Programming 1 (STIA1113)

ASSIGNMENT 2 TOPIC :

COMMUNICATION

(INTERNET, MOBILE PHONE, LAPTOP, SATELLITE, TV)

PROVIDED BY:

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INTERNET

1.0 UNDERSTAND THE PROBLEM

The Internet protocol suite (TCP/IP) is used to communicate between networks and devices in a global system of interconnected computer networks. It is a community of network made up of neighborhood to world private, public, academic, business and government networks linked through range of electrical, wireless and optical networking technologies. The Internet has reshaped, redefined or even bypassed most regular conversation media such ad telephone, radio, television, paper mail, and newspapers, resulting in new services such as email, smartphone, smart TV, online music, digital newspaper and video streaming websites. Newspapers, books and other forms of print media are adapting to website technological know-how or converted into blogging, network feeds and online new aggregators.

Internet is used for communications which in general, Internet users hold the Internet in high regard as a communication tool; 85% of men and women agree that the Internet is a good means to engage or communicate with others in their daily lives. However, that's where the parallel end. Men and women engage in other way online, in terms of how they communicate, what they communicate about and how essential their online communications are to them. Besides, all Internet customers maintain their net in excessive regard as a source of fact. Internet is the right supply of information for day-today pursuits like news, weather reports and sport activities score, in accordance to nearly all Internet customers. The identical variety of people say they assume to discover statistics about unique products they choose to buy, with men (82%) outnumbering women (77%0 in this category. 1/3 web customers say they expect to find sincere information about people on the Internet.

1.1 IDENTIFY PROBLEM

A slow connection makes it harder for people to upload file or even to surf the Internet. This might happen because they did not notice that they have insufficient amount of Internet usage. Connection velocity is principally decided by using the kind of Internet connection human have. There are numbers of common techniques for connecting to the Internet. For example, Internet connection via Wireless Network (WIFI) which is a wireless networks use frequencies like those used by other devices such as microwave ovens and cordless phones. FiOS (Fiber Optic Service) connects to the Internet via an optical network. FiOS is more likely to be available in densely populated areas. This sort of trouble gets worse especially in a household

with quite a lot of family members with the usage of only one Wi-Fi, village, or rural area. Students with online lessons have a hard time to have exact Internet connections. Even people who have proper Internet connections have issues to do work when tons of Internet data drainage happen again.

1.2 ALTERNATIVE WAYS

1. Use data saver to prevent consuming too much Internet data.

2. Disconnect any unactive devices to prevent Internet from stuck or factor in future growth in bandwidth requirements.

3. to get information on your daily data usage to control your data usage efficiently.

1.3 BEST WAYS

A system is created to show users how much data they have been using in their daily lives. By entering the amount of data in megabytes, the user can access information on how much data has been used per minute, hour, and month. The user is also given the option of either getting extra information on how much data has been used for various activities such as uploading or downloading photos, streaming videos, listening to songs, and many more, or skipping the extra information and reviewing the system again with a different amount of data.

1.4 INSTRUCTIONS FOR SELECTED SOLUTION

1. A quick instruction will appear on the main menu where the user can check daily data usage and also get additional information below.

2. User need to enter the data in megabytes and fill in the times in minutes, hours, and months.

3. Using the formula provided, the programme will calculate the amount, total, and average of data usage that has been entered.

4. Control structure selection (if and else statement) is used in which a message is presented and the user is given the option of receiving extra information or not by entering 'Y' which defines yes and 'N' which defines no. If the user enters 'N,' the system will end with the message "Thankyou!".

5. If the user enters 'Y,' the system provides various activities in accordance with the arrangement illustrated below:

a) Uploading and dowloading photo

b) Streaming videos (standard definition and high definition)

c) Listening to songs

d) Sending emails

e) Web surfing

f) Online gaming

g) Social networking

6. If and else statement is also used, allowing the user to can choose whether or not gain knowledge about the data usage for the specified activity. If user enters 'Y,' the system will prompt the user to enter the quantity of the item. If the user enters 'N,' the system skips the activity and asks the same question to the next one.

7. The do..while loop is used to determine whether or not the user want to try again . If the user enters 'Y,' the system restarts and the user can enter a different amount of data. If the user enters 'N,' the system will end with the message "Thankyou."

1.5 EVALUATE SOLUTION

Based on the solution given, user need to control their Internet usage to maintain a good Wi-fi connection where they can do lots of activities without needing to be frustrated for having a weak Wi-fi connection.

1.5 CALCULATION TABLE

No.	Type of Calculation	Formula	Example
1.	To calculate the data usage per minutes, data usage per hour and data usage per months	Data usage = data / time (Data in Megabytes)	Data usage = 5000 / 45 = 111.11
2.	To calculate total data usage	Total data usage = data usage per minutes + data usage per hour + data usage per months	Total data usage = 111.11 + 416.67 + 833.33 = 1361.11
3.	To calculate average data usage	Average data usage = (data usage per minutes + data	Average data usage = (111.11 + 416.67 + 833.33) / 3

		usage per hour + data usage per months) / 3	= 453.70
4.	To calculate data usage to upload and download photo	Data usage = 5MB * photo	Data usage per photo = 5 * 350 = 1750
5.	To calculate data usage for streaming video	Data usage = 750MB * hours of streaming standard definition video Data usage = 2000MB * hours of streaming high-definition video	Data usage = 750 * 4 = 3000 Data usage = 2000 / 6 = 12000
6.	To calculate data usage for streaming music	Data usage = 6.5MB * total every 4 minutes of songs	Data usage = 6.5 * 12 = 78
7.	To calculate data usage for emailing	Data usage = 0.02MB * email	Data usage = 0.02 * 100 = 2
8.	To calculate data usage for web surfing	Data usage = 18MB * hours of web surfing	Data usage = 18 * 6 = 108
9.	To calculate data usage for online gaming	Data usage = 20MB * hours of online gaming	Data usage = 20 * 16 = 320
10.	To calculate data usage for social networking	Data usage = 51MB * hours of social networking	Data usage = 51 * 8 = 408

1.6 ALGORITHM

1. User enter data in megabytes.

2. User enter time in minutes, hours, and months.

3. Calculate data usage per minute = data (megabytes) / minutes

   Calculate data usage per hours = data (megabytes) / hours

   Calculate data usage per months = data (megabytes) / months

   Total data usage = data per minutes + data per hours + data per months

   Average data usage = (data per minutes + data per hours + data per months) / 3

4. Output will display data usage per minutes, hours and month, total data usage and average data usage.

5. user enter ‘Y’ or ‘N’ to either continue with extra information or end the system.

6. user enter ‘Y’ or ‘N’ to know about first activity. If ‘Y’, user enter number of photo. If ‘N’, system will skip the activity and will repeat the same statement until last activity.

7. Calculate data usage per photo = 5 x photos

Calculate data usage per hours of standard definition video = 750 x hours

Calculate data usage per hours of high-definition video = 2000 x hours

Calculate data usage per total amount of every 4 minutes of songs = 6.5 x total 4 minutes

Calculate data usage per emails = 0.02 x emails

Calculate hours of web surfing = 18 x hours

Calculate hours of online gaming = 20 x hours

Calculate hours of social networking = 51 x hours

7. Output will display data usage for downloading and uploading photos, streaming standard, and high-definition video, listening to songs, sending emails, web surfing, online gaming, and social networking.

8. User enter 'Y' or 'N' either to try again or end the system. If 'Y', program will start again from above. If 'N' program will end.

1.7 PSEUDOCODE

Start

Input d1, t1, t2, t3

Data usage per time given = d1 /t1, d1 / t2. d1 / t3

Output data usage per time given

Input s1, s2, s3

Total data usage = s1 + s2 + s3

Output total data usage

Input a1

Average data usage = (s1 + s2 + s3) /3

Output average data usage

If (extra == 'Y')

Print message

Else

Print Thankyou

If (photo == 'Y')

Input i1

Data usage per photo = 5*i1

Output data usage for downloading and uploading photos

Else if (video == ‘Y’)

Input i2,i3

Data usage per hour = 750*i2, 2000*i3

Output data usage for streaming standard and high definition video

Else if (song == ‘Y’)

Input i4

Data usage per total of 4 minutes = 6.5*i4

Output data usage for listening to songs

Else if (email == ‘Y’)

Input i5

Data usage per email = 0.02*i5

Output data usage for sending emails

Else if (web == ‘Y’)

Input i6

Data usage per hour = 18*i6

Output data usage for web surfing

Else if (game == ‘Y’)

Input i7

Data usage per hour = 20*i7

Output data usage for online gaming

Else if (social == ‘Y’)

Input i8

Data usage per hour = 51*i8

Output data usage for social networking

Else

Output (“ ”)

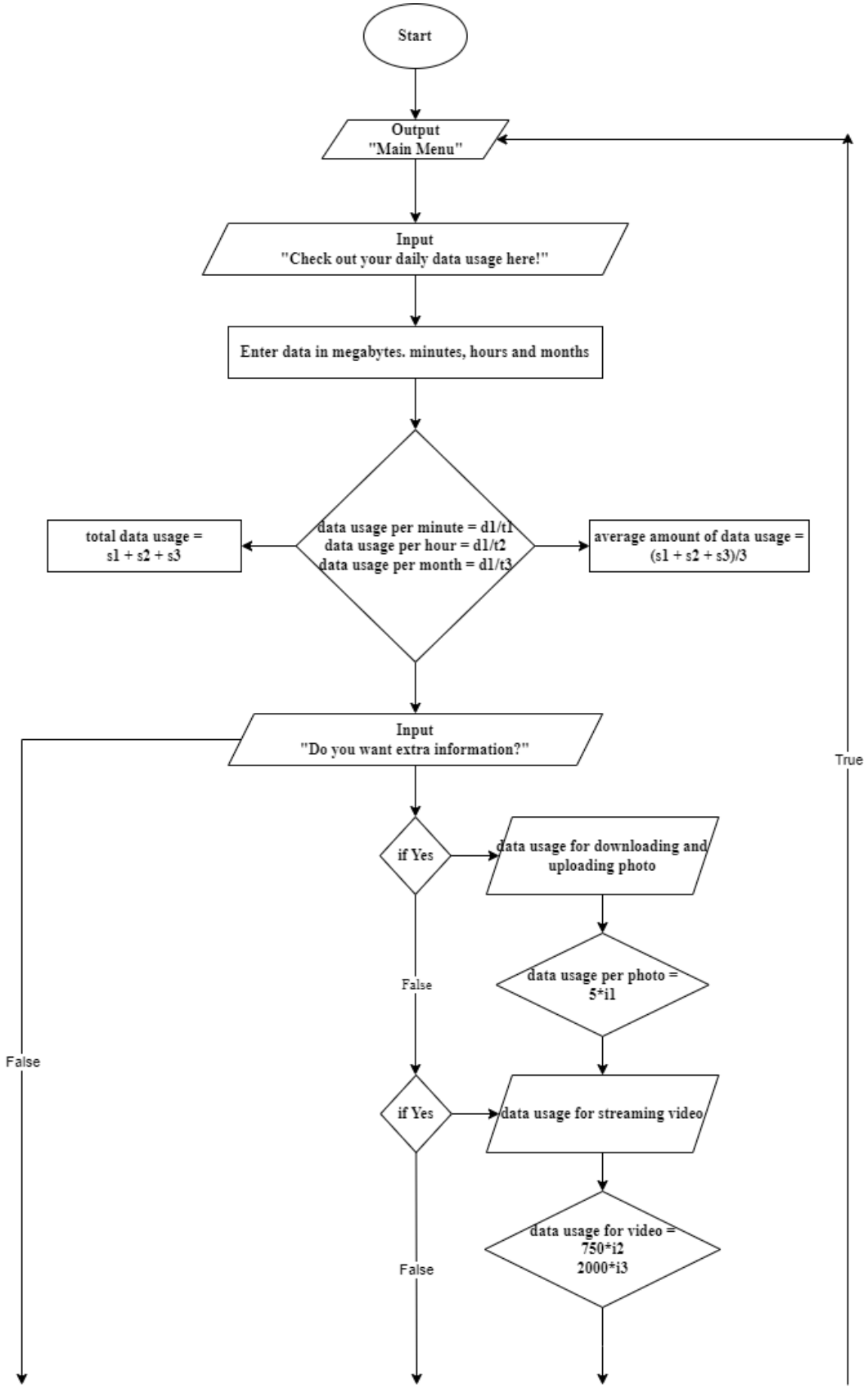
Do While (cont == ‘Y’)

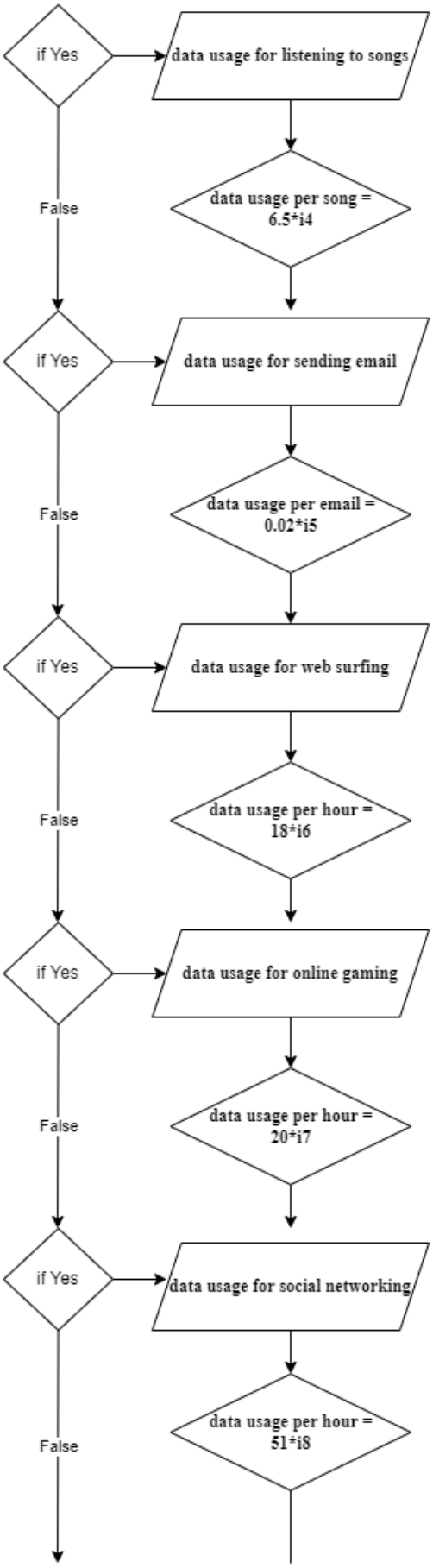
Output cont

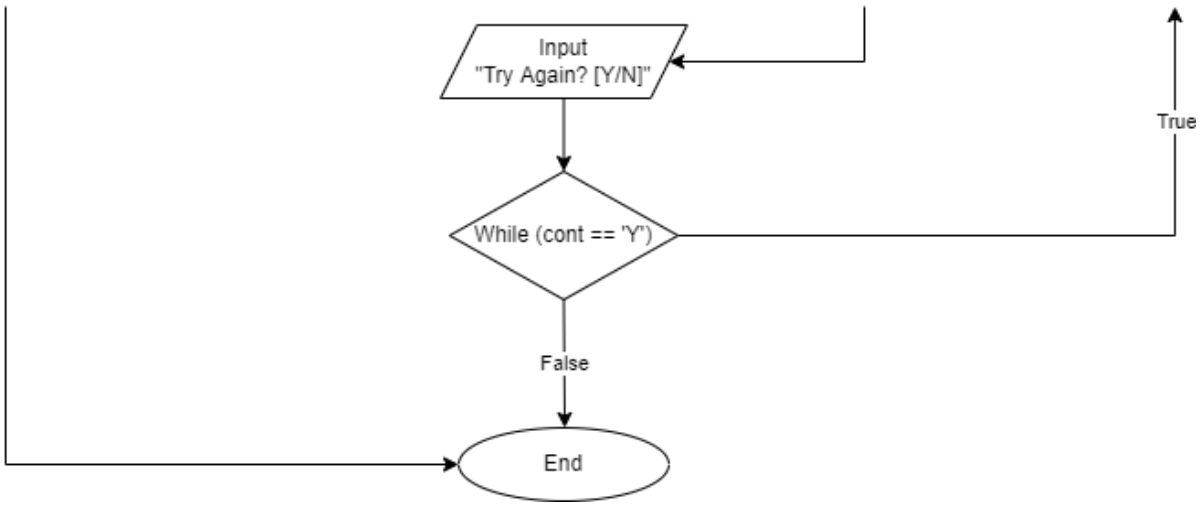
End while

End

1.8 FLOW CHART


Start
Output
"Main Menu"
Input
"Check out your daily data usage here!"
Enter data in megabytes. minutes, hours and months
data usage per minute = d1/t1
data usage per hour = d1/t2
data usage per month = d1/t3
total data usage =
s1 + s2 + s3
average amount of data usage =
(s1 + s2 + s3)/3
Input
"Do you want extra information?"
True
False
if Yes
data usage for downloading and
uploading photo
data usage per photo =
5*i1
False
if Yes
data usage for streaming video
data usage for video =
750*i2
2000*i3
False


if Yes
data usage for listening to songs
data usage per song = 6.5*i4
False
if Yes
data usage for sending email
data usage per email = 0.02*i5
False
if Yes
data usage for web surfing
data usage per hour = 18*i6
False
if Yes
data usage for online gaming
data usage per hour = 20*i7
False
if Yes
data usage for social networking
data usage per hour = 51*i8
False



MOBILE PHONE

2.0 UNDERSTAND THE PROBLEM

Mobile phone is a compact phone that can settle on and get decisions over a radio recurrence interface while the client is moving inside a telephone utility region. The radio recurrence interface sets up an association with the exchanging frameworks of a mobile phone administrator, which gives admittance to the public exchanged phone organization (PSTN). Current mobile phone administrations utilize a phone network engineering and in this manner, mobile phones are called cellular telephones or cell phones in North America. Notwithstanding communication, computerized cell phones (2G) support an assortment of different administrations, for example, message informing, MMS, email, Internet access, short-range remote correspondences (infrared, Bluetooth), business applications, computer games and advanced photography. Mobile phones offering just those capacities are known as element telephones; mobile phones which offer extraordinarily progressed figuring abilities are alluded to as mobile phones. Mobile phones were invented as early as the 1940s when engineers working at AT&T developed cells for mobile phone base stations. The first mobile phones were not really mobile phones at all. They were two-way radios that allowed people like taxi drivers and the emergency services to communicate. Mobile phones are important today because they are efficient communication devices and more appearance in our life to make life easier. We can contact our family members or friends in the other places through the mobile phone. We can also use a mobile phone to do other things such as entertainment, doing the job and others. Nowadays, new mobile phone models are constantly engineered to satisfy the needs of consumers and now have multifunctional tools that may be useful in everyday life. So that,

the features or configuration in a mobile phone is very important to satisfy the consumers. The accessories of mobile phone also important nowadays. The main purpose of buying cell phone accessories is safety. They also help us take full advantage of our mobile phones. So that, a mobile phone with the best features or configuration and accessories needs to be produced by the factories to the consumers.

