Name : Dow Yi Cheng

TPID   : TP059614

INDIVIDUAL ASSIGNMENT

TECHNOLOGY PARK MALAYSIA

CT018-3-1-ICP

INTRODUCTION TO C PROGRAMMING

APU1F2002CS/CS(CYB)/CS(DF)/CS(IS)/EEE/IT/ME/PE/TE/

CGD/CE/IT(IOT)/CS(DA) UC1F2002CGD/CS(DA)/IT/IT(IOT)/CS

HAND OUT DATE: 05 OCTOBER 2020

HAND IN DATE: 02 NOVEMBER 2020

WEIGHTAGE: 50%

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INSTRUCTIONS TO CANDIDATES:

1. Submit your assignment online in Moodle unless advised otherwise

2. Late submission will be awarded zero(0) unless Extenuating Circumstances (EC) are upheld

3. Cases of plagiarism will be penalized

4. You must obtain at least 50% in each component to pass this module

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Introduction

With the pandemic COVID-19 still lingering around us, healthcare has become of utmost importance. People fear for their health and safety now more than ever. Here comes the purpose of this Introduction to C Programming Assignment, which is to create program to manage a Health Insurance Management System for the insurance company ZeeMediLife. This program allows users to subscribe to insurance plans of their choice manually. Furthermore, user can access this program's multiple features such as fund claiming, account information checking and searching capabilities based on the user's needs.

Assumption

When I was doing this assignment, I complete the coding part first the I design the pseudocode and flowchart. Thus, I faced some problem while doing pseudocode and flowchart. Also, at the beginning I doing this assignment, I thought I just need user to input their id, then I just realise the program should have enough intelligence to auto increment the subscriber ID while doing register. After that, I thought the split function is just similar to the python assignment, but after I doing some research it is definitely not same with python, Hence, I do a lot research in many document.

PseudoCode and FlowChart

PSEUDOCODE FUNCTION : main()

PROGRAM main

BEGIN

   RECORD SUBSCRIBER:

      name : REAL

      contact : REAL

      address : REAL

      history : REAL

      age : REAL

      plan : REAL

      Plan2 : REAL

      roomFee1 : REAL

      roomFee2 : REAL

Claim : REAL

oriClaim : REAL

END RECORD

Declare SUBSCRIBER AS subs

call mainMenu()

END

FLOWCHART FUNCTION : main()
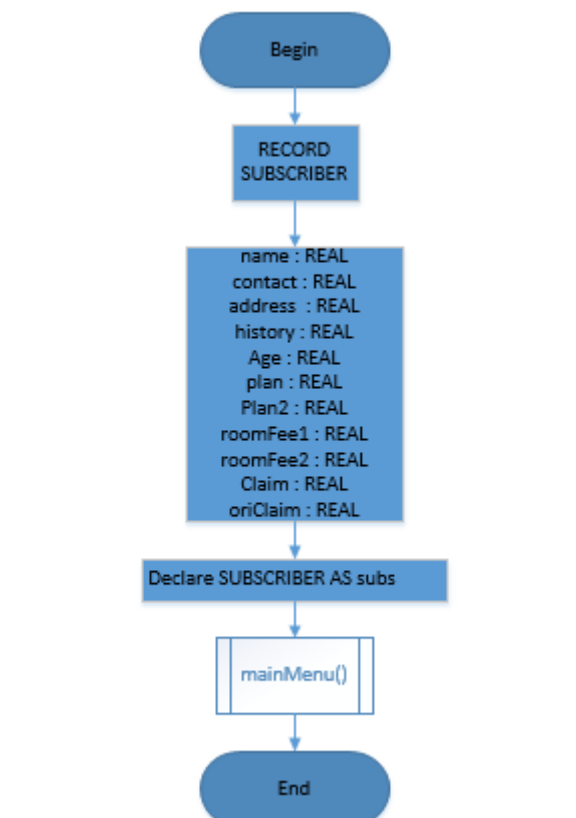
PSEUDOCODE FUNCTION : doingSubscription()

Function doingSubscription()

   Set FileName = "subscription.txt "

   Declare lastLine, details, valid

   Declare id, oldID, check, year

   year = 2020

   OPENFILE FileName FOR READ

   IF FileExists(FileName) THEN

      Print"Could not open file."

      oldID = id + 1

   End IF

   WHILE Not EOF(FileName)

      Input lastLine

      oldID = oldID + 1

   End WHILE

Close FileName

Input oldID

Id = oldID + 1

Print "Enter age of Subscriber: "

Read subs.age

IF (subs.age =0) THEN

   Print "More than 15 days ? YES/NO"

   Read valid

   IF (valid != "No") OR (valid != "NO") OR (valid !="no") THEN

      Print "—Available Insurance Plan Subscription –"

      Print "Does not eligible to any plan Returning to Main Menu"

      call mainMenu()

   End IF

ELSE IF (subs.age >=0 AND subs.age <= 20) THEN

   DOWHILE (subs.plan<=0 OR subs.plan>= 4)

      Print "—Available Insurance Plan Subscription –"

      Print "1. Plan 120"

      Print "2. Plan 150"

      Print "3. Plan 200"

      Print "Please select your plan:"

      Read subs.plan

      IF (subs.plan >3 OR subs.plan <1)

         Print "INVALID INPUT"

         Print "Please enter again "

End IF

End DOWHILE

ELSE IF (subs.age >= 21 AND subs.age <= 40) THEN

DOWHILE (subs.plan<=0 OR subs.plan>= 3)

Print "—Available Insurance Plan Subscription —1. Plan 1502. Plan 200"

Print "Please select your plan:"

Read subs.plan

IF (subs.plan >2 OR subs.plan <1)

Print "INVALID INPUT"

Print "Please enter again "

End IF

End DOWHILE

ELSE IF (subs.age >= 41 AND subs.age <= 54) THEN

DOWHILE (subs.plan !=1)

Print ("—Available Insurance Plan Subscription —1. Plan 200")

Print ("Please select your plan:")

Read subs.plan

IF (subs.plan >1 OR subs.plan <1)

Print "INVALID INPUT"

Print "Please enter again "

End IF

End DOWHILE

ELSE

Print "—Available Insurance Plan Subscription —"

Print "Does not eligible to any plan"

Print "Returning to Main Menu"

mainMenu()

End IF

DOWHILE (subs.plan2<=0 OR subs.plan2>= 3)

Print "1. Annual package"

Print "2. Lifetime package"

Print "Please select your plan:"

Read subs.plan2

IF (subs.plan2 >2 OR subs.plan2 <1)

Print"INVALID INPUT"

Print"Please enter again "

Read subs.plan2

End DOWHILE

Print "Enter the following detail of subscriber"

Print "Name: "

Read subs.name

Print "Contact number: "

Read subs.contact

Print "Address: "

Read subs.address

Print "Health history: "

Read subs.history

Print "—Subscriber Detail –"

Print "Name : , subs.name "

Print "Contact number : , subs.contact "

Print "Address : , subs.address"

Print "Health history : , subs.history"

Print "Age : , subs.age"

Print "Subscription ID : , id"

IF (subs.age >= 21 AND subs.age <= 40) THEN

   subs.plan = subs.plan + 1

ELSE IF (subs.age >=41 AND subs.age <=54) THEN

   subs.plan = subs.plan + 2

ELSE

   subs.plan = subs.plan

End IF

IF (subs.plan = 1 AND subs.plan2 =1) THEN

   subs.claim = 120000

   subs.roomFee1 =120

   subs.roomFee2 =250

   Print "BENIFI AVAILABLE Maxinum room charges claim limit per day : Normal ward : RM120 ICU : RM250"

  ELSE IF (subs.plan = 1 AND subs.plan2 = 2) THEN

   subs.claim = 600000

   subs.roomFee1 =120

   subs.roomFee2 =250

   Print "BENEFIT AVAILABLE Maxinum room charges claim limit per day : Normal ward : RM120 ICU : RM250"

ELSE IF (subs.plan = 2 AND subs.plan2 = 1) THEN

　　subs.claim = 150000

　　subs.roomFee1 =150

　　subs.roomFee2 =400

　　Print "BENEFIT AVAILABLE Maxinum room charges claim limit per day : Normal ward : RM150 ICU : RM400"

ELSE IF (subs.plan = 2 AND subs.plan2 = 2) THEN

　　subs.claim = 750000

　　subs.roomFee1 =120

　　subs.roomFee2 =400

　　Print "BENEFIT AVAILABLE Maxinum room charges claim limit per day : Normal ward : RM150 ICU : RM400"

ELSE IF (subs.plan = 3 AND subs.plan2 = 1) THEN

　　subs.claim = 200000

　　subs.roomFee1 =200

　　subs.roomFee2 =700

　　Print "BENEFIT AVAILABLE Maxinum room charges claim limit per day : Normal ward : RM200 ICU : RM700"

ELSE

　　subs.claim = 1000000

　　subs.roomFee1 =200

　　subs.roomFee2 =700

　　Print "BENEFIT AVAILABLEMaxinum room Declareges claim limit per day : Normal ward : RM200 ICU : RM700"

End IF

OPENFILE FileName FOR APPEND

IF FileExists(FileName) THEN

Print"Could not create .txt file."

