ASSIGNMENT 1

Name : Nurin Izzah Binti Ishak

Matric No : 288063

Topic : University

Subtopic : Employee

1. Identify the problem

Recently, University Utara Malaysia has hired a number of new employees to work in the office. Most of them are clerical workers. However, they face problems in calculating their net salary including bonuses, SOCSO, EPF and even taxes. They have to find the information related to the salary on the official websites of the tax, SOCSO and EPF and it is time consuming and difficult. As such, they need a system that can help them to obtain such information with only one application that is complete with info on such taxes and bonuses.

An employee is a term for workers and managers working for a company, organization or community. These people are the staff of the organization. In general, any person hired by an employer to do a particular job in exchange for payment is an employee, but there are different kinds of employees. In some countries, employers are required by law to do certain things, like obey minimum wage laws, provide a safe workplace, and sometimes pay a tax. Employers also have to give their official employees benefits, like paying for health insurance. Because of this, some employers like to hire independent contractors to do work instead of regular employees. In the United States, a worker is an employee if their employer gets to tell them what to do, how to do it, and when to do it in a material way and an independent contractor if they get to make their own decisions about how to do what the employer wants.

Some employers like to hire independent contractors, or workers who are technically running their own businesses, because they do not have to follow all of the same laws. For example, in the

United States, an employer has to some of the employee's social security taxes and the employee pays the rest. A self-employed person pays for all of his or her own social security taxes.

For example, if a company hires a plumber every time they need a leak or pipe fixed in their building, that plumber is an independent contractor. If a company hires a plumber to be part of their company, then that plumber is an employee. They must pay the employee plumber whether there are leaks to fix or not. They must obey any minimum wage laws that the country has. They must provide other things. But the employer gets to tell the employee plumber what to do and how to do it much more than an independent contractor plumber. They can make the employee plumber follow a dress code, while the independent plumber gets to wear what he or she wants. They can make the employee plumber come in or leave on a set schedule like other employees. The independent contractor plumber gets to decide when to come to work, usually by making an appointment with the employer.

Some companies like to hire independent contractors and then tell them exactly what to do and when to do it, like regular employees. They can get in trouble for this. In the United States, the Internal Revenue Service can sue companies that lie about whether their employees really are independent contractors.

On the other hand, a salary is a form of periodic payment from an employer to an employee, which may be specified in an employment contract. It is contrasted with piece wages, where each job, hour or other unit is paid separately, rather than on a periodic basis. From the point of view of running a business, salary can also be viewed as the cost of acquiring and retaining human resources for running operations, and is then termed personnel expense or salary expense. In accounting, salaries are recorded in payroll accounts.

Salary is a fixed amount of money or compensation paid to an employee by an employer in return for work performed. Salary is commonly paid in fixed intervals, for example, monthly payments of one-twelfth of the annual salary.

Salary is typically determined by comparing market pay rates for people performing similar work in similar industries in the same region. Salary is also determined by levelling the pay rates and salary ranges established by an individual employer. Salary is also affected by the number of people available to perform the specific job in the employer's employment locale.

2. Understand the problem

University Utara Malaysia has launched a system where it can help new employees to calculate their salaries easily and quickly. It is called UUM salary calculator. This calculator can help to calculate

bonuses, taxes, SOCSO, EPF and so on. As such, employees no longer need to search for relevant slips to obtain bonus and tax related information.

A bonus payment is usually made to employees in addition to their base salary as part of their wages or salary. While the base salary usually is a fixed amount per month, bonus payments more often than not vary depending on known criteria, such as the annual turnover, or the net number of additional customers acquired, or the current value of the stock of a public company. Thus bonus payments can act as incentives for managers attracting their attention and their personal interest towards what is seen as gainful for their companies' economic success.

There are widely-used elements of pay for performance and working well in many instances, including when a fair share of an employee's participation in the success of a company is desired. There are, however, problematic instances, most notably when bonus payments are high. When they are tied to possibly short-lived figures such as an increase in monthly turnover, or cash flow generated from an isolated marketing action, such figures often do not reflect a solid reliable win for a company, and they certainly do not reflect a manager's lasting efforts to the company's best.

Employee Provident Fund (EPF) is a scheme in which you can create wealth throughout your working years as an employee at a government or private organisation. This amount earns interest, years as an employee at a government or private organisation. This amount earns interest, and you can use it to finance a part of post-retirement life or other goals. In this scheme, both you and your employer make contributions towards your EPF. You can claim the entire amount at the time of your retirement or two months after changing your job. You and your employer need to transfer 10% or 12% of your basic salary to contribute towards EPF. However, if you are a woman, you only need to contribute 8% of your basic salary for the first three years. During this period, your employer's EPF contribution will remain 12%. For sick units or establishments with less than 20 employees, the rate 10% as per Employees' Provident Fund Organisation's (EPFO) guidelines. Also, as per Budget 2018, the rate of interest applicable on EPF is 8.65%. To better understand how EPF can help you, take a look at how you and your employer contribute to it.

SOCSO (Social Security Organization), also known as PERKESO (Pertubuhan Keselamatan Sosial), was established in 1971 under the Ministry of Human Resources (formerly known as Ministry of Labour) to provide social security protections to all employees/workers in Malaysia. The amount paid is calculated at 0.5% of the employee's monthly earnings (according to 24 wage classes as in the Contribution Table & Rates below) along with the 1.75% contribution [of the monthly payroll] from the employer.

Any individual earning more than RM34,000 per annum (or roughly RM2,833.33 per month) after EPF deductions has to register a tax file. You must pay income tax on all types of income, including income from your business or profession, employment, dividends, interest, discounts, rent, royalties, premiums, pensions, annuities, and others. So for salaried employees, this not only includes your

monthly salary, but also things like bonuses, overtime, commissions, and all other taxable income. If you're not sure what counts as income that you have to declare for tax purposes or not, scroll down to our section on stating your income below. You don't have to pay taxes in Malaysia if you have been employed in the country for less than 60 days or for income that is earned from outside Malaysia.

3. **Identify alternative ways to solve the problem**
    - Hire more staff to calculate the salary.
    - Employees check their salary by using online banking such as Bank Islam, Maybank, Bank Rakyat and etc.
    - The superiors search for employee data in employee files.
    - Employee fill in the information such as name, employee ID, NRIC in a form given to check their salary manually.
    - Create a system that can calculate salary including EPF, SOCSO, taxes, bonuses and etc. and display it for user so that it can helps new employees to check their salary easily and quickly.
    - Employees search for relevant slips to obtain bonus and tax related information.

4. **Select the best way to solve the problem from the list of alternative solutions.**
    - Create a system that can calculate salary including EPF, SOCSO, taxes, bonuses and etc. and display it for user so that it can helps new employees to check their salary easily and quickly.

5. **List instructions (steps) that enable you to solve the problem using the selected solution.**
    - **i.** User fill in the information such as name, employee ID and NRIC to log in to the system.
    - **ii.** Then, it will display user's basic salary which is RM 1200 for all new employees.
    - **iii.** It will also showed the text that said the salary is not included with variable pay which is petrol allowance and mobile allowance. The company will only bear the travel distance of employees who receive a petrol allowance of 650 KM only. Moreover, every employees will get a mobile allowance for RM200 every month.

Description	Amount (RM)	Quantity
Petrol allowance	0.50	250
Mobile allowance	50.00	1

    - **iv.** Next, the system will calculate the total of variable pay and display it for user.
    - **v.** Then, the system will ask how many times employees have meet with the clients. For every client, the employees will get RM100 as the bonus.
    - **vi.** Furthermore, the system will calculate statutory contribution which include EPF, SOCSO and taxes and it will display the result for the user.

Statutory Contribution	Amount
EPF	13%
SOCSO	RM 6.25
Tax	10%

11	When wages exceed RM600 but not RM700	RM11.35	RM3.25	RM14.60	RM8.10
12	When wages exceed RM700 but not RM800	RM13.15	RM3.75	RM16.90	RM9.40
13	When wages exceed RM800 but not RM900	RM14.85	RM4.25	RM19.10	RM10.60
14	When wages exceed RM900 but not RM1,000	RM16.65	RM4.75	RM21.40	RM11.90
15	When wages exceed RM1,000 but not RM1,100	RM18.35	RM5.25	RM23.60	RM13.10
16	When wages exceed RM1,100 but not RM1,200	RM20.15	RM5.75	RM25.90	RM14.40
17	When wages exceed RM1,200 but not RM1,300	RM21.85	RM6.25	RM28.10	RM15.60
18	When wages exceed RM1,300 but not RM1,400	RM23.65	RM6.75	RM30.40	RM16.90
19	When wages exceed RM1,400 but not RM1,500	RM25.35	RM7.25	RM32.60	RM18.10
20	When wages exceed RM1,500 but not RM1,600	RM27.15	RM7.75	RM34.90	RM19.40
21	When wages exceed RM1,600 but not RM1,700	RM28.85	RM8.25	RM37.10	RM20.60

vii. Last but not least, the system will calculate the net salary of the user and display it.

viii. System end.

6. Evaluate the solution.

The system is to make it easier for employees to calculate their salaries including EPF, SOCSO, bonuses and taxes easily without confusing them. If using the manual method, it will probably get an error result and will probably be able to cause losses to the company. This will be able to avoid negligence from employees and please all parties. It can also save employee's time and work can be done easily and quickly. Therefore, in line with the new era today, we must overhaul the existing technology in order to compete with other developed countries that have higher quality technology.

7. Algorithm

UNIVERSITY UTARA MALAYSIA

Payment of Employee Salary

1. SELF INFORMATION

User fill in the information such as name, employee ID and NRIC to log in to the system.

3. VARIABLE PAY

It will also display the text that said the salary is not included with variable pay which is petrol allowance and mobile allowance.

2. BASIC SALARY

Then, it will display user's basic salary which is RM 1200 for all new employees.

4. TOTAL VARIABLE PAY

Next, the system will calculate the total of variable pay and display it for user.

5. CLIENTS

Then, the system will ask how many times employees have meet with the clients. For every client that have met will get RM100.

6. STATUTORY CONTRIBUTION

The system will calculate statutory contribution which include EPF, SOCSO, and taxes and display it.

7. NET SALARY

The system will calculate the net salary of the user and display it.

8. Pseudocode

Start

Print "_____"

Print "----------[Welcome to UUM Salary Calculator]----------"

Print "_____"

Print "This program is to help new employees to calculate their salaries which have been added and subtracted by various sectors such as bonuses, taxes, EPF, SOCSO, and etc."

Print "_____"

Print"----------[Section 1]----------"

Output "Please enter your name: "

Input name

Output "Please enter your ID: "

Input ID

Output "Please enter your NRIC: "

Input NRIC

Print "_____"

Print "----------[Section 2]----------"

Print "[Basic salary: RM " +basicsalary]

Print "The salary is not included with variable pay which is petrol allowance and mobile allowance."

Print "********** Variable Pay **********"

Calculate petrolallowance = (0.5*200)

Print "[Your petrol allowance for this month is: RM "+petrolallowance]

Calculate mobileallowance = (50*1)

Print "[Your mobile allowance for this month is: RM "+mobileallowance]

Calculate variablepay = petrolallowance + mobileallowance

Print "[Variable pay: RM "+variablepay]

Print "********** Bonus **********"

Output "How many times have you met with outside clients this month?"

Input client

Calculate bonus = (client*100)

Print “[Your bonus for this month: RM “+bonus]

Print “_____”

Print “----------[Section 3]----------“

Print “********** Statutory Contribution **********”

Calculate EPF = (basicsalary*0.13)

Print “[EPF Employee Contribution: RM “+EPF]

Calculate SOCSO = 6.25

Print “[Rate of contribution for Employees’ Social Security when

wages exceed RM1200 but not RM1300: RM” +SOCSO]

Calculate tax = (basicsalary*0.1);

Print “[Tax deduction: RM “+tax]

Calculate statutorycontribution = EPF+SOCSO+tax

Print “[Your total statutory contribution: RM “+statutorycontribution]

Print “_____”

Print “----------[Section 4]----------“

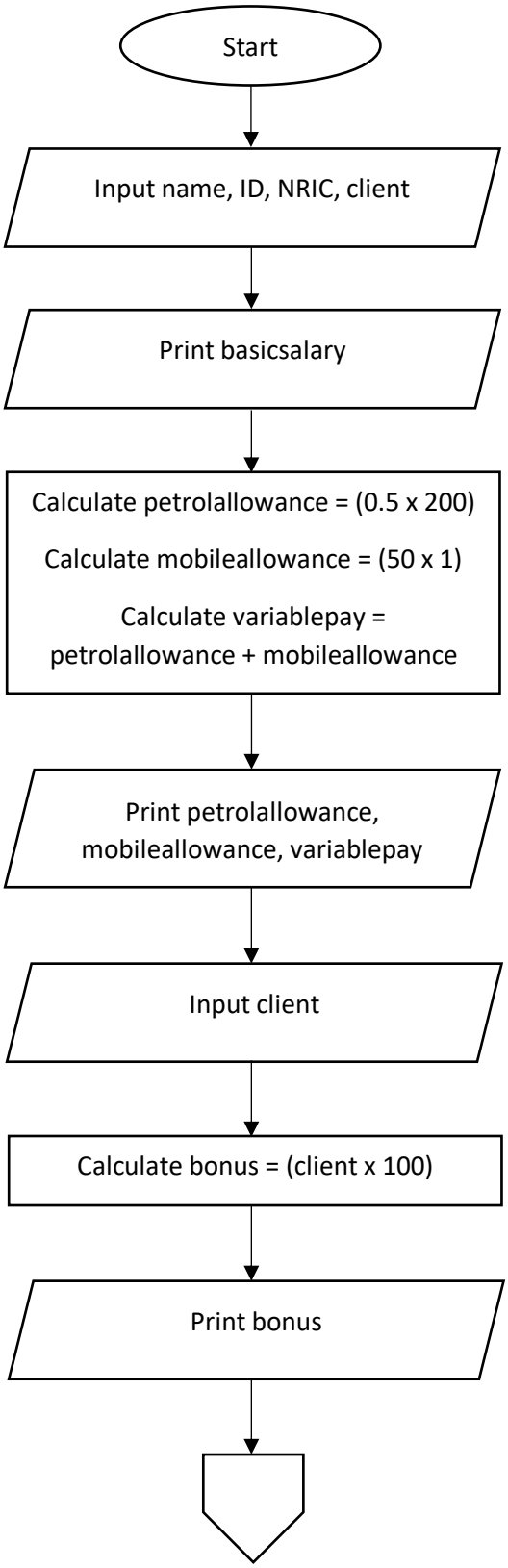
Calculate netsalary = (basicsalary + (bonus+variablepay) – (statutorycontribution)

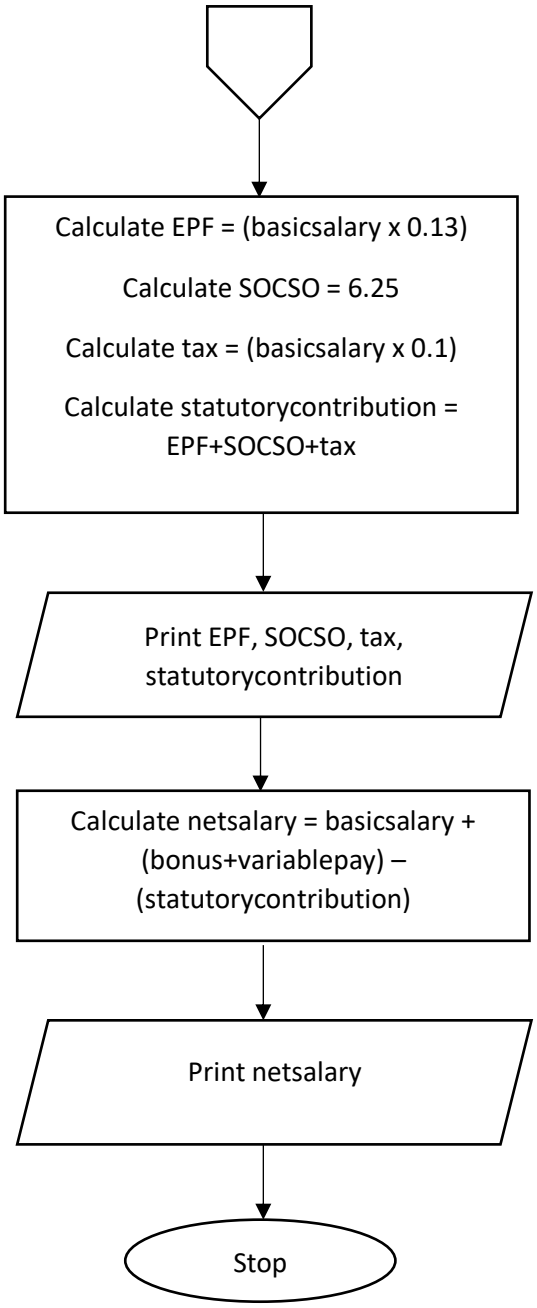
Print “[Your net salary for this month: RM ”+netsalary]

Print “_____”

End

9. Flow Chart


Start
Input name, ID, NRIC, client
Print basicsalary
Calculate petrolallowance = (0.5 x 200)
Calculate mobileallowance = (50 x 1)
Calculate variablepay = petrolallowance + mobileallowance
Print petrolallowance, mobileallowance, variablepay
Input client
Calculate bonus = (client x 100)
Print bonus


Calculate EPF = (basicsalary x 0.13)
Calculate SOCSO = 6.25
Calculate tax = (basicsalary x 0.1)
Calculate statutorycontribution = EPF+SOCSO+tax
Print EPF, SOCSO, tax, statutorycontribution
Calculate netsalary = basicsalary + (bonus+variablepay) – (statutorycontribution)
Print netsalary
Stop

