UNIVERSITI SAINS MALAYSIA

ASSIGNMENT 1

CPT 113 Programming Methodology & Data Structures

THANISH A/L NATARAJAN

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149156

Group D

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Dr. NUR HANA SAMSUDIN

CONTENT

PROGRAM ANALYSIS

To promote a healthy lifestyle for Usm staff the program is designed to calculate BMI, BMR and RMR by retrieving data from a file. Then by using their StaffID their date of birth and age is calculated. Other than that, new data will be added by the USM staff if their information is not in the data. The program also allow the USM staffs to edit their information such as name, staffID, height and weight at any time. By this BMI, BMR, RMR, date of birth and age will updated automatically. Then, the combinational search is used to search data between two of data from age, BMI, BMR, RMR. The program also should search for statistical distribution by using weight category, age and gender. Then, it should perform calculation for calory consumption for loss or gain weight according to their ideal weight. Finally all the data will be stored in a new output file.

CONSTRAINS

The constrains are: 1) The program will work when is there input files only.

2) The files entered should be personal info then followed by fitness info.

3) The program reads files on flow from name to height. Any missing data in files will cause error.

IPO

Input: Name, StaffID, Gender, Weight, Height.

Process: i)calculate the size of data in the files: z = z + 1

ii) calculate year: year = staf/10000000000,year = year + 2000 or year = year + 1900

iii)calculate date and month: dat/1000000,date = d1 + d2,month = m1 + m2

iv)calculate age: age = 2020 – year

v) bmi = A.getWeight() / ((A.getHeight() / 100)*(A.getHeight() / 100))

vi) male: bmr = 10 * A.getWeight() + 6.25 * A.getHeight() - 5 * A.age() + 5

female: bmr = 10 * A.getWeight() + 6.25 * A.getHeight() - 5 * A.age() – 161

vii)male: rmr = 88.362 + (13.397 * A.getWeight()) + (4.799 * A.getHeight()) – (5.677*A.age())

female: rmr = 447.593 + (9.247 * A.getWeight()) + (3.098 * A.getHeight()) – (4.330 * A.age())

viii)Calculate bmr for calories needed: newbmr = 0.75 * obj[j].getBMR()

ix)Calculate days for lose or gain weight : days = remain / (0.5 / 7)

x)Calculate difference between ideal weight and original weight: remain = obj[j].getWeight() – win or remain = win – obj[j].getWeight()

Output: Display name,staffID,gender,age,height,weight,bmi,bmr,rmr in output file

Display existing staff data

Display new staff data

Display BMI

Display BMR

Display RMR

Display Date of Birth

Display age

Display combinational search entered by user

Display statistical search entered by user

Display calories should be taken by user

Display days to gain or lose weight

Display difference of ideal weight and original weight of staff

PSEUDOCODE

A)

Start

1.0 Initialize array size to 200

2.0 Initialize size of data in files to 0

3.0 Initialize weight to 0

4.0 Initialize height to zero

5.0 Initialize ID to true

6.0 Get files name

7.0 Get StaffID

8.0 Get update data

9.0 Get name

10.0 Get StaffID

11.0 Get gender

12.0 Get height

13.0 While file and file1 not equals to " "

13.1 file = file + ".txt"

13.2 file1 = file1 + ".txt"

13.1 open Usm file and Usm1 file1

13.2 if Usm and Usm1

13.2.1 break

13.3 else if not Usm or not Usm1

13.3.1 close Usm file and Usm1 file1

13.3.2 get files name

endif

endif

endwhile

14.0 while i less size and not Usm end of file and not Usm1 end of file

14.1 get data from file and file1

14.2 stores data in obj[i].setData2(name, gender, staffID, staffed, weight, height) function

14.3 increment size of data in files by one.

endwhile

15.0 close Usm file and Usm1 file1

16.0 while start equals to menu() function

16.1 using switch with start

16.1.1 case based on start

16.1.1.1 case is 1

16.1.1.1.1 num1 based on staff() function

16.1.1.1.2 if num1 equals to 1

16.1.1.1.2.1 while ID is true

16.1.1.1.2.1.1 get staffID

16.1.1.1.2.1.2 while i less than size for data in files

16.1.1.1.2.1.2.1 if exstaff equals to obj[i].getic() function

16.1.1.1.2.1.2.1.1 while j less than size of data in files

16.1.1.1.2.1.2.1.1.1 if exstaff equals to obj[j].getic1() function

16.1.1.1.2.1.2.1.1.1.1 call obj[i].display() function

16.1.1.1.2.1.2.1.1.1.2 call obj[j].getDOBage() function

16.1.1.1.2.1.2.1.1.1.3 call calBBR(obj[j],obj[i]) function

16.1.1.1.2.1.2.1.1.1.4 call obj[j]display1() function

16.1.1.1.2.1.2.1.1.1.5 get update data(yesno)

16.1.1.1.2.1.2.1.1.1.6 while yesno

16.1.1.1.2.1.2.1.1.1.6.1 if yesno equals to y or Y

16.1.1.1.2.1.2.1.1.1.6.1.1 call editData(obj[i],obj[j]) function

16.1.1.1.2.1.2.1.1.1.6.1.2 call obj[i].display() function

16.1.1.1.2.1.2.1.1.1.6.1.3 call obj[j].getDOBage() function

16.1.1.1.2.1.2.1.1.1.6.1.4 call calBBR(obj[j],obj[i]) function

16.1.1.1.2.1.2.1.1.1.6.1.5 call obj[j]display1() function

16.1.1.1.2.1.2.1.1.1.6.2 else if yesno equals to n or N or equals to y or Y

16.1.1.1.2.1.2.1.1.1.6.2.1 break;

endif

endif

endwhile

16.1.1.1.2.1.2.1.1.1.7 break

endif

endwhile

16.1.1.1.2.1.2.1.1.2 ID equals to true

16.1.1.1.2.1.2.1.1.3 break

16.1.1.1.2.1.2.2 else if exstaff not equals to obj[i].getic() function

16.1.1.1.2.1.2.2.1 ID = false

endif

endif

endwhile

16.1.1.1.2.1.3 while ID equals to false

16.1.1.1.2.1.3.1 ID equals to true

16.1.1.1.2.1.3.2 break

endwhile

16.1.1.1.2.1.4 break

endwhile

16.1.1.1.3 else if num1 equals to 2

16.1.1.1.3.1 Get new staff's name

16.1.1.1.3.2 Get new staff's staffID

16.1.1.1.3.3 Get new staff's gender

16.1.1.1.3.4 Get new staff's height

16.1.1.1.3.5 Get new staff's weight

16.1.1.1.3.6 call obj[size of data in files].setData2(name,gender,staffID,staffed, weight,height) function

16.1.1.1.3.7 call obj[size of data in files].display() function

16.1.1.1.3.8 call obj[size of data in files].getDOBage() function

16.1.1.1.3.9 call obj[size of data in files].calcBBR(obj[size of data in files], obj[size of data in files]) function

16.1.1.1.3.10 call obj[size of data in files].display1() function

16.1.1.1.3.11 while yesno

16.1.1.1.3.11.1 if yesno equals to y or Y

16.1.1.1.2.1.2.1.1.1.6.1.1 call editData(obj[i],obj[j]) function

16.1.1.1.2.1.2.1.1.1.6.1.2 call obj[i].display() function

16.1.1.1.2.1.2.1.1.1.6.1.3 call obj[j].getDOBage() function

16.1.1.1.2.1.2.1.1.1.6.1.4 call calBBR(obj[j],obj[i]) function

16.1.1.1.2.1.2.1.1.1.6.1.5 call obj[j]display1() function

16.1.1.1.2.1.2.1.1.1.6.2 else if yesno equals to n or N or equals to y or Y

16.1.1.1.2.1.2.1.1.1.6.2.1 break;

endif

endif

endwhile

16.1.1.1.3.12 increament size of data in files by 1

16.1.1.1.4 else if num1 equals to 3

16.1.1.1.4.1 break

endif

endif

endif

16.1.1.2 case is 2

16.1.1.2.1 num2 equals to features() function

16.1.1.2.2 if num2 equals to 1

16.1.1.2.2.1 num3 equals to combiS() function

16.1.1.2.2.2 call combiS1(num3,obj,number of data in files) function

16.1.1.2.3 else if num2 equals to 2

16.1.1.2.3.1 call statis(obj,number of data in files) function

16.1.1.2.4 else if num2 equals to 3

16.1.1.2.4.1 call targetCalc(obj,number of data in files) function

16.1.1.2.5 else if num2 equals to 4

16.1.1.2.5.1 display message to exit

endif

endif

endif

endif

16.1.1.2.6 break

16.1.1.3 case is 3

16.1.1.3.1 open UsmFile for output file

16.1.1.3.2 while i less than number of data in files

16.1.1.3.2.1 while j less than number of data in files

16.1.1.3.2.1.1 if obj[i].getic() function equals to obj[j].getic1() function

16.1.1.3.2.1.1.1 call obj[j].getDOBage1() function

16.1.1.3.2.1.1.2 call calcBBR(obj[j],obj[i]) function

16.1.1.3.2.1.1.3 store obj[i].getname(),obj[i].getic(),obj[i].getgender(),
obj[j].getAge().obj[j].getWeight(),obj[j].getHeight(),
obj[j].getBMI(),obj[j].getBMR(),obj[j].getRMR() functions
in UsmFile file

endif

endwhile

endwhile

16.1.1.3.3 close UsmFile file

16.1.1.3.4 break

endcase

endcase

endcase

endcase

16.2 if start equals to 3

16.2.1 break;

endif

endwhile

B)

Class PersonalInfo

1.0 private Name
2.0 private Gender
3.0 private StaffID
4.0 private Staffid
5.0 public getName function
    5.1 return Name
6.0 public getGender function
    6.1 return Gender
7.0 public getStaffID function
    7.1 return StaffID
8.0 public getStaffid function
    8.1 return Staffid
9.0 public setData function
    9.1 Name = name, Gender = gender, StaffID = staffID, Staffid = staffid
10.0 public setname function
    10.1 Name = name
11.0 public setgender function
    11.1 Gender = gender
12.0 public setstaffID function
    12.1 StaffID = staffid
13.0 public setstaffid function
    13.1 Staffid = staffid

End Class

Class FitnessInfo

1.0 private Weight
2.0 private Height
3.0 private PersonalInfo BB
4.0 public getHeight function
    4.1 return Height

5.0 public getWeight function

5.1 return Weight

6.0 public getgender function

6.1 return BB.genderGender function

7.0 public getname function

7.1 return BB.getName function

8.0 public getstaffID function

8.1 return BB.getStaffID function

9.0 public getstaffid function

9.1 return BB.getStaffid function

10.0 public setData1 function

10.1 Weight = weight, Height = height, BB.setData function

11.0 public disp function

11.1 display BB.getName function

11.2 display BB.getStaffID function

11.3 display BB.getGender() function

12.0 public calcDOBage function

12.1 return BB.getStaffid in integer data type

13.0 public setHeight function

13.1 Height = height

14.0 public setWeight function

14.1 Weight = weight

15.0 public setName function

15.1 call BB.setname function

16.0 public setGender function

16.1 call BB.setgender function

17.0 public setStaffID function

17.1 call BB.setstaffID function

18.0 public setStaffid function

18.1 call BB.setstaffid function

End Class

Class Staff

1.0 private date

2.0 private month

3.0 private year

4.0 private age

5.0 private bmi

6.0 private bmr

7.0 private rmr

8.0 public getBMI function

- 8.1 return bmi

9.0 public getBMR function

- 9.1 return bmr

10.0 public getRMR function

- 10.1 return rmr

11.0 public getAge function

- 11.1 return age

12.0 public getic function

- 12.1 return getstaffID function

13.0 public getic1 function

- 13.1 return getstaffid function

14.0 public setData2 function

- 14.1 call setData1 function

15.0 public SetHeight function

- 15.1 call setHeight function

16.0 public SetWeight function

- 16.1 call setWeight function

17.0 public SetName function

- 17.1 call setName function

18.0 public SetGender function

- 18.1 call setGender function

19.0 public SetStaffID function

- 19.1 call setStaffID function

20.0 public SetStaffid function

- 20.1 call setStaffid function

21.0 public getDOBage1 function

21.1 initialize d1 equals to 0

21.2 initialize d2 equals to 0

21.3 initialize m1 equals to 0

21.4 initialize m2 equals to 0

21.5 initialize dat equals to 0

21.6 staf equals to calcDOBage function

21.7 year equals to staf / 10000000000

21.8 if year more than 0 and less than 99

21.8.1 year = year + 2000

21.9 else if year more than or equals to 30 and less than or equals to 99

21.9.1 year = year + 1900

21.10 endif

21.11 endif

21.12 dat = staf / 1000000

21.13 while i less than 6

21.13.1 digit = dat % 10

21.13.2 dat = dat / 10

21.13.3 if i equals to 0

21.13.3.1 d1 = digit

21.13.4 if i equals to 1

21.13.4.1 d2 = digit x 10

21.13.5 if I equals to 2

21.13.5.1 m1 = digit

21.13.6 if i equals to 3

21.13.6.1 m2 = digit x 10

21.13.7 endif

21.13.8 endif

21.13.9 endif

21.13.10 endif

21.14 endwhile

21.15 month = m1 + m2

21.16 date = d1 + d2

21.17 age = 2020 - year

22.0 public calcBBR function

22.1 A.bmi = round(A.getWeight / ((A.getHeight / 100)x(A.getHeight / 100))x100)/100

22.2 if G.getgender equals to “Male” or equals to “male”

22.2.1 A.bmr = 10 x A.getWeight + 6.25 x A.getHeight – 5 x A.age + 5

22.2.2 A.rmr = 88.362 + (13.397 x A.getWeight) + (4.799 x A.getHeight) – (5.677 x A.age);

22.3 else if G.getgender equals to “Female” or equals to “female”

22.3.1 A.bmr = 10 x A.getWeight + 6.25 x A.getHeight – 5 x A.age - 161

22.3.2 A.rmr = 447.593 + (9.247 x A.getWeight) + (3.098 x A.getHeight) – (4.330 x A.age);

22.4 endif

22.5 endif

23.0 public editData function

23.1 Get criteria to edit data

23.2 if edit equals to 1

23.2.1 get name

23.2.2 call E.setData2 function

23.3 else if edit equals to 2

23.3.1 get staffID

23.3.2 call E.setData2 function

23.4 else if edit equals to 3

23.4.1 get gender

23.4.2 call E.setData2 function

23.5 else if edit equals to 4

23.5.1 get height

23.5.2 call D.setData2 function

23.6 else if edit equals to 5

23.6.1 get weight

23.6.2 call E.setData2 function

23.7 endif

23.8 endif

23.9 endif

23.10 endif

23.11 endif

24.0 public statis function

24.1 initialize a to 0

24.2 initialize b to 0

24.3 initialize c to 0

24.4 get weight category

24.5 get gender

24.6 if g equals to “male’

24.6.1 g1 equals to “Male”

24.7 else if g equals to “female’

24.7.1 g1 equals to “Female

24.8 else if g equals to “Male’

24.8.1 g1 equals to “male”

24.9 else if g equals to “Female’

24.9.1 g1 equals to “female”

24.10 get age

24.11 if cat equals 1

24.11.1 while i < size of data in files

24.11.1.1 while j < size of data in files

24.11.1.1.1 if s[i].getic equals s[j].getic1

24.11.1.1.1.1 call s[j].getDOBage1

24.11.1.1.1.2 if s[i].getgender equals to g or g1 and s[j].getAge more than a and less than b

24.11.1.1.1.2.1 if s[j].bmi less than 20

24.11.1.1.1.2.1.1 p = p + 1

24.11.1.1.1.2.2 endif

24.11.1.1.1.3 endif

24.11.1.1.2 endif

24.11.1.2 endwhile

24.11.2 endwhile

24.11.3 display p

24.12 else if cat equals 2

24.12.1 while i < size of data in files

24.12.1.1 while j < size of data in files

24.12.1.1.1 if s[i].getic equals s[j].getic1

24.12.1.1.1.1 call s[j].getDOBage1

24.12.1.1.1.2 if s[i].getgender equals to g or g1 and s[j].getAge more than a and less than b

24.12.1.1.1.2.1 if s[j].bmi more than or equals to 20 and less than 25

24.12.1.1.1.2.1.1 p = p + 1

24.12.1.1.1.2.2 endif

24.12.1.1.1.3 endif

24.12.1.1.2 endif

24.12.1.2 endwhile

24.12.2 endwhile

24.12.3 display p

24.13 else if cat equals 3

24.13.1 while i < size of data in files

24.13.1.1 while j < size of data in files

24.13.1.1.1 if s[i].getic equals s[j].getic1

24.13.1.1.1.1 call s[j].getDOBage1

24.13.1.1.1.2 if s[i].getgender equals to g or g1 and s[j].getAge more than a and less than b

24.13.1.1.1.2.1 if s[j].bmi more than or equals to 25 and less than 30

24.13.1.1.1.2.1.1 p = p + 1

24.13.1.1.1.2.2 endif

24.13.1.1.1.3 endif

24.13.1.1.2 endif

24.13.1.2 endwhile

24.13.2 endwhile

24.13.3 display p

24.14 else if cat equals 4

24.14.1 while i < size of data in files

24.14.1.1 while j < size of data in files

24.14.1.1.1 s[i].getic equals s[j].getic1

24.14.1.1.1.1 call s[j].getDOBage1

24.14.1.1.1.2 if s[i].getgender equals to g or g1 and s[j].getAge more than a and less than b

24.14.1.1.1.2.1 if s[j].bmi more than or equals to 20

24.14.1.1.1.2.1.1 p = p + 1

24.14.1.1.1.2.2 endif

24.14.1.1.1.3 endif

24.14.1.1.2 endif

24.14.1.2 endwhile

24.14.2 endwhile

24.14.3 display p

24.15 endif

24.16 endif

24.17 endif

24.18 endif

25.0 public display function

25.1 call disp function

26.0 public display1 function

26.1 display getHeight function

26.2 display getWeight function

26.3 display date, month, year

26.4 display age

26.5 display bmi

26.6 display bmr

26.7 display rmr

27.0 public coutBMI function

27.1 display bmi

28.0 public coutBMR function

28.1 display bmr

29.0 public coutRMR function

29.1 display rmr

End Class

C)

Function menu

1.0 Pass In: nothing
2.0 get num
3.0 Pass Out: num

Endfunction

Function staff

1.0 Pass In: nothing
2.0 get num1
3.0 Pass Out: num1

Endfunction

Function features

1.0 Pass In: nothing
2.0 get search
3.0 Pass Out: search

Endfunction

Function combiS

1.0 Pass In: nothing
2.0 get com
3.0 get com1
4.0 if com equals to 1 and com1 equals to 2 or com equals to 2 and com1 equals to 1
    4.1 return cho equals to 1
5.0 else if com equals to 1 and com1 equals to 3 or com equals to 3 and com1 equals to 1
    5.1 return cho equals to 2
6.0 else if com equals to 1 and com1 equals to 4 or com equals to 4 and com1 equals to 1
    6.1 return cho equals to 3
7.0 else if com equals to 2 and com1 equals to 3 or com equals to 3 and com1 equals to 2
    7.1 return cho equals to 4
8.0 else if com equals to 2 and com1 equals to 4 or com equals to 4 and com1 equals to 2
    8.1 return cho equals to 5
9.0 else if com equals to 3 and com1 equals to 4 or com equals to 4 and com1 equals to 1
    9.1 return cho equals to 6
10.0 endif
11.0 endif
12.0 endif
13.0 endif

