UNIVERSITI UTARA MALAYSIA
SEMESTER 1 SESSION 2021/2022
SKIP1013 (A)
INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING

GROUP ASSIGNMENT

TOPIC	COMMUNICATION
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DATE OF SUBMISSION	19 DECEMBER 2021

SKIP1013 GROUP A
INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING
(Semester A211)

ASSIGNMENT 1

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MATRIC NUMBER : 287969
TOPIC : COMMUNICATION
SUBTOPIC : INTERNET

1. Identify The Problem

The **Internet** (or **internet**[note 1]) is the global system of interconnected computer networks that uses the Internet protocol suite (TCP/IP) to communicate between networks and devices. It is a *network of networks* that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and file sharing.
The origins of the Internet date back to the development of packet switching and research commissioned by the United States Department of Defense in the 1960s to enable time-sharing of computers.[1] The primary precursor network, the ARPANET, initially served as a backbone for interconnection of regional academic and military networks in the 1970s. The funding of the National Science Foundation Network as a new backbone in the 1980s, as well as private funding for other commercial extensions, led to worldwide participation in the development of new networking technologies, and the merger of many networks.[2] The linking of commercial networks and enterprises by the early 1990s marked the beginning of the transition to the modern Internet,[3] and generated a sustained exponential growth as generations of institutional, personal, and mobile computers were connected to the network. Although the Internet was widely used by academia in the 1980s, commercialization incorporated its services and technologies into virtually every aspect of modern life.

As technology advanced and commercial opportunities fueled reciprocal growth, the volume of Internet traffic started experiencing similar characteristics as that of the scaling of MOS transistors, exemplified by Moore's law, doubling every 18 months. This growth, formalized as Edholm's law, was catalyzed by advances in MOS technology, laser light wave systems, and noise performance.[46]
Since 1995, the Internet has tremendously impacted culture and commerce, including the rise of near instant communication by email, instant messaging, telephony (Voice over Internet Protocol or VoIP), two-way interactive video calls, and the World Wide Web[47] with its discussion forums, blogs, social networking services, and online shopping sites. Increasing amounts of data are transmitted at higher and higher speeds over fiber optic networks operating at 1 Gbit/s, 10 Gbit/s, or more. The Internet continues to grow, driven by ever greater amounts of online information and knowledge, commerce, entertainment and social networking services.[48] During the late 1990s, it was estimated that traffic on the public Internet grew by 100 percent per year, while the mean annual growth in the number of Internet users was thought to be between 20% and 50%.[49] This growth is often attributed to the lack of central administration, which allows organic growth of the network, as well as the non-proprietary nature of the Internet protocols, which encourages vendor interoperability and prevents any one company from exerting too much control over the network.[50] As of 31 March 2011, the estimated total number of Internet users was 2.095 billion (30.2% of world population).[51] It is

estimated that in 1993 the Internet carried only 1% of the information flowing through two-way telecommunication. By 2000 this figure had grown to 51%, and by 2007 more than 97% of all telecommunicated information was carried over the Internet.

2. Understand The Problem

Data usage is affected by activities such as downloading movies, photographs, music tracks, uploading videos and photographs or even simply browsing the web. Capped usage plans are generally cheaper than unlimited usage plans, but if you cross the prescribed data limit you could be charged extra.

What types of data usage are there?
Broadband data usage
When you access the internet at home via a landline or satellite broadband connection, any data that you consume via downloading or uploading will count towards the limit on your home broadband plan.

Broadband providers offer a range of usage limits Different broadband providers offer different levels of data allowance on their broadband plans. For example, Primus Saver and Plusnet have low data caps – around the 10GB to 20GB mark – while John Lewis and Zen have data caps at the higher end – 100GB and 50GB, respectively.

Mobile data usage
Data limits on smartphone and SIM-only plans are usually more restrictive than home broadband usage limits. You may only have 3GB or 5GB to use within a month, and if you intend to stream video and music from the internet through your mobile, you'll find that it won't last long.

More limits to consider
There's more to consider with mobile data than just the usage limits. Some providers may ban you from using file transfer services, VoIP (voice over internet protocol) services, or from tethering.

Unlimited mobile data and capped limits
Some mobile providers offer unlimited data plans, but not all. Giffgaff and Virgin Mobile both have unlimited data plans, while providers such as Vodafone, O2 and EE have data limits in and around the 5GB mark.

Internet coverage is the geographical area covered by the network of a service provider. Within this area, the phone will be able to complete a call using the carrier's network or a partner network. Related terms: Network capacity

Internet speed refers to the speed which data or content travels from the World Wide Web to your home computer, tablet, or smartphone. The speed of this data is measured in megabits per second (Mbps). One megabit is equal to 1,024 kilobits. This conversion means 1.0 Mbps is more than 1,000 times faster than 1.0 kilobits per second (Kbps). High-speed Internet connection known as broadband (broad bandwidth) is defined by download speeds of at

least 768 Kbps and upload speeds of at least 200 Kbps. The difference between download speeds and upload speeds can be explained in the following way: download speed refers to the rate that digital data is transferred from the Internet to your computer, while upload speed is the rate that online data is transferred from your computer to the Internet.
Broadband Internet can be provided by cable operators, telephone companies, or high-speed Internet service providers. Broadband Internet is one of the fastest Internet options available across the nation today. This specific type of high-speed Internet connection uses multiple data channels to send large quantities of information to and from Internet users.

From all of these we can know that coverage, internet speed and data usage when do an activity are really important for us when we want to choose an internet plan for our daily life. If we not choose correctly, it will affect our work performance or delay our times.

3. Alternative Ways To Solve The Problem

    - Do research in web site to know about internet speed, coverage area, data usage and purchasing internet plan from many telecommunications companies.
    - Use different application for each activity such as to check internet speed, coverage area data, usage and purchasing internet plan from many telecommunications companies.
    - Make a system where can check internet speed, coverage area data, usage and purchasing internet plan from many telecommunications companies in one place.

4. Best Ways To Solve The Problem

    Make a system where can check internet speed, coverage area, data usage and purchasing internet plan from many telecommunications companies in one place. It is because this system will help people to do speed test, calculate data usage and provided the strongest coverage for each state so that all people can choose the best internet plan for their self.

5. List Of Instruction To Solve The Problem

    - Calculate data

        I. Enter value of page or minutes or email or song depends on what each questions needed
        II. Multipy the number of page or minutes or email or song with each acitivies data usage (Mb)
        III. Add all data usage and get the total data usage for all the activities

- Calculate internet speed

    I. Enter data usage in Mega byte
    II. Enter time in minute for the total of data usage
    III. Calculate internet speed by multiply data usage and time

- Show internet coverage for each state

- Calculate internet plan payment

    I. Enter 1 if a member and 0 if not
    II. Enter 1 if outside Malaysia and 0 if in Malaysia
    III. Calculate total payment

6. Evaluate The solution

Advantages of using this system is people do not need to access many application or websites to check internet coverage, internet speed, total of data usage based on activities and total payment by selected plan. This system will make more easy people to know about their internet condition.

Formula

- Calculate data usage

A	One web page visit = 1MB	Number of web page*1
B	One song (uploaded or downloaded) = 5.7MB	Number of song*5.7
C	One minute of streaming audio = 0.7MB	Minutes*0.7
D	One email (text only) = 0.035MB	Number of email(text)*0.035
E	One email with attachment = 3MB	Number of email (attach)*3
F	One minute of online gaming = 0.33MB	Minutes*0.33
G	One minute of streaming high resolution video = 5.88MB	Minutes*5.88
H	One photo (uploaded or downloaded) = 3MB	Number photo*3
	Total data usage	A+B+C+D+E+F+G+H

- Calculate internet speed

Internet speed = data usage in Mega byte * time in minute

- Calculate total payment

    I. In Malaysia & member

    Total payment = 0.7*purchase

    II. In Malaysia & not member

    Total payment = purchase

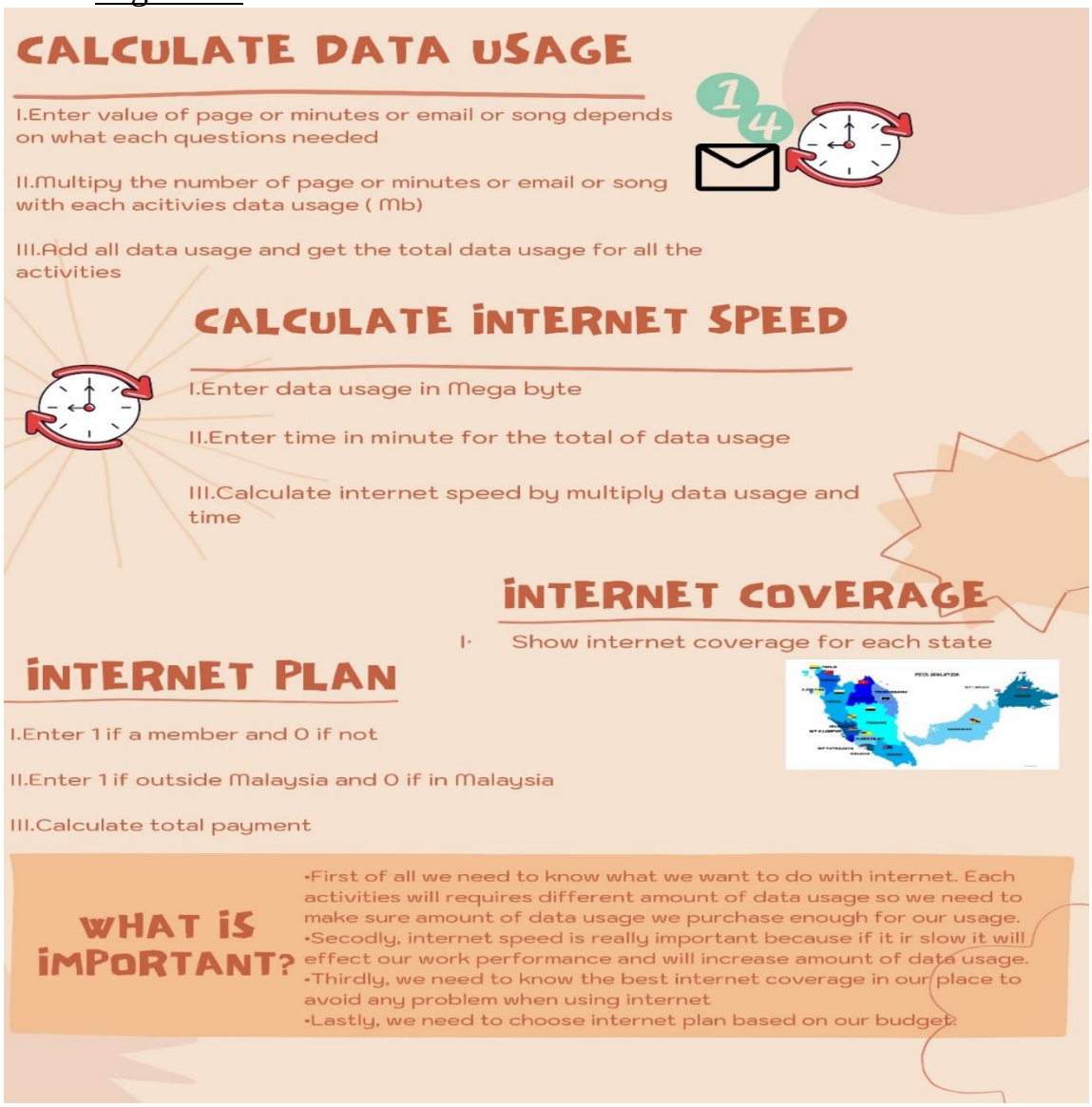
    III. Other country & member

    Total payment = 0.7*(purchase +10)

