println();
        System.out.println("--------------------------------------------------------------------------");

                }
}
```

The system will display all the output at the end of the session. The total balance fee which has been calculated before will also be displayed. The main method ends.

2.4. Course Registration

```
import java.util.Scanner;
public class course {

    private static Scanner sc;
    //Main method
        public static void main(String[] args) {
            // TODO Auto-generated method stub
            userinfo();
            registeredcourse();
            secondlevelcourse();
            registrationconfirmation();
        }
```

There are four methods in main method which are *userinfo, registeredcourse, secondlevelcourse* and *registrationconfirmation.*

```
//User info method
public static void userinfo() {
    sc = new Scanner (System.in);

    System.out.println("Welcome!");
    System.out.println("We would like to know your information.");
    System.out.print("Enter your name: ");
    String name = sc.nextLine();
    System.out.print("Enter your id: ");
    String id = sc.next();
    System.out.print("Enter your semester: ");
    String sem = sc.next();
    System.out.println();

    String ui [][] = {{"Name\t: ", "ID\t: ", "Semester: "},
                      {name, id, sem}};

    userINFO(ui);
    System.out.println();
}

public static void userINFO(String UI [][]) {
    System.out.println("USER INFO:");
    System.out.println(UI[0][0] + UI[1][0]);
    System.out.println(UI[0][1] + UI[1][1]);
    System.out.println(UI[0][2] + UI[1][2]);
}
```

For the first method, *userinfo*, users is informed to fill up their personal information in order to proceed. In this method, scanner is used to get the input from users. System will print out the questions to users in program. Each questions is declared with its own corresponding string with the implementation of 2D array is in this method. The array consists of the questions

and also the input from users for each questions. Then, the info will be stored in the array and passed to userINFO method to print out the data of users' personal information.

```
//Registered course method
public static void registeredcourse() {
    sc = new Scanner (System.in);

    System.out.print("REGISTERED COURSE:\n");
    System.out.println("You've registered 3 courses in last semester");
    System.out.println("These are the courses that you've registered.");
    for (int i = 0; i < 60; i++) {
        System.out.print("_");
    }
    System.out.println();

    int course [] = {1,2,3};
    String cName [] = {"STIA1113", "STQS1023", "STQM1203"};
    int t1 [] = {36,20,15};
    int t2 [] = {36,20,15};
    int cw [] = {18,16,14};
    int totMark [] = {90,56,44};
    double GPA [] = {4.00,2.33,1.33};
    int attTime [] = {18,15,20};
    int totAttTime = 20;

    for(int i=0; i<course.length; i++) {
        System.out.println("\nCourse " +course[i]+ "\t\t\t: " +cName[i]);
        System.out.println("Test 1 Marks\t\t\t: " +t1[i]+ "%");
        System.out.println("Test 2 Marks\t\t\t: " +t2[i]+ "%");
        System.out.println("Coursework Marks\t\t: " +cw[i]+ "%");
        System.out.println("Total Marks\t\t\t: " +totMark[i]+ "%");
        System.out.printf("GPA\t\t\t\t: %.2f\n" ,GPA[i]);
        System.out.println("Attended Times\t\t\t: " +attTime[i]);
        System.out.println("Maximum Attended Times\t\t: " +totAttTime+ " days");
        System.out.println("Attendance rate\t\t\t: " +((double) attTime[i] / totAttTime)*100+ "%");
    }

    for (int i = 0; i < 60; i++) {
        System.out.print("_");
    }
    System.out.println();
}
```

For the second method, *registeredcourse*, the details of courses registered are stored in various type of array. Data type such as integer, string and double is used to store user's course information such as course code, course mark, GPA and attended time. With the use of for loop repititon structure, the course details in the array will be printed out. Hence, users can read through and see the result of their registered course in last sem.

```
// Second level course registration method
public static void secondlevelcourse() {
    sc = new Scanner (System.in);

    int minAttRate = 80;
    double minGPA = 2.00;
    String cName [] = {"STIA1113", "STQS1023", "STQM2103"};
    String scdCName [] = {"STIA1123", "STQS1023", "STQM1203"};
    int totAttTime = 20;
    double GPA [] = {4.00,2.33,1.33};
    double att1 = (double) 18 / totAttTime;
    double attRate1 = att1 * 100;
    double att2 = (double) 15 / totAttTime;
    double attRate2 = att2 * 100;
    double att3 = (double) 20 / totAttTime;
    double attRate3 = att3 * 100;

    System.out.println("Which second-level course you would like to register?");
    System.out.println("Press:\n (1) STIA1123 \n (2) STID3113 \n (3) STQM2103");
    System.out.print("Your answer: ");
    int scdLvlCourse = chooseCourse();
    System.out.println();
```

For the third method, *secondlevelcourse*, various type of data type is also used here, such as integer, double and string. The array is also used to stored information of registered course code and their GPA and second-level course code. The requirements to register a second-level course would need a minimum attendance rate of 80% and minimum GPA of 2.00 and above. The registered course attended times is stored and calculated. After that, the system will ask user about which second-level course they would like to register by giving them option. The option is (1), (2) and (3), which is STIA1123, STID3113 and STQM2103 respectively. As the system will read the user input in *chooseCourse* method. Then the input will be set as the variable 'scdLvlCourse'.

```
while((!(scdLvlCourse == 1)) && (!(scdLvlCourse == 2)) && (!(scdLvlCourse == 3))){
    System.out.println("Invalid course.");
    System.out.print("Please enter a valid number (1-3): ");
    scdLvlCourse = sc.nextInt();
    System.out.println();
    }

if(scdLvlCourse == 1){
    System.out.println(scdCName[0]+ " requirements: ");
    System.out.println("Completed STIA1113 with GPA " +String.format("%.2f",minGPA)+
                    " and attendance rate " +minAttRate+ "% or above.");
    System.out.println();
    System.out.printf(cName[0]+ " GPA\t\t: %.2f\n" ,GPA[0]);
    System.out.println(cName[0]+ " Attendance Rate: " +attRate1+ "%");

    if ((GPA[0]>=2.00) && (attRate1>=80)) {
        System.out.print("You've passed the GPA and attendance rate requirements.\n")
        System.out.print(scdCName[0]+ " registered successfully!\n");
    }

    else if ((GPA[0]>=2.00) && (attRate1<=79)) {
        System.out.print("You've passed the GPA requirement but failed to fulfilled "
                + "attendance rate, please retake the course.\n");
    }

    else if ((GPA[0]<=1.99) && (attRate1>=80)) {
        System.out.print("You've passed the attendance rate requirement but failed to
                + "fulfilled GPA, please retake the course.\n");
    }

    else {
        System.out.print("You've failed both GPA and attendance rate requirements, "
                + "please retake the course.\n");
    }
}

else if(scdLvlCourse == 2){
    System.out.println(scdCName[1]+ " requirements: ");
    System.out.println("Completed STQS1023 with GPA " +String.format("%.2f",minGPA)+
                    " and attendance rate " +minAttRate+ "% or above.");
    System.out.println();
    System.out.printf(cName[1]+ " GPA\t\t: %.2f\n" ,GPA[1]);
    System.out.println(cName[1]+ " Attendance Rate: " +attRate2+ "%");
```

After user input the number, the system will start to read the input. While loop repetition control is used to make sure user only input the option given, which is 1, 2 and 3. Any other number inputted will be categorized as invalid number, and it will ask user to input the value again until the correct number is inputted.

Next, if-else selection control structure is used. When user input 1, 2 or 3, the second-level course requirements will be printed out. For example, when user input number 1, the STIA1123 requirements will list out as user need to complete STIA1113 with GPA 2.00 and attendance rate 80 % or above. The result of STIA1113 will later be print out, which is GPA and attendance rate. Then inside the if-else control structure, another if-else control structure is used to detect whether user is qualified to register the course chosen.

There will be four categories of qualifications. The first one is user passed STIA1113 with GPA more than 2.00 and attendance rate more than 80%. After the requirements is fulfilled, the system will print out "You've passed the GPA and attendance rate requirements." and "STIA1123 registered successfully!". The second one is user passed STIA1113 with GPA more than 2.00 but attendance rate less than 80%. After the requirements is fulfilled, the system will print out "You've passed the GPA requirement but failed to fulfilled attendance rate, please retake the course." The third one is user passed STIA1113 with attendance rate more than 80% but GPA less than 2.00. After the requirements is fulfilled, the system will print out "You've passed the attendance rate requirement but failed to fulfilled GPA, please retake the course." The last one is user failed both GPA and attendance rate. Then the system will print out "You've failed both GPA and attendance rate requirements, please retake the course." The process will be the same if user input 2 or 3 but the second-level course code and the registered course will be the only difference as the requirements and qualifications of the registration are the same.

```
public static int chooseCourse() {
    sc = new Scanner (System.in);
    int scdLvlCourse = sc.nextInt();
    return scdLvlCourse;
}
```

This method is used to read the value inputted by user in *secondlevelcourse* method. The value then will be return and called by the *secondlevelcourse* method.

```
// Registration confirmation
public static void registrationconfirmation() {
    sc = new Scanner (System.in);

    String answer = " ";
    do {
    System.out.print("\nDo you wish to register another course? (Y/Any key): ");
    answer = sc.next();
    System.out.println();
        if ((answer.equals("y")) || (answer.equals("Y"))) {
            secondlevelcourse();
        }

        else {
            System.out.println("Thanks for using the system.");
        }
    }
    while ((answer.equals("y")) || (answer.equals("Y")));
}
```

For the fourth method, *registrationconfirmation*, the system will ask user whether they wish to register another course by giving them option 'Y' as "yes" and 'Any key' as "no". A variable 'answer' with the string data type is declared by giving the value of "". After system ask the question, the user input will be read and scan, then if-else selection control structure is implemented. If the user input 'y' or 'Y' which mean answer equals to y or Y, it will return to the *secondlevelcourse* method to make another course registration. Else the system will complete its service here and return to the main menu. The do-while loop is to make sure the condition will be triggered if user input value of 'y' or 'Y', while the condition will reach to ending the system's service when user enter any key.

2.5. Library Fees and Charge

```
package university;
import java.util.Arrays;
import java.util.Scanner;

public class Library3Test {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Scanner sc = new Scanner(System.in);

        int yearCode;
        float totalFine;
        char excuse;
        float discountedFine = 0;
        int numBooks;
        String excuseDesc = " ";
        float bookFine;
        float sum = 0;

        String [] a;
        a = studentInfo();
```

The variables are declared at the beginning of the main method. An assortment of data type is used which are int, float, char, and String. For int data types, there are yearCode(used to declare variables for a student's year of study) and numBooks(the number of books borrowed by the student). Only one variable uses String which is excuseDesc(used to input the student's given excuse). Char excuse is used to ask if the student has an excuse or not for their late book submission. For float data types, there are totalFine(total amount of fine for all books), discountedFine(if the student has a valid excuse), bookFine(fine for each book), and sum. String [] a is declared which holds the array of the student's info from the method *studentinfo*.