ELSE

FILEWRITE id,subs.name,subs.contact,subs.address,subs.history

FILEWRITE subs.age,subs.plan,subs.plan2,subs.claim,subs.claim)

FILEWRITE year,subs.roomFee1,subs.roomFee2)

End IF

Close FileName

Print "Record successfully"

call mainMenu()

FLOWCHART FUNCTION : doingSubscription ()

PSEUDOCODE FUNCTION : claimProcessing()

Function claimProcessing()

  Declare details[100], StrLine, display, display2

  Declare claim, id, check, balanceAmount, minus, year, day, date, service, totalOtherFee, totalRoomFee, overload, CurrentIndex

  Set FileName = "subscription.txt "

  Set FileName2 = "replace.tmp"

  check=0

  minus=0

  totalOtherFee=0

  overload = 0

  CurrentIndex = 1

  Print "Enter Subscriber ID :"

  Read id

  Print "Enter Claimed year :"

  Read year

  OPENFILE FileName FOR READ

  IF FileExists(FileName) THEN

    Print"Could not open file."

  End IF

  WHILE Not EOF(FileName)

    IF (CurrentIndex = id) THEN

      Input StrLine

      break

End IF

Input StrLine

CurrentIndex = CurrentIndex + 1

Close (FileName)

End WHILE

LOOP count FROM 0 to 20 STEP 1

Split Strline THEN store in detail [count]

End LOOP

check = details[0]

IF (check != id) THEN

Print "This ID does not exist. Please enter again"

call mainMenu()

subs.age = details[5]

subs.plan = details[6]

subs.plan2 = details[7]

subs.oriClaim = details[8]

date = details[10]

END IF

IF (subs.plan2 = 1) THEN

IF (date != year) THEN

claim = subs.oriClaim

ELSE

claim = details[9]

END IF

```
ELSE

    claim =  details[9]

End IF

IF  (subs.plan = 1)  THEN

    display = "Plan 120"

    subs.roomFee1 = details[11]

ELSE IF  (subs.plan = 2)  THEN

    display = "Plan 150"

    subs.roomFee1 = details[11]

ELSE

    display = "Plan 200"

    subs.roomFee1 = details[11]

End IF

IF  (subs.plan2 = 1)  THEN

    display2="Annual Package"

ELSE

    display2="Lifetime package"

End IF

Print "-- Subscriber Detail –"

Print "Name : , subs.name "

Print "Contact number : , subs.contact "

Print "Address : , subs.address"

Print "Health history : , subs.history"

Print "Age : , subs.age"
```

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"

Print "Balance amount : , claim " ,

Print "How many days stay in hospital: "

Read day

Print "Types of room service 1. Normal ward 2. ICU Please select your option :"

Read service

IF (service = 2 AND subs.plan = 1) THEN

    subs.roomFee1 = details[12]

ELSE IF (service = 2 AND subs.plan = 2) THEN

    subs.roomFee1 = details[12]

ELSE

    subs.roomFee1 = details[12]

End IF

DOWHILE (check = 1 OR check = 2 OR check = 3)

    Print "-- Other claimed method -- 1. Hospital Supplies and Services 2. Surgical Fees 3. Other Fees 4. Exit Please select your option :"

    Read check

    IF (check = 1 OR check = 2 OR check = 3) THEN

        Print "Insert the amount that subscriber has been claimed : "

        Read minus

    ELSE IF (check = 4) THEN

        totalRoomFee = day * subs.roomFee1

        totalOtherFee = totalOtherFee + minus

balanceAmount = claim - totalOtherFee - totalRoomFee

IF (balanceAmount < 0) THEN

  overload = balanceAmount * -1

  balanceAmount = 0

End IF

Print "Name : , subs.name "

Print "Contact number : , subs.contact "

Print "Address : , subs.address"

Print "Health history : , subs.history"

Print "Age : , subs.age"

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"

Print "Balance amount : , claim " ,

Print "After claimed Balance amount: , balanceAmount "

Print "Extra payment : overload "

OPENFILE FileName FOR READ

OPENFILE FileName2 FOR WRITE

IF (FileExists(FileName) OR FileExists(FileName2)) THEN

  Print"Could not open file."

 Call mainMenu()

End IF

CurrentIndex = 1

WHILE Not EOF(FileName)

Input Strline

IF (CurrentIndex=id) THEN

FILEAPPEND
id,details[1],details[2],details[3],details[4],subs[id].age,subs[id].plan,subs[id].plan2,subs[id].oriClaim,balanceAmount,year,details[11],details[12] IN FileName2

ELSE

FILEAPPEND StrLine FileName2

END IF

CurrentIndex++

End WHILE

Close (FileName)

Close (FileName2)

Remove (FileName)

Rename(FileName), (FileName2)

mainMenu()

ELSE
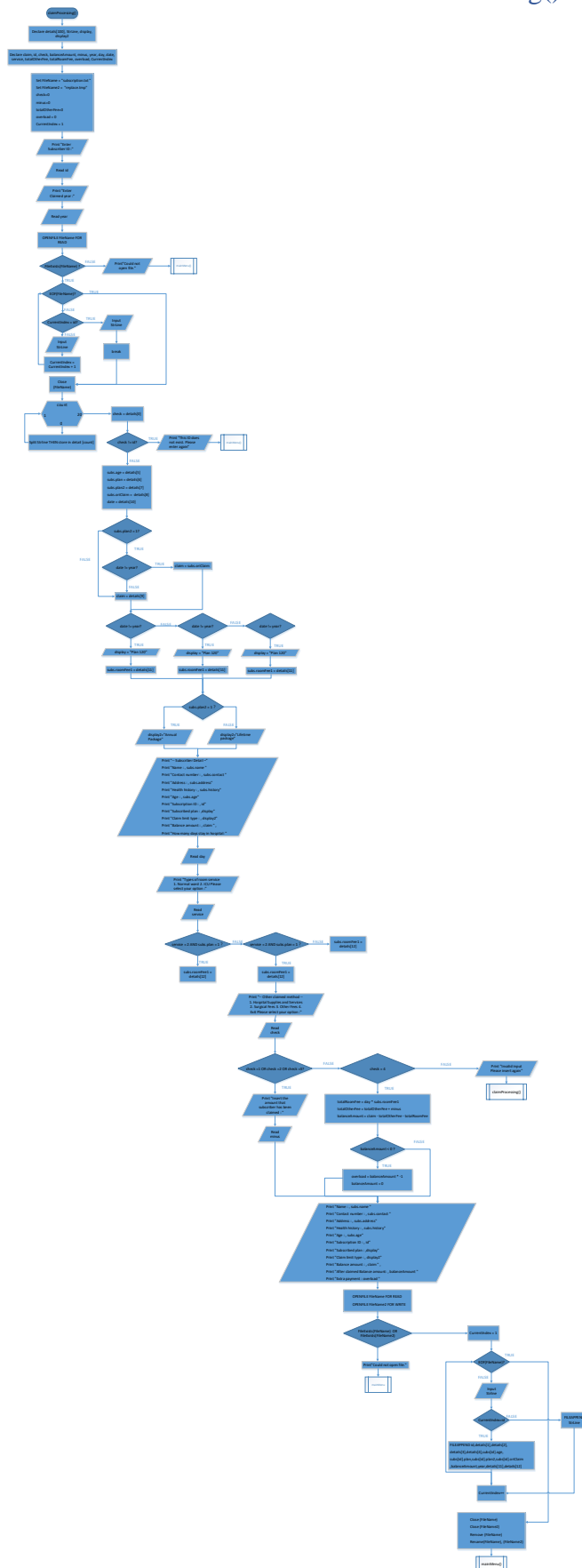
Print "Invalid input Please insert again"

claimProcessing()

End IF

End Function

FLOWCHART FUNCTION : claimProcessing()

Function accountsInformation()

   Set FileName = "subscription.txt "

   Declare details[80],StrLine,display,display2

   Declare id,lifeClaimAmount,minus,cnt,lineCount,cnt2,cnt3,claimedAmount

   cnt = 0

   cnt2 = 0

   cnt3 = 0

   lineCount = 1

   OPENFILE FileName FOR READ

   IF FileExists(FileName) THEN

      Print"Could not open file."