10. Coding – Numerical Computation & Expression

INPUT

```
package selfProgramming;
import java.util.Scanner;
public class Asg1Salary {

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

		int ID;
		int client;
		String Name;
		double NRIC;
		double basicsalary = 1200;
		double bonus, statutorycontribution;
		double netsalary, variablepay;
		double EPF, SOCSO, tax;
		double petrolallowance;
		double mobileallowance;

		Scanner input = new Scanner (System.in);


	System.out.println("_____________________________________________________________________"
);
		System.out.println("---------------[Welcome to UUM Salary Calculator]----------
------");

	System.out.println("_____________________________________________________________________"
);
		System.out.println();
		System.out.println("\r\n"
				+ "This program is to help new employees to calculate their
salaries\n"
				+ " which have been added and subtracted by various sectors such
as\n"
				+ " bonuses, taxes, EPF, SOCSO and so on");
		System.out.println();

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

		System.out.println("--------------------------[Section 1]----------------------
------");
		System.out.println();

		System.out.println("Please enter your name: ");
		Name = input.nextLine();

		System.out.println("Please enter your ID: ");
		ID = input.nextInt();

		System.out.println("Please enter your NRIC (without (-)): ");
		NRIC = input.nextDouble();


	System.out.println("_____________________________________________________________________"
);
		System.out.println();
		System.out.println("--------------------------[Section 2]----------------------
------");
		System.out.println();

		System.out.println("Basic Salary: RM " +basicsalary);
		System.out.println("The salary is not include with variable pay which is\n "
				+ "petrol allowance and mobile allowance");
		System.out.println();

		System.out.println("************************ Variable Pay
*************************");
```

```
                petrolallowance = (0.5*200);
                System.out.println("Your petrol allowance for this month is: RM "
+petrolallowance);
                mobileallowance = (50*1);
                System.out.println("Your mobile allowance for this month is: RM "
+mobileallowance);
                variablepay = petrolallowance+mobileallowance;
                System.out.println("Variable pay: RM " +variablepay);

                System.out.println();
                System.out.println("************************** Bonus
******************************");
                System.out.println("How many times have you met with outside clients this
month? : ");
                //Put 0 if you didn't met any clients
                client = input.nextInt();
                bonus = (client*100);
                System.out.println("Your bonus for this month: RM " +bonus);


        System.out.println("_____________________________________________________________________"
);
                System.out.println();
                System.out.println("---------------------------[Section 3]---------------------
------");
                System.out.println();

                System.out.println("**********************Statutory
Contribution********************");
                System.out.println();
                EPF = (basicsalary*0.13);
                System.out.println("EPF Employee Contribution: RM " +EPF);

                SOCSO = 6.25;
                System.out.println("Rate of contribution for Employees' Social Security\n "
                                        + "when wages exceed RM1200 but not RM1300: RM"
+SOCSO);
                tax = (basicsalary*0.1);
                System.out.println("Tax deduction: RM " +tax);

                System.out.println();
                statutorycontribution = EPF+SOCSO+tax;
                System.out.println("Your total statutory contribution: RM "
+statutorycontribution);

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

                System.out.println("---------------------------[Section 4]---------------------
-------");
                System.out.println();

                netsalary = (basicsalary + (bonus+variablepay) - (statutorycontribution));
                System.out.println("Your net salary for this month: RM " +netsalary);
                System.out.println();

        System.out.println("_____________________________________________________________________
");



        }

}
```

OUTPUT

```
_____________________________________________________________
--------------[Welcome to UUM Salary Calculator]---------------
_____________________________________________________________

This program is to help new employees to calculate their salaries
```

```
 which have been added and subtracted by various sectors such as
 bonuses, taxes, EPF, SOCSO and so on

_____________________________________________________________________

-------------------------[Section 1]---------------------------

Please enter your name:
Nurin Izzah Binti Ishak
Please enter your ID:
288063
Please enter your NRIC (without (-)):
020415140514
_____________________________________________________________________

-------------------------[Section 2]---------------------------

Basic Salary: RM 1200.0
The salary is not include with variable pay which is
 petrol allowance and mobile allowance

************************ Variable Pay *************************
Your petrol allowance for this month is: RM 100.0
Your mobile allowance for this month is: RM 50.0
Variable pay: RM 150.0

************************** Bonus ******************************
How many times have you met with outside clients this month? :
2
Your bonus for this month: RM 200.0
_____________________________________________________________________

--------------------------[Section 3]---------------------------

**********************Statutory Contribution********************

EPF Employee Contribution: RM 156.0
Rate of contribution for Employees' Social Security
 when wages exceed RM1200 but not RM1300: RM6.25
Tax deduction: RM 120.0

Your total statutory contribution: RM 282.25
_____________________________________________________________________

---------------------------[Section 4]---------------------------

Your net salary for this month: RM 1267.75

_____________________________________________________________________
```

```java
package selfProgramming;
import java.util.Scanner;
public class Asg1Salary {

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

        int ID;
        int client;
        String Name, PaymentMethod;
        double NRIC;
        double basicsalary = 1200;
        double bonus, statutorycontribution;
        double netsalary, variablepay;
        double EPF, SOCSO, tax;
        double petrolallowance;
        double mobileallowance;

        Scanner input = new Scanner (System.in);

        System.out.println("_____________________________________________________________________");
        System.out.println("---------------[Welcome to UUM Salary Calculator]----------------");
        System.out.println("_____________________________________________________________________");
        System.out.println();
        System.out.println("\r\n"
                + "This program is to help new employees to calculate their salaries\n"
                + " which have been added and subtracted by various sectors such as\n"
                + " bonuses, taxes, EPF, SOCSO and so on");
        System.out.println();
        System.out.println("_____________________________________________________________________");
        System.out.println();

        System.out.println("--------------------------[Section 1]----------------------------");
        System.out.println();

        System.out.println("Please enter your name: ");
        Name = input.nextLine();


    System.out.println("Please enter your ID: ");
    ID = input.nextInt();

    System.out.println("Please enter your NRIC (without (-)): ");
    NRIC = input.nextDouble();

    System.out.println("_____________________________________________________________________");
    System.out.println();
    System.out.println("--------------------------[Section 2]----------------------------");
    System.out.println();

    System.out.println("Basic Salary: RM " +basicsalary);
    System.out.println("The salary is not include with variable pay which is\n "
                + "petrol allowance and mobile allowance");
    System.out.println();

    System.out.println("************************ Variable Pay *************************");
    petrolallowance = (0.5*650);
    System.out.println("Your petrol allowance for this month is: RM " +petrolallowance);
    mobileallowance = (200*1);
    System.out.println("Your mobile allowance for this month is: RM " +mobileallowance);
    variablepay = petrolallowance+mobileallowance;
    System.out.println("Variable pay: RM " +variablepay);

    System.out.println();
    System.out.println("************************** Bonus ******************************");
    System.out.println("How many times have you met with outside clients this month? : ");
    //Put 0 if you didn't met any clients
    client = input.nextInt();
    bonus = (client*100);
    System.out.println("Your bonus for this month: RM " +bonus);

    System.out.println("_____________________________________________________________________");
    System.out.println();
    System.out.println("--------------------------[Section 3]----------------------------");
    System.out.println();
```

```
        System.out.println("_____________________________________________________________________");
        System.out.println();
        System.out.println("--------------------------[Section 3]--------------------------");
        System.out.println();

        System.out.println("**********************Statutory Contribution*******************");
        System.out.println();
        EPF = (basicsalary*0.13);
        System.out.println("EPF Employee Contribution: RM " +EPF);

        SOCSO = 6.25;
        System.out.println("Rate of contribution for Employees' Social Security\n "
                        + "when wages exceed RM1200 but not RM1300: RM" +SOCSO);
        tax = (basicsalary*0.1);
        System.out.println("Tax deduction: RM " +tax);

        System.out.println();
        statutorycontribution = EPF+SOCSO+tax;
        System.out.println("Your total statutory contribution: RM " +statutorycontribution);
        System.out.println("_____________________________________________________________________");
        System.out.println();

        System.out.println("--------------------------[Section 4]--------------------------");
        System.out.println();

        netsalary = (basicsalary + (bonus+variablepay) - (statutorycontribution));
        System.out.println("Your net salary for this month: RM " +netsalary);
        System.out.println();
        System.out.println("_____________________________________________________________________");


    }
```

```
_____________________________________________________________________
---------------[Welcome to UUM Salary Calculator]-----------------
_____________________________________________________________________


This program is to help new employees to calculate their salaries
 which have been added and subtracted by various sectors such as
 bonuses, taxes, EPF, SOCSO and so on

_____________________________________________________________________

--------------------------[Section 1]----------------------------

Please enter your name:
Nurin Izzah Binti Ishak
Please enter your ID:
288063
Please enter your NRIC (without (-)):
020415140514

_____________________________________________________________________

--------------------------[Section 2]----------------------------

Basic Salary: RM 1200.0
The salary is not include with variable pay which is
 petrol allowance and mobile allowance

************************** Variable Pay ***************************
Your petrol allowance for this month is: RM 325.0
Your mobile allowance for this month is: RM 200.0
Variable pay: RM 525.0

***************************** Bonus ********************************
How many times have you met with outside clients this month? :
2
Your bonus for this month: RM 200.0
```

```
-------------------------[Section 2]----------------------------

Basic Salary: RM 1200.0
The salary is not include with variable pay which is
 petrol allowance and mobile allowance

************************* Variable Pay *************************
Your petrol allowance for this month is: RM 325.0
Your mobile allowance for this month is: RM 200.0
Variable pay: RM 525.0

***************************** Bonus ******************************
How many times have you met with outside clients this month? :
2
Your bonus for this month: RM 200.0
```

```
-------------------------[Section 3]----------------------------

**********************Statutory Contribution********************

EPF Employee Contribution: RM 156.0
Rate of contribution for Employees' Social Security
 when wages exceed RM1200 but not RM1300: RM6.25
Tax deduction: RM 120.0

Your total statutory contribution: RM 282.25
```

```
---------------------------[Section 4]---------------------------

Your net salary for this month: RM 1642.75
```

A211 SKIP1013 GROUP A

ASSIGNMENT 1

1. Identify the problem
2. Understand the problem
3. Identify alternative ways to solve the problem
4. Select the best way to solve the problem from the list of alternative solutions.
5. List instructions (steps) that enable you to solve the problem using the selected solution.
6. Evaluate the solution.
7. Algorithm
8. Pseudocode
9. Flow Chart
10. Coding - Numerical Computation & Expression

Name : AINUR HANIM BINTI ABDUL HALIM

Matric No: 288091

Topic : UNIVERSITY

Subtopic : STUDENT

1. Identify the problem

Living in a university might give many experience for the students especially the first year students. This is because, they need to manage their expenditure when they are living in the university. Sometimes, there will be common problems among university student. The most common problem among student is failing to manage money. This problem not only happened to first year students only, but it can be also happened to the student who are in higher level education such as PHD and master. This problem also might happened because of the cost of fees needed in each courses. Each courses doesn't have the same value of fees. In addition, there might be some student who are working while studying. This might be the hard for them to manage their expenses during in the university.

The expenses is overflow the money. If the students cannot manage well in their expenditure, it might cause the excessive of using money because it is beyond the normal. For the

university students, fess is an expense. Buying meals for breakfast, lunch and dinner are also an expense. The expense word stands for a total cost that is “finance” or “paid”. The purpose of doing this expenditure is to exchange something of value. In another word, something that has a value for someone, so it need to be paid for it. If the users did not want to do the expenses in their life, they cannot get or have a perfect life, and this might also leads to many problem for them.

However, the students cannot simply done their expenses at will. This is because, it might leads to many negative impacts for them. For example, it can cause the students to experience financial problems later on especially. When living in the university, the student needs to survive with their own money without their parent. They might expense over the limit if they don’t use the allowance wisely. The students need to manage their expenses so that they can manage all the dependents easily.

Besides, the student also needs to do some saving. It can be used for any emergency things. The example of emergency situation that is commonly happened among student is suddenly fell ill. They will never know when they will fell ill. Saving refers to the income that is not spend to any thing which is not important. The method to do some saving is the student needs to put money aside for any emergency use. Saving is different from savings. This is because, saving refers to activity that it is keep doing over time but the savings refers to something that exist at one time. However, many people still using saving as savings.

Saving can also stands for the money that have been saved, no matter where it is saved such as bank or ‘piggy bank’. It is a way to prevent waste of particular resource especially for the students because they have a lot of passion for shopping during their age. Saving can be replaced with personal finance.

The problem is how can the students manage their expenses with the allowance in the university. How much money can be saved for each month for each student. For the first semester, the students need to pay more in their university fees because it included the registration fee. But for the next semester, they don’t need to pay for the registration fees. The students also need to budget how much money they can spend for meals expenses, laundry expenses, and telephone bills. After that the student also need to pay for the books and stationaries for each semester. Lastly, the students also need to do some saving for emergency use. The students also can get some pocket money from the parents in every month.

2. Understanding the problem

This subtopic is to focus on the problem of estimating student expenditure in university economic impact studies. This problem can be related to any students no matter where they are study. This is because, the financially problems are commonly to the students especially. In this subtopic, we would to give the priority to the University of North Malaysia's students (UUM). Nowadays, there are so many UUM's students who lives in university. They might faced many expenses during living in the college.

To start a new life in college, the students will need a huge cost to settle all the expense. No matter what kind of expenses such as meals, telephone bill, fees or anything else. The students needs to finish all the expenditure so that they will not be in trouble especially when the end of month. It can be mostly causes by how the student manage their money in university. If they didn't have their own limit in expensing something, it can make they over their limit expense. This will leads to financial problem. In conclusion, in this topic, I would to understanding what problem that happened among university students.

Before the semester start, the student will be given some allowance from the government for study. Allowance is an amount of money given usually for specific purpose, so the purpose of this allowance is to help students to manage their expenses during in the university. This allowance is given to control how the students spend by the recipient. For the university student, the allowance will be given according to their courses. If their courses doesn't use much thing such as electronic things, the students will get the low allowance. If their courses use many expensive things, they will get high cost of allowance.

In this case, I would to specific the system for the computer science's student. In this course, they are using many electronic things especially the laptops and so one. This things required high amount of course for them. For this course, the students will be given allowance for each semester as much RM3500. Each semester consist of 6 months so the students need to divide the allowance for the each month. They will have 8 semesters in four years so they need to use the allowance given as well as possible.

When they are living in the college, they need to spend a lot of money to stay in there. Some kind of expenditure are meals expenses and laundry expenses. Both of these expenditure are the most important for the student because they need to eat to stay maintain. They also need to use the laundry machine so that it will help them reduce their time during washing and drying the clothes. The students cannot avoid this expenses because it is almost the important things from them. Do not forget, the students also need the internet connection especially when they are having online classes. The students need to prepare some money to buy for the telephone bills to get the internet connection.

In the UUM, it provided the laundry services for the students. It will consist of laundry machine and drying machine. For the laundry machine, it will cost RM3.50 same as the cost for drying machine. Expecting that, the students will wash their clothes during weekend so they will use both machine in a month for 4 times. For the meals expenses, the students usually have 3 meals per day which is for breakfast, lunch and dinner. For the breakfast, they will spend at least RM3, for the lunch, they will expense not more than RM9 including the foods and drinks, and for the dinner, they will spend at least RM6.

To start the life as an university students, they will required to pay for the university's fees first. They need to for the fees in each semester. In the specified fees, it is already included the fees

for accommodation fees, tuition fees, exam papers and so on. The fees for each semester are RM500. It is a compulsory for student to pay for it when they start the new semester.

After that, the students also need to spend at least RM50 for the books and stationaries in each semester. This is because, each of the lecture will asked their students to buy some books sometimes, so the students need to have at least RM50 for the books. Next, the students also need to buy their own internet for each month to maintain the internet connection. This telephone bills might cause RM30 for each month.

Sometimes, in every month, the students will get some pocket money especially from their parents. Pocket money refers to the small amount of extra money such as money that usually given from parents to their children. The amount of pocket money is uncountable because it is depends on what their parents will give. But their parents will at least give some pocket money their children in every month.

After the students had finish settling all the expenses, they need to do some saving. This is for the use during the emergencies time. By having this, the students also need to save their money at least 30% after they finish paying for other requirements. They need to settle all the requirements by substracting all of the expenses such as meals, laundry, telephone bills and so on. Then, the students can calculate 30% from the total balance they have.

3. Identify alternative ways to solve the problem

- The students need to list down all the expenses that they did in a month.
- If they had expense over the recommended expenses, they also need to note it.
- They need to separate the data for all the expenses and the balance too so that it will be easy to calculate.
- The student only needs to calculate how many balance left after they had expense in a month.

4. Select the best way to solve the problem from the list of alternative solutions.

They need to separate the data for all expenses and for the balance too so that it will be easy to calculate. It can also help the student to decide how much money they can use in a day and in a month. They can also calculate the balance after they expense and this might help them to calculate how much money they can save in a month.

5. List instructions (steps) that enable you to solve the problem using the selected problem.

1. Firstly, the system needs to list down the name of the student, age, what year they are studying on that time, qualification level (diploma, foundation degree, bachelors degree, masters degree, PHD), telephone number and matric number.
2. Next, the system also needs to know how much total balance in the bank account so that it can calculate easily for all the expenses. Firstly, they need to divide the allowance for 6 months. Then they start the calculation.

Allowance for each semester	RM3500
Allowance for each month	RM3500/6month

3. The system also needs to list how much the student had expense for meals in a day than multiply it for a month, then how much money they need to spend for the laundry in a month. They also need to input the total of telephone bills for the internet in a month

Meals Expenses

Breakfast	RM3
Lunch	RM9
Dinner	RM6
Total expense in a day	RM3+RM9+RM6 RM18
Total expense in a month	(RM18) X 30 days

Laundry Expenses

Washing machine	RM2.50
Drying machine	RM2.50
Total laundry expense in a week	RM2.50 + RM2.50
Total laundry expense in a month	RM5 x 4week RM20

4. After that, the student also needs to put how much fees they need to pay for the university fees and book. By doing this, they will have the exact value for the expanses.
5. If some of their parents give them some pocket money, they also need to update the total in the system.
6. When they had finished all the expenses, the system can calculate how much money the student can save for emergency use. They need to do a saving at least 30% from the balance.

Total saving in a month	(30/100) X Total balance after finish all fees and expenses

6. Evaluate the solution

The result for the calculation in each month might be different because the students might insert different input but it can still be managed if they did not over their limit while shopping. That is why the student had the limit to expense for some important things such as for meals and so on. The first thing to do is they need to know how much money they have in a month which is the total money in their account. Then they need to calculate total meals expenses and laundry expenses for a month. Next, they also need to do substraction for the total university fees and for the books. After they had substract all the important things such as telephone bills, fees and so on, they need to do some saving. They need to save at least 30% from the balance by using the formula (30/100)*(total balance) to calculate it. Then the system will give the accurate value to them for the saving. If the student apply this system, for sure that they will now experience the financial problem anymore. This is because the system will help them to suggest how much they can spend for any expenditure and the system also can help them to calculate how much they can save in a month.

