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GROUP D

CPT 113 ASSIGNMENT 1

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CONTENTS

Problem Analysis

The programs name is Let's Get Fit. The main purpose of this program is to maintain the health of staffs working in University Science Malaysia. By using the data in the file or input from user, they must be able to process a lot info about staffs such as BMI, BMR and RMR as determine the staff's weight category depending on their BMI. The program starts by reading data of staffs from two file. One that contains personal info name, gender and staff ID while another one that contains staff ID, weight and height. User can add new staff or edit data of existing staff. User must be able to search information about every staffs together or even each of them individually. When user inputs a staff ID, the program should calculate staff's ideal weight and the amount of calorie they should intake every day. It should also tell about how many days the staff should intake the same amount of calorie to lose weight (0.5kg per week) and reach their ideal weight. The program will also need to provide statistical value such as average BMI, BMR and RMR and also the number of staffs in a certain category depending on the user's request. User must also able to do combined search where they can search for staff within a range of BMI, BMR or RMR with same gender or within an age range.

Specific Requirements

1) Input
   -Name of staffs
   -Staff's ID
   -Gender
   -Weight
   -Height

2) Process

I. Calculating BMI

```
bmi = getWeight() / ((getHeight() / 100) * (getHeight() / 100))
```

II. Calculating RMR

```
rmr = 88.362 + (13.397 * getWeight()) + (4.799 * getHeight()) - (5.677 * age)

rmr = 447.593 + (9.247 * getWeight()) + (3.098 * getHeight()) - (4.330 * age)
```

III. Calculating BMR

```
bmr = 10 * getWeight() + 6.25 * getHeight() - 5 * age + 5.0

bmr = 10 * getWeight() + 6.25 * getHeight() - 5 * age - 161.0
```

IV. Calculating average

```
=   avebmi = (avebmi + ob1[i].getbmi())/x

    avebmr = (avebmr+ ob1[i].getbmr())/x

    avermr = (avermr + ob1[i].getrmr())/x
```

*X is divisor and number of staffs.

V. Calculating ideal weight, calories and days to reach ideal weight.

=Ideal weight

height = (getHeight() / 2.54) - 60

ideal = 50 + (height * 2.3)

=Calories and days to reach ideal weight.

*underweight category

- calc = (getbmr()* 1.3)*1.25

calc2 = (getbmr()* 1.3)*1.75

days = (ideal- getWeight()) / (0.5 / 7)

*normal weight

-calc = (getbmr()* 1.3)

*overweight

- calc = (getbmr()* 1.3)*0.75

days = (getWeight()- ideal) / (0.5 / 7)

*obese

- calc = (getbmr()* 1.3)*0.75

days = (getWeight()- ideal) / (0.5 / 7)

VI . Calculate Age

```
long long int calc = stoll(getStaff())
int current=2020
long long int calc2 = (calc / 10000000000)
if (calc2 <= 20) { year = calc2 + 2000; age =current - year ; }
else { year = calc2 + 1900; age =current-year; }
```

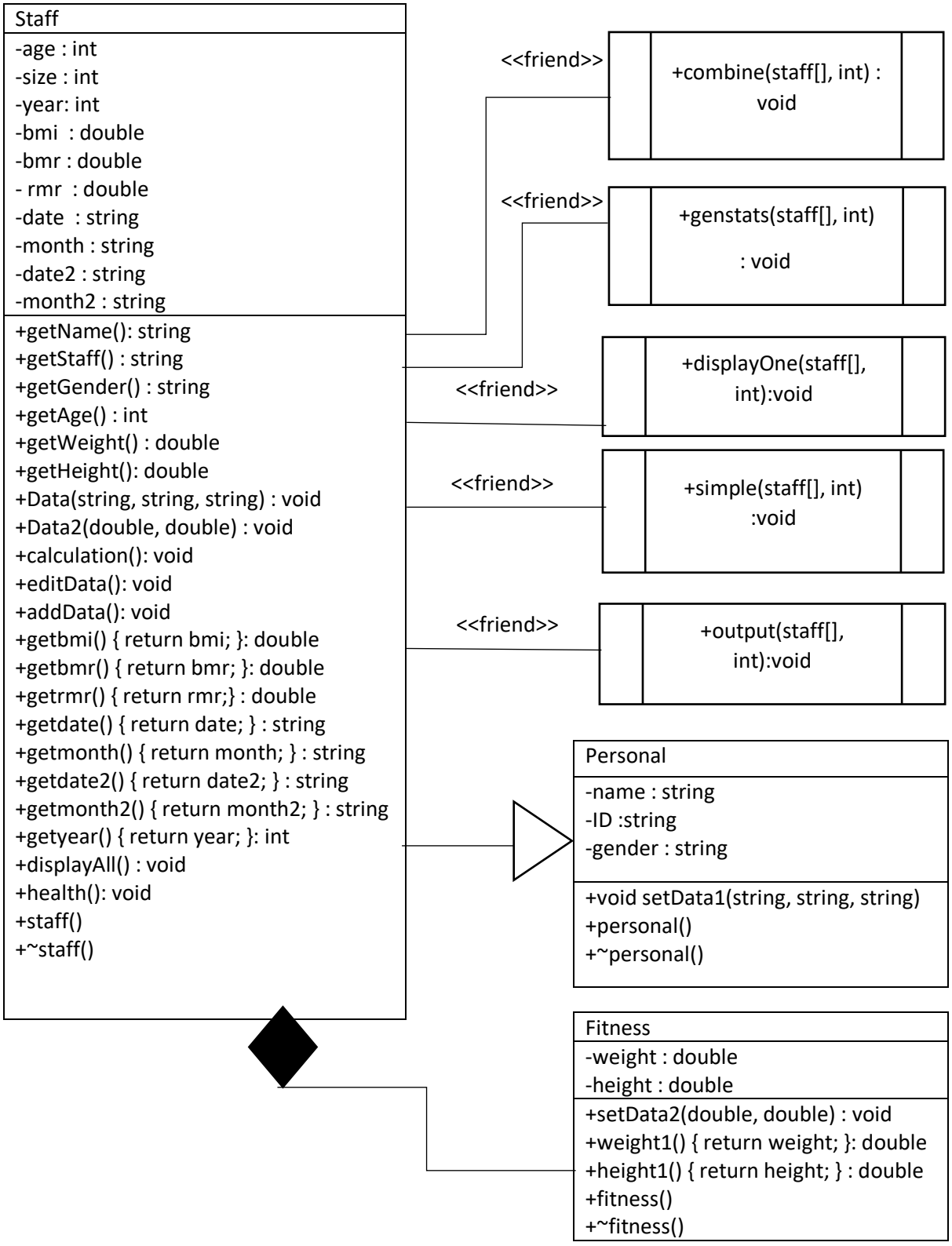
3) Output

-Displaying name, staff ID, age ,gender , weight , height , BMI, RMR and BMR in an output file
-Displaying all the information of staffs together
-Displaying Date of Birth
-Displaying information of each staff only when searched
-Displaying all the staffs in a certain category depending on user's requirement
-Displaying statistical information of all staffs and also staffs that meet user's requirement. (user input gender or age range or BMI,BMR,RMR range)
-Displaying ideal weight, calorie intake and number of days to reach ideal weight for specific staff searched by user
-Displaying advice for each staff depending on their weight category.

4) Constrains

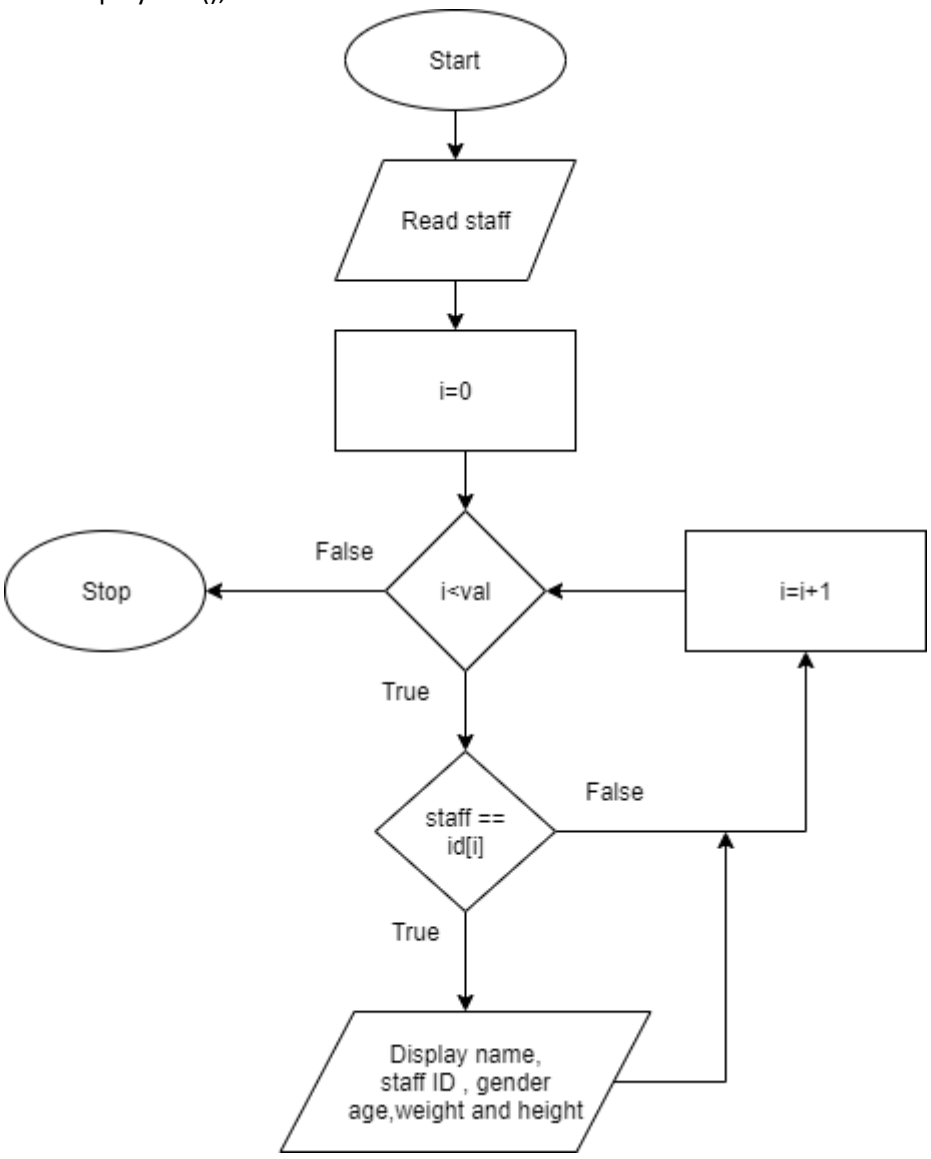
a) Since age is not given, we need to use staff id to calculate age.
b) For gender user must only enter 'Male' or 'Female' character.
c) For age, weight, height, BMI, BMR and RMR input user can only enter value in between certain range.
d) To edit or search for specific staff's data user must know the staff's ID and must input it accurately.
e) There must already be data of staffs in a file in order for the program to read.
f) File will not run properly if data is missing in file
g)Program will still run even if data missing in file