```
public static String[] studentInfo () {
    Scanner sc = new Scanner (System.in);
    String [] studentinfo = new String [3];

    System.out.println("Enter student's name, ID,"
    + "and year of study(separated by ENTER key): ");

    for (int i = 0; i < studentinfo.length; i++) {
        studentinfo[i] = sc.nextLine();
    }
    return studentinfo;
}
```

For the first method(*studentinfo*), a new String [] is declared which holds the array and have its elements inputted by the user. It will hold 3 elements which are the student's name, the student's ID number, and their year of study. The method shall then return the array to a String in the main method.

```
yearCode = Integer.parseInt(a[2]);

System.out.println("Does the student have a valid excuse? Enter y or n");
excuse = sc.nextLine().charAt(0);

if (excuse == 'y') {
    System.out.println("Enter student's excuse. ");
    excuseDesc = sc.nextLine();
}
else
    System.out.println();
```

From String a[], the program will take the third element and parse it into int data type to be used later in the calculation of the late submission fee. Then, a prompt will appear that asks if whether the student has a valid excuse in returning their books late. If they do have an excuse, the program will make another prompt to enter the student's given excuse. Otherwise, the program will carry on.

```
do {
    System.out.println("Enter number of books late: ");
    numBooks = sc.nextInt();

} while (!isValid(numBooks));

String b[][];
b = bookinfo(numBooks);

int bookfee [][] = new int [100][];
for (int i = 0; i < numBooks; i++) {
    bookfee[i] = new int [1];
    bookfee[i][0] = Integer.parseInt(b[i][2]);
}

System.out.println();
```

Using DoWhile, the program asks for the number of books borrowed by the student. Only valid numbers entered will make the program carry on. If the numbers are invalid, the program will ask the question again and again until a valid number is given. This all takes place in the method *isValid*. Then, a 2-dimensional array is declared, b [] [] which holds the array inputted in

the method *bookinfo*. Then, a data type int bookfee [][] is declared and initialized. Using for, the program will loop and use elements from String b[][] to store the base fee for the book.

```
public static String[][] bookinfo (int x) {
    Scanner sc = new Scanner (System.in);
    String [][] bookinfo = new String [100][];
    for (int i = 0; i < x; i++) {
        bookinfo[i] = new String [3];
        System.out.println("Enter book title, book ISBN, and "
        + "number of days late of book " + (i + 1) + " (separated by ENTER key)");
        for (int j = 0; j < bookinfo[i].length; j++) {
            bookinfo[i][j] = sc.nextLine();
        }
    }
    return bookinfo;
}
```

The second method is *bookinfo*. It holds the array for all of the info of the book which is the book title, the book's ISBN, and the number of days late for the book. Using the for loop, it takes all the input from the user and assigns it to each element. It will then return the value back to main method.

```
public static boolean isValid (int b) {
    if (b > 3) {
        System.out.println("Maximum number of books allowed to be borrowed at a time is 3. Try again.");
        return false;
    }

    if (b < 1) {
        System.out.println("Number cannot be 0. Try again.");
        return false;
    }
    else return true;
}
```

The third method, *isValid* is used to tell whether the number entered by user for numBooks is valid or not. If it is not valid, the program will ask the user to enter a valid number.

```
System.out.println("============================================================");
System.out.println();
System.out.println("*Student Info");

System.out.println("Student's name: " + a[0]);
System.out.println("Student's ID: " + a[1]);
System.out.println("Student's year of study: " + a[2]);
System.out.println();

System.out.println("------------------------------------------------------------");
System.out.println("*Book Info");

for (int i = 0; i < numBooks; i++) {
    System.out.println("Book " + (i + 1) + " title: " + b[i][0]);
    System.out.println("Book " + (i + 1) + " ISBN: " + b[i][1]);
    System.out.println("Number of days late for book " + (i + 1) + " : " + b[i][2]);
    System.out.printf("Fee for this book: RM" + "%.2f",(((float)bookfee[i][0] * (float)yearCode)) + (float)bookfee[i][0]);
    System.out.println();
    System.out.println();
}

    for (int i = 0; i < numBooks; i++) {
        bookFine = bookfee[i][0] * yearCode;
        sum = sum + bookFine;
    }

    if (excuse == 'y') {
        totalFine = sum;
        discountedFine = (float) (totalFine * 0.8);
        System.out.println("Excuse: " + excuseDesc);
        System.out.printf("Total discounted fee is: RM" + "%.2f",discountedFine);
    }
    else {
        totalFine = sum;
        System.out.printf("Total fee is: RM" + "%.2f",totalFine);
    }
    System.out.println();

    System.out.println();
    System.out.println("------------------------------------------------------------");
    System.out.println();
    System.out.println("============================================================");

}
```

The program prints out the output in receipt form. It first outputs the student's info using elements from String a []. Then, it prints out individual book info as well as the fee for each book. Then, it calculates the sum of all fee using for loop, which accumulates the value. If the student had a valid excuse earlier, then they will receive a 20% discount on their fee. If not, then there will be no discount. The main method then ends.

2.6. Medical Survey

```
package assignment1;
import java.util.Scanner;
public class LastUniversity {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Scanner sc = new Scanner (System.in);

        double anxiety = 25.0;
        double depression = 32.0;
        double aCom = 2.25;
        double aAcc = 1.50;
        double dLaw = 3.52;
        double dCom = 2.88;

        double computingA;
        double accountA;

        double nlawD ;
        double ncomputingA;
        double ncomputingD;
        double naccountA;

        double lawD;
        double computingD;
```

Firstly, data type double is used to initialize and declare the value for Anxiety test, Depression test, Anxiety test (School of Computing), Anxiety test (School of Accounting), Depression test (School of Law), Depression test (School of Computing).

```
System.out.println("This program will help you to calculate number of students of different school");
System.out.println("");
System.out.println("Based on the survey: ");
System.out.println("                    -Anxiety test    = " + anxiety + "%");
System.out.println("                    -Depression test = " + depression + "%");
System.out.println("                    -Anxiety test (School of Computing)     = " + aCom + "%");
System.out.println("                    -Anxiety test (School of Accounting)    = " + aAcc + "0%");
System.out.println("                    -Depression test (School of Law)        = " + dLaw + "%");
System.out.println("                    -Depression test (School of Computing)  = " + dCom + "%");
System.out.println("");
```

The system will then print out the value that has been initialized before to help users get information from the survey.

```
System.out.print("Enter percentage of students have anxiety in School of Computing  = ");
computingA = sc.nextDouble();
System.out.print("Enter percentage of students have anxiety in School of Accounting = ");
accountA = sc.nextDouble();
System.out.println("");

System.out.println("Percentage of students in School of Computing who have anxiety  = " + computingA + "%");
ncomputingA = (computingA/25) * 100;
System.out.println("Percentage of students in School of Accounting who have anxiety = " + accountA + "0%");
naccountA = (accountA/25) * 100;

double nlb = 25 - (ncomputingA+naccountA)  ;
double nlawA = nlb/2 ;
double nbusinessA = nlb/2 ;
double lbpercent = (nlawA * 25) / 100 ;

System.out.println("Percentage of students in School of Law who have anxiety        = " + lbpercent + "%");
System.out.println("Percentage of students in School of Business who have anxiety   = " + lbpercent + "%");
System.out.println("");
```

Users then need to enter the exact value of the percentage of students who have anxiety in School of Computing and School of Accounting based on the result in the survey. Then, the system will calculate the number of students for these schools using the percentage value that users have entered. Next, to get the exact value of the percentage of students who have anxiety in the other school which is School of Law and School of Business this system will calculate by subtract the remaining value. The number of students who have anxiety in each school will be keep after the system finishes calculating the value.

```
System.out.print("Enter percentage of students have depression in School of Law       = ");
lawD = sc.nextDouble();
System.out.print("Enter percentage of students have depression in School of Computing = ");
computingD = sc.nextDouble();
System.out.println("");

System.out.println("Percentage of students in School of Law who have depression          = " + lawD + "%");
nlawD = (lawD/32) * 100;
System.out.println("Percentage of students in School of Computing who have depression    = " + computingD + "%");
ncomputingD = (computingD/32) * 100;

double nba = 32 - (nlawD+ncomputingD)  ;
double nbusinessD = nba/2 ;
double naccountD = nba/2 ;
double bapercent = (naccountD * 32) / 100 ;
```

Then, the same step will be repeated to determine the exact value of the percentage of students who have depression in School of Law and School of Computing. Users need to enter the value and the system will calculate the number of students for these schools.

```
int a = (int) nlawA;
int b = (int) ncomputingA;
int c = (int) nbusinessA;
int d = (int) naccountA;

int e = (int) nlawD;
int f = (int) ncomputingD;
int g = (int) nbusinessD;
int h = (int) naccountD;

int aM =  0;
int bF =  6;
int cM =  1;
int dF =  4;
int eM =  4;
int fF =  5;
int gM =  2;
int hF =  3;

int aF = a - 0;
int bM = b - 6;
int cF = c - 1;
int dM = d - 4;
int eF = e - 4;
int fM = f - 5;
int gF = g - 2;
```

Next, to convert the value from double to int data type the system uses casting to get the integer value for number of students in each school. Data type int is used to initialize and declare the value for male and female student in each school who have done the anxiety and depression test based on the survey.

```
System.out.println("Percentage of students in School of Business who have depression     = " + bapercent + "%");
System.out.println("Percentage of students in School of Accounting who have depression   = " + bapercent + "%");
System.out.println("");

System.out.println("Here is the result : ");
System.out.println(" ");
System.out.println("Anxiety Test");
System.out.println(" ");
System.out.println(" ---------------------- " + " -------------------------- " + " ---------------------------- " + " ---------- " + " ---------- " + " ---------- ");
System.out.println("|        School        |" + "| Percentage of students(%) |" + "| Total Number of students |" + "| Female students |" + "| Male students |");
System.out.println("|     School of Law    |" + "|            " + lbpercent +  "          |" + "|            "+   a +"          |" + "|        "+   aF +"       |" + "|        "+   aM +"       |");
System.out.println("|  School of Computing |" + "|            " + computingA + "          |" + "|            "+   b +"          |" + "|        "+   bF +"       |" + "|        "+   bM +"       |");
System.out.println("|  School of Business  |" + "|            " + lbpercent +  "          |" + "|            "+   c +"          |" + "|        "+   cF +"       |" + "|        "+   cM +"       |");
System.out.println("| School of Accounting |" + "|            " + accountA +   "          |" + "|            "+   d +"          |" + "|        "+   dF +"       |" + "|        "+   dM +"       |");
System.out.println(" ---------------------- " + " -------------------------- " + " ---------------------------- " + " ---------- " + " ---------- " + " ---------- ");

System.out.println(" ");
System.out.println("Depression Test");
System.out.println(" ");
System.out.println(" ---------------------- " + " -------------------------- " + " ---------------------------- " + " ---------- " + " ---------- " + " ---------- ");
System.out.println("|        School        |" + "| Percentage of students(%) |" + "| Total Number of students |" + "| Female students |" + "| Male students |");
System.out.println("|     School of Law    |" + "|            " + lawD +  "          |" + "|            "+   e +"          |" + "|        "+   eF +"       |" + "|        "+   eM +"       |");
System.out.println("|  School of Computing |" + "|            " + computingD + "          |" + "|            "+   f +"          |" + "|        "+   fF +"       |" + "|        "+   fM +"       |");
System.out.println("|  School of Business  |" + "|            " + bapercent +  "          |" + "|            "+   g +"          |" + "|        "+   gF +"       |" + "|        "+   gM +"       |");
System.out.println("| School of Accounting |" + "|            " + bapercent +  "          |" + "|            "+   h +"          |" + "|        "+   hF +"       |" + "|        "+   hM +"       |");
System.out.println(" ---------------------- " + " -------------------------- " + " ---------------------------- " + " ---------- " + " ---------- " + " ---------- ");
```

All of the value and data that have been calculated will be printed out in table form. In the table there will be data for Name of School, Percentage of Students, total number of Students, Female Students, and Male Students.