7. Algorithm

8. Pseudocode

Start

Output "Please enter your name = "

Input name

Output "Please enter your age = "

Input age

Output "Please enter your matric number = "

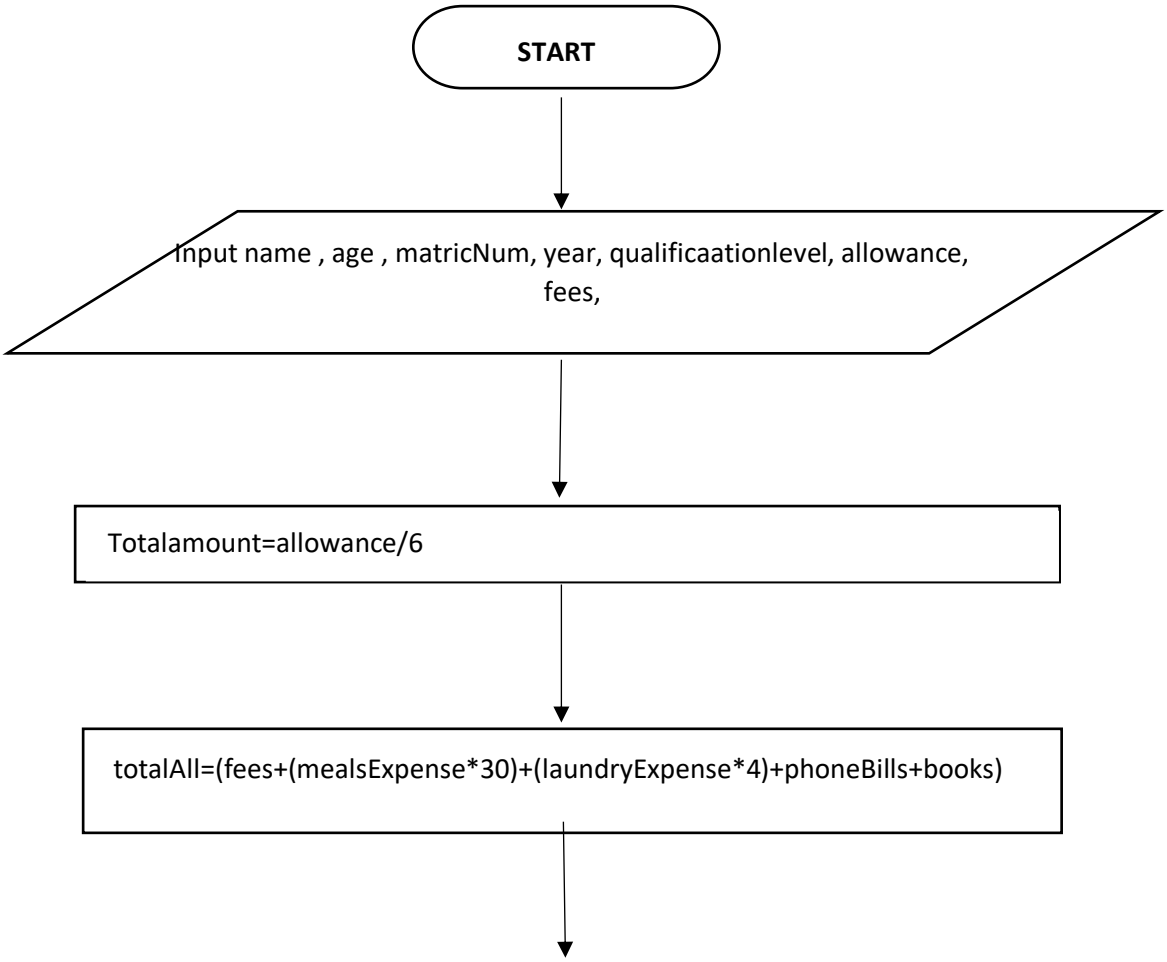
Input matricNum

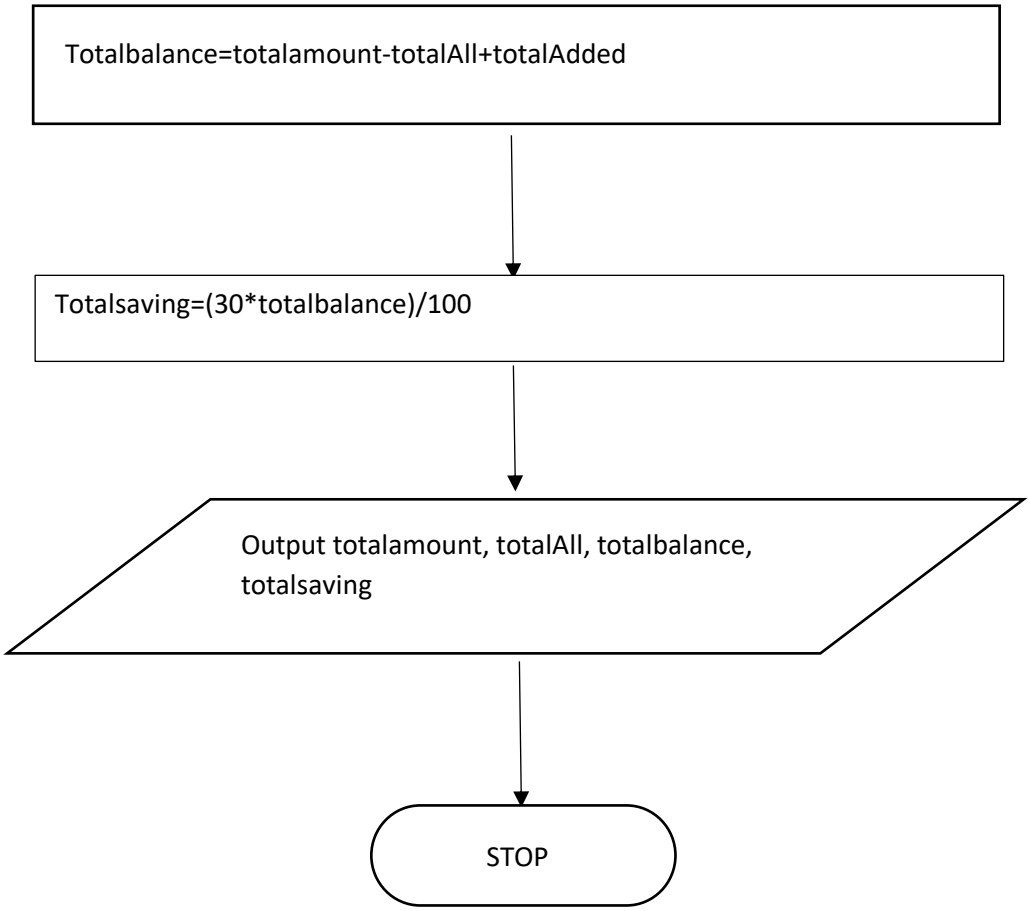
Output "What is current year studies = "

Input year

```
    Output "Please enter your qualification level (Diploma, FoundationDegree, BachelorsDegree,
MasterDegree, PHD)"
    Input qualificationlevel
    Output "Please enter your total allowance = "
    Input allowance
    Output "Please enter your university fees = "
    Input fees
    Output "Please enter your total meals expenses in a day = "
    Input mealsExpense
    Output "Please enter your total laundry expenses in a week = "
    Input laundryExpense
    Output "Please enter your telephone bills for a month = "
    Input phoneBills
    Output "Please enter your total expenses for books and stationaries = "
    Input books
    Calculate totalamount = allowance/6
    Output totalamount
    Output "Please enter your total money added = "
    Input totalAdded
    Calculate totalAll = (fees+(mealsExpense*30)+(laundryExpense*4)+phoneBills+books)
    Output totalAll
    Calculate totalbalance = totalamount-totalAll+totalAdded
    Output totalbalance
    Calculate totalsaving = (30*totalbalance)/100
    Output totalsaving
End
```

9. Flow chart


START
Input name , age , matricNum, year, qualificaationlevel, allowance, fees,
Totalamount=allowance/6
totalAll=(fees+(mealsExpense*30)+(laundryExpense*4)+phoneBills+books)



10. Coding

```
package Assignment1;
import java.util.Scanner;

public class UniversityStudent {

	public static void main(String[] args) {
		String name;
```

```
            String qualificationlevel;
            int age;
            int year;
            int phoneNum;
            int matricNum;
            double totalamount;
            double allowance;
            double fees;
            double mealsExpense;
            double laundryExpense;
            double phoneBills;
            double books;
            double totalbalance;
            double totaladded;
            double totalsaving;
            double totalAll;

            Scanner scan = new Scanner(System.in);

            System.out.println("==============WELCOME TO MINI ACCOUNTANT
CALCULATOR==============");
            System.out.println("This system is to help student to know how much
money they had expense in a month");
            System.out.println("Please fill in the blank for the requirement");
            System.out.println("");

            System.out.println("**************Section A**************");
            System.out.println("Please enter your name = ");
            name=scan.next();
            System.out.println("Please enter your age = ");
            age=scan.nextInt();
            System.out.println("Please enter your matric number = ");
            matricNum=scan.nextInt();
            System.out.println("What is your current year studies = ");
            year=scan.nextInt();
            System.out.println("Please enter your qualification level (Diploma,
FoundationDegree , BachelorsDegree, MasterDegree, PHD) = ");
            qualificationlevel=scan.next();
            System.out.println("****************************************");
            System.out.println("");

            System.out.println("**************Section B**************");
            System.out.println("Please enter your allowance = RM");
            allowance=scan.nextDouble();
            System.out.println("Please enter your university fees = RM");
            fees=scan.nextDouble();
            System.out.println("Please enter your total meals expense in a day =
RM");
            mealsExpense=scan.nextDouble();
            System.out.println("Please enter your total laundry expense in a
week = RM");
            laundryExpense=scan.nextDouble();
            System.out.println("Please enter your telephone bills for a month =
RM");
            phoneBills=scan.nextDouble();
            System.out.println("Please enter your total expenses for books and
stationaries = RM");
            books=scan.nextDouble();
            System.out.println("****************************************");
```

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

            System.out.println("***************Section C***************");
            totalamount=allowance/6;
            System.out.printf("Your total amount in your account for each month
is RM %.2f" , totalamount);
            System.out.println("");
            System.out.println("Please enter your total money added = RM");
            totaladded=scan.nextDouble();

      totalAll=(fees+(mealsExpense*30)+(laundryExpense*4)+phoneBills+books);
            System.out.printf("All the total expenses for you in a month is RM
%.2f" , totalAll);
            System.out.println("");
            totalbalance=totalamount-totalAll+totaladded;
            System.out.printf("Your total balance in your account after you
finish settling all the expenses is RM %.2f" , totalbalance);
            System.out.println("");
            totalsaving=(30*totalbalance)/100;
            System.out.printf("Your total amount for saving in this month is RM
%.2f" , totalsaving);
            System.out.println("");
            System.out.println("****************************************");
      }

}
```

Output

```
===============WELCOME TO MINI ACCOUNTANT CALCULATOR===============
This system is to help student to know how much money they had expense in a month
Please fill in the blank for the requirement

***************Section A***************
Please enter your name =
Ainur
Please enter your age =
19
Please enter your matric number =
288091
What is your current year studies =
2021
Please enter your qualification level (Diploma, FoundationDegree ,
BachelorsDegree, MasterDegree, PHD) =
BachelorsDegree
****************************************

***************Section B***************
Please enter your allowance = RM
3500
Please enter your university fees = RM
500
Please enter your total meals expense in a day = RM
18
Please enter your total laundry expense in a week = RM
5
Please enter your telephone bills for a month = RM
30
```

```
Please enter your total expenses for books and stationaries = RM
50
**************************************