2.1 IDENTIFY THE PROBLEM

The best features of configuration of a mobile phone need to has the best processor, RAM (Random Access Memory), storage, camera, screen technology and battery. The processor is the central hub of mobile phone such as Snapdragon 888, Snapdragon 855, Exynos 2100 and Kirin 9000. It receives and executes every command, performing billions of calculations per second. RAM is storage used for a place to hold data and the RAM has different type of storage such as 4, 6 and 8 GB RAM. The storage is like the hard drive in computer to help us to keep our information such as 32 GB, 64 GB, 128 GB, 256 GB and 256 GB storage. The camera can capture photographs and often record video such as 16 MP, 32 MP and 64 MP Camera. The screen technology is enabling the user to interact directly with what is displayed such as AMOLED and IPS. The battery is a small container of chemical energy that support electric to the mobile phone such as 4300 mAh, 5000 mAh and 6400 mAh battery. The accessories like earbuds, screen protector, power bank, charger, and phone case are created to satisfy the consumers. Earbuds such as Jabra Elite 75t Earbuds can help consumers to focus on the listening to the voice message or music when they are using mobile phones. Screen protector like Maxboost Tempered Glass Screen Protector can help consumers to protect their mobile phones' screen safety. Power bank such as iMuto 20,000mah power bank can help consumers to have a moving battery and can use it when their mobile phones are out of battery. So that, a mobile phone accessories and repair shop need to purchase all above things to satisfy consumers when they are visiting to their shop and the consumers can choose the best accessories and configuration by themselves.

2.2 ALTERNATIVE WAYS

(a) A program that can help shop owner to purchase the accessories and configurations quickly and calculate the instalment is important that can let the shop owner to save their time. The program will total up the price, calculate the shipping fee and give a discount and then will

calculate the instalment for customer for 1 year or 12 months or 2 year or 24 months for paying the payment with the interest rate if customer choose to pay with instalment.

(b) The shop owner goes to the factories to purchase the accessories and configurations by himself.

2.3 BEST WAY

A program that can help shop owner to purchase the accessories and configurations quickly and calculate the instalment is important that can let the shop owner to save their time. The program will total up the price, calculate the shipping fee and give a discount and then will calculate the instalment for customer for 1 year or 12 months or 2 year or 24 months for paying the payment with the interest rate if customer choose to pay with instalment.

2.4 INSTRUCTION FOR SELECTED SOLUTION

1. The consumers key in all the information detail such as name, ic, phone number and address.

2. The program will come out the configuration and accessories flow by flow for consumers to key in the accessories and configurations they want to purchase from the supplier.

3. The configurations and accessories have processor, RAM, storage, camera, screen technology, battery, earbuds, screen protector, power bank, charger, and phone case.

4. The program will get the configuration and accessories that choose by the customers.

5. The program will calculate the price accessories and configuration base on the choose that customer key in on each configuration and accessories.

6. The program will calculate the total price for the consumers

7. The program will calculate the total price after discount

8. The program will calculate the fees that consumers should pay every month if customer choose to pay with instalment

9. The program will print out a receipt for the consumers as the reference.

2.5 EVALUATE THE SOLUTION

The program is easier use by the consumers and they can know how much they should pay and they know they pay for what and this program is saving their time. They will not worry about the performance of the mobile phone because the configuration and the accessories are the best and chosen by them. Besides that, they will also satisfy to their own choices and make a mobile phone's best features or configurations by themselves.

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2.6 ALGORITHM

Totalprice = processor + ram + storage + camera + screen technology + battery + earphone + power bank + phone case + screen protector + shippingfee

Discount = totalprice * 0.10

Total price after discount = totalprice – discount

Change = Amount tendered - Total price after discount

Instalment amount if 12 months = Total price after discount * 0.04

Instalment amount if 24 months = Total price after discount * 0.05

Total should pay if instalment is 12 months = Instalment amount if 12 months + Total price after discount

Total should pay if instalment is 24 months = Instalment amount if 24 months + Total price after discount

Total should pay monthly if instalment is 12 months = Total should pay if instalment is 12 months / 12

Total should pay monthly if instalment is 24 months = Total should pay if instalment is 24 months / 24

2.7 PSEUDOCODE

Start

Output Details of Shop

Output “Enter your name.”

Input name

Output “Enter your IC.”

Input IC

Output “Enter your phone number.”

Input phone number

Output “Enter your address.”

Input address

Output “We have these processors!”

Input processor

If processor =1

Output “You choose Snapdragon 888 and the price is RM 2000”

If processor =2

Output “You choose Snapdragon 855 and the price is RM 800”

If processor =3

Output “You choose Exynos 2100 and the price is RM 800”

If processor =4

Output “You choose Kirin 9000 and the price is RM 1200”

Output “We have these Ram!”

Input ram

If ram =1

Output “You choose 4 GB Ram and the price is RM 200”

If ram =2

Output “You choose 6 GB Ram and the price is RM 400”

If ram =3

Output “You choose 8 GB Ram and the price is RM 500”

Output “We have these storage!”

Input storage

If storage =1

Output “You choose 32 GB storage and the price is RM 300”

If storage =2

Output “You choose 64 GB storage and the price is RM 400”

If storage =3

Output “You choose 128 GB storage and the price is RM 600”

If storage =4

Output “You choose 256 GB storage and the price is RM 800”

Output “We have these camera!”

Input camera

If camera=1

Output “You choose 16 MP camera and the price is RM 100”

If camera =2

Output “You choose 32 MP camera and the price is RM 200”

If camera =3

Output “You choose 64 MP camera and the price is RM 300”

Output “We have these screen technology!”

Input screen

If screen =1

Output “You choose AMOLED and the price is RM 1000”

If screen =2

Output “You choose IPS and the price is RM 700”

Output “We have these battery!”

Input battery

If battery =1

Output “You choose battery 4300 mAh and the price is RM 100”

If battery =2

Output “You choose battery 5000 mAh and the price is RM 200”

If battery =3

Output “You choose battery 6400 mAh and the price is RM 300”

Output “Do you want to purchase earphone for RM 25? YES(Y) or No(N)”

Input earphone

If earphone = ‘Y’ or ‘y’

Output “Thank you! You add on earphone completely!”

If earphone = ‘N’ or ‘n’

Output “Alright thank you.”

Output “Do you want to purchase screen protector for RM 10? YES(Y) or No(N)”

Input screenprotector

If screenprotector = ‘Y’ or ‘y’

Output “Thank you! You add on screen protector completely!”

If screenprotector = ‘N’ or ‘n’

Output “Alright thank you.”

Output “Do you want to purchase power bank for RM 50? YES(Y) or No(N)”

Input powerbank

If powerbank = ‘Y’ or ‘y’

Output “Thank you! You add on power bank completely!”

If powerbank = ‘N’ or ‘n’

Output “Alright thank you.”

Output “Do you want to purchase phone case for RM 10? YES(Y) or No(N)”

Input phonecase

If phonecase = ‘Y’ or ‘y’

Output “Thank you! You add on phone case completely!”

If phonecase = ‘N’ or ‘n’

Output “Alright thank you.”

Output “What is the place you live and we can delivery to you. South(S) or North(N)”

Input shippingfee

Totalprice = processor + ram + storage + camera + screen technology + battery + earphone + power bank + phone case + screen protector + shippingfee

Discount = totalprice * 0.10

Total price after discount = totalprice – discount

Output “The total price is : RM ”

Output “We will give you 10% discount!!!”

Output “Discount : RM ”

Output “Total price after discount : RM ”

Output “Please choose your payment types”

Output “Please enter [C] as cash or [I] as instalment”

Input payment

If payment = ‘C’ or ‘c’

Output “The total amount you should pay after discount is : RM ”

Output “Please enter your amount tendered : RM ”

Input tendered

Change = tendered – price

Output “Thank you!!!”

Output “This is your receipt”

Output “*****RECEIPT*****”

Output “*****DUDUDU ACCESSORIES SHOP*****”

Output “*****CONTACT NUMBER: 016-3672588*****”

Output “Consumer Detail”

Output “Name”

Output “IC”

Output “Phone number”

Output “Address”

Output “This is the accessories of your mobile phone!”

If processor =1

Output “Processor: Snapdragon 888”

If processor =2

Output “Processor: Snapdragon 855”

If processor =3

Output “Processor: Exynos 2100”

If processor =4

Output “Processor: Kirin 9000”

If ram =1

Output “Ram: 4 GB Ram”

If ram =2

Output “Ram: 6 GB Ram”

If ram =3

Output “Ram: 8 GB Ram”

If storage =1

Output “Storage: 32 GB storage”

If storage =2

Output “Storage: 64 GB storage”

If storage =3

Output “Storage: 128 GB storage”

If storage =4

Output “Storage: 256 GB storage”

If camera =1

Output “Camera: 16 MP camera”

If camera =2

Output “Camera: 32 MP camera”

If camera =3

Output “Camera: 64 MP camera”

If screen =1

Output “Screen Technology: AMOLED”

If screen =2

Output “Screen Technology: IPS”

If battery =1

Output “Battery: 4300 mAh”

If battery =2

Output “Battery: 5000 mAh”

If battery =3

Output “Battery: 6400 mAh”

Output “You have purchase these accessories!!!”

If earphone = ‘Y’ or ‘y’

Output “Earphone”

If screenprotector = ‘Y’ or ‘y’

Output “Screen Protector”

If powerbank = ‘Y’ or ‘y’

Output “Power bank”

If phonecase = ‘Y’ or ‘y’

Output “Phone case”

Output “Total price”

Output “Discount”

Output “Total price after discount”

Output “Amount tendered”

Output “Change”

Output “*****THANK YOU!!! PLEASE COME AGAIN******”

If payment = ‘I’ or ‘I”

Output “Instalment for 12 months’ duration = 4% interest rate”

Output “Instalment for 24 months’ duration = 5% interest rate”

Output “Please enter [12] for 12 months’ duration, [24] for 24 months’ duration”

Input month

If month =12

Output “You choose 12 months’ duration.”

Instalment = price * 0.04

Instalmentpay = price + instalment

Instalmentpaymonth = instalmentpay / 12

Output “Total instalment amount”

Output “Total balance should pay”

Output “Total should pay monthly”

If month =24

Output “You choose 24 months’ duration.”

Instalment = price * 0.05

Instalmentpay = price + instalment

Instalmentpaymonth = instalmentpay / 24

Output “Total instalment amount”

Output “Total balance should pay”

Output “Total should pay monthly”

Output “Thank you!!!”

Output “This is your receipt”

Output “*****RECEIPT*****”

Output “*****DUDUDU ACCESSORIES SHOP*****”

Output “*****CONTACT NUMBER: 016-3672588*****”

Output “Consumer Detail”

Output “Name”

Output “IC”

Output “Phone number”

Output “Address”

Output “This is the accessories of your mobile phone!”

If processor =1

Output “Processor: Snapdragon 888”

If processor =2

Output “Processor: Snapdragon 855”

If processor =3

Output “Processor: Exynos 2100”

If processor =4

Output “Processor: Kirin 9000”

If ram =1

Output “Ram: 4 GB Ram”

If ram =2

Output “Ram: 6 GB Ram”

If ram =3

Output “Ram: 8 GB Ram”

If storage =1

Output “Storage: 32 GB storage”

If storage =2

Output “Storage: 64 GB storage”

If storage =3

Output “Storage: 128 GB storage”

If storage =4

Output “Storage: 256 GB storage”

If camera =1

Output “Camera: 16 MP camera”

If camera =2

Output “Camera: 32 MP camera”

If camera =3

Output “Camera: 64 MP camera”

If screen =1

Output “Screen Technology: AMOLED”

If screen =2

Output “Screen Technology: IPS”

If battery =1

Output “Battery: 4300 mAh”

If battery =2

Output “Battery: 5000 mAh”

If battery =3

Output “Battery: 6400 mAh”

Output “You have purchase these accessories!!!”

If earphone = ‘Y’ or ‘y’

Output “Earphone”

If screenprotector = ‘Y’ or ‘y’

Output “Screen Protector”

If powerbank = ‘Y’ or ‘y’

Output “Power bank”

If phonecase = ‘Y’ or ‘y’

Output “Phone case”

Output “Total price”

Output “Discount”

Output “Total price after discount”

Output “Total instalment amount”

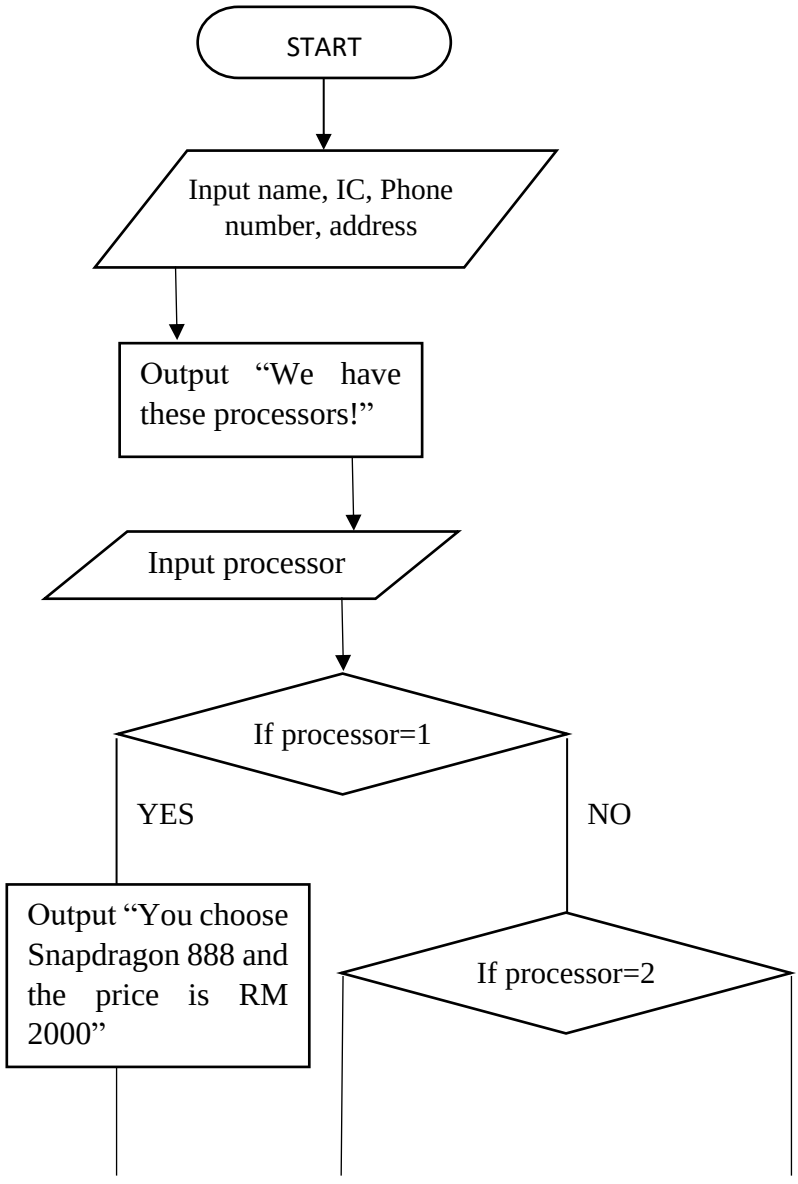
Output “Total balance should pay”