```
System.out.println("Data below show the level of anxiety and depression of a student");
System.out.println("Anxiety level    : ");
System.out.println("                 0-5   -> minimal anxiety");
System.out.println("                 6-10  -> moderate anxiety");
System.out.println("                 11-20 -> severe anxiety");
System.out.println();
System.out.println("Depression level : ");
System.out.println("                 1-6   -> minimal depression");
System.out.println("                 7-12  -> moderate depression");
System.out.println("                 13-20 -> severe depression");
System.out.println();
System.out.println("Based on the table:");
StudentAnxiety();
passArraytomethodA.mainA(args);
System.out.println();
StudentDepress();
passArraytomethodD.mainD(args);

sc.close();
```

The system will print out the information for users to know on what level they are based on their score. There are three levels on each test which are minimal, moderate and severe. While for the method there are four methods in main method which is *StudentAnxiety*, *passArraytoMethodA.mainA*, *StudentDepress* and *passArraytoMethodA.mainD*.

```
public int maxA(int [] array) {
      int maxA = 0;
      for(int i=0; i<array.length; i++ ) {
         if(array[i]>maxA) {
            maxA = array[i];
         }
      }
      return maxA;
   }


public int minA(int [] array) {
      int minA = array[0];

      for(int i = 0; i<array.length; i++ ) {
         if(array[i]<minA) {
            minA = array[i];
         }
      }
      return minA;
   }
```

For the first method, we use method maxA to get the maximum value of the score while method minA to get the minimum value of the score based on the data. These two methods are using return value to call the value of maximum and minimum score of anxiety test.

```
public class passArraytomethodA {
public static void mainA (String args[]) {

      Scanner sc = new Scanner (System.in);
      int minAB = 0;
      int modAB = 0;
      int sevAB = 0;
      System.out.print("Enter total number of students who have anxiety : ");
      int size = sc.nextInt();
      int[] myArray = new int[size];
      System.out.println("Enter their score : ");

      for(int i=0; i<size; i++) {
         System.out.print("Result for the " + (i + 1) + " student (0-20) = ");
         myArray[i] = sc.nextInt();

         if (myArray[i] <= 5) {
              minAB += 1;
              }
        else if (myArray[i] <= 10 ) {
              modAB += 1;}
        else {
              sevAB += 1;}
      }
```

Then, the system will initialize and declare all of the level to value 0 to start counting the number of students on certain level. Users will need to enter total students who have anxiety and need to enter all of their scores. The array is used to store the size of the array which is the total students who have anxiety. The system will loop until it reaches the wrong condition which is it will be looping for 5 times.

```
   LastUniversity m = new LastUniversity();
   System.out.println();
   System.out.println(minAB + "/" + "5 students in School of Business has minimal anxiety");
   System.out.println(modAB + "/" + "5 students in School of Business has moderate anxiety");
   System.out.println(sevAB + "/" + "5 students in School of Business has severe anxiety");
   System.out.println();
   System.out.println("The largest score : "+ m.maxA(myArray));
   System.out.println("The lowest score  : "+ m.minA(myArray));

   sc.close();
}
```

The system will print out how many students have minimal, moderate and severe anxiety and then it will print out the return value for minimum and maximum score from the method before.

```
public int maxD(int [] array) {
      int maxD = 0;

      for(int i=0; i<array.length; i++ ) {
         if(array[i]>maxD) {
            maxD = array[i];
         }
      }
      return maxD;
   }

public int minD(int [] array) {
      int minD = array[0];

      for(int i = 0; i<array.length; i++ ) {
         if(array[i]<minD) {
            minD = array[i];
         }
      }
      return minD;
   }
```

For the second method, we will repeat the same step so we use method maxD to get the maximum value of the score while method minD to get the minimum value of the score based on the data. These two methods are using return value to call the value of maximum and minimum score of depression test.

```
public class passArraytomethodD {
public static void mainD (String args[]) {
     Scanner sc = new Scanner (System.in);

     int minDB = 0;
     int modDB = 0;
     int sevDB = 0;
     System.out.print("Enter total number of students who have depression : ");
     int size = sc.nextInt();
     int[] myArray = new int[size];
     System.out.println("Enter their score : ");

     for(int i=0; i<size; i++) {
        System.out.print("Result for the " + (i + 1) + " student (0-20) = ");
        myArray[i] = sc.nextInt();

        if (myArray[i] <= 6) {
            minDB += 1;
            }
       else if (myArray[i] <= 12 ) {
            modDB += 1;}
       else {
            sevDB += 1;}
     }
```

Then, the system will initialize and declare all of the level to value 0 to start counting the number of students on certain level. Users will need to enter total students who have depression and need to enter all of their scores. The array is used to store the size of the array which is the

total students who have depression. The system will loop until it reaches the wrong condition which is it will be looping for 6 times.

```
    LastUniversity m = new LastUniversity();
    System.out.println();
    System.out.println(minDB + "/" + "6 students in School of Business has minimal depression");
    System.out.println(modDB + "/" + "6 students in School of Business has moderate depression");
    System.out.println(sevDB + "/" + "6 students in School of Business has severe depression");
    System.out.println();
    System.out.println("The largest score : "+ m.maxD(myArray));
    System.out.println("The lowest score  : "+ m.minD(myArray));

    sc.close();
}
```

The system will print out how many students have minimal, moderate and severe depression and then it will print out the return value for minimum and maximum score from the method before.

```
public static void StudentAnxiety() {
    String[][] Business = {{"Nabila", "Ching Mei", "Siti", "Kasim", "Printhaa"},
                           {"11", "4", "5", "3", "7"}};


    System.out.println("Here are result for students in School of Business in anxiety test");
    System.out.println();

    System.out.println("1.Score for " + Business[0][0] + ".....= " + Business[1][0]);
    System.out.println("2.Score for " + Business[0][1] + "..= " + Business[1][1]);
    System.out.println("3.Score for " + Business[0][2] + ".......= " + Business[1][2]);
    System.out.println("4.Score for " + Business[0][3] + "......= " + Business[1][3]);
    System.out.println("5.Score for " + Business[0][4] + "...= " + Business[1][4]);
    System.out.println();


    }


public static void StudentDepress() {
    String[][] Business = {{"Aisyah", "Theva", "Sarah", "Kamal", "Aiman", "Mei ying"},
                           {"10", "11", "7", "5", "3", "2"}};


    System.out.println("Here are result for students in School of Business in depression test");
    System.out.println();

    System.out.println("1.Score for " + Business[0][0] + ".....= " + Business[1][0]);
    System.out.println("2.Score for " + Business[0][1] + "......= " + Business[1][1]);
    System.out.println("3.Score for " + Business[0][2] + "......= " + Business[1][2]);
    System.out.println("4.Score for " + Business[0][3] + "......= " + Business[1][3]);
    System.out.println("5.Score for " + Business[0][4] + "......= " + Business[1][4]);
    System.out.println("6.Score for " + Business[0][5] + "...= " + Business[1][5]);
    System.out.println();

    }
}
```

For the third method, the array is used to store information of the name of student in School of Business in anxiety test and their score for the test. Lastly, for the fourth method the array is used to store information of the name of student in School of Business in depression test and their score for the test.

3.0. Coding

3.1. Main Menu

```
import java.util.Scanner;
public class MainMenu {

	public static void main(String[] args) {
		// TODO Auto-generated method stub

		Scanner menu = new Scanner (System.in);
		char choices;

		do {

			System.out.println ("==MAIN MENU==");
			int [] menu1= {1,2,3,4,5};
			String [] menu2= {"Employees Payslip","Student Fees","Course
				Registration","Library Charge","Medical Service"};
			System.out.println (menu1[0]+". "+menu2[0]);
			System.out.println (menu1[1]+". "+menu2[1]);
			System.out.println (menu1[2]+". "+menu2[2]);
			System.out.println (menu1[3]+". "+menu2[3]);
			System.out.println (menu1[4]+". "+menu2[4]);
			System.out.println ("Please choose the service.");
			int service = menu.nextInt();

				if(service==1) {
					employees e = new employees();
					e.main(args);
				}
				else if(service==2) {
					student s = new student();
					s.main(args);
				}
				else if(service==3) {
					course c = new course();
					c.main(args);
				}
				else if(service==4) {
					library l = new library();
					l.main(args);
				}
				else if(service==5) {
					medical m = new medical();
					m.main(args);

				}
				else {
					System.out.println("Invalid service! Please enter
								the right number.");
				}

				System.out.println();
```

```
                        System.out.println("If you want to return to main menu.
                                           Enter y.");
                        System.out.println("If you do not want to return to main
                                            menu. Enter n.");
                        System.out.println("YES=y        NO=n");
                        choices=menu.next().charAt(0);
                        System.out.println();

                }
                while (choices=='y' || choices=='Y');

        }

}
```

3.2. Employees

```
import java.util.ArrayList;

import java.util.Scanner;

public class employees {


	public static void welcome(){


		employees e=new employees();

		System.out.println ("Welcome!");

		System.out.println ("This system will help you to calculate your net
					salary.");

		System.out.println ("Please enter your details and you may refer to the
					information below.");

		System.out.println ("All information is entered into a system for future
						use. Thank you.");

		String [] types= {"PERMANENT LECTURER", "CONTRACT LECTURER", "PTFT
					LECTURER"};

		String [] workCode= {"DPL45","DCL51","DPP441"};

		String [] hourSalary= {"RM132.00", "RM85.00", "RM63.00"};

		String [] allow= {"RM900.00", "RM800.00","RM0.00"};


			for (int i=0;i<1;i++) {

				e.line();

				System.out.println ("|  TYPES OF LECTURER  |       " +
				types[0] + "     |   " + types[1] + "   |   " + types[2] +
				"   |");

				e.line();