    IV. Other country & not member

    Total payment = purchase +10

7. Algorithm

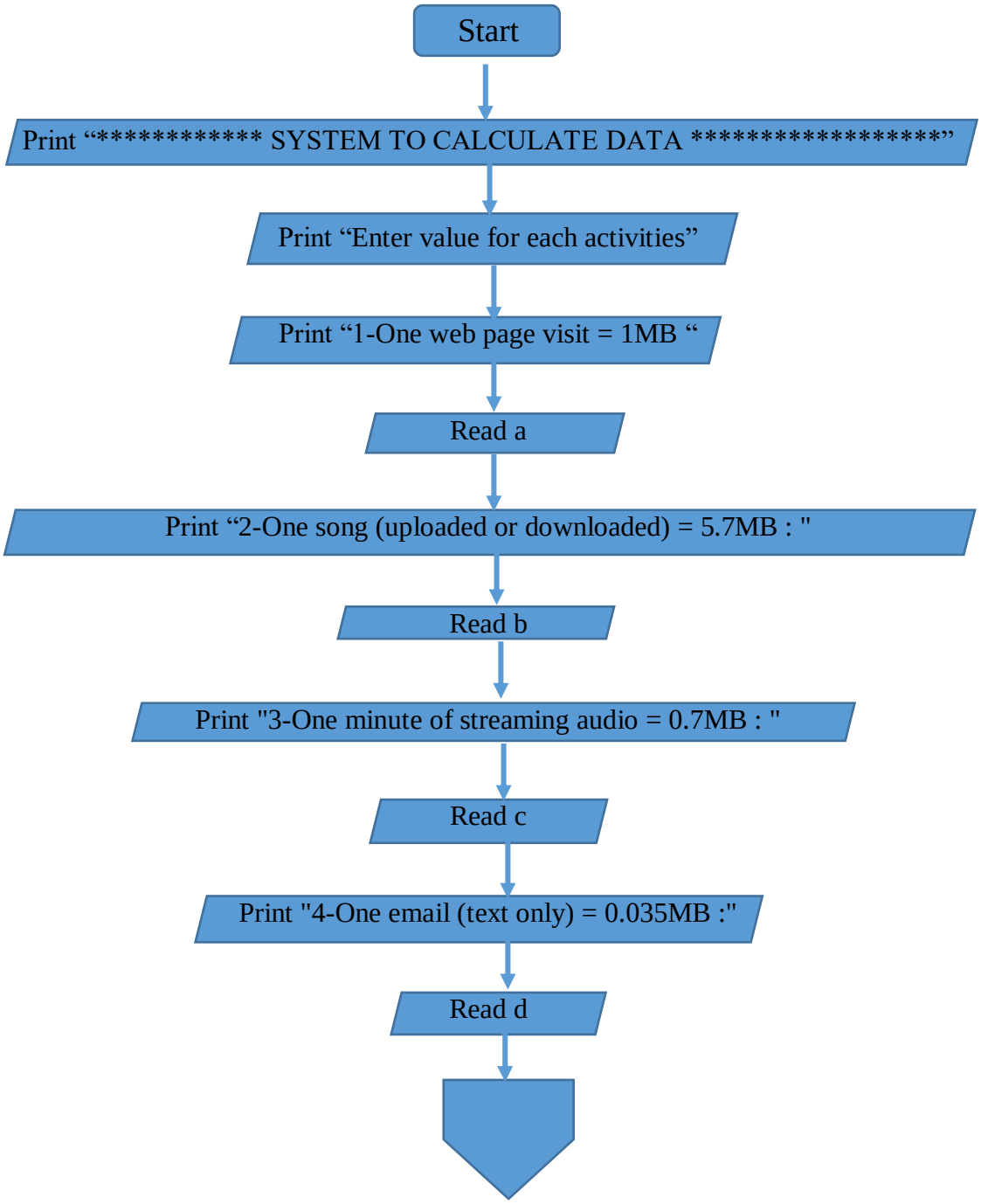


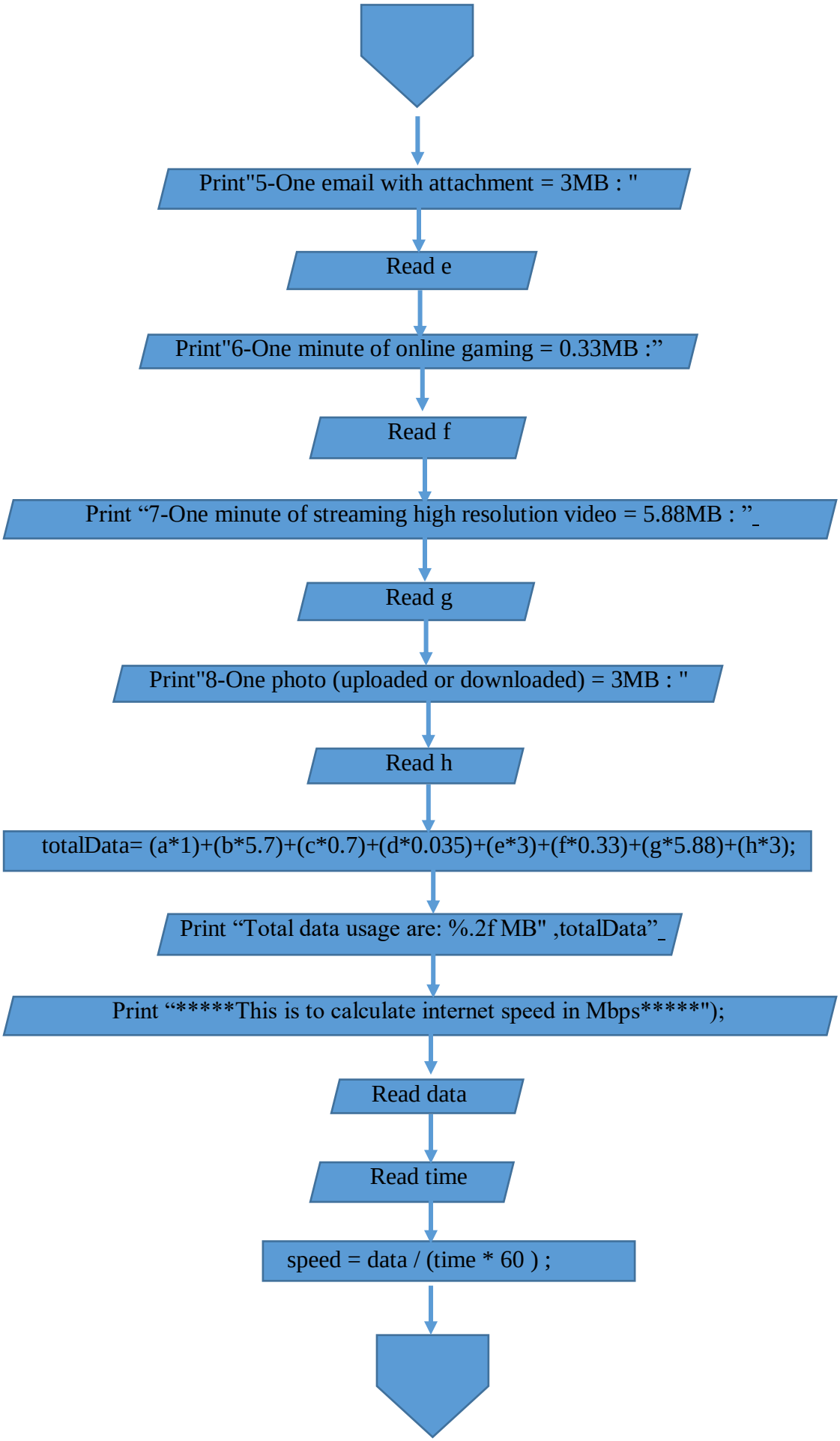
8. Pseudocode

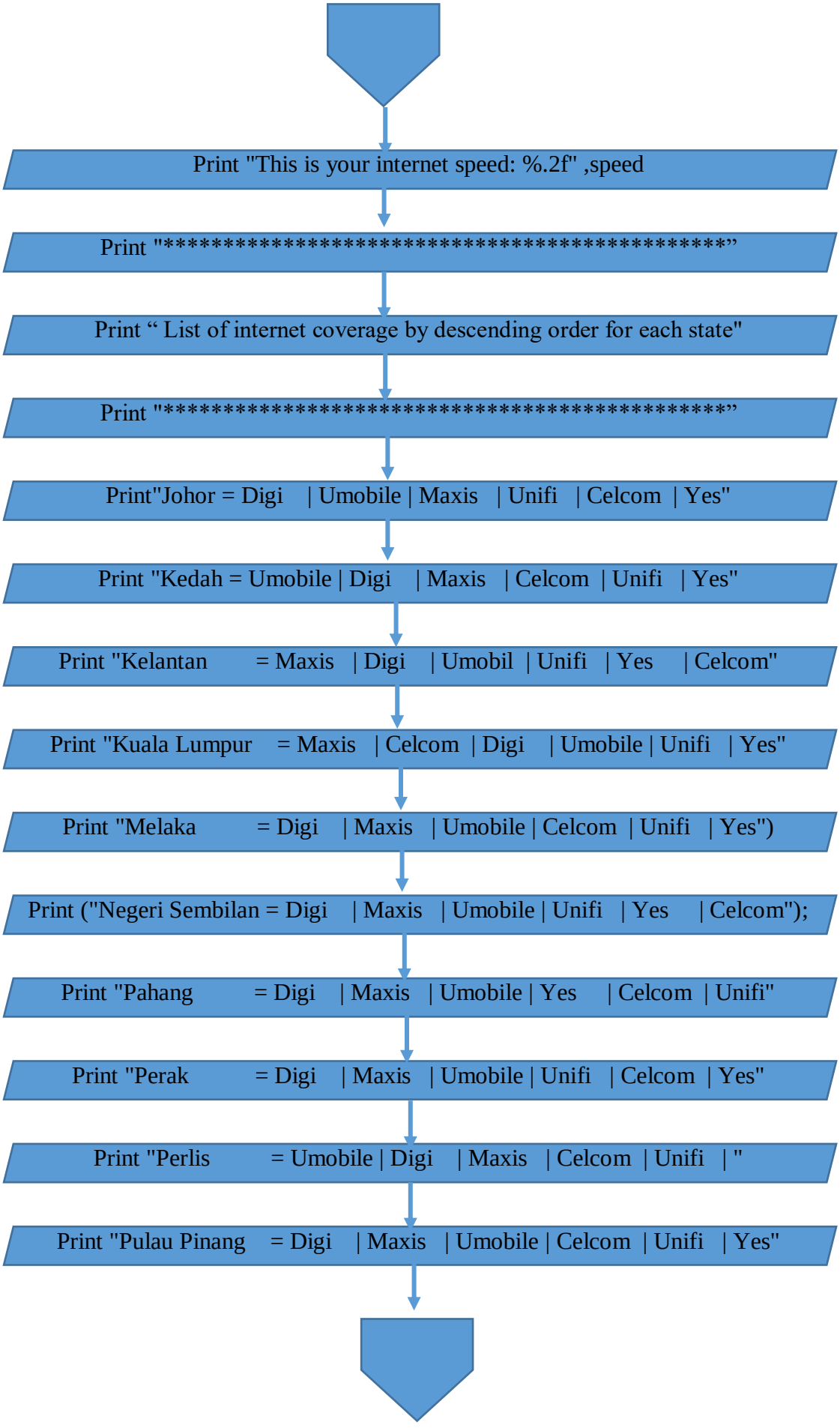
```
Print “********** SYSTEM TO CALCULATE DATA
******************”
Print “Enter value for each activities”
Print “1-One web page visit = 1MB “
Read a
Print “2-One song (uploaded or downloaded) = 5.7MB : "
Read b
Print "3-One minute of streaming audio = 0.7MB : "
Read c
Print "4-One email (text only) = 0.035MB :"
Read d
Print"5-One email with attachment = 3MB : "
Read e
Print"6-One minute of online gaming = 0.33MB :”
Read f
Print “7-One minute of streaming high resolution video = 5.88MB : ”
Read g
Print"8-One photo (uploaded or downloaded) = 3MB : "
Read h
totalData= (a*1)+(b*5.7)+(c*0.7)+(d*0.035)+(e*3)+(f*0.33)+(g*5.88)+(h*3);
Print “Total data usage are: %.2f MB" ,totalData”
Print “*****This is to calculate internet speed in Mbps*****");
Read data
Read time
speed = data / (time * 60 ) ;
Print "This is your internet speed: %.2f" ,speed
Print "***********************************************”
Print “ List of internet coverage by descending order for each state"
Print "***********************************************”
Print"Johor = Digi    | Umobile | Maxis   | Unifi   | Celcom  | Yes"
Print "Kedah = Umobile | Digi    | Maxis   | Celcom  | Unifi   | Yes"
Print "Kelantan        = Maxis   | Digi    | Umobil  | Unifi   | Yes     | Celcom"
Print "Kuala Lumpur    = Maxis   | Celcom  | Digi    | Umobile | Unifi   | Yes"
Print "Melaka          = Digi    | Maxis   | Umobile | Celcom  | Unifi   | Yes")
Print ("Negeri Sembilan = Digi    | Maxis   | Umobile | Unifi   | Yes     | Celcom");
Print "Pahang          = Digi    | Maxis   | Umobile | Yes     | Celcom  | Unifi"
Print "Perak           = Digi    | Maxis   | Umobile | Unifi   | Celcom  | Yes"
Print "Perlis          = Umobile | Digi    | Maxis   | Celcom  | Unifi   | "
Print "Pulau Pinang    = Digi    | Maxis   | Umobile | Celcom  | Unifi   | Yes"
Print "Sabah           = Digi    | Umobile | Maxis   | Unifi   | Yes     | Celcom"
Print "Sarawak         = Digi    | Maxis   | Umobile | Unifi   | Celcom  | "
Print "Selangor        = Maxis   | Digi    | Umobile | Celcom  | Unifi   | Yes"
Print “Terangganu      = Maxis   | Digi    | Umobile | Unifi   | Celcom  | Yes"
Read member
Read country
Print "This are list of internet plan that you can purchase"
Print " Weekly plan"
Print " WA-100 MB = RM 18"
```

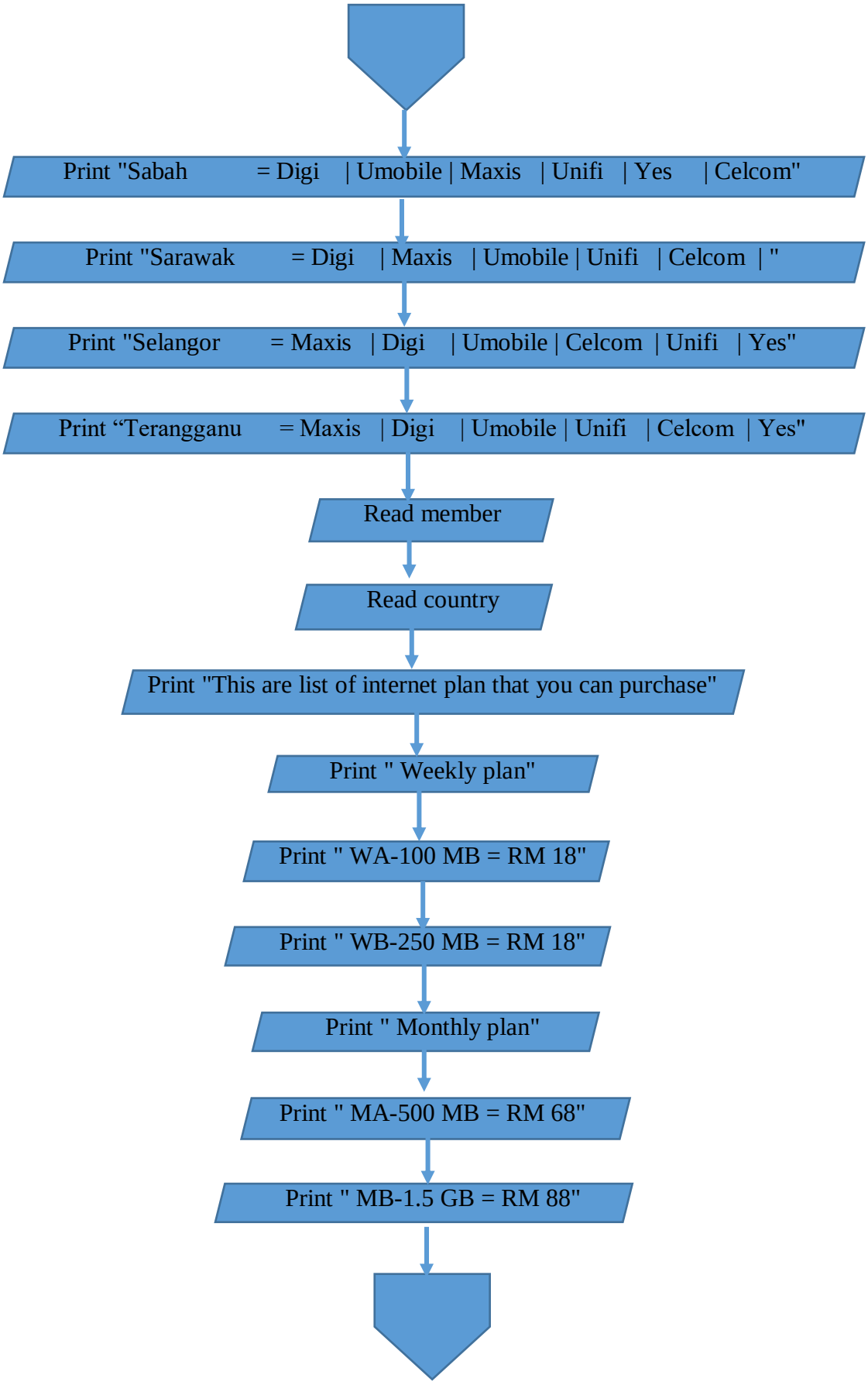
```
Print " WB-250 MB = RM 18"
    Print " Monthly plan"
    Print " MA-500 MB = RM 68"
    Print " MB-1.5 GB = RM 88"
    Print " M3-3 GB = RM 98"
    Read purchase
    pay =((country*10) + purchase )
    lastpay = pay - (0.3*(member*5))
    Print "Your total payment is RM %.2f" ,lastpay
```

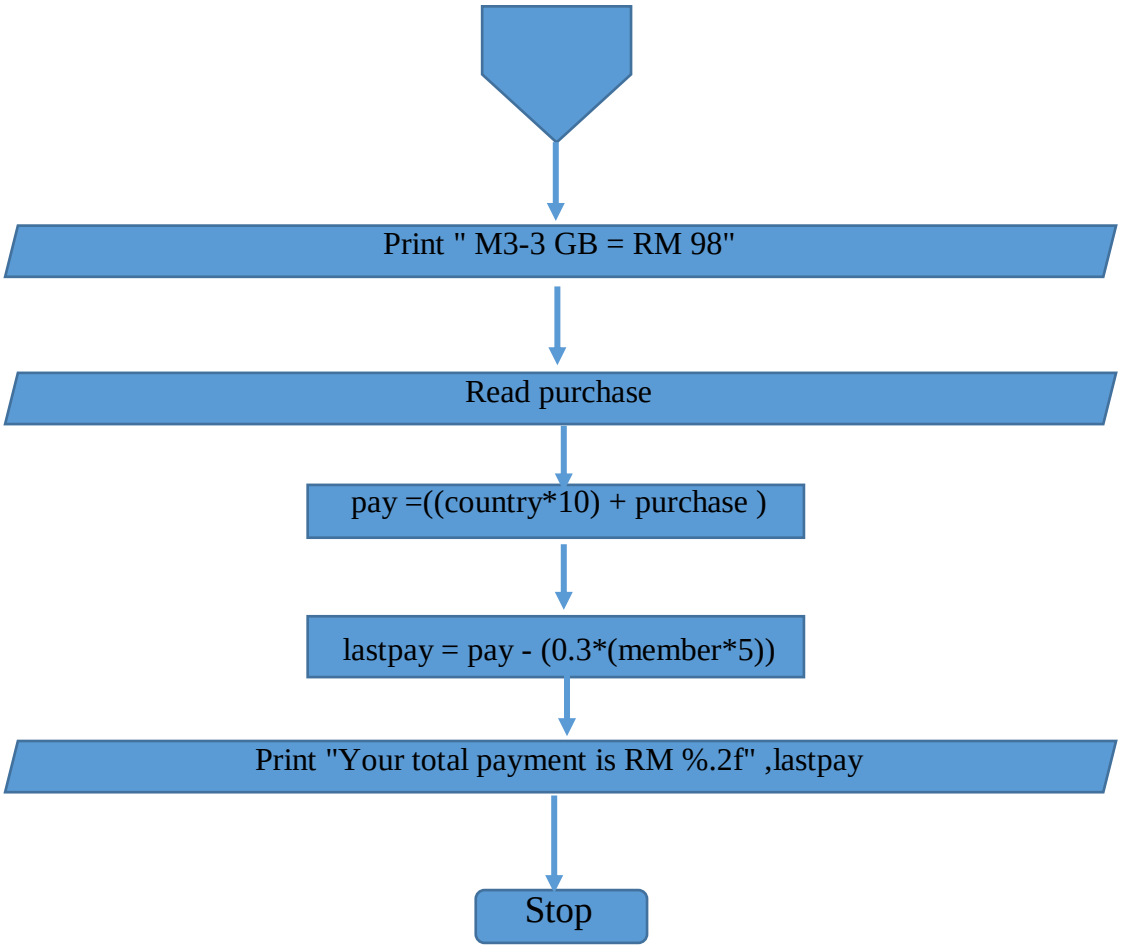
9. Flow Chart




Print"5-One email with attachment = 3MB : "
Read e
Print"6-One minute of online gaming = 0.33MB :”
Read f
Print “7-One minute of streaming high resolution video = 5.88MB : ”_
Read g
Print"8-One photo (uploaded or downloaded) = 3MB : "
Read h
totalData= (a*1)+(b*5.7)+(c*0.7)+(d*0.035)+(e*3)+(f*0.33)+(g*5.88)+(h*3);
Print “Total data usage are: %.2f MB" ,totalData”_
Print “*****This is to calculate internet speed in Mbps*****");
Read data
Read time
speed = data / (time * 60) ;


Print "This is your internet speed: %.2f" ,speed
Print "**********”
Print “ List of internet coverage by descending order for each state"
Print "**********”
Print"Johor = Digi | Umobile | Maxis | Unifi | Celcom | Yes"
Print "Kedah = Umobile | Digi | Maxis | Celcom | Unifi | Yes"
Print "Kelantan = Maxis | Digi | Umobil | Unifi | Yes | Celcom"
Print "Kuala Lumpur = Maxis | Celcom | Digi | Umobile | Unifi | Yes"
Print "Melaka = Digi | Maxis | Umobile | Celcom | Unifi | Yes")
Print ("Negeri Sembilan = Digi | Maxis | Umobile | Unifi | Yes | Celcom");
Print "Pahang = Digi | Maxis | Umobile | Yes | Celcom | Unifi"
Print "Perak = Digi | Maxis | Umobile | Unifi | Celcom | Yes"
Print "Perlis = Umobile | Digi | Maxis | Celcom | Unifi | "
Print "Pulau Pinang = Digi | Maxis | Umobile | Celcom | Unifi | Yes"


Print "Sabah = Digi | Umobile | Maxis | Unifi | Yes | Celcom"
Print "Sarawak = Digi | Maxis | Umobile | Unifi | Celcom | "
Print "Selangor = Maxis | Digi | Umobile | Celcom | Unifi | Yes"
Print “Terangganu = Maxis | Digi | Umobile | Unifi | Celcom | Yes"
Read member
Read country
Print "This are list of internet plan that you can purchase"
Print " Weekly plan"
Print " WA-100 MB = RM 18"
Print " WB-250 MB = RM 18"
Print " Monthly plan"
Print " MA-500 MB = RM 68"
Print " MB-1.5 GB = RM 88"


Print " M3-3 GB = RM 98"
Read purchase
pay =((country*10) + purchase)
lastpay = pay - (0.3*(member*5))
Print "Your total payment is RM %.2f" ,lastpay
Stop