UML Diagram for classes

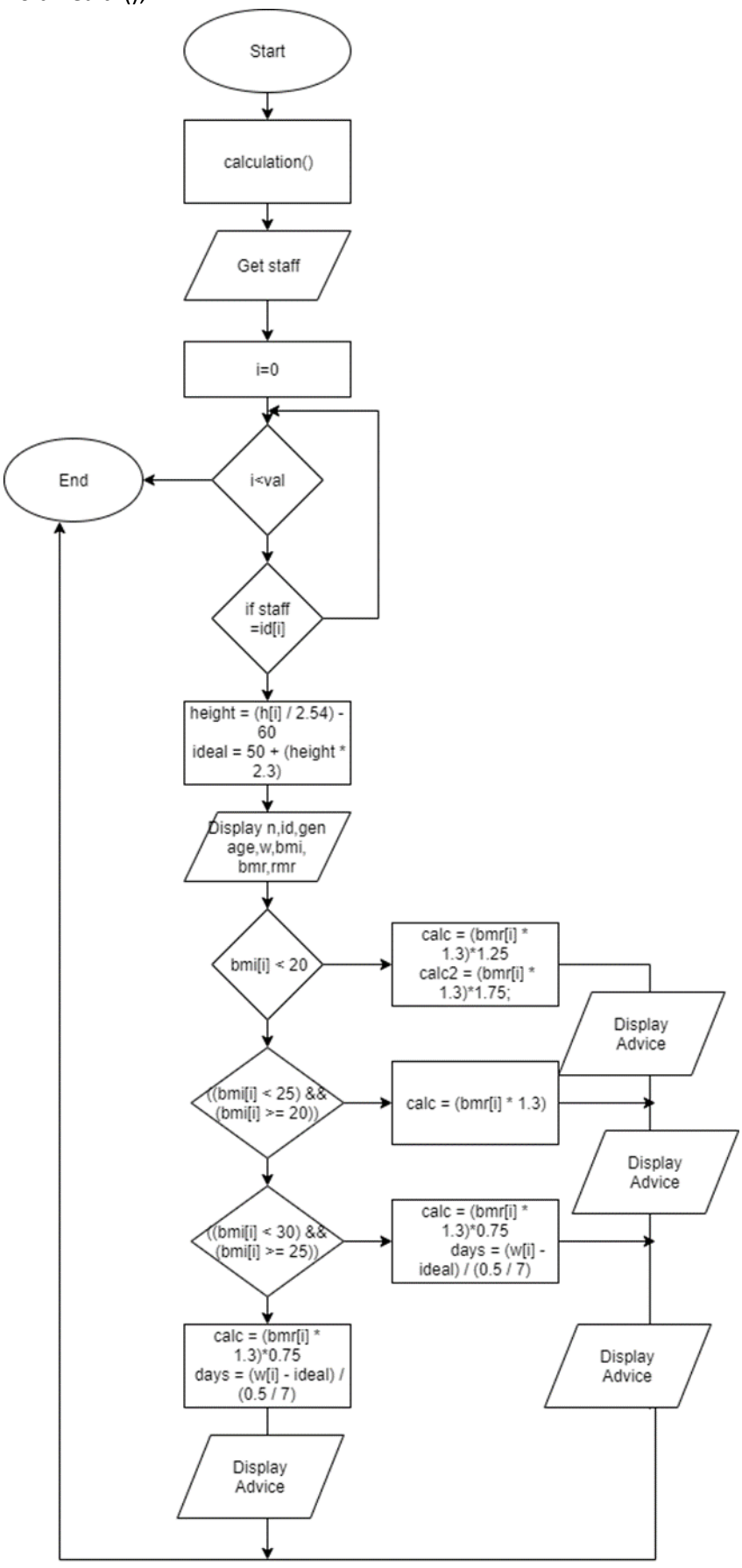


Flow chart and Pseudocode

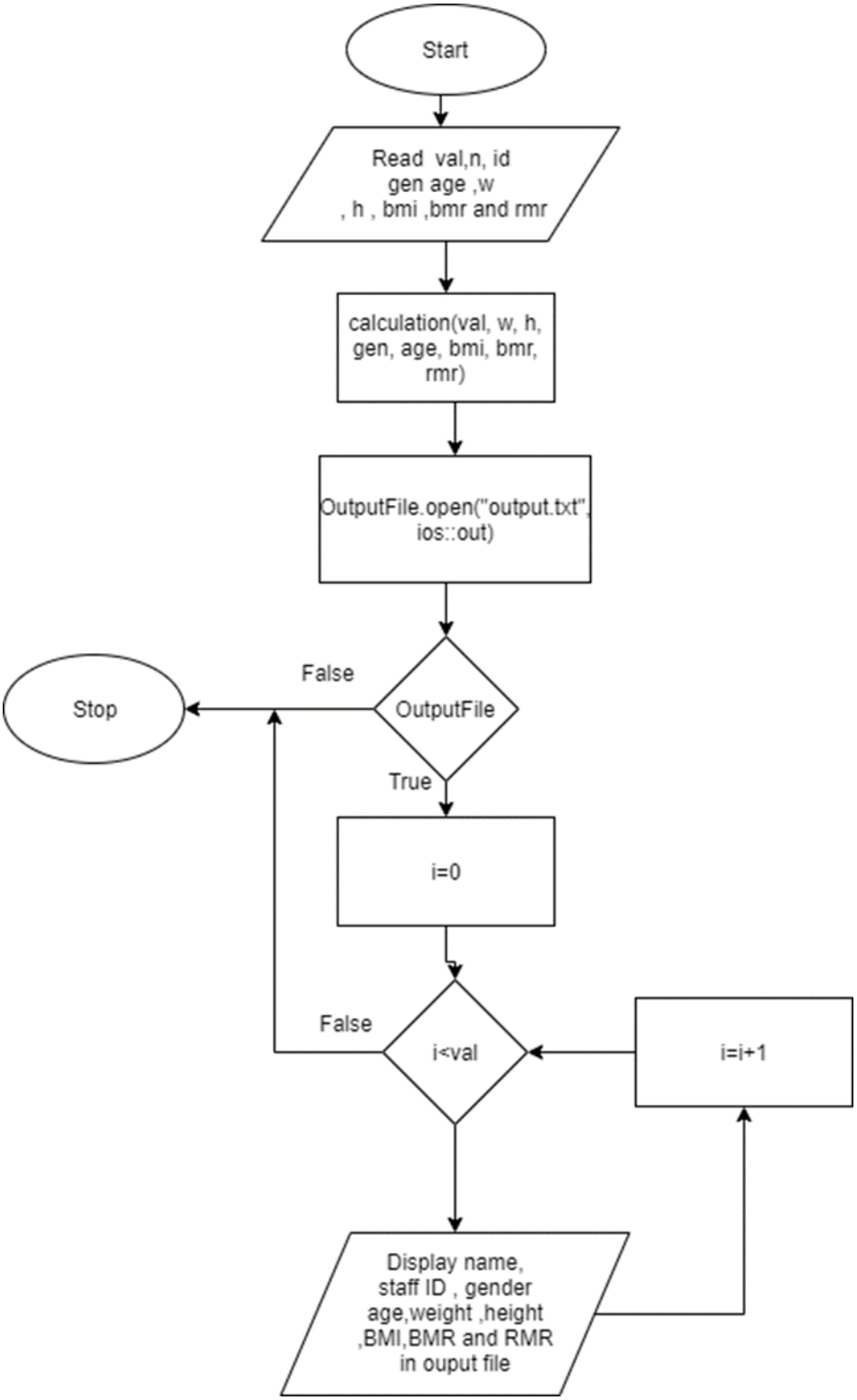
1) Void display one();



2) Void health();



3) Void output();