				System.out.println ("|      WORK CODE      |            "
				+ workCode[0] + "           |         " + workCode[1] + "
				|      " + workCode[2] + "       |");

				e.line();

				System.out.println ("|   SALARY PER HOUR   |          " +
				hourSalary[0] + "          |        " + hourSalary[1] + "
				|      " + hourSalary[2] + "      |");

				e.line();
```

```
                System.out.println ("|      ALLOWANCE      |           " +
                allow[0] + "           |        " + allow[1] + "      |
                " + allow[2] + "      |");

                e.line();

            }


}


public static void line() {
        for (int i=0; i<96; i++) {
            System.out.print ("_");
        }
        System.out.println(" ");
}


private String id,name,workCode,monthOfpayment;
private float basicSalary,epf,socso,allowance,amountOfdeduction,netsalary;
private long ic;
private int hour,salaryPerhour;


public static void userinfo() {
        Scanner sc=new Scanner(System.in);
        String code1="DPL45";
        String code2="DCL51";
        String code3="DP441";
        String code;
        System.out.println();
        System.out.println ("Enter your name:");
        String name=sc.nextLine();
        System.out.println ("Enter your identification card number:");
        long ic=sc.nextLong();
```

```
System.out.println ("Enter the month of payslip you want:");
ArrayList<String> monthOfpayment = new ArrayList<>();
	for(int i = 0; i < 1; i++) {
		monthOfpayment.add(sc.next());
	}

System.out.println ("Enter your work code:");
String workCode=sc.next();
if (workCode==code1) {
	code="DPL45";
}
else if (workCode==code2) {
	code="DCL51";
}
else if (workCode==code3) {
	code="DP441";
}

System.out.println ("Enter your hour of work for this month:");
int hour=sc.nextInt();
System.out.println ("Enter your salary per hour:");
System.out.print ("RM");
int salaryPerhour=sc.nextInt();
System.out.println ("Enter your allowance");
System.out.print ("RM");
double allowance=sc.nextDouble();

double basicSalary=(salaryPerhour*hour)+allowance;
double epf=0.1*basicSalary;
double socso=0.005*basicSalary;
double amountOfdeduction=epf+socso;
```

```
        double netsalary=basicSalary-amountOfdeduction;



        System.out.println("**************************************************
        ************************************");

        System.out.println("                          PAYSLIP "+ monthOfpayment
        + ", 2021");

        System.out.println("**************************************************
        ************************************");

        System.out.println ("NAME: "+name + "                                WORK
        CODE: "+workCode);

        System.out.println ("NRIC NO: "+ic);

        System.out.println ();

        System.out.printf ("===EARNINGS===");

        System.out.println ();

        System.out.printf ("BASIC SALARY: RM%.2f",basicSalary);

        System.out.println ();

        System.out.printf ("ALLOWANCE: RM%.2f", allowance);

        System.out.println ("\n");

        System.out.printf ("===DEDUCTION===");

        System.out.println ();

        System.out.printf ("EPF: RM%.2f",epf);

        System.out.println ();

        System.out.printf ("SOCSO: RM%.2f",socso);

        System.out.println ();

        System.out.printf ("AMOUNT OF DEDUCTION: RM%.2f",amountOfdeduction);

        System.out.println ();

        System.out.println("**************************************************
        ************************************");

        System.out.printf ("                    NET SALARY: RM%.2f",netsalary);

        System.out.println ();

        System.out.println("**************************************************
        ************************************");

}
```

```
	public static void main(String[] args) {
		Scanner sc=new Scanner (System.in);
		char choose;

		employees e=new employees();
		e.welcome();
		e.userinfo();

		System.out.println ();
		System.out.println ("Do you want to return to main menu?");
		System.out.println ("Press Y considered as yes and N vice versa.");
		choose=sc.next().charAt(0);

		if (choose=='y' || choose=='Y') {
			MainMenu m = new MainMenu();
			m.main(args);
		}
	do {
		System.exit(0);
	}
	while (choose!='y' || choose!='Y');
	sc.close();
}
}
```

3.3. Student

```
package Topic_University;

import java.util.Scanner;

public class Student {


	public static void main(String[] args) {

		// TODO Auto-generated method stub

		Scanner scan = new Scanner(System.in);

		int choice; double balanceFee; double collegeFee = 160.99; ; int sem;
		String nationality;


		String []national = {"Malaysia", "Foreigner"};


	System.out.println("Based on the info please key in your choice in the next
	                    question.");

	System.out.println("------------------------------------------------------ ");

	System.out.println(" For Malaysian please key in number 0 ");

	System.out.println(" For foreigner please key in number 1 ");

	System.out.println("------------------------------------------------------ ");

	System.out.println("Please key in your nationality : ");

	int number = scan .nextInt();

	System.out.println(national [number]);


		if (number==0){

	  malaysian();

		}

		else if (number==1){

		    foreign();

		}
```

```
}
public static void foreign() {
            Scanner scan= new Scanner(System.in);
            int number; int choice; double balanceFee; double collegeFee = 160.99;
             String nationality; String name; int sem;


             System.out.println("Welcome to UUM Portal.");
             System.out.println("Please make sure you complete all part.");
             System.out.println("---------PART 1---------");
             System.out.println("\nPlease key in your detail");
             System.out.println("Name: ");
             name = scan.nextLine();


             System.out.println("Semester: ");
             sem = scan.nextInt();


              System.out.println("Based on the info below please answer the next
question.");
                   System.out.println("-----------------------------------------
-------------------------------------------------------------------");
                   System.out.println("For foreigner/International Student you are
given only one choice of residential college to choose:");
                   System.out.println("  OPTION 1 - SYED RESIDENTIAL COLLEGE");
                   System.out.println("NOTES: THE SYED RESIDENTIAL COLLEGE WILL
CHARGE YOU THREE TIMES MORE THAN ZAIN RESIDENTIAL COLLEGE PRICE");
                   System.out.println("-----------------------------------------
-------------------------------------------------------------------");
                   System.out.println("Please key in your choice:");
                   choice = scan.nextInt();


             balanceFee = (collegeFee*3);
             balanceFee = balanceFee;
             System.out.println("Your current balance fee is: " +balanceFee);
```

```
            System.out.printf("The balance fee that you need to pay is:" +
                        "%.2f\n" ,balanceFee);


            System.out.println("---------PART II---------");
            System.out.println("Based on the info below please answer the next
question.");
            System.out.println("-----------COCURICULUM MARK RANGE-----------");
            System.out.println("Number 1- TOTAL COCURICULUM MARK FROM 0 TO 10");
            System.out.println("Number 2- TOTAL COCURICULUM MARK FROM 11 TO 20");
            System.out.println("Number 3- TOTAL COCURICULUM MARK FROM 21 TO 30");
            System.out.println("Number 4- TOTAL COCURICULUM MARK FROM 31 TO 40");
            System.out.println("Number 5- TOTAL COCURICULUM MARK FROM 41 TO 50");
            System.out.println("Number 6- TOTAL COCURICULUM MARK FROM 51 TO 60");
            System.out.println("Number 7- TOTAL COCURICULUM MARK FROM 61 TO 69");
            System.out.println("Number 8- TOTAL COCURICULUM MARK FROM 70 TO 80");
            System.out.println("Number 9- TOTAL COCURICULUM MARK FROM 80 TO 90");
            System.out.println("Number 10- TOTAL COCURICULUM MARK FROM 90 TO 100");
            System.out.println("Please key in the number based on the range of your
                              total cocuriculum mark:");
                number = scan.nextInt();


              switch (number) {
                  case 1:
                      System.out.println("TOTAL COCURICULUM MARK FROM 0 TO 10");
                      System.out.println("Sorry you failed to get 80% discount.");
                      System.out.println("The system will calculate your balance
                                         fee");
                      break;
                  case 2:
                      System.out.println("TOTAL COCURICULUM MARK FROM 11 TO 20");
                      System.out.println("Sorry you failed to get 80% discount.");
                      System.out.println("The system will calculate your balance
                                         fee");
```

```
            break;
        case 3:
            System.out.println("TOTAL COCURICULUM MARK FROM 21 TO 30");
            System.out.println("Sorry you failed to get 80% discount.");
            System.out.println("The system will calculate your balance
                                fee");
            break;
        case 4:
            System.out.println("TOTAL COCURICULUM MARK FROM 31 TO 40");
            System.out.println("Sorry you failed to get 80% discount.");
            System.out.println("The system will calculate your balance
                                fee");
            break;
        case 5:
            System.out.println("TOTAL COCURICULUM MARK FROM 41 TO 50");
            System.out.println("Sorry you failed to get 80% discount.");
            System.out.println("The system will calculate your balance
                                fee");
            break;
        case 6:
            System.out.println("TOTAL COCURICULUM MARK FROM 51 TO 60");
            System.out.println("Sorry you failed to get 80% discount.");
            System.out.println("The system will calculate your balance
                                fee");
            break;
        case 7:
            System.out.println("TOTAL COCURICULUM MARK FROM 61 TO 69");
            System.out.println("Sorry you failed to get 80% discount.");
            System.out.println("The system will calculate your balance
                                fee");
            break;
        case 8:
            System.out.println("TOTAL COCURICULUM MARK FROM 70 TO 80");
```

```
            System.out.println("Congratulation you have successfully
                                receive 80% discount.");

            System.out.println("The system will calculate your balance
                                fee");

            break;

        case 9:

            System.out.println("TOTAL COCURICULUM MARK FROM 81 TO 90");

            System.out.println("Congratulation you have successfully
                                receive 80% discount.");

            System.out.println("The system will calculate your balance
                                fee");

            break;

        case 10:

            System.out.println("TOTAL COCURICULUM MARK FROM 91 TO 100");

            System.out.println("Congratulation you have successfully
                                receive 80% discount.");

            System.out.println("The system will calculate your balance
                                fee");

            break;

        default:

            System.out.println("Please enter valid number");

        break;

    }


    if(number == 8 || number==9 || number==10){

        balanceFee = (collegeFee*3);

     balanceFee = (balanceFee*0.2);


System.out.printf("The balance fee that you need to pay is:" +
                  "%.2f\n" ,balanceFee);
```

```
          System.out.println("-----------------------------------------------------
-------------");

          System.out.println();

          System.out.println("Student's Details");

          System.out.println("Name: \t \t \t \t \t" +name);

          System.out.println("Semester: \t \t \t \t" +sem);

          System.out.println("Nationality: \t \t \t\tForeigner ");

          System.out.println("College Residential choice: \t \t" +choice);

          System.out.println("Total Balance Fee: \t \t \t" +balanceFee);

          System.out.println();

          System.out.println("-----------------------------------------------------
--------------");

 }


               else {

                balanceFee = (collegeFee*3);

                balanceFee = balanceFee;

                                                    System.out.printf("The balance
fee that you need to pay is:" + "%.2f\n" ,balanceFee);

              System.out.println("-----------------------------------------------------
-----------------");

              System.out.println();

              System.out.println("Student's Details");