**************Section C***************
Your total amount in your account for each month is RM 583.33
Please enter your total money added = RM
1000
All the total expenses for you in a month is RM 1140.00
Your total balance in your account after you finish settling all the expenses is
RM 443.33
Your total amount for saving in this month is RM 133.00
**************************************
```

ASSIGNMENT 1

NAME **:** NURUL SHAKIRAH BINTI OTSMAN

MATRIC NO. **:** s288116

TOPIC **:** UNIVERSITY (COURSES)

1) Identify the problem

A university is made up of multiple colleges or schools. For instance, a single university may contain a college of liberal arts, a college of business, and a college of engineering. Colleges, in turn, are frequently made up of multiple departments. In example, a university's college of engineering could contain a department of aerospace engineering, a department of computer engineering, and a department of mechanical engineering. Departments, in turn, offer courses that students complete as part of a program major. Colleges function similarly in that they have multiple departments that offer programs and courses. They differ in that there is usually a single college without the overarching structure of a university. There are many types of college and university courses available to meet the academic needs of undergraduate students, graduate students, and community learners.

University courses are known as the basic building blocks of higher education. All types of degree programs, including associate degrees, bachelor's degrees, master's degrees, are made up of university courses. There are variety of courses that university can choose from. Courses that lead to academic credits may be lecture courses, discussion courses or lab courses. In lecture courses, the professor or teaching assistant generally present information while student take notes. Discussion-based courses typically emphasize learning through student engagement. Lab courses are often combined with science courses. Students get hands-on training conducting experiments. There are also online courses that deliver course materials through virtual platforms. Some universities also offer enrichment courses for individuals that are not enrolled in formal degree or certificate programs. They are typically offered in interest areas such as art, dance, culture, foreign language, music, writing, computers, health and personal finance. When choosing between university courses, it can be helpful

to understand the formats and levels at which there are offered as well as the institutions that offer to them. Universities offer courses that can be used for credit toward undergraduate and graduate degrees and certificates. Some universities also offer non-credit courses, such as continuing education or personal enrichments courses.

Student in degree programs usually complete some combination of general education courses, major requirements, and elective courses. Students' general education courses are commonly lower-level introductory courses, and may be numbered at the 100- and 200- level. Students are required to complete more than and higher-level courses with their major field of study and during students' junior or senior year, they may be taking 300- and 400- level courses of their field. For graduate degrees, individuals must usually complete a certain number of graduate-level courses in order to earn their degrees. Sometimes, if they have not met the prerequisites for a graduate program in a particular subject, they may also take undergraduate courses during first term. The degrees are classified as; First Class Honours, Upper Second Class, and Lower Second Class.

There are two modes for period of study, which are Full-time/Collaboration and Off Campus Programme. For the Full-time/Collaboration, the maximum period to obtain a degree is eleven (11) semesters, whereas the minimum period is three semesters. Meanwhile for the Off Campus Programme, the maximum period to obtain a degree is twenty (20) semesters, whereas the minimum period is six semesters. To obtain a Bachelor's Degree with Honours, a student is required to take and pass the courses with the minimum credit as specified by each of the programme. However, the structure of the program must include the minimum credit hours of the following components;

i) University Core Courses
   The total credit hours are based on the requirements of each programme.
ii) Programme Core Courses
   The total credit hours must be based on the requirements of each programme.

Workload for each student is based on the following status:

a) Full time / Collaboration

- Student with a Pass status
  To fulfill the period of study requirement, students need to take at least 12 credit hours but not more than 22 credit hours in two (2) semesters. In some cases, students are allowed to take more than 22 credit hours or less than 12 credit hours upon a written approval from the Assistant Vice Chancellor/Dean of School of the College.

- Student with a conditional Pass/Repeat status
  Students need to take at least 12 credit hours but not more than 18 credit hours in one (1) semester. In some cases, students are allowed to take more than 18 credit hours or less than 12 credit hours upon a written approval from the Assistant Vice Chancellor/Dean of School of the College.

b) Off Campus Programme

- Student with a Pass status
  To fulfill the period of study requirement, students need to take at least 5 credit hours but not more than 15 credit hours in one (1) semester. In some cases, students are allowed to take more than 15 credit hours or less than five credit hours upon a written approval from the Assistant Vice Chancellor/Dean of School of the College.

- Student with a conditional Pass/Repeat status
  Students need to take at least five credit hours but not more than ten credit hours in one (1) semester. In some cases, students are allowed to take more than ten credit hours or less than five credit hours upon a written approval from the Assistant Vice Chancellor/Dean of School of the College.

c) Intersession students are allowed to enroll for a maximum of eight credit hours.

Grade	Grade Points	Marks (%)
A+	4.00 (Excellent)	90 – 100
A	4.00 (Excellent)	80 – 89
A-	3.67 (Credit)	75 – 79
B+	3.33 (Credit)	70 – 74
B	3.00 (Credit)	65 – 69
B-	2.67 (Good)	60 – 64
C+	2.33 (Good)	55 – 59
C	2.00 (Pass)	50 – 54
C-	1.67 (Fail)	45 – 49
D+	1.33 (Fail)	40 – 44
D	1.00 (Fail)	35 – 39
F	0.00 (Fail)	0 – 34
X	0.00 (Banned)	-
TL	Incomplete	-
M/TM	Satisfactory / Not Satisfactory	-
TD	Withdraw	-

Students are assessed based on the marks that they get from coursework and final examination. If a student gets (C-), (D+), (D) and (F) for any course, they will have to register and repeat the particular course until at least a (C) grade (Pass) is obtained. A (F) grade will be given to a student who did not attend the final examination except for courses that have no final examination as approved by the Academic Committee of each College/Co -Curriculum Centre.

An (X) grade will be given to a student:

i) who is barred from taking the examination because of their attendance for lectures and tutorials is less than 80% *(an (X) grade for any courses cannot be redeemed)*

ii) attendance for lectures and tutorials is less than 80% for any courses that have no final examination

iii) the regulation which bars students who have outstanding debts from registering for courses the following semester does not apply to sponsored students/scholarship holders.

A (TL) grade may be given to a student who has not completed certain requirements, except for examinations or tests for any course provided the following conditions are observed:

i) the application for (TL) grade must be submitted to the Assistant Vice Chancellor/Dean of School of each College upon the approval of the lecturer concerned;

ii) the application for TL grade must be submitted before the end of the 15th week of that semester; and

iii) TL grade must be redeemed within the period of 4 weeks after the last day of that semester;

iv) If TL grade is redeemed after the end of the fourth (4th) week as in paragraph (iii) above but not later than the next four weeks, a student will be given a lower grade than the grade he/she deserves.

v) If TL grade is not redeemed after the completion of the eighth (8th) week as prescribed, an F grade will be given to that student.

Students who are not able to submit the practicum final report or complete any of the evaluation criteria within the stated period can apply for the Incomplete Grade (TL). Approval is subjected to the following conditions:

i) Application letter for the Incomplete Grade (TL) by students must be addressed to the Dean of Student Development & Alumni after obtaining prior agreement of their respective supervisors (lecturers).

ii) Application letter must reach Office of the Director within two weeks after completing practicum.

iii) As the TL grade is a temporary allowances given to students to finalize his/her reports, the TL grade must be redeemed within the first four weeks after the actual due date of submission of the practicum final report.

iv) If the TL grade is redeemed after the period of the first four weeks but not later than the next four weeks, students will be penalized with one lower from the grade they deserve to obtain.

v) If the TL grade is not redeemed after the second four weeks, then the students would be awarded an F grade.

Some students have a hard time trying to balance their studies with other things. With that said, students tend to have problems when trying to graduate. One of the problems is that students could not manage to get the required marks in their assessment to pass the semester. Students were half aware/unaware of the allocated marks for each of the assessments, which makes the students unable to plan their targeted grade points to pass.

2) Understand the problem

Students will be assessed through coursework and final examination. The assessment will be determined by the Academic Committee of each respective College/Co-Curriculum Centre. Courses that do not have a Final Examination must be approved by the Academic Committee of each respective College/Co-Curriculum Centre. The students will be assessed through the grading system.

Grade	Grade Points	Marks (%)
A+	4.00 (Excellent)	90 – 100
A	4.00 (Excellent)	80 – 89
A-	3.67 (Credit)	75 – 79

B+	3.33 (Credit)	70 – 74
B	3.00 (Credit)	65 – 69
B-	2.67 (Good)	60 – 64
C+	2.33 (Good)	55 – 59
C	2.00 (Pass)	50 – 54
C-	1.67 (Fail)	45 – 49
D+	1.33 (Fail)	40 – 44
D	1.00 (Fail)	35 – 39
F	0.00 (Fail)	0 – 34
X	0.00 (Banned)	-
TL	Incomplete	-
M/TM	Satisfactory / Not Satisfactory	-
TD	Withdraw	-

To continue their studies, student must meet the requirements that had been placed;

a) Pass Status
A student with a 2.00 CGPA or above in the specified semester is given a 'PASS' and can proceed to the following semester.

b) Conditional Pass Status
A student who passed (based on the previous semester examination results, if applicable) but obtained a CGPA of less than 2.00 but not less than 1.50 points at the end of that semester is considered as having a 'CONDITIONAL PASS'. The student will be advised to upgrade his/her CGPA in order to get a 'PASS' for the following semester.

c) Repeat Semester Status
A student who passed (according to previous semester results, if applicable) but obtained a CGPA of less than 1.50 but not less than 1.00 at the end of that semester is allowed to repeat; subject to the following conditions/requirements:
- The student must be warned to upgrade his CGPA in order to PASS for the following semester
- All subjects taken by the student in that semester will be cancelled and not considered in the CGPA
- Repeated subject may not necessarily be the same subjects except compulsory subjects
- A repeat status will be given once only during the period of studies that is, in the first semester
- All results for the repeated semester will be recorded in the student's academic record

d) Fail Status
- A student who gets a CGPA of less than 1.00 in any semester is considered as having 'FAILED' and will be dismissed from the University.
- A student who is given a 'CONDITIONAL PASS' (according to the recent examination results) and has not yet achieved a 'PASS' result with a CGPA of 2.00 is considered to have 'FAILED' and will be terminated from the University.
- A student with a 'FAILED AND TERMINATED' status (according to recent result) but has a CGPA score of between 1.90-1.99 and does not have an (X) status (barred) will be allowed

one last chance continue his or her studies and must achieve a CGPA of 2.00 in the following semester.

- A student with a 'FAILED AND TERMINATED' status (according to the previous result) but has a CGPA of between 1.80-1.89 and does not have an (X) status (barred) will be allowed an appeal to complete his or her studies and must achieve a CGPA of 2.00 in the following semester.
- A student with a 'REPEAT SEMESTER' status (according to the latest result) and has not yet obtain a PASS result with a CGPA of 2.00 is considered to have 'FAILED' and will be terminated from the University.

3) Identify alternative ways to solve the problem

- With every assessment that had been held, students would have to keep track of their progress by contacting their lecturers and ask them about the marks.
- Students have to make sure to study hard and do their best in every assessment that had been held in hopes that they achieve a very satisfying result
- Create a program where student can access to keep track their assessment results for the subject that they take in each semester. The program then will display the status of their assessment with the GPA at the end of semester.

4) Select the best way to solve the problem from the list of alternative solutions

- Create a program where student can access to keep track their assessment results for the subject that they take in each semester. The program then will display the status of their assessment with the GPA at the end of semester.

5) List the instructions that enable you to solve the problem using the selected solution

i) User enter their personal information such as name, matric number, course name, and semester status.

ii) The system then asked for the user to enter the subject code, then proceed with entering the total marks of each assessment.

iii) The system calculates the total marks (in percentage) for the subject to get the grade and point value of grade.

iv) The system continues with calculating the total grade points by multiplying the point value and the credit hours for each subject.

v) The GPA of the particular semester will be calculated by dividing total grade points with total credit hours.

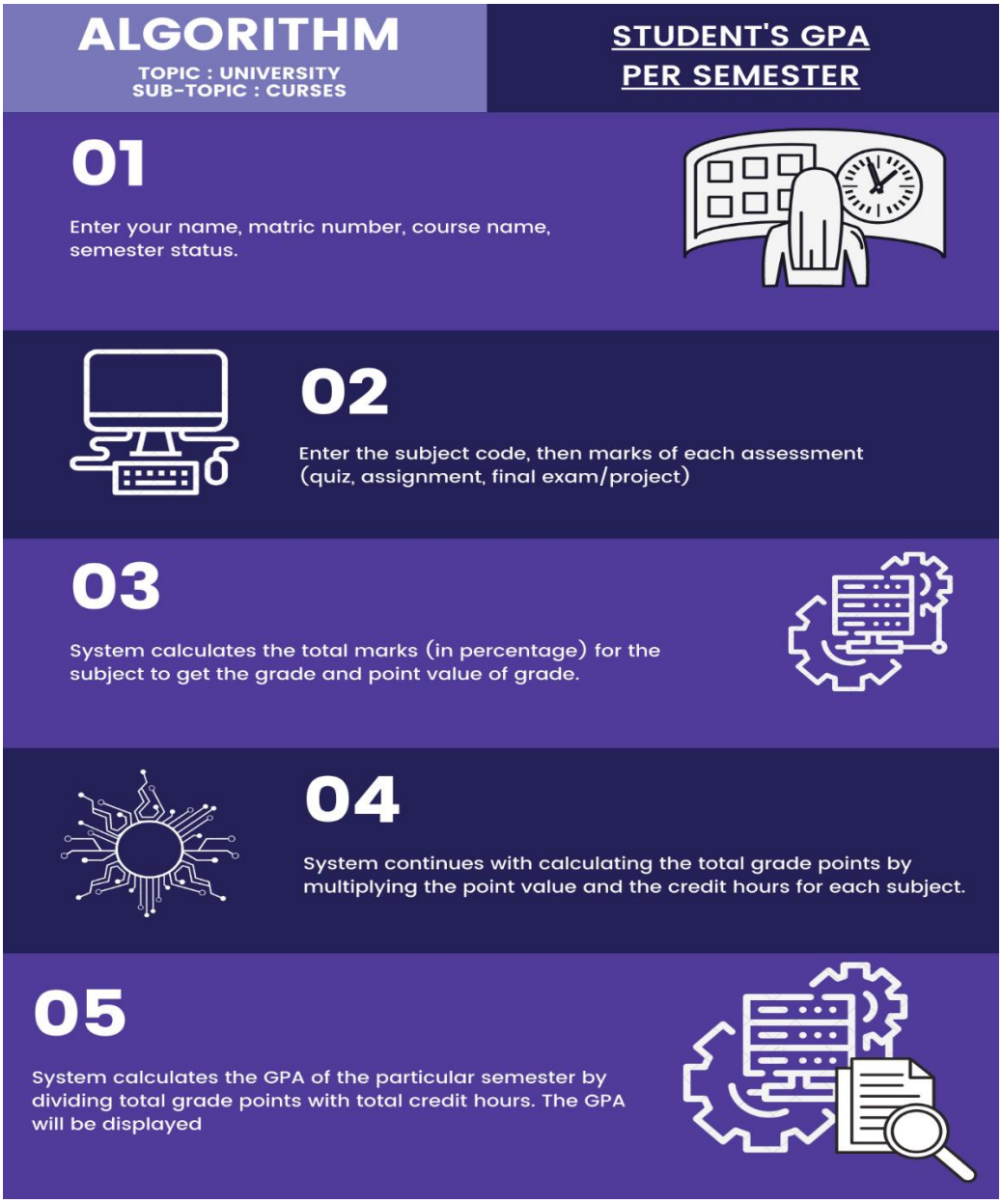
Final mark of subject (%)	Quiz + Assignment + (Final Exam or Project)
Point value of grade	Refer to the final mark of subject
Total grade points	Point value of grade * credit hour(s) of subject

Total points earned	Sum of total grade points of each subject
Total credit hours	Sum of credit hours of each subject
GPA	Total points earned / Total credit hours

6) Evaluation

Overall, the marks that students received will be the one to determine whether the student will graduate the course or not. Students must maintain excellent marks in order to help them graduate. If the students manage to fair any semester, it is either the student would be kicked out or they would have to repeat the semester again.

7) Algorithm



8) Pseudocode

Start

Read name, matricNumber, courseName, semester, subjectCode, creditHours marks

Print name, matricNumber, courseName, semester, subjectCode, creditHour, mark, table

of grades

totalPoint = pointValue * creditHours

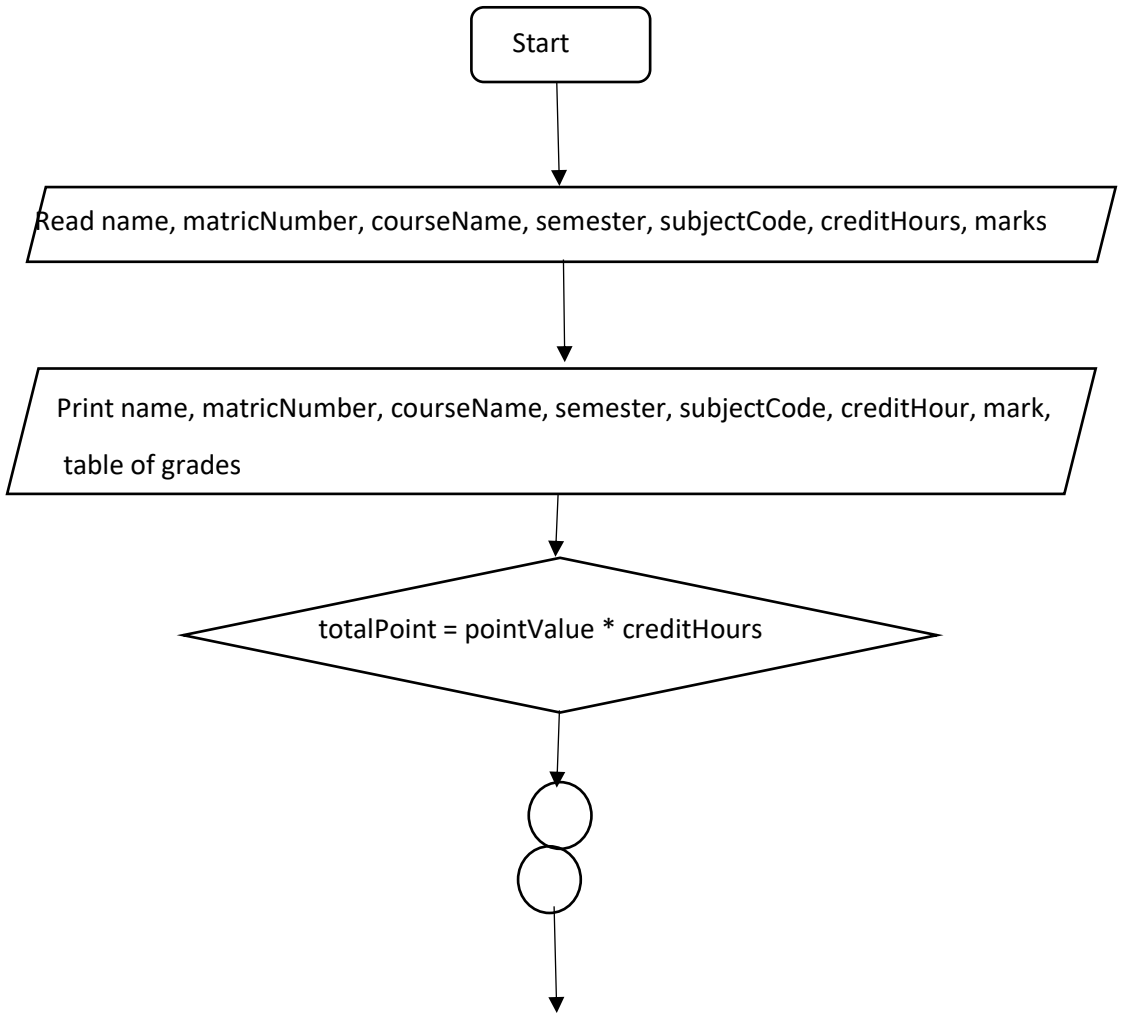
totalCreditHours = sum of creditHours

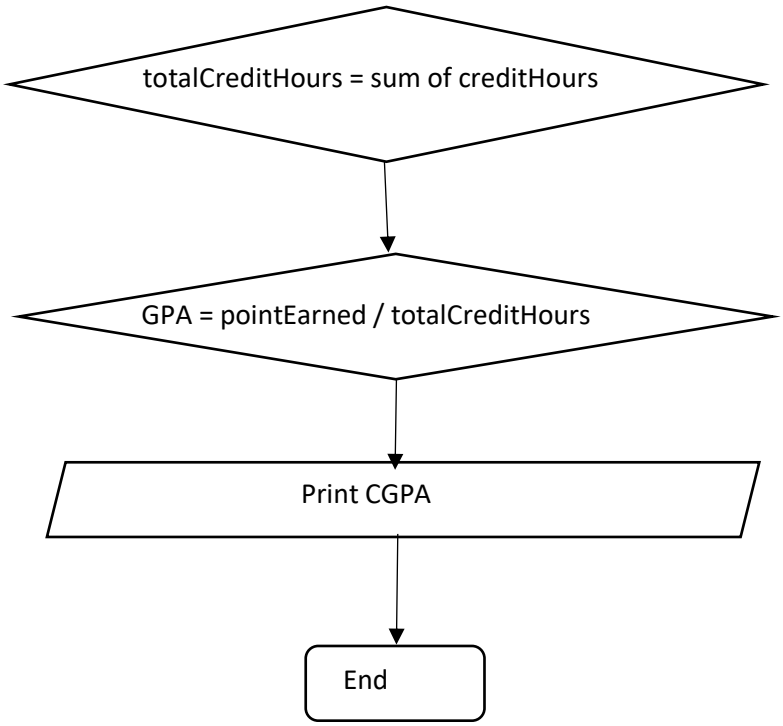
GPA = pointEarned / totalCreditHours

Print GPA

End

9) Flowchart





10) Coding

Assignment_1.java

```
1  package assignments;
2
3  import java.util.Scanner;
4
5  public class Assignment_1 {
6
7      public static void main(String[] args) {
8
9          Scanner sc = new Scanner(System.in);
10
11         String name, matricNumber, subjectCode;
12         int semester = 1, creditHours = 3;
13         double quiz, assignment, project_exam;
14         double mark1, mark2, mark3, mark4, mark5, mark6;
15         double totalP1, totalP2, totalP3, totalP4, totalP5, totalP6;
16         double pointEarned, totalCreditHours;
17         double pointV1, pointV2, pointV3, pointV4, pointV5, pointV6;
18         double GPA;
19
20         System.out.println(" ********************************************************************************************** ");
21         System.out.println(" *                          BACHELOR OF COMPUTER SCIENCE WITH HONOURS                          * ");
22         System.out.println(" ********************************************************************************************** ");
23
24         System.out.println("\n - - - - -// Welcome to the GPA Tracking System //- - - - - " + "\n");
25
26         System.out.println("\n    Hello! Please fill the form before proceeding." + "\n");
27
28         System.out.print("     > Full Name             : ");
29         name = sc.nextLine();
30
31         System.out.print("     > Matric Number         : ");
32         matricNumber = sc.next();
33
34         System.out.print("     > Semester Status       : ");
35         semester = sc.nextInt();
36
37         System.out.println("\n       |---------------------------------------------|");
38         System.out.println("       |                   HELLO!                    |");
39         System.out.println("       |---------------------------------------------|");
40         System.out.println("       |    <> Name           : " +name+ "                        |");
41         System.out.println("       |    <> Matric number  : " +matricNumber+ "                    |");
42         System.out.println("       |    <> Semester Status : " +semester+ "                   |");
43         System.out.println("       |---------------------------------------------|" + "\n");
44
```

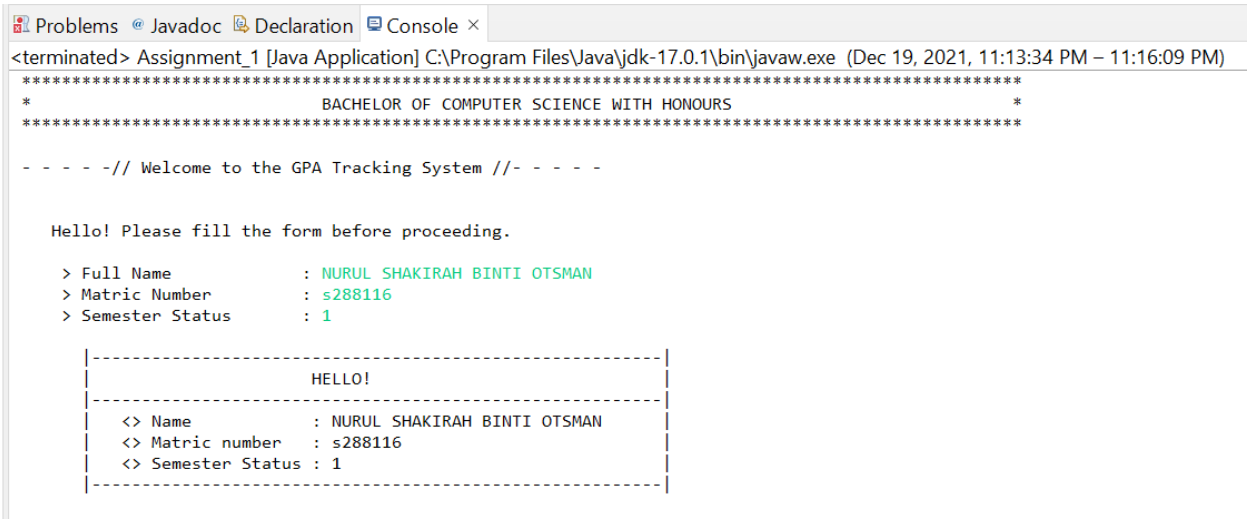
```
44
45          System.out.println("\n\n ********************************************************************************************** ");
46
47          System.out.println("\n  This is the list of subjects that you have taken this semester. ");
48
49          System.out.println("\n ********************************************************************************************** ");
50
51          System.out.println("\n       |-------------------------------------------------------------------------------|");
52          System.out.println("       |                                  SEMESTER 1                                   |");
53          System.out.println("       |-------------------------------------------------------------------------------|");
54          System.out.println("       |                        BACHELOR OF COMPUTER SCIENCE (HONS.)                   |");
55          System.out.println("       |-------------------------------------------------------------------------------|");
56          System.out.println("       |  CODE        SUBJECT NAME                                 CREDIT HOURS        |");
57          System.out.println("       |                                                                               |");
58          System.out.println("       |  SKIK1013    Computer Organizations and Architecture          3              |");
59          System.out.println("       |  SKIP1013    Programming 1                                    3              |");
60          System.out.println("       |  SCQM1013    Mathematics for Computing                        3              |");
61          System.out.println("       |  MPU1013     Penghayatan Etika dan Peradaban                  3              |");
62          System.out.println("       |  MPU1043     Falsafah dan Isu Semasa                          3              |");
63          System.out.println("       |  SADN1033    Kenegaraan                                       3              |");
64          System.out.println("       |-------------------------------------------------------------------------------|" + "\n");    //assignment - 50%
65                                                                                                                      //quiz - 20%
66                                                                                                                      //final exam/project - 30%
67          System.out.print("       Please enter the marks for the following assessments : ");
68
69          System.out.print("\n\n           --- SKIP1013 --- ");
70          System.out.print("\n          <> Quiz               : ");
71          quiz = sc.nextInt();
72          System.out.print("          <> Assignment         : ");
73          assignment = sc.nextInt();
74          System.out.print("          <> Project/Final Exam : ");
75          project_exam = sc.nextInt();
76
77          mark1 = quiz + assignment + project_exam;
78
79          System.out.println("\n          The total mark for SKIP1013 is " +mark1);
80