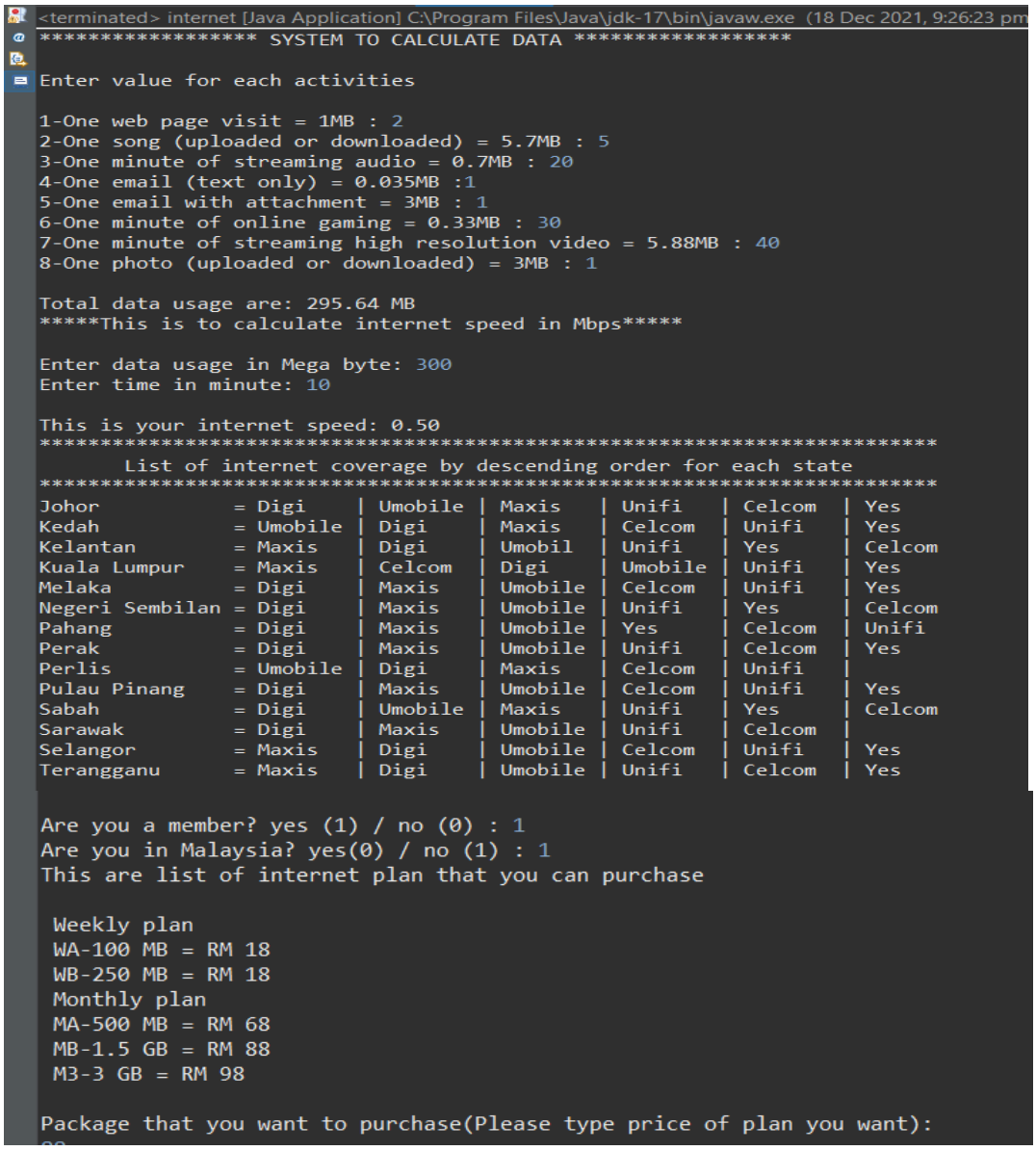
10. Coding – Numerical Computation & Expression

```
package ASSGNMT1;
import java.util.Scanner;
public class internet {

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

		double a,b,c,d,e,f,g,h;
		double totalData;
		double data,time,speed;
		String telco;
		int member, country;
		double purchase,pay,lastpay;


		System.out.println("****************** SYSTEM TO
CALCULATE DATA ******************");
		System.out.println(" ");
		System.out.println("Enter value for each activities");
		System.out.println(" ");
		System.out.print("1-One web page visit = 1MB : ");
		a = in.nextDouble();
		System.out.print("2-One song (uploaded or downloaded) = 5.7MB :
");
		b = in.nextDouble();
		System.out.print("3-One minute of streaming audio = 0.7MB : ");
		c = in.nextDouble();
		System.out.print("4-One email (text only) = 0.035MB :");
		d = in.nextDouble();
		System.out.print("5-One email with attachment = 3MB : ");
		e = in.nextDouble();
		System.out.print("6-One minute of online gaming = 0.33MB : ");
		f = in.nextDouble();
		System.out.print("7-One minute of streaming high resolution video =
5.88MB : ");
		g = in.nextDouble();
		System.out.print("8-One photo (uploaded or downloaded) = 3MB :
");
		h = in.nextDouble();
		System.out.println(" ");
		totalData=
(a*1)+(b*5.7)+(c*0.7)+(d*0.035)+(e*3)+(f*0.33)+(g*5.88)+(h*3);
		System.out.printf("Total data usage are: %.2f MB" ,totalData);

		System.out.println(" ");

	System.out.println("*****This is to calculate internet speed in Mbps*****");
		System.out.println(" ");
		System.out.print("Enter data usage in Mega byte: ");
```

```
                    data = in.nextDouble();
                    System.out.print("Enter time in minute: ");
                    time = in.nextDouble();
                    speed = data / (time * 60 ) ;
                    System.out.println(" ");
                    System.out.printf("This is your internet speed: %.2f" ,speed);
                    System.out.println(" ");


        System.out.println("**********************************************
*****************************");
                    System.out.println("      List of internet coverage by descending
order for each state"       );

        System.out.println("**********************************************
*****************************");
                    System.out.println("Johor          = Digi    | Umobile | Maxis   | Unifi
| Celcom  | Yes");
                    System.out.println("Kedah          = Umobile | Digi    | Maxis   |
Celcom  | Unifi   | Yes");
                    System.out.println("Kelantan       = Maxis   | Digi    | Umobil  | Unifi
| Yes     | Celcom");
                    System.out.println("Kuala Lumpur   = Maxis   | Celcom  | Digi    |
Umobile | Unifi   | Yes");
                    System.out.println("Melaka         = Digi    | Maxis   | Umobile |
Celcom  | Unifi   | Yes");
                    System.out.println("Negeri Sembilan = Digi   | Maxis   | Umobile |
Unifi   | Yes     | Celcom");
                    System.out.println("Pahang         = Digi    | Maxis   | Umobile | Yes
| Celcom  | Unifi");
                    System.out.println("Perak          = Digi    | Maxis   | Umobile | Unifi
| Celcom  | Yes");
                    System.out.println("Perlis         = Umobile | Digi    | Maxis   |
Celcom  | Unifi   | ");
                    System.out.println("Pulau Pinang   = Digi    | Maxis   | Umobile |
Celcom  | Unifi   | Yes");
                    System.out.println("Sabah          = Digi    | Umobile | Maxis   | Unifi
| Yes     | Celcom");
                    System.out.println("Sarawak        = Digi    | Maxis   | Umobile | Unifi
| Celcom  | ");
                    System.out.println("Selangor       = Maxis   | Digi    | Umobile |
Celcom  | Unifi   | Yes");
                    System.out.println("Terangganu     = Maxis   | Digi    | Umobile |
Unifi   | Celcom  | Yes");
                    System.out.println("");
                    System.out.print("Are you a member? yes (1) / no (0) : " );
                    member = in.nextInt();

                    System.out.print("Are you in Malaysia? yes(0) / no (1) : ");
                    country = in.nextInt();

                    System.out.println("This are list of internet plan that you can
purchase");
                    System.out.println(" ");
                    System.out.println(" Weekly plan");
```

```
                System.out.println(" WA-100 MB = RM 18");
                System.out.println(" WB-250 MB = RM 18");

                System.out.println(" Monthly plan");
                System.out.println(" MA-500 MB = RM 68");
                System.out.println(" MB-1.5 GB = RM 88");
                System.out.println(" M3-3 GB = RM 98");
                System.out.println(" ");
                System.out.println("Package that you want to purchase(Please
type price of plan you want): ");
                purchase = in.nextDouble();

                pay =((country*10) + purchase );
                lastpay = pay - (0.3*(member*5));

                System.out.printf("Your total payment is RM %.2f" ,lastpay);

        }

}
```

11.Output



```
<terminated> internet [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe  (18 Dec 2021, 9:26:23 pm
****************** SYSTEM TO CALCULATE DATA ******************

Enter value for each activities

1-One web page visit = 1MB : 2
2-One song (uploaded or downloaded) = 5.7MB : 5
3-One minute of streaming audio = 0.7MB : 20
4-One email (text only) = 0.035MB :1
5-One email with attachment = 3MB : 1
6-One minute of online gaming = 0.33MB : 30
7-One minute of streaming high resolution video = 5.88MB : 40
8-One photo (uploaded or downloaded) = 3MB : 1

Total data usage are: 295.64 MB
*****This is to calculate internet speed in Mbps*****

Enter data usage in Mega byte: 300
Enter time in minute: 10

This is your internet speed: 0.50
********************************************************************************
       List of internet coverage by descending order for each state
********************************************************************************
Johor            = Digi     | Umobile | Maxis    | Unifi    | Celcom   | Yes
Kedah            = Umobile  | Digi    | Maxis    | Celcom   | Unifi    | Yes
Kelantan         = Maxis    | Digi    | Umobil   | Unifi    | Yes      | Celcom
Kuala Lumpur     = Maxis    | Celcom  | Digi     | Umobile  | Unifi    | Yes
Melaka           = Digi     | Maxis   | Umobile  | Celcom   | Unifi    | Yes
Negeri Sembilan  = Digi     | Maxis   | Umobile  | Unifi    | Yes      | Celcom
Pahang           = Digi     | Maxis   | Umobile  | Yes      | Celcom   | Unifi
Perak            = Digi     | Maxis   | Umobile  | Unifi    | Celcom   | Yes
Perlis           = Umobile  | Digi    | Maxis    | Celcom   | Unifi    |
Pulau Pinang     = Digi     | Maxis   | Umobile  | Celcom   | Unifi    | Yes
Sabah            = Digi     | Umobile | Maxis    | Unifi    | Yes      | Celcom
Sarawak          = Digi     | Maxis   | Umobile  | Unifi    | Celcom   |
Selangor         = Maxis    | Digi    | Umobile  | Celcom   | Unifi    | Yes
Terangganu       = Maxis    | Digi    | Umobile  | Unifi    | Celcom   | Yes

Are you a member? yes (1) / no (0) : 1
Are you in Malaysia? yes(0) / no (1) : 1
This are list of internet plan that you can purchase

 Weekly plan
 WA-100 MB = RM 18
 WB-250 MB = RM 18
 Monthly plan
 MA-500 MB = RM 68
 MB-1.5 GB = RM 88
 M3-3 GB = RM 98

Package that you want to purchase(Please type price of plan you want):
```

ASSIGNMENT 1

TOPIC: COMMUNICATION
SUB TOPIC: MOBILE PHONE
GROUP: 3
SEMESTER: A211

NAME	AZIB FIKRI BIN MOHD SUHAIMI
NO MATRICS	287970
COURSE	INTRODUCTION TO PROGRAMMING
CODE	SKIP 1013 (A)
LECTURER	Prof. Madya Dr. Azman B Yasin

1. IDENTIFY THE PROBLEM

WHAT IS MOBILE PHONE?

A mobile phone, cellular phone, cell phone, handphone, or hand phone, sometimes shortened to simply mobile, cell or just phone, is a portable telephone that can make and receive calls over a radio frequency link while the user is moving within a telephone service area. The radio frequency link establishes a connection to the switching systems of a mobile phone operator, which provides access to the public switched telephone network (PSTN). Modern mobile telephone services use a cellular network architecture and, therefore, mobile telephones are called cellular telephones or cell phones in North America. In addition to telephony, digital mobile phones (2G) support a variety of other services, such as text messaging, MMS, email, Internet access, short-range wireless communications (infrared, Bluetooth), business applications, video games and digital photography. Mobile phones offering only those capabilities are known as feature phones; mobile phones which offer greatly advanced computing capabilities are referred to as smartphones.

The development of metal-oxide-semiconductor (MOS) large-scale integration (LSI) technology, information theory and cellular networking led to the development of affordable mobile communications. The first handheld mobile phone was demonstrated by John F. Mitchell and Martin Cooper of Motorola in New York City in 1973, using a handset weighing c. 2 kilograms (4.4 lbs). In 1979, Nippon Telegraph and Telephone (NTT) launched the world's first cellular network in Japan. In 1983, the DynaTAC 8000x was the first commercially available handheld mobile phone. From 1983 to 2014, worldwide mobile phone subscriptions grew to over seven billion; enough to provide one for every person on Earth. In the first quarter of 2016, the top smartphone developers worldwide were Samsung, Apple and Huawei; smartphone sales represented 78 percent of total mobile phone sales for feature phones (slang: "dumbphones") as of 2016, the top-selling brands were Samsung, Nokia and Alcatel. After years of using mobile phone. This technology has expanded its way into the world where they have created a new reality for 7 billion people on earth. This reality is call digital life. And where can we enter the digital life?

WHAT IS SMARTPHONE?

The answer is “Smartphone”. A smartphone is a portable device that combines mobile telephone and computing functions into one unit. They are distinguished from feature phones by their stronger hardware capabilities and extensive mobile operating systems, which facilitate wider software, internet (including web browsing over mobile broadband), and multimedia functionality (including music, video, cameras, and gaming), alongside core phone functions such as voice calls and text messaging.

Smartphones typically contain a number of metal–oxide–semiconductor (MOS) integrated circuit (IC) chips, include various sensors that can be leveraged by pre-included and third-party software (such as a magnetometer, proximity sensors, barometer, gyroscope, accelerometer and more), and support wireless communications protocols (such as Bluetooth, Wi-Fi, or satellite navigation).

Early smartphones were marketed primarily towards the enterprise market, attempting to bridge the functionality of standalone personal digital assistant (PDA) devices with support for cellular telephony, but were limited by their bulky form, short battery life, slow analog cellular networks, and the immaturity of wireless data services. These issues were eventually resolved with the exponential scaling and miniaturization of MOS transistors down to sub-micron levels (Moore's law), the improved lithium-ion battery, faster digital mobile data networks (Edholm's law), and more mature software platforms that allowed mobile device ecosystems to develop independently of data providers.

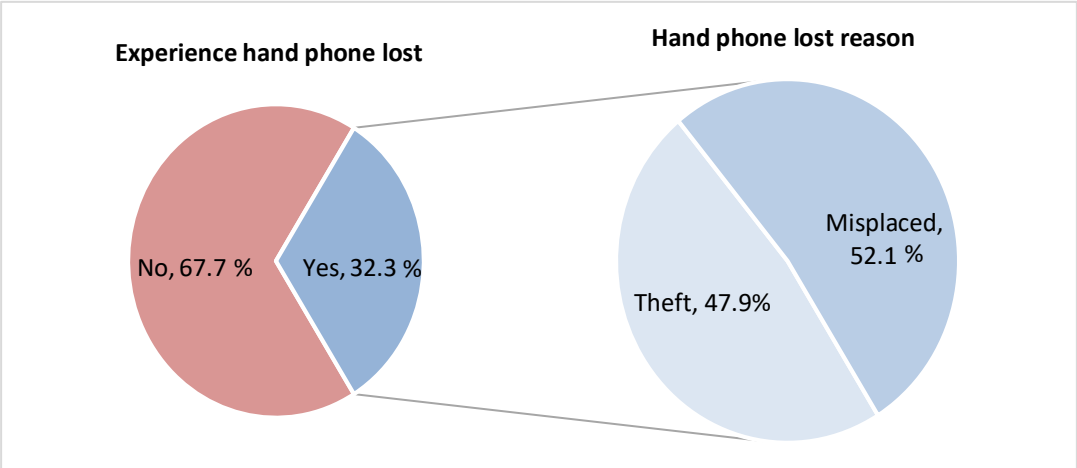
In the 2000s, NTT DoCoMo's i-mode platform, BlackBerry, Nokia's Symbian platform, and Windows Mobile began to gain market traction, with models often featuring QWERTY keyboards or resistive touchscreen input, and emphasizing access to push email and wireless internet. Following the rising popularity of the iPhone in the late 2000s, the majority of smartphones have featured thin, slate-like form factors, with large, capacitive screens with support for multi-touch gestures rather than physical keyboards, and offer the ability for users to download or purchase additional applications from a centralized store, and use cloud storage and synchronization, virtual assistants, as well as mobile payment services. Smartphones have largely replaced PDAs, handheld/palm-sized PCs and portable media players (PMP). Improved hardware and faster wireless communication (due to standards such as LTE) have bolstered the growth of the smartphone industry. In the third quarter of 2012, one billion smartphones were in use worldwide. Global smartphone sales surpassed the sales figures for feature phones in early 2013. So we can say that, Smartphone is really “smart” device that can do everything that we want by just pointing our finger into the mini “PC” that we have. But we got a problem.

PROBLEM #: PHONE STOLEN / SNATCH BY THIEF

Globally, smartphone theft is on the increase. In Peru, La Republica reported that 6,000 devices are stolen each day, while in Argentina, La Nacion reported that there are almost 5,000 thefts of mobile devices a day. The Colombian telecoms regulator CrC reported that mobile phone theft grew 79% in the first half of 2017 compared to the first half of 2016. And in Mexico, mobile theft is so prevalent that people are carrying dummy mobiles to hand over to thieves, instead of their real phones. Street theft is only part of the issue. Criminal activity across warehousing, road freight and retail stores within the operator’s supply chain also result in large volumes of counterfeit or grey devices hitting the market. However, it’s street crime that makes the headlines due to its effect on the victims, and not least because of some of the violence involved. Smartphones also carry so much personal information: banking details, email, photos, videos, music, apps, and private information. So, the consequences of having this information stolen can be profound. Lookout’s Phone Theft in America report found that:

- 10% of victims reported loss of company data
- 12% of victims had fraudulent charges made to their accounts
- 9% of victims had their identity stolen

How about Malaysia?