14.0 endif
15.0 endif
16.0 Pass Out: cho

Endfunction

Function combiS1

1.0 Pass In: num3 as n, obj[], size of data in files as z
2.0 initialize a1 to 0
3.0 initialize a2 to 1000
4.0 initialize a3 to 0
5.0 initialize a4 to 0
6.0 initialize b1 to 0
7.0 initialize b2 to 100000
8.0 initialize b3 to 0
9.0 initialize b4 to 0
10.0 initialize c1 to 0
11.0 initialize c2 to 100000
12.0 initialize c3 to 0
13.0 initialize c4 to 0
14.0 initialize d1 to 0
15.0 initialize d2 to 100000
16.0 initialize d3 to 0
17.0 initialize d4 to 0
18.0 if n equals to 1
    18.1 get age range(a)
    18.2 if a equals to 1
        18.2.1 get value a1
    18.3 else if a equals to 2
        18.3.1 get value a2
    18.4 else if a equals to 3
        18.4.1 get value a3 and a4
    18.5 endif
    18.6 endif
    18.7 endif
    18.8 get bmi range(b)
    18.9 if b equals to 1
        18.9.1 get value b1
    18.10 else if b equals to 2
        18.10.1get value b2
    18.11 else if b equals to 3
        18.11.1get value b3 and b4
    18.12 endif
    18.13 endif
    18.14 endif
    18.15 while i less than z
        18.15.1 while j less than z
            18.15.1.1 if obj[i].getic equals to obj[j].getic1

18.15.1.1.1 call obj[j].getDOBage1() function
18.15.1.1.2 call calcBBR(obj[j], obj[i]) function
18.15.1.1.3 if obj[j].getAge() less than a1 and obj[j].getBMI() less than b1
18.15.1.1.3.1 call obj[i].display() function
18.15.1.1.3.2 call obj[j].coutAge() function
18.15.1.1.3.3 call obj[j].coutBMI() function
18.15.1.1.4 else if obj[j].getAge() less than a1 and obj[j].getBMI() more than b2
18.15.1.1.4.1 call obj[i].display() function
18.15.1.1.4.2 call obj[j].coutAge() function
18.15.1.1.4.3 call obj[j].coutBMI() function
18.15.1.1.5 else if obj[j].getAge() less than a1 and obj[j].getBMI() more than b3 and less than b4
18.15.1.1.5.1 call obj[i].display() function
18.15.1.1.5.2 call obj[j].coutAge() function
18.15.1.1.5.3 call obj[j].coutBMI() function
18.15.1.1.6 else if obj[j].getAge() more than a2 and obj[j].getBMI() less than b1
18.15.1.1.6.1 call obj[i].display() function
18.15.1.1.6.2 call obj[j].coutAge() function
18.15.1.1.6.3 call obj[j].coutBMI() function
18.15.1.1.7 else if obj[j].getAge() more than a2 and obj[j].getBMI() more than b2
18.15.1.1.7.1 call obj[i].display() function
18.15.1.1.7.2 call obj[j].coutAge() function
18.15.1.1.7.3 call obj[j].coutBMI() function
18.15.1.1.8 else if if obj[j].getAge() more than a2 and obj[j].getBMI() more than b3 and less than b4
18.15.1.1.8.1 call obj[i].display() function
18.15.1.1.8.2 call obj[j].coutAge() function
18.15.1.1.8.3 call obj[j].coutBMI() function
18.15.1.1.9 else if obj[j].getAge() more than a3 and less than a4 and obj[j].getBMI() less than b1
18.15.1.1.9.1 call obj[i].display() function
18.15.1.1.9.2 call obj[j].coutAge() function
18.15.1.1.9.3 call obj[j].coutBMI() function
18.15.1.1.10 else if obj[j].getAge() more than a3 and less than a4 and obj[j].getBMI() more than b2
18.15.1.1.10.1 call obj[i].display() function
18.15.1.1.10.2 call obj[j].coutAge() function
18.15.1.1.10.3 call obj[j].coutBMI() function
18.15.1.1.11 else if obj[j].getAge() more than a3 and less than a4 and obj[j].getBMI() more than b3 and less than b4
18.15.1.1.11.1 call obj[i].display() function

18.15.1.1.11.2 call obj[j].coutAge() function
18.15.1.1.11.3 call obj[j].coutBMI() function
18.15.1.1.12 endif
18.15.1.1.13 endif
18.15.1.1.14 endif
18.15.1.1.15 endif
18.15.1.1.16 endif
18.15.1.1.17 endif
18.15.1.1.18 endif
18.15.1.1.19 endif
18.15.1.1.20 endif
18.15.1.2 endif
18.15.2 endwhile
18.16 endwhile
19.0 else if n equals to 2
19.1 get age range(a)
19.2 if a equals to 1
19.2.1 get value a1
19.3 else if a equals to 2
19.3.1 get value a2
19.4 else if a equals to 3
19.4.1 get value a3 and a4
19.5 endif
19.6 endif
19.7 endif
19.8 get bmr range(c)
19.9 if c equals to 1
19.9.1 get value c1
19.10 else if c equals to 2
19.10.1get value c2
19.11 else if c equals to 3
19.11.1get value c3 and c4
19.12 endif
19.13 endif
19.14 endif
19.15 while i less than z
19.15.1while j less than j
19.15.1.1 if obj[i].getic equals to obj[j].getic1
19.15.1.1.1 call obj[j].getDOBage1() function
19.15.1.1.2 call calcBBR(obj[j], obj[i]) function
19.15.1.1.3 if obj[j].getAge() less than a1 and obj[j].getBMR() less than c1
19.15.1.1.3.1 call obj[i].display() function
19.15.1.1.3.2 call obj[j].coutAge() function
19.15.1.1.3.3 call obj[j].coutBMR() function
19.15.1.1.4 else if obj[j].getAge() less than a1 and obj[j].getBMR() more than c1
19.15.1.1.4.1 call obj[i].display() function
19.15.1.1.4.2 call obj[j].coutAge() function

19.15.1.1.4.3 call obj[j].coutBMR() function
19.15.1.1.5 else if obj[j].getAge() less than a1 and obj[j].getBMR() less than c3 and more than c4
19.15.1.1.5.1 call obj[i].display() function
19.15.1.1.5.2 call obj[j].coutAge() function
19.15.1.1.5.3 call obj[j].coutBMR() function
19.15.1.1.6 else if obj[j].getAge() more than a2 and obj[j].getBMR() less than c1
19.15.1.1.6.1 call obj[i].display() function
19.15.1.1.6.2 call obj[j].coutAge() function
19.15.1.1.6.3 call obj[j].coutBMR() function
19.15.1.1.7 else if obj[j].getAge() more than a2 and obj[j].getBMR() more than c2
19.15.1.1.7.1 call obj[i].display() function
19.15.1.1.7.2 call obj[j].coutAge() function
19.15.1.1.7.3 call obj[j].coutBMR() function
19.15.1.1.8 else if obj[j].getAge() more than a2 and obj[j].getBMR() less than c3 and more than c4
19.15.1.1.8.1 call obj[i].display() function
19.15.1.1.8.2 call obj[j].coutAge() function
19.15.1.1.8.3 call obj[j].coutBMR() function
19.15.1.1.9 else if obj[j].getAge() more than a3 less than a4 and obj[j].getBMR() less than c1
19.15.1.1.9.1 call obj[i].display() function
19.15.1.1.9.2 call obj[j].coutAge() function
19.15.1.1.9.3 call obj[j].coutBMR() function
19.15.1.1.10 else if obj[j].getAge() more than a3 less than a4 and obj[j].getBMR() more than c2
19.15.1.1.10.1 call obj[i].display() function
19.15.1.1.10.2 call obj[j].coutAge() function
19.15.1.1.10.3 call obj[j].coutBMR() function
19.15.1.1.11 else if obj[j].getAge() more than a3 less than a4 and obj[j].getBMR() more than c3 and less than c4
19.15.1.1.11.1 call obj[i].display() function
19.15.1.1.11.2 call obj[j].coutAge() function
19.15.1.1.11.3 call obj[j].coutBMR() function
19.15.1.1.12 endif
19.15.1.1.13 endif
19.15.1.1.14 endif
19.15.1.1.15 endif
19.15.1.1.16 endif
19.15.1.1.17 endif
19.15.1.1.18 endif
19.15.1.1.19 endif
19.15.1.1.20 endif
19.15.1.2 endif

19.15.2endwhile
19.16 endwhile
20.0 else if n equals to 3
20.1 get age range(a)
20.2 if a equals to 1
20.2.1 get value a1
20.3 else if a equals to 2
20.3.1 get value a2
20.4 else if a equals to 3
20.4.1 get value a3 and a4
20.5 endif
20.6 endif
20.7 endif
20.8 get rmr range(d)
20.9 if d equals to 1
20.9.1 get value d1
20.10 else if d equals to 2
20.10.1get value d2
20.11 else if d equals to 3
20.11.1get value d3 and d4
20.12 endif
20.13 endif
20.14 endif
20.15 while i less than z
20.15.1 while j than z
20.15.1.1 if obj[i].getic equals to obj[j].getic1
20.15.1.1.1 call obj[j].getDOBage1() function
20.15.1.1.2 call calcBBR(obj[j], obj[i]) function
20.15.1.1.3 if obj[j].getAge() less than a1 and obj[j].getRMR() less than d1
20.15.1.1.3.1 call obj[i].display() function
20.15.1.1.3.2 call obj[j].coutAge() function
20.15.1.1.3.3 call obj[j].coutRMR() function
20.15.1.1.4 else if obj[j].getAge() less than a1 and obj[j].getRMR() more than d2
20.15.1.1.4.1 call obj[i].display() function
20.15.1.1.4.2 call obj[j].coutAge() function
20.15.1.1.4.3 call obj[j].coutRMR() function
20.15.1.1.5 else if obj[j].getAge() less than a1 and obj[j].getRMR() more than d3 and less than d4
20.15.1.1.5.1 call obj[i].display() function
20.15.1.1.5.2 call obj[j].coutAge() function
20.15.1.1.5.3 call obj[j].coutRMR() function
20.15.1.1.6 else if obj[j].getAge() more than a2 and obj[j].getRMR() less than d1
20.15.1.1.6.1 call obj[i].display() function
20.15.1.1.6.2 call obj[j].coutAge() function
20.15.1.1.6.3 call obj[j].coutRMR() function

20.15.1.1.7 else if obj[j].getAge() more than a2 and obj[j].getRMR() more than d2
20.15.1.1.7.1 call obj[i].display() function
20.15.1.1.7.2 call obj[j].coutAge() function
20.15.1.1.7.3 call obj[j].coutRMR() function
20.15.1.1.8 else if obj[j].getAge() more than a2 and obj[j].getRMR() more than d3 and less than d4
20.15.1.1.8.1 call obj[i].display() function
20.15.1.1.8.2 call obj[j].coutAge() function
20.15.1.1.8.3 call obj[j].coutRMR() function
20.15.1.1.9 else if obj[j].getAge() more than a3 less than a4 and obj[j].getRMR() less than d1
20.15.1.1.9.1 call obj[i].display() function
20.15.1.1.9.2 call obj[j].coutAge() function
20.15.1.1.9.3 call obj[j].coutRMR() function
20.15.1.1.10 else if obj[j].getAge() more than a3 less than a4 and obj[j].getRMR() more than d2
20.15.1.1.10.1 call obj[i].display() function
20.15.1.1.10.2 call obj[j].coutAge() function
20.15.1.1.10.3 call obj[j].coutRMR() function
20.15.1.1.11 else if obj[j].getAge() more than a3 less than a4 and obj[j].getBMR() more than d3 less than d4
20.15.1.1.11.1 call obj[i].display() function
20.15.1.1.11.2 call obj[j].coutAge() function
20.15.1.1.11.3 call obj[j].coutRMR() function
20.15.1.1.12 endif
20.15.1.1.13 endif
20.15.1.1.14 endif
20.15.1.1.15 endif
20.15.1.1.16 endif
20.15.1.1.17 endif
20.15.1.1.18 endif
20.15.1.1.19 endif
20.15.1.1.20 endif
20.15.1.2 endif
20.15.2 endwhile
20.16 endwhile
21.0 else if n equals to 4
21.1 get bmi range(b)
21.2 if b equals to 1
21.2.1 get value b1
21.3 else if b equals to 2
21.3.1 get value b2
21.4 else if b equals to 3
21.4.1 get value b3 and b4
21.5 endif
21.6 endif

21.7 endif
21.8 get bmr range(c)
21.9 if c equals to 1
21.9.1 get value c1
21.10 else if c equals to 2
21.10.1get value c2
21.11 else if c equals to 3
21.11.1get value c3 and c4
21.12 endif
21.13 endif
21.14 endif
21.15 while i less than z
21.15.1 while j less than z
21.15.1.1 if obj[i].getic equals to obj[j].getic1
21.15.1.1.1 call obj[j].getDOBage1() function
21.15.1.1.2 call calcBBR(obj[j], obj[i]) function
21.15.1.1.3 if obj[j].getBMI() less than b1 and obj[j].getBMR() less than c1
21.15.1.1.3.1 call obj[i].display() function
21.15.1.1.3.2 call obj[j].coutBMi() function
21.15.1.1.3.3 call obj[j].coutBMR() function
21.15.1.1.4 else if obj[j].getBMI() less than b1 and obj[j].getBMR() more than c2
21.15.1.1.4.1 call obj[i].display() function
21.15.1.1.4.2 call obj[j].coutBMI() function
21.15.1.1.4.3 call obj[j].coutBMR() function
21.15.1.1.5 else if obj[j].getBMI() less than b1 and obj[j].getBMR() more than c3 and less than c4
21.15.1.1.5.1 call obj[i].display() function
21.15.1.1.5.2 call obj[j].coutBMI() function
21.15.1.1.5.3 call obj[j].coutBMR() function
21.15.1.1.6 else if obj[j].getBMI() more than b2 and obj[j].getBMR() less than c1
21.15.1.1.6.1 call obj[i].display() function
21.15.1.1.6.2 call obj[j].coutBMI() function
21.15.1.1.6.3 call obj[j].coutBMR() function
21.15.1.1.7 else if obj[j].getBMI() more than b2 and obj[j].getBMR() more than c2
21.15.1.1.7.1 call obj[i].display() function
21.15.1.1.7.2 call obj[j].coutBMI() function
21.15.1.1.7.3 call obj[j].coutBMR() function
21.15.1.1.8 else if obj[j].getBMI() more than b2 and obj[j].getBMR() more than c3 and less than c4
21.15.1.1.8.1 call obj[i].display() function
21.15.1.1.8.2 call obj[j].coutBMI() function
21.15.1.1.8.3 call obj[j].coutBMR() function

21.15.1.1.9 else if obj[j].getBMI() more than b3 and less than b4 and obj[j].getBMR() less than c1
21.15.1.1.9.1 call obj[i].display() function
21.15.1.1.9.2 call obj[j].coutBMI() function
21.15.1.1.9.3 call obj[j].coutBMR() function
21.15.1.1.10 else if obj[j].getBMI() more than b3 and less than b4 and obj[j].getBMR() more than c2
21.15.1.1.10.1 call obj[i].display() function
21.15.1.1.10.2 call obj[j].coutBMI() function
21.15.1.1.10.3 call obj[j].coutBMR() function
21.15.1.1.11 else if obj[j].getBMI() more than b3 and less than b4 and obj[j].getBMR() more than c3 and less than c4
21.15.1.1.11.1 call obj[i].display() function
21.15.1.1.11.2 call obj[j].coutBMI() function
21.15.1.1.11.3 call obj[j].coutBMR() function
21.15.1.1.12 endif
21.15.1.1.13 endif
21.15.1.1.14 endif
21.15.1.1.15 endif
21.15.1.1.16 endif
21.15.1.1.17 endif
21.15.1.1.18 endif
21.15.1.1.19 endif
21.15.1.1.20 endif
21.15.1.2 endif
21.15.2 endwhile
21.16 endwhile

22.0 else if n equals to 5
22.1 get bmi range(b)
22.2 if b equals to 1
22.2.1 get value b1
22.3 else if b equals to 2
22.3.1 get value b2
22.4 else if b equals to 3
22.4.1 get value b3 and b4
22.5 endif
22.6 endif
22.7 endif
22.8 get rmr range(d)
22.9 if d equals to 1
22.9.1 get value d1
22.10 else if d equals to 2
22.10.1get value d2
22.11 else if d equals to 3
22.11.1get value d3 and d4
22.12 endif

22.13 endif
22.14 endif
22.15 while i less than z
22.15.1 while j less than z
22.15.1.1 if obj[i].getic equals to obj[j].getic1
22.15.1.1.1 call obj[j].getDOBage1() function
22.15.1.1.2 call calcBBR(obj[j], obj[i]) function
22.15.1.1.3 if obj[j].getBMI() less than b1 and obj[j].getRMR() less than d1
22.15.1.1.3.1 call obj[i].display() function
22.15.1.1.3.2 call obj[j].coutBMI() function
22.15.1.1.3.3 call obj[j].coutRMR() function
22.15.1.1.4 else if obj[j].getBMI() less than b1 and obj[j].getRMR() more than d2
22.15.1.1.4.1 call obj[i].display() function
22.15.1.1.4.2 call obj[j].coutBMI() function
22.15.1.1.4.3 call obj[j].coutRMR() function
22.15.1.1.5 else if obj[j].getBMI() less than b1 and obj[j].getRMR() more than d3 and less than d4
22.15.1.1.5.1 call obj[i].display() function
22.15.1.1.5.2 call obj[j].coutBMI() function
22.15.1.1.5.3 call obj[j].coutRMR() function
22.15.1.1.6 else if obj[j].getBMI() more than b2 and obj[j].getRMR() less than d1
22.15.1.1.6.1 call obj[i].display() function
22.15.1.1.6.2 call obj[j].coutBMI() function
22.15.1.1.6.3 call obj[j].coutRMR() function
22.15.1.1.7 else if obj[j].getBMI() more than b2 and obj[j].getRMR() more than d2
22.15.1.1.7.1 call obj[i].display() function
22.15.1.1.7.2 call obj[j].coutBMI() function
22.15.1.1.7.3 call obj[j].coutRMR() function
22.15.1.1.8 else if obj[j].getBMI() less than b2 and obj[j].getRMR() more than d3 and less than d4
22.15.1.1.8.1 call obj[i].display() function
22.15.1.1.8.2 call obj[j].coutBMI() function
22.15.1.1.8.3 call obj[j].coutRMR() function
22.15.1.1.9 else if obj[j].getBMI() more than b3 and less than b4 and obj[j].getRMR() less than d1
22.15.1.1.9.1 call obj[i].display() function
22.15.1.1.9.2 call obj[j].coutBMI() function
22.15.1.1.9.3 call obj[j].coutRMR() function
22.15.1.1.10 else if obj[j].getBMI() more than b3 and less than b4 and obj[j].getRMR() more than d2
22.15.1.1.10.1 call obj[i].display() function