80
81
82              System.out.print("\n\n           --- SKIK1013 --- ");
83
84              System.out.print("\n           <> Quiz               : ");
85              quiz = sc.nextInt();
86              System.out.print("           <> Assignment         : ");
87              assignment = sc.nextInt();
88              System.out.print("           <> Project/Final Exam : ");
89              project_exam = sc.nextInt();
90
91              mark2 = quiz + assignment + project_exam;
92
93              System.out.println("\n           The total mark for SKIK1013 is " +mark2);
94
95
96              System.out.print("\n\n           --- SCQM1013 --- ");
97              System.out.print("\n           <> Quiz               : ");
98              quiz = sc.nextInt();
99              System.out.print("           <> Assignment         : ");
.00             assignment = sc.nextInt();
.01             System.out.print("           <> Project/Final Exam : ");
.02             project_exam = sc.nextInt();
.03
.04             mark3 = quiz + assignment + project_exam;
.05
.06             System.out.println("\n           The total mark for SCQM1013 is " +mark3);
.07
.08
.09             System.out.print("\n\n           --- SADN1033 --- ");
.10
.11             System.out.print("\n           <> Quiz               : ");
.12             quiz = sc.nextInt();
.13             System.out.print("           <> Assignment         : ");
.14             assignment = sc.nextInt();
.15             System.out.print("           <> Project/Final Exam : ");
.16             project_exam = sc.nextInt();
.17
.18             mark4 = quiz + assignment + project_exam;
.19
.20             System.out.println("\n           The total mark for SADN1033 is " +mark4);
.21
```

```
121
122
123             System.out.print("\n\n           --- MPU1013 --- ");
124             System.out.print("\n          <> Quiz              : ");
125             quiz = sc.nextInt();
126             System.out.print("           <> Assignment        : ");
127             assignment = sc.nextInt();
128             System.out.print("           <> Project/Final Exam : ");
129             project_exam = sc.nextInt();
130
131             mark5 = quiz + assignment + project_exam;
132
133             System.out.println("\n           The total mark for MPU1013 is " +mark5);
134
135
136             System.out.print("\n\n           --- MPU1043 --- ");
137
138             System.out.print("\n          <> Quiz              : ");
139             quiz = sc.nextInt();
140             System.out.print("           <> Assignment        : ");
141             assignment = sc.nextInt();
142             System.out.print("           <> Project/Final Exam : ");
143             project_exam = sc.nextInt();
144
145             mark6 = quiz + assignment + project_exam;
146
147             System.out.println("\n           The total mark for MPU1043 is " +mark6);
148
149
150
151             System.out.println("\n\n ********************************************************************************************** ");
152
153             System.out.println("\n               Grade Point Average (GPA) Calculation " + "\n");
154
155             System.out.println("\n ********************************************************************************************** ");
156
157             System.out.println("      |-------------------------------------------------------------|");
158             System.out.println("      |                        GRADE REFERENCE                      |");
159             System.out.println("      |-------------------------------------------------------------|");
160             System.out.println("      |    Marks (%)   |  Grade  |  Grade Points                    |");
161             System.out.println("      |                |         |                                  |");
162             System.out.println("      |    90 - 100    |    A+   |    4.00 (Excellent)              |");
```

```
150
151         System.out.println("\n\n ********************************************************************************************** ");
152
153         System.out.println("\n               Grade Point Average (GPA) Calculation " + "\n");
154
155         System.out.println("\n ********************************************************************************************** ");
156
157         System.out.println("      |-------------------------------------------------------------|");
158         System.out.println("      |                        GRADE REFERENCE                      |");
159         System.out.println("      |-------------------------------------------------------------|");
160         System.out.println("      |    Marks (%)   |  Grade  |  Grade Points                    |");
161         System.out.println("      |                |         |                                  |");
162         System.out.println("      |    90 - 100    |    A+   |    4.00 (Excellent)              |");
163         System.out.println("      |    80 - 89     |    A    |    4.00 (Excellent)              |");
164         System.out.println("      |    75 - 79     |    A-   |    3.67 (Credit)                 |");
165         System.out.println("      |    70 - 74     |    B+   |    3.33 (Credit)                 |");
166         System.out.println("      |    65 - 69     |    B    |    3.00 (Credit)                 |");
167         System.out.println("      |    60 - 64     |    B-   |    2.67 (Good)                   |");
168         System.out.println("      |    55 - 59     |    C+   |    2.33 (Good)                   |");
169         System.out.println("      |    50 - 54     |    C    |    2.00 (Pass)                   |");
170         System.out.println("      |    45 - 49     |    C-   |    1.67 (Fail)                   |");
171         System.out.println("      |    40 - 44     |    D+   |    1.33 (Fail)                   |");
172         System.out.println("      |    35 - 39     |    D    |    1.00 (Fail)                   |");
173         System.out.println("      |     0 - 34     |    F    |    0.00 (Fail)                   |");
174         System.out.println("      |                |    X    |    Barred                        |");
175         System.out.println("      |                |    TL   |    Incomplete                    |");
176         System.out.println("      |                |   M/TM  |    Satisfactory/Not Satisfactory |");
177         System.out.println("      |                |    TD   |    Withdraw                      |");
178         System.out.println("      |-------------------------------------------------------------|" + "\n");
179
```

```
179
180
181           System.out.print("\n      <> Please enter the grade point for SKIP1013 : ");
182           pointV1 = sc.nextDouble();
183           System.out.print("\n      <> Please enter the grade point for SKIK1013 : ");
184           pointV2 = sc.nextDouble();
185           System.out.print("\n      <> Please enter the grade point for SCQM1013 : ");
186           pointV3 = sc.nextDouble();
187           System.out.print("\n      <> Please enter the grade point for SADN1033 : ");
188           pointV4 = sc.nextDouble();
189           System.out.print("\n      <> Please enter the grade point for MPU1013  : ");
190           pointV5 = sc.nextDouble();
191           System.out.print("\n      <> Please enter the grade point for MPU1043  : ");
192           pointV6 = sc.nextDouble();
193
194           totalCreditHours = creditHours * 6;
195           pointEarned = (pointV1 * 3) + (pointV2 * 3) + (pointV3 * 3) + (pointV4 * 3) + (pointV5 * 3) + (pointV6 * 3);
196           GPA = pointEarned / totalCreditHours;
197
198           System.out.println("\n      />> Total credit hours for Semester 1 is " +totalCreditHours);
199           System.out.println("      />> Total grade points earned for Semester 1 is " +pointEarned);
200           System.out.println("\n      />> GPA for Semester 1 is " +GPA);
201
202     }
203 }
204
205
```

11) Output



```
Problems  Javadoc  Declaration  Console ×
<terminated> Assignment_1 [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe  (Dec 19, 2021, 11:13:34 PM – 11:16:09 PM)
*****************************************************************************************************
*                              BACHELOR OF COMPUTER SCIENCE WITH HONOURS                             *
*****************************************************************************************************

- - - - -// Welcome to the GPA Tracking System //- - - - -


   Hello! Please fill the form before proceeding.

    > Full Name             : NURUL SHAKIRAH BINTI OTSMAN
    > Matric Number         : s288116
    > Semester Status       : 1

      |---------------------------------------------------------|
      |                      HELLO!                             |
      |---------------------------------------------------------|
      |   <> Name            : NURUL SHAKIRAH BINTI OTSMAN      |
      |   <> Matric number   : s288116                          |
      |   <> Semester Status : 1                                |
      |---------------------------------------------------------|
```

```
*****************************************************************************************************

 This is the list of subjects that you have taken this semester.

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

      |-------------------------------------------------------------------------------------|
      |                                    SEMESTER 1                                       |
      |-------------------------------------------------------------------------------------|
      |                         BACHELOR OF COMPUTER SCIENCE (HONS.)                        |
      |-------------------------------------------------------------------------------------|
      |  CODE        SUBJECT NAME                                  CREDIT HOURS             |
      |                                                                                     |
      |  SKIK1013    Computer Organizations and Architecture             3                  |
      |  SKIP1013    Programming 1                                       3                  |
      |  SCQM1013    Mathematics for Computing                           3                  |
      |  MPU1013     Penghayatan Etika dan Peradaban                     3                  |
      |  MPU1043     Falsafah dan Isu Semasa                             3                  |
      |  SADN1033    Kenegaraan                                          3                  |
      |-------------------------------------------------------------------------------------|

      Please enter the marks for the following assessments :

         --- SKIP1013 ---
         <> Quiz               : 18
         <> Assignment         : 45
         <> Project/Final Exam : 28

         The total mark for SKIP1013 is 91.0
```

```
--- SKIK1013 ---
<> Quiz               : 15
<> Assignment         : 33
<> Project/Final Exam : 25

The total mark for SKIK1013 is 73.0


--- SCQM1013 ---
<> Quiz               : 18
<> Assignment         : 45
<> Project/Final Exam : 25

The total mark for SCQM1013 is 88.0


--- SADN1033 ---
<> Quiz               : 20
<> Assignment         : 45
<> Project/Final Exam : 25

The total mark for SADN1033 is 90.0


--- MPU1013 ---
<> Quiz               : 16
<> Assignment         : 38
<> Project/Final Exam : 28

The total mark for MPU1013 is 82.0


--- MPU1043 ---
<> Quiz               : 12
<> Assignment         : 33
<> Project/Final Exam : 25

The total mark for MPU1043 is 70.0
```

```
*************************************************************************************************

              Grade Point Average (GPA) Calculation


*************************************************************************************************
     |-------------------------------------------------------------------|
     |                        GRADE REFERENCE                            |
     |-------------------------------------------------------------------|
     |    Marks (%)    |  Grade  |  Grade Points                         |
     |                 |         |                                       |
     |    90 - 100     |    A+   |    4.00 (Excellent)                   |
     |    80 - 89      |    A    |    4.00 (Excellent)                   |
     |    75 - 79      |    A-   |    3.67 (Credit)                      |
     |    70 - 74      |    B+   |    3.33 (Credit)                      |
     |    65 - 69      |    B    |    3.00 (Credit)                      |
     |    60 - 64      |    B-   |    2.67 (Good)                        |
     |    55 - 59      |    C+   |    2.33 (Good)                        |
     |    50 - 54      |    C    |    2.00 (Pass)                        |
     |    45 - 49      |    C-   |    1.67 (Fail)                        |
     |    40 - 44      |    D+   |    1.33 (Fail)                        |
     |    35 - 39      |    D    |    1.00 (Fail)                        |
     |     0 - 34      |    F    |    0.00 (Fail)                        |
     |                 |    X    |    Barred                             |
     |                 |    TL   |    Incomplete                         |
     |                 |   M/TM  |    Satisfactory/Not Satisfactory      |
     |                 |    TD   |    Withdraw                           |
     |-------------------------------------------------------------------|
```

```
<> Please enter the grade point for SKIP1013 : 4.00

<> Please enter the grade point for SKIK1013 : 3.33

<> Please enter the grade point for SCQM1013 : 4.00

<> Please enter the grade point for SADN1033 : 4.00

<> Please enter the grade point for MPU1013  : 4.00

<> Please enter the grade point for MPU1043  : 3.33

/>> Total credit hours for Semester 1 is 18.0
/>> Total grade points earned for Semester 1 is 67.98