4) Void calculation()

```
1.0 Start
2.0 change staff id from string to long long int
3.0 calculate calc2 = (calc / 10000000000)
4.0 if calc2 is less than equals to 20
        year = calc2 + 2000; age = current – year
    else if
        year = calc2 + 1900; age = current – year
5.0 calculate bmi = getWeight() / ((getHeight() / 100) * (getHeight() / 100))
6.0 if gender equals to “Male”
     calculate
     rmr = 88.362 + (13.397 * getWeight()) + (4.799 * getHeight()) - (5.677 * age)
     bmr = 10 * getWeight() + 6.25 * getHeight() - 5 * age + 5.0
  else
    calculate
     rmr = 447.593 + (9.247 * getWeight()) + (3.098 * getHeight()) - (4.330 * age)
     bmr = 10 * getWeight() + 6.25 * getHeight() - 5 * age - 161.0
  endif
7.0End
```

5) Void editData()

```
1.0 Start
2.0 Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.
3.0 Input edit
4.0 If edit equals to 1
    Input n
    Data(getStaff(), n, getGender())
    Else if edit equals to 2
      Input s
      Data(s, getName(), getGender())
    Elseif edit quals to 3
      Input g
      Data(getStaff(),getName(),g)
    Else if edit equals to 4
       Input w
      Call function of Data2(w, getHeight())
    Else if edit equals to 5
       Input h
       Call function of Data2(getWeight(), h)
5.0 call function of calculation()
6.0 Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.
7.0 End
```

6) Void addData()

1.0 Start
2.0 Input name , staff id, gender ,weight and height
3.0 Call function Data2(weight, height);
4.0 Call function of Data(ID, name, gender);
5.0 Call function of calculation()
6.0 Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.
7.0 End

7) Void displayAll()

1.0 Start
2.0 Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.
3.0 End

8) Void simple()

1.0 Start
2.0 Input option
3.0 If option equals to 1
Input staff
For i=0
If staff equals to ob[i].getstaff()
Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.
Endif
Increase I by one
End for

3.1 else if option equals to 2

input gender

For i=0

If gender equals to ob[i].getGender()

Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.

Endif

Increase I by one

Increase y by one

End for

Display y

3.2 else if option equals to 3

input AGE and AGE2

For i=0

If ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))

Display name,staff id,date of birth,age ,weight,height,bmi, bmr and rmr.

Endif

Increase I by one

Increase z by one

End for

Display z

Endif

4.0 End

9) Void genstats()

1.0 Start
2.0 Initialise age1, age2, under = 0, normal = 0, over = 0, obese = 0, x = 0, enter=0
3.0 input enter
4.0 if enter equals to 1
5.0 for i=0 calculate
avebmi = avebmi + ob1[i].getbmi()
avebmr = avebmr + ob1[i].getbmr()
avermr = avermr + ob1[i].getrmr()
x=x+1
increase I by one
end for
6.0 calculate
avebmi = avebmi / x
avebmr = avebmr / x
avermr = avermr / x
7.0 Display avebmi,avebmr and avermr
8.0 For i-0
if(ob1[i].getbmi() < 20)
calculate under = under + 1;
else if ((ob1[i].getbmi() < 25) && (ob1[i].getbmi() >= 20))
calculate normal = normal + 1;
else if ((ob1[i].getbmi() < 30) && (ob1[i].getbmi() >= 25))
calculate over = over + 1;
else
calculate obese = obese + 1;
end if
increase I by one
end for
4.0 end if
9.0 Display under,normal,over and obese
10.0 If enter equals to 2
11.0 Input age1,age2 and gender
12.0 For i=0

```
        If (gender == ob1[i].getGender())
          if((ob1[i].getAge() > age1) && (ob1[i].getAge() < age2))
            if(ob1[i].getbmi() < 20)
              calculate under = under + 1;
            else if ((ob1[i].getbmi() < 25) && (ob1[i].getbmi() >= 20))
        calculate normal = normal + 1;
      else if ((ob1[i].getbmi() < 30) && (ob1[i].getbmi() >= 25))
        calculate over = over + 1;
      else
        calculate obese = obese + 1;
      end if
      calculate
       avebmi = avebmi + ob1[i].getbmi()
       avebmr = avebmr + ob1[i].getbmr()
       avermr = avermr + ob1[i].getrmr()
       x=x+1
       increase I by one
      end if
      endif
      endif
      endfor
13.0  End
```

10) Int main()

```
1.0 Start
2.0 Input filename
3.0 Open dataReadFile(filename)
4.0 If dataReadFile
    For i=0
     Read (filename)
     Calculate Count=count+1
     Increase I by one
    Endfor
    Endif
5.0 input filename2
6.0 open dataReadFile2
7.0 If dataReadFile2
    For i=0
     Read (filename2)
     Calculate Count=count+1
     Increase I by one
    Endfor
    Endif
8.0 for i=0
    call function for calculation()
    increase I by one
    end for
9.0 input begin
```

```
10.0    while begin equals to one
11.0     input option
12.0    Switch(option)
13.0    Case(1)
          Input yn
      13.1 While yn equals to 1
           Input choose
           13.1.1 If choose equals to 1
              Input staffid
              for i = 0

                 if (staffid == ob1[i].getStaff())
                    ob1[i].editData();
                 endif
                 increase I by one
              endfor
           13.1.2else if choose equals to 2
              Input y
              Calculate x=count+y
              for i = 0
                   ob1[i].addData();
                   increase I by one
              endfor
              count=x
           13.1.3 else if choose equals to3
                   Call function for displayOne()
           13.1.4 else if choose equals to 4
              for i = 0
                   ob1[i].displayAll();
                   increase I by one
              endfor
            input yn
      13.2 end while
           break
14.0 case(2)
   Input yn
   While yn equals to 1
     Input enter
       If enter equals to one
          Call function Simple()
       Else if enter equals to two
          Call function ombine()
       Endif
     Input yn
  Endwhile
  break
    14.0    case(3)
            input yn
            while yn equals to 1
               call function of genstats()
               input yn
```

```
        endwhile
        break


15.0    case(4)
    input yn
    while yn equals to 1
     input staff
     if staff equals to ob1[i].getStaff()
       ob1[i].health()
     endif
    input yn
    endwhile
    break

16.0    input begin
17.0    endwhile
18.0    call function for output()
19.0    End
```

11) Class personal()

```
1.0 private name
2.0 private ID
3.0 private gender
4.0 public setData1
        4.1 name=n,ID=s,gender=g
5.0 End
```

12) Class fitness()

```
1.0 private weight
2.0 private height
3.0 public setdata2
    weight=w,height=h
4.0 public weight1 returns weight
5.0 public height 1 returns height
6.0 End
```

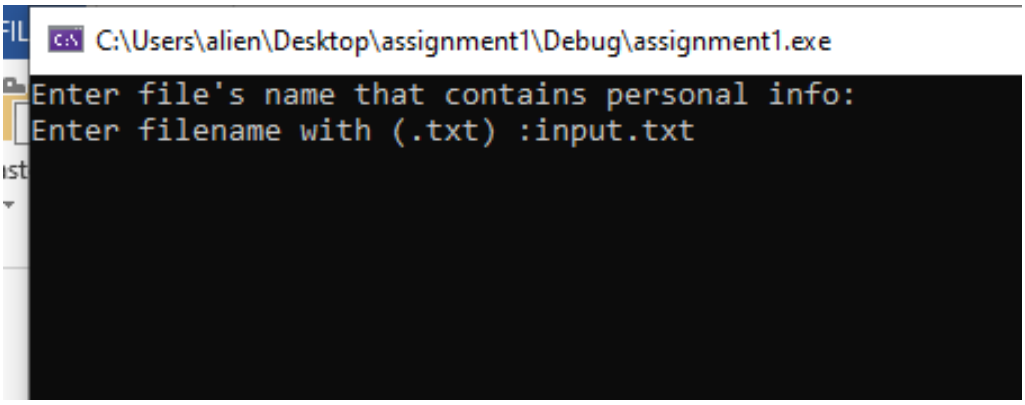
13) Class staff

```
1.0 private fitness ob
2.0 peivate age,size,year,bmi,bmr,rmr,date , month ,month2,date,date2
3.0 public getName returns name
4.0 public getStaff returns staffed
5.0 public getGender returns gender
6.0 public getweight returns weight1()
7.0 public getheight returns height1()
8.0 public Data returns setData1()
9.0 public Dta2 returns setData2()
```

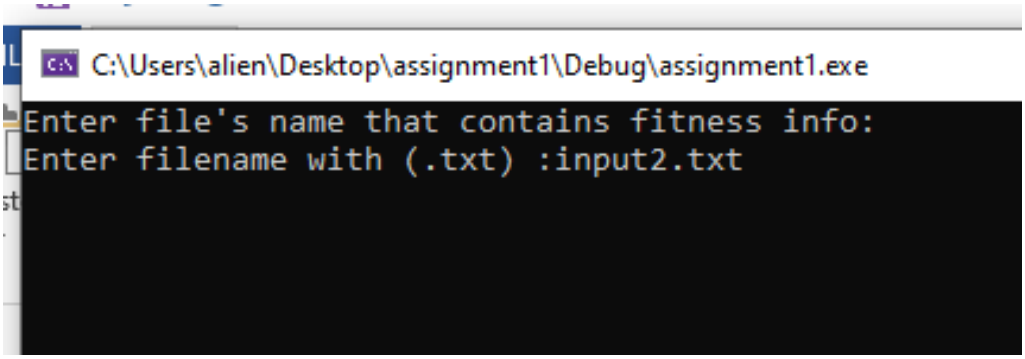
```
10.0    public calculation
11.0    public editData
12.0    public addData
13.0    public getbmi returns bmi
14.0    public getbmr returns bmr
15.0    public getrmr returns rmr
16.0    public getdate returns date
17.0    public getdate2 returns date2
18.0    public getmonth returns month
19.0    public getmonth2 returns month2
20.0    getyear returns year
21.0    public display all
22.0    public health
23.0    public output
24.0    public displayOne
25.0    public simple
26.0    public combine
27.0    public genstats
28.0    end
```