              System.out.println("Name: \t \t \t \t \t" +name);

              System.out.println("Semester: \t \t \t \t" +sem);

              System.out.println("Nationality: \t \t \t\tForeigner ");

              System.out.println("College Residential choice: \t \t" +choice);

              System.out.println("Total Balance Fee: \t \t \t" +balanceFee);

              System.out.println();

              System.out.println("-----------------------------------------------------
------------------");


               }
```

```
        }


    public static void malaysian(){
        int number; int choice;  double balanceFee = 0; double collegeFee =
        160.99;int totalCocuMark = 0; String nationality; String name; int sem;
        Scanner scan = new Scanner(System.in);


          System.out.println("Welcome to UUM Portal.");
          System.out.println("Please make sure you complete all part.");
          System.out.println("---------PART 1---------");
          System.out.println("\nPlease key in your detail");
          System.out.println("Name: ");
          name = scan.nextLine();


           System.out.println("Semester: ");
           sem = scan.nextInt();


       System.out.println("Based on the info below please answer the next
question.");
           System.out.println("-----------------------------------------------
-----------------------------------------------------------------");
           System.out.println("For Malaysian student you are given to choose
your college residential based on the option given:                  ");
           System.out.println("   OPTION 1 - SYED RESIDENTIAL COLLEGE \nNotes:
This option will charge three time more than option 2          ");
           System.out.println("     OPTION 2 - ZAIN RESIDENTIAL COLLEGE
\t\tRM160.99                                                          ");
           System.out.println("-----------------------------------------------
-----------------------------------------------------------------");
           System.out.println("Please key in your choice:");
           choice = scan.nextInt();
```

```
   if(choice != '1')
{
balanceFee = (collegeFee);
System.out.println("Your current balance fee is: " +balanceFee);
}else if(choice =='1') {
 balanceFee = (collegeFee*3);
   System.out.println("Your current balance fee is: " +balanceFee);
   System.out.printf("The balance fee that you need to pay is:" +
                          "%.2f\n" ,balanceFee);
}


System.out.println("---------PART II---------");
System.out.println("Based on the info below please answer the next
                    question.");
System.out.println("-----------COCURICULUM MARK RANGE-----------");
System.out.println("Number 1- TOTAL COCURICULUM MARK FROM 0 TO 10");
System.out.println("Number 2- TOTAL COCURICULUM MARK FROM 11 TO 20");
System.out.println("Number 3- TOTAL COCURICULUM MARK FROM 21 TO 30");
System.out.println("Number 4- TOTAL COCURICULUM MARK FROM 31 TO 40");
System.out.println("Number 5- TOTAL COCURICULUM MARK FROM 41 TO 50");
System.out.println("Number 6- TOTAL COCURICULUM MARK FROM 51 TO 60");
System.out.println("Number 7- TOTAL COCURICULUM MARK FROM 61 TO 69");
System.out.println("Number 8- TOTAL COCURICULUM MARK FROM 70 TO 80");
System.out.println("Number 9- TOTAL COCURICULUM MARK FROM 80 TO 90");
System.out.println("Number 10- TOTAL COCURICULUM MARK FROM 90 TO 100");
System.out.println("Please key in the number based on the range of
                    your total cocuriculum mark:");
number = scan.nextInt();
```

```
switch (number) {
   case 1:
       System.out.println("TOTAL COCURICULUM MARK FROM 0 TO 10");
       System.out.println("Sorry you failed to get 80% discount.");
       System.out.println("The system will calculate your balance fee");
       break;
   case 2:
       System.out.println("TOTAL COCURICULUM MARK FROM 11 TO 20");
       System.out.println("Sorry you failed to get 80% discount.");
       System.out.println("The system will calculate your balance fee");
       break;
   case 3:
       System.out.println("TOTAL COCURICULUM MARK FROM 21 TO 30");
       System.out.println("Sorry you failed to get 80% discount.");
       System.out.println("The system will calculate your balance fee");
       break;
   case 4:
       System.out.println("TOTAL COCURICULUM MARK FROM 31 TO 40");
       System.out.println("Sorry you failed to get 80% discount.");
       System.out.println("The system will calculate your balance fee");
       break;
   case 5:
       System.out.println("TOTAL COCURICULUM MARK FROM 41 TO 50");
       System.out.println("Sorry you failed to get 80% discount.");
       System.out.println("The system will calculate your balance fee");
       break;
   case 6:
       System.out.println("TOTAL COCURICULUM MARK FROM 51 TO 60");
       System.out.println("Sorry you failed to get 80% discount.");
       System.out.println("The system will calculate your balance fee");
       break;
```

```
        case 7:
            System.out.println("TOTAL COCURICULUM MARK FROM 61 TO 69");
            System.out.println("Sorry you failed to get 80% discount.");
            System.out.println("The system will calculate your balance fee");
            break;
        case 8:
            System.out.println("TOTAL COCURICULUM MARK FROM 70 TO 80");
            System.out.println("Congratulation you have successfully receive
                                80% discount.");
            System.out.println("The system will calculate your balance fee");
            break;
        case 9:
            System.out.println("TOTAL COCURICULUM MARK FROM 81 TO 90");
            System.out.println("Congratulation you have successfully receive
                                80% discount.");
            System.out.println("The system will calculate your balance fee");
            break;
        case 10:
            System.out.println("TOTAL COCURICULUM MARK FROM 91 TO 100");
            System.out.println("Congratulation you have successfully receive
                                80% discount.");
            System.out.println("The system will calculate your balance fee");
            break;
        default:
            System.out.println("Please enter valid number");
                                break;
    }


         if(number ==8 || number==9 || number==10) {
          balanceFee = (balanceFee*0.2);
          System.out.printf("The balance fee that you need to pay is:" +
                                "%.2f\n" ,balanceFee);
```

```
}
else {
                        balanceFee = balanceFee;


                        System.out.printf("The balance fee that you need to pay is:" +
                                                "%.2f\n" ,balanceFee);
 }


              System.out.println("-------------------------------------------------
-----------------");
              System.out.println();
              System.out.println("Student's Details");
              System.out.println("Name: \t \t \t \t \t" +name);
              System.out.println("Semester: \t \t \t \t" +sem);
              System.out.println("Nationality: \t \t \t\tMalaysia");
              System.out.println("College Residential choice: \t \t" +choice);
              System.out.println("Total Balance Fee: \t \t \t" +balanceFee);
              System.out.println();
              System.out.println("-------------------------------------------------
------------------");


       }
}
```

3.4. Course

```
import java.util.Scanner;
public class course {

	private static Scanner sc;
	//Main method
		public static void main(String[] args) {
			// TODO Auto-generated method stub
			userinfo();
			registeredcourse();
			secondlevelcourse();
			registrationconfirmation();
		}

		//User info method
		public static void userinfo() {
			sc = new Scanner (System.in);

			System.out.println("Welcome!");
			System.out.println("We would like to know your information.");
			System.out.print("Enter your name: ");
			String name = sc.nextLine();
			System.out.print("Enter your id: ");
			String id = sc.next();
			System.out.print("Enter your semester: ");
			String sem = sc.next();
			System.out.println();

			String ui [][] = {{"Name\t: ", "ID\t: ", "Semester: "},
					{name, id, sem}};

			userINFO(ui);
			System.out.println();
		}

		public static void userINFO(String UI [][]) {
			System.out.println("USER INFO:");
			System.out.println(UI[0][0] + UI[1][0]);
			System.out.println(UI[0][1] + UI[1][1]);
			System.out.println(UI[0][2] + UI[1][2]);
		}

		//Registered course method
		public static void registeredcourse() {
			sc = new Scanner (System.in);

			System.out.print("REGISTERED COURSE:\n");
			System.out.println("You've registered 3 courses in last
semester");
			System.out.println("These are the courses that you've
registered.");
			for (int i = 0; i < 60; i++) {
				System.out.print("_");
			}
```

```
                System.out.println();

                int course [] = {1,2,3};
                String cName [] = {"STIA1113", "STQS1023", "STQM1203"};
                int t1 [] = {36,20,15};
                int t2 [] = {36,20,15};
                int cw [] = {18,16,14};
                int totMark [] = {90,56,44};
                double GPA [] = {4.00,2.33,1.33};
                int attTime [] = {18,15,20};
                int totAttTime = 20;

                for(int i=0; i<course.length; i++) {
                        System.out.println("\nCourse " +course[i]+ "\t\t\t: "
+cName[i]);
                        System.out.println("Test 1 Marks\t\t\t: " +t1[i]+ "%");
                        System.out.println("Test 2 Marks\t\t\t: " +t2[i]+ "%");
                        System.out.println("Coursework Marks\t\t: " +cw[i]+ "%");
                        System.out.println("Total Marks\t\t\t: " +totMark[i]+ "%");
                        System.out.printf("GPA\t\t\t\t: %.2f\n" ,GPA[i]);
                        System.out.println("Attended Times\t\t\t: " +attTime[i]);
                        System.out.println("Maximum Attended Times\t\t: "
+totAttTime+ " days");
                        System.out.println("Attendance rate\t\t\t: " +((double)
attTime[i] / totAttTime)*100+ "%");
                }

                for (int i = 0; i < 60; i++) {
                        System.out.print("_");
                }
                System.out.println();
        }

        // Second level course registration method
        public static void secondlevelcourse() {
                sc = new Scanner (System.in);

                int minAttRate = 80;
                double minGPA = 2.00;
                String cName [] = {"STIA1113", "STQS1023", "STQM2103"};
                String scdCName [] = {"STIA1123", "STQS1023", "STQM1203"};
                int totAttTime = 20;
                double GPA [] = {4.00,2.33,1.33};
                double att1 = (double) 18 / totAttTime;
        double attRate1 = att1 * 100;
        double att2 = (double) 15 / totAttTime;
        double attRate2 = att2 * 100;
        double att3 = (double) 20 / totAttTime;
        double attRate3 = att3 * 100;

                System.out.println("Which second-level course you would like to
register?");
                System.out.println("Press:\n (1) STIA1123 \n (2) STID3113 \n (3)
STQM2103");
                System.out.print("Your answer: ");
```

```
                    int scdLvlCourse = chooseCourse();
                    System.out.println();

                    while((!(scdLvlCourse == 1)) && (!(scdLvlCourse == 2)) &&
(!(scdLvlCourse == 3))){
                          System.out.println("Invalid course.");
                          System.out.print("Please enter a valid number (1-3): ");
                          scdLvlCourse = sc.nextInt();
                          System.out.println();
                          }

                    if(scdLvlCourse == 1){
                          System.out.println(scdCName[0]+ " requirements: ");
                          System.out.println("Completed STIA1113 with GPA "
+String.format("%.2f",minGPA)+
                                                      " and attendance rate "
+minAttRate+ "% or above.");
                          System.out.println();
                          System.out.printf(cName[0]+ " GPA\t\t: %.2f\n" ,GPA[0]);
                          System.out.println(cName[0]+ " Attendance Rate: "
+attRate1+ "%");