22.15.1.1.10.2 call obj[j].coutBMI() function
22.15.1.1.10.3 call obj[j].coutRMR() function
22.15.1.1.11 else if obj[j].getBMI() more than b3 and less than b4 and obj[j].getRMR() more than d3 less than d4
22.15.1.1.11.1 call obj[i].display() function
22.15.1.1.11.2 call obj[j].coutBMI() function
22.15.1.1.11.3 call obj[j].coutRMR() function
22.15.1.1.12 endif
22.15.1.1.13 endif
22.15.1.1.14 endif
22.15.1.1.15 endif
22.15.1.1.16 endif
22.15.1.1.17 endif
22.15.1.1.18 endif
22.15.1.1.19 endif
22.15.1.1.20 endif
22.15.1.2 endif
22.15.2 endwhile
22.16 endwhile
23.0 else if n equals to 6
23.1 get bmr range(c)
23.2 if c equals to 1
23.2.1 get value c1
23.3 else if c equals to 2
23.3.1 get value c2
23.4 else if c equals to 3
23.4.1 get value c3 and c4
23.5 endif
23.6 endif
23.7 endif
23.8 get rmr range(d)
23.9 if d equals to 1
23.9.1 get value d1
23.10 else if d equals to 2
23.10.1get value d2
23.11 else if d equals to 3
23.11.1get value d3 and d4
23.12 endif
23.13 endif
23.14 endif
23.15 while i less than
23.15.1 while j less than z
23.15.1.1 if obj[i].getic equals to obj[j].getic1
23.15.1.1.1 call obj[j].getDOBage1() function
23.15.1.1.2 call calcBBR(obj[j], obj[i]) function
23.15.1.1.3 if obj[j].getBMR() less than c1 and obj[j].getRMR() less than d1
23.15.1.1.3.1 call obj[i].display() function

23.15.1.1.3.2 call obj[j].coutBMR() function
23.15.1.1.3.3 call obj[j].coutRMR() function
23.15.1.1.4 else if obj[j].getBMR() less than c1 and obj[j].getRMR() less than d2
23.15.1.1.4.1 call obj[i].display() function
23.15.1.1.4.2 call obj[j].coutBMR() function
23.15.1.1.4.3 call obj[j].coutRMR() function
23.15.1.1.5 else if obj[j].getBMR() less than c1 and obj[j].getRMR() more than d3 and less than d4
23.15.1.1.5.1 call obj[i].display() function
23.15.1.1.5.2 call obj[j].coutBMR() function
23.15.1.1.5.3 call obj[j].coutRMR() function
23.15.1.1.6 else if obj[j].getBMR() more than c2 and obj[j].getRMR() less than d1
23.15.1.1.6.1 call obj[i].display() function
23.15.1.1.6.2 call obj[j].coutBMR() function
23.15.1.1.6.3 call obj[j].coutRMR() function
23.15.1.1.7 else if obj[j].getBMR() more than c2 and obj[j].getRMR() more than d2
23.15.1.1.7.1 call obj[i].display() function
23.15.1.1.7.2 call obj[j].coutBMR() function
23.15.1.1.7.3 call obj[j].coutRMR() function
23.15.1.1.8 else if obj[j].getBMR() more than c2 and obj[j].getRMR() more than d3 less than d4
23.15.1.1.8.1 call obj[i].display() function
23.15.1.1.8.2 call obj[j].coutBMR() function
23.15.1.1.8.3 call obj[j].coutRMR() function
23.15.1.1.9 else if obj[j].getBMR() more than c3 less than c4 and obj[j].getRMR() less than d1
23.15.1.1.9.1 call obj[i].display() function
23.15.1.1.9.2 call obj[j].coutBMR() function
23.15.1.1.9.3 call obj[j].coutRMR() function
23.15.1.1.10 else if obj[j].getBMR() more than c3 and less than c4 and obj[j].getRMR() more than d2
23.15.1.1.10.1 call obj[i].display() function
23.15.1.1.10.2 call obj[j].coutBMR() function
23.15.1.1.10.3 call obj[j].coutRMR() function
23.15.1.1.11 else if obj[j].getBMR() morethan c3 and less than c4 and obj[j].getRMR() more than d3 and less than d4
23.15.1.1.11.1 call obj[i].display() function
23.15.1.1.11.2 call obj[j].coutBMR() function
23.15.1.1.11.3 call obj[j].coutRMR() function
23.15.1.1.12 endif
23.15.1.1.13 endif
23.15.1.1.14 endif
23.15.1.1.15 endif

23.15.1.1.16 endif
23.15.1.1.17 endif
23.15.1.1.18 endif
23.15.1.1.19 endif
23.15.1.1.20 endif
23.15.1.2 endif
23.15.2 endwhile
23.16 endwhile
24.0 endif
25.0 endif
26.0 endfi
27.0 endif
28.0 endif
29.0 endif
30.0 Pass Out: nothing

Endfunction

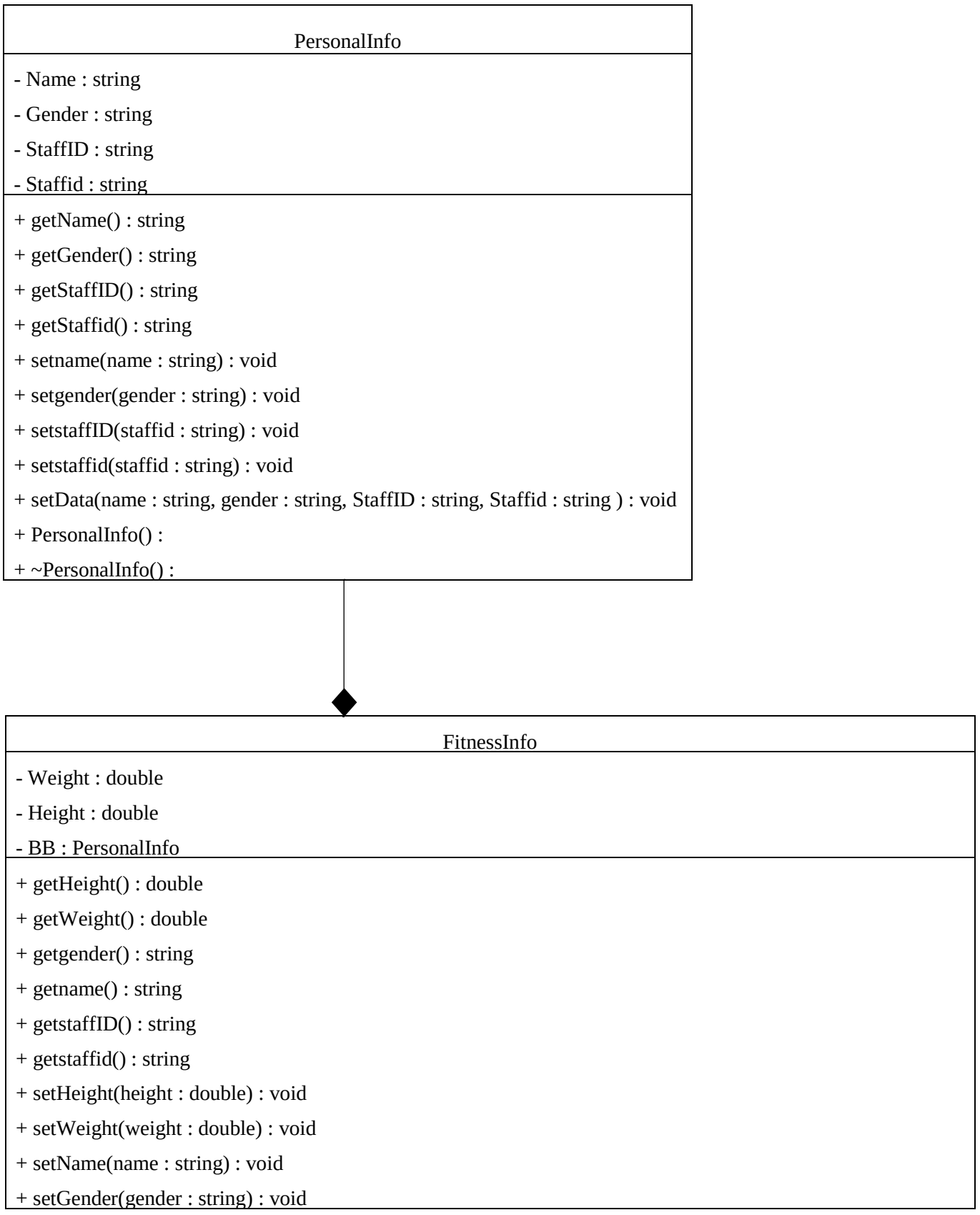
Function targetCalc

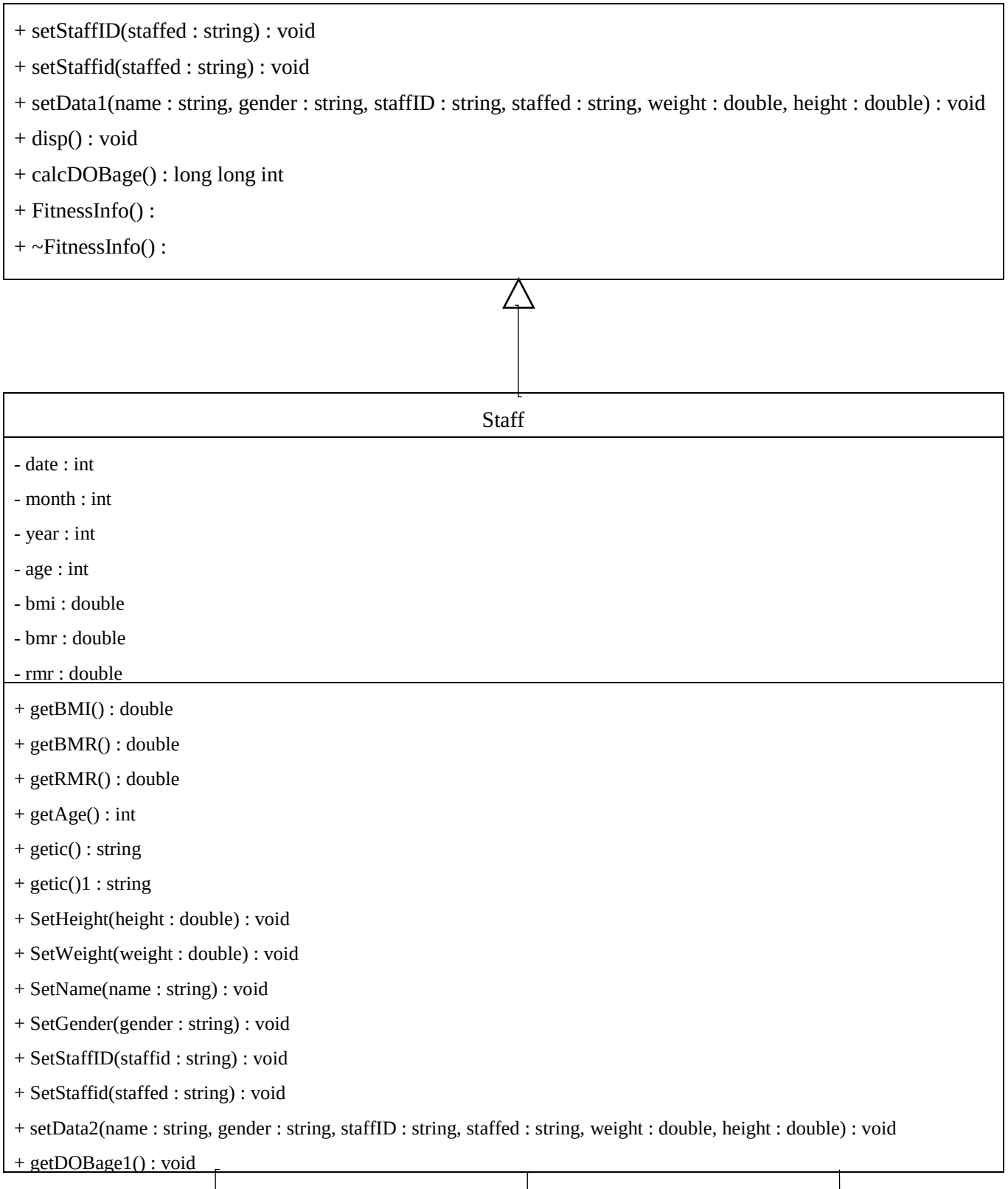
1.0 Pass In: obj[], size of data in files as z
2.0 initialize newbmr to 0
3.0 initialize win to 0
4.0 initialize remain to 0
5.0 initialize ID to true
6.0 get staffID
7.0 while i less than z
7.1 if staf equals to obj[i].getic() function
7.1.1 while j less than z
7.1.1.1 if staf equals to obj[j].getic1() function
7.1.1.1.1 call obj[j].getDOBage1() function
7.1.1.1.2 call calcBBR(obj[i], obj[i]) function
7.1.1.1.3 newbmr = 0.75 x obj[j].getBMR()
7.1.1.1.4 get ideal weight(win)
7.1.1.1.5 if obj[j].getWeight() more than win
7.1.1.1.5.1 remain = obj[j].getWeight() – win
7.1.1.1.5.2 days = remain / (0.5 / 7)
7.1.1.1.5.3 display newbmr
7.1.1.1.5.4 display remain
7.1.1.1.5.5 display days
7.1.1.1.6 else if obj[j].getWeight() less than win
7.1.1.1.6.1 remain win – obj[j].getWeight()
7.1.1.1.6.2 days = remain / (0.5 / 7)
7.1.1.1.6.3 display newbmr
7.1.1.1.6.4 display remain
7.1.1.1.6.5 display days
7.1.1.1.7 endif
7.1.1.1.8 endif
7.1.1.1.9 ID equals true

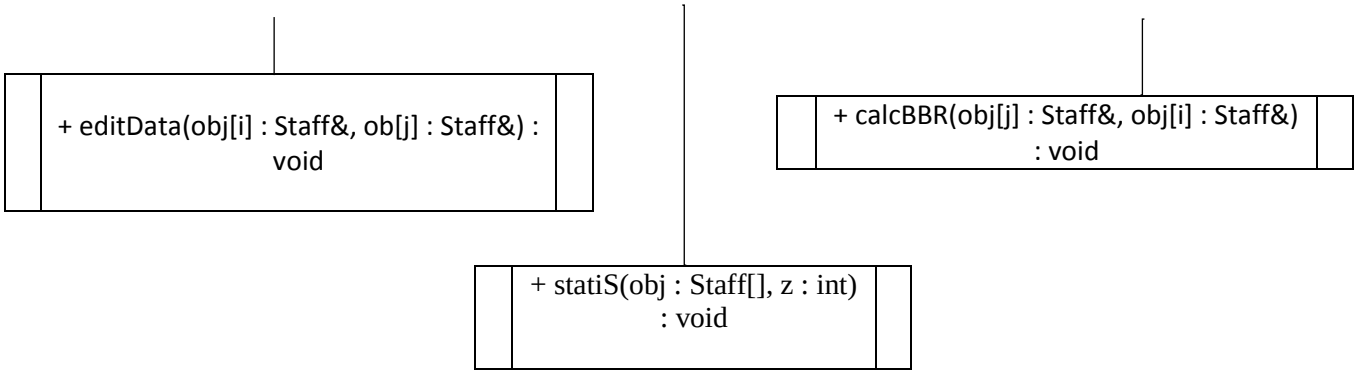
7.1.1.1.10 break
7.1.1.2 endif
7.1.2 endwhile
7.1.3 break
7.2 else
7.2.1 ID equals to false
7.3 endif
8.0 endwhile
9.0 if ID is false
9.1 display message “Incorrect staffID.You will be directed to main menu.”
10.0 endif
11.0 Pass Out: nothing

Endfunction

UML DIAGRAM

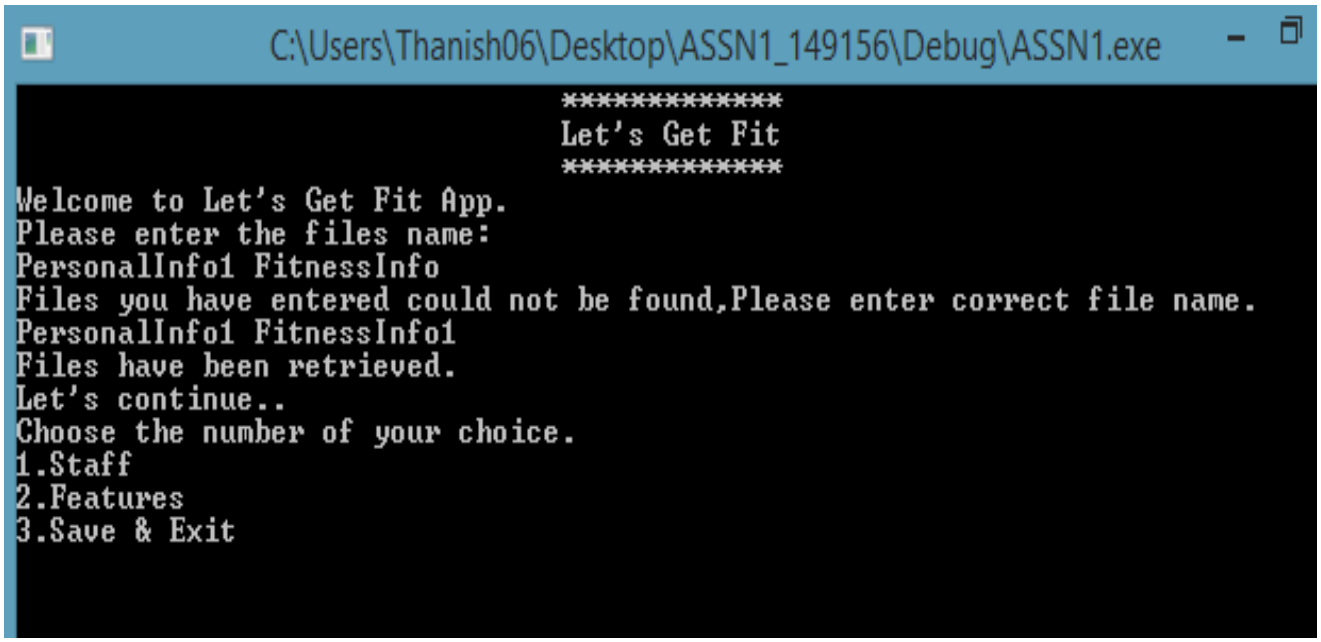

PersonalInfo
- Name : string
- Gender : string
- StaffID : string
- Staffid : string
+ getName() : string
+ getGender() : string
+ getStaffID() : string
+ getStaffid() : string
+ setname(name : string) : void
+ setgender(gender : string) : void
+ setstaffID(staffid : string) : void
+ setstaffid(staffid : string) : void
+ setData(name : string, gender : string, StaffID : string, Staffid : string) : void
+ PersonalInfo() :
+ ~PersonalInfo() :
FitnessInfo
- Weight : double
- Height : double
- BB : PersonalInfo
+ getHeight() : double
+ getWeight() : double
+ getgender() : string
+ getname() : string
+ getstaffID() : string
+ getstaffid() : string
+ setHeight(height : double) : void
+ setWeight(weight : double) : void
+ setName(name : string) : void
+ setGender(gender : string) : void