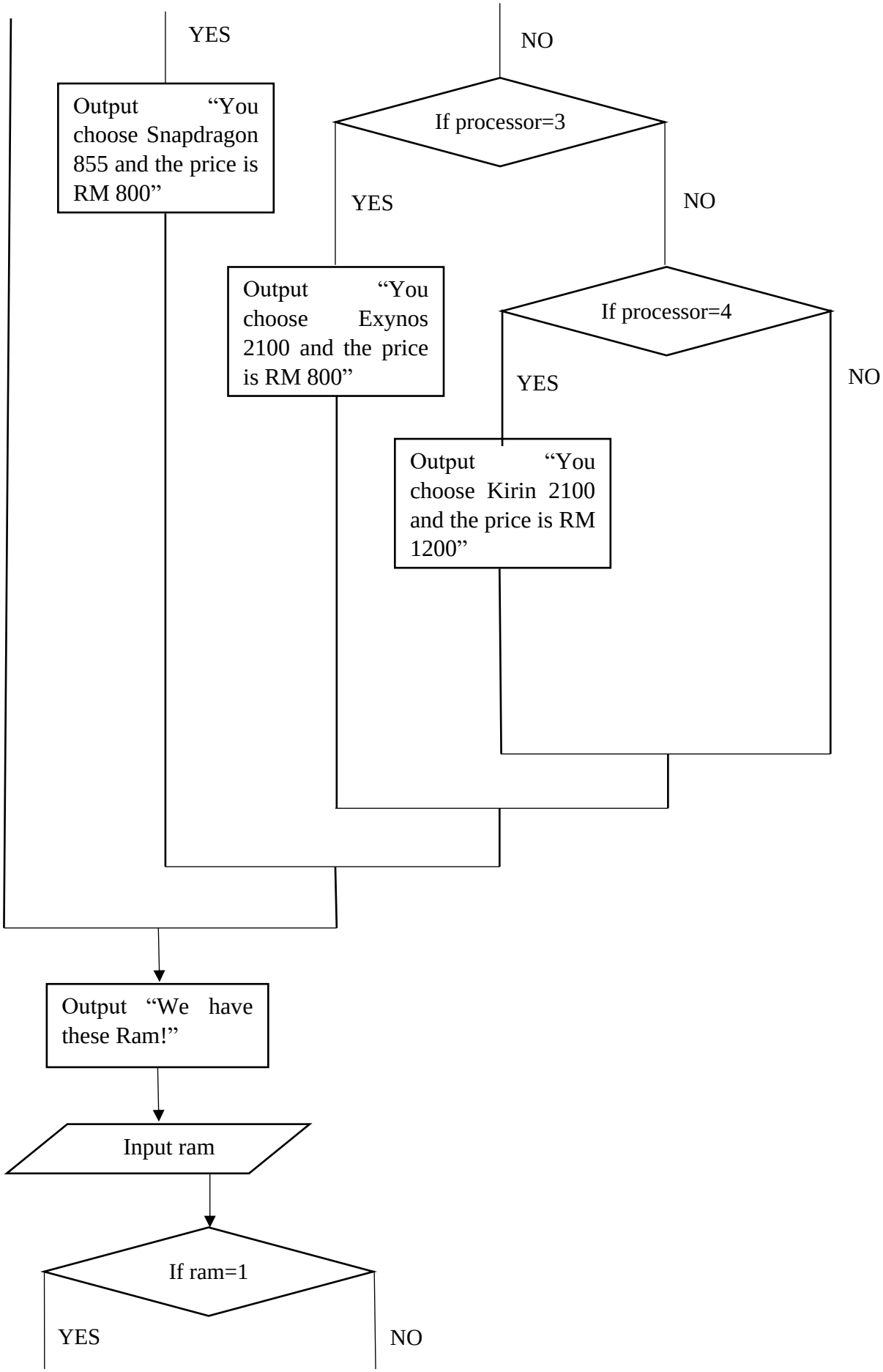
Output “Total should pay monthly”

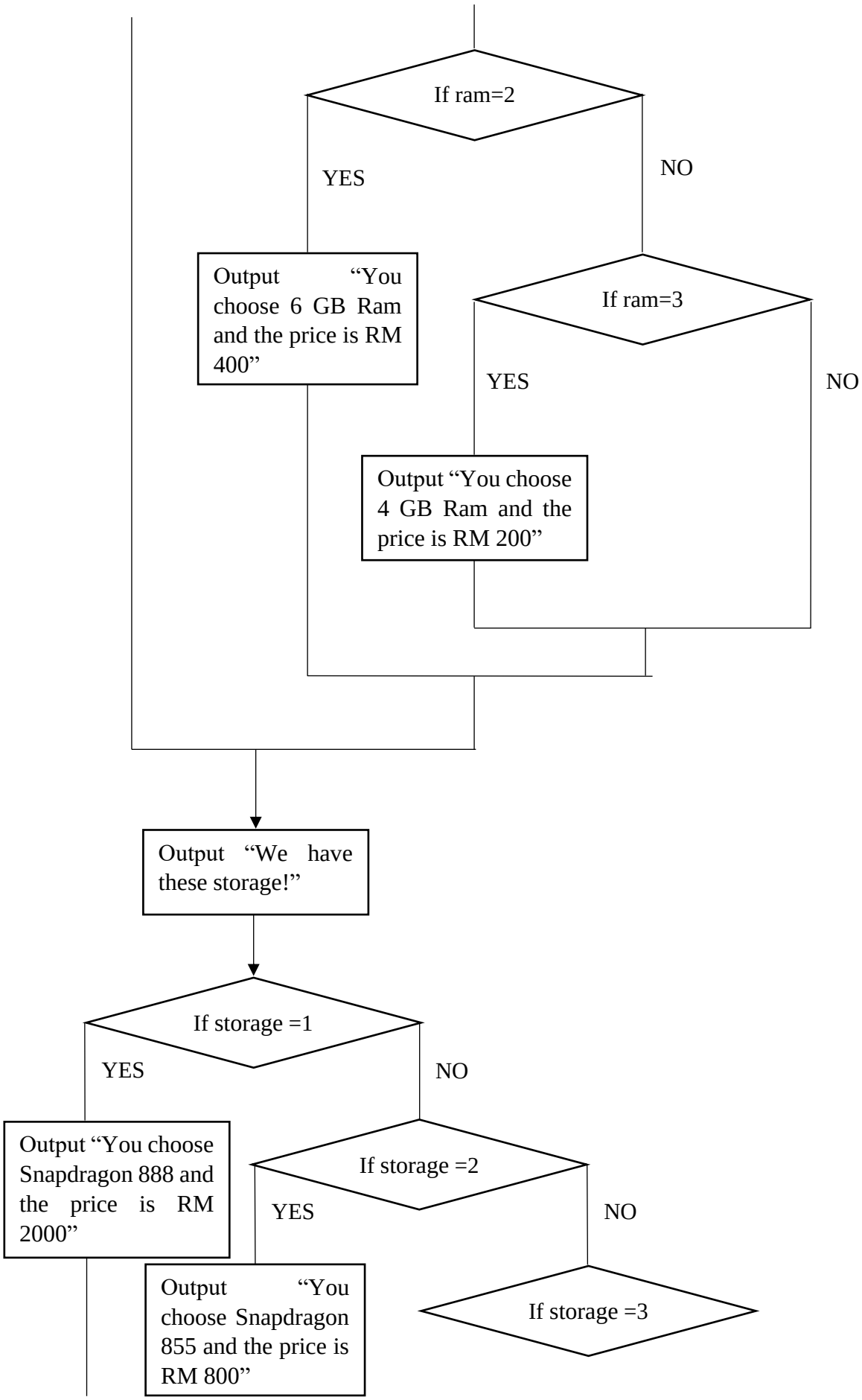
Output “*****THANK YOU!!! PLEASE COME AGAIN******”