/>> GPA for Semester 1 is 3.776666666666667
```

ASSIGNMENT 1

Name: Anuarul Irfan Bin Mohd Sofian

Matric Id: 288181

Theme: University

Topic: Library

11. Identify the problem

Background

A library is a collection of materials, books or media that are easily accessible for use and not just for display purposes. It is responsible for housing updated information in order to meet the user's needs on a daily basis. A library provides physical (hard copies documents) or digital access (soft copies) materials, and may be a physical location or a virtual space, or both. A library's collection can include printed materials and other physical resources in many formats such as DVD, CD and Cassette as well as access to information, music or other content held on bibliographic databases.

A library, which may vary widely in size, may be organized for use and maintained by a public body such as a government, an institution/ schools, a corporation, or a private individual. In addition to providing materials, libraries also provide the services of librarians who are trained and experts at finding, selecting, circulating and organizing information and at interpreting information needs, navigating and analysing very large amounts of information with a variety of resources.

The history of libraries began with the first efforts to organize collections of documents. The first libraries consisted of archives of the earliest form of writing—the clay tablets in cuneiform script discovered in Sumer, some dating back to 2600 BC. Private or personal libraries made up of written books appeared in classical Greece in the 5th century BC. In the 6th century, at the very close of the Classical period, the great libraries of the Mediterranean world remained those of Constantinople and Alexandria. The libraries of Timbuktu were also established around this time and attracted scholars from all over the world.

The Fatimids (r. 909-1171) also possessed many great libraries within their domains. The historian Ibn Abi Tayyi's describes their palace library, which probably contained the largest collection of literature on earth at the time, as a "wonder of the world". Throughout history, along with bloody massacres, the destruction of libraries has been critical for conquerors who wish to destroy every trace of the vanquished community's recorded memory. A prominent example of this can be found in the Mongol massacre of the Nizaris at Alamut in 1256 and the torching of their library, "the fame of which," boasts the conqueror Juwayni, "had spread throughout the world".

Libraries may provide physical or digital access to material, and may be a physical location or a virtual space, or both. A library's collection can include books, periodicals, newspapers, manuscripts, films, maps, prints, documents, microform, CDs, cassettes, videotapes, DVDs, Blu-ray Discs, e-books, audiobooks, databases, table games, video games and other formats. Libraries range widely in size, up to millions of items.

Libraries often provide quiet areas for studying, and they also often offer common areas to facilitate group study and collaboration. Libraries often provide public facilities for access to their electronic resources and the Internet. Public and institutional collections and services may be intended for use by people who choose not to—or cannot afford to—purchase an extensive collection themselves, who need material no individual can reasonably be expected to have, or who require professional assistance with their research.

Services offered by a library are variously described as library services, information services, or the combination "library and information services", although different institutions and

sources define such terminology differently. Organizations or departments are often called by one of these names. However, in a world that is not static the roles of the libraries is slowly changing in order to suit the changing world, services provided by Libraries has gone an extra mile in supporting research, reference services. Reference services that include Current Awareness Services (CAS), Selective Dissemination Information (SDI) and Telephone Services. Therefore these services creates a conducive environment where library clients have the privilege to interact with the library staff in order to express their view and Information related needs

Libraries are usually staffed by a combination of professionally-trained librarians, paraprofessional staff sometimes called library technicians, and support staff. Some topics related to the education of librarians and allied staff include accessibility of the collection, acquisition of materials, arrangement and finding tools, the book trade, the influence of the physical properties of the different writing materials, language distribution, role in education, rates of literacy, budgets, staffing, libraries for specially targeted audiences, architectural merit, patterns of usage, the role of libraries in a nation's cultural heritage, and the role of government, church or private sponsorship. Since the 1960s, issues of computerization and digitization have arisen. Librarians are trained to be updated with trending Information in order relevant Information.

Many institutions make a distinction between a circulating or lending library, where materials are expected and intended to be loaned to patrons, institutions, or other libraries, and a reference library where material is not lent out. Travelling libraries, such as the early horseback libraries of eastern Kentucky and bookmobiles, are generally of the lending type. Modern libraries are often a mixture of both, containing a general collection for circulation, and a reference collection which is restricted to the library premises. Also, increasingly, digital collections enable broader access to material that may not circulate in print, and enables libraries to expand their collections even without building a larger facility. Lamba (2019) reinforced this idea by observing that "today's libraries have become increasingly multi-disciplinary, collaborative and networked" and that applying Web 2.0 tools to libraries would "not only connect the users with their community and enhance communication but will also help the librarians to promote their library's activities, services, and products to target both their actual and potential users".

Even though library undergoes improvement over the year since its first establishment, there are still problems that remains such as:

- Students want to borrow or read some books from the library but they can't find it as the library filled with many kinds of books
- Students always forget to bring or lost their library borrower cards
- Students who borrowed books from the library usually returned it past the due date given
- Library restock the old books with new books with the same total of it in the library but it hard to keep track amounts of books due to students borrowing it

12. Understand the problem

- University Library: A university library is a part of a university set up. Therefore, it exists to serve the objectives of its parent organization by procuring comprehensive range of documents including books, manuscripts, journals, magazines, newspaper etc. on various subjects. In order to organize huge collection of documents it keeps them in different sections on the basics of their categorization like text book section, reference section, journal section, thesis section. This make the students hard to find their desired books for their studies even though the books were organised as they are many variations design of it with different contents. They also didn't know whether the book is available or not.

- University Library also offers a borrowing system where students can borrow some materials offered by the library and return it on a specific date later on. Most of the students that borrowed some materials from the library usually return it late as they often forgot about the due date or being irresponsible. This situation also creates problem for other students that wanted to borrow the same books.

- To borrow some books from the library, it is compulsory for students to bring their student's library borrower card where all the information about the students and the borrowing process recorded in it. Students often forget to carry it with them all the time and lost it easily as the card is small in sizes.

- Every month, the library will restock by disposing the old materials with the new one. The total amount of books must be the same so that the library will not face overload of books. The library staff must record down the total books in the library before restock but it is hard as students borrow the book.

13. Identify alternative ways to solve the problem

i. The librarian will guide the students to find the specific books that they wanted and help them through the borrowing process by recording the information about the borrower, issuer(librarian), date of issuing, date of return, book id and fine that will apply if the borrower returned the book past the due date in the library record books. Students can also check the library record books to see whether the books they wanted to borrow is available and librarian can track down students that haven't return the book they borrow.

ii. The library post a guidebook on how to find the books that the students wanted by filtering their searches using genre, name of author, date of publish and the

first alphabets of the books title. With the organization of documents that keeps them in different sections on the basics of their categorization like text book section, reference section, journal section, thesis section. The guidebook also shows how the process of borrowing through self service by register by themselves in the library computer.

iii. The library can made management system application and install it in the computer library. The total of books will be display and students can just type the book that they wanted or even related genre, author etc. in the computer library via website. The system will locate the books the user searched and show the details about the book availability. With a built-in borrowing system, students can straight up register to borrow the book they wanted. Fine will be implied to students that return the book late. After books being borrowed, the total number of books will be track and saved.

14. Select the best way to solve the problem from the list of alternative solutions.
    (iii) The library made management system application and install it in the computer library.

15. List instructions (steps) that enable you to solve the problem using the selected solution.
    i. User need to log in/sign up by identify themselves using personal information such as name, matric number, age, current semester.

    ii. The system will upload the information on the user personal account.

    iii. Next, student can enter their desire book to borrow from the total of books the library display and the system will save it.

    iv. User will have to enter the date of issuing, date of return and the book id which user can find it inside the book after retrieving it. The total books of library will be deducted every time students borrow a book. Fine also will be calculated if the students return the books late

    v.

Activity	Remarks
Students1-Borrow a book	Total books = Total books -1
Students2-Borrow 2 books	Total books = Total books -2

Students3-Borrow 3 books	Total books = Total books -3

Date	Fine
1 day after the Date of Return	Fine = Rm1.00 x 1
2 days after the Date of Return	Fine = Rm1.00 x 2
3 days after the Date of Return	Fine = Rm1.00 x 3

*Notes: The total Fine will increase and calculate based on the
Fixed Fined (Rm1.00) * Days of book return and it will go on until the Student return the books

vi. The system will save the information in a database and display it back to the user for confirmation.

16. Evaluate the solution.

With the help of the library management system, students can help themselves to find and borrow the books in the library without the help of the librarian. Librarian often have many other things to manage such as arranging books to assign shelf and checking the condition of books. By using the library management system, it will save time for the students to find and borrow books and less the burden of the librarian doing their job. Students can also know about all the details about the book they wanted by just browse it through the library computer instead of skimming through one by one to find the specific one that will help them in their projects or studies.

17. Algorithm

Algorithm

Steps on how to borrow a book from the library using library self-managements system

i.Student need to register by identify themselves using personal information such as name, matric number, age, current semester in the library computer.

ii.The system will upload the information on the user personal account.

iii.Next, student can enter their desire book to borrow and the system will save it.

iv.User will have to enter the date of issuing, date of return and the book id which user can find it inside the book after retrieving it.

v.The system will save the information in a database and display it back to the user for confirmation.

vi.User can restart the system to borrow another book

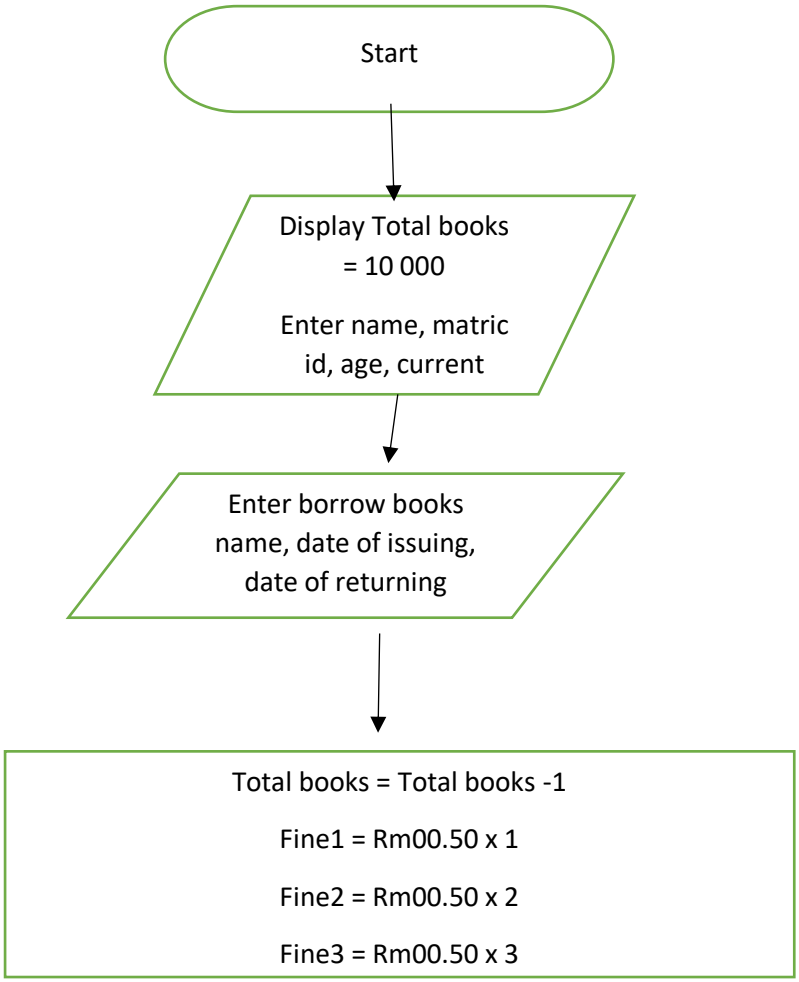
18. Pseudocode

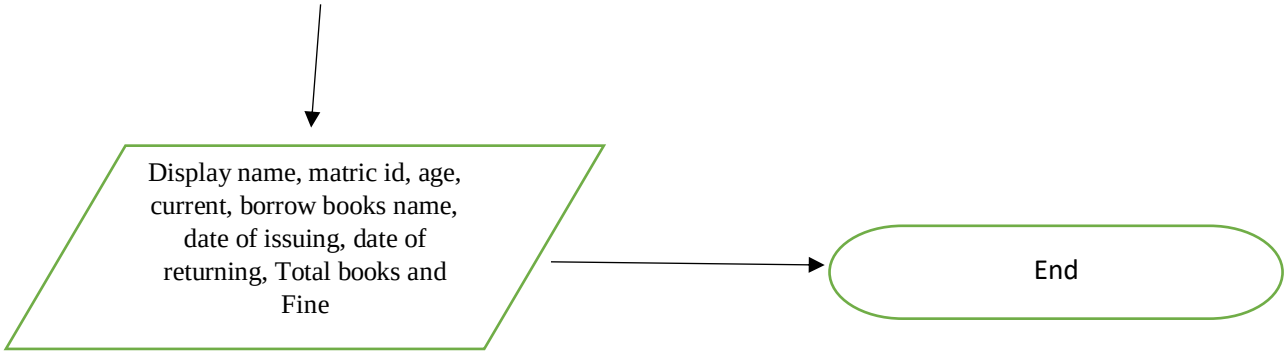
Start

Total books = 10 000
Input name, matric id, age, current semester, Total books
Intput books name
Input date of issuing, date of return
Total books = 10 000 -1
Fine1 = 0.5*1
Fine2 = 0.5*2
Fine3 = 0.5*3
Output name, matric id, age, current semester
Output books name, date of issuing, date of return, Fine

End

19. Flow Chart





20. Coding - Numerical Computation & Expression

*Library.java

```
package code1;

import java.util.Scanner;
public class Library {

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

        String name, books, date1, date2,proceed;
        int Matric_id, age, sem;
        int totalbooks = 10000;

        Scanner sc = new Scanner(System.in);
        System.out.println("Welcome to the University Library Management System.");
        System.out.println("Please enter your personal information to proceed to borrow a book.");
        System.out.print("Please enter your name: ");
        name = sc.nextLine();

        System.out.print("Please enter your Matric id: ");
        Matric_id = sc.nextInt();

        System.out.print("Please enter your age: ");
        age = sc.nextInt();

        System.out.print("Please enter your current semester: Semester ");
        sem = sc.nextInt();

        System.out.println(" ");

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

        System.out.println("Enter the name of books you want to borrow ");
        books = sc.next();
```

```
        books = sc.next();

        System.out.println("Please enter the date of issuing following date of return.");
        System.out.println("Fine will be given if students return the books past date of return ");
        date1 = sc.next();
        date2= sc.next();

        totalbooks = totalbooks - 1;



        System.out.println(" ");


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

        System.out.println("Name: "+name);
        System.out.println("Age: "+age);
        System.out.println("Current Semester: "+sem);
        System.out.println("Borrowed Books: "+books);
        System.out.println("Date of issuing: "+date1);
        System.out.println("Date of return: "+date2);

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

        System.out.println(" ");