   End IF

   WHILE Not EOF(FileName)

      Input StrLine FROM FileName

      LOOP count FROM 0 to 20 STEP 1

         Split Strline THEN store in detail [count]

      End LOOP

      id = details[0]

      subs[id].plan = details[6]

      subs[id].plan2 = details[7]

      subs[id].oriClaim = details[8]

      subs[id].claim = details[9]

      IF (id != lineCount) THEN

         break

    End IF

  IF (subs[id].plan2 = 2) THEN

    IF (subs[id].plan = 1) THEN

        display = "Plan 120"

    ELSE IF (subs[id].plan = 2) THEN

        display ="Plan 150"

    ELSE

        display ="Plan 200"

    End IF

    display2 ="Annual Package"

    claimedAmount = subs[id].oriClaim - subs[id].claim

    IF (claimedAmount != 0) THEN

      cnt3++

      Print "SUBSCRIBER THAT CLAIMED AMOUNT IN LIFETIME CLAIM LIMIT"

      Print "Name : , details[1] "

      Print "Contact number : , details[2] "

      Print "Address : , details[3]"

      Print "Health history : , details[4]"

      Print "Age : , details[5]"

      Print "Subscription ID : , id"

      Print "Subscribed plan : ,display"

      Print "Claim limit type : , display2"

      Print "Claimed amount : , claimedAmount "

      Print "Balance amount : , subs[id].claim "

Print "Date : , subs[id].claim,details[10] "

Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11]

Print "ICU : ,details[12] "

minus = subs[id].oriClaim - subs[id].claim

lifeClaimAmount += minus

End IF

End IF

End IF

IF (subs[id].plan2 = 1) THEN

IF (subs[id].claim = 0) THEN

cnt += 1

claimedAmount = subs[id].oriClaim - subs[id].claim

Print" SUBSCRIBER THAT CLAIMED AMOUNT IN LIFETIME CLAIM LIMIT --

Print "Name : , details[1] "

Print "Contact number : , details[2] "

Print "Address : , details[3]"

Print "Health history : , details[4]"

Print "Age : , details[5]"

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"

Print "Claimed amount : , claimedAmount "

Print "Balance amount : , subs[id].claim "

Print "Date : , subs[id].claim,details[10] "

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Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11]

Print "ICU : ,details[12] "

Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11]

Print "ICU : ,details[12] "

End IF

lineCount++

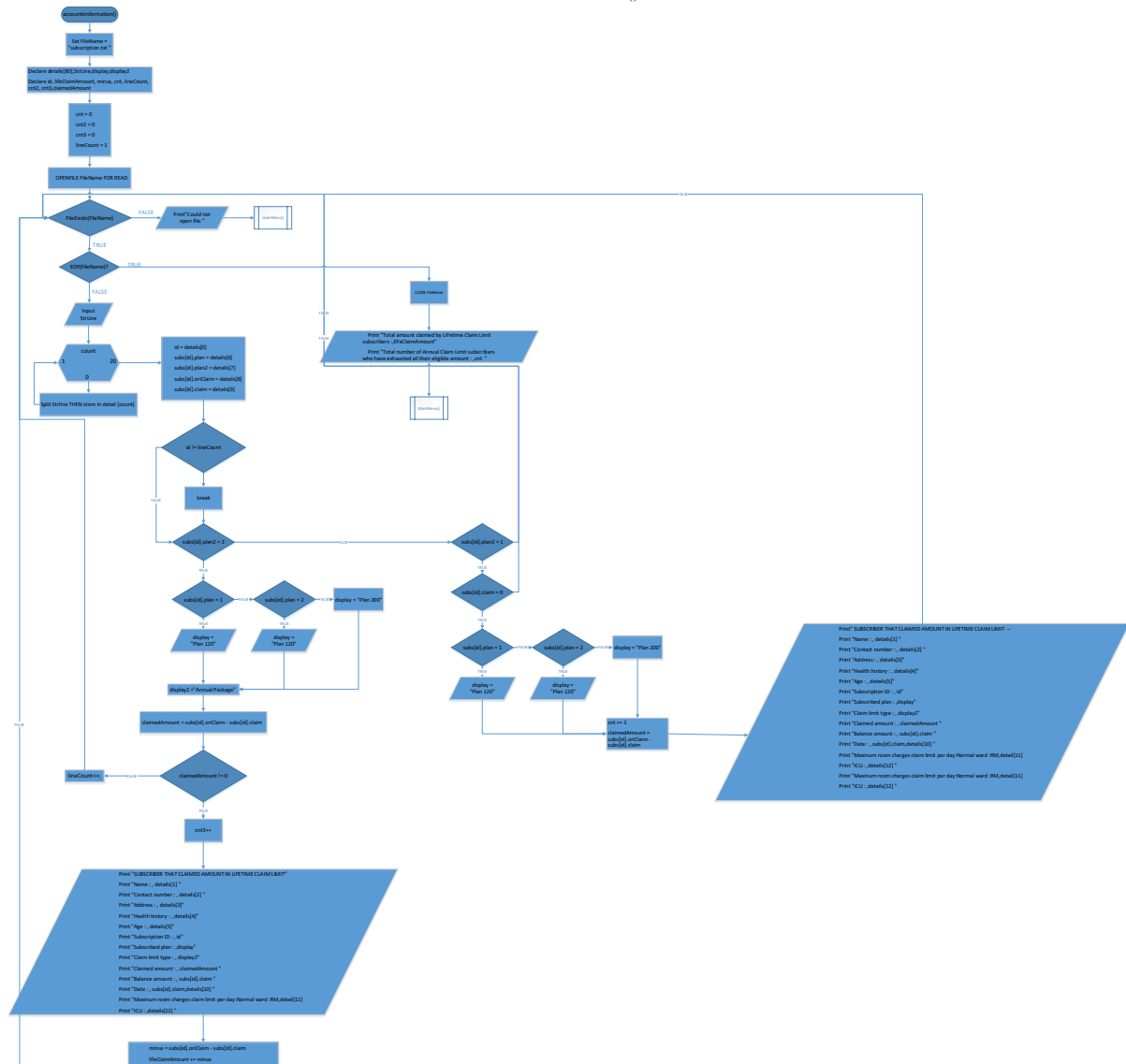End IF

End WHILE

CLOSE FileName

Print "Total amount claimed by LIFetime Claim Limit subscribers :,lIFeClaimAmount"

Print "Total number of Annual Claim Limit subscribers who have exhausted all their eligible amount : ,cnt "

mainMenu()

}

FLOWCHART FUNCTION : accountsInformation()

PSEUDOCODE FUNCTION : searchingFunctionalities1()

Function searchingFunctionalities1()

    Set FileName = "subscription.txt "

    Declare details[80], display, display,2StrLine,idChar

    Declare id, CurrentIndex, flag, date, claim, claimedAmount, count

    id=1

    CurrentIndex=1

    flag=0

    claimedAmount=0

Print("Enter Subscriber ID or Name: ")

Read idChar

OPENFILE FileName FOR READ

IF FileExists(FileName) THEN

  Print"Could not open file."

End IF

WHILE Not EOF(FileName) THEN

  Input StrLine FROM FileName

  LOOP count FROM 0 to 20 STEP 1

    Split Strline THEN store in detail [count]

  End LOOP

  IF(idChar = details[0]) THEN

    flag = 1

    break

  ELSE IF (idChar = details[1]) THEN

    flag = 1

    break

  ELSE

    flag = 0

End WHILE

CLOSE (FileName)

IF (flag = 0) THEN

  Print "This ID haven't been recorded.Please enter again"

  Call mainMenu()

End IF

subs[id].plan = details[6]

subs[id].plan2 = details[7]

subs[id].oriClaim = details[8]

claim = details[9]

IF (subs[id].plan = 1) THEN

   display = "Plan 120"

ELSE IF (subs[id].plan = 2)THEN

   display = "Plan 150"

ELSE

   display = "Plan 200"

End IF

IF (subs[id].plan2 = 1)THEN

   display2 = "Annual Package"

ELSE

   display2 = "Lifetime package"

End IF

claimedAmount = subs[id].oriClaim - claim

Print " -- Subscriber Detail –"

Print "Name : , details[1] "

Print "Contact number : , details[2] "

Print "Address : , details[3]"

Print "Health history : , details[4]"

Print "Age : , details[5]"

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"

Print "Claimed amount : , claimedAmount "

Print "Balance amount : , subs[id].claim "

Print "Date : , subs[id].claim,details[10] "

Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11] "
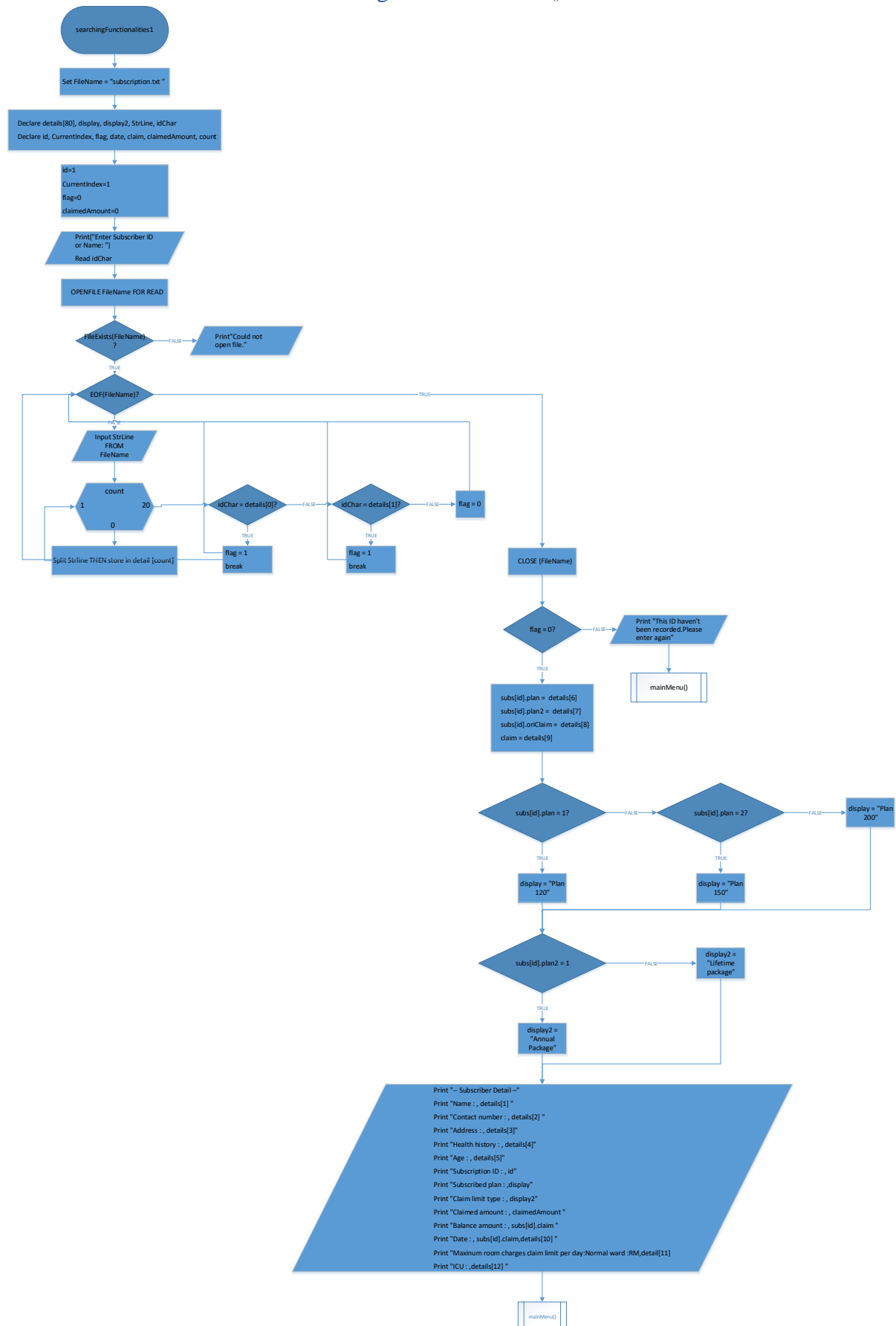
Print "ICU : ,details[12] "

Call mainMenu()

End Fucntion

FLOWCHART FUNCTION : searchingFunctionalities1 ()

searchingFunctionalities1

Set FileName = "subscription.txt "

Declare details[80], display, display2, StrLine, idChar
Declare id, CurrentIndex, flag, date, claim, claimedAmount, count

id=1
CurrentIndex=1
flag=0
claimedAmount=0

Print("Enter Subscriber ID or Name: ")
Read idChar

OPENFILE FileName FOR READ

FileExists(FileName)? — FALSE → Print"Could not open file."

TRUE

EOF(FileName)? — TRUE →

FALSE

Input StrLine FROM FileName

count 1 20 0

idChar = details[0]? — FALSE → idChar = details[1]? — FALSE → flag = 0

TRUE → flag = 1 break

TRUE → flag = 1 break

Split StrLine THEN store in detail [count]

CLOSE (FileName)

flag = 0? — FALSE → Print "This ID haven't been recorded.Please enter again" → mainMenu()

TRUE

subs[id].plan = details[6]
subs[id].plan2 = details[7]
subs[id].oriClaim = details[8]
claim = details[9]

subs[id].plan = 1? — FALSE → subs[id].plan = 2? — FALSE → display = "Plan 200"

TRUE → display = "Plan 120"

TRUE → display = "Plan 150"

subs[id].plan2 = 1 — FALSE → display2 = "Lifetime package"

TRUE → display2 = "Annual Package"

Print "– Subscriber Detail –"
Print "Name : , details[1] "
Print "Contact number : , details[2] "
Print "Address : , details[3]"
Print "Health history : , details[4]"
Print "Age : , details[5]"
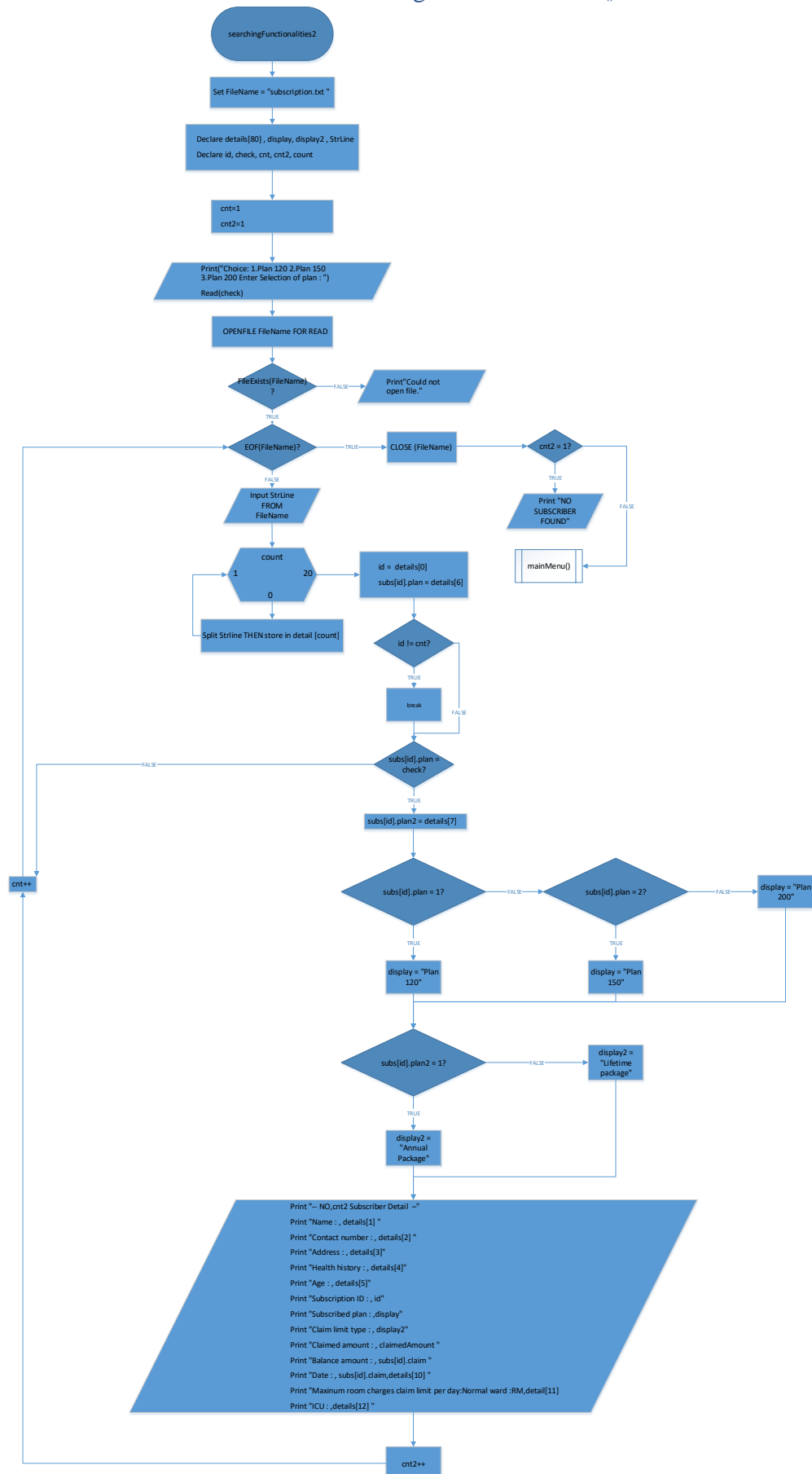Print "Subscription ID : , id"
Print "Subscribed plan : ,display"
Print "Claim limit type : , display2"
Print "Claimed amount : , claimedAmount "
Print "Balance amount : , subs[id].claim "
Print "Date : , subs[id].claim,details[10] "
Print "Maximun room charges claim limit per day:Normal ward :RM,detail[11]
Print "ICU : ,details[12] "

mainMenu()