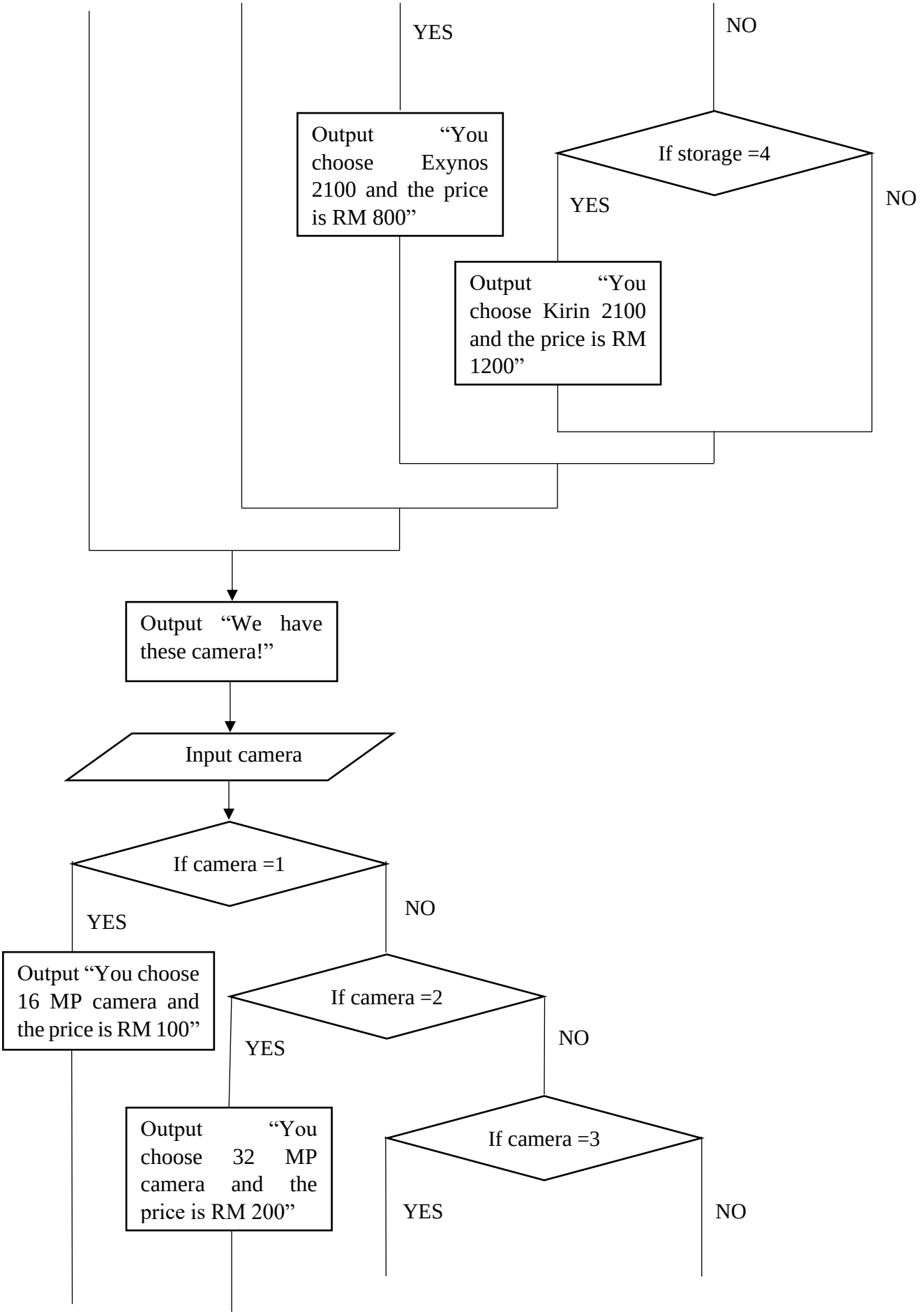
End

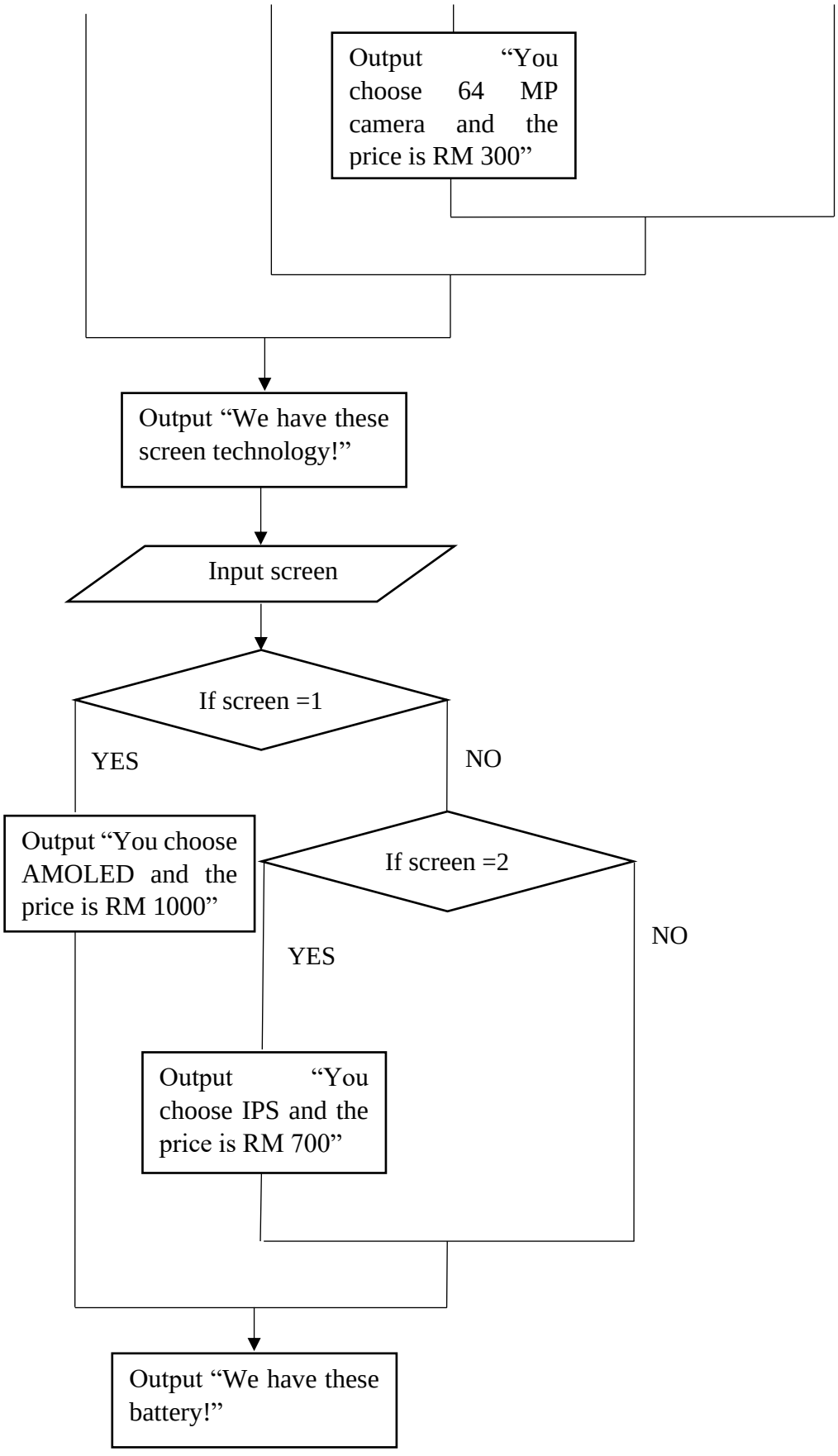
2.8 FLOW CHART

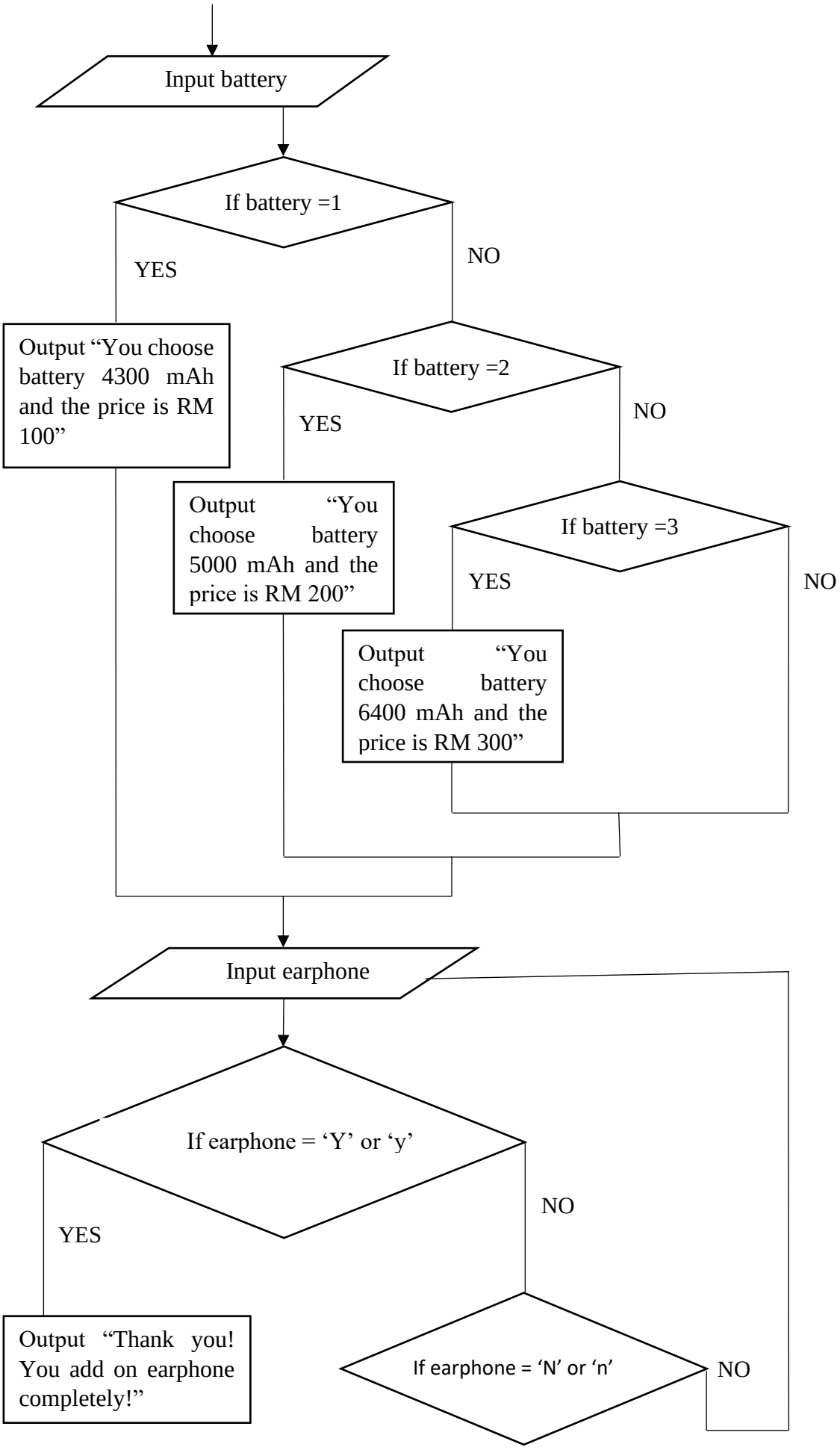


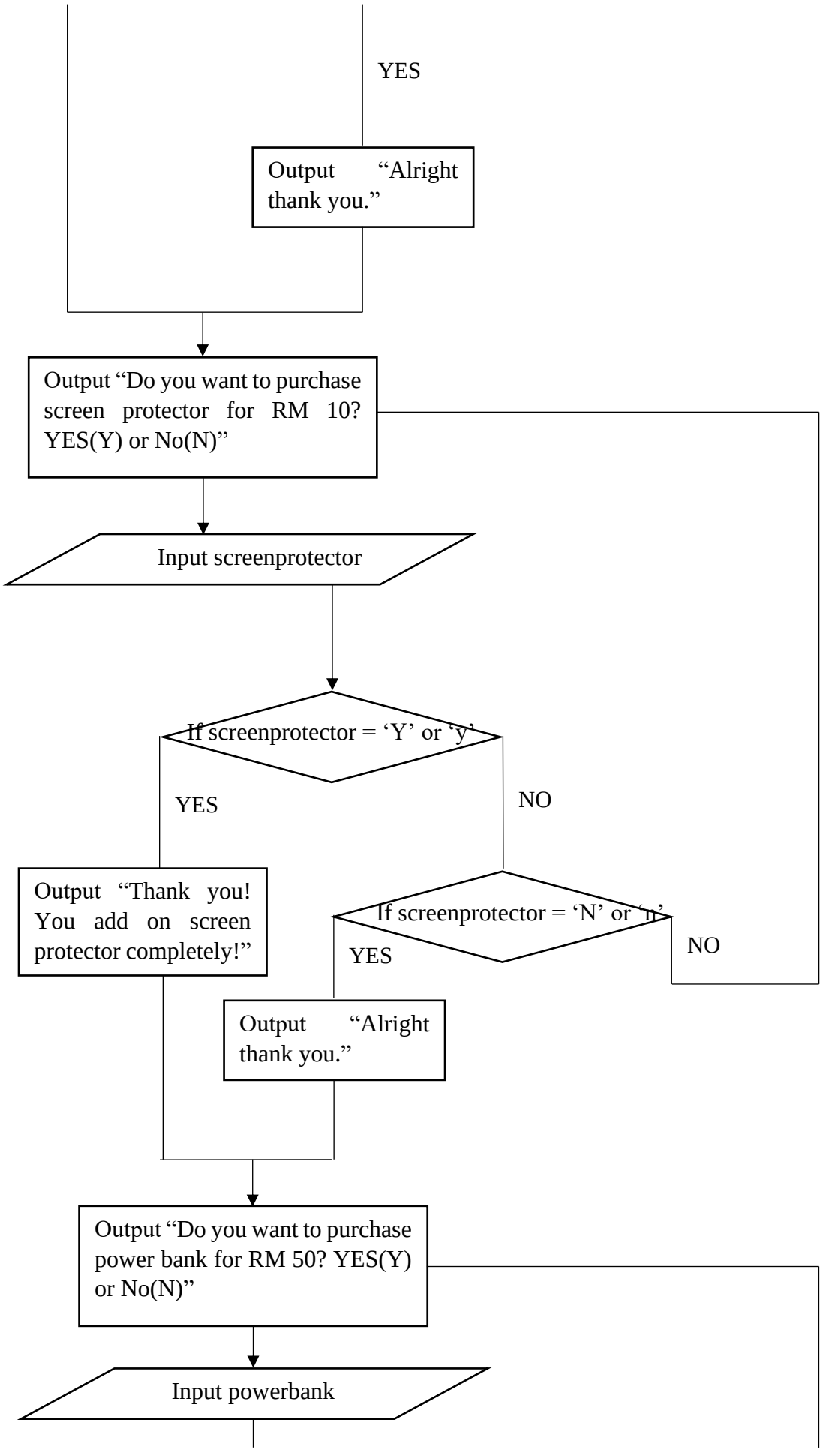

YES
NO
Output "You choose Snapdragon 855 and the price is RM 800"
If processor=3
YES
NO
Output "You choose Exynos 2100 and the price is RM 800"
If processor=4
YES
NO
Output "You choose Kirin 2100 and the price is RM 1200"
Output "We have these Ram!"
Input ram
If ram=1
YES
NO

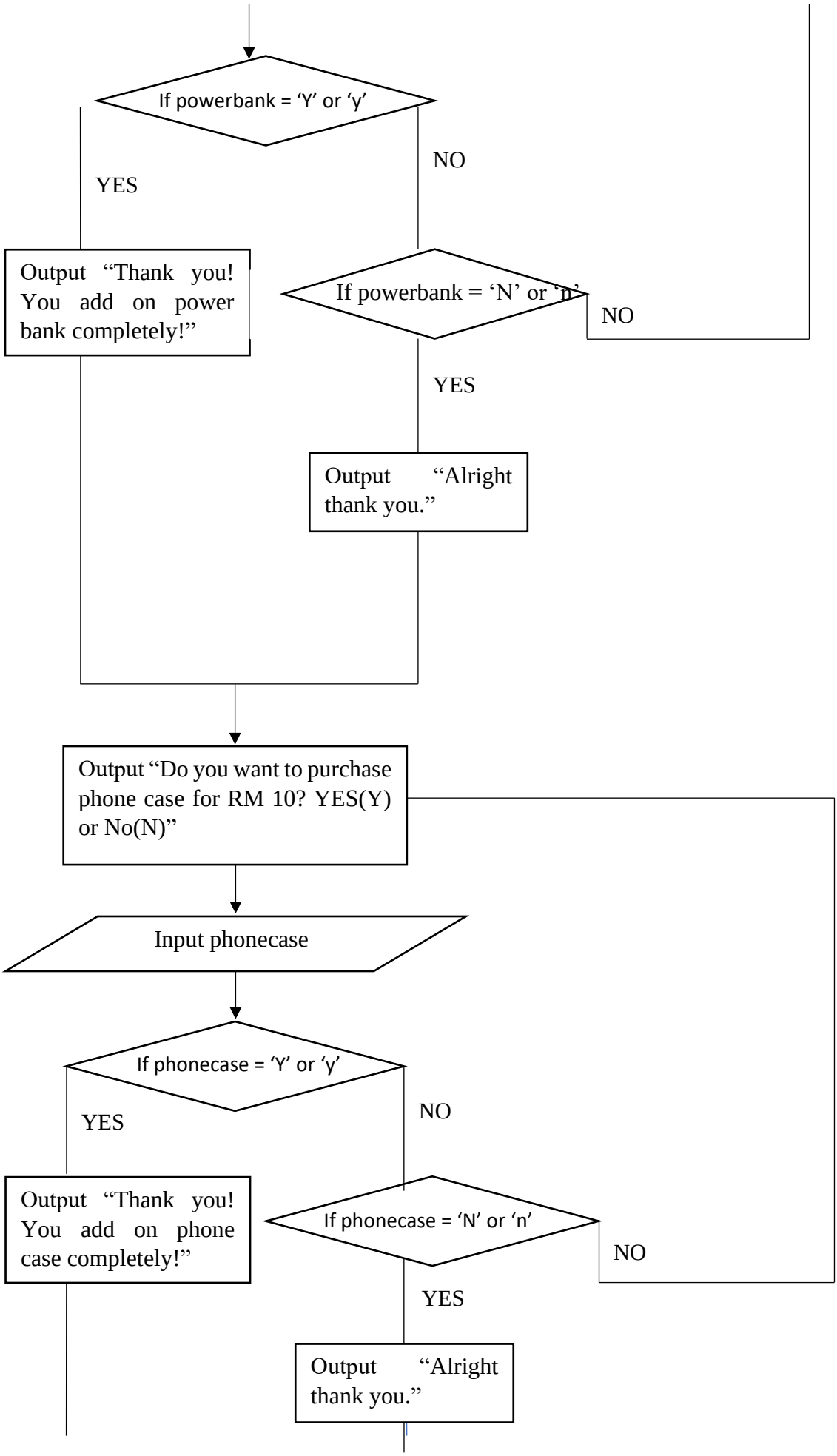

If ram=2
YES
NO
Output "You choose 6 GB Ram and the price is RM 400"
If ram=3
YES
NO
Output "You choose 4 GB Ram and the price is RM 200"
Output "We have these storage!"
If storage =1
YES
NO
Output "You choose Snapdragon 888 and the price is RM 2000"
If storage =2
YES
NO
Output "You choose Snapdragon 855 and the price is RM 800"
If storage =3

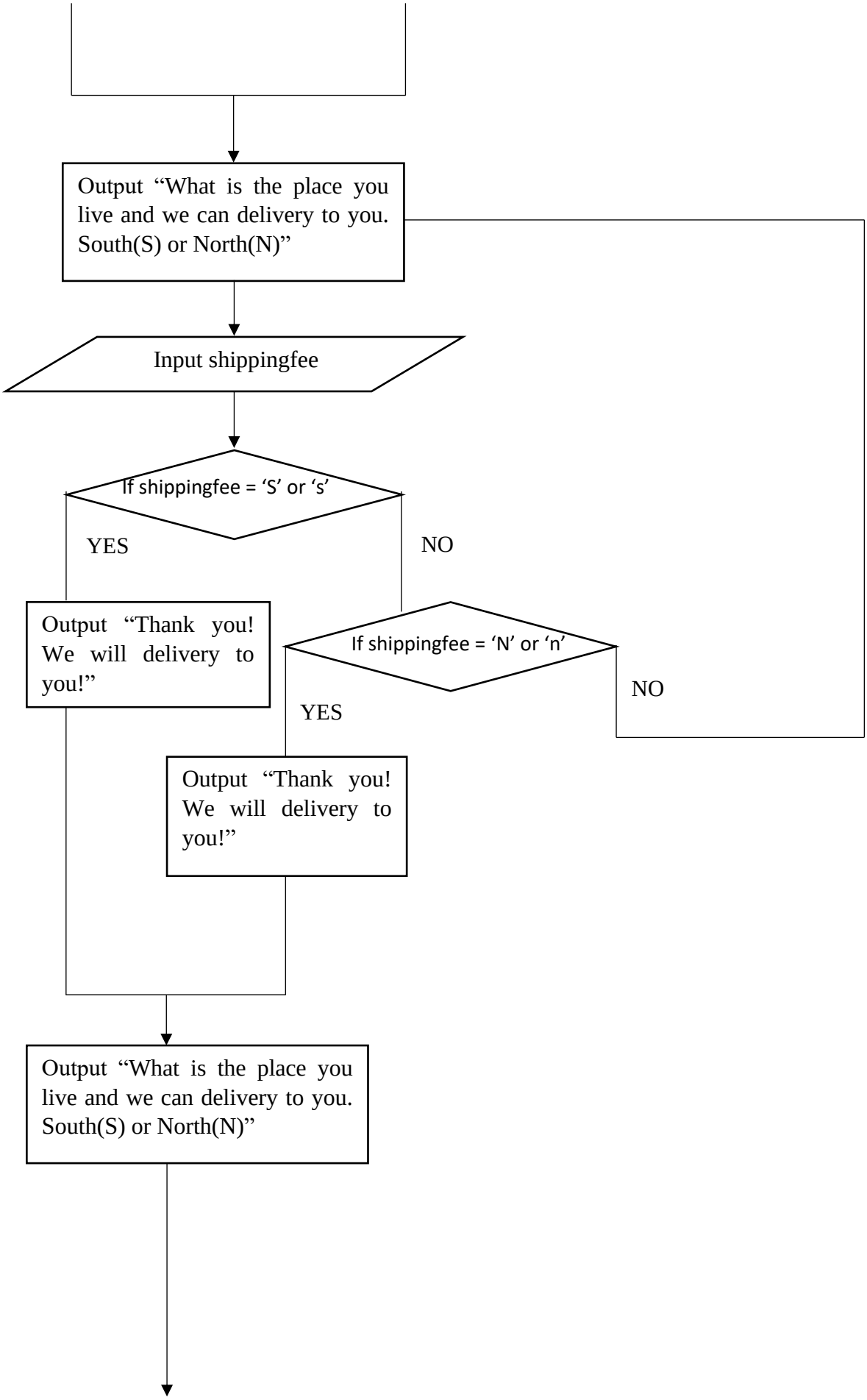

YES
NO
Output "You choose Exynos 2100 and the price is RM 800"
If storage =4
YES
NO
Output "You choose Kirin 2100 and the price is RM 1200"
Output "We have these camera!"
Input camera
If camera =1
YES
NO
Output "You choose 16 MP camera and the price is RM 100"
If camera =2
YES
NO
Output "You choose 32 MP camera and the price is RM 200"
If camera =3
YES
NO

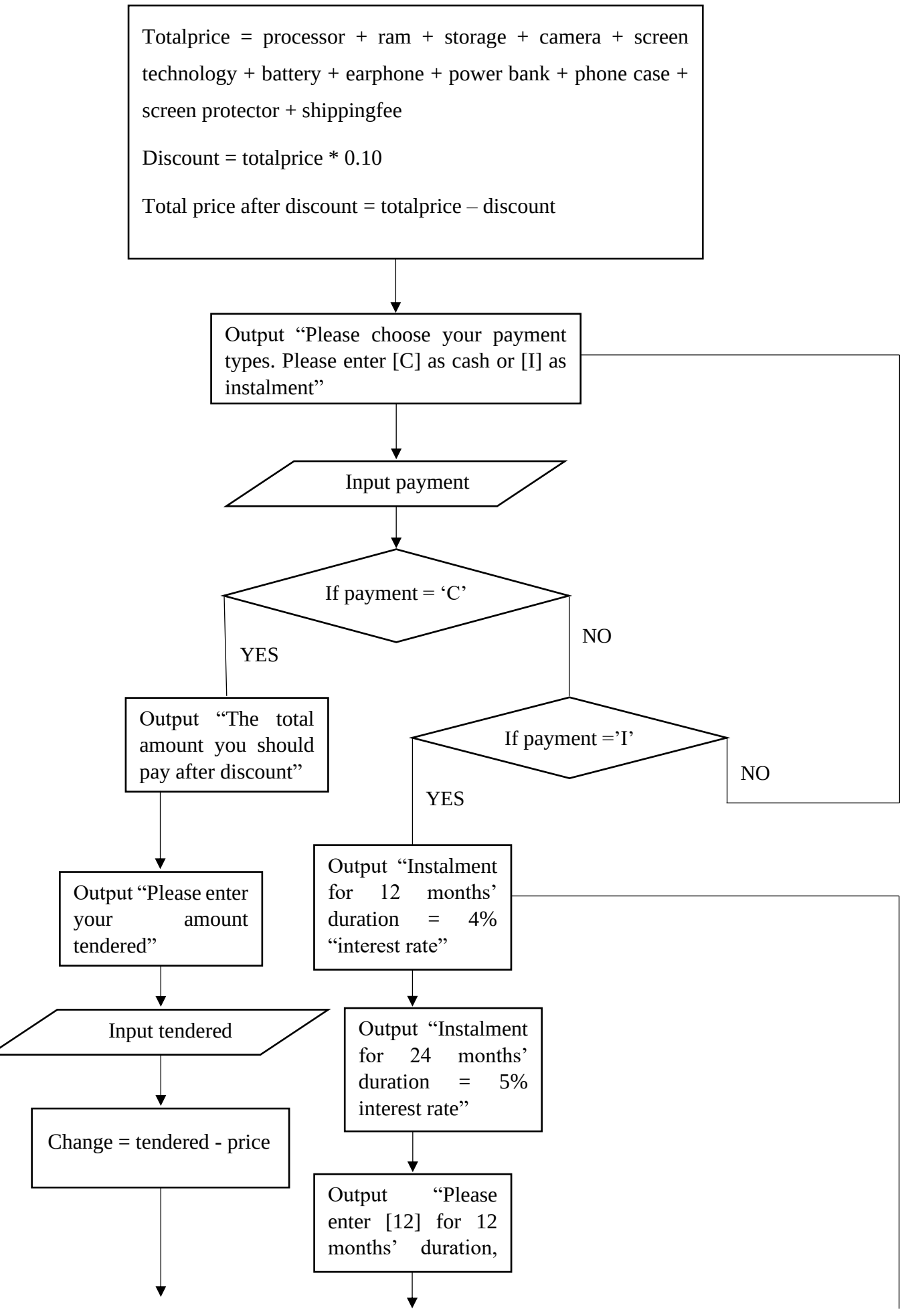

Output "You choose 64 MP camera and the price is RM 300"
Output "We have these screen technology!"
Input screen
If screen =1
YES
NO
Output "You choose AMOLED and the price is RM 1000"
If screen =2
YES
NO
Output "You choose IPS and the price is RM 700"
Output "We have these battery!"