The survey also put an effort to understand concerns on personal data breach in the event of lost or stolen hand phone. More than three out of ten (32.3%) hand phone users claimed to have experienced

losing their device. Amongst them, more than half (52.1%) lost their hand phone by misplacing it and the remaining 47.9% lost their hand phone by theft. This survey is from Suruhanjaya Komunikasi Dan Multimedia Malaysia (MCMC).
https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/HPUS2018.pdf

PROBLEM#: REPAIR PHONE SCAM

When we said about devices there must be a maintenance or some repairing issue we need to do. But the problem is when we send our phone to the shop to get repair. We don't know it's the issue already resolve or not. Because recently, a guy went onto Twitter to share his experience of being conned by a shop in Low Yat. He was overcharged on what was supposed to be just a simple fix. In his tweet, he writes, "Okay guys, never ever repair your phone at this shop. I'm not the kind of guy who wants to bring a business down, but I really do think this shop is a huge scammer. I have an extra iPhone 5s at home, but the home button is damaged. Since I had to go to Low Yat to upgrade my laptop's RAM, I was like why not repair my iPhone as well. The shopkeeper was saying 'come, come cheap cheap'. My intention was only to survey. So, I asked how much to replace the home button and he said RM150 but I declined as it was too expensive. Then he said, 'give me your price range'. I also bantai je la and I said less than RM100. Then he said, "I can give you RM80″. I thought that was a great deal so I said OKAY. He said he just needed 30 minutes to repair it" That is where his nightmare began. After leaving his phone to visit a computer store nearby, the guy went back to check up on his phone. " He said that my phone's home button was damaged along with its ribbon. He also said that the LCD was also damaged. I was like wait, what? The LCD was okay before this, it was only the home button that was problematic. He said that the whole set would cost RM300. I said that it is okay, no need to repair. He agreed but charged me RM130 for it because he had already 'bought' the home button together with the ribbon. Since he bought it, he expects me to pay for it. But when I initially asked the price for the home button, it was RM80. I didn't even ask for the ribbon. I refused and gave the excuse of not having enough money, worrying it was a scam". He paid the seller anyway and ended up with an unfinished phone. From the story above, bad people have its own trick to scam the people into giving "extra" money to the service that is just a small fix. Just imagine if we enter the situation where we have to fix the big fix. It must cost more. And if we also get scam just like the story it's a big deal to handle

PROBLEM#: PHONE USERS AREN'T CARE ABOUT PHONE

SMARTPHONE users in Malaysia don't seem like a careful bunch. A third of Malaysians are likely to have damaged their smartphone within 3 months of owning it. A survey sponsored by US smartphone accessories company Otterbox Inc and independently conducted by ABN Impact in August 2015 showed that 75% of Malaysian smartphone users have damaged their devices almost 3 times in the past 5 years. The degree of the impairment can range from minor scratches and scuffs to more serious issues like screen cracks and water damage. Among all the four countries surveyed, including Singapore, Taiwan and Hong Kong, Malaysia has the highest number of damaged phones in the market, considering the total market of 10 million smartphone users and 140% penetration rate. However, percentage-wise, Hong Kong takes the crown with 83% of smartphone users having damaged their devices over 3.3 times in the past 5 years. In contrast, only 65% of Singaporeans and 63% of Taiwanese users have caused physical harm to their mobiles within the same period. When it comes to the severity of the damage, two-tenths of Malaysian owners admitted that their phones are 'badly damaged'. Almost half of them had their devices wrecked at work, while a third of them said the incidents occurred when they were out walking about. A fifth of the 500 Malaysian respondents admitted to not having any form of protection for their phones, such as screen protectors or cases, when the phones were harmed. Otterbox's Asia Pacific managing director Steve Nisbet said in a statement that the company embarked on the survey to better understand the habits of smartphone owners in the region, and their attitudes towards damage on their smartphones. "It makes perfect sense to take every measure to protect it and the data it contains," he said, referring to the contact numbers, work e-mails and pictures stored in smartphones. Unfortunately, only about half of the respondents felt the need to purchase a protective case for their device. But among those who do, are willing to pay between RM42 and RM250 for a case. Still, 68% of Malaysians aren't bothered by cracked screens on their devices as long as the damage doesn't affect the phone's performance. At least a quarter of them say the high repair costs, at an average of RM500, are a deterrent factor to fix their phones.

THE STATE OF OUR SMARTPHONES - MALAYSIA

IN GENERAL

72% Are using **DAMAGED SMARTPHONES**

75% Have damaged their smartphones at an average of **2.8 TIMES IN THE LAST 5 YEARS**

29% Have damaged their smartphones **WITHIN 3 MONTHS OF PURCHASE**

TO PROTECT . . .

68% of users would rather live with their damaged smartphones than **spend money fixing** it.

on average, smartphone users in Malaysia are prepared to spend **RM500** on smartphone repairs

. . . OR NOT ?

58% claimed to **buy a protective case** right after purchasing a new phone.

41% Malaysian users are willing to spend about **RM95** on a **protective case.**

SMARTPHONE DANGER ZONES

64% Have allowed their smartphones **TO SLIP FROM THEIR HANDS**

44% Damaged their smartphones **AT WORK**

29% Damaged their smartphones when **LOOKING AT THEIR PHONES WHILE WALKING**

26% Damaged their smartphones **DURING THEIR DAILY COMMUTE**

25% Broke their smartphones **DURING THEIR TRAVELS**

23% Damaged their smartphones **IN THE KITCHEN**

2. UNDERSTAND THE PROBLEM

PROBLEM 1 : PHONE STOLEN

As we all know that everyone has its own smartphone. 10 out of 10 people must have a smartphone device to them. To the people, smartphone is a precious heart to them. Buying smartphone is not cheap. It takes times for people to prepare the budget for buying smartphone. From this, we all know that every smartphone has its own price. With some personal information that we store in our smartphone make our smartphone much mure valuable. Debit/Credit Card information, contact number. Personal file, memorable pictures and there is more of it. Because of this lot of information, we have to protect our phone with security features like Face ID, Pin Number, Pattern and much more. Sadly, even the security features like this hacker can break through the security like opening the unlocked door. The operation is sure take some times to break the security but still it can lead into much worse. If your phone got stolen or misplace the phone and lost it, and the next thing you should do is to file some report to the police. To the police, the only thing that the police can do its blacklist the IMEI series of your mobile phone so it cannot use the mobile data or even sell it to the shop. But your phone cannot be cover, your data if the thief can breakthrough the security it still can explore your pictures or your personal file or maybe some valuable stuff that can made you lost money. This means that even the police can't recover your lost device. This is serious trouble, because you lost your information maybe value or not value inside your phone. Also, you lost your money and needs to find another phone which added more headache. We need something that even the phone is stolen we still have a backup plan for that.

PROBLEM 2: GETTING SCAM BY SHOPKEEPER

Technology of smartphone will never stop develop for coming year. There will always a new technology component built each year. It is quite troublesome to know all of the function of each component. And if you want to understand how smartphones work it will take for hours or maybe a day or a week. Not all people are rich at having time. So because of this there is a risk for you to get scam from the shopkeeper. Either is about purchasing or repairing service. So to put in summary, smartphone user who has little knowledge about the component inside the smartphone are getting risk of getting scam. Like charging the service more than the normal price or trick the user by made some adjustment on the phone that will make the user has to go to repair service a lot of times. Truth is we cannot trust everyone. We need something that we can trust and believe that it can solve our problems.

PROBLEM 3: USERS NOT APPRECIATE OF THEIR OWN PHONE

There is a lot of users are still not fix the cracked screen and use it like its just a normal screen. The reason why the user doesn't want to fix its because user think that repair service is a troublesome for them. For them, when they send the phone to repair shop. The service would take 3-4 days to repair the phone. This takes days because of waiting the new parts that want to replace with the broken one to arrive the shops because some phone components are very limited and quite pricey if make it as a ready stock. This is why, the reason of they don't want to repair.

3. IDENTIFY ALTERNATIVE WAYS TO SOLVE THE PROBLEM

1. Making a system where we can detect phone location of where is it stolen

Pros	Cons
People would no longer worry if the phone getting snatch	The system are expensive and time consuming due to billions of mobile phone own by 7 billion people.

2. Selling a Second-Hand phone

Pros	Cons
Price is a lot cheaper than the new one	Even the phone is the latest model, we are gambling this phone to work because sometime second-hand phone is come from fake, broken or lost phone.

3. Made a system for user to detect what component has been damage or broken and show to user what component that should it replace with the damage one.

Pros	Cons
This would make people know what component should replace with the damage one.	This solution even we know what component that we have to look for but still there are risk of getting the fake components.

4. Made an insurance service for protection service for stolen phone, repair service with 100% trust and many more.

Pros	Cons
This is system offer a protection to mobile phone user such as stolen phone replacement or free money for repair service	It has to be a consistent payment for every month.

4. THE BEST WAY TO SOLVE THE PROBLEM

- From the above method to solve the problem, The best method is number 4 it is because it a service that we can trust 100% and there are no need for us to search for a repair service or file a report to police because the service will do it for you.

5. LIST INSTRUCTION (STEPS) THAT ENABLE YOU TO SOLVE THE PROBLEM USING THE SELECTED SOLUTION

1. Enter basic information of the user
2. Show a terms and condition about the features of insurance and the price of insurance
3. Enter information for eligibility
4. Calculate either is it eligible or not
5. Ask which phone tier for the user phone.
6. Show the list of phones.
7. Enter either tier A or tier B
8. Ask user the quantity of the phone that user want to share with the insurance
8. Show additional features of the insurance
9. Ask user if user interest about the additional features
10. Calculate the payment for insurance
11. Show the summary of payment

6. EVALUATE THE SOLUTION

1. Declare variable with value and the right data type.

Char: option
String: deviceTier , Name , Ic
Int: deviceCountA, deviceCountB, TierA, TierB, eligible, InstantCover, ExtraClaim,
Human
Double: commit, income, eligibility, totalTA , totalTB, totalInstant, totalExtra, totalMistake, total
Double: months = 30, TA = 25, TB = 45 , Instant = 8 , Extra = 30, Mistake = 100

2. Greet user with a warm welcome
3. Show user about details of insurance.

" This is our price : # For Tier A phone:RM25/month
$(if want) # For Tier B phone - RM 45/ month
#(a must) # Monthly payment - RM 30/ month
Additional Insurance
Instant Cover - +RM 8

RM 3200 for claim (normal claim only RM 800) - + RM 30

Human mistake cover - + RM 100
Only eligible if eligibility percentage under 30 % “

3. User have to put Name, IC number, monthly income, monthly commitment,
4. Calculate using this formula “Eligible = (commitment / income) * 100”
5. If under 30% user must enter 1 or otherwise
6. Show list of phones in two tier which is Tier A and Tier B

Tier A	
Apple iPhone 5C 16GB	Samsung Galaxy A10e 32GB
Apple iPhone 6	Samsung Galaxy J3
Apple iPhone 6S 16GB, 32GB, 64GB,	Samsung Galaxy J7
Apple iPhone 7 32GB, 128GB	Samsung Galaxy S3 16GB
Apple iPhone 8 64GB, 128GB	Samsung J727
Apple iPhone SE 2020 64GB, 128GB	Samsung Galaxy A6 SHINE 32GB
Google Pixel 3A XL 64GB	Samsung Galaxy A11 32GB
Google Pixel 3A 64GB	Samsung Galaxy A20 32GB
HTC ONE M9	Samsung Galaxy A21 32GB
	Samsung Galaxy A32 5G 64GB
	Samsung Galaxy A50 64GB
	Samsung Galaxy A51 5G 128GB

Tier B	
Apple iPhone 11 64GB, 128GB, 256GB	Samsung Galaxy S10 128GB
Apple iPhone 11 PRO 64GB, 256GB, 512GB	Samsung Galaxy S10 Plus 128GB, 512GB, 1TB
Apple iPhone 11 Pro Max 64GB, 256GB, 512GB	Samsung Galaxy S10e 128GB, 256GB
Apple iPhone 6S Plus 16GB, 32GB, 64GB	Samsung Galaxy S20 5G 128GB
Apple iPhone 6 Plus 16GB, 64GB, 128GB	Samsung Galaxy S20 FE 128GB
Apple iPhone 7 256GB	Samsung Galaxy S20 Plus 5G 128GB
Apple iPhone 7 Plus 32GB, 128GB, 256GB	Samsung Galaxy S20 Ultra 5G 128GB
Apple iPhone 8 256GBApple iPhone 8 Plus 64GB, 128GB, 256GB	Samsung Galaxy S20 ULTRA 5G 512GB
Apple iPhone SE 2020 256GB	Samsung Galaxy S21 5G 128GB
Apple iPhone X 64GB, 256GB	Samsung Galaxy S21 5G 256GB
Apple iPhone XR 64GB, 128GB, 256GB	Samsung Galaxy S21 ULTRA 5G 128GB
Apple iPhone XS 256GB, 512GB	Samsung Galaxy S21 PLUS 5G 128GB
Apple iPhone XS 64GB, 256GB, 512GB	Samsung Galaxy S6 128GB
Apple iPhone XS Max 64GB	Samsung Galaxy S7 32gb
Apple iPhone 12 PRO 256GB	Samsung Galaxy S7 ACTIVE
Apple iPhone PRO MAX 128GB	Samsung Galaxy S7 Edge 32gb
Apple iPhone 12 64GB, 128GB, 256GB	Samsung Galaxy S8 64GB
Apple iPhone 12 PRO 128GB	Samsung Galaxy S8 Active
Apple iPhone 12 PRO MAX 256GB, 512GB	Samsung Galaxy S8 Plus 64GB
Apple iPhone 12 MINI 64GB, 128GB	Samsung Galaxy S9 64GB
Google Pixel 3 64GB, 128GB	Samsung Galaxy S9 Plus 64GB
Google Pixel 3 XL 64GB, 128GB	Samsung Galaxy S10 5G 256GB
Google Pixel 4 64GB 128GB	Samsung Galaxy NOTE 5 32 GB
Google Pixel 4 XL 64GB, 128GB	Samsung Galaxy 5 64 GB
Google Pixel 5 128GB	Samsung Galaxy NOTE 8
Samsung Galaxy Fold 512GB	Samsung Galaxy NOTE 9 512GBSamsung Galaxy NOTE 20 5G 128GBSamsung Galaxy NOTE 20 ULTRA 5G 128GBSamsung Galaxy NOTE 10 PLUS 512 GBSamsung Galaxy A71 128GBSamsung Galaxy Z FLIP 5G 256GBSamsung Galaxy Z FLIP 256GB
Samsung Galaxy Note 10 256 GB	
Samsung Galaxy Note 10 Plus 256GB	
Samsung Galaxy Note 8 64 GB	
Samsung Galaxy Note 9 128GB	

7. Ask user which tier for user phone.
8. If Tier A user has to put 1 if not user has to put 0.
9. If Tier B user has to put 1 if not user has to put 0
10. Ask user the quantity of the phone that user want to share with the insurance
11. Ask user to put quantity for Tier A
12. Ask user to put quantity for Tier B
13. Show user additional Features of the insurance
14. Ask user if they want instant cover features user has to put 1 if not user has to put 0.
15. Ask user if they want extra claim features user has to put 1 if not user has to put 0.
16. Ask user if they want human mistake features user has to put 1 if not user has to put 0.
17. Calculate the totalTierA to determine price of tierA
18. Calculate the totalTierB to determine price of tierB
19. Calculate the totalInstant to determine price of Instant Cover
20. Calculate the totalExtra to determine price of Extra Claim
21. Calculate the totalMistake to determine price of Human Mistake Cover
22 Calculate the total for monthly payment
23. Calculate the final total by multiplying with the result of eligible.

FORMULA

List Of Formula

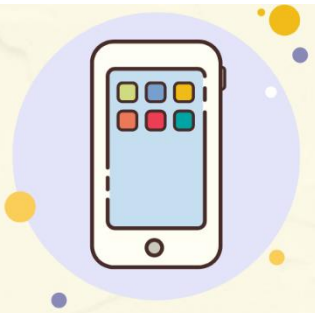
1. Eligible = (commitment / income) * 100
2. totalTA = (TierA + deviceCountA)* TA
3. totalTB = (TierB + deviceCountB) * TB
4. totalInstant = InstantCover * Instant
5. totalExtra = ExtraClaim * Extra
6. totalMistake = Human * Mistake
7. total = totalTA + totalTB + months + totalInstant + totalExtra + totalMistake
8. total = total * eligible

From the System.

- This system is offering people a protection for their smartphone
- It protects you from stolen by thief which is replacing the same model of the stolen phone
- Its pays you if the phone has repair issue.
- People don't have to worry if their smartphone has problem or stolen.

7. ALGORITHM

Algorithm: Mobile Phone Insurance System

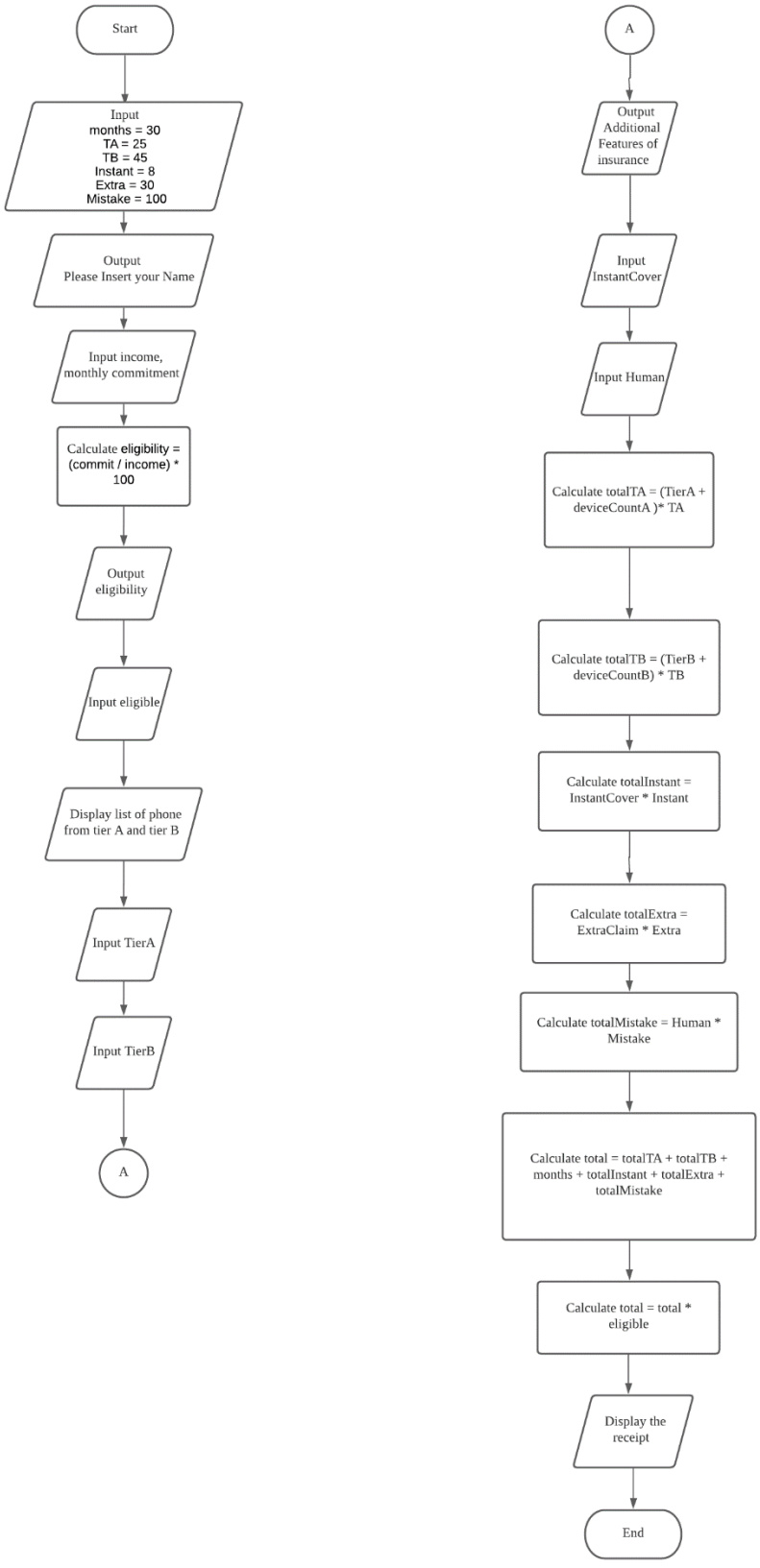


1. Declare variable with value which is : option, Name, IcdeviceCountA, deviceCountB,
2. Show the details about insurance details, price and conditions
3. Gather information about users
4. From the income and total monthly comitment , calculate whether the user is eligible or not.
5. Show the list of phone from tier A and tier B, Key in which tier from the user phone and key in if want to share with another devices.
6. Show additional features if user want to add in the insurance. After that print Receipt