+ setStaffID(staffed : string) : void
+ setStaffid(staffed : string) : void
+ setData1(name : string, gender : string, staffID : string, staffed : string, weight : double, height : double) : void
+ disp() : void
+ calcDOBage() : long long int
+ FitnessInfo() :
+ ~FitnessInfo() :
Staff
- date : int
- month : int
- year : int
- age : int
- bmi : double
- bmr : double
- rmr : double
+ getBMI() : double
+ getBMR() : double
+ getRMR() : double
+ getAge() : int
+ getic() : string
+ getic()1 : string
+ SetHeight(height : double) : void
+ SetWeight(weight : double) : void
+ SetName(name : string) : void
+ SetGender(gender : string) : void
+ SetStaffID(staffid : string) : void
+ SetStaffid(staffed : string) : void
+ setData2(name : string, gender : string, staffID : string, staffed : string, weight : double, height : double) : void
+ getDOBage1() : void
<<friend>>
<<friend>>
<<friend>>


+ editData(obj[i] : Staff&, ob[j] : Staff&) : void
+ calcBBR(obj[j] : Staff&, obj[i] : Staff&) : void
+ statiS(obj : Staff[], z : int) : void

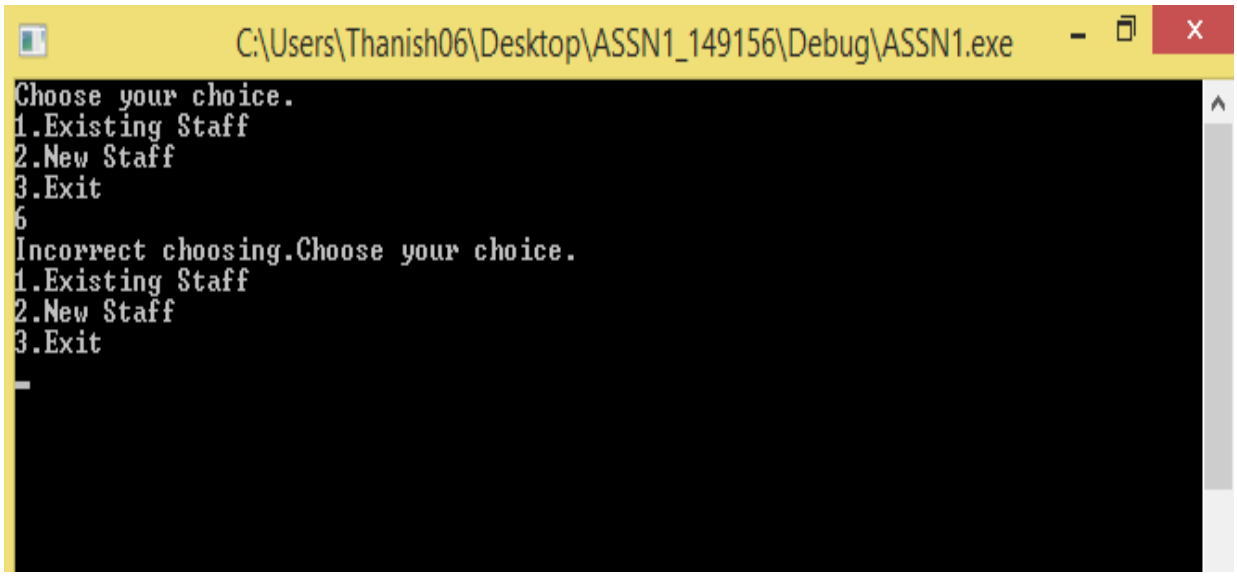
OUTPUT OF SOURCE CODE

Validating files name.Then showing the main menu.

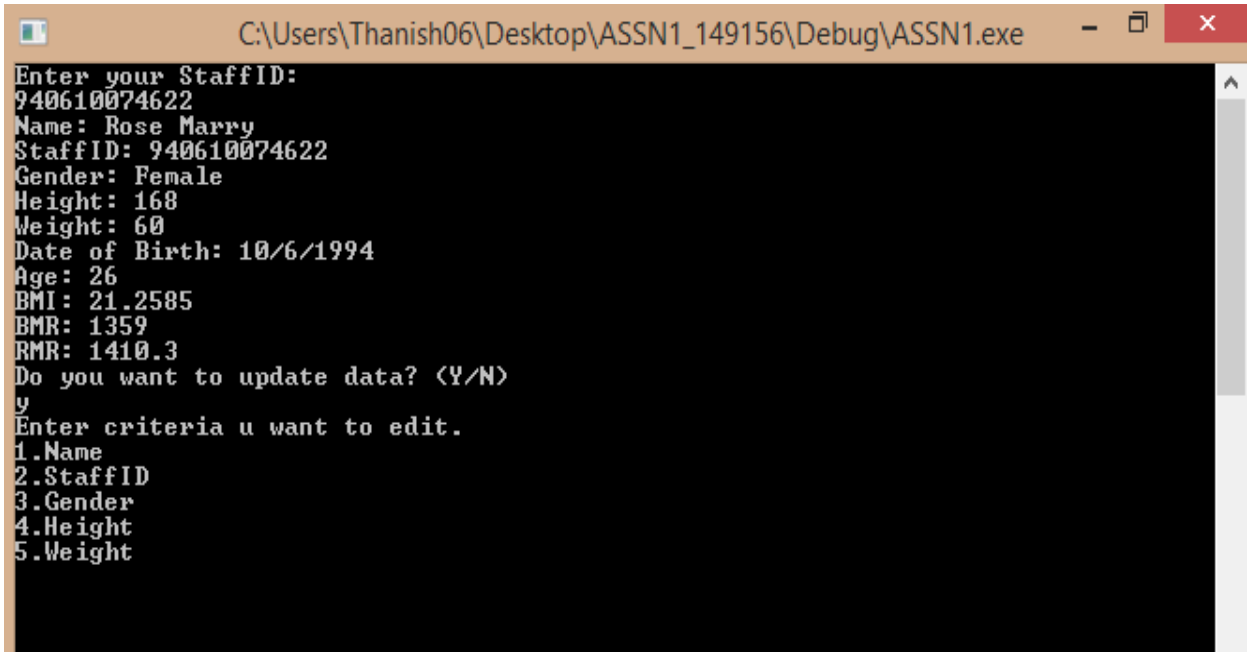


After enter 1 in main menu, staff menu will show up.

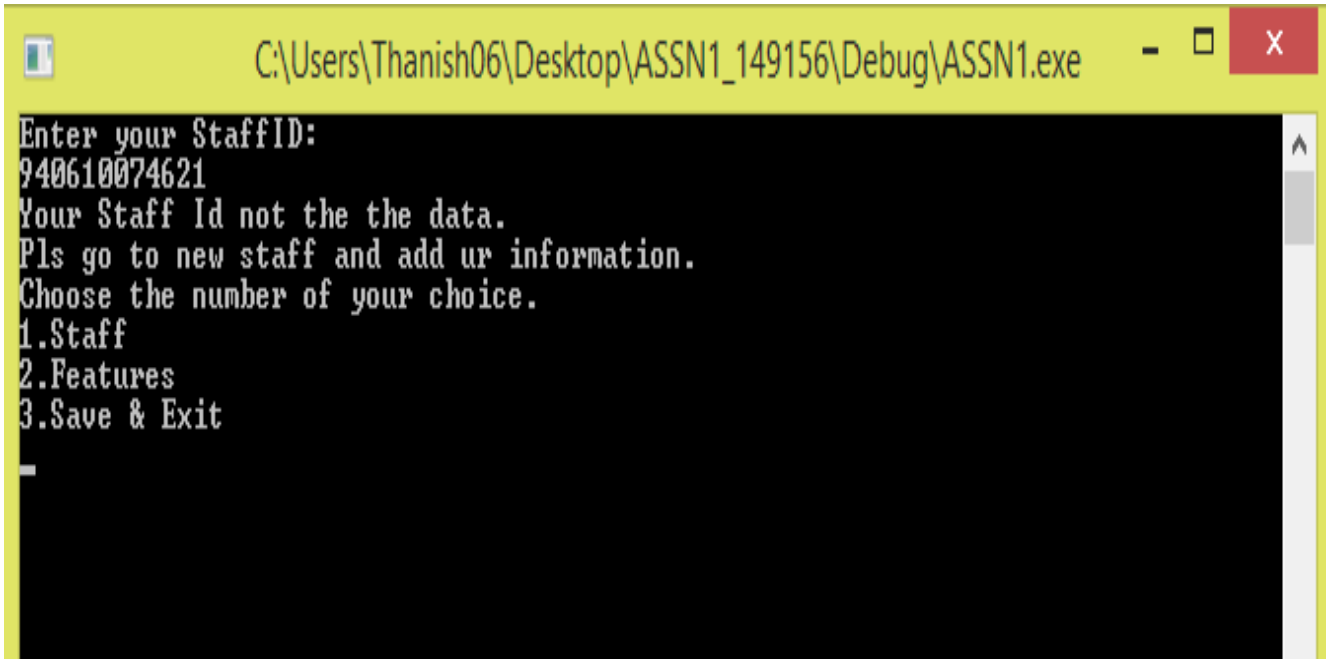
Validating staff menu.



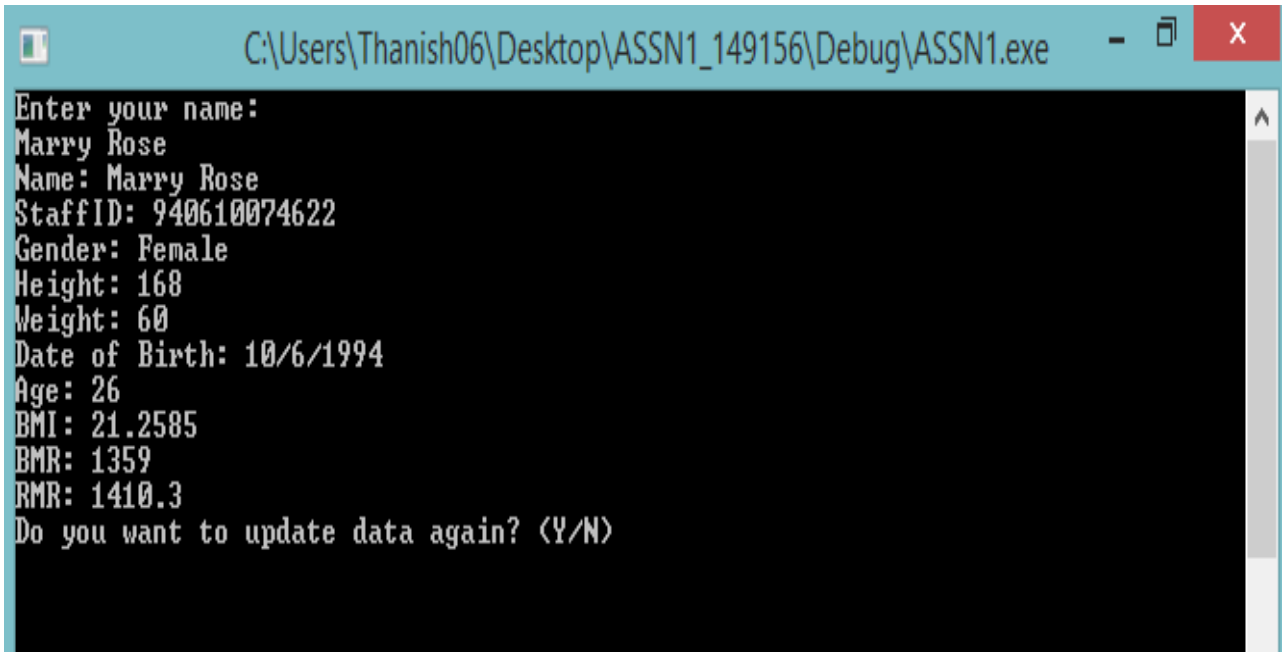
After enter 1 which is existing staff, the program will ask for simple search of staffID. When user enter their staffID, if exist in file it will show all the details and ask for update data. If user enter y or Y program will ask criteria to edit.



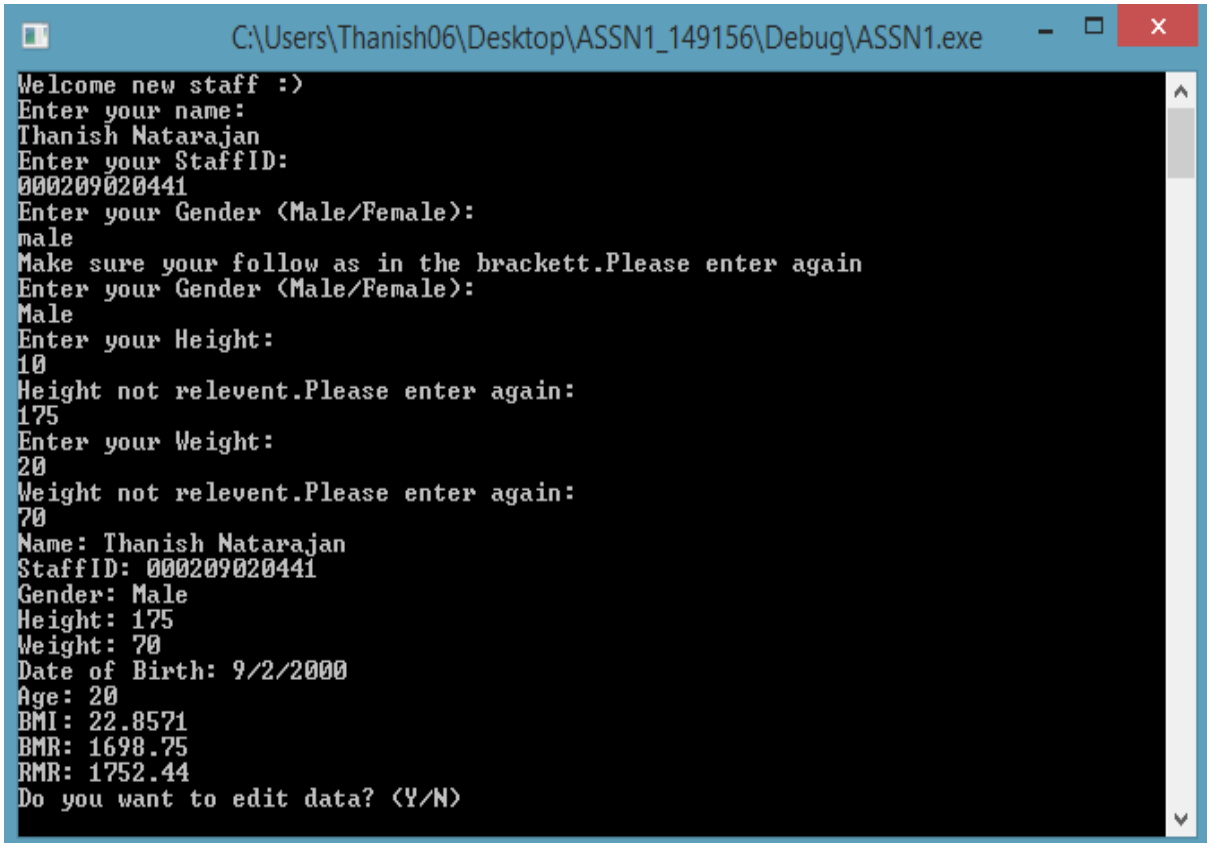
If user enter staffID tht not in the file,the program will return to main menu.



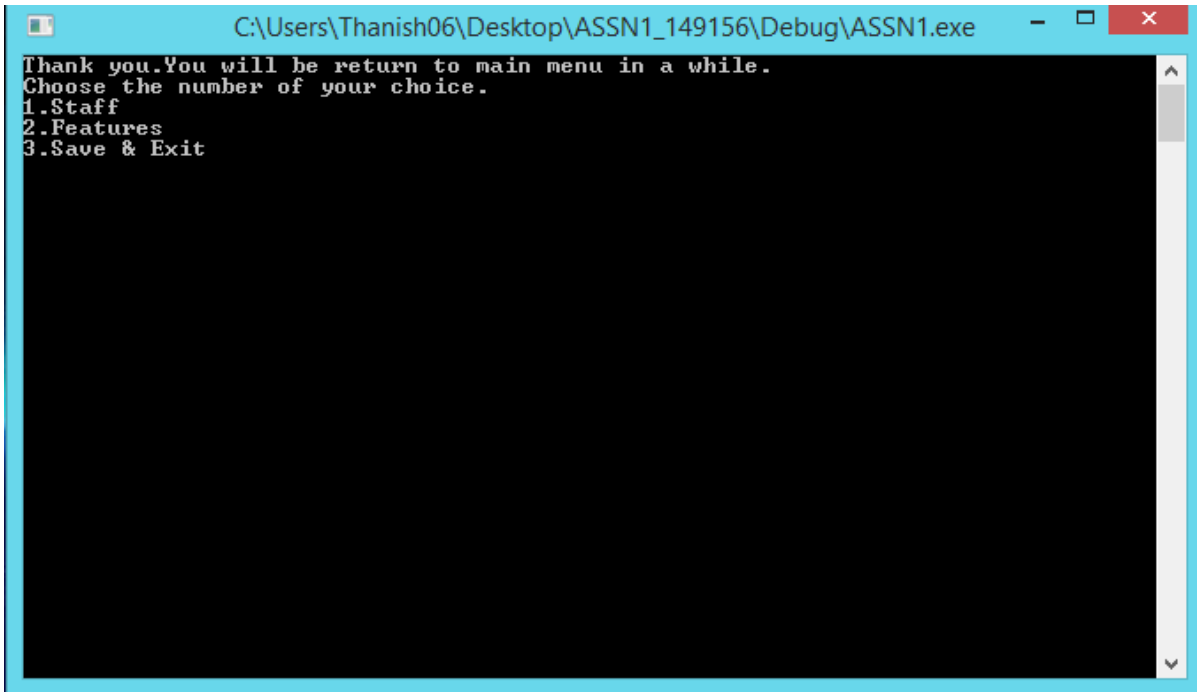
If enter 1 in criteria to update data, user will edit their name and program will show all of their details along with edited one. And ask again for update data. Same goes for StaffID, Gender, height and weight. If enter “n” or “N” or any other alphabet other than “y” and “Y” will automatically goes to main menu.