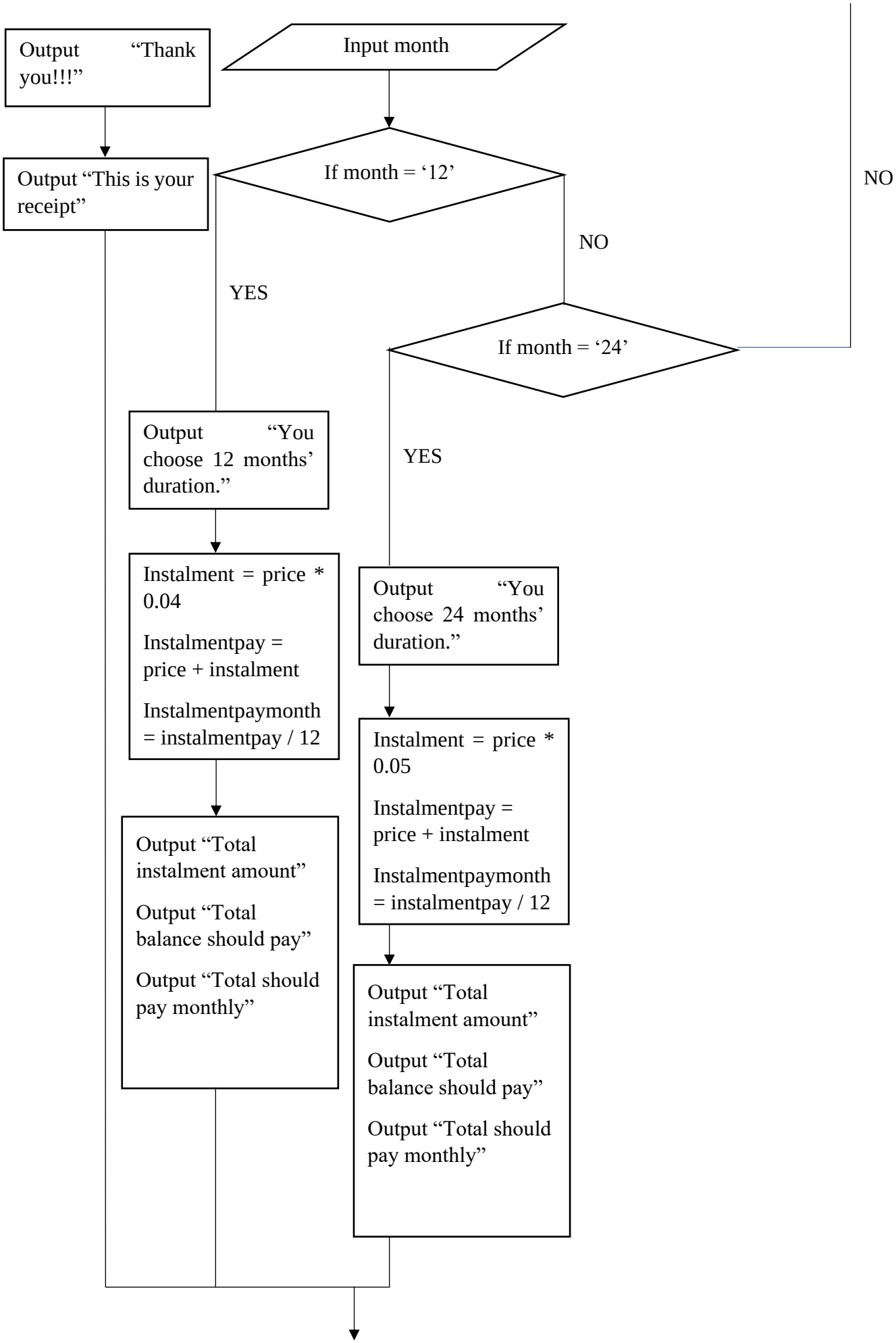

Input battery
If battery =1
YES
NO
Output "You choose battery 4300 mAh and the price is RM 100"
If battery =2
YES
NO
Output "You choose battery 5000 mAh and the price is RM 200"
If battery =3
YES
NO
Output "You choose battery 6400 mAh and the price is RM 300"
Input earphone
If earphone = 'Y' or 'y'
YES
NO
Output "Thank you! You add on earphone completely!"
If earphone = 'N' or 'n'
NO


YES
Output "Alright thank you."
Output "Do you want to purchase screen protector for RM 10? YES(Y) or No(N)"
Input screenprotector
If screenprotector = 'Y' or 'y'
YES
NO
Output "Thank you! You add on screen protector completely!"
If screenprotector = 'N' or 'n'
YES
NO
Output "Alright thank you."
Output "Do you want to purchase power bank for RM 50? YES(Y) or No(N)"
Input powerbank


If powerbank = 'Y' or 'y'
NO
YES
Output "Thank you! You add on power bank completely!"
If powerbank = 'N' or 'n'
NO
YES
Output "Alright thank you."
Output "Do you want to purchase phone case for RM 10? YES(Y) or No(N)"
Input phonecase
If phonecase = 'Y' or 'y'
NO
YES
Output "Thank you! You add on phone case completely!"
If phonecase = 'N' or 'n'
NO
YES
Output "Alright thank you."


Output “What is the place you live and we can delivery to you. South(S) or North(N)”
Input shippingfee
If shippingfee = ‘S’ or ‘s’
YES
NO
Output “Thank you! We will delivery to you!”
If shippingfee = ‘N’ or ‘n’
NO
YES
Output “Thank you! We will delivery to you!”
Output “What is the place you live and we can delivery to you. South(S) or North(N)”


Totalprice = processor + ram + storage + camera + screen technology + battery + earphone + power bank + phone case + screen protector + shippingfee
Discount = totalprice * 0.10
Total price after discount = totalprice – discount
Output "Please choose your payment types. Please enter [C] as cash or [I] as instalment"
Input payment
If payment = 'C'
YES
NO
Output "The total amount you should pay after discount"
If payment ='I'
NO
YES
Output "Please enter your amount tendered"
Output "Instalment for 12 months' duration = 4% "interest rate"
Input tendered
Output "Instalment for 24 months' duration = 5% interest rate"
Change = tendered - price
Output "Please enter [12] for 12 months' duration,


Output "Thank you!!!"
Input month
Output "This is your receipt"
If month = '12'
NO
YES
If month = '24'
NO
Output "You choose 12 months' duration."
YES
Instalment = price * 0.04
Instalmentpay = price + instalment
Instalmentpaymonth = instalmentpay / 12
Output "You choose 24 months' duration."
Instalment = price * 0.05
Instalmentpay = price + instalment
Instalmentpaymonth = instalmentpay / 12
Output "Total instalment amount"
Output "Total balance should pay"
Output "Total should pay monthly"
Output "Total instalment amount"
Output "Total balance should pay"
Output "Total should pay monthly"

Output “*****RECEIPT*****”

Output “*****DUDUDU ACCESSORIES SHOP*****”

Output “*****CONTACT NUMBER: 016-3672588*****”

Output “Consumer Detail”

Output “Name”

Output “IC”

Output “Phone number”

Output “Address”

Output “This is the accessories of your mobile phone!”

If processor =1

Output “Processor: Snapdragon 888”

If processor =2

Output “Processor: Snapdragon 855”

If processor =3

Output “Processor: Exynos 2100”

If processor =4

Output “Processor: Kirin 9000”

If ram =1

Output “Ram: 4 GB Ram”

If ram =2

Output “Ram: 6 GB Ram”

If ram =3

Output “Ram: 8 GB Ram”

If storage =1

Output “Storage: 32 GB storage”

If storage =2

Output “Storage: 64 GB storage”

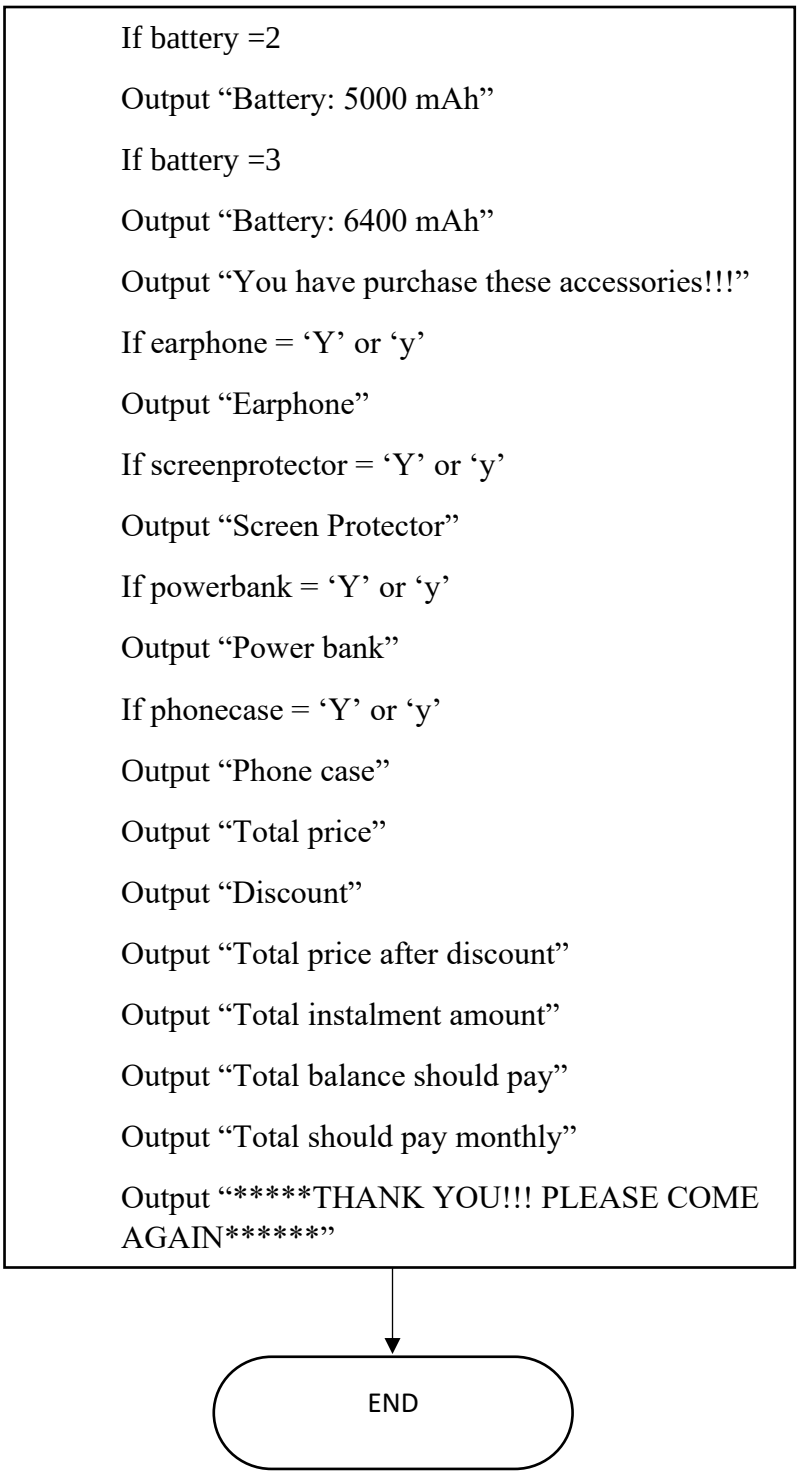
If storage =3

Output “Storage: 128 GB storage”

If storage =4

Output “Storage: 256 GB storage”

If camera =1



LAPTOP

3.0 UNDERSTAND THE PROBLEM

A laptop company made an agreement with Company A to sell their laptop to Company A. Company A decided to change all their old laptops in the company because all of them have

been used for at most 5 years. This is because the laptops started to have slow performance and were not able to run multiple tabs to complete their everyday task which caused many projects of the company to not finish in time. Hence, the laptop company plan to trade in their old laptops and deduct the cost of their new laptops based on the value of old laptops from Company A. They are facing difficulty in calculating the depreciation of their old laptop and the amount of money they will receive from Company A after knowing the value of the old laptops. The laptop company requested us to create a program to calculate total depreciation of the old laptops and the amount of money they will received. The laptop company also allow Company A to pay in installment for 5 years with an interest of 5% each year.

3.1 IDENTIFY THE PROBLEM

Depreciation is the process of allocating the expenses of tangible and intangible assets over time and use. To expense their assets, both public and private companies employ depreciation techniques that follow generally recognized accounting rules. Before determining an asset's depreciation, it's necessary to determine the asset's total cost, the length of time it'll be in use, and the asset's residual value, the amount it may be sold or transferred for after its usage period has ended. The residual value is the amount for which management believes the asset can be sold or transferred after it has been decommissioned. For instance, the maximum depreciation that can be expensed during the asset's life is $8,800 if it costs $10,000 and has an estimated residual value of $1,200. The asset is never depreciated to the point of being worthless.

3.2 ALTERNATIVE WAYS

1. A program created based on declining balance method
2. A program created based on straight-line method
3. A program created based on units of production method
4. A program created based on sum of the years’ digits method

3.3 BEST WAY

A program will be created to record the usage years of the laptop, the depreciation percentage, the purchase price of the old laptops, and the price of the new laptops. The program will arrange all the laptops of the Company A from the oldest to the latest. At the end of the coding, we will be able to know the residual value after minus the depreciation value and the money they will receive each month together with the interest. The coding will be created based on one of the

methods in calculating depreciation value which is the declining balance method. Furthermore, the system will also calculate the cashback following the policy from Laptop Company provide to Company A if they are able to fulfill the requirement for cashback.

3.4 INSTRUCTION FOR SELECTED SOLUTION

1. The old laptops in the company will be categorized in groups according to their useful life of assets and the depreciation percentage.

2. After arranging all the laptops in Company A, we discover there are five types of laptop so they categorized in 5 groups which is Group A, Group B, Group C, Group D and, Group E.

3. In the system, user will input the initial cost of laptop, depreciation percentage, and the usage life of laptop. The amount of laptop will be recorded in a variable based on the groups which is 50, 45, 40, 35, and 30.

4. The system will calculate the salvage value of the laptop from each group and then total them up.

5. The price of the new laptop we sold to Company A is RM 6000 and we sold 200 of the laptops to their company

6. After all the information has been input, the coding will show the instalment policy of Laptop Company. Company A will pay 20% deposit to fulfill the requirement of installment the coding will calculate the money owed by Company A after deducting the salvage value and the deposit in section 1. They are required to input the instalment period as well

7. In section 2, the coding will loop and show the instalment Company A need to pay each year with the interest and also the balance remain after they pay

8. In the cashback section will show the cashback policy and calculate the cashback they will get according to the rules of cashback.

3.5 EVALUATE SOLUTION

A business recognizes an equal amount of depreciation expenditure for each year an asset is in service under straight line depreciation. The reducing balance technique, also known as the declining balance method, twofold declining balance method, or accelerated method, accelerates depreciation in the early years of an asset's life. This is useful if the company needs a higher immediate tax benefit, but it limits future depreciation tax savings. The asset is depreciated at a higher percentage rate under the declining balance approach than it would be under straight line depreciation.

3.6 CALCULATION TABLE

Groups	Details	Formula
Group A	Useful life: x years Depreciation percentage (%): y Initial purchase price (RM): z Number of laptops in group A: 50	$\text{Before Depreciation} = z \times 50$ $\text{After depreciation (a)} = (100\% - y) \times z \times 50$
Group B	Useful life: x years Depreciation percentage (%): Y Initial purchase price (RM): z Number of laptops in group B: 45	$\text{Before Depreciation} = z \times 45$ $\text{After depreciation (b)} = (100\% - y) \times z \times 45$
Group C	Useful life: x years Depreciation percentage (%): Y Initial purchase price (RM): z Number of laptops in group C: 40	$\text{Before Depreciation} = z \times 40$ $\text{After depreciation (c)} = (100\% - y) \times z \times 40$
Group D	Useful life: x years Depreciation percentage (%): Y Initial purchase price (RM): z Number of laptops in group C: 35	$\text{Before Depreciation} = z \times 35$ $\text{After depreciation (d)} = (100\% - y) \times z \times 35$

Group E	Useful life: x years Depreciation percentage (%): Y Initial purchase price (RM): z Number of laptops in group C: 30	$\text{Before Depreciation} = z \times 30$ $\text{After depreciation (e)} = (100\% - y) \times z \times 30$
Total salvage value	Group A: a Group B: b Group C: c Group D: d Group E: e	$\text{Total salvage value} = a + b + c + d + e$
New Laptop Information	Amount Price	$\text{Total price} = \text{Amount} \times \text{Price}$
Instalment	Deposit Account receivable Instalment Instalment period (years): w Interest	$\text{Deposit} = 20\% \times \text{Total price}$ $\text{Account receivable}$ $= \text{Total price - total salvage value} - \text{deposit}$ $\text{Instalment} = \text{Account receivable} \div w$ $\text{Interest} = 5\% \times \text{Instalment}$
Cashback	Cashback (%) = q Cashback (RM)	$\text{Cashback (RM)} = q \times \text{Account Receivable}$