PSEUDOCODE FUNCTION : searchingFunctionalities2 ()
Fucntion searchingFunctionalities2()

   Set FileName = "subscription.txt "

   Declare details[80] , display, display2 , StrLine

   Declare id, check, cnt, cnt2, count

   cnt=1

   cnt2=1

   Print("Choice: 1.Plan 120 2.Plan 150 3.Plan 200 Enter Selection of plan : ")

   Read(check)

   OPENFILE FileName FOR READ

   IF FileExists(FileName) THEN

     Print"Could not open file."

   End IF

   WHILE Not EOF(FileName)

     Input StrLine FROM FileName

     LOOP count FROM 0 to 20 STEP 1

       Split Strline THEN store in detail [count]

     End LOOP

     id = details[0]

     subs[id].plan = details[6]

     IF (id != cnt) THEN

       break

     End IF

     IF (subs[id].plan = check)THEN

       subs[id].plan2 = details[7]

```
IF (subs[id].plan = 1) THEN

    display = "Plan 120"

}

ELSE  IF (subs[id].plan = 2)THEN

    display = "Plan 150"

}

ELSE

    display = "Plan 200"

End IF

IF (subs[id].plan2 = 1)THEN

    display2 = "Annual Package"

}

ELSE

    display2 = "Lifetime package"

End IF

Print " – NO,cnt2 Subscriber Detail --"

Print "Name : , details[1] "

Print "Contact number : , details[2] "

Print "Address : , details[3]"

Print "Health history : , details[4]"

Print "Age : , details[5]"

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"
```
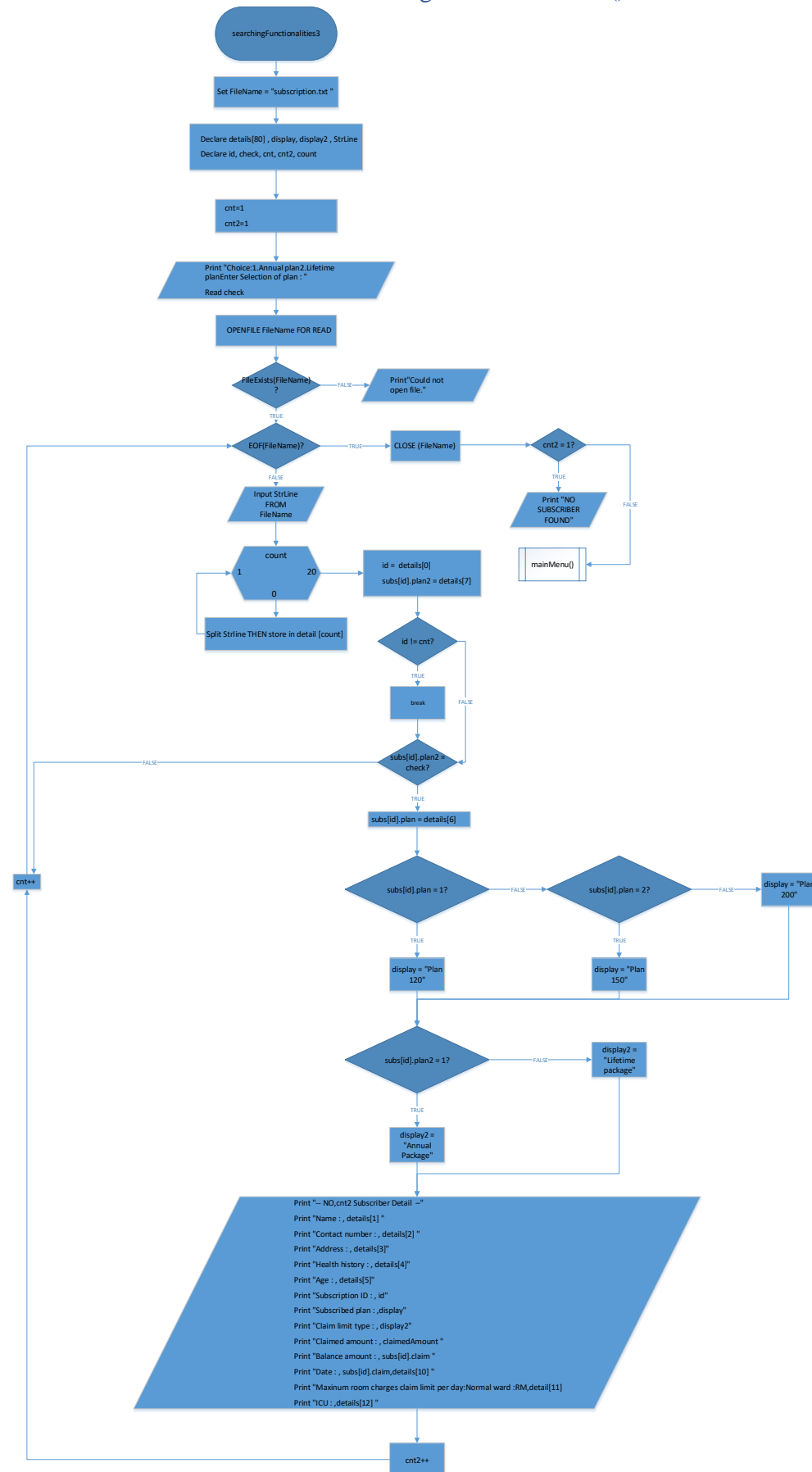
Print "Claimed amount : , claimedAmount "

Print "Balance amount : , subs[id].claim "

Print "Date : , subs[id].claim,details[10] "

Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11] "

Print "ICU : ,details[12] "

cnt2++

End IF

cnt++

End WHILE

CLOSE (FileName)

IF (cnt2 = 1) THEN

Print "NO SUBSCRIBER FOUND"

End IF

Call mainMenu()

End Fucntion

FLOWCHART FUNCTION : searchingFunctionalities2 ()

searchingFunctionalities2

Set FileName = "subscription.txt "

Declare details[80] , display, display2 , StrLine
Declare id, check, cnt, cnt2, count

cnt=1
cnt2=1

Print("Choice: 1.Plan 120 2.Plan 150
3.Plan 200 Enter Selection of plan : ")
Read(check)

OPENFILE FileName FOR READ

FileExists(FileName)? — FALSE → Print"Could not open file."

TRUE

EOF(FileName)? — TRUE → CLOSE (FileName) → cnt2 = 1?

FALSE

Input StrLine FROM FileName

count 1 ... 20
0

Split Strline THEN store in detail [count]

id = details[0]
subs[id].plan = details[6]

id != cnt?

TRUE

break — FALSE

subs[id].plan = check? — FALSE

TRUE

subs[id].plan2 = details[7]

cnt2 = 1?
TRUE → Print "NO SUBSCRIBER FOUND"
FALSE → mainMenu()

subs[id].plan = 1? — FALSE → subs[id].plan = 2? — FALSE → display = "Plan 200"

TRUE → display = "Plan 120"
TRUE → display = "Plan 150"

subs[id].plan2 = 1? — FALSE → display2 = "Lifetime package"

TRUE → display2 = "Annual Package"

Print "-- NO,cnt2 Subscriber Detail --"
Print "Name : , details[1] "
Print "Contact number : , details[2] "
Print "Address : , details[3]"
Print "Health history : , details[4]"
Print "Age : , details[5]"
Print "Subscription ID : , id"
Print "Subscribed plan : ,display"
Print "Claim limit type : , display2"
Print "Claimed amount : , claimedAmount "
Print "Balance amount : , subs[id].claim "
Print "Date : , subs[id].claim,details[10] "
Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11]
Print "ICU : ,details[12] "

cnt++

cnt2++

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PSEUDOCODE FUNCTION : searchingFunctionalities3 ()

Function searchingFunctionalities3()

   Set FileName = "subscription.txt "

   Declare details[80] , display, display2, StrLine

   Declare id , check , cnt , cnt2, count

   cnt = 1

   cnt2 = 1

   Print "Choice:1.Annual plan2.Lifetime planEnter Selection of plan : "

   Read check

   OPENFILE FileName FOR READ

   IF FileExists(FileName) THEN

      Print "Could not open file."