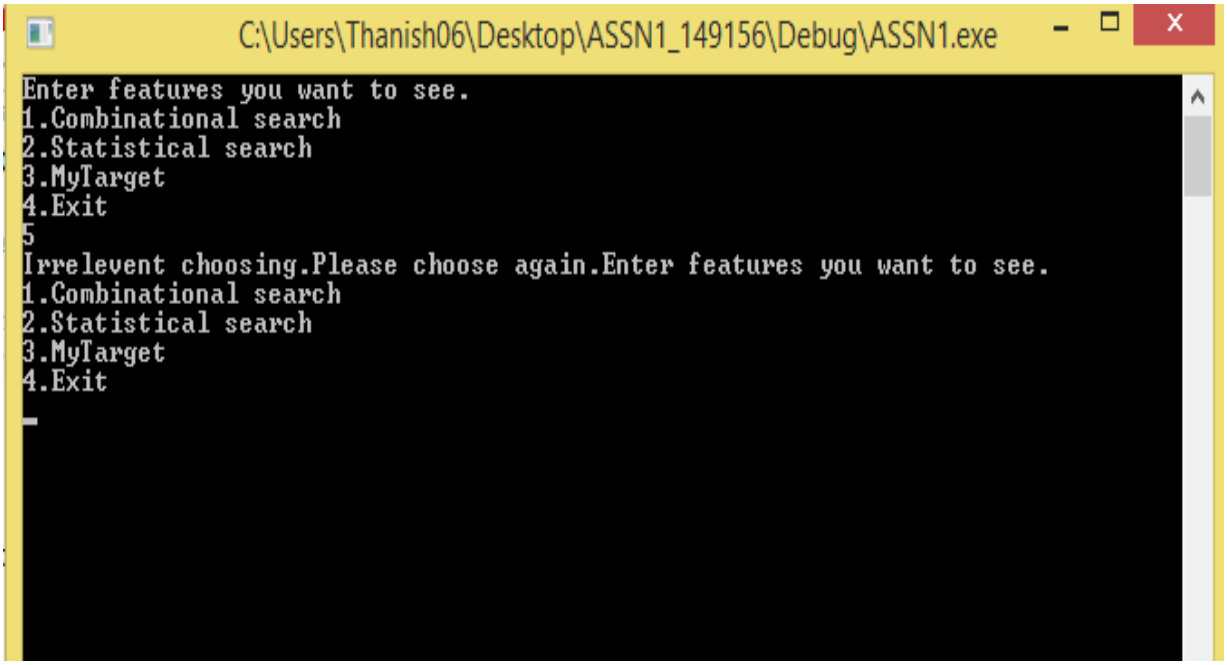
If enter 2 which is new staff in staff menu, the program will require name, StaffID, gender, height, weight. Validation occurs for gender, height and weight. After new data added all the data will be displayed including date of birth, bmi, bmr, rmr and age. After the program will ask user for edit data as the existing staff. After that the program will return to main menu.



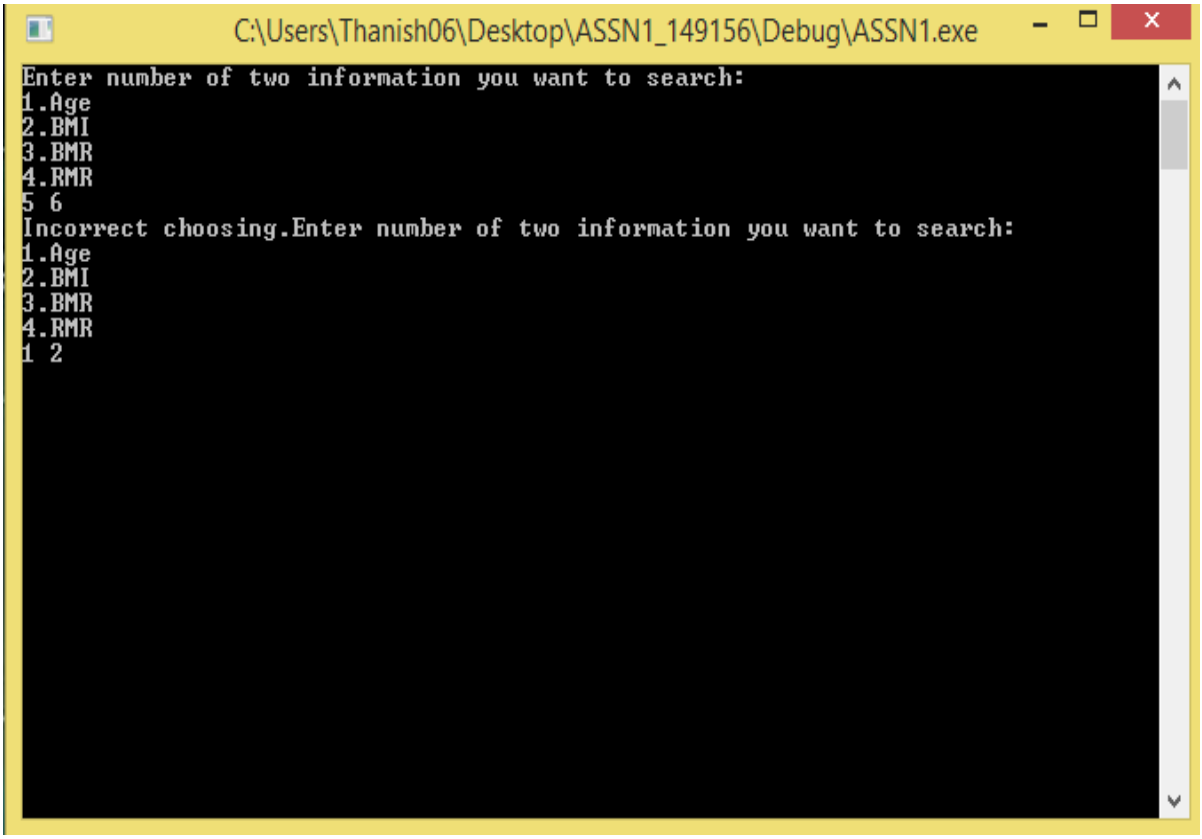
If enter 3 which is exit in staff menu, the program will return to main menu.



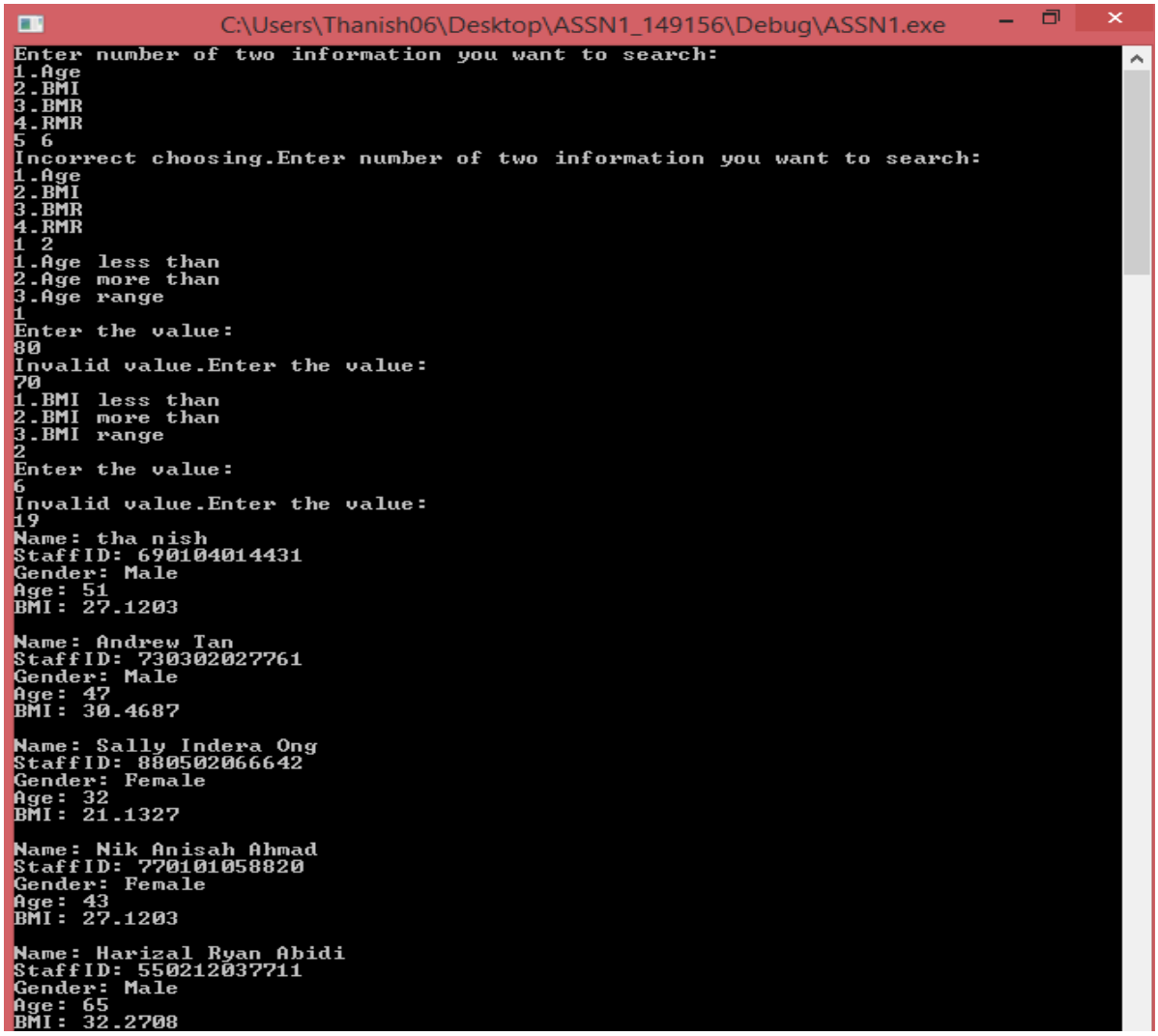
When enter 2 which is features in main menu, it will go to features menu. Validating feature menu.



If enter 1 which is combinational search in features menu, program ask for two information to search. Validating the choosing.



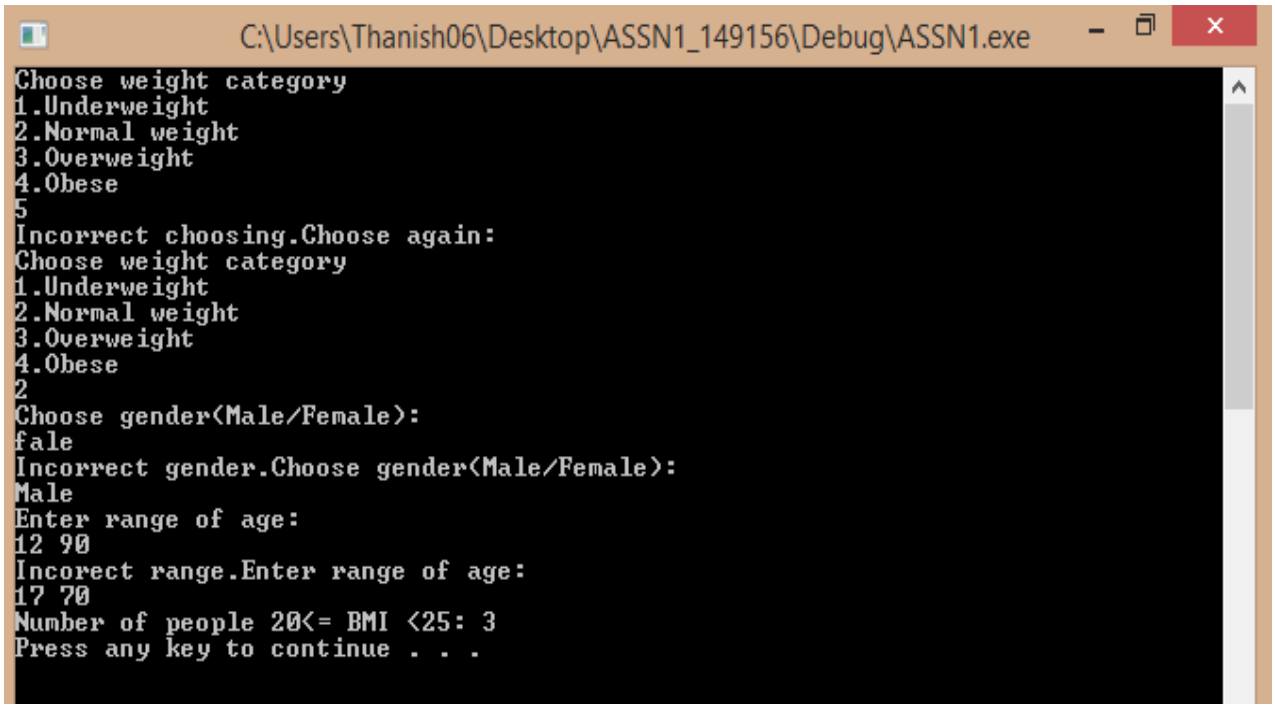
After entering 1 and 2, first program ask for choose the age ranges, then ask for bmi ranges and age and bmi validating happens. After that, will display data that meets the criteria. Same like this happens for other informations in combinational search.



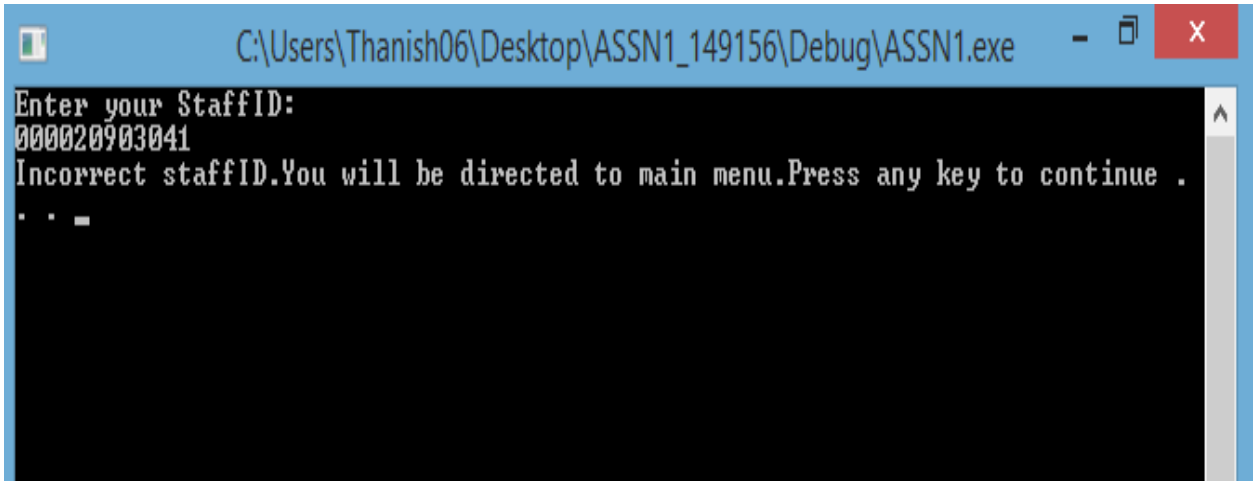
After pressing any key, the program will go to main menu again.

```
Name: Nik Ady Haris faizal
StaffID: 530624013431
Gender: Male
Age: 67
BMI: 24.5089

Name: Andrew Rajah
StaffID: 901223023311
Gender: Male
Age: 30
BMI: 20.7612

Name: Sheeta Dania
StaffID: 880112072442
Gender: Female
Age: 32
BMI: 20.8209

Name: Rose Marry
StaffID: 940610074622
Gender: Female
Age: 26
BMI: 21.2585

Name: Rizal Asidi Rahman
StaffID: 611008053131
Gender: Male
Age: 59
BMI: 29.0659

Name: Thanish Natarajan
StaffID: 000209020441
Gender: Male
Age: 20
BMI: 22.8571

Press any key to continue . . .
```

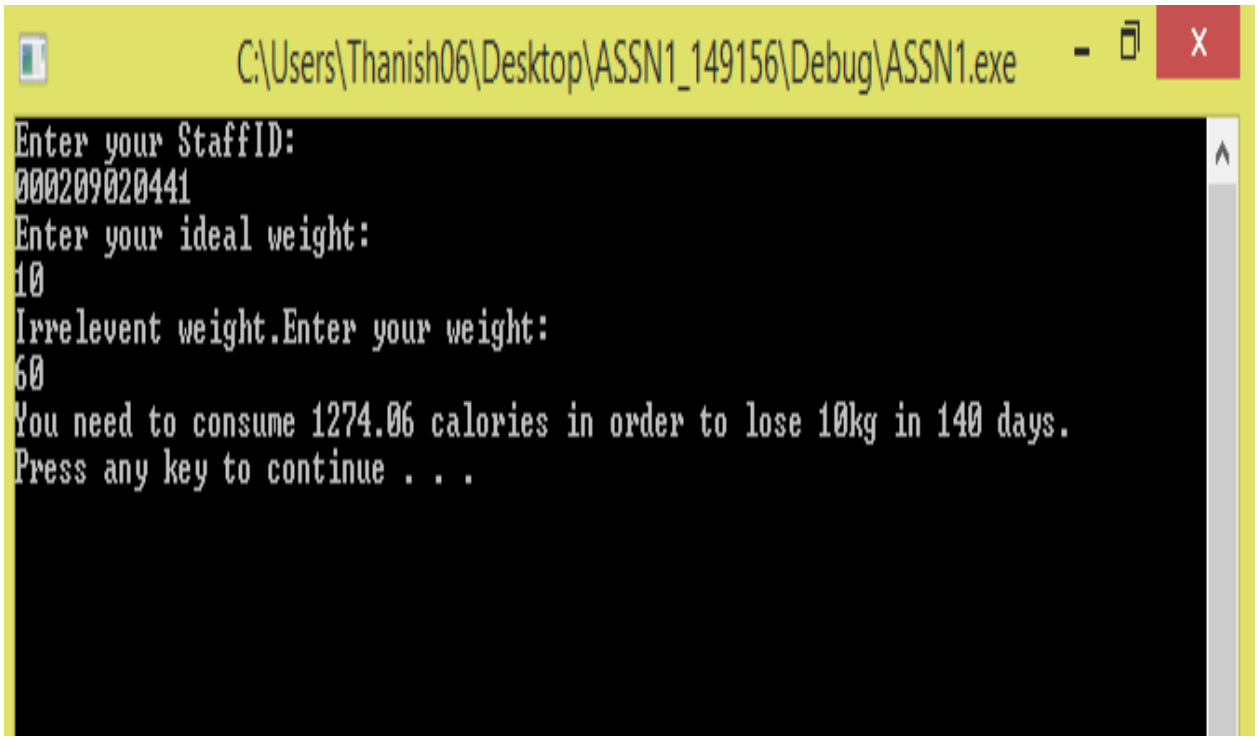
After enter 2 which is statistical search in features menu, it will ask to choose weight category. Weight category validatioon is done. Then, is ask for gender. Gender validation is done. Then, it ask for age range and the validation is done. Then, is will display the number of people that are normal weight. After that, pressing any key will make the program to go to main menu.