                          if ((GPA[0]>=2.00) && (attRate1>=80)) {
                                System.out.print("You've passed the GPA and
attendance rate requirements.\n");
                                System.out.print(scdCName[0]+ " registered
successfully!\n");
                          }

                          else if ((GPA[0]>=2.00) && (attRate1<=79)) {
                                System.out.print("You've passed the GPA requirement
but failed to fulfilled "
                                            + "attendance rate, please retake the
course.\n");
                          }

                          else if ((GPA[0]<=1.99) && (attRate1>=80)) {
                                System.out.print("You've passed the attendance rate
requirement but failed to "
                                            + "fulfilled GPA, please retake the
course.\n");
                          }

                          else {
                                System.out.print("You've failed both GPA and
attendance rate requirements, "
                                            + "please retake the course.\n");
                          }
                    }

                    else if(scdLvlCourse == 2){
                          System.out.println(scdCName[1]+ " requirements: ");
                          System.out.println("Completed STQS1023 with GPA "
+String.format("%.2f",minGPA)+
```

```
                                                      " and attendance rate "
+minAttRate+ "% or above.");
                              System.out.println();
                              System.out.printf(cName[1]+ " GPA\t\t: %.2f\n" ,GPA[1]);
                              System.out.println(cName[1]+ " Attendance Rate: "
+attRate2+ "%");

                              if ((GPA[1]>=2.00) && (attRate2>=80)) {
                                    System.out.print("You've passed the GPA and
attendance rate requirements.\n");
                                    System.out.print(scdCName[0]+ " registered
successfully!\n");
                              }

                              else if ((GPA[1]>=2.00) && (attRate2<=79)) {
                                    System.out.print("You've passed the GPA requirement
but failed to fulfilled "
                                                      + "attendance rate, please
retake the course.\n");
                              }

                              else if ((GPA[1]<=1.99) && (attRate2>=80)) {
                                    System.out.print("You've passed the attendance rate
requirement but failed to "
                                                      + "fulfilled GPA, please retake
the course.\n");
                              }
                              else {
                                    System.out.print("You've failed both GPA and
attendance rate requirements, "
                                                      + "please retake the course.\n");
                              }
                        }

                        else if(scdLvlCourse == 3){
                              System.out.println(scdCName[2]+ " requirements: ");
                              System.out.println("Completed STQM1203 with GPA "
+String.format("%.2f",minGPA)+
                                                      " and attendance rate "
+minAttRate+ "% or above.");
                              System.out.println();
                              System.out.printf(cName[2]+ " GPA\t\t: %.2f\n" ,GPA[2]);
                              System.out.println(cName[2]+ " Attendance Rate: "
+attRate3+ "%");

                              if ((GPA[2]>=2.00) && (attRate3>=80)) {
                                    System.out.print("You've passed the GPA and
attendance rate requirements.\n");
                                    System.out.print(scdCName[0]+ " registered
successfully!\n");
                              }

                              else if ((GPA[2]>=2.00) && (attRate3<=79)) {
                                    System.out.print("You've passed the GPA requirement
but failed to fulfilled "
```

```
                                                + "attendance rate, please
retake the course.\n");
                        }

                        else if ((GPA[2]<=1.99) && (attRate3>=80)) {
                                System.out.print("You've passed the attendance rate
requirement but failed to "
                                                + "fulfilled GPA, please retake
the course.\n");
                        }
                        else {
                                System.out.print("You've failed both GPA and
attendance rate requirements, "
                                                + "please retake the course.\n");
                        }
                }
        }

        public static int chooseCourse() {
                sc = new Scanner (System.in);
                int scdLvlCourse = sc.nextInt();
                return scdLvlCourse;
        }

        // Registration confirmation
        public static void registrationconfirmation() {
                sc = new Scanner (System.in);

                String answer = " ";
                do {
                System.out.print("\nDo you wish to register another course?
(Y/Any key): ");
                answer = sc.next();
                System.out.println();
                        if ((answer.equals("y")) || (answer.equals("Y"))) {
                                secondlevelcourse();
                        }

                        else {
                                System.out.println("Thanks for using the system.");
                        }
                }
                while ((answer.equals("y")) || (answer.equals("Y")));
        }
}
```

3.5. Library

```
package university;
import java.util.Arrays;
import java.util.Scanner;

public class Library3Test {

	public static void main(String[] args) {
	// TODO Auto-generated method stub

	Scanner sc = new Scanner(System.in);

	int yearCode;
	float totalFine;
	char excuse;
	float discountedFine = 0;
	int numBooks;
	String excuseDesc = " ";
	float bookFine;
	float sum = 0;

	String [] a;
	a = studentInfo();

	yearCode = Integer.parseInt(a[2]);

	System.out.println("Does the student have a valid excuse? Enter y or n");
	excuse = sc.nextLine().charAt(0);
```

```
if (excuse == 'y') {
System.out.println("Enter student's excuse. ");
excuseDesc = sc.nextLine();
}
else
System.out.println();

do {
System.out.println("Enter number of books late: ");
numBooks = sc.nextInt();

} while (!isValid(numBooks));

String b[][];
b = bookinfo(numBooks);

int bookfee [][] = new int [100][];
for (int i = 0; i < numBooks; i++) {
	bookfee[i] = new int [1];
	bookfee[i][0] = Integer.parseInt(b[i][2]);
}

System.out.println();

System.out.println("============================================================
===");
System.out.println();
System.out.println("*Student Info");

System.out.println("Student's name: " + a[0]);
```

```
System.out.println("Student's ID: " + a[1]);

System.out.println("Student's year of study: " + a[2]);

System.out.println();


System.out.println("**********************************************************
***");

System.out.println("*Book Info");


for (int i = 0; i < numBooks; i++) {

	System.out.println("Book " + (i + 1) + " title: " + b[i][0]);

	System.out.println("Book " + (i + 1) + " ISBN: " + b[i][1]);

	System.out.println("Number of days late for book " + (i + 1) + " : " +
	b[i][2]);

	System.out.printf("Fee for this book: RM" + "%.2f",(((float)bookfee[i][0]
	* (float)yearCode)) + (float)bookfee[i][0]);

	System.out.println();

	System.out.println();

}


for (int i = 0; i < numBooks; i++) {

	bookFine = bookfee[i][0] * yearCode;

	sum = sum + bookFine;

}


if (excuse == 'y') {

	totalFine = sum;

	discountedFine = (float) (totalFine * 0.8);

	System.out.println("Excuse: " + excuseDesc);

	System.out.printf("Total fee is: RM" + "%.2f",totalFine);

	System.out.println();
```

```
            System.out.printf("Discounted amount: RM" + "%.2f",(totalFine -
            discountedFine));

            System.out.println();

            System.out.printf("Total discounted fee is: RM" + "%.2f",discountedFine);

        }

        else {

            totalFine = sum;

            System.out.printf("Total fee is: RM" + "%.2f",totalFine);

        }

        System.out.println();


        System.out.println();

        System.out.println("**********************************************************
        ***");

        System.out.println();

        System.out.println("==========================================================
        ===");


        }


public static String[] studentInfo () {

        Scanner sc = new Scanner (System.in);

        String [] studentinfo = new String [3];


        System.out.println("Enter student's name, ID,"

        + "and year of study(separated by ENTER key): ");


        for (int i = 0; i < studentinfo.length; i++) {

            studentinfo[i] = sc.nextLine();

        }

        return studentinfo;
```

```
	}

public static String[][] bookinfo (int x) {
	Scanner sc = new Scanner (System.in);
	String [][] bookinfo = new String [100][];
	for (int i = 0; i < x; i++) {
		bookinfo[i] = new String [3];
		System.out.println("Enter book title, book ISBN, and "
		+ "number of days late of book " + (i + 1) + " (separated by ENTER
		key)");
	for (int j = 0; j < bookinfo[i].length; j++) {
		bookinfo[i][j] = sc.nextLine();
	}
	}
	return bookinfo;
	}

public static boolean isValid (int b) {
	if (b > 3) {
		System.out.println("Maximum number of books allowed to be borrowed at a
		time is 3. Try again.");
	return false;
	}

	if (b < 1) {
		System.out.println("Number cannot be 0. Try again.");
	return false;
	}
	else return true;
	}
	}
```

3.6. Medical

```
package assignment1;


import java.util.Scanner;


public class LastUniversity {


public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc = new Scanner (System.in);
        double anxiety = 25.0;
        double depression = 32.0;
        double aCom = 2.25;
        double aAcc = 1.50;
        double dLaw = 3.52;
        double dCom = 2.88;


        double computingA;
        double accountA;


        double nlawD ;
        double ncomputingA;
        double ncomputingD;
        double naccountA;


        double lawD;
        double computingD;


        System.out.println("This program will help you to calculate number of
students of different school");
        System.out.println("");
        System.out.println("Based on the survey: ");
```

```
        System.out.println("                    -Anxiety test    = " + anxiety + "%");

        System.out.println("                     -Depression test = " + depression +
"%");

        System.out.println("                     -Anxiety test (School of Computing)
= " + aCom + "%");

        System.out.println("                     -Anxiety test (School of Accounting)
= " + aAcc + "0%");

        System.out.println("                        -Depression test (School of Law)
= " + dLaw + "%");

        System.out.println("                    -Depression test (School of Computing)
= " + dCom + "%");

        System.out.println("");


        System.out.print("Enter percentage of students have anxiety in School of
Computing  = ");

        computingA = sc.nextDouble();

        System.out.print("Enter percentage of students have anxiety in School of
Accounting = ");

        accountA = sc.nextDouble();

        System.out.println("");


        System.out.println("Percentage of students in School of Computing who have
anxiety  = " + computingA + "%");

        ncomputingA = (computingA/25) * 100;

        System.out.println("Percentage of students in School of Accounting who have
anxiety = " + accountA + "0%");

        naccountA = (accountA/25) * 100;


        double nlb = 25 - (ncomputingA+naccountA)  ;

        double nlawA = nlb/2 ;

        double nbusinessA = nlb/2 ;

        double lbpercent = (nlawA * 25) / 100 ;


        System.out.println("Percentage of students in School of Law who have anxiety
= " + lbpercent + "%");
```

```
        System.out.println("Percentage of students in School of Business who have
anxiety   = " + lbpercent + "%");

        System.out.println("");


        System.out.print("Enter percentage of students have depression in School of
Law       = ");

        lawD = sc.nextDouble();

        System.out.print("Enter percentage of students have depression in School of
Computing = ");

        computingD = sc.nextDouble();

        System.out.println("");


        System.out.println("Percentage of students in School of Law who have
depression          = " + lawD + "%");

        nlawD = (lawD/32) * 100;