   End IF

   WHILE Not EOF(FileName)

      Input StrLine FROM FileName

      LOOP count FROM 0 to 20 STEP 1

         Split Strline THEN store in detail [count]

      End LOOP

      id = details[0]

      subs[id].plan2 = details[7]

      IF (id != cnt) THEN

         break

      End IF

      IF (subs[id].plan2 = check) THEN

         subs[id].plan = details[6]

IF (subs[id].plan = 1) THEN

    display = "Plan 120"

}

ELSE IF (subs[id].plan = 2)THEN

    display = "Plan 150"

}

ELSE THEN

    display = "Plan 200"

End IF

IF (subs[id].plan2 = 1) THEN

    display2 = "Annual Package"

}

ELSE THEN

    display2 = "Lifetime package"

End IF

Print " – NO,cnt2 Subscriber Detail --"

Print "Name : , details[1] "

Print "Contact number : , details[2] "

Print "Address : , details[3]"

Print "Health history : , details[4]"

Print "Age : , details[5]"

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"

Print "Claimed amount : , claimedAmount "

Print "Balance amount : , subs[id].claim "

Print "Date : , subs[id].claim,details[10] "

Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11] "

Print "ICU : ,details[12] "

cnt2++

End IF

cnt++

End WHILE

CLOSE (FileName)

IF (cnt2 = 1) THEN

Print "NO SUBSCRIBER FOUND"

End IF

Call mainMenu()

End Fucntion

FLOWCHART FUNCTION : searchingFunctionalities4 ()

searchingFunctionalities3

Set FileName = "subscription.txt "

Declare details[80] , display, display2 , StrLine
Declare id, check, cnt, cnt2, count

cnt=1
cnt2=1

Print "Choice:1.Annual plan2.Lifetime planEnter Selection of plan : "
Read check

OPENFILE FileName FOR READ

FileExists(FileName)? —FALSE→ Print"Could not open file."

TRUE

EOF(FileName)? —TRUE→ CLOSE (FileName) → cnt2 = 1?

TRUE → Print "NO SUBSCRIBER FOUND"

FALSE

FALSE

Input StrLine FROM FileName

count
1   20
0

Split Strline THEN store in detail [count]

id = details[0]
subs[id].plan2 = details[7]

id != cnt?

TRUE → break

FALSE

subs[id].plan2 = check? —FALSE→ cnt++

TRUE

subs[id].plan = details[6]

subs[id].plan = 1? —FALSE→ subs[id].plan = 2? —FALSE→ display = "Plan 200"

TRUE   TRUE

display = "Plan 120"   display = "Plan 150"

subs[id].plan2 = 1? —FALSE→ display2 = "Lifetime package"

TRUE

display2 = "Annual Package"

mainMenu()

Print "-- NO,cnt2 Subscriber Detail --"
Print "Name : , details[1] "
Print "Contact number : , details[2] "
Print "Address : , details[3]"
Print "Health history : , details[4]"
Print "Age : , details[5]"
Print "Subscription ID : , id"
Print "Subscribed plan : ,display"
Print "Claim limit type : , display2"
Print "Claimed amount : , claimedAmount "
Print "Balance amount : , subs[id].claim "
Print "Date : , subs[id].claim,details[10] "
Print "Maximum room charges claim limit per day:Normal ward :RM,detail[11]
Print "ICU : ,details[12] "

cnt2++

41

PSEUDOCODE FUNCTION : searchingFunctionalities4 ()

Function searchingFunctionalities4()

　Set FileName = "subscription.txt "

　Declare details[80] , display, display2, StrLine

　Declare id , check , cnt , cnt2, count

　cnt = 1

　cnt2 = 1

　Print "Enter age of Subscriber : "

　Read check

　OPENFILE FileName FOR READ

　IF FileExists(FileName) THEN

　　Print"Could not open file."

　End IF

　WHILE Not EOF(FileName)

　　Input StrLine FROM FileName

　　LOOP count FROM 0 to 20 STEP 1

　　　Split Strline THEN store in detail [count]

　　End LOOP

　　id = (details[0])

　　subs[id].age = (details[5])

　　IF (id != cnt)THEN

　　　break

　　End IF

　　IF (subs[id].age = check)THEN

　　　subs[id].plan = (details[6])

subs[id].plan2 = (details[7])

IF (subs[id].plan = 1)THEN

   display = "Plan 120")

}

ELSE IF (subs[id].plan = 2)THEN

   display = "Plan 150")

}

ELSE

   display = "Plan 200")

End IF

IF (subs[id].plan2 = 1)THEN

   display2 = "Annual Package")

}

ELSE

   display2 = "Lifetime package")

End IF

Print " – NO,cnt2 Subscriber Detail --"

Print "Name : , details[1] "

Print "Contact number : , details[2] "

Print "Address : , details[3]"

Print "Health history : , details[4]"

Print "Age : , details[5]"

Print "Subscription ID : , id"

Print "Subscribed plan : ,display"

Print "Claim limit type : , display2"

Print "Claimed amount : , claimedAmount "

Print "Balance amount : , subs[id].claim "

Print "Date : , subs[id].claim,details[10] "

Print "Maxinum room charges claim limit per day:Normal ward :RM,detail[11] "

Print "ICU : ,details[12] "

cnt2++

End IF

End WHILE

CLOSE (FileName)

IF (cnt2 = 1)THEN

Print "NO SUBSCRIBER FOUND"

End IF

Call mainMenu()

End Fucntion

FLOWCHART FUNCTION : searchingFunctionalities4 ()

searchingFunctionalities4

Set FileName = "subscription.txt "

Declare details[80] , display, display2 , StrLine
Declare id, check, cnt, cnt2, count

cnt=1
cnt2=1

Print "Enter age of Subscriber : ""
Read check

OPENFILE FileName FOR READ

FileExists(FileName)? — FALSE → Print"Could not open file."

TRUE

EOF(FileName)? — TRUE → CLOSE (FileName) → cnt2 = 1?

FALSE

Input StrLine FROM FileName

TRUE (cnt2 = 1?) → Print "NO SUBSCRIBER FOUND"

FALSE (cnt2 = 1?) → mainMenu()

count 1 ... 20 ... 0

id = details[0]
subs[id].age = (details[5])

Split Strline THEN store in detail [count]

id != cnt?

TRUE → break

FALSE

subs[id].age = check? — FALSE →

TRUE

subs[id].plan = (details[6])
subs[id].plan2 = (details[7])

subs[id].plan = 1? — FALSE → subs[id].plan = 2? — FALSE → display = "Plan 200"

TRUE → display = "Plan 120"

TRUE (plan = 2?) → display = "Plan 150"

subs[id].plan2 = 1? — FALSE → display2 = "Lifetime package"

TRUE → display2 = "Annual Package"

Print "— NO,cnt2 Subscriber Detail –"
Print "Name : , details[1] "
Print "Contact number : , details[2] "
Print "Address : , details[3]"
Print "Health history : , details[4]"
Print "Age : , details[5]"
Print "Subscription ID : , id"
Print "Subscribed plan : ,display"
Print "Claim limit type : , display2"
Print "Claimed amount : , claimedAmount "
Print "Balance amount : , subs[id].claim "
Print "Date : , subs[id].claim,details[10] "
Print "Maximun room charges claim limit per day:Normal ward :RM,detail[11]
Print "ICU : ,details[12] "

cnt++

cnt2++

Explanation of portable ANSI C programming Concepts

#include

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include "header.h"
#include "structheader.h"
```

For the beginning of the C programming, I put all the header file in the top of source code to ensure I can use the features of library provided. The C preprocessor is a macro preprocessor transform sources code before complier the program. The keyword "#include" is telling the C complier to include the contents of header files and allow to use those features includes in header file. For example, <stdio.h> allow the C complier using the function like scanf() and printf(). <string.h> allow the C complier using the function like strtok() and strcmp().<stdlib.h> allow the C complier using the function like aoti(), itoa(), atof() etc. Without including these header file Complier will not going to understand the meaning of our source code and cannot complier the code successfully.

Function

Function part can separate into 3 part such as, function prototype, function call and function definition. For the first part, function prototype is also can include in header file. The purpose of the function prototype is ensuring the declaration of data type of parameter while using this function. This can be to avoid the conflict of declaration of parameter when passing the value into this specific function.