Output of Program

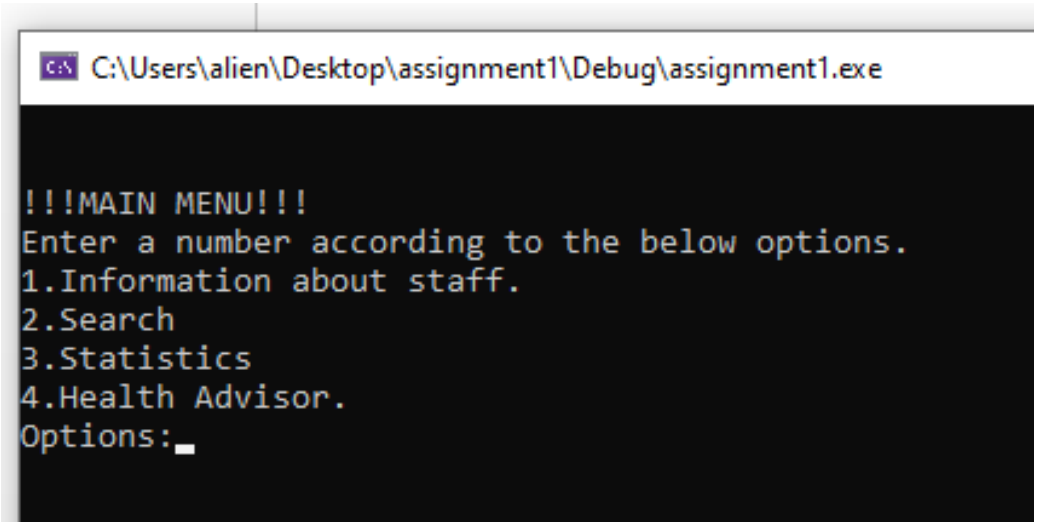
1) Reading file that contains personal info(Asking user to input file name)



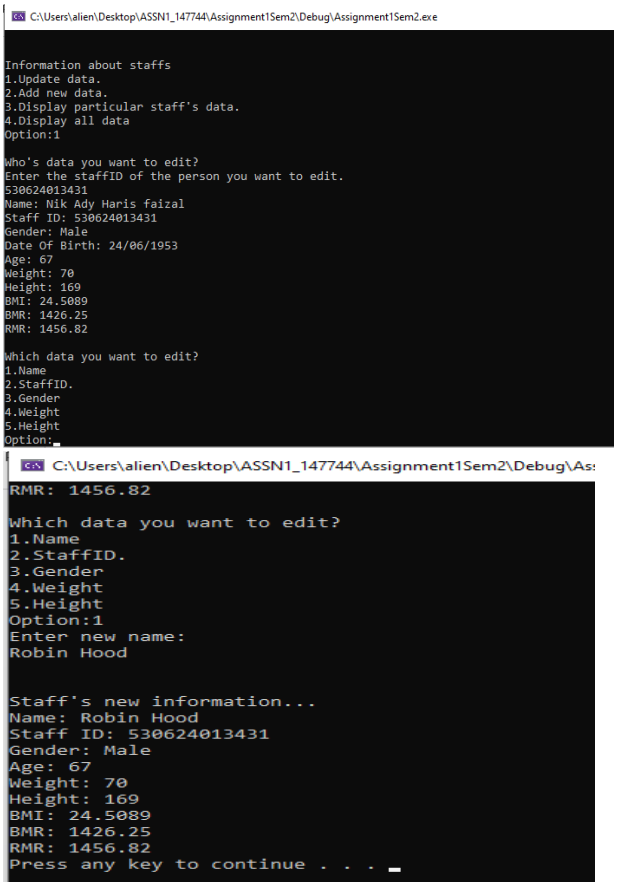
2) Reading file that contains fitness info(Asking user to input file name)



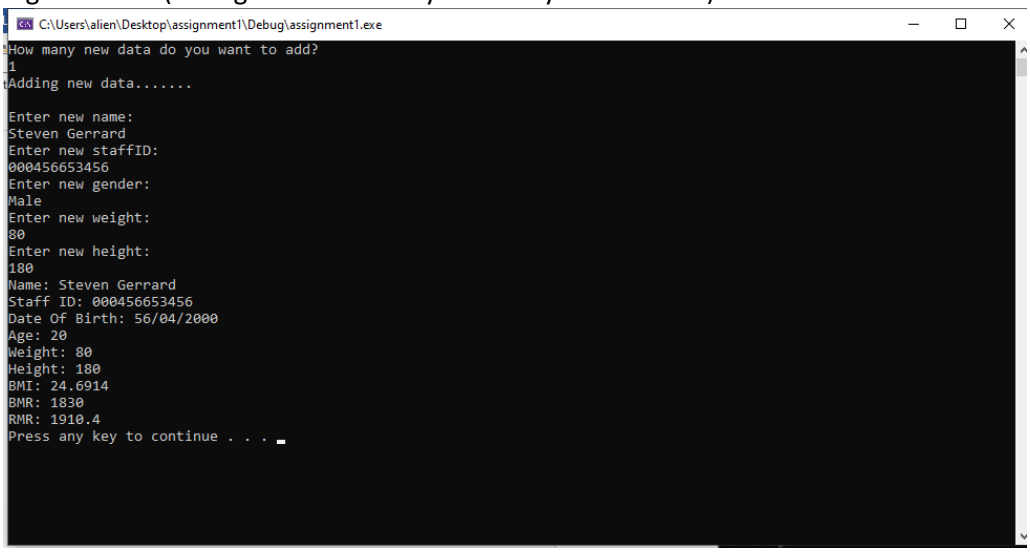
3) Main Menu



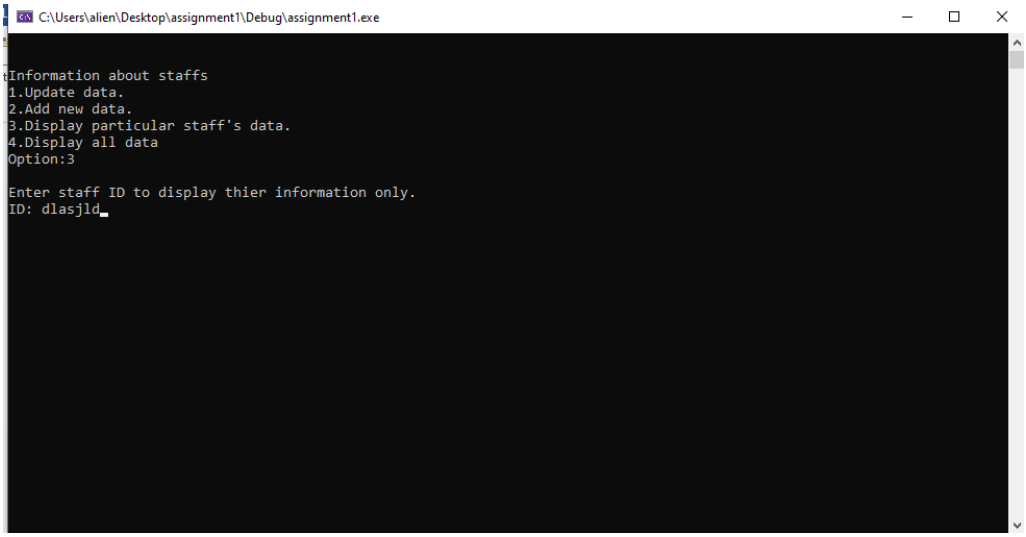
4) Editing data of existing data(and displaying new information)-changed name
-user can edit name, staff id , gender , weight and height

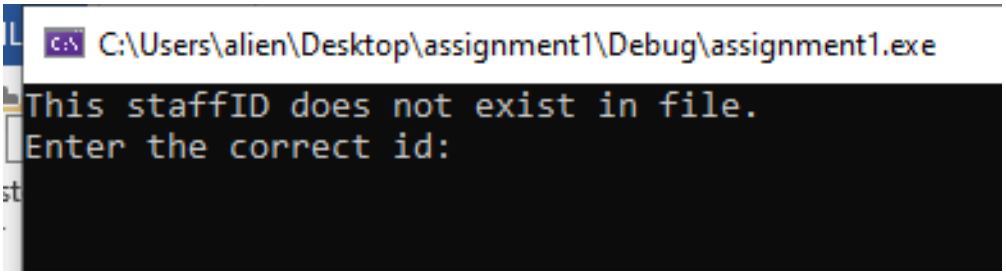


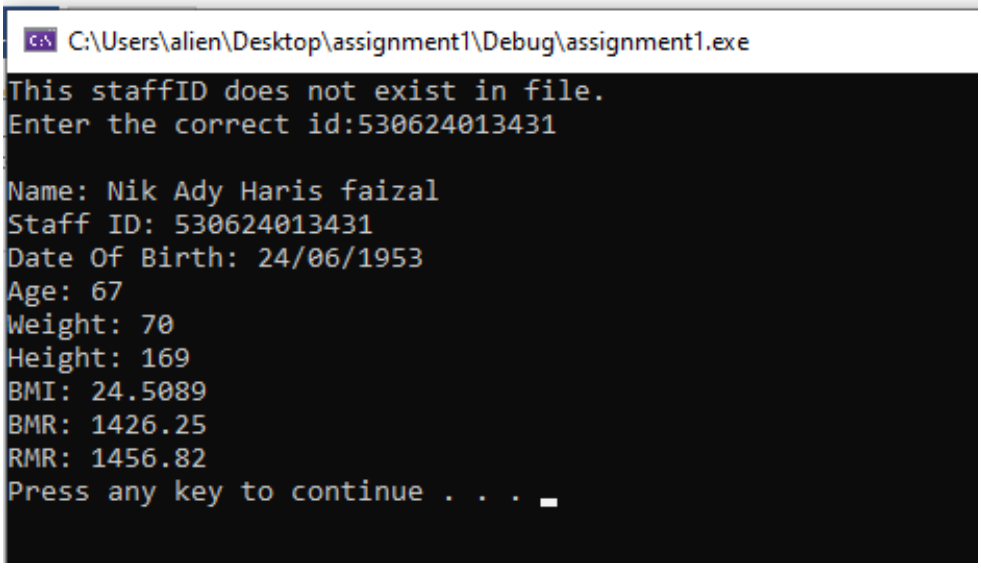
5) Adding new data (asking user how many data they want to add)