8.PSEUDOCODE

```
Read months = 30
Read TA = 25,
Read TB = 45
Read Instant = 8
Read Extra = 30
Read Mistake = 100
Output “Please insert your name”
Input Name
Output “Please enter your IC number”
Input Ic
Output “Please enter your monthly income”
Input income
Output “Please enter your monthly commitment”
Input commit
Calculate eligibility = (commit / income) * 100
Display eligibility
Output “If under 30% enter 1 if not enter 0”
Input eligible
Output “Is your phone tier A ( 1 if yes, 0 if no)”
Input TierA
Output “Is your phone Tier B (1 if yes, 0 if no)”
Input TierB
Output “Want to add more device to use this insurance? Please enter the quantity”
Output “For phone tier A  :”
Input deviceCountA
Output “For phone tier B:”
Input deviceCountB
Output “Instant cover? (Enter 1 if yes , 0 if no)”
Input InstantCover
Output “RM 3200 claim for mechanical and software problems(Enter 1 if yes , 0 if
no)”
Input ExtraClaim
Output “Human Mistake Cover? (This only cover for accidently misplace your device
and lose it (Enter 1 if yes , 0 if no)”
Input Human
Calculate totalTA = (TierA + deviceCountA )* TA
Calculate totalTB = (TierB + deviceCountB) * TB
Calculate totalInstant = InstantCover * Instant
Calculate totalExtra = ExtraClaim * Extra
Calculate totalMistake = Human * Mistake
Calculate total = totalTA + totalTB + months + totalInstant + totalExtra +
totalMistake
Calculate total = total * eligible
```

9. FLOWCHART


Start
Input
months = 30
TA = 25
TB = 45
Instant = 8
Extra = 30
Mistake = 100
Output
Please Insert your Name
Input income, monthly commitment
Calculate eligibility = (commit / income) * 100
Output eligibility
Input eligible
Display list of phone from tier A and tier B
Input TierA
Input TierB
A
A
Output Additional Features of insurance
Input InstantCover
Input Human
Calculate totalTA = (TierA + deviceCountA)* TA
Calculate totalTB = (TierB + deviceCountB) * TB
Calculate totalInstant = InstantCover * Instant
Calculate totalExtra = ExtraClaim * Extra
Calculate totalMistake = Human * Mistake
Calculate total = totalTA + totalTB + months + totalInstant + totalExtra + totalMistake
Calculate total = total * eligible
Display the receipt
End

10. Coding

```
import java.util.Scanner;
public class Mobilephone3 {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		Scanner sc = new Scanner(System.in);
		char option ;
		String  deviceTier , Name , Ic;
		int  deviceCountA, deviceCountB, TierA, TierB, eligible, InstantCover, ExtraClaim, Human;
		double  commit, income, eligibility, totalTA , totalTB, totalInstant, totalExtra, totalMistake, total;
		double months = 30, TA = 25 , TB = 45 , Instant = 8 , Extra = 30, Mistake = 100;
		System.out.println("--------------------------------------------------------------------------------");
		System.out.println("                          Hi welcome to Talasco                                 ");
		System.out.println("                       'Protection is our necessity'                            ");
		System.out.println("                                                                                ");
		System.out.println("--------------------------------Details-----------------------------------------");
		System.out.println(" Our insurance offer a protection for :                                          ");
		System.out.println("                                                                                ");
		System.out.println("  a) Stolen Phone by thief - If your phone are being stolen by thief,you can    ");
		System.out.println("     get a new phone with same model and we also will file a report to the      ");
		System.out.println("     police.                                                                    ");
		System.out.println("  b) Free Repair Service   - If your phone has been damage like a cracked       ");
		System.out.println("     phone screen or any kind of problem. You will get a comepensation for a    ");
		System.out.println("     free repair service but limit with certain amount RM.                      ");
		System.out.println("  c) Overseas Travel       - If you are study abroad or having a vacation on    ");
		System.out.println("     our company will pay your data roaming price                               ");
		System.out.println("---------------------------------Price------------------------------------------");
		System.out.println(" This is our price : # For Tier A phone - RM 25/ month                           ");
		System.out.println("    $(if want)       # For Tier B phone - RM 45/ month                          ");
		System.out.println("    #(a must)        # Monthly payment -  RM 30/ month                          ");
		System.out.println("                      Additional Insurance                                      ");
		System.out.println("                     # Instant Cover    - +RM 8                                 ");
		System.out.println("                     # RM 3200 for claim (normal claim only RM 800) - + RM 30 ");
		System.out.println("                     # Human mistake cover - + RM 100                          ");
		System.out.println("--------------------------------Condition---------------------------------------");
		System.out.println(" Only eligible if eligibility percentage under 30 %                              ");
		System.out.println(" This insurance must pay every month for 12 months                               ");
		System.out.println(" If there is any unpaid payment for once. We will cancel your service           ");
		System.out.println("--------------------------------Insurance---------------------------------------");
		System.out.print  (" Please insert your name: ");
		Name = sc.nextLine();
		System.out.print  (" Please enter your ic number: ");
		Ic = sc.nextLine();
		System.out.print  (" Please enter your monthly income: RM");
		income = sc.nextDouble();
		System.out.print  (" Please enter your monthly commitment: RM");
		commit = sc.nextDouble();
		eligibility = (commit / income) * 100 ;
		System.out.println(" This is your percentage : " + eligibility);
		System.out.print(" If under 30% enter 1 if not enter 0 :" );
		eligible = sc.nextInt();
		System.out.println("-----------------------------Type Of Insurance-----------------------------------");
		System.out.println(" From the list please find your tier phone model                                  ");
		System.out.println(" Tier A : Apple iPhone 5C 16GB\r\n"
                                + "          Apple iPhone 6\r\n"
                                + "          Apple iPhone 6S 16GB, 32GB, 64GB,\r\n"
                                + "          Apple iPhone 7 32GB, 128GB\r\n"
                                + "          Apple iPhone 8 64GB, 128GB\r\n"
                                + "          Apple iPhone SE 2020 64GB, 128GB\r\n"
                                + "          Google Pixel 3A XL 64GB\r\n"
                                + "          Google Pixel 3A 64GB\r\n"
                                + "          HTC ONE M9\r\n"
                                + "          Samsung Galaxy A10e 32GB\r\n"
                                + "          Samsung Galaxy J3\r\n"
                                + "                       Samsung Galaxy J7\r\n"
                                + "                  Samsung Galaxy S3 16GB\r\n"
                                + "                      Samsung J727\r\n"
                                + "                             Samsung Galaxy A6 SHINE 32GB\r\n"
                                + "                             Samsung Galaxy A11 32GB\r\n"
                                + "                             Samsung Galaxy A20 32GB\r\n"
                                + "                             Samsung Galaxy A21 32GB\r\n"
                                + "                             Samsung Galaxy A32 5G 64GB\r\n"
                                + "                             Samsung Galaxy A50 64GB\r\n"
                                + "                             Samsung Galaxy A51 5G
128GB"                                  );
		System.out.println(" Tier B : Apple iPhone 11 64GB, 128GB, 256GB\r\n"
                                + "                                Apple iPhone 11 PRO 64GB, 256GB, \r\n"
                                + "                                512GB\r\n"
                                + "                                Apple iPhone 11 Pro Max 64GB, \r\n"
                                + "                                256GB, 512GB\r\n"
                                + "                                Apple iPhone 6S Plus 16GB, 32GB, \r\n"
                                + "                                64GB\r\n"
                                + "                                Apple iPhone 6 Plus 16GB, 64GB, \r\n"
                                + "                                128GB\r\n"
                                + "                                Apple iPhone 7 256GB\r\n"
                                + "                                Apple iPhone 7 Plus 32GB, 128GB, \r\n"
                                + "                                256GB\r\n"
                                + "                                Apple iPhone 8 256GBApple iPhone \r\n"
                                + "                                8 Plus 64GB, 128GB, 256GB\r\n"
                                + "                                Apple iPhone SE 2020 256GB\r\n"
                                + "                                Apple iPhone X 64GB, 256GB\r\n"
                                + "                                Apple iPhone XR 64GB, 128GB, 256GB\r\n"
                                + "                                Apple iPhone XS 256GB, 512GB\r\n"
```

```
                                        + "                              Apple iPhone XS 64GB, 256GB, 512GB\r\n"
                                        + "                              Apple iPhone XS Max 64GB\r\n"
                                        + "                              Apple iPhone 12 PRO 256GB\r\n"
                                        + "                              Apple iPhone PRO MAX 128GB \r\n"
                                        + "                              Apple iPhone 12 64GB, 128GB, 256GB\r\n"
                                        + "                              Apple iPhone 12 PRO 128GB\r\n"
                                        + "                              Apple iPhone 12 PRO MAX 256GB, \r\n"
                                        + "                              512GB\r\n"
                                        + "                              Apple iPhone 12 MINI 64GB, 128GB\r\n"
                                        + "                              Google Pixel 3 64GB, 128GB\r\n"
                                        + "                              Google Pixel 3 XL 64GB, 128GB\r\n"
                                        + "                              Google Pixel 4 64GB 128GB\r\n"
                                        + "                              Google Pixel 4 XL 64GB, 128GB\r\n"
                                        + "                              Google Pixel 5 128GB\r\n"
                                        + "                              Samsung Galaxy Fold 512GB\r\n"
                                        + "                              Samsung Galaxy Note 10 256 GB\r\n"
                                        + "                              Samsung Galaxy Note 10 Plus 256GB\r\n"
                                        + "                              Samsung Galaxy Note 8 64 GB\r\n"
                                        + "                              Samsung Galaxy Note 9 128GB\r\n"
                                        + "                              Samsung Galaxy S10 128GB\r\n"
                                        + "                              Samsung Galaxy S10 Plus 128GB, \r\n"
                                        + "                              512GB, 1TB\r\n"
                                        + "                              Samsung Galaxy S10e 128GB, 256GB\r\n"
                                        + "                              Samsung Galaxy S20 5G 128GB\r\n"
                                        + "                              Samsung Galaxy S20 FE 128GB\r\n"
                                        + "                              Samsung Galaxy S20 Plus 5G 128GB\r\n"
                                        + "                              Samsung Galaxy S20 Ultra 5G 128GB\r\n"
                                        + "                              Samsung Galaxy S20 ULTRA 5G \r\n"
                                        + "                              512GB\r\n"
                                        + "                              Samsung Galaxy S21 5G 128GB\r\n"
                                        + "                              Samsung Galaxy S21 5G 256GB \r\n"
                                        + "                              Samsung Galaxy S21 ULTRA 5G \r\n"
                                        + "                              128GB\r\n"
                                        + "                              Samsung Galaxy S21 PLUS 5G 128GB\r\n"
                                        + "                              Samsung Galaxy S6 128GB\r\n"
                                        + "                              Samsung Galaxy S7 32gb\r\n"
                                        + "                              Samsung Galaxy S7 ACTIVE\r\n"
                                        + "                              Samsung Galaxy S7 Edge 32gb\r\n"
                                        + "                              Samsung Galaxy S8 64GB\r\n"
                                        + "                              Samsung Galaxy S8 Active\r\n"
                                        + "                              Samsung Galaxy S8 Plus 64GB\r\n"
                                        + "                              Samsung Galaxy S9 64GB\r\n"
                                        + "                              Samsung Galaxy S9 Plus 64GB\r\n"
                                        + "                              Samsung Galaxy S10 5G 256GB\r\n"
                                        + "                              Samsung Galaxy NOTE 5 32 GB\r\n"
                                        + "                              Samsung Galaxy 5 64 GB\r\n"
                                        + "                              Samsung Galaxy NOTE 8\r\n"
                                        + "                              Samsung Galaxy NOTE 9 512GB \r\n"
                                        + "                              Samsung Galaxy NOTE 20 5G 128GB\r\n"
                                        + "                              Samsung Galaxy NOTE 20 \r\n"
                                        + "                              ULTRA 5G 128GB\r\n"
                                        + "                              Samsung Galaxy NOTE 10 \r\n"
                                        + "                              PLUS 512GB\r\n"
                                        + "                              Samsung Galaxy A71 128GB\r\n"
                                        + "                              Samsung Galaxy Z FLIP 5G 256GB\r\n"
                                        + "                              Samsung Galaxy Z FLIP 256GB \r\n"      );
                        System.out.print(" Is your phone tier A ( 1 if yes , 0 if no) : ");
                        TierA = sc.nextInt();
                        System.out.print(" Is your phone tier B ( 1 if yes , 0 if no) : ");
                        TierB = sc.nextInt();
                        System.out.print(" Want to add more device to use this insurance? Please enter the number ");
                        System.out.print(" For phone tier A  : ");
                        deviceCountA = sc.nextInt();
                        System.out.print(" For phone tier B  : ");
                        deviceCountB = sc.nextInt();
                        System.out.println("--------------------------Additional Features--------------------------------");
                        System.out.print(" Instant cover? (Enter 1 if yes , 0 if no)");
                        InstantCover = sc.nextInt();
                        System.out.print(" RM 3200 claim for mechanical and software problems(Enter 1 if yes , 0 if no):  ");
                        ExtraClaim = sc.nextInt();
                        System.out.print(" Human Mistake Cover? (This only cover for accidently misplace your device and lose it
(Enter 1 if yes , 0 if no)");
                        Human = sc.nextInt();
                        System.out.println("--------------------Please wait proceeding your receipt----------------------");
                        totalTA = (TierA + deviceCountA )* TA ;
                        totalTB = (TierB + deviceCountB) * TB ;
                        totalInstant = InstantCover * Instant ;
                        totalExtra = ExtraClaim * Extra ;
                        totalMistake = Human * Mistake ;
                        total = totalTA + totalTB + months + totalInstant + totalExtra + totalMistake;
                        total = total * eligible ;


                        System.out.println("-------------------------------------------------------------------------------");
                        System.out.println("                                 Receipt                                       ");
                        System.out.println("-------------------------------------------------------------------------------");
                        System.out.println("                                                                               ");
                        System.out.println("                                                                               ");
                        System.out.println("     NAME: " + Name );
                        System.out.println("    IC NO: " + Ic   );
                        System.out.println("    Payment per month: RM" + total);
                        System.out.println("                                                                               ");
                        System.out.println("                                                                               ");
                        System.out.println("                                                                               ");
                        System.out.println("-------------------------------------------------------------------------------");
                        System.out.println("                               Thank you >_<                                   ");
                        System.out.println("-------------------------------------------------------------------------------");

        }
```

```
}
```

CODING OUTPUT

```
                        Hi welcome to Talasco
                     'Protection is our necessity'

---------------------------------Details-------------------------------------
 This is our price : # For Tier A phone - RM 25/ month
    $(if want)       # For Tier B phone - RM 45/ month
    #(a must)        # Monthly payment -  RM 30/ month
                      Additional Insurance
                     # Instant Cover    - +RM 8
                     # RM 3200 for claim (normal claim only RM 800) - + RM 30
                     # Human mistake cover - + RM 100
---------------------------------Condition-----------------------------------
 Only eligible if eligibility percentage under 30 %
--------------------------------Insurance------------------------------------
 Please insert your name: Azib Fikri Bin Mohd Suhaimi
 Please enter your ic number: 020306-14-0419
 Please enter your monthly income: RM4000
 Please enter your monthly commitment: RM200
 This is your percentage : 5.0
 If under 30% enter 1 if not enter 0 :1
------------------------------Type Of Insurance------------------------------
 From the list please find your tier phone model
 Tier A : Apple iPhone 5C 16GB
          Apple iPhone 6
          Apple iPhone 6S 16GB, 32GB, 64GB,
          Apple iPhone 7 32GB, 128GB
          Apple iPhone 8 64GB, 128GB
          Apple iPhone SE 2020 64GB, 128GB
          Google Pixel 3A XL 64GB
          Google Pixel 3A 64GB
          HTC ONE M9
          Samsung Galaxy A10e 32GB
          Samsung Galaxy J3
                         Samsung Galaxy J7
                      Samsung Galaxy S3 16GB
                          Samsung J727
                                 Samsung Galaxy A6 SHINE 32GB
                                 Samsung Galaxy A11 32GB
                                 Samsung Galaxy A20 32GB
                                 Samsung Galaxy A21 32GB
                                 Samsung Galaxy A32 5G 64GB
                                 Samsung Galaxy A50 64GB
                                 Samsung Galaxy A51 5G 128GB
 Tier B : Apple iPhone 11 64GB, 128GB, 256GB
                                 Apple iPhone 11 PRO 64GB, 256GB,
                                 512GB
                                 Apple iPhone 11 Pro Max 64GB,
                                 256GB, 512GB
                                 Apple iPhone 6S Plus 16GB, 32GB,
                                 64GB
                                 Apple iPhone 6 Plus 16GB, 64GB,
                                 128GB
                                 Apple iPhone 7 256GB
                                 Apple iPhone 7 Plus 32GB, 128GB,
                                 256GB
                                 Apple iPhone 8 256GBApple iPhone
                                 8 Plus 64GB, 128GB, 256GB
                                 Apple iPhone SE 2020 256GB
                                 Apple iPhone X 64GB, 256GB
                                 Apple iPhone XR 64GB, 128GB, 256GB
                                 Apple iPhone XS 256GB, 512GB
                                 Apple iPhone XS 64GB, 256GB, 512GB
                                 Apple iPhone XS Max 64GB
                                 Apple iPhone 12 PRO 256GB
                                 Apple iPhone PRO MAX 128GB
                                 Apple iPhone 12 64GB, 128GB, 256GB
                                 Apple iPhone 12 PRO 128GB
                                 Apple iPhone 12 PRO MAX 256GB,
                                 512GB
                                 Apple iPhone 12 MINI 64GB, 128GB
                                 Google Pixel 3 64GB, 128GB
                                 Google Pixel 3 XL 64GB, 128GB
                                 Google Pixel 4 64GB 128GB
                                 Google Pixel 4 XL 64GB, 128GB
                                 Google Pixel 5 128GB
                                 Samsung Galaxy Fold 512GB
                                 Samsung Galaxy Note 10 256 GB
                                 Samsung Galaxy Note 10 Plus 256GB
                                 Samsung Galaxy Note 8 64 GB
                                 Samsung Galaxy Note 9 128GB
                                 Samsung Galaxy S10 128GB
                                 Samsung Galaxy S10 Plus 128GB,
                                 512GB, 1TB
                                 Samsung Galaxy S10e 128GB, 256GB
                                 Samsung Galaxy S20 5G 128GB
                                 Samsung Galaxy S20 FE 128GB
                                 Samsung Galaxy S20 Plus 5G 128GB
                                 Samsung Galaxy S20 Ultra 5G 128GB
                                 Samsung Galaxy S20 ULTRA 5G
                                 512GB
                                 Samsung Galaxy S21 5G 128GB
                                 Samsung Galaxy S21 5G 256GB
                                 Samsung Galaxy S21 ULTRA 5G
                                 128GB
```

```
                                Samsung Galaxy S21 PLUS 5G 128GB
                                Samsung Galaxy S6 128GB
                                Samsung Galaxy S7 32gb
                                Samsung Galaxy S7 ACTIVE
                                Samsung Galaxy S7 Edge 32gb
                                Samsung Galaxy S8 64GB
                                Samsung Galaxy S8 Active
                                Samsung Galaxy S8 Plus 64GB
                                Samsung Galaxy S9 64GB
                                Samsung Galaxy S9 Plus 64GB
                                Samsung Galaxy S10 5G 256GB
                                Samsung Galaxy NOTE 5 32 GB
                                Samsung Galaxy 5 64 GB
                                Samsung Galaxy NOTE 8
                                Samsung Galaxy NOTE 9 512GB
                                Samsung Galaxy NOTE 20 5G 128GB
                                Samsung Galaxy NOTE 20
                                ULTRA 5G 128GB
                                Samsung Galaxy NOTE 10
                                PLUS 512GB
                                Samsung Galaxy A71 128GB
                                Samsung Galaxy Z FLIP 5G 256GB
                                Samsung Galaxy Z FLIP 256GB

 Is your phone tier A ( 1 if yes , 0 if no) : 0
 Is your phone tier B ( 1 if yes , 0 if no) : 1
 Want to add more device to use this insurance? Please enter the number  For phone tier A  : 4
 For phone tier B  : 0
--------------------------Additional Features-------------------------------
 Instant cover? (Enter 1 if yes , 0 if no)1
 RM 3200 claim for mechanical and software problems(Enter 1 if yes , 0 if no):  0
 Human Mistake Cover? (This only cover for accidently misplace your device and lose it (Enter 1 if yes , 0 if no)0
---------------------Please wait proceeding your receipt----------------------
--------------------------------------------------------------------------------
                                 Receipt
--------------------------------------------------------------------------------


     NAME: Azib Fikri Bin Mohd Suhaimi
    IC NO: 020306-14-0419
    Payment per month: RM183.0



--------------------------------------------------------------------------------
                               Thank you >_<
```