```
1    #ifndef HEADER_H_INCLUDED
2    #define HEADER_H_INCLUDED
3
4    void doingSubscription();
5    void claimProcessing ();
6    void accountsInformation();
7    int mainMenu ();
8    void searchingFunctionalities1();
9    void searchingFunctionalities2();
10   void searchingFunctionalities3();
11   void searchingFunctionalities4();
12   void split(char [][80], char * , char* );
13
14   #endif // HEADER_H_INCLUDED
```

After that, function call is calling the function when wanted to use the function and passing the value into this function. So that, it's can return some result after execute finish the sources code.

```
if (option == 1){
        doingSubscription();
}
```

At the last, function definition is the location of main sources code. After calling by other different object or place, it will execute the entire code to do some instruction like addition, subtraction , multiplication and division.

```
void split(char details[][80], char* str, char* spl)
{
    int n = 0;
    char * storage = NULL;
    storage = strtok(str, spl);
    while(storage != NULL )
    {
        strcpy(details[n++], storage);
        storage = strtok(NULL, spl);
    }
}
```

VOID and INT function

The purpose of these two types of function are similar. Declaration of int must return value to the program that called this function, but void function does not need return any value while finish the execute

```
return 0;
```

Variable

```
char lastLine[1024],details[20][80],valid[10];
int id,oldID,check,year=2020;
```

Majority of this assignment, I used these variables to write my program. This screenshot is showing the declaration of variable. lastLine[1024] is declaring allow to store about 1023 characters words and 1 "\0" for letting the C compiler knew the ending of the char. Also, these 1023 character is store by each memory buffer for each word. Variable details[20][80] is a declaration of 2-dimension character. Others vairaible is declare as int for store value of decimal form.

Control structure (nested if)

Control structure is perform checking condition to helping make decision to selecting their command or other function as they wanted.

```
if (check == 1){
    searchingFunctionalities1();
}
else if (check == 2){
    searchingFunctionalities2();
}
else if (check == 3){
    searchingFunctionalities3();
}
else if (check == 4){
    searchingFunctionalities4();
}
else{
    mainMenu();
}
```

Control structure if is for using at while the condition is only 1, In this case of ifcondition, when check equal to one, it is enable to run and calling the searchingFunctionalities1() functions, or else it will going to check another condition and running the specific functions.

LOOP structure

Looping structure is performing the loop for sequence number of times.

```
do {
    printf ("-- MAIN MENU --\n1. Insurance Plan Subcription\n2. Claim Proce
    if((scanf("%d", &option))!=1){
        printf ("INVAIID INPUT\n");
        scanf("%*s");
    }
    else{
        if (option == 1){
            doingSubscription();
        }
        else if (option == 2){
            claimProcessing();
        }
        else if (option == 3){
            accountsInformation();
        }
        else if (option == 4){
            menu();
        }
        else{
            printf ("\nINVALID INPUT\nPlease enter again\n");
        }
    }
}while (option >= 5 || option <= 0);
```

In this example is using DO WHILE looping structure. DO WHILE allow me to run once time the program before checking the condition of the while condition.

.txt file
READ MODE

```
FILE *f;
f=fopen("subscription.txt","r");
if (f==NULL)
    printf("Could not open file.");
while (!feof(f))
    fgets(lastLine,1024,f);
fclose(f);
```

The purpose of the first line is declaring file handle as 'f' variable. Thus, it allows me to use 'f' file handle do perform more features. After that, the 'f' file handle used to open "subscription.txt" with READING mode. This action can let the c compiler know the purpose of this file handle is reading the data from "subscription.txt". If the file is empty the .exe file is print "could not open file" for telling the user the specific file is does not exist. While the file is not empty it will go in to Looping structure and read the specific file line by line until the file is empty. When it is empty the program will close the file.

WRITE MODE

```
fp1   = fopen("subscription.txt", "r");
fptemp = fopen("replace.tmp", "w");
if (fp1 == NULL || fptemp == NULL)
    {
        printf("\nUnable to open file.\n");
    }
CurrentIndex = 1;
while ((fgets(StrLine,1024, fp1)) != NULL)
{
    if (CurrentIndex==id){
        fprintf(fptemp,"%d\t%s\t%s\t%s\t%s\t%d\t%d\t%d\t%d\t%d\t%d\t%s\t%s",id,details[1],det
    }
    else{
        fputs(StrLine,fptemp);
    }
    CurrentIndex++;
}
fclose(fp1);
fclose(fptemp);
remove("subscription.txt");
rename("replace.tmp","subscription.txt");
mainMenu();
```

Write mode can re-write the whole .txt file. Its mean it will clean all the data that include in the file first, then it staring to write the file.

APPEND MODE

```
f = fopen("subscription.txt","a");
if (f == NULL)
    printf ("Could not create .txt file");
else{
    fprintf(f,"%d\t%s\t%s\t%s\t%s",id,subs[id].name,subs[id].contact,subs[id].address,subs[id].history);
    fprintf(f,"\t%d\t%d\t%d\t%d\t%d",subs[id].age,subs[id].plan,subs[id].plan2,subs[id].claim,subs[id].claim
    fprintf(f,"\t%d\t%d\t%d\t\n",year,subs[id].roomFee1,subs[id].roomFee2);
}
fclose(f);
```

Append mode is based on previous data and adding new data into this specific .txt file. That's mean it not same as write mode, it does not rewrite the whole file, its is adding new line under the previous data.

Additional Features

ATOI

```
oldID = atoi(details[0]);
```

Atoi is stand for array to integer, which mean it allow changing the char datatype into int datatype. This feature can allow to scan the details[0] character and auto skipping those spacebar or tab. When it cannot change to integer form, it will return 0 value to the variable.

STRTOK

```
storage = strtok(str, spl);
```

Strtok is stand for split string into token. The purpose of strtok used for splitting the string into few tokens, which are category by any of the characters that are the part of delimiter. The first parameter is the data that I wanted split and broke into few smaller values. The second parameter is the delimiter which is categorizing the data in the .txt file.

STRCPY

```
strcpy (display,"Plan 120") ;
```

Strcpy is stand for string copy. The purpose of strcpy used to copy the second parameter data into the first parameter data. But the condition is the datatype of destination must declare as character datatype. So, that Strcpy instructuion can be execute successfully,

FFLUSH (STDIN) & SCANF("%*s")

```
printf ("\nMore than 15 days ? YES/NO\n");
fflush(stdin);
gets(valid);

if((scanf("%d", &option))!=1){
    printf ("INVAIID INPUT\n");
    scanf("%*s");
}
```

Fflush (stdin) is used for reset the value of stored in memory buffer for now in console. So that, it can avoid get spacebar (black space) value and inside the valid variable. After that scanf("%*s") is also used to free the memory buffer ram and refresh it to the console, So its can continue execute the code.

SCANF ()

```
if((scanf("%d", &option))!=1){
    printf ("INVAIID INPUT\n");
    scanf("%*s");
}
```

Scanf () function allow to return a value to the variable. It will return 0 value when the number is integer but when it is not integer (int) datatype such as character (char), it will return 1 into this if-statement, when it is 1 it will ask user insert the value again.

STRUCT ()

```
struct subscription{
    char name[40],contact[15],address[1024],history[1024];
    int age,plan,plan2,roomFee1,roomFee2,claim,oriClaim;
} subs[1000];
```

Struct () function allow store value in each variable. Thus, it can avoid declare too many same variables in each function. All function can using struct variable for while doing calculation or coding.

TIME_T

```
time_t timep;
struct tm *p;
time (&timep);
p=gmtime(&timep);
```

Time_t is allowed getting the actual life time from now, its allow to print or recording now actual time while user is using this system to claim money.

SPLIT FUNCTION

```
void split(char details[][80], char* str, char* spl)
{
    int n = 0;
    char * storage = NULL;
    storage = strtok(str, spl);
    while(storage != NULL )
    {
        strcpy(details[n++], storage);
        storage = strtok(NULL, spl);
    }
}
```

Split function is allowed spilt the data lines and store the splitting result in details[X]. first, the first parameter is the splitting result that wanted to store in a 2-dimensional character array. Second parameter is passing the while data line from .txt. third parameter is the delimiter of the sentence. After that, **Char * storage = null** is declaring a char pointer to store the data line from .txt file for the moment. The purpose of declaring char pointer is strtok must using char pointer to split the data line. The reason why cannot using declaration

of char because strtok is not allowed, all the char got their own personal memory buffer for each character, but char pointer is saving whole data string in 1 memory buffer so that it is be split by using strtok.

After that it will go into while condition, first it strcpy the first variable and saved it into details[0]. Then, **storage = strtok (NULL, spl)** is reset the value to NULL after finish copying 1 variable into detail[], when it is not NULL again , It will loop it again and again until storage is NULL.

ABS