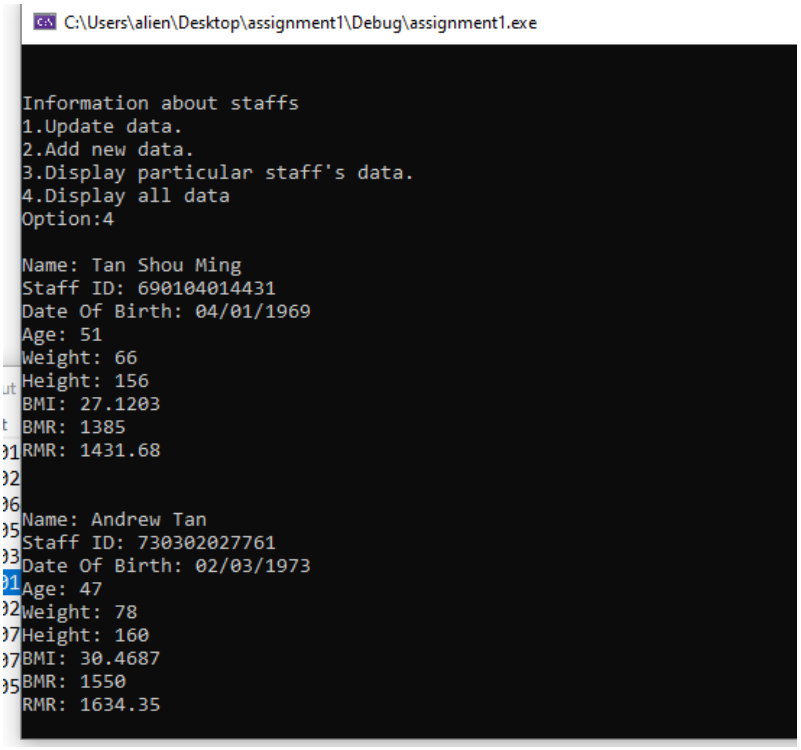
6) Display one staff with Input validation for staff (string)





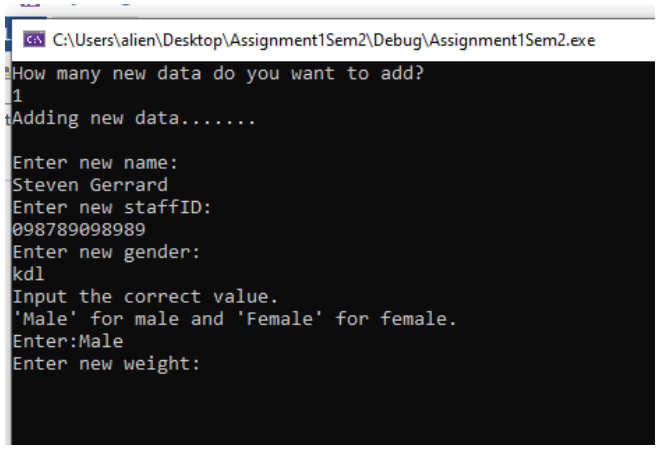


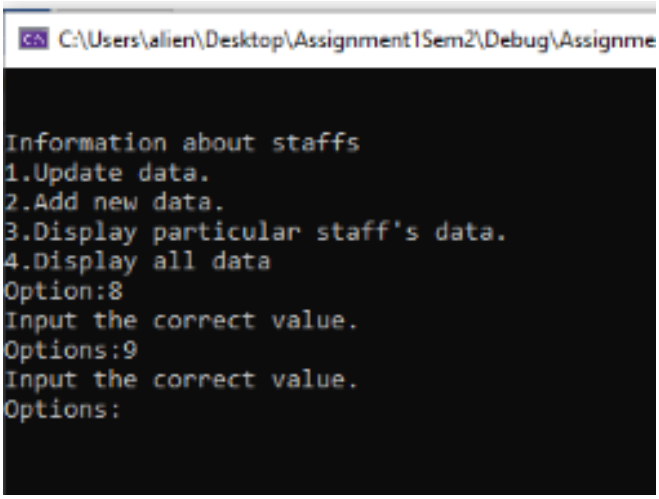
7) Display All staff data



8) Input validation

=For gender

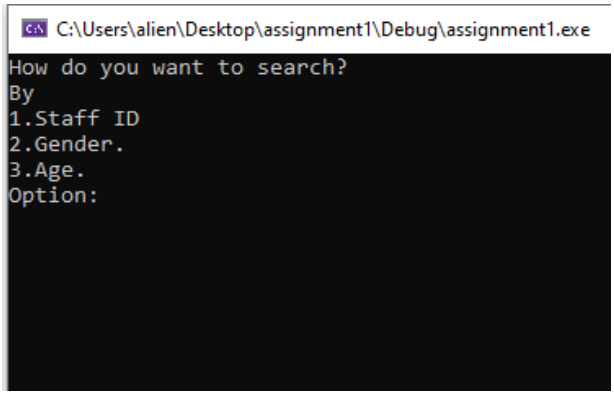




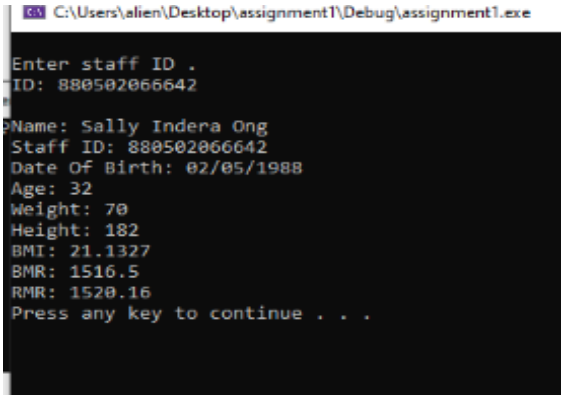
=For all the options

9) Simple search

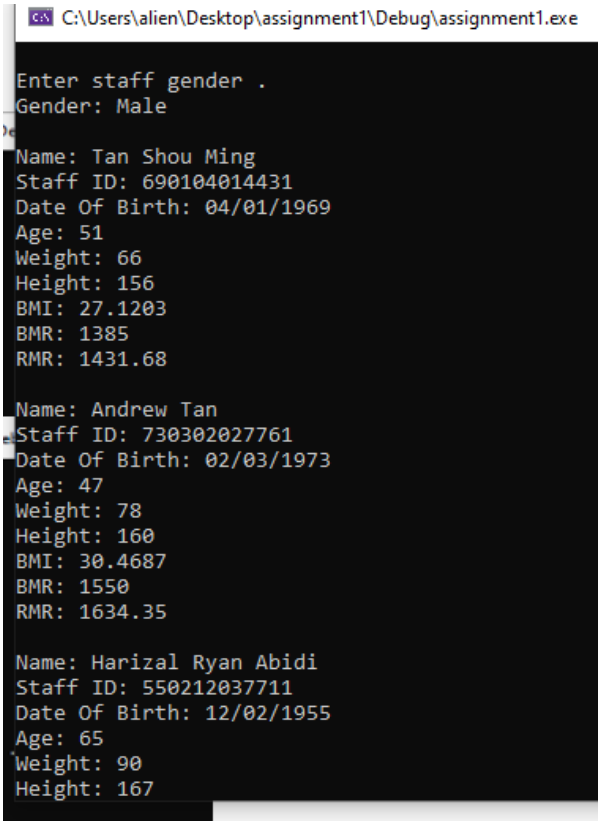
-User can choose to search by staff id gender or age



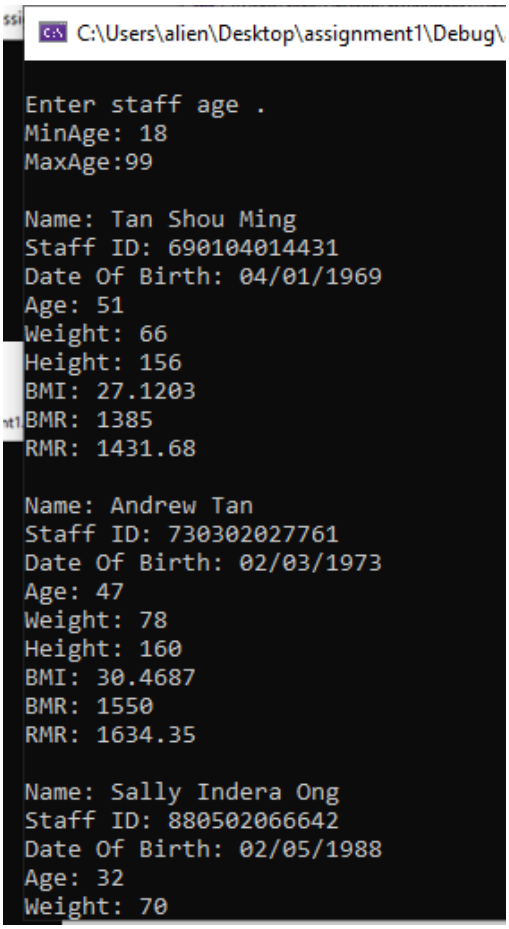
=Staff ID



=Gender “Male”