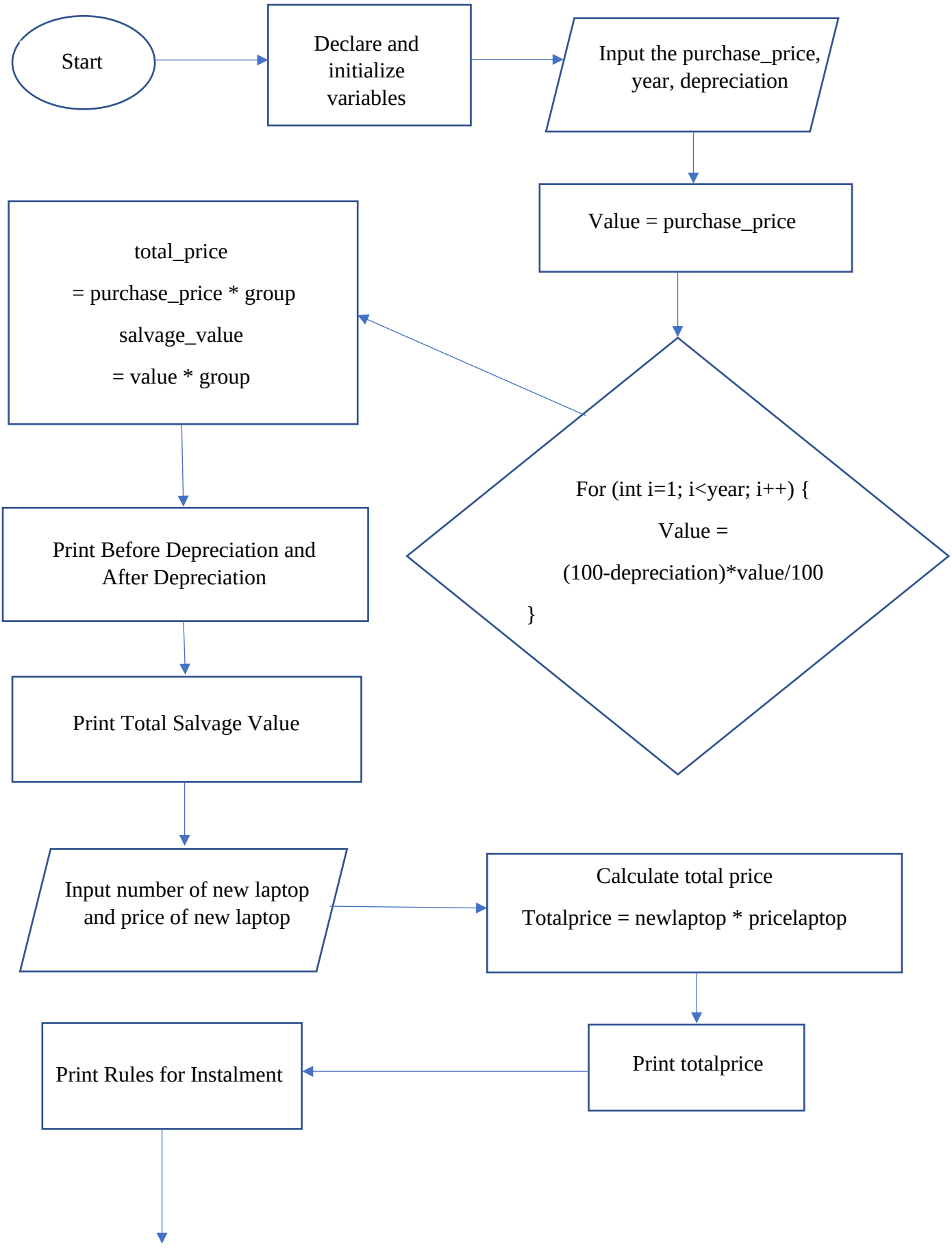
3.7 PSEUDOCODE

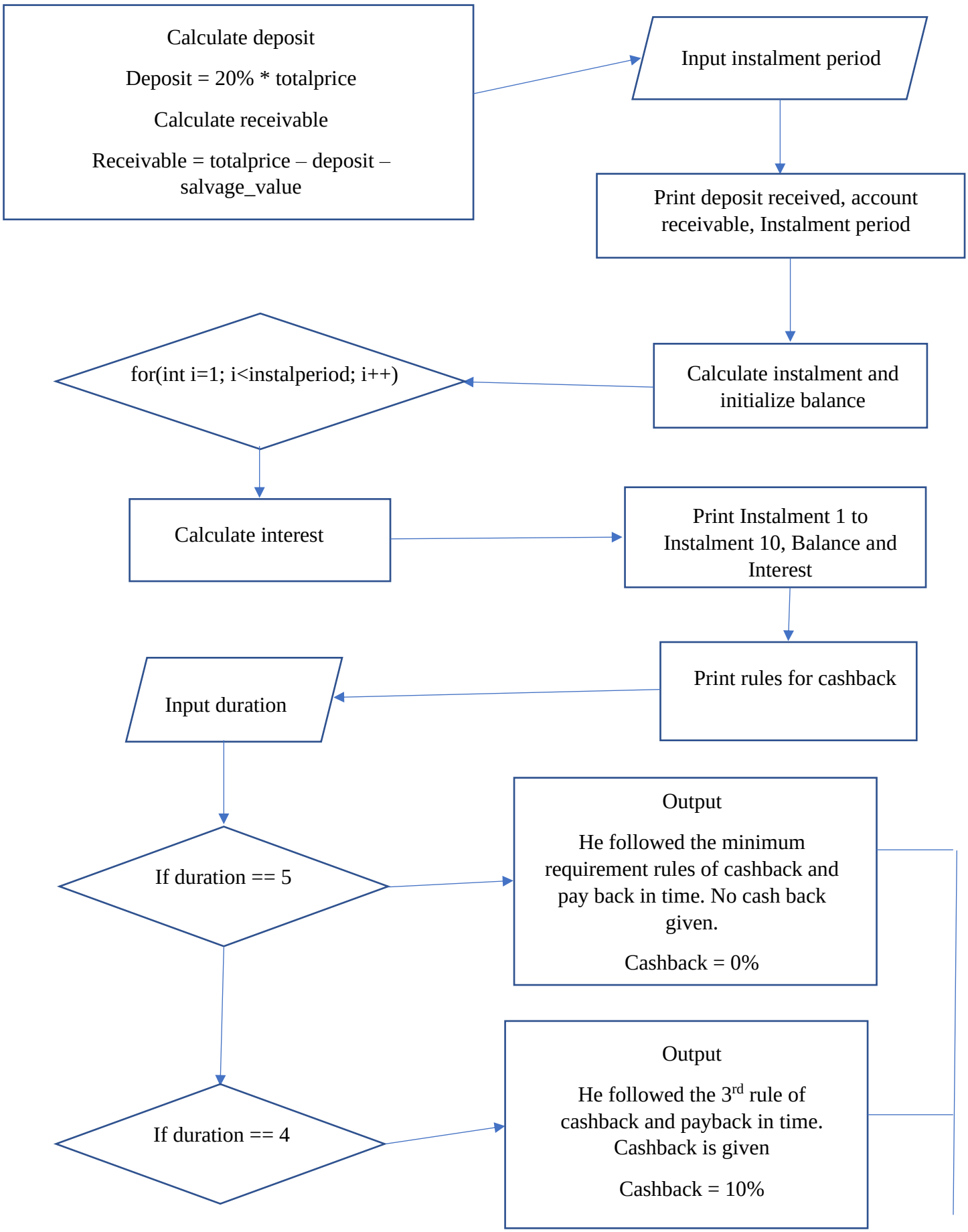
This program calculates the depreciation of old laptop and cash needed to trade in the new laptop

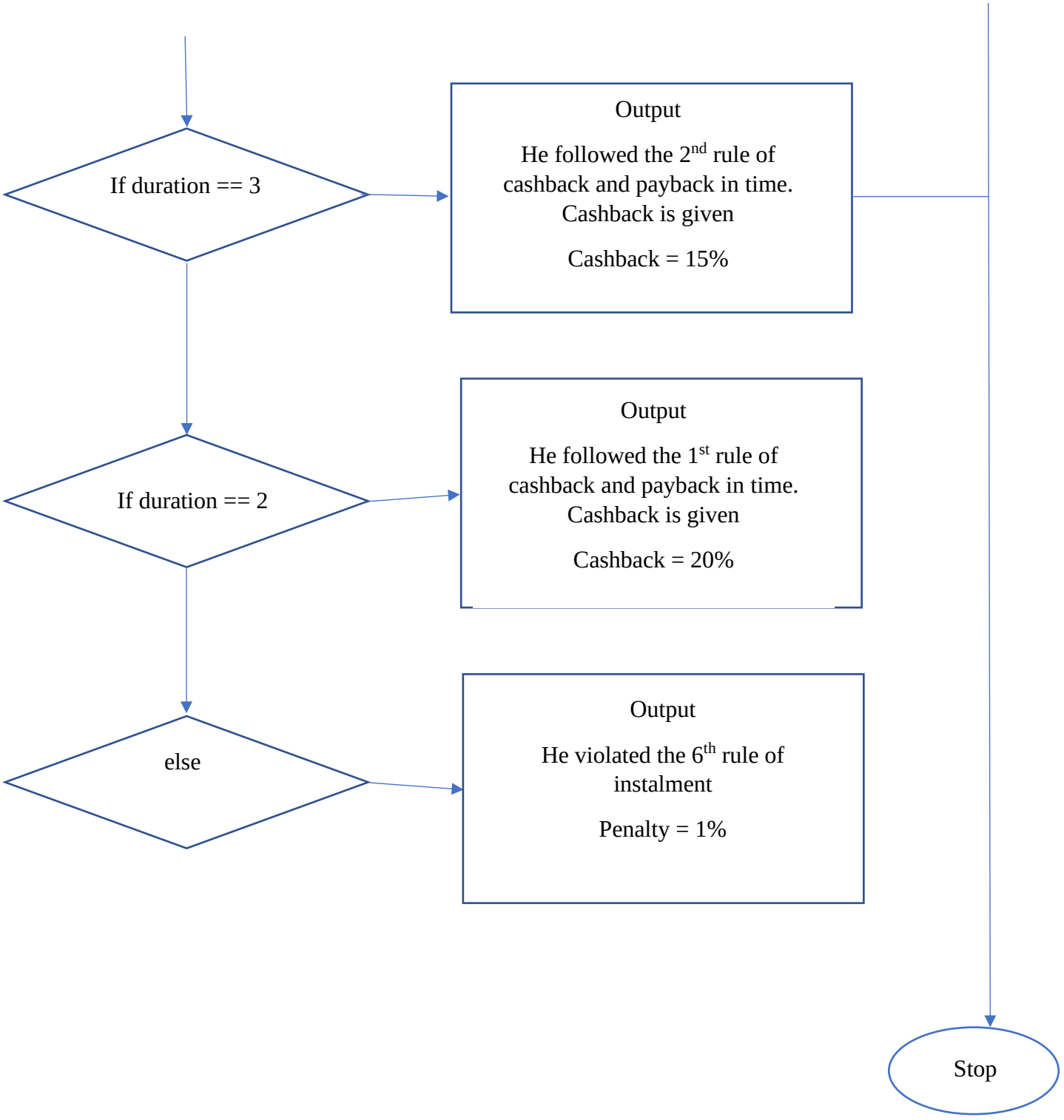
1. Import scanner
2. Declare and initialize variables to record all the information of the old laptops, new laptops, instalment, and cashback.
3. Input the initial purchase price of old laptop, number of years, and depreciation percentage from Group A to E.

4. Then a for loop will be used to calculate the salvage value of all old laptops from Group A to E
5. Output will print out the before and after depreciation value of the old laptop from Group A to Group E.
6. Input the formula to calculate the total salvage value of all laptops from each group.
7. Output will show the total salvage value from Group A to Group E then sum it up to find the overall value.
8. Input the new laptops information, which is number of new laptop sold, the price of a new laptop then the formula to calculate the total price of new laptop.
9. Output will show the total price of new laptop with the information type in by user.
10. Input the rules for instalment by using system.out.println();
11. Output will show the rules of instalment
12. Input the the formula for deposit received and account receivable then user need to type in the instalment period in section 1.
13. Output will show all the value for deposit received account receivable and the value type in by user.
14. Using for loop to calculate the instalment value per year and the balance for the account receivable. Then, input the formula to calculate interest per year.
15. Output will show the instalment period following the instalment period input by user, balance left after receiving payment each month and interest per year.
16. Print the rules for cashback in the output
17. Then using if else to determine the cashback percentage will get by Company A according to the time taken by them to pay back the money.
18. Output will show the years taken to pay back input by user and using the years taken will show the cashback percentage and the cash need to give them.

3.8 FLOW CHART




Calculate deposit
Deposit = 20% * totalprice
Calculate receivable
Receivable = totalprice – deposit – salvage_value
Input instalment period
Print deposit received, account receivable, Instalment period
Calculate instalment and initialize balance
for(int i=1; i<instalperiod; i++)
Calculate interest
Print Instalment 1 to Instalment 10, Balance and Interest
Print rules for cashback
Input duration
If duration == 5
Output
He followed the minimum requirement rules of cashback and pay back in time. No cash back given.
Cashback = 0%
If duration == 4
Output
He followed the 3rd rule of cashback and payback in time. Cashback is given
Cashback = 10%


If duration == 3
Output
He followed the 2nd rule of cashback and payback in time. Cashback is given
Cashback = 15%
If duration == 2
Output
He followed the 1st rule of cashback and payback in time. Cashback is given
Cashback = 20%
else
Output
He violated the 6th rule of instalment
Penalty = 1%
Stop

SATELLITE

4.0 UNDERSTAND THE PROBLEM

A communications satellite is an artificial satellite that relays and amplifies radio telecommunication signals via a transponder; it creates a communication channel between a source transmitter and a receiver at different locations on Earth. Communications satellites are used for television, telephone, radio, internet, and military applications. Most communications satellites are in geostationary orbit 22,300 miles (35,900 km) above the equator, so that the satellite appears stationary at the same point in the sky. Satellites are operated by systems based on earth, which are key targets of cybercriminals who look for security loopholes as a potential for hacking into the satellite system. Satellite problems sometimes cause our data to be exposed and used for the benefit of others. This is because it is easy to access by hackers. This will make their data no longer secure and a danger to their safety.

4.1 ALTERNATIVE WAY

Create a new high-security system for communications satellites to not intrude on the privacy of others. The public can use this system to gain security access that can secure their information data. Therefore, they do not have to worry about their data security.

4.2 BEST WAY

Users use security systems that can help them keep their data safe from being compromised by hackers. Users must be careful in choosing a security system so that they can protect their data. With the existence of this security system, they no longer have to be afraid of their data as it uses a very strict security system.

4.3 INSTRUCTIONS FOR SELECTED SOLUTION

i. User needs to fill in personal information such as name and age.

ii. After that, users can create an account and enter new password validation for security. If the user enters the wrong answer, the system will tell the user, they have only two chances to try again. After that, if still wrong, they have to wait five minutes to enter a new password.

iii. Users have to remember keywords and identify to make sure that is the user. The user has to enter the correct keyword, but if the user enters the wrong keyword system will tell the user only have one chance to enter the correct keyword.

iv. If someone wants to log in but that was not the user, a warning text will be given. Control structure selection (if and else statement) is used in which is the user has to choose two options which are Yes or No.

v. It will reduce the risk of being hacked.

vi. This system will calculate by using this formula:

The formula is:

risk = (threat x vulnerability x probability of occurrence)

4.4 EVALUATE SOLUTION

Regarding this solution, users need to follow the procedure to obtain this security system. Aside from that, the problem of information leakage no longer endangers users due to the security measures provided by us.

4.5 CALCULATION TABLE

For Threat: -

Threat	Amount	Formula	Probability of Occurrence
Hijack your usernames and passwords.	90	$P(A) = \frac{n(A)}{n(S)} = \frac{90}{6} = 15$	15
Steal your money and open credit card and bank accounts in your name.	85	$P(A) = \frac{n(A)}{n(S)} = \frac{85}{6} = 14$	14
Ruin your credit.	60	$P(A) = \frac{n(A)}{n(S)} = \frac{60}{6} = 10$	10
Request new account Personal Identification Numbers (PINs) or additional credit cards.	50	$P(A) = \frac{n(A)}{n(S)} = \frac{50}{6} = 8$	8

Use and abuse your Social Security number.	86	P (A) = n (A) / n (S) = 86 / 6 = 14	14
Sell your information to other parties who will use it for illicit or illegal purposes.	90	P (A) = n (A) / n (S) = 90 / 6 = 15	15
TOTAL	461		76

For Vulnerability: -

Vulnerability	Amount	Formula	Probability of Occurrence
Broken authentication	60	P (A) = n (A) / n (S) = 60 / 4 = 15	15
Cross-Site Scripting	77	P (A) = n (A) / n (S) = 77 / 4 = 19	19
Cross-Site Request Forgery	70	P (A) = n (A) / n (S) = 70 / 4 = 17	17
Security Misconfiguration	89	P (A) = n (A) / n (S) = 89 / 4 = 22	22
TOTAL	296		73

The formula is:

risk = (threat x vulnerability x probability of occurrence)

risk = (6 x 4 x 149)

= 3576

4.6 ALGORITHM

i. User has to insert personal information such as name, age, phone number, email address, and password.
ii. After that, the user inserts the same password same as personal information. Users have only two chances to enter the correct password. If still wrong, they have to wait five minutes to enter a new password.
iii. User enters the validation such as username, password, and keyword.
iv. User enters the keyword. Users only have one chance to enter the correct keyword.
v. Warning text. The user has to choose two option which is Yes or No. If click Yes, the system will print out the block and report meanwhile if click No system will print out everything will be at your own risk.
vi. Calculate risk = (threat x vulnerability x probability of occurrence).
vii. Calculate the total each threat probability:

```
int p1 = p1 = a1 /s
int p2 = p2 = a2 /s
int p3 = p3 = a3 /s
int p4 = p4 = a4 /s
int p5 = p5 = a5 /s
int p6 = p6 = a6 /s
int a1
int a2
int a3
int a4
int a5
int a6
int s = 6
```

Switch

case 1:

Print: Hijack your usernames and passwords.

P1 = 15

break;

case 2:

Print: Steal your money and open credit card and bank accounts in your name.

P2= 14

break;

case 3:

Print: Ruin your credit.

P3 = 10

break;

case 4:

Print: Request new account Personal Identification Numbers (PINs) or additional credit cards.

P4 = 8

break;

case 5:

Print: Use and abuse your Social Security number.

P5 = 14

break;

case 6:

Print: Sell your information to other parties who will use it for illicit or illegal purposes.

P6 = 15

break;

Total amount

total1 = a1 + a2 + a3 + a4 + a5 + a6;

Total probability

total2 = p1 + p2 + p3 + p4 + p5 + p6;

viii. Calculate the total each vulnerability probability:

int p7 = p7 = a7 /s

int p8 = p8 = a8 /s

int p9 = p9 = a9 /s

int p10 = p10 = a10 /s

int a7

int a8

int a9

int a10

int s = 4

Total amount

total3 = a7 + a8 + a9 + a10;

Total probability

total4 = p7 + p8 + p9 + p10;

xi. Calculate total risk:

risk = (threat x vulnerability x probability of occurrence)

risk = (s * s1 * probability of occurrence);

4.7 PSEUDOCODE

Start

Users insert personal information such as name, age, phone number, email address, and password.

Inserts the same password same as personal information. Users have only two chances to

enter the correct password. If still wrong, they have to wait five minutes to enter a new password.

If (the user enters correct password).

Print message.

Your password is correct.

Else if (the user enters the wrong password).

Your password is wrong! You have two chances.

If (the user enters the wrong password again).

"Sorry, you need to wait 5 minutes to key in your password again!

Print message.

End if

Insert validation such as username, password, and keyword.

User insert keyword. Users only have one chance to enter the correct keyword.