```
overload = abs(balanceAmount);
```
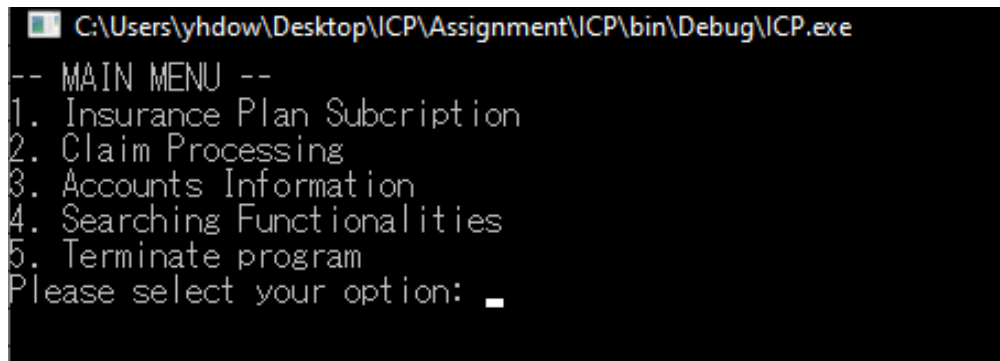
Abs used for absolute the value. That's mean its allow change all negative value into positive value.

Test Specification Table

NO	FUNCTION	INPUT	EXPECTATION	RESULT	ACTION TAKEN	FINAL RESULT
1	mainMenu()	1	Call doingSubscription()	Call doingSubscription()	Calling the specific function	PASS
2	mainMenu()	2	Call claimProcessing	Call claimProcessing	Calling the specific function	PASS
3	mainMenu()	basba	ERROR	INSERT AGAIN	Insert again	PASS
4	mainMenu()	3	Call accountsInformation ()	Call accountsInformation ()	Calling the specific function	PASS

Screenshots of Sample Input / Output and Explanation
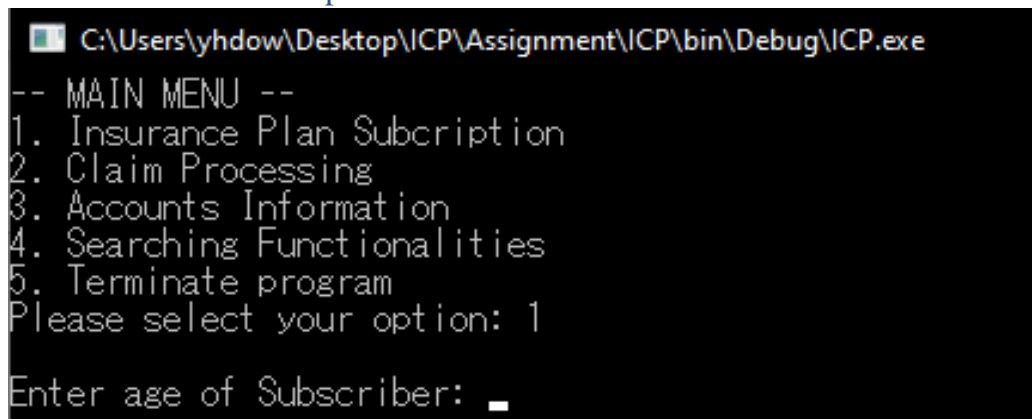
Main Menu

This is the main menu when the program is start-up. As you see, it allow to choosing 5 option for the user. Then based on user requirement choosing those that user want.

Insurance Plan Subcription

When user enter 1 as their input, the program will asking the age of the subscriber first.

When user enter 0 value as their input, then program will asking the child is more than 15 days. If yes it will display 3 option to the user.

After asking the plan and claim limit type the program will asking user to enter the details of the user.

After inserted all the following details, the program will print all the detail and benefit to the user again for him checking. After that, it will return to the main program.
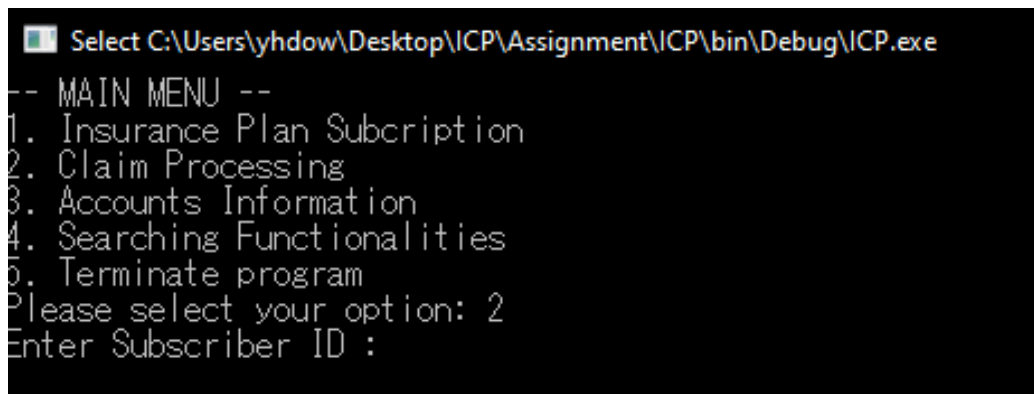
When the age of the user is older than 20, the program will only show plan 150 and plan 200 for the user select, (same reason to user that older than 41 and lower than 54).
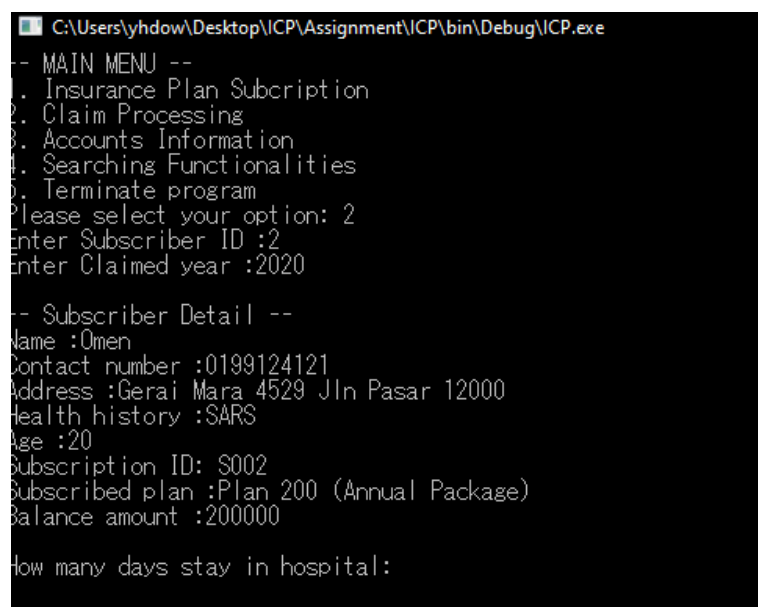
Claim Proccesing

When user enter "2" as their input at main menu section, the program will asking the ID of subscriber that want to claim.

After entering id and year, the program will display all the detail of the subscriber. If the year is not equal to the claim year that he previous claim(if first then ignore), then program will auto reset the claim limit when subscriber is annual claim limit type.

Then the program will be asking the amount of value that user wanted to claim, then the program can calculate all the claim amount and print the balance and claimed amount to the user. After that it will auto return to main menu.

Account Information

When the user insert 3 as their input it will print all the details off subscriber for annual and lifetime who suitable the condition.

Searching Functionalities

When user enter 4 as input in main menu, then program will be asking the choice off condition that want to search by.

User can search the subscriber info by using name or id then program will display it on the console screen.

When user enter 2 as their input in Searching Functionalities menu, then program will display the selection of plan 120 or plan 150 or plan 200, then it will display all the personal that match to the condition.

When user enter 3 as their input in Searching Functionalities menu, then program will display the selection of annual claim limit or lifetime claim limit, then it will display all the personal that match to the condition.

When user enter 4 as their in Searching Functionalities menu, then program will asking the age of the person then display info to the screen

Conclusion

After completing this assignment, I learnt that in order to do well in something, hard work and time must really be heavily invested. I have learnt a lot through this assignment, mainly time management and self-discipline. I am really glad to have completed this assignment and I hope this program will be able to help many people.

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