=Age (18-99)



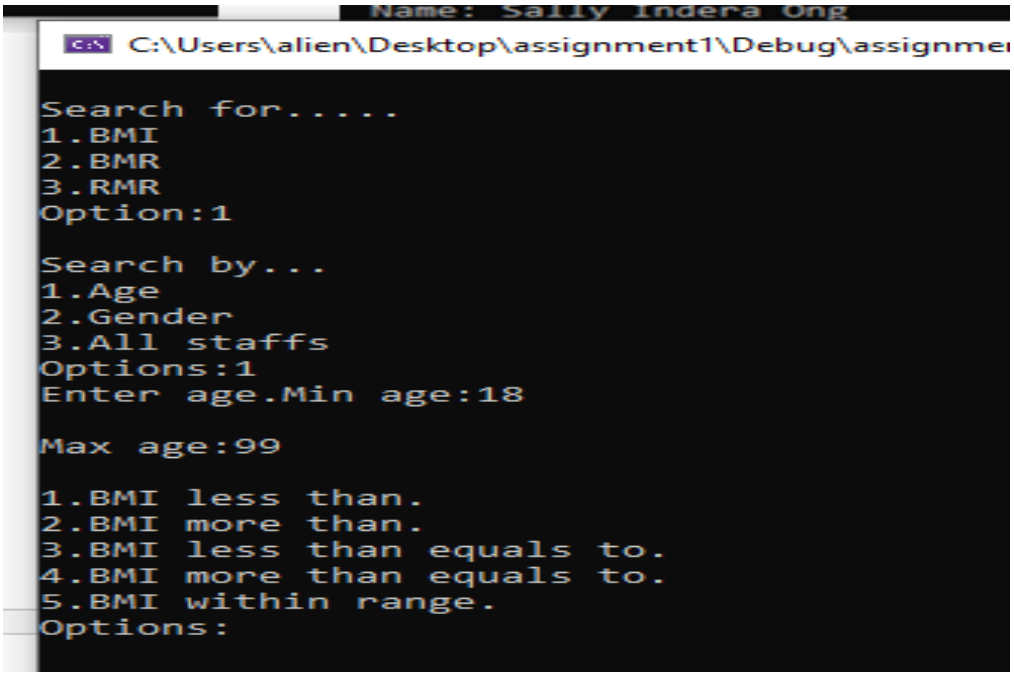
10) Combine search (choosing age and BMI more than 20)

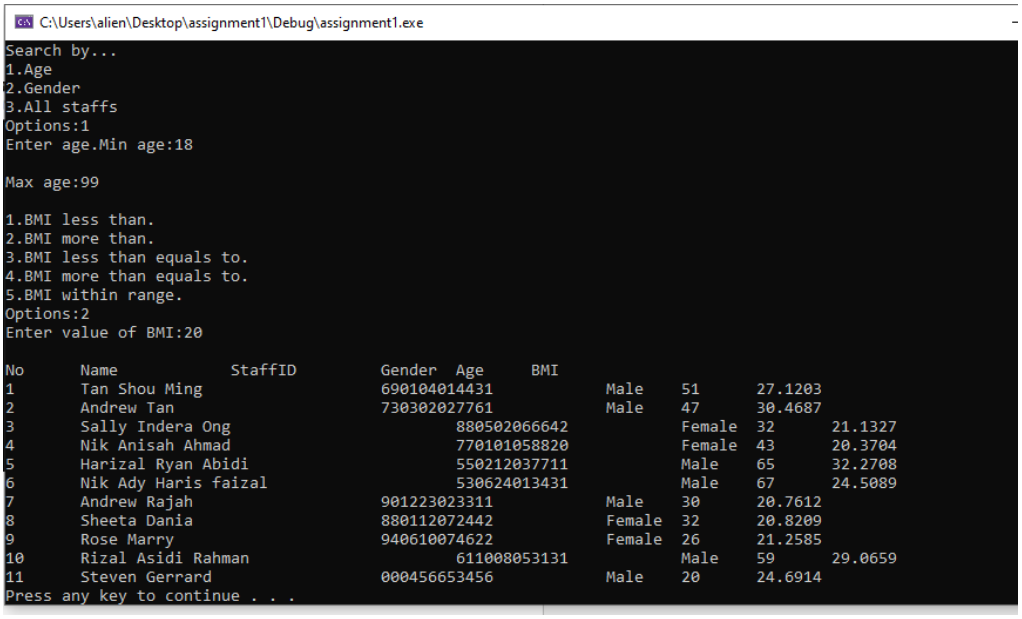
-First user will choose BMI, BMR or RMR .Then they will select age (range),gender or all staffs to combine with BMI, BMR or RMR

-After that user have to choose BMI, BMR or RMR range.

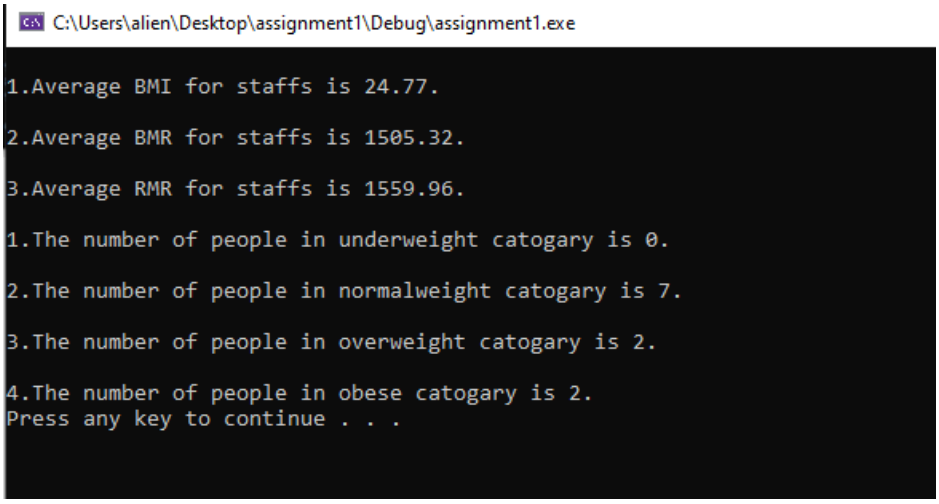
-<,>, <=,>= and in between range (range input by user).

- After all this program will compare every array depending on the above requirements.

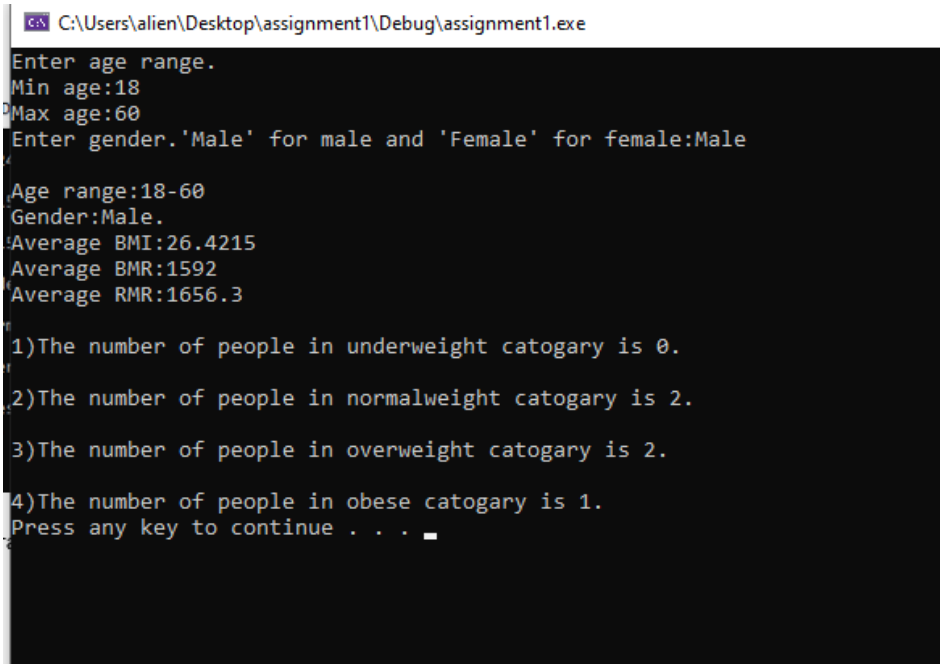




11) Statistics for all staffs



12) Statistics with gender and age range requirement (Male 18-60 years old)