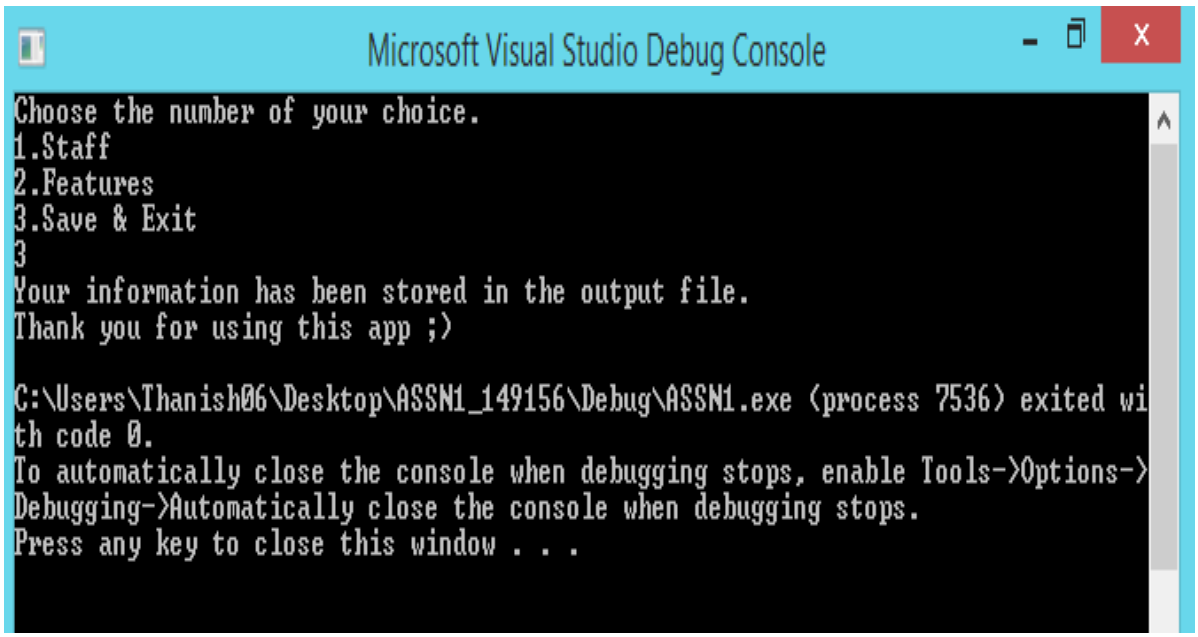
After enter 3 which is my target in features menu, it will ask for staffID. When the staffID enterd is wrong, the program will directed to main menu.



If the staffID entered is correct then it will ask for ideal weight. Ideal weight validation is done. After that, it will show how much calories needed to lose or gain weight in number of days. Then, pressing any key will go to main menu.



After enter 3 in main menu, the program will end and the data changes will be saved in output file.



SOURCE CODE

```
1  #ifndef ASSN1_PERSONALINFO_H
2  #define ASSN1_PERSONALINFO_H
3  #include <string>
4
5  using namespace std;
6
7  class PersonalInfo{                              //Class Composition
8      private:
9          string Name, Gender, StaffID, Staffid;      //declaration of
             name,gender,staffID.StaffID got two because two files got staffid
10     public:
11         string getName() { return Name; }
12         string getGender() { return Gender; }
13         string getStaffID() { return StaffID; }
14         string getStaffid() { return Staffid; }
15         void setname(string name) { Name = name; }
16         void setgender(string gender) { Gender = gender; }
17         void setstaffID(string staffid) { StaffID = staffid; }
18         void setstaffid(string staffid) { Staffid = staffid; }
19         void setData(string, string, string, string);   //set name,gender and
             staffid
20         PersonalInfo();     //class constructor
21         ~PersonalInfo();    //class destructor
22 };
23 #endif
```

```cpp
#include "PersonalInfo.h"
#include <iostream>
#include <string>

using namespace std;

void PersonalInfo::setData(string name, string gender, string staffID, string staffid)
{
    Name = name; Gender = gender;
    StaffID = staffID; Staffid = staffid;
}

PersonalInfo::PersonalInfo()
{
    Name = ""; Gender = ""; StaffID = "", Staffid = "";
}

PersonalInfo::~PersonalInfo()
{
    Name = ""; Gender = ""; StaffID = "", Staffid = "";
}

```

```
#ifndef ASSN1_FITNESSINFO_H
#define ASSN1_FITNESSINFO_H
#include "PersonalInfo.h"
#include <string>

using namespace std;

class FitnessInfo{                  //Class Inheritance
    private:
        double Weight, Height;          //declaration of weight and height
        PersonalInfo BB;                //declaration of composition class
    public:
        double getHeight() { return Height; }
        double getWeight() { return Weight; }
        string getgender() { return BB.getGender(); }
        string getname() { return BB.getName(); }
        string getstaffID() { return BB.getStaffID(); }
        string getstaffid() { return BB.getStaffid(); }
        void setHeight(double height) { Height = height; }
        void setWeight(double weight) { Weight = weight; }
        void setName(string name) { BB.setname(name); }
        void setGender(string gender) { BB.setgender(gender); }
        void setStaffID(string staffid) { BB.setstaffID(staffid); }
        void setStaffid(string staffid) { BB.setstaffid(staffid); }
        void setData1(string, string, string, string, double, double);  //set data of height,weight and setdata function
        void disp();                                                    //display name,staffid and gender
        long long int calcDOBage() { return std::stoll(BB.getStaffid()); }  //to change the data type of staffid of second file from string to integer
        FitnessInfo();      //class constructor
        ~FitnessInfo();     //class destructor
};
#endif


```

```cpp
#include "FitnessInfo.h"
#include <iostream>
#include <string>

using namespace std;

void FitnessInfo::setData1(string name, string gender, string staffID, string staffid, double weight, double height)
{
    Weight = weight; Height = height;
    BB.setData(name, gender, staffID, staffid);
}

void FitnessInfo::disp()
{
    cout << "Name: " << BB.getName() << endl;
    cout << "StaffID: " << BB.getStaffID() << endl;
    cout << "Gender: " << BB.getGender() << endl;
}

FitnessInfo::FitnessInfo()
{
    Height = 0; Weight = 0;
}

FitnessInfo::~FitnessInfo()
{
    Height = 0; Weight = 0;
}