If (the user enters the wrong keyword)

Print message

Invalid Keywords. Your keywords are wrong! You have only one chance. Please enter again

Else if (the user enters the correct keyword)

Repeat keywords. Enter keywords

Print message

Your keywords are correct. Identify

End if

Warning text. The user has to choose two option which is Yes or No.

If (the user enters “Yes”)

Print message

Block and report.

Else if (the user enters “No”)

Everything will be at your own risk.

Print message

End if

Read threat

Switch

case 1:

Print: Hijack your usernames and passwords.

P1 = 15

break;

case 2:

Print: Steal your money and open credit card and bank accounts in your name.

P2= 14

break;

case 3:

Print: Ruin your credit.

P3 = 10

break;

case 4:

Print: Request new account Personal Identification Numbers (PINs) or additional credit cards.

P4 = 8

break;

case 5:

Print: Use and abuse your Social Security number.

P5 = 14

break;

case 6:

Print: Sell your information to other parties who will use it for illicit or illegal purposes.

P6 = 15

break;

Calculate the amount of each threat:

Total amount

total1 = a1 + a2 + a3 + a4 + a5 + a6;

Calculate the amount of each threat probability of occurrence:

Total probability

total2 = p1 + p2 + p3 + p4 + p5 + p6;

Print total threat and probability of occurrence:

Total amount threat = 461

Read vulnerability

Calculate the amount of each vulnerability:

Total amount

total3 = a7 + a8 + a9 + a10;

Calculate the amount of each vulnerability probability of occurrence:

Total probability

total4 = p7 + p8 + p9 + p10;

Print total vulnerability and probability of occurrence:

Total amount vulnerability = 296

Total amount probability = 73

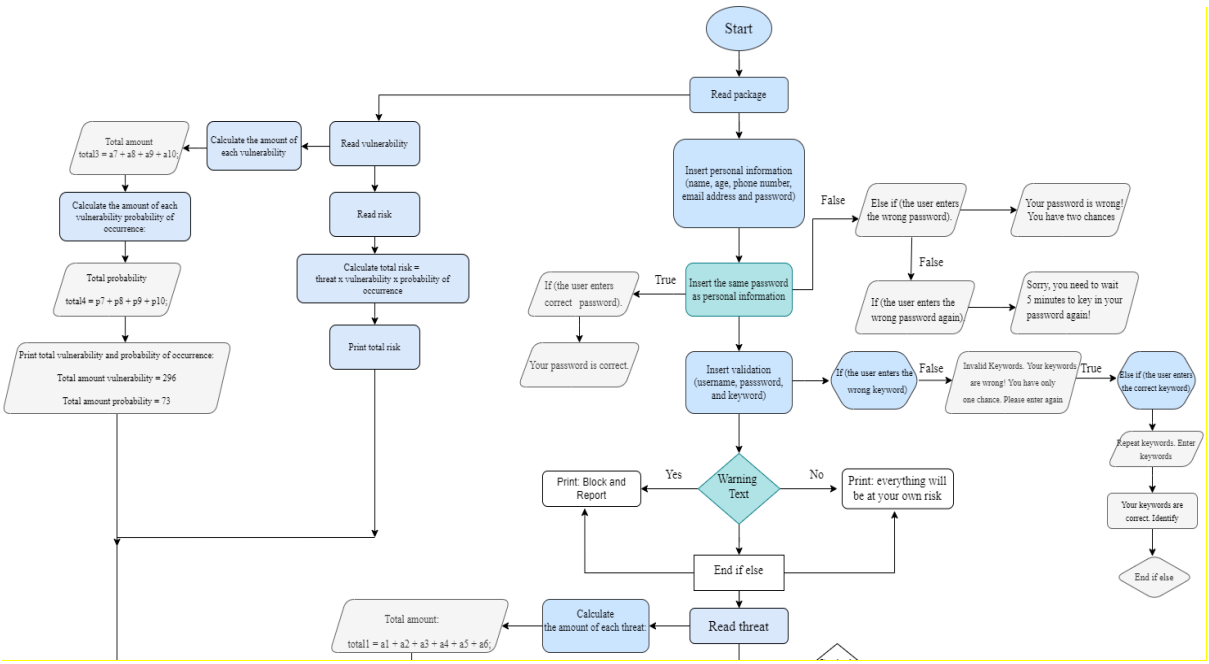
Read risk

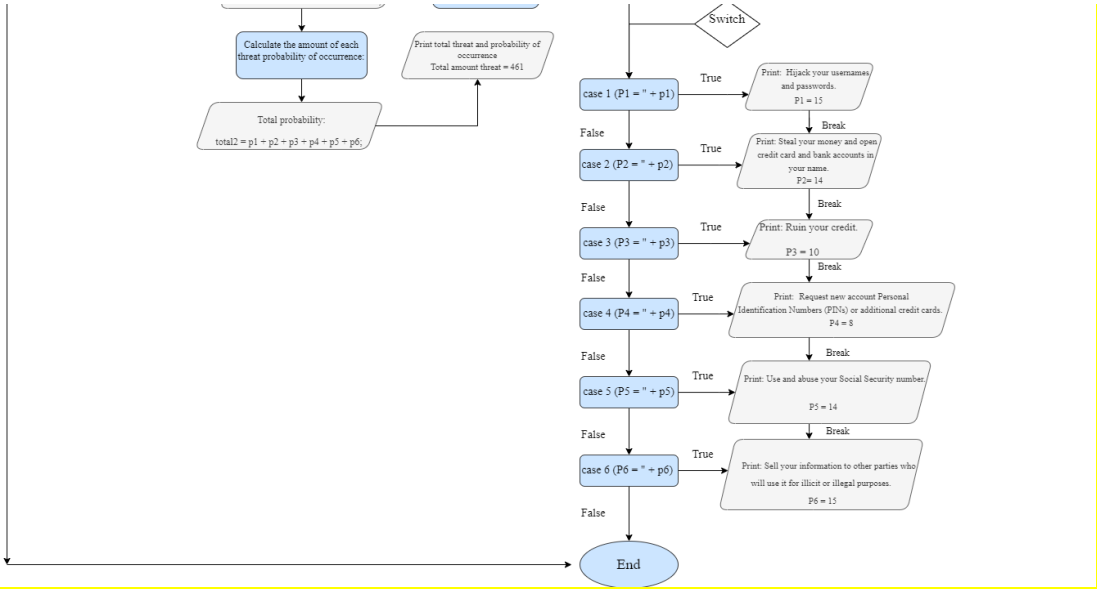
Calculate total risk = threat x vulnerability x probability of occurrence

Print total risk

End

4.8 FLOW CHART





TV

5.0 UNDERSTAND THE PROBLEM

Astro is a Malaysian satellite television and IPTV provider doing business as All-Asian Satellite Television and Radio Operator. It operates in Malaysia, Brunei through Kristal-Astro and Indonesia through Astro Nusantara. It broadcasts from Kuala Lumpur's All Asia Broadcast Centre and Cyberjaya's MEASAT. In Malaysia, the corporation was reported to have 71% home penetration in 2016. The Malaysian federal government granted an exclusive licence to Astro as the exclusive pay-television provider till 2017. MEASAT Broadcast Network Systems Sdn. Bhd. operates Astro, which is a wholly-owned subsidiary of Astro Malaysia Holdings Berhad. Astro Malaysia Holdings Bhd is Southeast Asia’s leading integrated media group with key operations in pay-TV, radio, content and digital. It is founded on June 1st 1996 by Ananda Krishnan. Astro broadcasts 183 channels including 54 HD channels, delivered via DTH satellite TV via the Measat satellite network, IPTV and OTT platforms. Its operating income decrease RM777.71 million (2014) and net income increase RM447.95 million (2014).

5.1 IDENTIFY THE PROBLEM

New customers of Astro service are planning to purchase the Astro package but they are having problem to make a decision while choosing package offered. The customer wants to know the information related to Astro and want to seek for further information using the right path to

reach for Astro. The customer needs some help from the Astro promoter but during the pandemic, it is a bit risky to go to the Astro centre.

5.2 ALTERNATIVE WAYS

1. A program that can serve the customer

2.The customer need to go to Astro centre to reach for help

3. The customer need to find the nearest kiosk that have Astro promoter

4. A phone call to the Astro hotline

5.Customer need to search for the information online

5.3 BEST WAY

Online customer service programs can help customers with their problems related to packages offered. A program will provide information related to package offered such as number of channels, price, installation fee, discount and payment details. This program will guide customers to purchase the package and calculate the total payment.

5.4 INSTRUCTIONS FOR SELECTED SOLUTION

1.The program will display the options of packages

No 1 Astro primary pack

No 2 Astro entertainment pack

No 3 Astro broadband pack

No 4 Astro platinum pack.

2. The program will ask whether user has selected their choice.

3.Ask users to key in character Y for yes N for no.

4. The program will set the character for looping using while statement.

5. Ask the user to key in their preference by entering the number of the package selected.

6.The program will set the package number as control selection using if/else statement.

7. The program will display the package information, calculate the total payment, and display payment details for a 2 years subscription contract with 2 payment option (deposit and monthly payment or fully payment) based on the number entered by user.

5.5 CALCULATION TABLE

TYPE OF PACKAGES	PAYMENT METHOD	FORMULA	TOTAL PAYMENT
ASTRO PRIMARY PACK *Price = RM 60.00 *Installation fee = RM 99.00 *24 months subscription contract *Up to 90+ Channels *Astro Go accessible *Support HD Channel *Free Ultra box Decoder Set	1.Deposit & Monthly Payment	-Actual price = package price * 24 + installation bill (Actual price= 60.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *60.0) -Price = package price - discount1 + (package price* 23) + installation bill (Price = 60.0 – 6.0 + (60.0* 23) + 99.0) -Deposit = package price - discount1 + installation bill (Deposit = 60.0 – 6.0+ 99.0) -Balance = 23* package price (Balance = 23* 60.0) -Monthly payment= Package price	Actual price = RM1 539.0 Discount1 =RM 6.0 Price =RM 1 533.0 Deposit =RM 153.0 Balance =RM 1 380.0 Monthly payment =RM 60.0
	2.Fully Payment	-Actual price = package price * 24 + installation bill (Actual price= 60.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *60.0) -Discount2 = 0.15* price (Discount2= 0.15 *(60.0 – 6.0 + (60.0* 23) + 99.0) -Total price = Actual price – discount1-discount2 (Total Price= 1 539.0 -6 .0 -229.95)	Actual price = RM1 539.0 Discount1 =RM 6.0 Discount2 =RM 229.95 Total Price

			=RM 1 303.05
ASTRO ENTERTAINMENT PACK *Price = RM 90.00 *Installation fee = RM 99.00 *24 months subscription contract *Up to 105+ Channels *Astro Go accessible *Support HD Channel *Free Ultra box Decoder Set	1.Deposit & Monthly Payment	-Actual price = package price * 24 + installation bill (Actual price= 90.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *90.0) -Price = package price - discount1 + (package price* 23) + installation bill (Price = 90.0 – 9.0 + (90.0* 23) + 99.0) -Deposit = package price - discount1 + installation bill (Deposit = 90.0 – 9.0+ 99.0) -Balance = 23* package price (Balance = 23* 90.0) -Monthly payment= Package price	Actual price = RM 2 259.0 Discount1 =RM 9.0 Price =RM 2 250.0 Deposit =RM 180.0 Balance =RM 2 070.0 Monthly payment =RM 90.0
	2.Fully Payment	-Actual price = package price * 24 + installation bill (Actual price= 90.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *90.0) -Discount2 = 0.15* price (Discount2= 0.15 *(90.0 – 9.0 + (90.0* 23) + 99.0) -Total price = Actual price – discount1- discount2	Actual price = RM 2 259.0 Discount1 =RM 9.0 Discount2 =RM 337.5 Total Price =RM 1 912.5

		(Total Price= 2 259.0 -9.0 -337.5)	
ASTRO BROADBAND PACK *Price = RM 140.00 *Installation fee = RM 99.00 *24 months subscription contract *Up to 90+ Channels TV and Radio *Unlimited HighSpeed Internet *Astro Go accessible *Support HD Channel *Free Ultra box Decoder Set, Modem and Router	1.Deposit & Monthly Payment	-Actual price = package price * 24 + installation bill (Actual price= 140.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *140.0) -Price = package price - discount1 + (package price* 23) + installation bill (Price = 140.0 – 14.0 + (140.0* 23) + 99.0) -Deposit = package price - discount1 + installation bill (Deposit = 140.0 – 14.0+ 99.0) -Balance = 23* package price (Balance = 23* 140.0) -Monthly payment= Package price	Actual price = RM 3 459.0 Discount1 =RM 14.0 Price =RM 3 445.0 Deposit =RM 225.0 Balance =RM 3 220.0 Monthly payment =RM 140.0
	2.Fully Payment	-Actual price = package price * 24 + installation bill (Actual price= 140.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *140.0) -Discount2 = 0.15* price (Discount2= 0.15 *(140.0 – 14.0 + (140.0* 23) + 99.0) -Total price = Actual price – discount1-discount2 (Total Price= 3 459 .0 -14.0 -516.75)	Actual price = RM 3 459.0 Discount1 =RM 14.0 Discount2 =RM 516.75 Total Price

			=RM 2 928.25
ASTRO PLATINUM PACK *Price = RM 195.00 *Installation fee = RM 99.00 *24 months subscription contract *Up to 145+ Channels *Astro Go accessible *Support UHD/4K Channel *Free Ultra box Decoder Set	1.Deposit & Monthly Payment	-Actual price = package price * 24 + installation bill (Actual price= 195.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *195.0) -Price = package price - discount1 + (package price* 23) + installation bill (Price = 195.0 – 19.5 + (195.0* 23) + 99.0) -Deposit = package price - discount1 + installation bill (Deposit = 195.0 – 19.5+ 99.0) -Balance = 23* package price (Balance = 23* 195.0) -Monthly payment= Package price	Actual price = RM 4 779.0 Discount1 =RM 19.5 Price =RM 4 759.0 Deposit =RM 274.5 Balance =RM 4 485.0 Monthly payment =RM 195.0
	2.Fully Payment	-Actual price = package price * 24 + installation bill (Actual price= 195.0 *24+ 99.0) -Discount1=0.10 *package price (Discount1=0.10 *195.0) -Discount2 = 0.15* price (Discount2= 0.15 *(195.0 – 19.5+ (195.0* 23) + 99.0) -Total price = Actual price – discount1-discount2 (Total Price= 4 779.0 -19.5 -713.925)	Actual price = RM 4 779.0 Discount1 =RM 19.5 Discount2 =RM 713.925 Total Price =RM 4 045.575

5.6 ALGORITHM

1. Programs will display message to greet the customer.

2. Programs will display 4 options of packages to customers.

3. Program will ask whether user has selected their choice.

4. Users to key in character ‘Y’ for yes ‘N’ for no.

5. The program will loop as long as user enter ‘Y’ and end the loop if user key in ‘N’.

6. User key in the package number that they interested in.

7. Program will perform the task based on different number that entered by user.

8.Proram will calculate the formula based on package price key in by user:

Calculate actual price = package price*24 + installation bill
Calculate discount1 = 0.10*package price
Calculate deposit = package price- discount1 + installation bill
Calculate balance = package price*23
Calculate price = (balance) + deposit
Calculate discount2 = 0.15*price
Calculate total price = price- discount2

9. Program will display 2 types of discounts offered to customer such as 10% first month discount and 15% Wow discount.

10. Program will display 2 method of payment detail based on the calculation.

11. User key in personal information such as name, age and telephone number.

5.7 PSEUDOCODE

Start

Input choice =’Y’, packageprice, actualprice, discount1, discount2, deposit, price, totalprice,balance, installationbill = 99.00

Output message “Enter 1 for Primary Pack
Enter 2 for Entertainment Pack
Enter 3 for Broadband Pack
Enter 4 for Platinum Pack”
Output message “Have you decide your number?
ENTER ‘Y’ FOR YES ENTER 'N' FOR NO
PLEASE USE CAPITAL LETTER”
Input choice
While (choice = = ‘Y’)

```
Output message “Enter your number”
Input preference
If (preference = =1)
        Output message “ASTRO PRIMARY PACK
        *Price = RM 60.00
        *Installation fee = RM 99.00
        *24 months subscription contract
        *Up to 90+ Channels
        *Astro Go accessible
        *Support HD Channel
        *Free Ultrabox Decoder Set”

        Packageprice = 60
        Calculate actualprice = packageprice*24 + installationbill;
        Calculate discount1 = 0.10*packageprice
        Calculate deposit = packageprice- discount1 + installationbill
        Calculate balance = packageprice*23
        Calculate price = balance + deposit
        Calculate discount2 = 0.15*price
        Calculate totalprice = price- discount2;

        Output message "METHOD 1: DEPOSIT AND MONTHLY
        PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT"
        Output packageprice, installationbill, actualprice. discount1,
        price,deposit,balance
        Output message “METHOD 2: FULLY PAYMENT FOR 2 YEARS
        SUBCRIPTION CONTRACT "
        Output actualprice, discount1, discout2, totalprice
else if (preference = =2)
        Output message “ASTRO ENTERTAINMENT PACK
        *Price = RM 90.00
        *Installation fee = RM 99.00
        *24 months subscription contract
        *Up to 105+ Channels
        *Astro Go accessible
        *Support HD Channel
        *Free Ultrabox Decoder Set”

        Packageprice = 90
        Calculate actualprice = packageprice*24 + installationbill;
        Calculate discount1 = 0.10*packageprice
        Calculate deposit = packageprice- discount1 + installationbill
        Calculate balance = packageprice*23
        Calculate price = balance + deposit
```

Calculate discount2 = 0.15*price
Calculate totalprice = price- discount2;