        System.out.println("Thank you for using the University Library Management Sytsem ");
        System.out.println("There are  "+ totalbooks+ " books remaining in the library");
        System.out.println("You can restrart the system to borrow another book ");
        System.out.println("Have a nice day! ");
```

TOPIC : UNIVERSITY

SUB TOPIC : MEDICAL

Nama : Noor Aisyah Hanum Binti Mohd Hisyam

No matrics : 288184

ASSIGNMENT 1

21. Identify the problem

Before entering what would be the problem faced by medical issues in University, let us drive into the definition of a medical first. A medical specialty is a branch of medical practice that focuses on a particular group of patients, diseases, skills, or philosophy. Examples include children (pediatrics), cancer (oncology), laboratory medicine (pathology), or family medicine (general practice). After graduating from medical school, physicians or surgeons typically complete several years of residency training to specialize in a particular area of medicine.

Higher education health is a desired outcome to be achieved through a constellation of services, programs, and policies designed to promote the health and well-being of individuals enrolled at an institution of higher education while addressing and improving population and community health. Many colleges and universities around the world are applying both health promotion and health care as processes to achieve key performance indicators for higher education health. The variety of health services offered by an institution range from first aid stations with a single nurse to large, accredited, outpatient health clinics with hundreds of staff. These services, programs, and interventions require a multidisciplinary team consisting solely of physicians, physician assistants, administrators, nurses, nurse practitioners, mental health professionals, health educators, athletic sneakers, dietitians and nutritionists, and pharmacists. Some of the health services also include massage therapists and other holistic health professionals. The vast majority of college health services are established as cost

centers or service units rather than as part of academic departments or health care enterprises.

To continuously improve health in higher education, many institutions engage in both health care and health promotion activities. The promotion of student health through educational, policy, legal, and organizational support is referred to as health promotion in higher education

The Student Health Clinic provides the following services & facilities:

- Consultation and examination
- Treatment
- Electrocardiogram examination
- X-ray
- Medical check-up for the purpose of scholarship and certain physical activities for students
- Medical report
- Blood screening and vaccination

Some of the universities provide medical care to students, employees, and outsiders. They also provide health counseling and education to promote good health and prevent disease. Services include diagnosis and treatment of illnesses, dental and prescription medications, and a variety of immunizations and vaccinations

Common health concerns of college and university students

DISTRESS & ACADEMIC

A common performance indicator for college health relates to stress levels and stress management. Stress is the negative consequence of the body's adaptation to change. Postsecondary education involves both stress and eustress. Many higher education institutions have a reputation for being high stress environments: During college, students are often faced with higher academic expectations and higher levels of responsibility, which can have a negative impact on student well-being.

Similarly, students in postsecondary education are often expected to balance social, financial,

personal, and professional obligations while performing well academically. As a result, overall stress levels often increase among postsecondary students, which is related to decreased perceptions of their own quality of life. Because stress is a common aspect of students' academic experiences, the relationship between stress and impaired quality of life has become an area of increasing concern in postsecondary education. Recent studies have shown that stress in college students contributes to the development of adverse coping strategies, which in turn may increase the risk for developing negative health complications during college, including depression. In addition, factors such as physical and mental fatigue, as well as decreased sleep performance as a result of stress at college or college, can severely affect students' life satisfaction. Academic competition is another important source of stress in the lives of postsecondary education students. High levels of peer competition have been reported to correlate with depression and anxiety in college students. Although competition in the academic environment is often perceived by students as a strong motivator, there is evidence that it may also contribute to unhealthy levels of stress in individuals.
Therefore, those who learn to develop effective strategies for managing personal stress in an academic environment can protect themselves from the risk of health complications in postsecondary education. Yoga, breathing techniques, and mindfulness exercises are all practices that have been shown to reduce stress among college students. In particular, cortisol levels among students using cognitive and behavioral techniques have been shown to decrease following the intervention. In addition, studies suggest that exercise and physical activity may have a protective effect against stress among college students. Intrapersonal issues, including perceived body image and self-esteem concerns, are common in adolescence. Postsecondary institutions are therefore widely recognized as an ideal place to implement evidence-based health interventions that provide students with opportunities to monitor and improve their self-image.

Since there is most an institution to have an services on having a dietitian to check-up on the athletic. There are few problems on this subtopic which are :
In this assignment, the students and the staff are referred as patients.

- Patients tend to waste a lot of time by queueing at the medical centre for check-up

  because they have to fill in the personal information in hand written.

- Patients need to repeatedly fill the personal information when they need to do check-up in other medical centre which is troublesome for the patients too.

- Patients have no idea on the medical details charges and purchases which make them difficult to plan their money budget plan.
- Patients need to have an organise diet plan to keep themselves in a right track.

22. Understand the problem

Firstly, the students and staffs are referred as patient. The patient will face difficulty to enter medical centre because of the crowd of patient for check-ups, emergency section and consultation of the doctors. In medical centre of university, the patients are given paper from fill in the personal background include any allergy or symptoms in previous time. This will take a while since the "check-up", "emergency section" and under doctor consultation patients are filling up the same form. To avoid any circumstances, the patients are given a particular form in the mobile phone where it acts as a platform which is "UUMONETOUCH". The patients just need to pick three options to proceed

with the next steps. As for this assignment 1, this is the first trial as an input of the details of check-up patients first. When this database easy access in mobile phone, the patients do not have to burden themselves to enter the personal information over again if they encounter to the medical centre again. Not only it is easy for the patients, the details that been submitted by the patients will automatically save in the file under the medical centre database. This method is quite alike the cliché Google Form but this is difference in the part of the code. This is where to differentiate the patients and by using the code enter by the patients, it will be easier for the staff check the records. Patients can too have a softcopy of their own medical records. The students or staff that made the payment under "UUMONETOUCH", they will experience special offers and many advantages. The code will not be mixed up as it is permanently saved.

These are the cons of using paper form or in other word manual medical records.

The patient record has become the most trusted data source that can serve multiple purposes and functions. As many as 150 end users seek access to a standard medical record. As more people require the information in a medical record, the physical condition and location of the record are extremely important. The following are some of the disadvantages of a manual (non-computerized) paper medical record.

Costs of manual medical records

There are several types of costs associated with manual patient records. One type, duplication of the record, requires paper and copying supplies as well as the personnel to make and distribute the copies. The staff hired to assemble, file, retrieve, or distribute the paper record is a costly expense. Valuable space is required to store the paper records that could be put to better use. In addition, records must be protected from water, fire, or improper handling to ensure their integrity.

One of the most costly drawbacks of paper records is duplicate patient tests required to replace lost or missing test results. Repeating procedures can put the patient's health at risk, creating the possibility of an adverse medical event. Duplicate tests waste scarce medical resources (time, staff, supplies, and equipment) that could be used for other patients. They contribute to the rising cost of healthcare by requiring additional billing to the patient, insurance company or other payers.

A related problem is ordering procedures or tests that are either unnecessary or contraindicated. Such decisions, based on inadequate information or delayed results, can be harmful to the patient and create unnecessary costs for all involved. Filing claims for medical errors that could have been avoided with accurate and accessible patient information is a problem that occurs when a paper record is used.

Productivity losses due to manual medical records.

Productivity losses result from several shortcomings of the paper medical record. This affects multiple departments in a healthcare facility. Searching for misfiled medical records takes time. Staff time is required to move paper files to a specific location. If the paper record is not immediately available, the staff responsible for filing the documentation may have to make several attempts before the task is completed. Medical errors may occur if staff make decisions based on insufficient information.

There is no way to sort data fields in a paper file. Staff responsible for reporting mandated data elements to the appropriate organizations must perform a manual review. This is a very labor-intensive process that can result in inaccuracies.

Accessibility of medical records.

A major problem is the lack of access to medical records. The record can only be used by one person at a time and must be in a single location. Staff who need access to the file must wait until it is available to them. This also contributes to the difficulty of updating the paper record, especially with an active patient record, as the record is taken with the patient to each place of care. If the records are hand-carried to the patient's temporary location, they are at risk of being lost or misplaced. Delayed access to the record negatively impacts coding, billing, and reimbursement.

Quality of manual medical records

The issue of quality encompasses the physical record, documentation, and patient care. The physical quality of the paper record is limited. The paper is fragile and not durable. Normal use of the records may result in torn or stained documents. In addition, the ink used to create the documentation may fade over the years. Another threat to the physical integrity of paper records is damage caused by water or fire.

The quality of the actual documentation depends on the documentation skills and knowledge level of the healthcare provider. While standardization of data documentation has improved over the years, not all healthcare providers use the same abbreviations, terminology, format, or medical record organization. This can lead to incomplete or inaccurate recording of health data. Handwritten information can be illegible, leading to errors in patient treatment or medication orders.

Fragmentation caused by manual medical records.

Patient record fragmentation is the result of multiple encounters with different healthcare providers. Due to different patient documentation and billing systems, there is often minimal or no exchange of information to help compile a comprehensive medical history for the patient. Each provider or facility has only a limited portion of the patient's total health information. Minimal communication may occur between referring and consulting physicians, but only for a given encounter. The degree of

fragmentation depends on several factors. These factors include:

- The patient's ability to communicate pertinent health information to the provider;

- The ability of the provider to collect information that is accessible to other providers;

- The provider's ability to elicit health information directly from the patient and any written documentation to develop an appropriate treatment plan; and

- The limitations of the patient data system(s) used to collect and disseminate information.

A well-planned and implemented electronic medical record system should address and/or mitigate many of the common drawbacks of the paper record. This is an immense undertaking that requires a thorough review of current processes, a detailed strategy to determine the future needs and goals of the organization, the willingness and ability of the organization to make significant changes, and the financial investment to achieve the desired results. It is also a very time-intensive project that requires the highest level of commitment and engagement from the entire health system. Patients, providers, and other interested parties can all expect benefits from a properly planned and installed automated system.

Moreover, there is a new proposal for the patients to be in ease situation. The patient can take the diet intake service by the medical centre itself. This is like the program diet intake for the athletic but in a mild program but that much for strict procedure.

There are some of the information patients and the organisation of the medical centre need to take a great step to start this proposal for the patients.

A dietitian, medical dietitian, or nutritionist is an expert in identifying and treating disease-related malnutrition and providing medical nutrition therapies, such as planning enteral tube feedings or alleviating the effects of cancer cachexia. Many dietitians work in hospitals and typically care for specific patients for whom a physician or nurse orders nutritional assessment and treatment, such as when a patient has lost the ability to swallow or requires artificial feeding due to intestinal insufficiency. Dietitians are regulated health professionals licensed to assess, diagnose, and treat such problems.

Dietitians in food service are responsible for planning and serving food on a large scale. They coordinate, evaluate, and plan food service processes in health care facilities, school kitchens, prisons, restaurants, and corporate cafeterias. These dietitians may conduct audits in their departments to

ensure quality control and food safety standards, and introduce new menus and various programs within their facility to meet health and nutrition requirements. They train and supervise other food service staff such as kitchen personnel, delivery personnel, and dietitians or dietary aides.

23. Identify alternative ways to solve the problem

- Establish a team recruit to assist every patient
- The medications and symptoms sync are compiled in a file and check them regularly to identify the right medicines
- Hire staff to check up upon the medical records and arrange the data hand written
- Patient fill in the personal background every time check-up
- Scan for registry but only appear name and date at the app

- Alike a database where patients fill in the personal information in an application where it can saved automatically and can be used anywhere
- Patient need to spare excess amount of money to make the payment.
- Staff of the medical centre always need to give explanation of the intake and consumption every time a patient done with the treatment
- Digital pad to write the details
- Pen drive and hard disk to save all the data information.

24. Select the best way to solve the problem from the list of alternative solutions.

    Alike a database where patients fill in the personal information in an application where it can saved automatically and can be used anywhere

25. List instructions (steps) that enable you to solve the problem using the selected solution.

1) Patient enter their name, age, gender, email, phone number, UUMONETOUCH balance, code
2) The staff will get the information and there are few things to be completed which are the blood type, condition of heart rate, x-ray sessions and dietician services.
3) When the patients being checked by the doctors, the doctors will enter the blood type, heart rate, x-ray, weight and height for bmi.
4) The information too will be directly sent to the staff database information. They just need to save it nicely in the particular folder of the patients
5) While waiting for the nurses to display the medication directly by the doctors, the patients are being displayed all the medicines and services charge payment as a heads-up for the patients.
6) After the check-up session ended, the nurse displayed the particular medication for the patients and total of the service charges.

SERVICES PROVIDED WITH MEDICINES	PRICES (RM)
XRAY SERVICE	1
BLOOD TEST	1
SERVICE CONSULTATION	5

PANADOL	10
ANTIBIOTICS	8
DIETICIAN SERVICES	5

7) The list of the calories is showed and BMI calculation

BMI CALCULATION

HEIGHT MUST BE IN METER (M) WEIGHT MUST BE IN KILOGRAM (KG) BMI = WEIGHT / (HEIGHT*HEIGHT)

BODY MASS INDEX	CONDITION
LESS THAN 18.5	UNDERWEIGHT
MORE THAN EQUAL 18.5 AND LESS THAN 24.9	NORMAL
LESS THAN 30	OVERWEIGHT
MORE THAN EQUAL 30	OBESE

8) When the payments are being paid by "UUMONETOUCH", the patients will get an 50% off of the combination of medication and services charge.

TOTAL PAYMENT = XRAY SERVICE + BLOOD TEST + SERVICE CONSULTATION + PANADOL + ANTIBIOTICS+DIET SERVICE

TOTAL OF UUM TOUCH = RM X TOTAL PAID = TOTAL PAYMENT/2 BALANCE = RM X – TOTAL PAID

9) Lastly, the patients will get a whole copy of the medical records of themselves and also the receipt.

26. Evaluate the solution.

The results of the solution are accurate because there will definitely a mistake when the client write manually on the paper form because the handwriting might be hard to read and wrong information since it is an important data of life. That is why this method entered by the client is much more easier and fast. It is quick as lightning to access any data in different places. This method is a top-notch way to satisfy the client because who even prefer to queue a long way rather than sit in a place and fill up the

form from your own mobile phones. Everything is just at the fingertips. This will be an easy acceptance to the client because this era is living in a modern lifestyle because it relates on the communication of multiple people around the globe. It is an assurance as a good solution to the original problems due to the faster connection and easy access.

Advantages of the electronic patient record

There are a number of benefits of electronic patient records, with financial benefits, templates, and patient portal functionality being the most prominent:

Financial opportunities

Your organization must use computerized patient records with a certified EHR. This is required to demonstrate Meaningful Use and receive the financial incentives offered by Medicare and Medicaid (the government encourages EHR use in the name of efficiency and promotes the use of the software accordingly).

Additional financial incentives from the government are only available when physicians use an EHR to document adherence to value-based care initiatives, such as data supporting the Patient Centered Medical Home or PCHM model.

Time-saving templates

Pre-created templates are an important example of the benefits of electronic health records. Using templates, whether for general practice patient encounters or specialty use, ensures that staff always enter the correct information about patients before closing the updated record (e.g., staff will enter very different information for an oncology appointment than for a patient visiting OB /GYN).

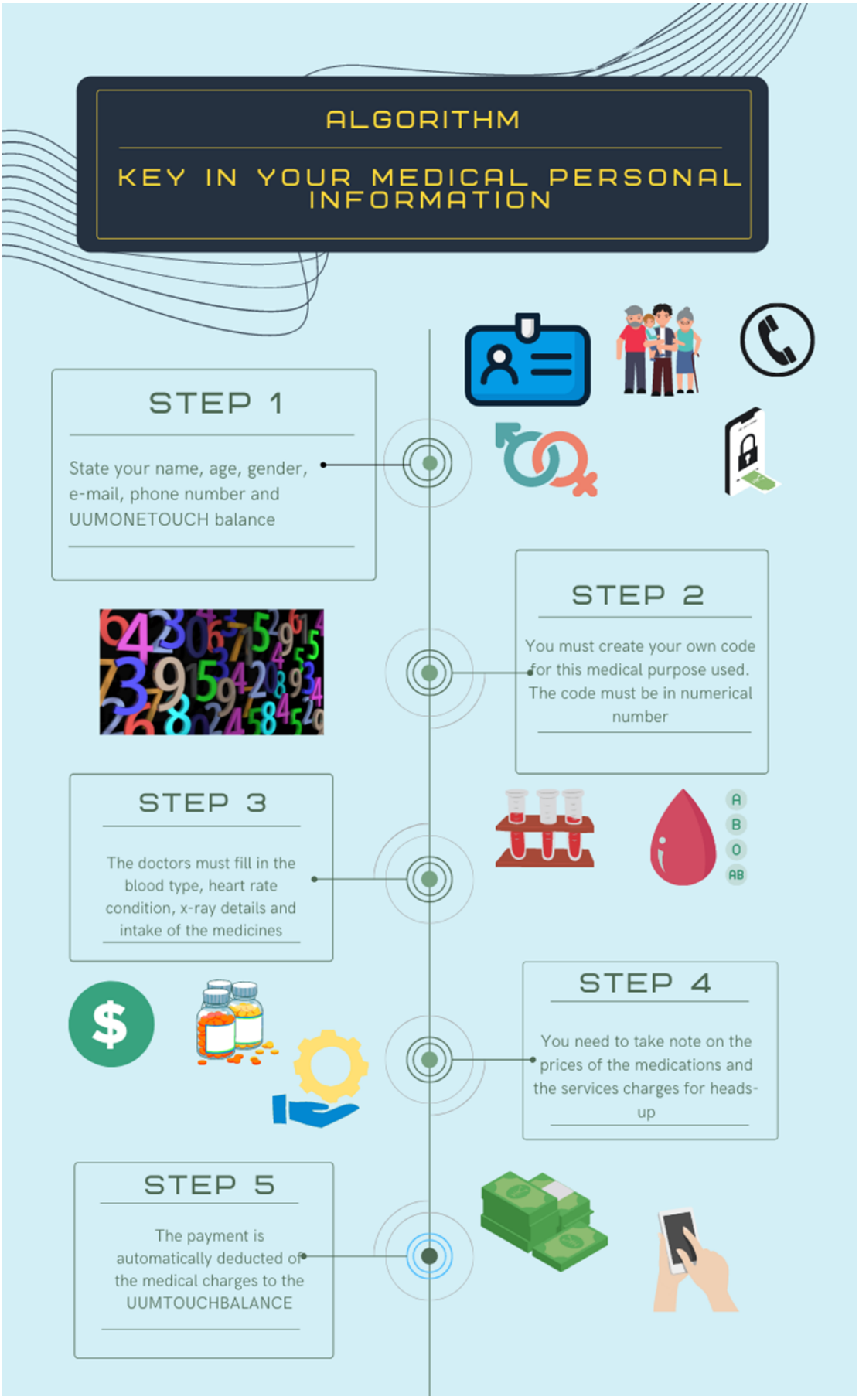
Patient portal improves access

A great way to save time and encourage patient engagement is to enable the patient portal in your EHR system. It allows patients to enter their own information using a computer at home or at a kiosk in your waiting room, eliminating the need for them to provide redundant information on multiple stacks of paper forms. Now your staff doesn't have to spend time entering that information either.

Patient portals are proving to be very valuable as the nation copes with the growing pandemic of COVID -19 coronavirus infections. The Centers for Disease Control reports that telehealth modalities for storing and sharing secure messages, data, and images are working well in patient portals. This is

especially important as people are encouraged to practice social distancing. Patients don't have to come to the office to fill out forms, which reduces contact with other patients in the waiting area.

27. Algorithm



28. Pseudocode

START

Print "----------Welcome to the MEDICAL UUM----------"

Print "----------WE SHARE WE CARE WE LOVE----------"

Print "A reminder to all the patient to fill up the all the information"

Print "It is advisable for patient to spare a maximum of rm50 for the medications and services charges"

Print "Remind that the created code must be in numerical code"

Read name, gender, uumtouch, email, phone, code, age

services = 5, panadol =10, antibiotics = 8, xrayser = 1, bloodtest =1, diet=5

Print "----------"

Print "Details that must be filled by the doctors below"

Read bloodtype, condition, xray, med1, med2, weight, height

Calculate totalmed1 = med1*panadol

Calculate totalmed2 = med2*antibiotics

Calculate checkup = bloodtest+xrayser

Calculate bmi = weight/(height*height)

Print "The BMI for this patient is : %.2f ",bmi

Print "----------"

Print "These are the charges of the medications and services"

Print "[SERVICE OF MEDICAL CHECKUP : RM "+service+"]"

Print "[PANADOL : RM "+panadol+"]"

Print "[ANTIBIOTICS : RM "+antibiotics+"]"

Print "[BLOOD TEST AND XRAY SCAN : RM" +checkup+"]"

Print "[DIETICIAN SERVICES : RM" + diet+"]"

Print "----------"

Print "These are the charts of the body mass index you have"

Print "If your BMI is less than 18.5 : UNDERWEIGHT "

Print "If your BMI is more than equal 18.5 and less than 24.9 : NORMAL "

Print "If your BMI is less than 30 : OVERWEIGHT "

Print "If your BMI is more than 30 : OBESE”

Print"----------");

Calculate totalpayment = (totalmed1 + totalmed2 +service)/2

Calculate balance = uumtouch-totalpayment

Print “Details of the patient below");

Print "Full name : "+name

Print "Current age : "+age

Print "Gender : "+gender

Print "Personal E-mail : "+email

Print "Current phone number : "+phone

Print "Current UUMONETOUCHBALANCE : RM "+uumtouch

Print "Code : " +code

Print “Blood Type : "+bloodtype);

Print "Condition of heart rate : "+condition

Print "X-ray details : "+xray

Print "BMI : %.2f ",bmi

Print "Please proceed for the payment by UUMONETOUCH"

Print "Your total for medical check-up for today : RM %.2f "+totalpayment

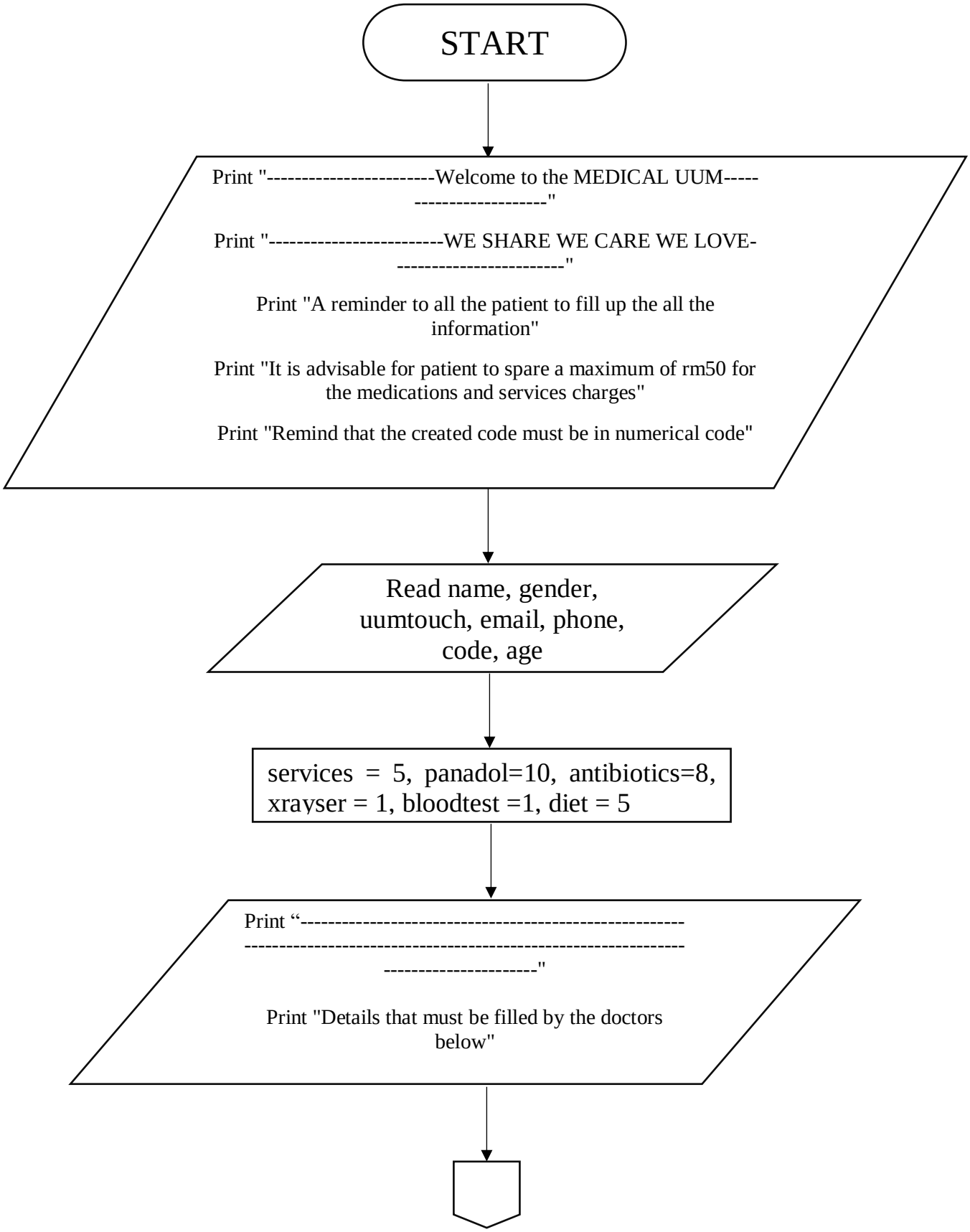
Print "Balance of your payment : RM %.2f " ,balance

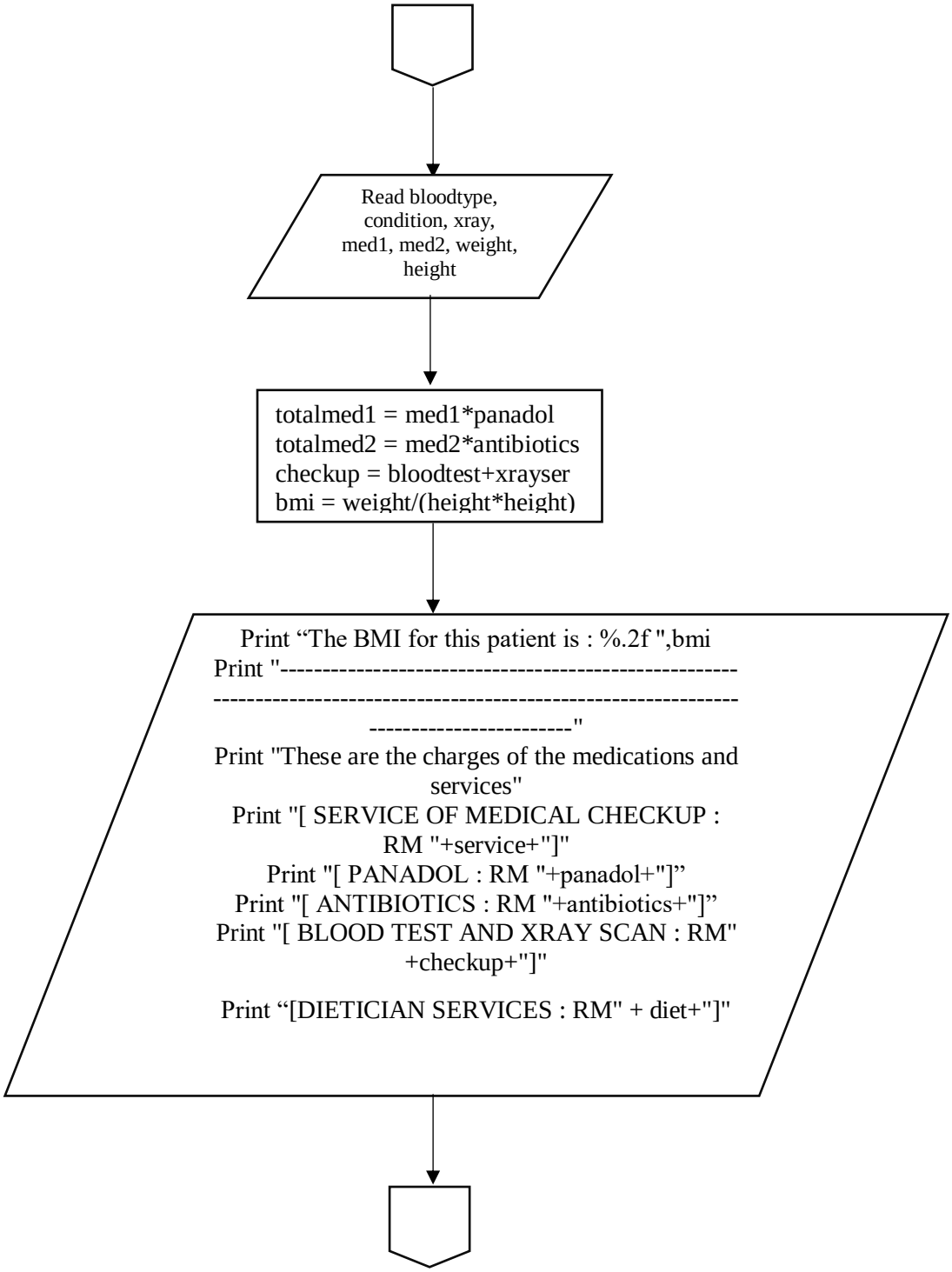
Print "----------"

Print "If your BMI is under OBESE, please wait for the next appointment"

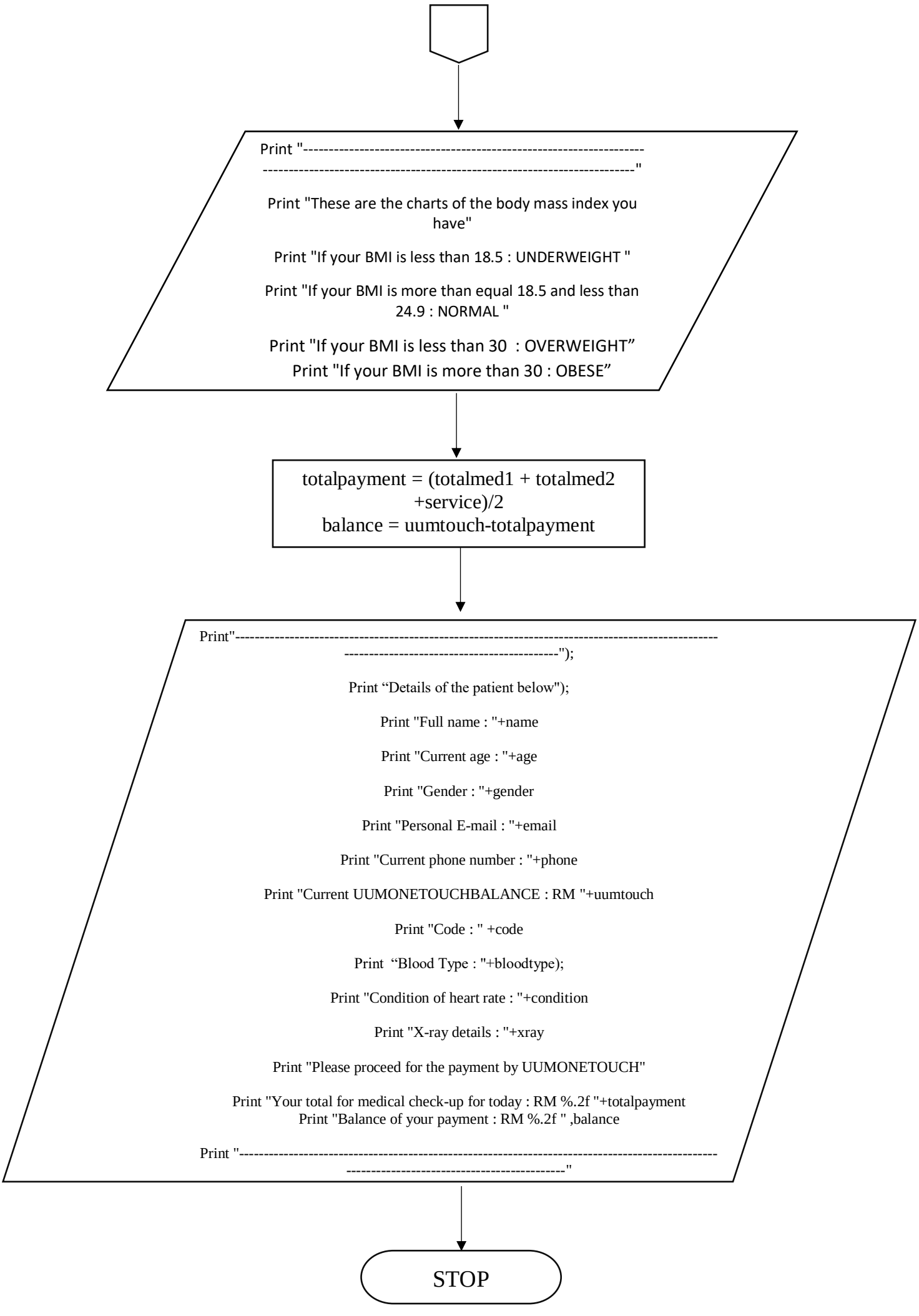
STOP

29. Flowchart




Read bloodtype, condition, xray, med1, med2, weight, height
totalmed1 = med1*panadol
totalmed2 = med2*antibiotics
checkup = bloodtest+xrayser
bmi = weight/(height*height)
Print “The BMI for this patient is : %.2f ",bmi
Print "----------

----------"
Print "These are the charges of the medications and services"
Print "[SERVICE OF MEDICAL CHECKUP : RM "+service+"]"
Print "[PANADOL : RM "+panadol+"]”
Print "[ANTIBIOTICS : RM "+antibiotics+"]”
Print "[BLOOD TEST AND XRAY SCAN : RM" +checkup+"]"
Print “[DIETICIAN SERVICES : RM" + diet+"]"


Print "----------
---------- "
Print "These are the charts of the body mass index you have"
Print "If your BMI is less than 18.5 : UNDERWEIGHT "
Print "If your BMI is more than equal 18.5 and less than 24.9 : NORMAL "
Print "If your BMI is less than 30 : OVERWEIGHT"
Print "If your BMI is more than 30 : OBESE"
totalpayment = (totalmed1 + totalmed2 +service)/2
balance = uumtouch-totalpayment
Print"----------
----------");
Print "Details of the patient below");
Print "Full name : "+name
Print "Current age : "+age
Print "Gender : "+gender
Print "Personal E-mail : "+email
Print "Current phone number : "+phone
Print "Current UUMONETOUCHBALANCE : RM "+uumtouch
Print "Code : " +code
Print "Blood Type : "+bloodtype);
Print "Condition of heart rate : "+condition
Print "X-ray details : "+xray
Print "Please proceed for the payment by UUMONETOUCH"
Print "Your total for medical check-up for today : RM %.2f "+totalpayment
Print "Balance of your payment : RM %.2f " ,balance
Print "----------
----------"
STOP

30. Coding - Numerical Computation & Expression