```

```
1  #ifndef ASSN1_STAFF_H
2  #define ASSN1_STAFF_H
3  #include "FitnessInfo.h"
4  #include "PersonalInfo.h"
5  #include <string>
6  #include <iostream>
7
8  using namespace std;
9
10 class Staff:public FitnessInfo      //derived class
11 {
12     private:
13         int date, month, year, age;     //declare date,month,year,age,bmi,bmr,rmr
14         double bmi, bmr, rmr;
15     public:
16         double getBMI() { return bmi; }
17         double getBMR() { return bmr; }
18         double getRMR() { return rmr; }
19         int getAge() { return age; }
20         void SetHeight(double height) { setHeight(height); }
21         void SetWeight(double weight) { setWeight(weight); }
22         void SetName(string name) { setName(name); }
23         void SetGender(string gender) { setGender(gender); }
24         void SetStaffID(string staffid) { setStaffID(staffid); }
25         void SetStaffid(string staffid) { setStaffid(staffid); }
26         string getic() { return getstaffID(); }
27         string getic1() { return getstaffid(); }
28         void setData2(string, string, string, string, double, double); //set data
             for setdata1 function
29         void getDOBage1();                                              //
             calculate DOB and age
30         friend void calcBBR(Staff&, Staff&);                               //to
             calculate bmi,bmr,rmr
31         friend void editData(Staff&, Staff&);                           //to edit
             data of staff
32         friend void statiS(Staff[], int);                               //for
             statistical search
33         void display() { disp(); }
34         void display1();                                                //display
             height,weight,DOB,age,bmi,bmr,rmr
35         void coutBMI() { cout << "BMI: " << bmi << endl; }              //all this
              cout functions used for combinational
36         void coutBMR() { cout << "BMR: " << bmr << endl; }              //search
             to display the age,bmi,bmr and rmr
37         void coutRMR() { cout << "RMR: " << rmr << endl; }              //
             seperately according to its category
38         void coutAge() { cout << "Age: " << age << endl; }
39         Staff();                                                        //class
             constructor
40         ~Staff();                                                       //class
             destructor
41 };
```

```
42  #endif
```

```cpp
#include "Staff.h"
#include "FitnessInfo.h"
#include "PersonalInfo.h"
#include <iostream>
#include <string>
#include <math.h>

using namespace std;

void Staff::setData2(string name, string gender, string staffID, string staffid, double weight, double height)
{
    setData1(name, gender, staffID, staffid, weight, height);
}

void Staff::getDOBage1()
{   //NOTE:DOB,age,bmi,bmr,rmr ARE CALCULATED USING STAFFID FROM SECOND FILE.
    int d1 = 0, d2 = 0, m1 = 0, m2 = 0, dat = 0;
    long long int staf = calcDOBage();   //assign string staffid from second file to integer variable
    year = staf / 10000000000;          //take out first two digits of staffid to know staff year
    if (year >= 0 && year <= 20)        //get staff birth year
    {
        year += 2000;
    }
    else if (year >= 30 && year <= 99)
    {
        year += 1900;
    }
    dat = staf / 1000000;           //to seperate the staffid digits to know staff month and date
    for (int i = 0; i < 6; i++)
    {
        int digit = dat % 10;
        dat /= 10;
        if (i == 0) {           //get staff birth date
            d1 = digit;
        }
        if (i == 1) {
            d2 = digit * 10;
        }
        if (i == 2) {       //get staff birth month
            m1 = digit;
        }
        if (i == 3) {
            m2 = digit * 10;
        }
    }
    month = m1 + m2;
    date = d1 + d2;
    age = 2020 - year; //calculate age of the staff
```

```
49  }
50
51  void calcBBR(Staff& A, Staff& G) //A is for second file staffid,G for first file staffid
52  {
53      //NOTE:DOB,age,bmi,bmr,rmr ARE CALCULATED USING STAFFID FROM SECOND FILE.
54      A.bmi = round(A.getWeight() / ((A.getHeight() / 100) * (A.getHeight() / 100)) * 100) / 100;  //calculate bmi
55      if (G.getgender() == "Male" || G.getgender() == "male")                 //  calculate bmi and rmr for male
56      {
57          A.bmr = 10 * A.getWeight() + 6.25 * A.getHeight() - 5 * A.age + 5;
58          A.rmr = 88.362 + (13.397 * A.getWeight()) + (4.799 * A.getHeight()) - (5.677 * A.age);
59      }
60      else if (G.getgender() == "Female" || G.getgender() == "female")        //  calculate bmi and rmr for female
61      {
62          A.bmr = 10 * A.getWeight() + 6.25 * A.getHeight() - 5 * A.age - 161;
63          A.rmr = 447.593 + (9.247 * A.getWeight()) + (3.098 * A.getHeight()) - (4.330 * A.age);
64      }
65  }
66
67  void Staff::display1()
68  {
69      cout << "Height: " << getHeight() << endl;
70      cout << "Weight: " << getWeight() << endl;
71      cout << "Date of Birth: " << date << "/" << month << "/" << year << endl;
72      cout << "Age: " << age << endl;
73      cout << "BMI: " << bmi << endl;
74      cout << "BMR: " << bmr << endl;
75      cout << "RMR: " << rmr << endl;
76  }
77
78  void editData(Staff& E, Staff& D)  //E for first file staffid,D for second file staffid.
79  {
80      string name, staffid, staffID, gender;
81      double height, weight;
82      int edit;
83
84      cout << "Enter criteria u want to edit.\n1.Name\n2.StaffID\n3.Gender\n4.Height\n5.Weight" << endl; cin >> edit;
85      while (edit < 1 || edit>5)
86      {
87          cout << "Incorrect number.Enter criteria u want to edit.\n1.Name\n2.StaffID\n3.Gender\n4.Height\n5.Weight" << endl; cin >> edit;
88      }system("CLS");
89      if (edit == 1)  //for name
90      {
91          cout << "Enter your name: " << endl; cin.ignore(); getline(cin, name);
```

```
 92          E.SetName(name);
 93      }
 94      else if (edit == 2) //for staffID
 95      {
 96          cout << "Enter your staffID: " << endl; cin >> staffid;
 97          E.SetStaffID(staffid); D.SetStaffid(staffid);
 98      }
 99      else if (edit == 3) //for gender
100      {
101          cout << "Enter your gender(Male/Female): " << endl; cin >> gender;
102          while (gender != "Male" && gender != "male" && gender != "Female" &&
               gender != "female")
103          {
104              cout << "Incorrect gender.Enter your gender(Male/Female): " << endl;
                   cin >> gender;
105          }
106          E.SetGender(gender);
107      }
108      else if (edit == 4) //for height
109      {
110          cout << "Enter your height: " << endl; cin >> height;
111          while (height < 50 || height > 270)
112          {
113              cout << "Irrelevent height.Enter your height: " << endl; cin >>
                   height;
114          }
115          D.SetHeight(height);
116      }
117      else if (edit == 5) //for weight
118      {
119          cout << "Enter your weight: " << endl; cin >> weight;
120          while (weight <= 20)
121          {
122              cout << "Irrelevent weight.Enter your weight: " << endl; cin >>
                   weight;
123          }
124          D.SetWeight(weight);
125      }
126  }
127
128  void statiS(Staff S[], int z)
129  {
130      int cat, a = 0, b = 0, p = 0;
131      string g, g1;
132
133      cout << "Choose weight category\n1.Underweight\n2.Normal weight\n3.Overweight
           \n4.Obese" << endl; cin >> cat;  //choose category
134      while (cat < 1 || cat >4)
135      {
136          cout << "Incorrect choosing.Choose again: " << endl;
137          cout << "Choose weight category\n1.Underweight\n2.Normal weight
               \n3.Overweight\n4.Obese" << endl; cin >> cat;
```

```
138     }
139     cout << "Choose gender(Male/Female): " << endl; cin >> g;  //choose gender
140     if (g == "male") { g1 = "Male"; }               //As the data for example in
          file can be Male or male.
141     else if (g == "female") { g1 = "Female"; }      //So,when matching the input
          gender with the data this
142     else if (g == "Male") { g1 = "male"; }          // statements are required.
143     else if (g == "Female") { g1 = "female"; }
144
145     while (g != "")     //validate gender
146     {
147         if (g == "male" || g == "Male" || g == "female" || g == "Female")
              { break; }
148         else if (g != "male" && g != "female" && g != "Male" && g != "Female")
149         {
150             cout << "Incorrect gender.Choose gender(Male/Female): " << endl; cin
                  >> g;
151         }
152     }
153     cout << "Enter range of age: " << endl; cin >> a >> b;     //choose age range
154     while (a < 17 || a > 70 || b < 17 || b > 70)
155     {
156         cout << "Incorect range.Enter range of age: " << endl; cin >> a >> b;
157     }
158
159     if (cat == 1)    //for Underweight
160     {
161         for (int i = 0; i < z; i++)
162         {
163             for (int j = 0; j < z; j++)
164             {
165                 if (S[i].getic() == S[j].getic1())
166                 {
167                     S[j].getDOBage1();
168                     calcBBR(S[j], S[i]);
169                     if ((S[i].getgender() == g || S[i].getgender() == g1) && S
                         [j].getAge() > a&& S[j].getAge() < b)
170                     {
171                         if (S[j].bmi < 20)
172                         {
173                             p += 1;
174                         }
175                     }
176                 }
177             }
178         }cout << "Number of people BMI <20: " << p << endl;
179     }
180     else if (cat == 2)    //for Normal weight
181     {
182         for (int i = 0; i < z; i++)
183         {
184             for (int j = 0; j < z; j++)
```

```
185             {
186                 if (S[i].getic() == S[j].getic1())
187                 {
188                     S[j].getDOBage1();
189                     calcBBR(S[j], S[i]);
190                     if ((S[i].getgender() == g || S[i].getgender() == g1) && S
                        [j].getAge() > a&& S[j].getAge() < b)
191                     {
192                         if (S[j].bmi >= 20 && S[j].bmi < 25)
193                         {
194                             p += 1;
195                         }
196                     }
197                 }
198             }
199         }cout << "Number of people 20<= BMI <25: " << p << endl;
200     }
201     else if (cat == 3)    //for Overweight
202     {
203         for (int i = 0; i < z; i++)
204         {
205             for (int j = 0; j < z; j++)
206             {
207                 if (S[i].getic() == S[j].getic1())
208                 {
209                     S[j].getDOBage1();
210                     calcBBR(S[j], S[i]);
211                     if ((S[i].getgender() == g || S[i].getgender() == g1) && S
                        [j].getAge() > a&& S[j].getAge() < b)
212                     {
213                         if (S[j].bmi >= 25 && S[j].bmi < 30)
214                         {
215                             p += 1;
216                         }
217                     }
218                 }
219             }
220         }cout << "Number of people 25<= BMI <30: " << p << endl;
221     }
222     else if (cat == 4)    //for Obese
223     {
224         for (int i = 0; i < z; i++)
225         {
226             for (int j = 0; j < z; j++)
227             {
228                 if (S[i].getic() == S[j].getic1())
229                 {
230                     S[j].getDOBage1();
231                     calcBBR(S[j], S[i]);
232                     if ((S[i].getgender() == g || S[i].getgender() == g1) && S
                        [j].getAge() > a&& S[j].getAge() < b)
233                     {
```

```
234                         if (S[j].bmi >= 30)
235                         {
236                             p += 1;
237                         }
238                     }
239                 }
240             }
241         }cout << "Number of people BMI >=30: " << p << endl;
242     }system("PAUSE");
243 }
244
245 Staff::Staff()
246 {
247     date = 0; month = 0; year = 0; age = 0;
248     bmi = 0; bmr = 0; rmr = 0;
249 }
250
251 Staff::~Staff()
252 {
253     date = 0; month = 0; year = 0; age = 0;
254     bmi = 0; bmr = 0; rmr = 0;
255 }
256
```

```cpp
/*
    Name: Thanish A/L Natarajan
    Matric No: 149156
    Class: D2
    Lecturer Name: Dr.Nur Hana Samsudin

    This program is about healthy lifestyle of Usm staff. This program is designed to get
    Usm staff's information such as name,staffID,gender,height and weight and will
    calculate their BMI,BMR,RMR,Date of Birth and Age.Besides that, this program also doing some searches
    like simple searches using staffID,combinational search,statistical search and also got target
    calculator where Usm staff will get to know their limit for achieve their ideal weight.
*/

#include <iostream>
#include <string>
#include <iomanip>
#include <fstream>
#include "Staff.h"
#include "FitnessInfo.h"
#include "PersonalInfo.h"

using namespace std;

void combiS1(int, Staff[], int);

void targetCalc(Staff[], int);

int main()
{
    const int size = 20;
    fstream Usm, Usm1;
    ofstream UsmFile;
    Staff obj[size];
    int z = 0, num1, num2, num3, start;
    string file, file1, name, gender, staffID, staffid, exStaff;
    double weight = 0, height = 0;
    char yesno;
    bool ID = true;

    int menu();      //declaration of main menu
    int staff();    //declaration of staff
    int features(); //declaration of search menu
    int combiS();   //declaration of combinational search

    cout << "\t\t\t\t*************" << endl;             //Display Titile
    cout << "\t\t\t\tLet's Get Fit" << endl;
    cout << "\t\t\t\t*************" << endl;
```

```
48      cout << "Welcome to Let's Get Fit App." << endl;
49      cout << "Please enter the files name: " << endl;
50      cin >> file; cin.ignore();
51      cin >> file1;
52
53      while (file != "" && file1 != "")
54      {
55          file += ".txt"; file1 += ".txt";    //adding .txt automatically
56          Usm.open(file, ios::in); Usm1.open(file1, ios::in);     //read the files
57
58          if (Usm && Usm1)
59          {
60              cout << "Files have been retrieved.\nLet's continue.." << endl;
                break;
61          }
62          else if (!Usm || !Usm1)
63          {
64              Usm.close(); Usm1.close();
65              cout << "Files you have entered could not be found,Please enter
                  correct file name." << endl;
66              cin >> file; cin.ignore();
67              cin >> file1;
68          }
69      }
70      for (int i = 0; i < size && !Usm.eof() && !Usm1.eof(); i++)
71      {
72          Usm >> staffID; Usm.ignore();       //stores data from files in
              varialbles
73          getline(Usm, name, '\t');
74          Usm >> gender;
75          Usm.ignore();
76          Usm1 >> staffid;
77          Usm1 >> weight;
78          Usm1 >> height;
79          Usm1.ignore();
80          obj[i].setData2(name, gender, staffID, staffid, weight, height);    //
              stores all the data from files into object array
81          z = z + 1;      //to know how many data is in the files
82      }
83      Usm.close(); Usm1.close();
84
85      while (start = menu())
86      {
87          switch (start)
88          {
89          case 1:
90              system("CLS");
91              num1 = staff(); system("CLS");
92              if (num1 == 1)  //to know the data in the files
93              {
94                  while (ID)  //validate the StaffID search
95                  {
```

```
 96                     cout << "Enter your StaffID: " << endl; cin >> exStaff; //
                        identify specific data in the files
 97                     for (int i = 0; i < z; i++)
 98                     {
 99                         if (exStaff == obj[i].getic())
100                         {
101                             for (int j = 0; j < z; j++)
102                             {
103                                 if (exStaff == obj[j].getic1()) //display all
                        information of that specific data
104                                 {
105                                     obj[i].display();           //display first
                        file data
106                                     obj[j].getDOBage1();        //calculate date
                         of birth and age
107                                     calcBBR(obj[j], obj[i]);    //calculate
                        BMI,BMR and RMR
108                                     obj[j].display1();          //display second
                         file data
109
110                                     cout << "Do you want to update data? (Y/N)"
                        << endl; cin >> yesno;  //Ask for update any data
111                                     while (yesno)
112                                     {
113                                         if (yesno == 'Y' || yesno == 'y')
114                                         {
115                                             editData(obj[i], obj[j]);   //for
                        edit the data
116                                             obj[i].display();
117                                             obj[j].getDOBage1();
118                                             calcBBR(obj[j], obj[i]);
119                                             obj[j].display1();
120                                             cout << "Do you want to update data
                        again? (Y/N)" << endl; cin >> yesno;
121                                         }
122                                         else if (yesno == 'N' || yesno == 'n' ||
                         yesno != 'Y' || yesno != 'y')
123                                         {
124                                             system("CLS"); break;
125                                         }
126                                     }break;
127                                 }
128                             }ID = true; break;
129                         }
130                         else if (exStaff != obj[i].getic())     //if data cannot
                         found in the file
131                         {
132                             ID = false;
133                         }
134                     }
135                     while (!ID)
136                     {
```

```
137                         cout << "Your Staff Id not the the data.\nPls go to new staff and add ur information.\n";
138                         ID = true; break;
139                     }break;
140                 }
141             }
142             else if (num1 == 2)     //for new Staff to add data
143             {
144                 cout << "Welcome new staff :)\nEnter your name: " << endl;
                    cin.ignore(); getline(cin, name);
145                 cout << "Enter your StaffID: " << endl; cin >> staffID; staffid = staffID;
146                 cout << "Enter your Gender (Male/Female): " << endl; cin >> gender;
147                 while (gender != "Male" && gender != "Female")
148                 {
149                     cout << "Make sure your follow as in the brackett.Please enter again\n";
150                     cout << "Enter your Gender (Male/Female): " << endl; cin >> gender;
151                 }
152                 cout << "Enter your Height: " << endl; cin >> height;
153                 while (height <= 50 || height >= 270)
154                 {
155                     cout << "Height not relevent.Please enter again: " << endl; cin >> height;
156                 }
157                 cout << "Enter your Weight: " << endl; cin >> weight;
158                 while (weight <= 20)
159                 {
160                     cout << "Weight not relevent.Please enter again: " << endl; cin >> weight;
161                 }//system("CLS");
162                 obj[z].setData2(name, gender, staffID, staffid, weight, height); //display data that entered
163                 obj[z].display();                                                 //togeteher with DOB and age
164                 obj[z].getDOBage1(); calcBBR(obj[z], obj[z]);                     //and BMI,BMR,RMR
165                 obj[z].display1();
166
167                 cout << "Do you want to edit data? (Y/N)" << endl; cin >> yesno; //perform editing
168                 while (yesno)
169                 {
170                     if (yesno == 'Y' || yesno == 'y')
171                     {
172                         editData(obj[z], obj[z]);
173                         obj[z].display();
174                         obj[z].getDOBage1();
175                         calcBBR(obj[z], obj[z]);
176                         obj[z].display1();
```

```
177                         cout << "Do you want to edit data again? (Y/N)" << endl;
                          cin >> yesno;
178                     }
179                     else if (yesno == 'N' || yesno == 'n' || yesno != 'Y' ||
                        yesno != 'y')
180                     {
181                         system("CLS"); break;
182                     }
183                 }z += 1;        //increase the object array index every time
                      adding new staff
184             }
185             else if (num1 == 3)
186                 cout << "Thank you.You will be return to main menu in a while."
                      << endl; break;
187         case 2:     //for search
188             system("CLS");
189             num2 = features(); system("CLS");
190             if (num2 == 1)      //combinational search
191             {
192                 num3 = combiS();
193                 combiS1(num3, obj, z);
194             }
195             else if (num2 == 2) //statistical search
196             {
197                 statiS(obj, z);
198             }
199             else if (num2 == 3) //target calculator
200             {
201                 targetCalc(obj, z);
202             }
203             else if (num2 == 4) //exit to menu
204             {
205                 cout << "Thank you.You will be directed to main menu now." <<
                      endl;
206             }break;
207         case 3:     //for save all the data in output file
208             cout << "Your information has been stored in the output file.\nThank
                    you for using this app ;)" << endl;
209
210             UsmFile.open("Let_Get_Fit.txt");    //create output file
211
212             UsmFile << left << setw(40) << "Name" << "\t" << left << setw(12) <<
                    "StaffID" << "\t" << left << setw(6) << "Gender" << "\t";
213             UsmFile << internal << setw(3) << "Age" << "\t" << internal << setw
                  (7) << "Height" << "\t" << internal << setw(7) << "Weight" <<
                  "\t";
214             UsmFile << right << setw(9) << "BMI" << "\t" << right << setw(9) <<
                  "BMR" << "\t" << right << setw(9) << "RMR" << "\t" << endl;
215
216             for (int i = 0; i < z; i++)
217             {
218                 for (int j = 0; j < z; j++)
```

```
219                 {
220                     if (obj[i].getic() == obj[j].getic1())
221                     {
222                         obj[j].getDOBage1();
223                         calcBBR(obj[j], obj[i]);
224                         UsmFile << left << setw(40) << obj[i].getname() << "\t";
                            //store all the data from object arrays
225                         UsmFile << left << setw(12) << obj[j].getic1() << "\t";
226                         UsmFile << left << setw(6) << obj[i].getgender() <<
                        "\t";
227                         UsmFile << internal << setw(3) << obj[j].getAge() <<
                        "\t";
228                         UsmFile << internal << setw(7) << obj[j].getHeight() <<
                        "\t";
229                         UsmFile << internal << setw(7) << obj[j].getWeight() <<
                        "\t";
230                         UsmFile << right << setw(9) << obj[j].getBMI() << "\t";
231                         UsmFile << right << setw(9) << obj[j].getBMR() << "\t";
232                         UsmFile << right << setw(9) << obj[j].getRMR() << "\n";
233                     }
234                 }
235             }UsmFile.close();
236             break;
237         }
238         if (start == 3) { break; }  //to exit the program after case 3.
239     }
240     return 0;
241 }
242
243 int menu()
244 {
245     int num;
246
247     cout << "Choose the number of your choice.\n1.Staff\n2.Features\n3.Save &
          Exit" << endl;
248     cin >> num;
249     while (num < 1 || num > 3)
250     {
251         cout << "Incorrect choosing.Choose again.\n1.Staff\n2.Features\n3.Save &
              Exit" << endl;
252         cin >> num;
253     }
254     return num;
255 }
256
257 int staff()
258 {
259     int num1;
260     cout << "Choose your choice.\n1.Existing Staff\n2.New Staff\n3.Exit" <<
          endl; cin >> num1;
261     while (num1 < 1 || num1>3)
262     {
```

```
263         cout << "Incorrect choosing.Choose your choice.\n1.Existing Staff\n2.New
               Staff\n3.Exit" << endl; cin >> num1;
264     }
265     return num1;
266 }
267
268 int features()
269 {
270     int search;
271     cout << "Enter features you want to see.\n1.Combinational search
          \n2.Statistical search\n3.MyTarget\n4.Exit" << endl; cin >> search;
272     while (search < 1 || search >4)
273     {
274         cout << "Irrelevent choosing.Please choose again.";
275         cout << "Enter features you want to see.\n1.Combinational search
            \n2.Statistical search\n3.MyTarget\n4.Exit" << endl; cin >> search;
276     }
277     return search;
278 }
279
280 int combiS()
281 {
282     int com, com1, cho;
283     cout << "Enter number of two information you want to search:\n1.Age\n2.BMI
          \n3.BMR\n4.RMR\n"; cin >> com >> com1;
284     while (com < 1 || com > 4 || com1 < 1 || com1 > 4)
285     {
286         cout << "Incorrect choosing.Enter number of two information you want to
            search:\n1.Age\n2.BMI\n3.BMR\n4.RMR\n"; cin >> com >> com1;
287     }
288     if ((com == 1 && com1 == 2) || (com == 2 && com1 == 1)) { return cho = 1; }
289     else if ((com == 1 && com1 == 3) || (com == 3 && com1 == 1)) { return cho =
          2; }
290     else if ((com == 1 && com1 == 4) || (com == 4 && com1 == 1)) { return cho =
          3; }
291     else if ((com == 2 && com1 == 3) || (com == 3 && com1 == 2)) { return cho =
          4; }
292     else if ((com == 2 && com1 == 4) || (com == 4 && com1 == 2)) { return cho =
          5; }
293     else if ((com == 3 && com1 == 4) || (com == 4 && com1 == 3)) { return cho =
          6; }
294     system("CLS");
295 }
296
297 void combiS1(int n, Staff obj[], int z)
298 {
299     int a, a1 = 0, a2 = 1000, a3 = 0, a4 = 0, b, c, d;
300     double b1 = 0, b2 = 100000, b3 = 0, b4 = 0, c1 = 0, c2 = 100000, c3 = 0, c4
          = 0, d1 = 0, d2 = 100000, d3 = 0, d4 = 0;
301     if (n == 1) //compare Age with BMI
302     {
303         cout << "1.Age less than\n2.Age more than\n3.Age range" << endl; cin >>
```

```
            a;
304         while (a < 1 || a>3)
305         {
306             cout << "Invalid choosing.Choose again:\n1.Age less than\n2.Age more than\n3.Age range" << endl; cin >> a;
307         }
308         if (a == 1) //age less than
309         {
310             cout << "Enter the value: " << endl; cin >> a1;
311             while (a1 < 17 || a1 > 70)
312             {
313                 cout << "Invalid value.Enter the value: " << endl; cin >> a1;
314             }
315         }
316         else if (a == 2)  //age more than
317         {
318             cout << "Enter the value: " << endl; cin >> a2;
319             while (a2 < 17 || a2 > 70)
320             {
321                 cout << "Invalid value.Enter the value: " << endl; cin >> a2;
322             }
323         }
324         else if (a == 3)  //age range
325         {
326             cout << "Enter the values: " << endl; cin >> a3 >> a4;
327             while ((a3 < 17 || a3 > 70) && (a4 < 17 || a4 > 70))
328             {
329                 cout << "Invalid value.Enter the value: " << endl; cin >> a3 >> a4;
330             }
331         }
332         cout << "1.BMI less than\n2.BMI more than\n3.BMI range" << endl; cin >> b;
333         while (b < 1 || b>3)
334         {
335             cout << "Invalid choosing.Choose again:\n1.BMI less than\n2.BMI more than\n3.BMI range" << endl; cin >> b;
336         }
337         if (b == 1)  //bmi less than
338         {
339             cout << "Enter the value: " << endl; cin >> b1;
340             while (b1 < 8 || b1 > 100)
341             {
342                 cout << "Invalid value.Enter the value: " << endl; cin >> b1;
343             }
344         }
345         else if (b == 2)  //bmi more than
346         {
347             cout << "Enter the value: " << endl; cin >> b2;
348             while (b2 < 8 || b2 > 100)
349             {
350                 cout << "Invalid value.Enter the value: " << endl; cin >> b2;
```

```
351             }
352         }
353         else if (b == 3)  //bmi range
354         {
355             cout << "Enter the values: " << endl; cin >> b3 >> b4;
356             while (b3 < 8 || b3 > 100 || b4 < 8 || b4 > 100)
357             {
358                 cout << "Invalid value.Enter the value: " << endl; cin >> b3 >>
                      b4;
359             }
360         }
361
362         for (int i = 0; i < z; i++)