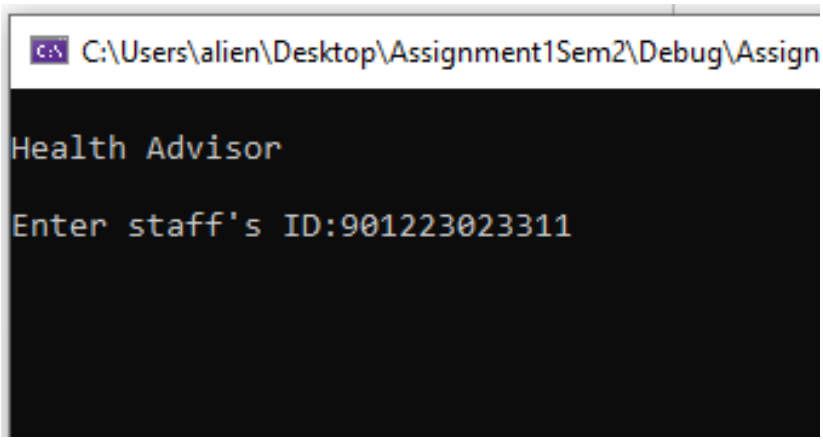


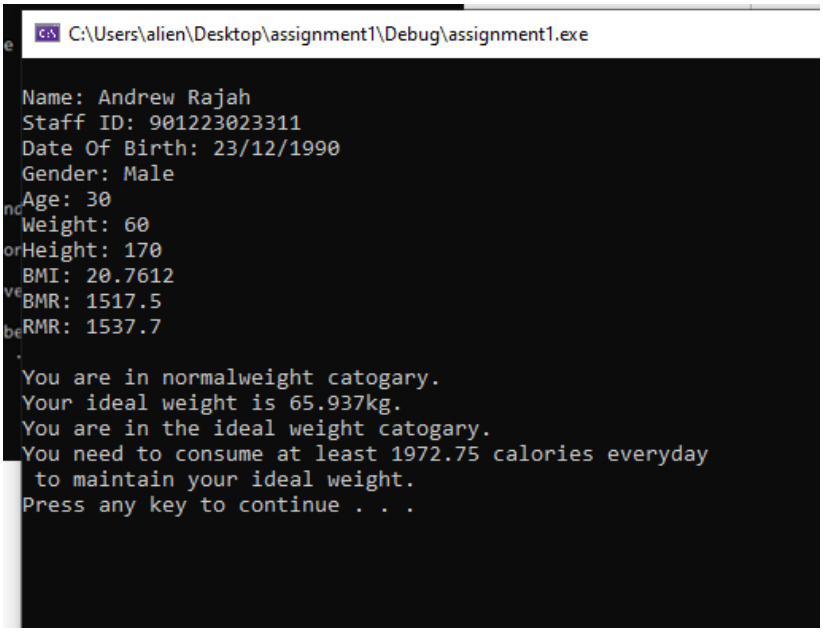
13) Health Advisor

-when user input staff id program will calculate their ideal weight.

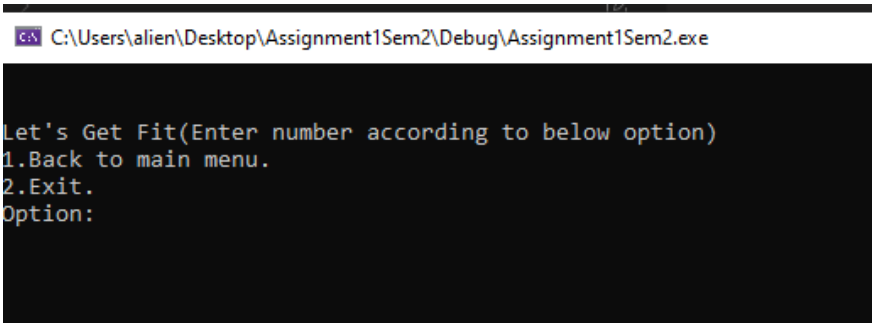
-It will also determine their weight category and suggest them amount of calories to intake every day.

-It will also tell the user how many day it will take to reach their ideal weight.





14) Looping Main Menu (if choose option exit the program will end and data will be written in a file)



```
1  #pragma once
2  #ifndef Assignment1Sem2_Personal_H
3  #define Assignment1Sem2_Personal_H
4  #include<string>
5  using namespace std;
6
7  class personal //used to inherit variable from here to staff class which is
     derived class
8  {              //base class
9  protected:
10     string name;//variables that are inherited
11     string ID;
12     string gender;
13 public:
14     void setData1(string, string, string);//function to set name , id and gender
         variables values
15     personal();//counter
16     ~personal();//destructor
17 };
18
19 #endif
20
21
22
23
```

```cpp
#include<iostream>
#include<string>
#include<iomanip>
#include<fstream>
#include "Personal.h"

using namespace std;

void personal::setData1(string s, string n, string g)
{//function to set values for name , gender and staff id
    ID = s;
    name = n;
    gender = g;
}

personal::personal()
{
    name = " ";
    ID = " ";
    gender = " ";
}//constructor

personal::~personal()
{
    name = " ";
    ID = " ";
    gender = " ";
}//destructor