Output message "METHOD 1: DEPOSIT AND MONTHLY PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT"
Output packageprice, installationbill, actualprice. discount1, price,deposit,balance
Output message “METHOD 2: FULLY PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT "
Output actualprice, discount1, discout2, totalprice

else if (preference = =3)
Output message “ASTRO BROADBAND PACK
*Price = RM 140.00
*Installation fee = RM 99.00
*24 months subscription contract
*Up to 90+ Channels TV and Radio
*Unlimited HighSpeed Internet
*Astro Go accessible
*Support HD Channel
*Free Ultrabox Decoder Set, Modem and Router”

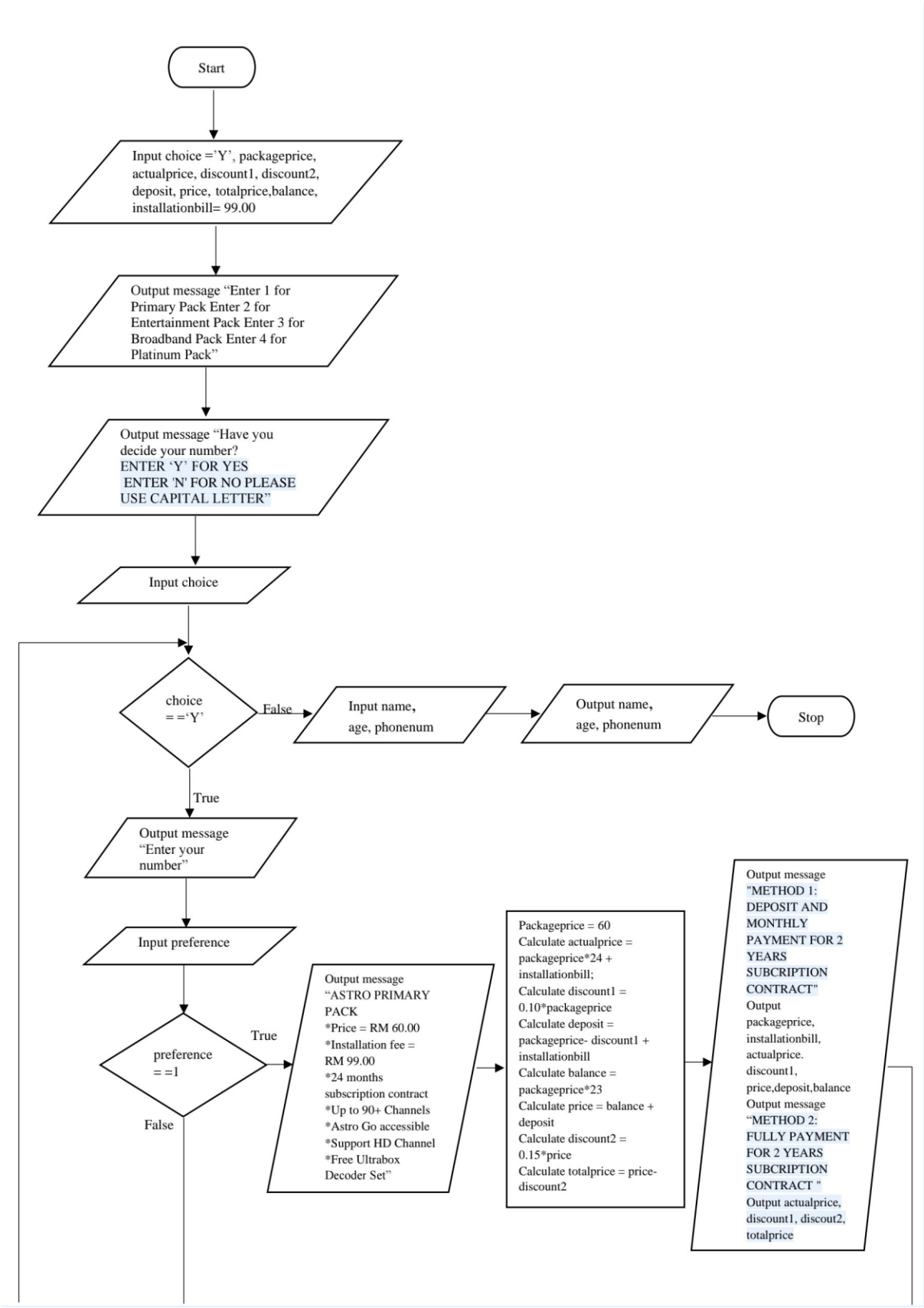
Packageprice = 140
Calculate actualprice = packageprice*24 + installationbill;
Calculate discount1 = 0.10*packageprice
Calculate deposit = packageprice- discount1 + installationbill
Calculate balance = packageprice*23
Calculate price = balance + deposit
Calculate discount2 = 0.15*price
Calculate totalprice = price- discount2;

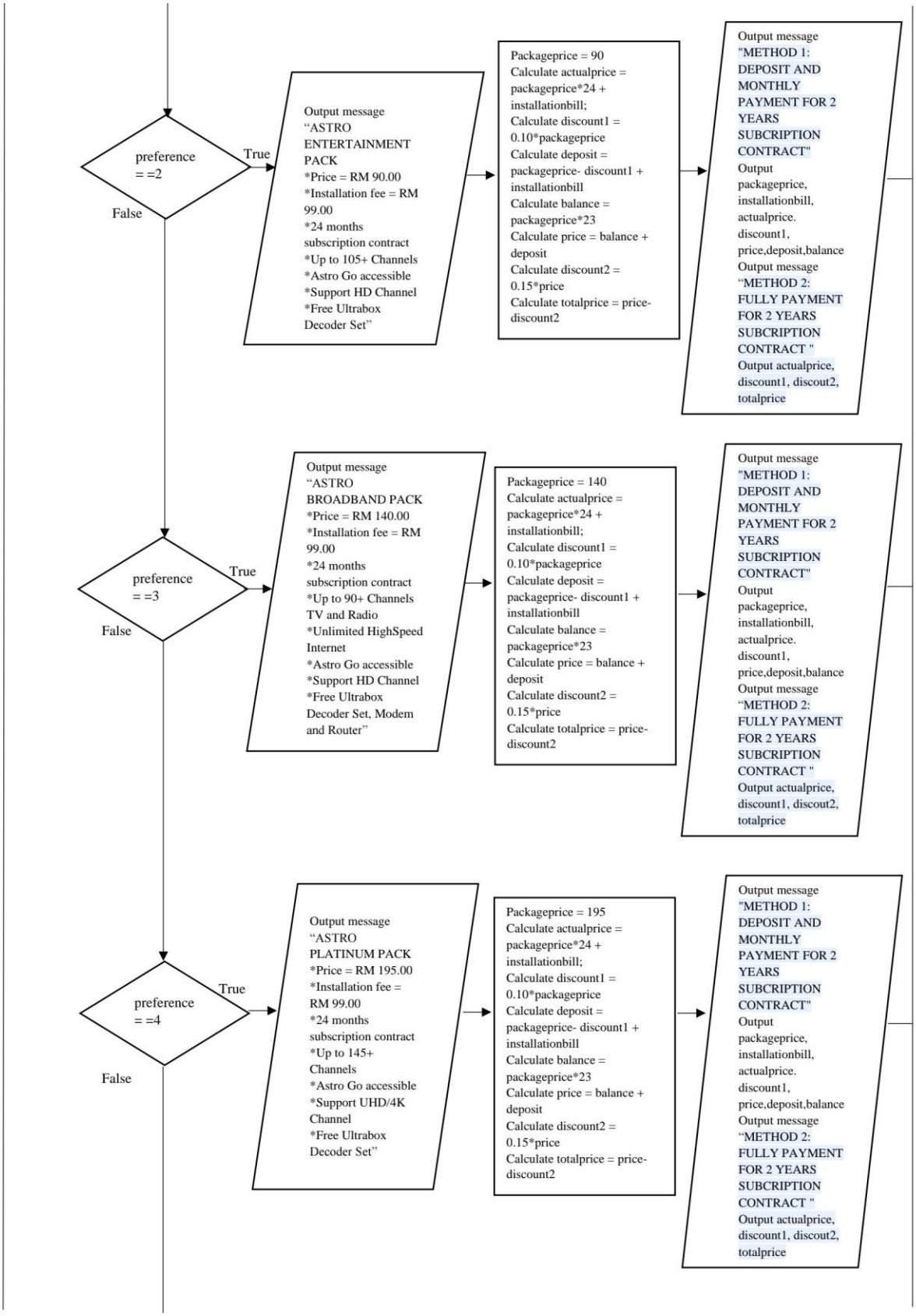
Output message "METHOD 1: DEPOSIT AND MONTHLY PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT"
Output packageprice, installationbill, actualprice. discount1, price,deposit,balance
Output message “METHOD 2: FULLY PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT "
Output actualprice, discount1, discout2, totalprice

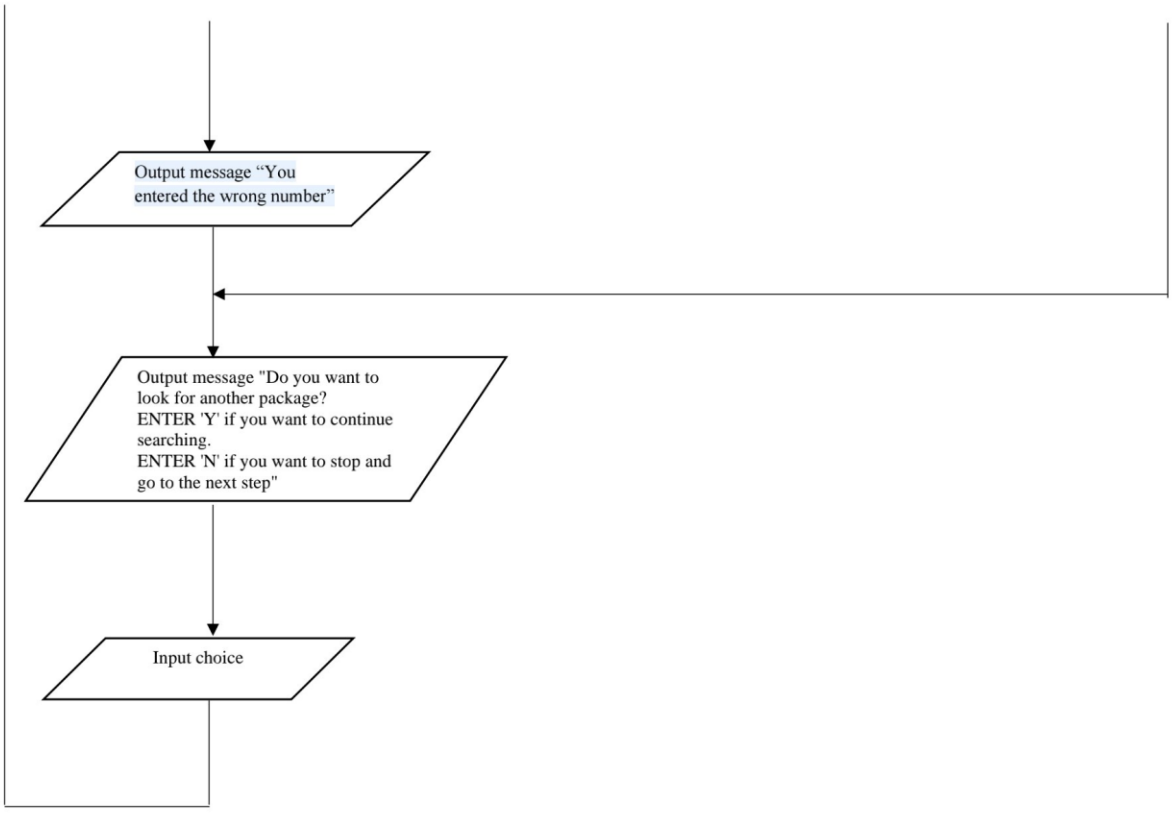
else if (preference = =4)
Output message “ASTRO PLATINUM PACK
*Price = RM 195.00
*Installation fee = RM 99.00
*24 months subscription contract
*Up to 145+ Channels
*Astro Go accessible

```
                    *Support UHD/4K Channel
                    *Free Ultrabox Decoder Set”

                    Packageprice = 195
                    Calculate actualprice = packageprice*24 + installationbill;
                    Calculate discount1 = 0.10*packageprice
                    Calculate deposit = packageprice- discount1 + installationbill
                    Calculate balance = packageprice*23
                    Calculate price = balance + deposit
                    Calculate discount2 = 0.15*price
                    Calculate totalprice = price- discount2;

                    Output message "METHOD 1: DEPOSIT AND MONTHLY
                    PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT"
                    Output packageprice, installationbill, actualprice. discount1,
                    price,deposit,balance
                    Output message “METHOD 2: FULLY PAYMENT FOR 2 YEARS
                    SUBCRIPTION CONTRACT "
                    Output actualprice, discount1, discout2, totalprice
            else
                    Output message “You entered the wrong number”
            end if
            Output message "Do you want to look for another package?
                            ENTER 'Y' if you want to continue searching.
                            ENTER 'N' if you want to stop and go to the next step"
            Input choice
    endwhile
    Input name, age, phonenum
    Output name, age, phonenum
End
```

5.8 FLOW CHART


Start
Input choice ='Y', packageprice, actualprice, discount1, discount2, deposit, price, totalprice,balance, installationbill= 99.00
Output message "Enter 1 for Primary Pack Enter 2 for Entertainment Pack Enter 3 for Broadband Pack Enter 4 for Platinum Pack"
Output message "Have you decide your number? ENTER 'Y' FOR YES ENTER 'N' FOR NO PLEASE USE CAPITAL LETTER"
Input choice
choice = ='Y'
False
Input name, age, phonenum
Output name, age, phonenum
Stop
True
Output message "Enter your number"
Input preference
preference = =1
True
False
Output message "ASTRO PRIMARY PACK *Price = RM 60.00 *Installation fee = RM 99.00 *24 months subscription contract *Up to 90+ Channels *Astro Go accessible *Support HD Channel *Free Ultrabox Decoder Set"
Packageprice = 60
Calculate actualprice = packageprice*24 + installationbill;
Calculate discount1 = 0.10*packageprice
Calculate deposit = packageprice- discount1 + installationbill
Calculate balance = packageprice*23
Calculate price = balance + deposit
Calculate discount2 = 0.15*price
Calculate totalprice = price-discount2
Output message "METHOD 1: DEPOSIT AND MONTHLY PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT"
Output packageprice, installationbill, actualprice. discount1, price,deposit,balance
Output message "METHOD 2: FULLY PAYMENT FOR 2 YEARS SUBCRIPTION CONTRACT "
Output actualprice, discount1, discout2, totalprice


preference
= =2
True
False
Output message
“ASTRO
ENTERTAINMENT
PACK
*Price = RM 90.00
*Installation fee = RM
99.00
*24 months
subscription contract
*Up to 105+ Channels
*Astro Go accessible
*Support HD Channel
*Free Ultrabox
Decoder Set”
Packageprice = 90
Calculate actualprice =
packageprice*24 +
installationbill;
Calculate discount1 =
0.10*packageprice
Calculate deposit =
packageprice- discount1 +
installationbill
Calculate balance =
packageprice*23
Calculate price = balance +
deposit
Calculate discount2 =
0.15*price
Calculate totalprice = price-
discount2
Output message
"METHOD 1:
DEPOSIT AND
MONTHLY
PAYMENT FOR 2
YEARS
SUBCRIPTION
CONTRACT"
Output
packageprice,
installationbill,
actualprice.
discount1,
price,deposit,balance
Output message
“METHOD 2:
FULLY PAYMENT
FOR 2 YEARS
SUBCRIPTION
CONTRACT "
Output actualprice,
discount1, discout2,
totalprice
preference
= =3
True
False
Output message
“ASTRO
BROADBAND PACK
*Price = RM 140.00
*Installation fee = RM
99.00
*24 months
subscription contract
*Up to 90+ Channels
TV and Radio
*Unlimited HighSpeed
Internet
*Astro Go accessible
*Support HD Channel
*Free Ultrabox
Decoder Set, Modem
and Router”
Packageprice = 140
Calculate actualprice =
packageprice*24 +
installationbill;
Calculate discount1 =
0.10*packageprice
Calculate deposit =
packageprice- discount1 +
installationbill
Calculate balance =
packageprice*23
Calculate price = balance +
deposit
Calculate discount2 =
0.15*price
Calculate totalprice = price-
discount2
Output message
"METHOD 1:
DEPOSIT AND
MONTHLY
PAYMENT FOR 2
YEARS
SUBCRIPTION
CONTRACT"
Output
packageprice,
installationbill,
actualprice.
discount1,
price,deposit,balance
Output message
“METHOD 2:
FULLY PAYMENT
FOR 2 YEARS
SUBCRIPTION
CONTRACT "
Output actualprice,
discount1, discout2,
totalprice
preference
= =4
True
False
Output message
“ASTRO
PLATINUM PACK
*Price = RM 195.00
*Installation fee =
RM 99.00
*24 months
subscription contract
*Up to 145+
Channels
*Astro Go accessible
*Support UHD/4K
Channel
*Free Ultrabox
Decoder Set”
Packageprice = 195
Calculate actualprice =
packageprice*24 +
installationbill;
Calculate discount1 =
0.10*packageprice
Calculate deposit =
packageprice- discount1 +
installationbill
Calculate balance =
packageprice*23
Calculate price = balance +
deposit
Calculate discount2 =
0.15*price
Calculate totalprice = price-
discount2
Output message
"METHOD 1:
DEPOSIT AND
MONTHLY
PAYMENT FOR 2
YEARS
SUBCRIPTION
CONTRACT"
Output
packageprice,
installationbill,
actualprice.
discount1,
price,deposit,balance
Output message
“METHOD 2:
FULLY PAYMENT
FOR 2 YEARS
SUBCRIPTION
CONTRACT "
Output actualprice,
discount1, discout2,
totalprice


Output message “You entered the wrong number”
Output message "Do you want to look for another package?
ENTER 'Y' if you want to continue searching.
ENTER 'N' if you want to stop and go to the next step"
Input choice