Reference

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SKIP 1013 GROUP A
INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING
(Semester A211)

ASSIGNMENT 1

Name : Ahmad Zuhairi Bin Mohd Yusri
Matric num : 287998
Topic : Communication
SubTopic : Laptop
System : Services rate,goods and laptops payment system

1. Identify the problem

Figure 1 Apple MacBook

A laptop or notebook computer is a small, portable personal computer (PC) with a **screen** and **alphanumeric keyboard**. These typically have a **clam shell form factor** with the **screen mounted** on the inside of the upper lid and the keyboard on the inside of the lower lid, although 2-in-1 PCs with a detachable keyboard are often marketed as laptops or as having a laptop mode. Laptops are **folded** shut for transportation, and thus are suitable for mobile use. Today, laptops are used in a variety of settings, such as at work, in **education, for playing games, web browsing, for personal multimedia, and general home computer use**. Laptops **combine all the input/output components and capabilities of a desktop computer**, including the **display screen, small speakers, a keyboard, data storage device**, sometimes an **optical disc drive, pointing devices** (such as a touch pad or pointing stick), with an operating system, a processor and memory into a single unit. Most modern laptops **feature integrated webcams and built-in microphones**, while many also **have touchscreens**.

The invention of the laptop begins in 1971, the first laptop was invented and known as the **Dynabook**. It was invented in **1968** by **Alan Kay**. It was also called a **tablet PC** or slate computer because of its very flat shape. It was invented particularly for children to gain access to digital media. However, as years went by, it also became useful for more tasks such as operations documentation for the military.The **first portable computer** was invented in April **1976** by **Xerox PARC Company**. This one was called the **Xerox Note Taker** because it was designed to implement new technology and show what could be done. It had slow processing speeds, mouse, floppy disk drive and very high cost of production.This invention was a good foundation for other computer corporations. In **1981**, the **Osborne Computer Corporation** invented the first commercial portable computer. The name of this portable computer was **Osborne 1**. It was named after **Adam Osborne**, the designer of the product. The Osborne 1 was widely accepted as **the first commercial portable computer** because it **weighed less than that of the Xerox Note Taker**. Moreover, its **foldable nature** and **lighter weight** made it more appealing to several people who were ready to buy it. Software that came with Osborne 1 were **CP/M utility, SuperCalc spreadsheet, WordStar** word processing (combined with **MailMerge**) and digital research programming languages such as **MBASIC** and **CBASIC**. The costs of these programs were approximately **$1,500** though the laptop was sold at about **$1,795**. Many of the early laptops were based off of the first portable computers including the Xerox Note Taker and Osborne 1. **Bondwell 2** was produced in **1985**. It used CP/M as an operating system and a Z-80 CPU at four megahertz. It also had 64K RAM and 3.5 inches floppy disk drive.
Bondwell 2 was **one of the first laptops to have an LCD screen**.

Figure 2 Osborne 1

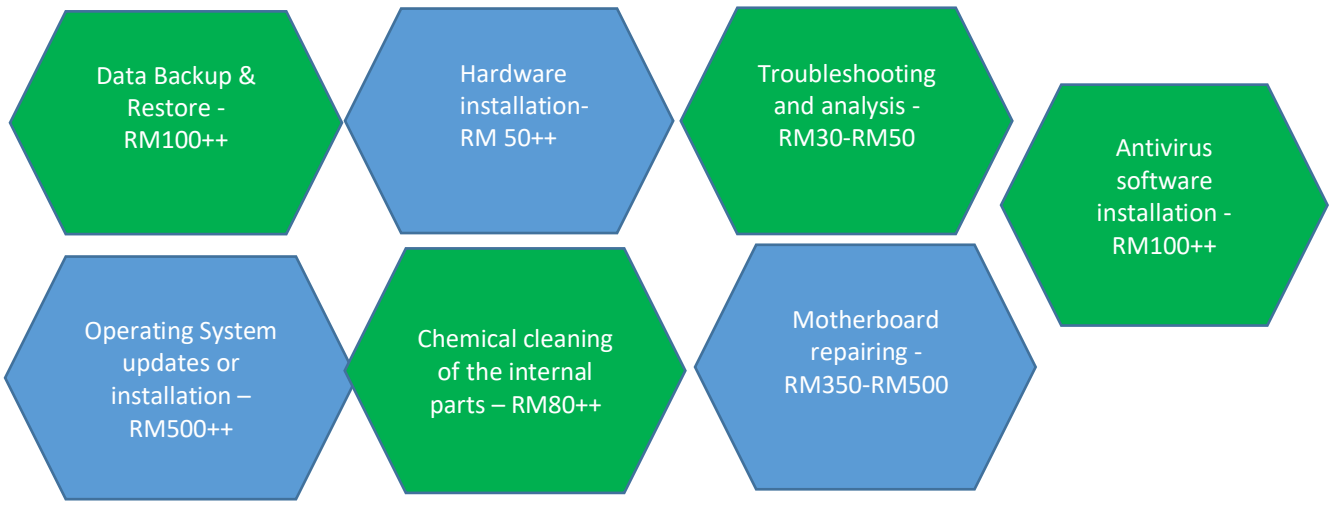
Figure 3 Bondwell 2

There are different **types of services offered to laptops** to solve problems that a laptop might encounter which is:

- Chemical cleaning of the internal parts including motherboard, processor etc.
- Cooling paste treatment: essential for smooth running of the laptop is replaced on the motherboard and graphic card heat sink.
- Virus and spyware removal and malicious software prevention.
- Hardware installation and upgrading memory.

- Software installation and upgrade.
- Troubleshooting and networking support.
- Data backup and recovery solutions.
- Laptop repairing such as motherboard repair, screen replacement etc.
- Computer Maintenance Services.
- Operating System updates or installation.

The following is a general cost estimation guide for the most common services & repairs.



Recently, **UUM LTE Communication Enterprise** run an enterprise related to the laptop such as offer several types of services to solve problems that laptops may encounter, goods that can be installed to the laptop and also various brands of laptops. After several months of doing their business, they has some problems in their payment system to calculate and determine the appropriate charges for their **services, goods and laptops** to customers. They found that they suffered losses on a monthly basis due to the **inefficient** and **complicated** system. The enterprise also had to bear huge losses after customers ordered items that were not available and wanted them as soon as possible. There are also some customers expressed dissatisfaction because of the total amount is too **expensive** and **ridiculous**. The owner of the enterprise has discussed and agreed with all staff on prices that match and affordable to each type of services rate per hour, extra charges and goods price offered to the customers. However, the system used to calculate the amount charged often **displays an inaccurate amount** because not be able to **determine the actual price** and **type of services charges** that are correspond to the amount that should be charged to customers. Besides that, the system did not display the total amount for each section but directly display the sum for each section causing the staff and customers clueless on corresponding amount. Fortunately, the enterprise has no other ways to determine correct total amount than to follow the total amount displayed by the system.

2. Understand the problem

- The system is unable to determine the corresponding types of services rate per hour based on customers demand.
- Types of services, goods and laptops are not being set properly in the system.
- There is no instructions for extra charges include in the system.
- There is a miscalculation due to system error in determining the actual type of services that corresponding to rate of amount.
- The system produces inaccurate amount and caused losses to company.
- The instruction for each types of services rate per hour need to be clear and easy to understand to customer in determine and input their demand into the system.
- The price and charge for each types of services,goods and laptops should be fixed in the system.

- There is no input for extra charges causing enterprise cannot gain profit from their hardwork in providing extra commitments to meet customer's needs.
- The calculation can be accurate if the system can determine the correct types of services rate per hour based on customers demand.
- The calculation need to be improved in calculating amount of services rate per hour and extra charges.
- The system need to display total amount from each section.
- The instruction about the input of the system need to be clear and meaningful to customers.

3. Identify alternative ways to solve the problem.

- Create a system that will calculate each amount part by part which is services,goods and laptop section, add instruction for extra charge in each section and sum them to get the total amount.
- Create a system that will ask a customers to input all the data without showing any amount of each section and display the total amount later.
- Create many systems that will calculate amount for each types of services rate per hour, goods and laptops separately.

4. Select the best way to solve the problem from the list of alternative solutions.
   Create a system that will calculate each amount part by part which is services,goods and laptop section, add instruction for extra charge for each section and sum them to get the total amount. This is because it is more convenient for customer to use it and more efficient and organized. Besides that, The system has 3 different part of calculation based on customers demands or purchase and displays each amount step by step.

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

- Ask a customers to enter the amount of services rate per hour as display below of the instruction.
- Ask a customers to enter the number of hour to finish the chosen type of services.
- Add an extra charge instruction to each section of customers demand in order to gain more profit.
  For example:
  Input the data into variable services, hour, customertype, shipping
  services = 20 , hour = 2, customertype = 1.5, shipping = 10
  The system will calculate servicesfees (servicesfees = services x hour x customertype + shipping)
  servicesfees = 20 x 2 x 1.5 + 10
  servicesfees = 70
  Then it will display the amount of servicesfees that is '70'.
- Ask a customers to enter '0' if they are not buying or using the services from the enterprise.
  For example:
  services = 0 , hour = 0, customertype = 0, shipping = 0
  servicesfees = 0 x 0 x 0 + 0
  servicesfees = 0
  So the system will display the amount of servicesfees that is '0'.

- The system displays total amount for every section after the customers input the data.

Services	
Types of services	Services charge rate per hour(RM)

Repairing Hardware Installation Antivirus Installation Data Recovery Maintainance	 50 40 80 50 30

Extra Charge		
Types of section	Types of extra charge	Number to be enter
Services	ASAP/Not ASAP	1.5 / 1
Goods	ASAP/Available/Preorder	1.2 / 1.1 / 1
Laptop	ASAP/Available/Preorder	1.2 / 1.1 / 1

6. Evaluate the solution.

- The system produces accurate amount for each type of calculation part and total amount of them.
- The customer will be satisfied and no argument about the instruction steps and the final amount.
- The customer absolutely will clear and understand what to input into the system.
- The calculation of the system will produces accurate amount except if the customer input wrong number that different from the number displayed by instructions.
- The system will easier the customers to input what they are buy or demand because if they are not buying or using any services, they simply can enter '0' for each part.
- The system will display each total amount for each section based on customers demand that will be easy for staff and customers to track the sum of amount for whole section.

7. Algorithm

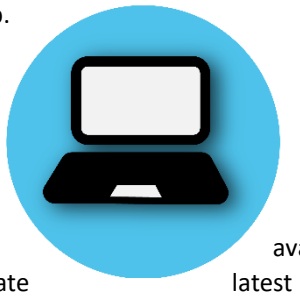
1) Ask a customers to input number for type of services rate per hour based on instruction given.

2) Ask a customers to input number of hour required to finish the service.
3) Ask a customers to input number if they need it ASAP or not based on instruction given.

4) The system will calculate the charge and display services amount.
5) Then, the system will ask customer again whether they are buying goods or not and input the price of the goods.

6) Ask a customers the goods condition whether they want it ASAP, or the goods is available in stock or need to preorder.

7) The system will calculate latest price and display goods amount.
8) Lastly, the system will ask customer again whether they are buying laptop or not and input the price of the laptop.

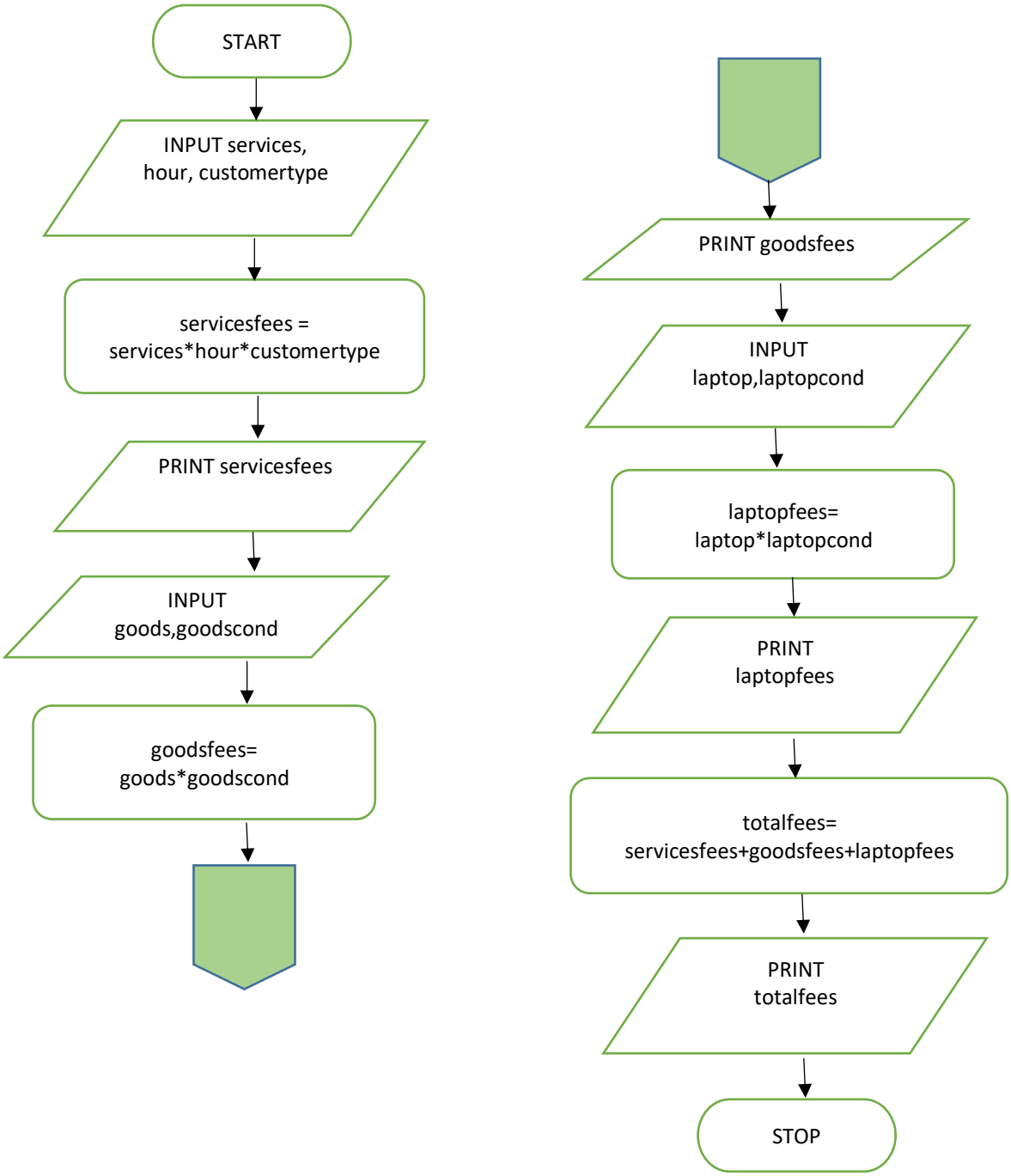


9) Ask a customers the laptop condition whether they want it ASAP, or the laptop is available in stock or need to preorder.
10) The system will calculate latest price and display the price.
11) Finally the system will calculate sum of each section of amount and display total amount customers have to pay.