        System.out.println("Percentage of students in School of Computing who have
depression    = " + computingD + "%");

        ncomputingD = (computingD/32) * 100;


        double nba = 32 - (nlawD+ncomputingD)  ;

        double nbusinessD = nba/2 ;

        double naccountD = nba/2 ;

        double bapercent = (naccountD * 32) / 100 ;


        int a = (int) nlawA;

        int b = (int) ncomputingA;

        int c = (int) nbusinessA;

        int d = (int) naccountA;


        int e = (int) nlawD;

        int f = (int) ncomputingD;

        int g = (int) nbusinessD;

        int h = (int) naccountD;
```

```
        int aM =  0;
        int bF =  6;
        int cM =  1;
        int dF =  4;
        int eM =  4;
        int fF =  5;
        int gM =  2;
        int hF =  3;

        int aF = a - 0;
        int bM = b - 6;
        int cF = c - 1;
        int dM = d - 4;

        int eF = e - 4;
        int fM = f - 5;
        int gF = g - 2;
        int hM = h - 3;

        System.out.println("Percentage of students in School of Business who have depression     = " + bapercent + "%");
        System.out.println("Percentage of students in School of Accounting who have depression   = " + bapercent + "%");
        System.out.println("");

        System.out.println("Here is the result : ");
        System.out.println(" ");
        System.out.println("Anxiety Test");
        System.out.println(" ");
        System.out.println(" ---------------------- " + " --------------------------- " + " ------------------------- " + " ----------------- " + " --------------- ");
```

```
        System.out.println("|        School        |" + "| Percentage of students(%)
|" + "| Total Number of students |" + "| Female students |" + "| Male students |");

        System.out.println("|     School of Law    |" + "|            " + lbpercent +
"            |" + "|             "+   a +"               |" + "|         "+   aF +"
|" + "|        "+   aM +"      |");

        System.out.println("|  School of Computing |" + "|             " + computingA
+ "            |" + "|             "+   b +"               |" + "|         "+   bF +"
|" + "|        "+   bM +"      |");

        System.out.println("|  School of Business  |" + "|            " + lbpercent +
"            |" + "|             "+   c +"               |" + "|         "+   cF +"
|" + "|        "+   cM +"      |");

        System.out.println("| School of Accounting |" + "|             " + accountA +
"             |" + "|             "+   d +"               |" + "|         "+   dF +"
|" + "|        "+   dM +"      |");

        System.out.println(" ---------------------- " + " -------------------------
" + " ------------------------ " + " ----------------- " + " --------------- ");


        System.out.println(" ");

        System.out.println("Depression Test");

        System.out.println(" ");

        System.out.println(" ---------------------- " + " -------------------------
" + " ------------------------ " + " ----------------- " + " --------------- ");

        System.out.println("|        School        |" + "| Percentage of students(%)
|" + "| Total Number of students |" + "| Female students |" + "| Male students |");

        System.out.println("|     School of Law    |" + "|             " + lawD +  "
|" + "|             "+   e +"             |" + "|         "+   eF +"         |" + "|
"+   eM +"      |");

        System.out.println("|  School of Computing |" + "|             " + computingD
+ "            |" + "|             "+   f +"               |" + "|         "+   fF +"
|" + "|        "+   fM +"      |");

        System.out.println("|  School of Business  |" + "|            " + bapercent +
"            |" + "|             "+   g +"               |" + "|         "+   gF +"
|" + "|        "+   gM +"      |");

        System.out.println("| School of Accounting |" + "|            " + bapercent +
"            |" + "|             "+   h +"               |" + "|         "+   hF +"
|" + "|        "+   hM +"      |");

        System.out.println(" ---------------------- " + " -------------------------
" + " ------------------------ " + " ----------------- " + " --------------- ");
```

```
        System.out.println("Data below show the level of anxiety and depression of a
student");
        System.out.println("Anxiety level    : ");
        System.out.println("                 0-5   -> minimal anxiety");
        System.out.println("                 6-10  -> moderate anxiety");
        System.out.println("                 11-20 -> severe anxiety");
        System.out.println();
        System.out.println("Depression level : ");
        System.out.println("                 1-6   -> minimal depression");
        System.out.println("                 7-12  -> moderate depression");
        System.out.println("                 13-20 -> severe depression");
        System.out.println();
        System.out.println("Based on the table:");
        StudentAnxiety();
        passArraytomethodA.mainA(args);
        System.out.println();
    StudentDepress();
    passArraytomethodD.mainD(args);

    sc.close();
}
        public int maxA(int [] array) {
      int maxA = 0;
      for(int i=0; i<array.length; i++ ) {
         if(array[i]>maxA) {
            maxA = array[i];
         }
      }
      return maxA;
   }
```

```
public int minA(int [] array) {
      int minA = array[0];

      for(int i = 0; i<array.length; i++ ) {
         if(array[i]<minA) {
            minA = array[i];
         }
      }
      return minA;
   }


public class passArraytomethodA {
public static void mainA (String args[]) {
      Scanner sc = new Scanner (System.in);
      int minAB = 0;
          int modAB = 0;
          int sevAB = 0;
      System.out.print("Enter total number of students who have anxiety : ");
      int size = sc.nextInt();
      int[] myArray = new int[size];
      System.out.println("Enter their score : ");

      for(int i=0; i<size; i++) {
        System.out.print("Result for the " + (i + 1) + " student (0-20) = ");
         myArray[i] = sc.nextInt();

         if (myArray[i] <= 5) {
              minAB += 1;
                  }
            else if (myArray[i] <= 10 ) {
```

```
            modAB += 1;}
          else {
            sevAB += 1;}
      }

      LastUniversity m = new LastUniversity();
      System.out.println();
  System.out.println(minAB + "/" + "5 students in School of Business has minimal anxiety");
  System.out.println(modAB + "/" + "5 students in School of Business has moderate anxiety");
  System.out.println(sevAB + "/" + "5 students in School of Business has severe anxiety");
  System.out.println();
      System.out.println("The largest score : "+ m.maxA(myArray));
      System.out.println("The lowest score  : "+ m.minA(myArray));

      sc.close();
    }

        }

        public int maxD(int [] array) {
      int maxD = 0;

      for(int i=0; i<array.length; i++ ) {
         if(array[i]>maxD) {
            maxD = array[i];
         }
      }
      return maxD;
   }
```

```
public int minD(int [] array) {
      int minD = array[0];

      for(int i = 0; i<array.length; i++ ) {
         if(array[i]<minD) {
            minD = array[i];
         }
      }
      return minD;
   }

 public class passArraytomethodD {
 public static void mainD (String args[]) {
      Scanner sc = new Scanner (System.in);
      int minDB = 0;
          int modDB = 0;
          int sevDB = 0;
      System.out.print("Enter total number of students who have depression : ");
      int size = sc.nextInt();
      int[] myArray = new int[size];
      System.out.println("Enter their score : ");

      for(int i=0; i<size; i++) {
        System.out.print("Result for the " + (i + 1) + " student (0-20) = ");
          myArray[i] = sc.nextInt();

          if (myArray[i] <= 6) {
               minDB += 1;
                   }
             else if (myArray[i] <= 12 ) {
```

```
                modDB += 1;}
              else {
                sevDB += 1;}
        }



        LastUniversity m = new LastUniversity();
        System.out.println();
    System.out.println(minDB + "/" + "6 students in School of Business has minimal depression");
    System.out.println(modDB + "/" + "6 students in School of Business has moderate depression");
    System.out.println(sevDB + "/" + "6 students in School of Business has severe depression");
    System.out.println();
        System.out.println("The largest score : "+ m.maxD(myArray));
        System.out.println("The lowest score  : "+ m.minD(myArray));


        sc.close();
     }



}



    public static void StudentAnxiety() {
String[][] Business = {{"Nabila", "Ching Mei", "Siti", "Kasim", "Printhaa"},
       {"11", "4", "5", "3", "7"}};


System.out.println("Here are result for students in School of Business in anxiety test");
System.out.println();
```

```
System.out.println("1.Score for " + Business[0][0] + ".....= " + Business[1][0]);
System.out.println("2.Score for " + Business[0][1] + "..= " + Business[1][1]);
System.out.println("3.Score for " + Business[0][2] + ".......= " + Business[1][2]);
System.out.println("4.Score for " + Business[0][3] + "......= " + Business[1][3]);
System.out.println("5.Score for " + Business[0][4] + "...= " + Business[1][4]);
System.out.println();

}

    public static void StudentDepress() {
String[][] Business = {{"Aisyah", "Theva", "Sarah", "Kamal", "Aiman", "Mei ying"},
       {"10", "11", "7", "5", "3", "2"}};

System.out.println("Here are result for students in School of Business in depression
test");
System.out.println();

System.out.println("1.Score for " + Business[0][0] + ".....= " + Business[1][0]);
System.out.println("2.Score for " + Business[0][1] + "......= " + Business[1][1]);
System.out.println("3.Score for " + Business[0][2] + "......= " + Business[1][2]);
System.out.println("4.Score for " + Business[0][3] + "......= " + Business[1][3]);
System.out.println("5.Score for " + Business[0][4] + "......= " + Business[1][4]);
System.out.println("6.Score for " + Business[0][5] + "...= " + Business[1][5]);
System.out.println();

            }
    }
```

4.0. Sample Output

4.1. Main Menu

```
==MAIN MENU==
1. Employees Salary
2. Student Facilities
3. Course Registration
4. Library Fees and Charge
5. Medical Survey
Please choose the service.
```

4.2. Employees

```
Welcome!
This system will help you to calculate your net salary.
Please enter your details and you may refer to the information below.
All information is entered into a system for future use. Thank you.
```

TYPES OF LECTURER	PERMANENT LECTURER	CONTRACT LECTURER	PTFT LECTURER
WORK CODE	DPL45	DCL51	DPP441
SALARY PER HOUR	RM132.00	RM85.00	RM63.00
ALLOWANCE	RM900.00	RM800.00	RM0.00

```
Enter your name:
AISYAH BINTI ABDULLAH
Enter your identification card number:
461781992490
Enter the month of payslip you want:
SEPTEMBER
Enter your work code:
DCL51
Enter your hour of work for this month:
63
Enter your salary per hour:
RM85
Enter your allowance
RM800
********************************************************************************************
                                PAYSLIP [SEPTEMBER], 2021
********************************************************************************************
NAME: AISYAH BINTI ABDULLAH                                        WORK CODE: DCL51
NRIC NO: 461781992490

===EARNINGS===
BASIC SALARY: RM6155.00
ALLOWANCE: RM800.00

===DEDUCTION===
EPF: RM615.50
SOCSO: RM30.78
AMOUNT OF DEDUCTION: RM646.28
********************************************************************************************
                        NET SALARY: RM5508.73
********************************************************************************************

Do you want to return to main menu?
Press Y considered as yes and N vice versa.
N
```

4.3. Student

```
Based on the info please key in your choice in the next question.
-----------------------------------------------------
 For Malaysian please key in number 0
 For foreigner please key in number 1
-----------------------------------------------------
Please key in your nationality :
1
Foreigner
Welcome to UUM Portal.
Please make sure you complete all part.
---------PART 1---------