363         {
364             for (int j = 0; j < z; j++)
365             {
366                 if (obj[i].getic() == obj[j].getic1())
367                 {
368                     obj[j].getDOBage1();
369                     calcBBR(obj[j], obj[i]);
370                     if (obj[j].getAge() < a1 && obj[j].getBMI() < b1)
371                     {
372                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
373                     }
374                     else if (obj[j].getAge() < a1 && obj[j].getBMI() > b2)
375                     {
376                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
377                     }
378                     else if (obj[j].getAge() < a1 && obj[j].getBMI() > b3&& obj
                        [j].getBMI() < b4)
379                     {
380                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
381                     }
382                     else if (obj[j].getAge() > a2&& obj[j].getBMI() < b1)
383                     {
384                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
385                     }
386                     else if (obj[j].getAge() > a2&& obj[j].getBMI() > b2)
387                     {
388                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
389                     }
390                     else if (obj[j].getAge() > a2&& obj[j].getBMI() > b3&& obj
                        [j].getBMI() < b4)
391                     {
392                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
393                     }
```

```
394                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getBMI() < b1)
395                     {
396                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
397                     }
398                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getBMI() > b2)
399                     {
400                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
401                     }
402                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getBMI() > b3&& obj[j].getBMI() < b4)
403                     {
404                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMI();
                        cout << "\n";
405                     }
406                 }
407             }
408         }
409     }
410     else if (n == 2)    //compare Age with BMR
411     {
412         cout << "1.Age less than\n2.Age more than\n3.Age range" << endl; cin >>
              a;
413         while (a < 1 || a>3)
414         {
415             cout << "Invalid choosing.Choose again:\n1.Age less than\n2.Age more
                   than\n3.Age range" << endl; cin >> a;
416         }
417         if (a == 1) //age less than
418         {
419             cout << "Enter the value: " << endl; cin >> a1;
420             while (a1 < 17 || a1 > 70)
421             {
422                 cout << "Invalid value.Enter the value: " << endl; cin >> a1;
423             }
424         }
425         else if (a == 2)  //age more than
426         {
427             cout << "Enter the value: " << endl; cin >> a2;
428             while (a2 < 17 || a2 > 70)
429             {
430                 cout << "Invalid value.Enter the value: " << endl; cin >> a2;
431             }
432         }
433         else if (a == 3)  //age range
434         {
435             cout << "Enter the values: " << endl; cin >> a3 >> a4;
436             while ((a3 < 17 || a3 > 70) && (a4 < 17 || a4 > 70))
437             {
```

```
438                 cout << "Invalid value.Enter the value: " << endl; cin >> a3 >> a4;
439             }
440         }
441         cout << "1.BMR less than\n2.BMR more than\n3.BMR range" << endl; cin >> c;
442         while (c < 1 || c>3)
443         {
444             cout << "Invalid choosing.Choose again:\n1.BMR less than\n2.BMR more than\n3.BMR range" << endl; cin >> c;
445         }
446         if (c == 1)  //bmr less than
447         {
448             cout << "Enter the value: " << endl; cin >> c1;
449             while (c1 < 300)
450             {
451                 cout << "Invalid value.Enter the value: " << endl; cin >> c1;
452             }
453         }
454         else if (c == 2)  //bmr more than
455         {
456             cout << "Enter the value: " << endl; cin >> c2;
457             while (c2 < 300)
458             {
459                 cout << "Invalid value.Enter the value: " << endl; cin >> c2;
460             }
461         }
462         else if (c == 3)  //bmr range
463         {
464             cout << "Enter the values: " << endl; cin >> c3 >> c4;
465             while (c3 < 300 || c4 < 300)
466             {
467                 cout << "Invalid value.Enter the value: " << endl; cin >> c3 >> c4;
468             }
469         }
470
471         for (int i = 0; i < z; i++)
472         {
473             for (int j = 0; j < z; j++)
474             {
475                 if (obj[i].getic() == obj[j].getic1())
476                 {
477                     obj[j].getDOBage1();
478                     calcBBR(obj[j], obj[i]);
479                     if (obj[j].getAge() < a1 && obj[j].getBMR() < c1)
480                     {
481                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
482                     }
483                     else if (obj[j].getAge() < a1 && obj[j].getBMR() > c2)
484                     {
```

```
485                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
486                     }
487                     else if (obj[j].getAge() < a1 && obj[j].getBMR() > c3&& obj
                        [j].getBMR() < c4)
488                     {
489                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
490                     }
491                     else if (obj[j].getAge() > a2&& obj[j].getBMR() < c1)
492                     {
493                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
494                     }
495                     else if (obj[j].getAge() > a2&& obj[j].getBMR() > c2)
496                     {
497                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
498                     }
499                     else if (obj[j].getAge() > a2&& obj[j].getBMR() > c3&& obj
                        [j].getBMR() < c4)
500                     {
501                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
502                     }
503                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getBMR() < c1)
504                     {
505                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
506                     }
507                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getBMR() > c2)
508                     {
509                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
510                     }
511                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getBMR() > c3&& obj[j].getBMR() < c4)
512                     {
513                         obj[i].display(); obj[j].coutAge(); obj[j].coutBMR();
                        cout << "\n";
514                     }
515                 }
516             }
517         }
518     }
519     else if (n == 3)    //compare Age with RMR
520     {
521         cout << "1.Age less than\n2.Age more than\n3.Age range" << endl; cin >>
              a;
522         while (a < 1 || a>3)
```

```
523         {
524             cout << "Invalid choosing.Choose again:\n1.Age less than\n2.Age more than\n3.Age range" << endl; cin >> a;
525         }
526         if (a == 1) //age less than
527         {
528             cout << "Enter the value: " << endl; cin >> a1;
529             while (a1 < 17 || a1 > 70)
530             {
531                 cout << "Invalid value.Enter the value: " << endl; cin >> a1;
532             }
533         }
534         else if (a == 2)  //age more than
535         {
536             cout << "Enter the value: " << endl; cin >> a2;
537             while (a2 < 17 || a2 > 70)
538             {
539                 cout << "Invalid value.Enter the value: " << endl; cin >> a2;
540             }
541         }
542         else if (a == 3)  //age range
543         {
544             cout << "Enter the values: " << endl; cin >> a3 >> a4;
545             while ((a3 < 17 || a3 > 70) && (a4 < 17 || a4 > 70))
546             {
547                 cout << "Invalid value.Enter the value: " << endl; cin >> a3 >> a4;
548             }
549         }
550         cout << "1.RMR less than\n2.RMR more than\n3.RMR range" << endl; cin >> d;
551         while (d < 1 || d>3)
552         {
553             cout << "Invalid choosing.Choose again:\n1.RMR less than\n2.RMR more than\n3.RMR range" << endl; cin >> d;
554         }
555         if (d == 1)  //rmr less than
556         {
557             cout << "Enter the value: " << endl; cin >> d1;
558             while (d1 < 300)
559             {
560                 cout << "Invalid value.Enter the value: " << endl; cin >> d1;
561             }
562         }
563         else if (d == 2)  //rmr more than
564         {
565             cout << "Enter the value: " << endl; cin >> d2;
566             while (d2 < 300)
567             {
568                 cout << "Invalid value.Enter the value: " << endl; cin >> d2;
569             }
570         }
```

```
571         else if (d == 3)  //rmr range
572         {
573             cout << "Enter the values: " << endl; cin >> d3 >> d4;
574             while (d3 < 300 || d4 < 300)
575             {
576                 cout << "Invalid value.Enter the value: " << endl; cin >> d3 >>
                      d4;
577             }
578         }
579
580         for (int i = 0; i < z; i++)
581         {
582             for (int j = 0; j < z; j++)
583             {
584                 if (obj[i].getic() == obj[j].getic1())
585                 {
586                     obj[j].getDOBage1();
587                     calcBBR(obj[j], obj[i]);
588                     if (obj[j].getAge() < a1 && obj[j].getRMR() < d1)
589                     {
590                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
591                     }
592                     else if (obj[j].getAge() < a1 && obj[j].getRMR() > d2)
593                     {
594                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
595                     }
596                     else if (obj[j].getAge() < a1 && obj[j].getRMR() > d3&& obj
                        [j].getRMR() < d4)
597                     {
598                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
599                     }
600                     else if (obj[j].getAge() > a2&& obj[j].getRMR() < d1)
601                     {
602                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
603                     }
604                     else if (obj[j].getAge() > a2&& obj[j].getRMR() > d2)
605                     {
606                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
607                     }
608                     else if (obj[j].getAge() > a2&& obj[j].getRMR() > d3&& obj
                        [j].getRMR() < d4)
609                     {
610                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
611                     }
612                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getRMR() < d1)
```

```
613                     {
614                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
615                     }
616                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getRMR() > d2)
617                     {
618                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
619                     }
620                     else if (obj[j].getAge() > a3&& obj[j].getAge() < a4&& obj
                        [j].getRMR() > d3&& obj[j].getRMR() < d4)
621                     {
622                         obj[i].display(); obj[j].coutAge(); obj[j].coutRMR();
                        cout << "\n";
623                     }
624                 }
625             }
626         }
627     }
628     else if (n == 4)    //compare BMI with BMR
629     {
630         cout << "1.BMI less than\n2.BMI more than\n3.BMI range" << endl; cin >>
              b;
631         while (b < 1 || b>3)
632         {
633             cout << "Invalid choosing.Choose again:\n1.BMI less than\n2.BMI more
                   than\n3.BMI range" << endl; cin >> b;
634         }
635         if (b == 1)  //bmi less than
636         {
637             cout << "Enter the value: " << endl; cin >> b1;
638             while (b1 < 8 || b1 > 100)
639             {
640                 cout << "Invalid value.Enter the value: " << endl; cin >> b1;
641             }
642         }
643         else if (b == 2)  //bmi more than
644         {
645             cout << "Enter the value: " << endl; cin >> b2;
646             while (b2 < 8 || b2 > 100)
647             {
648                 cout << "Invalid value.Enter the value: " << endl; cin >> b2;
649             }
650         }
651         else if (b == 3)  //bmi range
652         {
653             cout << "Enter the values: " << endl; cin >> b3 >> b4;
654             while (b3 < 8 || b3 > 100 || b4 < 8 || b4 > 100)
655             {
656                 cout << "Invalid value.Enter the value: " << endl; cin >> b3 >>
                      b4;
```

```
657             }
658         }
659         cout << "1.BMR less than\n2.BMR more than\n3.BMR range" << endl; cin >>
              c;
660         while (c < 1 || c>3)
661         {
662             cout << "Invalid choosing.Choose again:\n1.BMR less than\n2.BMR more
                  than\n3.BMR range" << endl; cin >> c;
663         }
664         if (c == 1)  //bmr less than
665         {
666             cout << "Enter the value: " << endl; cin >> c1;
667             while (c1 < 300)
668             {
669                 cout << "Invalid value.Enter the value: " << endl; cin >> c1;
670             }
671         }
672         else if (c == 2)  //bmr more than
673         {
674             cout << "Enter the value: " << endl; cin >> c2;
675             while (c2 < 300)
676             {
677                 cout << "Invalid value.Enter the value: " << endl; cin >> c2;
678             }
679         }
680         else if (c == 3)  //bmr range
681         {
682             cout << "Enter the values: " << endl; cin >> c3 >> c4;
683             while (c3 < 300 || c4 < 300)
684             {
685                 cout << "Invalid value.Enter the value: " << endl; cin >> c3 >>
                      c4;
686             }
687         }
688
689         for (int i = 0; i < z; i++)
690         {
691             for (int j = 0; j < z; j++)
692             {
693                 if (obj[i].getic() == obj[j].getic1())
694                 {
695                     obj[j].getDOBage1();
696                     calcBBR(obj[j], obj[i]);
697                     if (obj[j].getBMI() < b1 && obj[j].getBMR() < c1)
698                     {
699                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                          cout << "\n";
700                     }
701                     else if (obj[j].getBMI() < b1 && obj[j].getBMR() > c2)
702                     {
703                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                          cout << "\n";
```

```
704                     }
705                     else if (obj[j].getBMI() < b1 && obj[j].getBMR() > c3&& obj
                        [j].getBMR() < c4)
706                     {
707                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
708                     }
709                     else if (obj[j].getBMI() > b2&& obj[j].getBMR() < c1)
710                     {
711                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
712                     }
713                     else if (obj[j].getBMI() > b2&& obj[j].getBMR() > c2)
714                     {
715                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
716                     }
717                     else if (obj[j].getBMI() > b2&& obj[j].getBMR() > c3&& obj
                        [j].getBMR() < c4)
718                     {
719                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
720                     }
721                     else if (obj[j].getBMI() > b3&& obj[j].getBMI() < b4&& obj
                        [j].getBMR() < c1)
722                     {
723                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
724                     }
725                     else if (obj[j].getBMI() > b3&& obj[j].getBMI() < b4&& obj
                        [j].getBMR() > c2)
726                     {
727                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
728                     }
729                     else if (obj[j].getBMI() > b3&& obj[j].getBMI() < b4&& obj
                        [j].getBMR() > c3&& obj[j].getBMR() < c4)
730                     {
731                         obj[i].display(); obj[j].coutBMI(); obj[j].coutBMR();
                        cout << "\n";
732                     }
733                 }
734             }
735         }
736     }
737     else if (n == 5)    //compare BMI with RMR
738     {
739         cout << "1.BMI less than\n2.BMI more than\n3.BMI range" << endl; cin >>
              b;
740         while (b < 1 || b>3)
741         {
742             cout << "Invalid choosing.Choose again:\n1.BMI less than\n2.BMI more
```

```
                than\n3.BMI range" << endl; cin >> b;
743         }
744         if (b == 1)  //bmi less than
745         {
746             cout << "Enter the value: " << endl; cin >> b1;
747             while (b1 < 8 || b1 > 100)
748             {
749                 cout << "Invalid value.Enter the value: " << endl; cin >> b1;
750             }
751         }
752         else if (b == 2)  //bmi more than
753         {
754             cout << "Enter the value: " << endl; cin >> b2;
755             while (b2 < 8 || b2 > 100)
756             {
757                 cout << "Invalid value.Enter the value: " << endl; cin >> b2;
758             }
759         }
760         else if (b == 3)  //bmi range
761         {
762             cout << "Enter the values: " << endl; cin >> b3 >> b4;
763             while (b3 < 8 || b3 > 100 || b4 < 8 || b4 > 100)
764             {
765                 cout << "Invalid value.Enter the value: " << endl; cin >> b3 >>
                      b4;
766             }
767         }
768         cout << "1.RMR less than\n2.RMR more than\n3.RMR range" << endl; cin >>
              d;
769         while (d < 1 || d>3)
770         {
771             cout << "Invalid choosing.Choose again:\n1.RMR less than\n2.RMR more
                    than\n3.RMR range" << endl; cin >> d;
772         }
773         if (d == 1)  //rmr less than
774         {
775             cout << "Enter the value: " << endl; cin >> d1;
776             while (d1 < 300)
777             {
778                 cout << "Invalid value.Enter the value: " << endl; cin >> d1;
779             }
780         }
781         else if (d == 2)  //rmr more than
782         {
783             cout << "Enter the value: " << endl; cin >> d2;
784             while (d2 < 300)
785             {
786                 cout << "Invalid value.Enter the value: " << endl; cin >> d2;
787             }
788         }
789         else if (d == 3)  //rmr range
790         {
```

```
791             cout << "Enter the values: " << endl; cin >> d3 >> d4;
792             while (d3 < 300 || d4 < 300)
793             {
794                 cout << "Invalid value.Enter the value: " << endl; cin >> d3 >>
                      d4;
795             }
796         }
797
798         for (int i = 0; i < z; i++)
799         {
800             for (int j = 0; j < z; j++)
801             {
802                 if (obj[i].getic() == obj[j].getic1())
803                 {
804                     obj[j].getDOBage1();
805                     calcBBR(obj[j], obj[i]);
806                     if (obj[j].getBMI() < b1 && obj[j].getRMR() < d1)
807                     {
808                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
809                     }
810                     else if (obj[j].getBMI() < b1 && obj[j].getRMR() > d2)
811                     {
812                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
813                     }
814                     else if (obj[j].getBMI() < b1 && obj[j].getRMR() > d3&& obj
                        [j].getRMR() < d4)
815                     {
816                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
817                     }
818                     else if (obj[j].getBMI() > b2&& obj[j].getRMR() < d1)
819                     {
820                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
821                     }
822                     else if (obj[j].getBMI() > b2&& obj[j].getRMR() > d2)
823                     {
824                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
825                     }
826                     else if (obj[j].getBMI() > b2&& obj[j].getRMR() > d3&& obj
                        [j].getRMR() < d4)
827                     {
828                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
829                     }
830                     else if (obj[j].getBMI() > b3&& obj[j].getBMI() < b4&& obj
                        [j].getRMR() < d1)
831                     {
832                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
```

```
                        cout << "\n";
833                     }
834                     else if (obj[j].getBMI() > b3&& obj[j].getBMI() < b4&& obj
                        [j].getRMR() > d2)
835                     {
836                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
837                     }
838                     else if (obj[j].getBMI() > b3&& obj[j].getBMI() < b4&& obj
                        [j].getRMR() > d3&& obj[j].getRMR() < d4)
839                     {
840                         obj[i].display(); obj[j].coutBMI(); obj[j].coutRMR();
                        cout << "\n";
841                     }
842                 }
843             }
844         }
845     }
846     else if (n == 6)    //compare BMR with RMR
847     {
848         cout << "1.BMR less than\n2.BMR more than\n3.BMR range" << endl; cin >>
              c;
849         while (c < 1 || c>3)
850         {
851             cout << "Invalid choosing.Choose again:\n1.BMR less than\n2.BMR more
                  than\n3.BMR range" << endl; cin >> c;
852         }
853         if (c == 1)  //bmr less than
854         {
855             cout << "Enter the value: " << endl; cin >> c1;
856             while (c1 < 300)
857             {
858                 cout << "Invalid value.Enter the value: " << endl; cin >> c1;
859             }
860         }
861         else if (c == 2)  //bmr more than
862         {
863             cout << "Enter the value: " << endl; cin >> c2;
864             while (c2 < 300)
865             {
866                 cout << "Invalid value.Enter the value: " << endl; cin >> c2;
867             }
868         }
869         else if (c == 3)  //bmr range
870         {
871             cout << "Enter the values: " << endl; cin >> c3 >> c4;
872             while (c3 < 300 || c4 < 300)
873             {
874                 cout << "Invalid value.Enter the value: " << endl; cin >> c3 >>
                      c4;
875             }
876         }
```

```
877         cout << "1.RMR less than\n2.RMR more than\n3.RMR range" << endl; cin >>
              d;
878         while (d < 1 || d>3)
879         {
880             cout << "Invalid choosing.Choose again:\n1.RMR less than\n2.RMR more
                 than\n3.RMR range" << endl; cin >> d;
881         }
882         if (d == 1)  //rmr less than
883         {
884             cout << "Enter the value: " << endl; cin >> d1;
885             while (d1 < 300)
886             {
887                 cout << "Invalid value.Enter the value: " << endl; cin >> d1;
888             }
889         }
890         else if (d == 2)  //rmr more than
891         {
892             cout << "Enter the value: " << endl; cin >> d2;
893             while (d2 < 300)
894             {
895                 cout << "Invalid value.Enter the value: " << endl; cin >> d2;
896             }
897         }
898         else if (d == 3)  //rmr range
899         {
900             cout << "Enter the values: " << endl; cin >> d3 >> d4;
901             while (d3 < 300 || d4 < 300)
902             {
903                 cout << "Invalid value.Enter the value: " << endl; cin >> d3 >>
                      d4;
904             }
905         }
906
907         for (int i = 0; i < z; i++)
908         {
909             for (int j = 0; j < z; j++)
910             {
911                 if (obj[i].getic() == obj[j].getic1())
912                 {
913                     obj[j].getDOBage1();
914                     calcBBR(obj[j], obj[i]);
915                     if (obj[j].getBMR() < c1 && obj[j].getRMR() < d1)
916                     {
917                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
918                     }
919                     else if (obj[j].getBMR() < c1 && obj[j].getRMR() > d2)
920                     {
921                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
922                     }
923                     else if (obj[j].getBMR() < c1 && obj[j].getRMR() > d3&& obj
```

```
                        [j].getRMR() < d4)
924                     {
925                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
926                     }
927                     else if (obj[j].getBMR() > c2&& obj[j].getRMR() < d1)
928                     {
929                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
930                     }
931                     else if (obj[j].getBMR() > c2&& obj[j].getRMR() > d2)
932                     {
933                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
934                     }
935                     else if (obj[j].getBMR() > c2&& obj[j].getRMR() > d3&& obj
                        [j].getRMR() < d4)
936                     {
937                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
938                     }
939                     else if (obj[j].getBMR() > c3&& obj[j].getBMR() < c4&& obj
                        [j].getRMR() < d1)
940                     {
941                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
942                     }
943                     else if (obj[j].getBMR() > c3&& obj[j].getBMR() < c4&& obj
                        [j].getRMR() > d2)
944                     {
945                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
946                     }
947                     else if (obj[j].getBMR() > c3&& obj[j].getBMR() < c4&& obj
                        [j].getRMR() > d3&& obj[j].getRMR() < d4)
948                     {
949                         obj[i].display(); obj[j].coutBMR(); obj[j].coutRMR();
                        cout << "\n";
950                     }
951                 }
952             }
953         }
954     }
955     system("PAUSE"); system("CLS");
956 }
957
958 void targetCalc(Staff obj[], int z)  //Calculate the target weight
959 {
960     string staf;
961     double newbmr = 0, win = 0, remain = 0;
962     int days;
963     bool ID = true;
```

```
964
965     cout << "Enter your StaffID: " << endl; cin >> staf;   //ask for specific
          StaffID
966
967     for (int i = 0; i < z; i++)                            //search for specific
           StaffID
968     {
969         if (staf == obj[i].getic())
970         {
971             for (int j = 0; j < z; j++)
972             {
973                 if (staf == obj[j].getic1())
974                 {
975                     obj[j].getDOBage1();
976                     calcBBR(obj[j], obj[i]);
977                     newbmr = 0.75 * obj[j].getBMR();     //calculate calories
978
979                     cout << "Enter your ideal weight: " << endl; cin >>
                        win;        //ask for ideal weight
980                     while (win <= 20)
981                     {
982                         cout << "Irrelevent weight.Enter your weight: " << endl;
                         cin >> win;
983                     }
984                     if (obj[j].getWeight() > win)    //if weight more than ideal
                         weight
985                     {
986                         remain = obj[j].getWeight() - win;   //difference of
                        weight
987                         days = remain / (0.5 / 7);
988                         cout << "You need to consume " << newbmr << " calories
                        in order to lose " << remain << "kg in " << days << " days.
                        \n";
989                     }
990                     else if (obj[j].getWeight() < win)  //if weight less than
                        ideal weight
991                     {
992                         remain = win - obj[j].getWeight();  //difference of
                        weight
993                         days = remain / (0.5 / 7);
994                         cout << "You need to consume " << newbmr << " calories
                        in order to gain " << remain << "kg in " << days << " days.
                        \n";
995                     }ID = true; break;
996                 }
997             }break;
998         }
999         else
1000        {
1001            ID = false;
1002        }
1003    }
```

```
1004      if (!ID)
1005      {
1006          cout << "Incorrect staffID.You will be directed to main menu.";
1007      }system("PAUSE");
1008  }
```