8. Pseudocode

```
START
    INPUT services,hour,customertype
    Calculate servicesfees = services*hour*customertype
    Print servicesfees
    INPUT goods,goodscond
    Calculate goodsfees = goods*goodscond
    Print goodsfees
    INPUT laptop,laptopcond
    Calculate laptopfees = laptop*laptopcond
    Print laptopfees
    Calculate totalfees = servicesfees+goodsfees+ laptopfees
    Print totalfees
STOP
```

9. Flow Chart


START
INPUT services, hour, customertype
servicesfees = services*hour*customertype
PRINT servicesfees
INPUT goods,goodscond
goodsfees= goods*goodscond
PRINT goodsfees
INPUT laptop,laptopcond
laptopfees= laptop*laptopcond
PRINT laptopfees
totalfees= servicesfees+goodsfees+laptopfees
PRINT totalfees
STOP

10. Coding - Numerical Computation & Expression

```
1. package myAssigment1;
2.
3. import java.util.Scanner;
4.
5. class Assignment1 {
6.
7.       public static void main(String[] args) {
8.             Scanner in=new Scanner(System.in);
9.
10.            int hour, services;
11.            int goods;
12.            double laptop;
13.            double customertype,goodscond,laptopcond,shipping;
14.            double servicesfees,goodsfees,laptopfees;
15.            double totalfees;
16.
17.            System.out.println("********** Welcome To UUM LTE
   Communication
               Enterprise **********");
18.            System.out.println();
19.            System.out.println("Hello our dear customer, you will
   be ask to
               answer the question from three different section.");
20.            System.out.println();
21.
22.            System.out.println("##### First Section #####");
23.            System.out.println("If you're using our services,
   please enter
               the amount of services charge rate per hour as below :
   ");
24.            System.out.println("Repairing = 50 \nHardware
   Installation = 40
       \nAntivirus Installation = 80 \nData Recovery = 50
   \nMaintainance = 30");
25.            System.out.println("If you're not using our services,
   please
               enter '0' for every services questions : ");
26.            services=in.nextInt();
27.
28.
29.            System.out.println("Please enter required hour to
   finish it : ");
30.            hour=in.nextInt();
31.
32.            System.out.println("You want it ASAP or not?");
33.            System.out.println("If ASAP, enter '1.5' while if not
   ASAP, enter
               '1'");
34.            customertype=in.nextDouble();
35.
36.            System.out.println("If you need it to be delivered to
   you, please
               enter '10'");
37.            System.out.println("But If you want to come to pick it,
   please
               enter '0'");
```

```
38.             shipping=in.nextDouble();
39.
40.             servicesfees=hour*services*customertype+shipping;
41.
42.             System.out.println("Your services amount will be RM" +
                servicesfees);
43.             System.out.println();
44.
45.             System.out.println("\n##### Second Section #####");
46.             System.out.println("If you're buying goods, please
    enter the
                price : ");
47.             System.out.println("If you're not buying goods from our
    store,
                please enter '0' for every goods questions : ");
48.             goods=in.nextInt();
49.
50.             System.out.println("You want it
    ASAP/Available/Preorder ?");
51.             System.out.println("If ASAP, enter '1.2' while if
    Available,
                enter '1.1' and if Preorder, enter '1'");
52.             goodscond=in.nextDouble();
53.
54.             System.out.println("If you need it to be delivered to
    you, please
                enter '5'");
55.             System.out.println("But If you want to come to pick it,
    please
                enter '0'");
56.             shipping=in.nextDouble();
57.
58.             goodsfees=goods*goodscond+shipping;
59.
60.             System.out.printf("Your goods amount will be RM%.2f" ,
                goodsfees);
61.             System.out.println();
62.             System.out.println();
63.
64.             System.out.println("\n##### Third Section #####");
65.             System.out.println("If you're buying laptop, please
    enter the
                price : ");
66.             System.out.println("If you're not buying laptop from
    our store,
                please enter '0' for every laptop questions : ");
67.             laptop=in.nextDouble();
68.
69.             System.out.println("You want it
    ASAP/Available/Preorder ?");
70.             System.out.println("If ASAP, enter '1.2' while if
    Available,
                enter '1.1' and if Preorder, enter '1'");
71.             laptopcond=in.nextDouble();
72.
73.             System.out.println("If you need it to be delivered to
    you, please
                enter '10'");
```

```
74.             System.out.println("But If you want to come to pick it, please
                enter '0'");
75.             shipping=in.nextDouble();
76.
77.             laptopfees=laptop*laptopcond+shipping;
78.
79.             System.out.printf("Your laptop amount will be RM%.2f" ,
                laptopfees);
80.             System.out.println();
81.
82.             totalfees=servicesfees+goodsfees+laptopfees;
83.             System.out.printf("\nYour total amount will be RM%.2f" ,
                totalfees);
84.             System.out.println();

85.             System.out.println("\n***** Thank you for choosing UUM LTE
                Communication Enterprise. *****");
86.
87.
88.
89.       }
90.
91. }
```

Output Sample

```
********** Welcome To UUM LTE Communication Enterprise **********

Hello our dear customer, you will be ask to answer the question from three
different section.

##### First Section #####
If you're using our services, please enter the amount of services charge
rate per hour as below :
Repairing = 50
Hardware Installation = 40
Antivirus Installation = 80
Data Recovery = 50
Maintainance = 30
If you're not using our services, please enter '0' for every services
questions :
50
Please enter required hour to finish it :
2
You want it ASAP or not?
If ASAP, enter '1.5' while if not ASAP, enter '1'
1.5
If you need it to be delivered to you, please enter '10'
But If you want to come to pick it, please enter '0'
0
Your services amount will be RM150.0
```

```
##### Second Section #####
If you're buying goods, please enter the price :
If you're not buying goods from our store, please enter '0' for every goods
questions :
0
You want it ASAP/Available/Preorder ?
If ASAP, enter '1.2' while if Available, enter '1.1' and if Preorder, enter
'1'
0
If you need it to be delivered to you, please enter '5'
But If you want to come to pick it, please enter '0'
0
Your goods amount will be RM0.00


##### Third Section #####
If you're buying laptop, please enter the price :
If you're not buying laptop from our store, please enter '0' for every
laptop questions :
2599
You want it ASAP/Available/Preorder ?
If ASAP, enter '1.2' while if Available, enter '1.1' and if Preorder, enter
'1'
1
If you need it to be delivered to you, please enter '10'
But If you want to come to pick it, please enter '0'
10
Your laptop amount will be RM2609.00

Your total amount will be RM2759.00

***** Thank you for choosing UUM LTE Communication Enterprise. *****
```

A211 SKIP1013 GROUP A

ASSINGMENT 1

Name: Nur Shazlin Iwani Bt Sharuddin
No Matric: 288036

Topic: Communication
Subtopic: Smartwatch

1. **Identify Problem**

A smartwatch is a wearable computer in the form of a watch; modern smartwatches provide a local touchscreen interface for daily use, while an associated smartphone app provides for management and telemetry (such as long-term biomonitoring). While early models could perform basic tasks, such as calculations, digital time telling, translations, and game-playing, 2010s smartwatches have more general functionality closer to smartphones, including mobile apps, a mobile operating system and WiFi/Bluetooth connectivity. Some smartwatches function as portable media players, with FM radio and playback of digital audio and video files via a Bluetooth headset. Some models, called watch phones (or vice versa), have mobile cellular functionality like making calls.

While internal hardware varies, most have an electronic visual display, either backlit LCD or OLED. Some use transflective or electronic paper, to consume less power. They are generally powered by a rechargeable lithium-ion battery. Peripheral devices may include digital cameras, thermometers, accelerometers, pedometers, heart rate monitors, altimeters, barometers, compasses, GPS receivers, tiny speakers, and microSD cards, which are recognized as storage devices by many other kinds of computers.

Software may include digital maps, schedulers and personal organizers, calculators, and various kinds of watch faces. The watch may communicate with external devices such as sensors, wireless headsets, or a heads-up display. Like other computers, a smartwatch may collect information from internal or external sensors, and it may control, or retrieve data from, other instruments or computers. It may support wireless technologies such as

Bluetooth, Wi-Fi, and GPS. For many purposes, a "watch computer" serves as a front end for a remote system such as a smartphone, communicating with the smartphone using various wireless technologies. Smartwatches are advancing, especially their design, battery capacity, and health-related applications. Health-related applications include applications measuring heart rate, SpO2, workout etc.

One of the best features is that smartwatches can measure your body mass index (BMI). For example, Samsung's Galaxy Watch 4 can calculate body fat from the wrist. Body fat is generally a better way to assess health than weight, but it's often calculated using a metric called body mass index (BMI). The Galaxy measures body composition using a technique called bioelectrical impedance analysis (BIA), which sends a weak electric current through the body. It's calculating the amount of water in the body — the signal moves more quickly through tissue that has higher percentages of water. However, it does not calculate and show how much the consumer should gain/loses weight in order to achieve normal BMI. So, the problem is smartwatch does not show the exact weight your body should gain/loss in order to achieve normal BMI.

2. Understand the Problem

Technically, the latest smartwatch like Samsung's Galaxy Watch 4 only calculates body fat and BMI but it does not have the features where the system will show the exact weight consumers should gain/loss. Thus, this new system will show how much weight consumers should gain/loss.

- Smartwatch shows BMI with height and weight. For example, height 157cm, weight 41kg and BMI 16.
- Next, the consumers do not know how many kilograms they should gain in order to achieve normal BMI.
- The consumer will assume and put on weight continuously without knowing the exact amount of weight that should be gained.
- If the BMI shows obesity with a height of 157cm and weight 77kg, the consumers know that they need to burn their calories.
- Since a smartwatch has a feature that shows burn calories while the consumers are doing activities, it will be much easier but still the consumers do not know the exact weight they should lose.
- They could overdo it and will somehow not be able to achieve normal BMI.

3. Identify Alternative Ways to Solve Problem

- List all the data such as weight, height and BMI and do calculations manually to find the exact weight. Then, refer to the BMI chart.
- Make a system where it can keep all the data and perform the calculations to find exact weight. Then, it shows through the smartwatch screen.

4. **Best Way to Solve Problem from the List Alternative Solutions**

   Make a system where it can keep all the data and perform calculations to find exact weight. Then, it will show the exact weight through a smartwatch screen. It will be much convenient and take less time to calculate it.

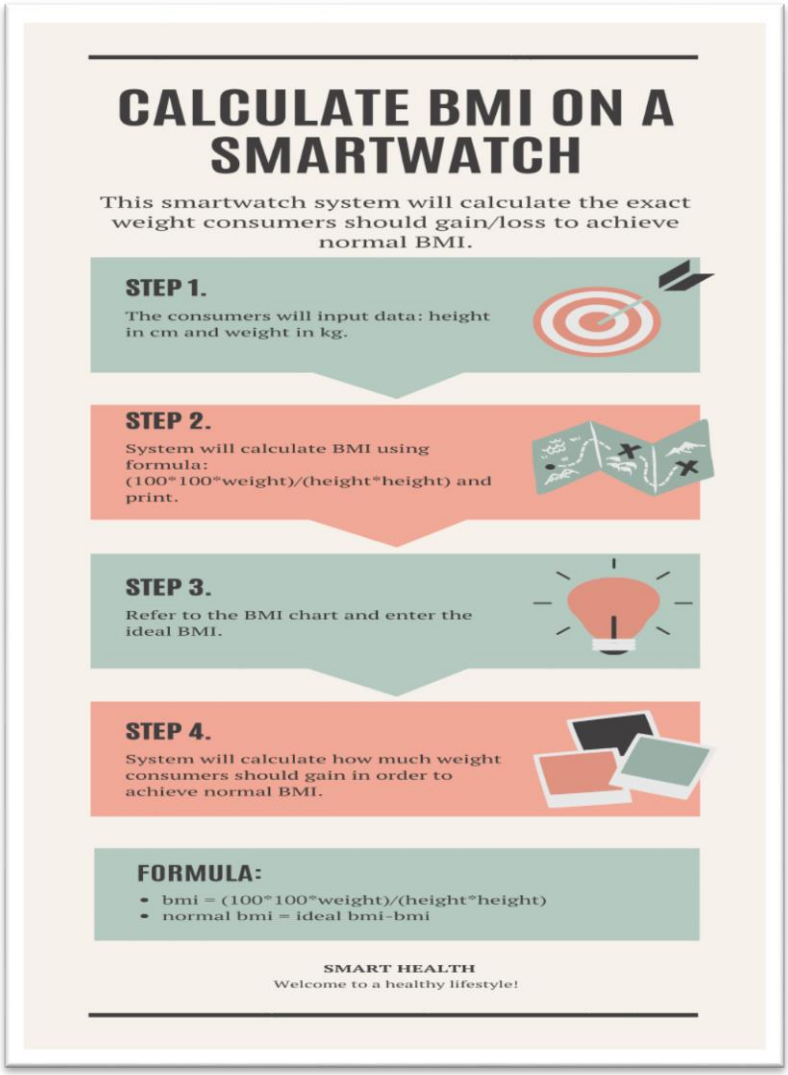
5. **List Instructions (steps) Using the Selected Solution**

   1) The consumers will input data: height in cm and weight in kg. For example, "height: 157cm and weight: 41kg"
   2) System will calculate BMI using **formula: (100*100*weight)/ (height x height)**. Then, show to the screen. For example, "Your BMI is 16"
   3) The consumers then refer to the BMI chart and input the ideal weight to achieve normal BMI. Ex: "Normal weight: 50kg"
   4) Next, the system will do another calculation to show how much weight you should gain/loss by using **formula: ideal BMI – BMI**. Ex: "need to gain 9kg"

6. **Evaluate the Solution**

   The solution should be more accurate than perform calculations manually. It is because if consumers perform calculations manually, they might use wrong formula or the data that they jot down is not correct. This solution will also satisfy the consumers because it will be much easier for them to know about their BMI. It helps consumers in keeping track with their health progress. Moreover, consumers feel more comfortable using this smartwatch while doing their activities compared to any other BMI apps that can be downloaded on the smartphone.

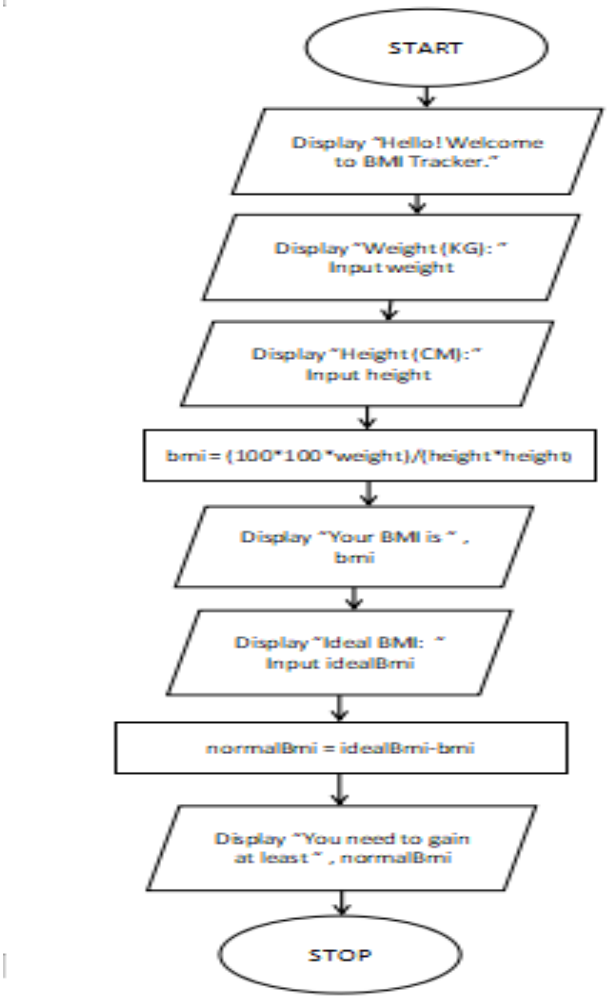
7. Algorithm


CALCULATE BMI ON A SMARTWATCH
This smartwatch system will calculate the exact weight consumers should gain/loss to achieve normal BMI.
STEP 1.
The consumers will input data: height in cm and weight in kg.
STEP 2.
System will calculate BMI using formula:
(100*100*weight)/(height*height) and print.
STEP 3.
Refer to the BMI chart and enter the ideal BMI.
STEP 4.
System will calculate how much weight consumers should gain in order to achieve normal BMI.
FORMULA:
bmi = (100*100*weight)/(height*height)
normal bmi = ideal bmi-bmi
SMART HEALTH
Welcome to a healthy lifestyle!

8. Pseudocode

```
START
        Display “Hello! Welcome to BMI Tracker.”
        Display “Weight (KG): “
        Input weight
        Display “Height (CM): “
        Input height

        bmi = (100*100*weight)/(height*height)
        Display “Your BMI is “ , bmi

        Display “Ideal BMI: “
        Input idealBmi

        normalBmi = idealBmi-bmi

        Display “You need to gain at least “ ,normalBmi
STOP
```

9. Flowchart



10. Coding

```
package assingment1;

import java.util.Scanner;

class Bmi {

public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner input = new Scanner(System.in);

float height;
float weight;
float bmi;
float idealBmi;
float normalBmi;

System.out.println("Hello! Welcome to BMI tracker");
System.out.println();
```

```
System.out.print("Weight (KG): ");
weight=input.nextFloat();
System.out.print("Height (CM): ");
height=input.nextFloat();

bmi = (100*100*weight)/(height*height);

System.out.printf("Your BMI is %.2f " ,bmi);
System.out.println();

System.out.print("Ideal BMI: ");
idealBmi=input.nextFloat();

normalBmi = idealBmi-bmi;

System.out.printf("You need to gain at least %.2f " ,normalBmi,"kg");

}

}
```

Output

```
Hello! Welcome to BMI tracker

Weight (KG): 41
Height (CM): 157
Your BMI is 16.63
Ideal BMI: 20
You need to gain at least 3.37kg
```

SKIP1013 GROUP A
INTRODUCTION TO PROGRAMMING AND PROBLEM SOLVING
(Semester A211)

ASSIGNMENT 1

NAME : MOHAMAD HAFIZAL BIN AHMAD FAUZI
MATRIC NUMBER : 288055
TOPIC : COMMUNICATION
SUBTOPIC : TELEVISION

JACK'S TV PROFIT MARGIN

1. IDENTIFY THE PROBLEM

Telegram television also known as a TV is a machine with a screen. Televisions receive broadcasting signals and use it for transmitting moving images in black-and-white or in color, and in two or three dimensions and sound. Television signals were initially distributed only as terrestrial television using high-powered radio-frequency television transmitters to broadcast the signal to individual television receivers. Alternatively television signals are distributed by coaxial cable or optical fiber, satellite systems and, since the 2000s via the Internet. Until the early 2000s, these were transmitted as analog signals, but a transition to digital television was expected to be completed worldwide by the late 2010s. A standard television set consists of multiple internal electronic circuits, including a tuner for receiving and decoding broadcast signals. A visual display device which lacks a tuner is correctly called a video monitor rather than a television. A TV can show pictures from many television networks. Television is a mass medium for advertising, entertainment, news, and sports.Recently, Mr. Jack want to open a new television store at No 55, Jalan Tanjung Bendahara, Pekan Simpang Kuala, 05400 Alor Setar, Kedah. The store name is Jack's TV store. Mr Jack planning to sell many type of television such as LCD television, Plasma television and Smart TV. LCD stands for liquid crystal display. The liquid crystals block or allow light to pass through them. The different colour and brightness levels created by the liquid crystals and various filters become the picture on the screen. With a few exceptions, every LED TV has an LCD display. A plasma television is a television set with a plasma screen, usually larger and much thinner than a conventional set, and often designed to be mounted on a wall.A smart TV, also known as a connected TV, is a traditional television set with integrated Internet and interactive Web 2.0 features, which allows users to stream music and videos, browse the internet, and view photos. Smart TVs are a technological convergence of computers, televisions, and digital media players. He also planning to take television from many brand to put it in his shop such as Samsung, Sony, LG, Panasonic, Philips and Toshiba. But, him facing the problem to build a system for his store. He must solve the problem in a short time because the launching of his store will be coming soon. He also has calculated the monthly expenses for his store. The monthly expenses that the store required is between RM4500.00 - RM 5000.00. This is include with the two staff monthly salary, the store rent, the electricity bills and the water bills. He also estimate and that the monthly average television sold is 20 pieces at least. Mr Jack also does not know the suitable profit margin for the television. But, according to "The New York Times" article, the average profit margin for televisions ranges somewhere between 10 and 20 percent above cost. He also planning to charge on the installation process of the television if the customer request for it. He also will give a different warranty period for different

television depend on the brand of the television. Help Mr Jack to build a suitable program for his store and determine if the store profit or lose in that month.