```
package assignment1;

import java.util.Scanner;

public class Assignment_1 {

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

		Scanner input = new Scanner(System.in);

		String name;
		String gender;
		double uumtouch;
		String email;
		int phone;
		int code;
		int age;
		String bloodtype;
		String condition;
		String xray;
		double xrayser=1;
		double bloodtest=1;
		double checkup;
		double service = 5;
		double panadol = 10;
		double antibiotics = 8;
		double med1, totalmed1;
		double med2, totalmed2;
		double totalpayment;
		double balance;
		double weight;
		double height;
		double bmi;
		double diet=5;



		System.out.println("------------------------Welcome to the MEDICAL UUM----------
----------------");
		System.out.println("------------------------WE SHARE WE CARE WE LOVE---------
----------------");

		System.out.println("A reminder to all the patient to fill up the all the
information");
```

```
                System.out.println("It is advisable for patient to spare a maximum of rm50
for the medications and services charges");
                System.out.print("Name : ");
                name = input.nextLine();
                System.out.print("Age : ");
                age = input.nextInt();
                System.out.print("Gender : ");
                gender = input.next();
                System.out.print("Personal e-mail : ");
                email = input.next();
                System.out.print("Phone number : ");
                phone = input.nextInt();
                System.out.print("Please state your UUMONETOUCH balance : RM ");
                uumtouch = input.nextDouble();
                System.out.println("Remind that the created code must be in numerical
code");
                System.out.print("Code : ");
                code = input.nextInt();
                System.out.println("\n");


                System.out.println("----------------------------------------------------------------------------
------------------------------------------------------------------");
                System.out.println("Details that must be filled by the doctors below");
                System.out.print("Blood Type : ");
                bloodtype = input.next();
                System.out.print("Condition of heart rate : ");
                condition = input.next();
                System.out.print("X-ray details : ");
                xray = input.next();
                System.out.print("Enter weight in Kilogram: ");
                weight = input.nextDouble();
                System.out.print("Enter your height in Meter: ");
                height = input.nextDouble();
                bmi = weight/(height*height);
                System.out.printf("The BMI for this patient is : %.2f ",bmi);
                System.out.print("\n");
                System.out.println("Insert the INTAKE medication needed by the patients
below");
                System.out.print("Packs of panadol : ");
                med1 = input.nextDouble();
                totalmed1 = med1*panadol;
                System.out.print("Packs needed of antibiotics : ");
                med2 = input.nextDouble();
                totalmed2 = med2*antibiotics;
    System.out.println("\n");
```

```
checkup = bloodtest+xrayser;

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


System.out.println("These are the charges of the medications and services");

System.out.println("[ SERVICE OF MEDICAL CHECKUP : RM "+service+"]");
System.out.println("[ PANADOL : RM "+panadol+"]");
System.out.println("[ ANTIBIOTICS : RM "+antibiotics+"]");
System.out.println("[ BLOOD TEST AND XRAY SCAN : RM" +checkup+"]");
System.out.println("[DIETICIAN SERVICES : RM" + diet+"]" );

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

System.out.println("These are the charts of the body mass index you have");
System.out.println("If your BMI is less than 18.5 : UNDERWEIGHT ");
System.out.println("If your BMI is more than equal 18.5 and less than 24.9 : NORMAL ");
System.out.println("If your BMI is less than 30  : OVERWEIGHT ");
System.out.println("If your BMI is more than 30 : OBESE ");

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

System.out.println("\n");
totalpayment = (totalmed1 + totalmed2 +service+checkup+diet)/2;
balance = uumtouch-totalpayment;


                System.out.println("--------------------------------------------------------------------------------
------------------------------------------------------------------");
                System.out.println("Details of the patient below");
                System.out.println("Full name : "+name);
                System.out.println("Current age : "+age);
                System.out.println("Gender : "+gender);
                System.out.println("Personal E-mail : "+email);
                System.out.println("Current phone number : "+phone);
                System.out.println("Current UUMONETOUCHBALANCE : RM "+uumtouch);
                System.out.println("Code : " +code);
                System.out.println("Blood Type : "+bloodtype);
                System.out.println("Condition of heart rate : "+condition);
                System.out.println("X-ray details : "+xray);
                System.out.printf("BMI : %.2f ",bmi);

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

```
                    System.out.println("Please proceed for the payment by UUMONETOUCH");
                    System.out.printf("Your total for medical check-up for today : RM %.2f
",totalpayment);
                    System.out.println("\n");
                    System.out.printf("Balance of your payment : RM %.2f " ,balance);
                    System.out.println("\n");


                    System.out.println("----------------------------------------------------------------------------
----------------------------------------------------------------");
                    System.out.println("If your BMI is under OBESE, please wait for the next
appointment");

          }

}
```

OUTPUT

```
-----------------------Welcome to the MEDICAL UUM-----------------------
-------------------------WE SHARE WE CARE WE LOVE-------------------------
A reminder to all the patient to fill up the all the information
It is advisable for patient to spare a maximum of rm50 for the medications and services
charges
Name : NOOR AISYAH HANUM BINTI MOHD HISYAM
Age : 19
Gender : FEMALE
Personal e-mail : nooraisyahanum@gmail.com
Phone number : 01163129090
Please state your UUMONETOUCH balance : RM 100
Remind that the created code must be in numerical code
Code : 12345678


-----------------------------------------------------------------------------------------------------------------------
-----------------
Details that must be filled by the doctors below
Blood Type : A
Condition of heart rate : NORMAL
X-ray details : NORMAL
Enter weight in Kilogram: 65
Enter your height in Meter: 1.60
The BMI for this patient is : 25.39
```

Insert the INTAKE medication needed by the patients below
Packs of panadol : 1
Packs needed of antibiotics : 1

These are the charges of the medications and services
[SERVICE OF MEDICAL CHECKUP : RM 5.0]
[PANADOL : RM 10.0]
[ANTIBIOTICS : RM 8.0]
[BLOOD TEST AND XRAY SCAN : RM2.0]
[DIETICIAN SERVICES : RM5.0]

These are the charts of the body mass index you have
If your BMI is less than 18.5 : UNDERWEIGHT
If your BMI is more than equal 18.5 and less than 24.9 : NORMAL
If your BMI is less than 30 : OVERWEIGHT
If your BMI is more than 30 : OBESE

Details of the patient below
Full name : NOOR AISYAH HANUM BINTI MOHD HISYAM
Current age : 19
Gender : FEMALE
Personal E-mail : nooraisyahanum@gmail.com
Current phone number : 1163129090
Current UUMONETOUCHBALANCE : RM 100.0
Code : 12345678
Blood Type : A
Condition of heart rate : NORMAL
X-ray details : NORMAL
BMI : 25.39

Please proceed for the payment by UUMONETOUCH
Your total for medical check-up for today : RM 15.00

Balance of your payment : RM 85.00

If your BMI is under OBESE, please wait for the next appointment

```
<terminated> Assignment_1 [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe  (18 Dec 2021, 12:50:56 am – 12:51:52 am)
------------------------Welcome to the MEDICAL UUM-----------------------
-------------------------WE SHARE WE CARE WE LOVE-------------------------
A reminder to all the patient to fill up the all the information
It is advisable for patient to spare a maximum of rm50 for the medications and services charges
Name : NOOR AISYAH HANUM BINTI MOHD HISYAM
Age : 19
Gender : FEMALE
Personal e-mail : nooraisyahanum@gmail.com
Phone number : 01163129090
Please state your UUMONETOUCH balance : RM 100
Remind that the created code must be in numerical code
Code : 12345678


-----------------------------------------------------------------------------------------------------------------------------------------
Details that must be filled by the doctors below
Blood Type : A
Condition of heart rate : NORMAL
X-ray details : NORMAL
Enter weight in Kilogram: 65
Enter your height in Meter: 1.60
The BMI for this patient is : 25.39
Insert the INTAKE medication needed by the patients below
Packs of panadol : 1
Packs needed of antibiotics : 1


-----------------------------------------------------------------------------------------------------------------------------------------
These are the charges of the medications and services
[ SERVICE OF MEDICAL CHECKUP : RM 5.0]
[ PANADOL : RM 10.0]
[ ANTIBIOTICS : RM 8.0]
[ BLOOD TEST AND XRAY SCAN : RM2.0]
[DIETICIAN SERVICES : RM5.0]
-----------------------------------------------------------------------------------------------------------------------------------------
These are the charts of the body mass index you have
If your BMI is less than 18.5 : UNDERWEIGHT
If your BMI is more than equal 18.5 and less than 24.9 : NORMAL
If your BMI is less than 30  : OVERWEIGHT
If your BMI is more than 30 : OBESE
-----------------------------------------------------------------------------------------------------------------------------------------
```

```
<terminated> Assignment_1 [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe  (18 Dec 2021, 12:50:56 am – 12:51:52 am)
Packs of panadol : 1
Packs needed of antibiotics : 1


-----------------------------------------------------------------------------------------------------------------------------------------
These are the charges of the medications and services
[ SERVICE OF MEDICAL CHECKUP : RM 5.0]
[ PANADOL : RM 10.0]
[ ANTIBIOTICS : RM 8.0]
[ BLOOD TEST AND XRAY SCAN : RM2.0]
[DIETICIAN SERVICES : RM5.0]
-----------------------------------------------------------------------------------------------------------------------------------------
These are the charts of the body mass index you have
If your BMI is less than 18.5 : UNDERWEIGHT
If your BMI is more than equal 18.5 and less than 24.9 : NORMAL
If your BMI is less than 30  : OVERWEIGHT
If your BMI is more than 30 : OBESE
-----------------------------------------------------------------------------------------------------------------------------------------


-----------------------------------------------------------------------------------------------------------------------------------------
Details of the patient below
Full name : NOOR AISYAH HANUM BINTI MOHD HISYAM
Current age : 19
Gender : FEMALE
Personal E-mail : nooraisyahanum@gmail.com
Current phone number : 1163129090
Current UUMONETOUCHBALANCE : RM 100.0
Code : 12345678
Blood Type : A
Condition of heart rate : NORMAL
X-ray details : NORMAL
BMI : 25.39

Please proceed for the payment by UUMONETOUCH
Your total for medical check-up for today : RM 15.00

Balance of your payment : RM 85.00

-----------------------------------------------------------------------------------------------------------------------------------------
If your BMI is under OBESE, please wait for the next appointment
```