Please key in your detail
Name:
ALYS
Semester:
2
Based on the info below please answer the next question.
-----------------------------------------------------------------------------------------------------------------------
For foreigner/International Student you are given only one choice of residential college to choose:
  OPTION 1 - SYED RESIDENTIAL COLLEGE
NOTES: THE SYED RESIDENTIAL COLLEGE WILL CHARGE YOU THREE TIMES MORE THAN ZAIN RESIDENTIAL COLLEGE PRICE
-----------------------------------------------------------------------------------------------------------------------
Please key in your choice:
1
Your current balance fee is: 482.97
The balance fee that you need to pay is: 482.97
---------PART II---------
Based on the info below please answer the next question.
----------COCURICULUM MARK RANGE----------
Number 1- TOTAL COCURICULUM MARK FROM 0 TO 10
Number 2- TOTAL COCURICULUM MARK FROM 11 TO 20
Number 3- TOTAL COCURICULUM MARK FROM 21 TO 30
Number 4- TOTAL COCURICULUM MARK FROM 31 TO 40
Number 5- TOTAL COCURICULUM MARK FROM 41 TO 50
Number 6- TOTAL COCURICULUM MARK FROM 51 TO 60
Number 7- TOTAL COCURICULUM MARK FROM 61 TO 69
Number 8- TOTAL COCURICULUM MARK FROM 70 TO 80
Number 9- TOTAL COCURICULUM MARK FROM 80 TO 90
Number 10- TOTAL COCURICULUM MARK FROM 90 TO 100
Please key in the number based on the range of your total cocuriculum mark:
8
TOTAL COCURICULUM MARK FROM 70 TO 80
Congratulation you have successfully receive 80% discount.
The system will calculate your balance fee
The balance fee that you need to pay is: 96.59
-----------------------------------------------------------------------

Student's Details
Name:                                   ALYS
Semester:                               2
Nationality:                            Foreigner
College Residential choice:             1
Total Balance Fee:                      96.59400000000001

-----------------------------------------------------------------------
```

4.4. Course

```
Please choose the service.
3
Welcome!
We would like to know your information.
Enter your name: TANG WEI CHIANG
Enter your id: 286841
Enter your semester: 2

USER INFO:
Name    : TANG WEI CHIANG
ID      : 286841
Semester: 2

REGISTERED COURSE:
You've registered 3 courses in last semester
These are the courses that you've registered.
```

```
Course 1                        : STIA1113
Test 1 Marks                    : 36%
Test 2 Marks                    : 36%
Coursework Marks                : 18%
Total Marks                     : 90%
GPA                             : 4.00
Attended Times                  : 18
Maximum Attended Times          : 20 days
Attendance rate                 : 90.0%

Course 2                        : STQS1023
Test 1 Marks                    : 20%
Test 2 Marks                    : 20%
Coursework Marks                : 16%
Total Marks                     : 56%
GPA                             : 2.33
Attended Times                  : 15
Maximum Attended Times          : 20 days
Attendance rate                 : 75.0%

Course 3                        : STQM1203
Test 1 Marks                    : 15%
Test 2 Marks                    : 15%
Coursework Marks                : 14%
Total Marks                     : 44%
GPA                             : 1.33
Attended Times                  : 20
Maximum Attended Times          : 20 days
Attendance rate                 : 100.0%
```

```
Which second-level course you would like to register?
Press:
 (1) STIA1123
 (2) STID3113
 (3) STQM2103
Your answer: 1
```

```
STIA1123 requirements:
Completed STIA1113 with GPA 2.00 and attendance rate 80% or above.

STIA1113 GPA            : 4.00
STIA1113 Attendance Rate: 90.0%
You've passed the GPA and attendance rate requirements.
STIA1123 registered successfully!

Do you wish to register another course? (Y/Any key): y

Which second-level course you would like to register?
Press:
 (1) STIA1123
 (2) STID3113
 (3) STQM2103
Your answer: 0

Invalid course.
Please enter a valid number (1-3): 2

STQS1023 requirements:
Completed STQS1023 with GPA 2.00 and attendance rate 80% or above.

STQS1023 GPA            : 2.33
STQS1023 Attendance Rate: 75.0%
You've passed the GPA requirement but failed to fulfilled attendance rate, please retake the course.

Do you wish to register another course? (Y/Any key): Y

Which second-level course you would like to register?
Press:
 (1) STIA1123
 (2) STID3113
 (3) STQM2103
Your answer: -1

Invalid course.
Please enter a valid number (1-3): 3

STQM1203 requirements:
Completed STQM1203 with GPA 2.00 and attendance rate 80% or above.

STQM2103 GPA            : 1.33
STQM2103 Attendance Rate: 100.0%
You've passed the attendance rate requirement but failed to fulfilled GPA, please retake the course.

Do you wish to register another course? (Y/Any key): 0

Thanks for using the system.

If you want to return to main menu. Enter y.
If you do not want to return to main menu. Enter n.
YES=y           NO=n
```

4.5. Library

```
Enter student's name, ID,and year of study(separated by ENTER key):
Eri
284912
2
Does the student have a valid excuse? Enter y or n
y
Enter student's excuse.
Out of State
Enter number of books late:
2
Enter book title, book ISBN, and number of days late of book 1 (separated by ENTER key)
Girl A
461849173812
3
Enter book title, book ISBN, and number of days late of book 2 (separated by ENTER key)
Hayloft II
718394718293
1

================================================================

*Student Info
Student's name: Eri
Student's ID: 284912
Student's year of study: 2

****************************************************************
*Book Info
Book 1 title: Girl A
Book 1 ISBN: 461849173812
Number of days late for book 1 : 3
Fee for this book: RM9.00

Book 2 title: Hayloft II
Book 2 ISBN: 718394718293
Number of days late for book 2 : 1
Fee for this book: RM3.00

Excuse: Out of State
Total fee is: RM8.00
Discounted amount: RM1.60
Total discounted fee is: RM6.40

****************************************************************

================================================================
```

4.6. Medical

```
This program will help you to calculate number of students of different school

Based on the survey:
                    -Anxiety test    = 25.0%
                    -Depression test = 32.0%
                    -Anxiety test (School of Computing)     = 2.25%
                    -Anxiety test (School of Accounting)    = 1.50%
                    -Depression test (School of Law)        = 3.52%
                    -Depression test (School of Computing)  = 2.88%

Enter percentage of students have anxiety in School of Computing  = 2.25
Enter percentage of students have anxiety in School of Accounting = 1.5

Percentage of students in School of Computing who have anxiety  = 2.25%
Percentage of students in School of Accounting who have anxiety = 1.50%
Percentage of students in School of Law who have anxiety        = 1.25%
Percentage of students in School of Business who have anxiety   = 1.25%

Enter percentage of students have depression in School of Law       = 3.52
Enter percentage of students have depression in School of Computing = 2.88

Percentage of students in School of Law who have depression          = 3.52%
Percentage of students in School of Computing who have depression    = 2.88%
Percentage of students in School of Business who have depression     = 1.92%
Percentage of students in School of Accounting who have depression   = 1.92%
Here is the result :

Anxiety Test

 ---------------------  --------------------------  --------------------------  ----------------  --------------
|       School        || Percentage of students(%) || Total Number of students || Female students || Male students |
|    School of Law    ||           1.25           ||           5              ||       5        ||       0      |
|  School of Computing ||           2.25           ||           9              ||       6        ||       3      |
|  School of Business  ||           1.25           ||           5              ||       4        ||       1      |
| School of Accounting ||           1.5            ||           6              ||       4        ||       2      |
 ---------------------  --------------------------  --------------------------  ----------------  --------------

Depression Test

 ---------------------  --------------------------  --------------------------  ----------------  --------------
|       School        || Percentage of students(%) || Total Number of students || Female students || Male students |
|    School of Law    ||           3.52           ||           11             ||       7        ||       4      |
|  School of Computing ||           2.88           ||           9              ||       5        ||       4      |
|  School of Business  ||           1.92           ||           6              ||       4        ||       2      |
| School of Accounting ||           1.92           ||           6              ||       3        ||       3      |
 ---------------------  --------------------------  --------------------------  ----------------  --------------
```

```
Data below show the level of anxiety and depression of a student
Anxiety level    :
                 0-5   -> minimal anxiety
                 6-10  -> moderate anxiety
                 11-20 -> severe anxiety

Depression level :
                 1-6   -> minimal depression
                 7-12  -> moderate depression
                 13-20 -> severe depression
```

```
Based on the table:
Here are result for students in School of Business in anxiety test

1.Score for Nabila.....= 11
2.Score for Ching Mei..= 4
3.Score for Siti.......= 5
4.Score for Kasim......= 3
5.Score for Printhaa...= 7

Enter total number of students who have anxiety : 5
Enter their score :
Result for the 1 student (0-20) = 11
Result for the 2 student (0-20) = 4
Result for the 3 student (0-20) = 5
Result for the 4 student (0-20) = 3
Result for the 5 student (0-20) = 7

3/5 students in School of Business has minimal anxiety
1/5 students in School of Business has moderate anxiety
1/5 students in School of Business has severe anxiety

The largest score : 11
The lowest score  : 3
```

```
Here are result for students in School of Business in depression test

1.Score for Aisyah.....= 10
2.Score for Theva......= 11
3.Score for Sarah......= 7
4.Score for Kamal......= 5
5.Score for Aiman......= 3
6.Score for Mei ying...= 2

Enter total number of students who have depression : 6
Enter their score :
Result for the 1 student (0-20) = 10
Result for the 2 student (0-20) = 11
Result for the 3 student (0-20) = 7
Result for the 4 student (0-20) = 5
Result for the 5 student (0-20) = 3
Result for the 6 student (0-20) = 2

3/6 students in School of Business has minimal depression
3/6 students in School of Business has moderate depression
0/6 students in School of Business has severe depression

The largest score : 11
The lowest score  : 2
```

5.0. References

Course (education). (2021, August 5). Wikipedia. Retrieved December 15, 2021, from https://en.wikipedia.org/wiki/Course_(education)

Editorial Team. Create a Positive Ecosystem, *Check 10 Benefits of Using The Salary Slip Application for Employees and Companies.* (15th September, 2021). Retrieved from https://voi.id/en/lifestyle/85450/create-a-positive-ecosystem-check-10-benefits-of-using-the-salary-slip-application-for-employees-and-companies

Mental Health America. (2020). *Anxiety Test.* Retrieved January 10, 2022, from https://screening.mhanational.org/screening-tools/depression/

Mental Health America. (2020). *Anxiety Test.* Retrieved October 1, 2021, from https://screening.mhanational.org/screening-tools/anxiety/

What is the difference between a program, unit and course?. (2019, November 25). The University of Adelaide. Retrieved December 15, 2021, from https://student.ask.adelaide.edu.au/app/answers/detail/a_id/2899/~/what-is-the-difference-between-a-program%2C-unit-and-course%3F

WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. (2020, March 11). World Health Organization. Retrieved October 1, 2021, from https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020