2. UNDERSTAND THE PROBLEM

- Mr Jack wants to build a system for his store.
- Jack's TV sells LCD television, Plasma television and Smart TV.
- Jack's TV include many brands of television such as Samsung, Sony, LG, Panasonic, Philips and Toshiba.
- Set up a suitable profit margin for each brand of the television available in a Jack's TV.
- Set up a fixed charge for the installation process due to customer request.
- Every brand of the television has different period warranty from the Jack's TV.
- Monthly estimate television sold is 20 piece.
- The monthly expenses that the store required is between RM4500.00 - RM 5000.00.
- Calculate the profit or lose for Jack's TV in the month.

LCD television

Plasma television

Smart television

3. ALTERNATIVE WAYS TO SOLVE THE PROBLEM

a. Sets the different percent of profit margin by the brand and type of the television and free installation.
b. Sets every purchase of the RM1000 will be charge 5% for the profit margin and installation.
c. Sets the profit margin to 5% of the actual price of the television and 5% charge for the installation.
d. Sets the profit margin to 10% of the actual price of the television and 5% charge for the installation..
e. Sets the profit margin to 50% of the actual price of the television and 5% charge for the installation.
f. Sets the different percent of profit margin by the brand and type of the television and 5% charge for the installation.
g. Sets every purchase of the RM1000 will be charge 10% for the profit margin and installation.
h. Sets the profit margin to 5% of the actual price of the television and free installation.
i. Sets the profit margin to 10% of the actual price of the television and free installation.

j. Sets the profit margin to 50% of the actual price of the television and free installation.

4. BEST WAYS TO SOLVE THE PROBLEM

- Sets the different percent of profit margin by the brand and type of the television and 5% charge for the installation.

Advantages	Disadvantages
- Every television brands has different original cost. - Every type of television also has different original cost. - So, sets every television has different profit margin is the most suitable. - Charge for the installation process to give the staff the installation money.	- Customer may be complaining about the installation charge.

5. LIST OF INSTRUCTION TO SOLVE THE PROBLEM

a. Customer walk in to the Jack's TV and been showed the type of the television and its brand.
b. Jack's TV staff will confirm with the customer the type and the brand of the television that they want to purchase and key-in it in the system..
c. The system will calculate the profit price of the television based on the profit margin of the brands and type of the television.
d. The system then will added the profit price with the price of the television.
e. The price that must been paid by the customer is calculated.
f. Then the customers will be ask if they want a installation package from the store or will have a self-installation.
g. The 5% charge will be added to the price if the customer pick the store package installation based on the price that must been paid by the customer.
h. The total price will be shown to the customer to been paid.
i. The customers will be able to check about the warranty of the television that they purchase based on the brands of the television.
j. The customers give the money to make the purchase.
k. The staff will key-in the total money paid by the customer.
l. The system will shows the balance customer money for the purchase.
m. The system then will print the receipt of the purchase for the customers.

6. EVALUATE THE SOLUTION

The customer must choose the television brand that available in the Jack's TV such as Samsung, Sony, Panasonic, Philips, LG or Toshiba. Then customer must choose the types of television available such as LED TV, Plasma TV or Smart TV. Every brands and type has their own profit margin. Then, customer can choose either they want to take the installation package from the store or self-installation. The store installation package will be charge 5% from the price that must been paid by the customer.

Example : The customers has request the installation package from the store.

TELEVISION BRAND	TELEVISION TYPE	ORIGINAL PRICE	PROFIT MARGIN	PROFIT PRICE	INSTALLATION PRICE	TOTAL PRICE
Samsung	LED TV	RM 2899.00	18%	RM 521.82	RM 144.95	RM 3565.77
	Plasma TV	RM 2799.00	17%	RM 475.83	RM 139.95	RM 3414.78
	Smart TV	RM 2999.00	19%	RM 569.81	RM 149.95	RM 3718.76
Sony	LED TV	RM 1129.00	14%	RM 158.06	RM 56.45	RM 1343.51
	Plasma TV	RM 1029.00	13%	RM 133.77	RM 51.45	RM 1214.22
	Smart TV	RM 1229.00	15%	RM 184.35	RM 61.45	RM 1474.80
Panasonic	LED TV	RM 1949.00	14%	RM 272.86	RM 97.45	RM 2319.31
	Plasma TV	RM 1849.00	13%	RM 240.37	RM 92.45	RM 2181.82
	Smart TV	RM 2049.00	15%	RM 307.35	RM 102.45	RM 2458.80
Philips	LED TV	RM 2499.00	16%	RM 399.84	RM 124.95	RM 3020.79
	Plasma TV	RM 2399.00	15%	RM 359.85	RM 119.95	RM 2958.80
	Smart TV	RM 2599.00	17%	RM 441.83	RM 129.95	RM 3170.78
LG	LED TV	RM 2949.00	11%	RM 324.39	RM 147.45	RM 3420.84
	Plasma TV	RM 2849.00	10%	RM 284.90	RM 142.45	RM 3276.35
	Smart TV	RM 3049.00	12%	RM 365.88	RM 152.45	RM 3567.33
Toshiba	LED TV	RM 999.00	19%	RM 189.81	RM 49.95	RM 1238.76
	Plasma TV	RM 1099.00	18%	RM 197.82	RM 54.95	RM 1351.77
	Smart TV	RM 1199.00	20%	RM 239.80	RM 59.95	RM 1498.75

Example : The customers has request the self-installation.

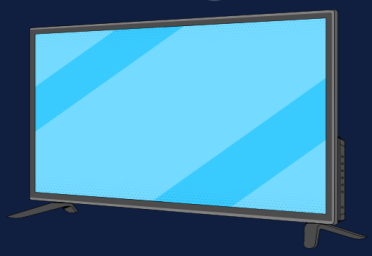
TELEVISION BRAND	TELEVISION TYPE	ORIGINAL PRICE	PROFIT MARGIN	PROFIT PRICE	CUSTOMER PRICE
Samsung	LED TV	RM 2899.00	18%	RM 521.82	RM 3420.82
	Plasma TV	RM 2799.00	17%	RM 475.83	RM 3274.83
	Smart TV	RM 2999.00	19%	RM 569.81	RM 3568.81
Sony	LED TV	RM 1129.00	14%	RM 158.06	RM 1287.06
	Plasma TV	RM 1029.00	13%	RM 133.77	RM 1162.77
	Smart TV	RM 1229.00	15%	RM 184.35	RM 1413.35
Panasonic	LED TV	RM 1949.00	14%	RM 272.86	RM 2221.86
	Plasma TV	RM 1849.00	13%	RM 240.37	RM 2089.37
	Smart TV	RM 2049.00	15%	RM 307.35	RM 2356.35
Philips	LED TV	RM 2499.00	16%	RM 399.84	RM 2898.84
	Plasma TV	RM 2399.00	15%	RM 359.85	RM 2758.85
	Smart TV	RM 2599.00	17%	RM 441.83	RM 3040.83
LG	LED TV	RM 2949.00	11%	RM 324.39	RM 3273.39
	Plasma TV	RM 2849.00	10%	RM 284.90	RM 3133.90
	Smart TV	RM 3049.00	12%	RM 365.88	RM 3414.88
Toshiba	LED TV	RM 999.00	19%	RM 189.81	RM 1188.81
	Plasma TV	RM 1099.00	18%	RM 197.82	RM 1296.82
	Smart TV	RM 1199.00	20%	RM 239.80	RM 1438.80

7. FORMULA

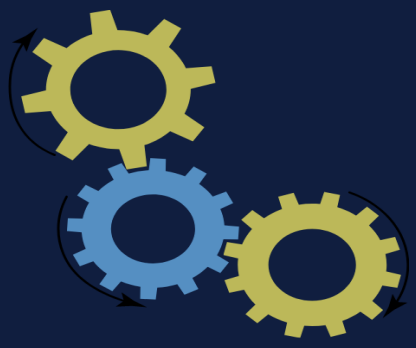
Variable	**Process**
profitprice (samsungled)	oriprice*0.18
profitprice (samsungplasma)	oriprice*0.17
profitprice (samsungsmart)	oriprice*0.19
profitprice (sonyled)	oriprice*0.14
profitprice (sonyplasma)	oriprice*0.13
profitprice (sonysmart)	oriprice*0.15
profitprice (panasonicled)	oriprice*0.14
profitprice (panasonicplasma)	oriprice*0.13
profitprice (panasonicsmart)	oriprice*0.15
profitprice (philipsled)	oriprice*0.16
profitprice (philipsplasma)	oriprice*0.15
profitprice (philipssmart)	oriprice*0.17
profitprice (LGled)	oriprice*0.11
profitprice (LGplasma)	oriprice*0.10
profitprice (LGsmart)	oriprice*0.12
profitprice (toshibaled)	oriprice*0.19
profitprice (toshibaplasma)	oriprice*0.18
profitprice (toshibasmart)	oriprice*0.20
custprice	oriprice + profitprice
installprice	oriprice*0.5
totalprice	custprice + installprice
balance	moneypaid - totalprice
totalprofit	profitprice + profitprice
storeprofit	totalprofit - expense

8. ALGORITHM

JACK'S TV



1. Customer walk in to the Jack's TV and been showed the type of the television and its brand.
2. Jack's TV staff will confirm with the customer the type and the brand of the television that they want to purchase and key-in it in the system..



3. The system will calculate the profit price of the television based on the profit margin of the brands and type of the television.
4. The system then will added the profit price with the price of the television.
5. The price that must been paid by the customer is calculated.
6. . Then the customers will be ask if they want a installation package from the store or will have a self-installation.
7. . The 5% charge will be added to the price if the customer pick the store package installation based on the price that must been paid by the customer.

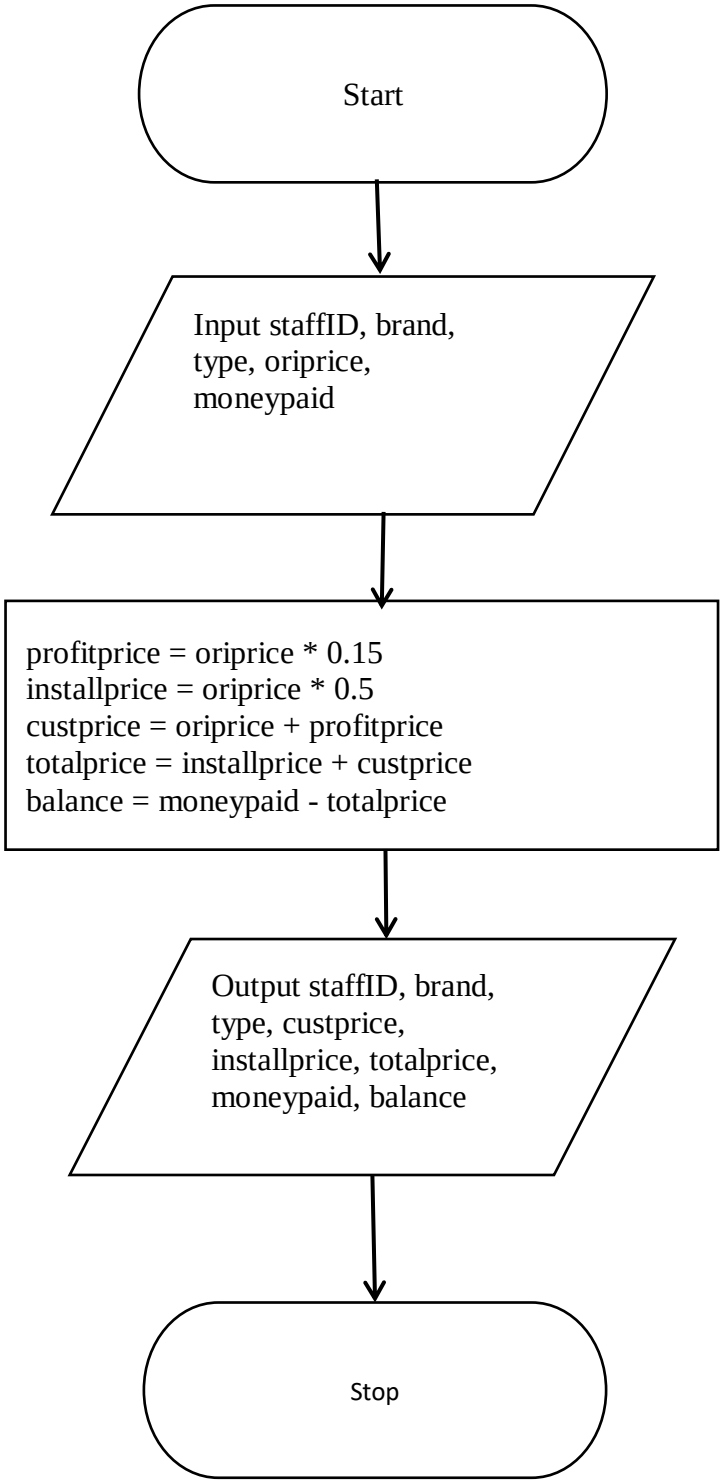
8. The total price will be shown to the customer to been paid.
9. The customers will be able to check about the warranty of the television that they purchase based on the brands of the television.
10. The customers give the money to make the purchase.

11. The staff will key-in the total money paid by the customer.
12. The system will shows the balance customer money for the purchase.
13. The system then will print the receipt of the purchase for the customers.

9. PSEUDOCODE

```
Start
    Output “Welcome to the Jack’s TV system”
    Output “Please insert your staff ID: ”
    Input staffID
    Output "Please enter the brand of the television: "
    Input brand
    Output "Please enter the type of the television: "
    Input type
    Output "Please enter the original price of the television: "
    Input oriprice
    Calculate profitprice = oriprice * 0.15
    Calculate installprice = oriprice * 0.5
    Calculate custprice = oriprice + profitprice
    Calculate totalprice = installprice + custprice
    Output "Please enter the amount paid: "
    Input moneypaid
    Calculate balance = moneypaid - totalprice
    Output “Welcome to the Jack’s TV”
    Output staffID
    Output brand
    Output type
    Output custprice
    Output installprice
    Output totalprice
    Output moneypaid
    Output balance
    Output "Thank you for choosing Jack’s TV"
End
```

10. FLOWCHART



11. CODING

```
package communication;

import java.util.Scanner;

public class television {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		//Scanner declaration to input
		Scanner sc = new Scanner(System.in);

		//Variable declaration
		int staffID ;
		String brand,type;
		double oriprice, moneypaid, custprice, installprice,
totalprice, profitprice, balance;

		//Staff key-in the staff ID, brand, type and the original
price
		System.out.println("Welcome to the Jack's TV system");
		System.out.println("Please insert your staff ID: ");
		staffID = sc.nextInt();
		System.out.println("Please enter the brand of the television:
");
		brand = sc.next();
		System.out.println("Please enter the type of the television:
");
		type = sc.next();
		System.out.println("Please enter the original price of the
television: ");
		oriprice = sc.nextDouble();

		//System calculate the profit price
		profitprice = oriprice * 0.15;
		//System calculate the 5% installation charge
	    installprice = oriprice * 0.05;
	    //System calculate the customer price
		custprice = oriprice + profitprice;
		//System calculate the total price that must been paid by the
customer
		totalprice = installprice + custprice;

		//System showed the total must been paid by the customer
		System.out.printf("The total price must been paid : RM  %.2f
", totalprice);
		System.out.println("");

		//Staff key-in money paid by the customer
		System.out.println("Please enter the amount paid: RM ");
		moneypaid = sc.nextDouble();

		//System calculate the balance for the customer
		balance = moneypaid-totalprice;
```

```
            //The system printout the receipt

      System.out.println("**********************************************
");
            System.out.println("Welcome to the Jack’s TV");

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

            System.out.println("Staff ID : " + staffID);
            System.out.println("Television Brand: " + brand);
            System.out.println("Television Type: " + type);
            System.out.printf("The price of the television is :RM  %.2f ",
custprice);
            System.out.print("\n");
            System.out.printf("The installation charge is :RM  %.2f ",
installprice);
            System.out.print("\n");
            System.out.println("----------------------------------------
-------");
            System.out.printf("The total price must been paid :RM  %.2f ",
totalprice);
            System.out.print("\n");
            System.out.println("----------------------------------------
-------");
            System.out.printf("The money paid by the customer: RM  %.2f ",
moneypaid);
            System.out.print("\n");
            System.out.printf("The balance for the customer is: RM  %.2f
", balance);
            System.out.print("\n");
            System.out.println("Thank you for choosing Jack’s TV");

      }


}
```

12. OUTPUT

```
Welcome to the Jack’s TV system
Please insert your staff ID:
12345
Please enter the brand of the television:
SAMSUNG
Please enter the type of the television:
SMART
Please enter the original price of the television:
2999.00
The total price must been paid : RM  3598.80
Please enter the amount paid: RM
4000.00
**********************************************
Welcome to the Jack’s TV
**********************************************
Staff ID : 12345
Television Brand: SAMSUNG
Television Type: SMART
The price of the television is :RM  3448.85
The installation charge is :RM  149.95
----------------------------------------------
The total price must been paid :RM  3598.80
----------------------------------------------
The money paid by the customer: RM  4000.00
The balance for the customer is: RM  401.20
Thank you for choosing Jack’s TV
```