```

```h
#pragma once
#ifndef Assignment1Sem2_Fitness_H
#define Assignment1Sem2_Fitness_H
#include<string>
using namespace std;

class fitness//compositon class for staff class
{
protected:
    double weight;//members that are compose to staff class
    double height;
public:
    void setData2(double, double);//member to set value of weight and height
    double weight1() { return weight; }//function to return weight
    double height1() { return height; }//function to return height
    fitness();//constructor
    ~fitness();//destructor
};

#endif
```

```cpp
#include<iostream>
#include<string>
#include<iomanip>
#include<fstream>
#include "Fitness.h"

using namespace std;

void fitness::setData2(double w, double h)//member to set value of weight and height
{
    weight = w;
    height = h;
}

fitness::fitness()//constructor
{
    weight = 0;
    height = 0;
}

fitness::~fitness()//destructor
{
    weight = 0;
    height = 0;
}
```

```
1  #pragma once
2  #ifndef Assignment1Sem2_Staff_H
3  #define Assignment1Sem2_Staff_H
4  #include<string>
5  #include "Fitness.h"
6  #include "Personal.h"
7  using namespace std;
8
9  class staff :public personal//derived class
10 {
11 private:
12     fitness ob; //fitness class is used for composition.ob is object for fitness
         class
13     int age = 0, size = 1000, year = 0;
14     double bmi = 0, bmr = 0, rmr = 0;//variables declaration
15     string date, month, date2, month2;
16 public:
17     string getName();//members name that start with get means its for returning
         values
18     string getStaff();
19     string getGender();
20     int getAge();
21     double getWeight();
22     double getHeight();
23     void Data(string, string, string);
24     void Data2(double, double);
25     void calculation();//member functions
26     void editData();
27     void addData();
28     double getbmi() { return bmi; }
29     double getbmr() { return bmr; }
30     double getrmr() { return rmr; }//members name that start with get means its
         for returning values
31     string getdate() { return date; }
32     string getmonth() { return month; }
33     string getdate2() { return date2; }
34     string getmonth2() { return month2; }
35     int getyear() { return year; }
36     void displayAll();//member functions
37     void health();
38     friend void output(staff[], int);//friend members
39     friend void displayOne(staff[], int);
40     friend void simple(staff[], int);
41     friend void combine(staff[], int);
42     friend void genstats(staff[], int);
43     staff();//constructor
44     ~staff();//destructor
45 };
46
47 #endif
```

```cpp
#include "Staff.h"
#include<iostream>
#include<string>
#include<iomanip>
#include<fstream>
#include "Fitness.h"

using namespace std;

string staff::getName()
{
    return name;
}

string staff::getStaff()
{
    return ID;
}

string staff::getGender()
{
    return gender;
}

int staff::getAge()
{
    return age;
}

double staff::getWeight()
{
    return ob.weight1();
}

double staff::getHeight()
{
    return ob.height1();
}

void staff::Data(string s, string n, string g)
{
    setData1(s, n, g);
}

void staff::Data2(double w, double h)
{
    ob.setData2(w, h);
}


void staff::calculation()
{
```

```
53      long long int calc = stoll(getStaff());//convert staffid frm str to int
54      int current = 2020;
55      long long int calc2 = (calc / 10000000000);//calculation to get first two
          numbers in staffid
56      month = getStaff()[2];
57      month2 = getStaff()[3];
58      date = getStaff()[4];
59      date2 = getStaff()[5];
60      if (calc2 <= 20) { year = calc2 + 2000; age = current - year; }//calculation
           for age and year
61      else { year = calc2 + 1900; age = current - year; }
62
63      bmi = getWeight() / ((getHeight() / 100) * (getHeight() / 100));//bmi
          formula
64
65      if (gender == "Male")//checking for male gender staffs
66      {//formula of rmr for male
67          rmr = 88.362 + (13.397 * getWeight()) + (4.799 * getHeight()) - (5.677 *
              age);
68      }
69      else
70      {//formula of rmr for female
71          rmr = 447.593 + (9.247 * getWeight()) + (3.098 * getHeight()) - (4.330 *
              age);
72      }
73
74      if (gender == "Male")//checking for male gender staffs
75      {//formula of bmr for male
76          bmr = 10 * getWeight() + 6.25 * getHeight() - 5 * age + 5.0;
77      }
78      else
79      {//formula of bmr for female
80          bmr = 10 * getWeight() + 6.25 * getHeight() - 5 * age - 161.0;
81      }
82  }
83
84  void staff::editData()
85  {
86      int edit;
87      double w, h;
88      string n, g, s;
89      //displaying all the data of the staff which entered by user
90      cout << "Name: " << getName() << endl;
91      cout << "Staff ID: " << getStaff() << endl;
92      cout << "Gender: " << getGender() << endl;
93      cout << "Date Of Birth: " << getdate() << getdate2() << "/" << getmonth() <<
           getmonth2() << "/" << getyear() << endl;
94      cout << "Age: " << getAge() << endl;
95      cout << "Weight: " << getWeight() << endl;
96      cout << "Height: " << getHeight() << endl;
97      cout << "BMI: " << getbmi() << endl;
98      cout << "BMR: " << getbmr() << endl;
```

```
 99      cout << "RMR: " << getrmr() << endl;
100
101      cout << "\nWhich data you want to edit?\n";
102      cout << "1.Name\n2.StaffID.\n3.Gender\n4.Weight\n5.Height\n";
103      cout << "Option:";
104      cin >> edit;//option asking to edit height or weight.
105      while (edit < 1 || edit>6)
106      {//input validate
107          cout << "Input the correct value.\n";
108          cout << "Options:";
109          cin >> edit;
110      }
111
112      if (edit == 1)//option to edit name
113      {
114          cout << "Enter new name:\n";
115          cin.ignore();
116          getline(cin,n);//asking user to input new name
117          Data(getStaff(), n, getGender());
118      }
119      else if (edit == 2)//option to edit id
120      {
121          cout << "Enter new staff ID:\n";
122          cin >> s;//asking user to input new id
123          Data(s, getName(), getGender());
124      }
125      else if (edit == 3)//option to edit gender
126      {
127          cout << "Enter new gender:\n";
128          cin >> g;//asking user to input new gender
129          while (g != "Male" && g != "Female")
130          {//input validation for gender
131              cout << "Input the correct value.\n";
132              cout << "'Male' for male and 'Female' for female.\n";
133              cout << "Enter:";
134              cin >> g;
135          }
136          Data(getStaff(),getName(),g);
137      }
138      else if (edit == 4)//option to edit weight
139      {
140          cout << "Enter new weight:\n";
141          cin >> w;//asking user to input new weight
142          while (w < 1 || w>300)
143          {//input validation for weight
144              cout << "Input the correct value.\n";
145              cout << "Options:";
146              cin >> w;
147          }
148          Data2(w, getHeight());
149      }
150      else if (edit == 5)//option to edit height
```

```
151     {
152         cout << "Enter new height:\n";
153         cin >> h;//asking user to enter new height
154         while (h < 50 || h>250)
155         {//input validate for age
156             cout << "Input the correct value.\n";
157             cout << "Enter:";
158             cin >> h;
159         }
160         Data2(getWeight(), h);
161     }
162 
163 
164     cout << "\n\nStaff's new information...\n";
165     calculation();//calling function to recalculate bmi,bmr and rmr.
166 
167     cout << "Name: " << getName() << endl;
168     cout << "Staff ID: " << getStaff() << endl;
169     cout << "Gender: " << getGender() << endl;
170     cout << "Age: " << getAge() << endl;
171     cout << "Weight: " << getWeight() << endl;
172     cout << "Height: " << getHeight() << endl;
173     cout << "BMI: " << getbmi() << endl;
174     cout << "BMR: " << getbmr() << endl;
175     cout << "RMR: " << getrmr() << endl;
176     system("PAUSE");//pausing command prompt.
177 }
178 
179 void staff::addData()
180 {
181     double weight, height;
182     string ID, name, gender;
183     cout << "Adding new data.......\n";
184     cout << "\nEnter new name:\n";
185     cin.ignore();
186     getline(cin, name);//input for new staff's name
187 
188     cout << "Enter new staffID:\n";
189     //cin.ignore();
190     cin >> ID;//input for new staffID
191 
192     cout << "Enter new gender:\n";
193     cin >> gender;//gender input
194     while (gender != "Male" && gender != "Female")
195     {//input validation for gender
196         cout << "Input the correct value.\n";
197         cout << "'Male' for male and 'Female' for female.\n";
198         cout << "Enter:";
199         cin >> gender;
200     }
201 
202     cout << "Enter new weight:\n";
```

```
203     cin >> weight;//weight of new staff
204     while (weight < 1 || weight >300)
205     {//input validation for weight.
206         cout << "Input the correct value.\n";
207         cout << "Enter:";
208         cin >> weight;
209     }
210 
211     cout << "Enter new height:\n";
212     cin >> height;//height input for new staff
213     while (height < 100 || height >200)
214     {//input validation for height
215         cout << "Input the correct value.\n";
216         cout << "Enter:";
217         cin >> height;
218     }
219     Data2(weight, height);//setting values of weight and height
220     Data(ID, name, gender);//set value for staddid ,gender and name
221     calculation();//calculating bmi,bmr,rmr,year and age for new staffs
222 
223     //displaying data of new staff
224     cout << "Name: " << getName() << endl;
225     cout << "Staff ID: " << getStaff() << endl;
226     cout << "Gender: " << getGender() << endl;
227     cout << "Date Of Birth: " << getdate() << getdate2() << "/" << getmonth() << ↵
           getmonth2() << "/" << getyear() << endl;
228     cout << "Age: " << getAge() << endl;
229     cout << "Weight: " << getWeight() << endl;
230     cout << "Height: " << getHeight() << endl;
231     cout << "BMI: " << getbmi() << endl;
232     cout << "BMR: " << getbmr() << endl;
233     cout << "RMR: " << getrmr() << endl;
234 
235     system("PAUSE");//pausing command prompt
236 }
237 
238 void staff::displayAll()
239 {//printing out all staffs data
240     cout << "\nName: " << getName() << endl;
241     cout << "Staff ID: " << getStaff() << endl;
242     cout << "Gender: " << getGender() << endl;
243     cout << "Date Of Birth: " << getdate() << getdate2() << "/" << getmonth() << ↵
           getmonth2() << "/" << getyear() << endl;
244     cout << "Age: " << getAge() << endl;
245     cout << "Weight: " << getWeight() << endl;
246     cout << "Height: " << getHeight() << endl;
247     cout << "BMI: " << getbmi() << endl;
248     cout << "BMR: " << getbmr() << endl;
249     cout << "RMR: " << getrmr() << endl;
250     cout << "\n";//to print the next staff in the next line
251 }
252 
```

```
253 void displayOne(staff ob1[], int val)
254 {
255     string staff;//declare variable
256     cout << "\nEnter staff ID to display thier information only.\n";
257     cout << "ID: ";//user entering staff id of the staff they want to know about
258     cin >> staff;
259     int x = 0;
260 
261     //input validation for staff id
262     for (int i = 0; i < val; i++)
263     {
264         if (staff == ob1[i].getStaff())
265         {
266             x = x + 1;
267         }
268     }
269     while (x != 1)
270     {
271         system("CLS");
272         cout << "This staffID does not exist in file.\n";
273         cout << "Enter the correct id:";
274         cin >> staff;
275         for (int i = 0; i < val; i++)
276         {
277             if (staff == ob1[i].getStaff())
278             {
279                 x = x + 1;
280             }
281         }
282     }
283 
284     for (int i = 0; i < val; i++)
285     {//loop to search for the staffID.
286         if (staff == ob1[i].getStaff())//comparing user entered id with staffid ➥
              array.
287         {//printing out all information of the staff searched.
288             cout << "\nName: " << ob1[i].getName() << endl;
289             cout << "Staff ID: " << ob1[i].getStaff() << endl;
290             cout << "Gender: " << ob1[i].getGender() << endl;
291             cout << "Date Of Birth: " << ob1[i].getdate() << ob1[i].getdate2()   ➥
                  << "/" << ob1[i].getmonth() << ob1[i].getmonth2() << "/" << ob1    ➥
                  [i].getyear() << endl;
292             cout << "Age: " << ob1[i].getAge() << endl;
293             cout << "Weight: " << ob1[i].getWeight() << endl;
294             cout << "Height: " << ob1[i].getHeight() << endl;
295             cout << "BMI: " << ob1[i].getbmi() << endl;
296             cout << "BMR: " << ob1[i].getbmr() << endl;
297             cout << "RMR: " << ob1[i].getrmr() << endl;
298         }
299     }
300     system("PAUSE");//pausing the command prompt.
301 }
```

```
302
303 void simple(staff ob1[], int val)
304 {
305     int option;
306     system("CLS");//clearing command prompt
307     cout << "How do you want to search?\nBy\n";//asking user to choose whether
        to display data according to
308     cout << "1.Staff ID\n2.Gender.\n3.Age.\nOption:";//staffID , gender or age.
309     cin >> option;
310     while (option < 1 || option >3)
311     {//input validation
312         cout << "Input the correct value.\n";
313         cout << "Enter:";
314         cin >> option;
315     }
316
317     if (option == 1)//if user choose staffID
318     {
319         system("CLS");//clearing command prompt
320         string staff;
321         cout << "\nEnter staff ID .\n";
322         cout << "ID: ";//asking user to enter staff id to be searched
323         cin >> staff;
324         int x = 0;
325
326         //input validation for staff id
327         for (int i = 0; i < val; i++)
328         {
329             if (staff == ob1[i].getStaff())
330             {
331                 x = x + 1;
332             }
333         }
334         while (x != 1)
335         {
336             system("CLS");
337             cout << "This staffID does not exist in file.\n";
338             cout << "Enter the correct id:";
339             cin >> staff;
340             for (int i = 0; i < val; i++)
341             {
342                 if (staff == ob1[i].getStaff())
343                 {
344                     x = x + 1;
345                 }
346             }
347         }
348
349         for (int i = 0; i < val; i++)
350         {//loop to search for staff id in array
351             if (staff == ob1[i].getStaff())//comparing user input with array
352             {//printing out all information about s
```

```
353                 cout << "\nName: " << ob1[i].getName() << endl;
354                 cout << "Staff ID: " << ob1[i].getStaff() << endl;
355                 cout << "Gender: " << ob1[i].getGender() << endl;
356                 cout << "Date Of Birth: " << ob1[i].getdate() << ob1[i].getdate2
                      () << "/" << ob1[i].getmonth() << ob1[i].getmonth2() << "/" <<
                       ob1[i].getyear() << endl;
357                 cout << "Age: " << ob1[i].getAge() << endl;
358                 cout << "Weight: " << ob1[i].getWeight() << endl;
359                 cout << "Height: " << ob1[i].getHeight() << endl;
360                 cout << "BMI: " << ob1[i].getbmi() << endl;
361                 cout << "BMR: " << ob1[i].getbmr() << endl;
362                 cout << "RMR: " << ob1[i].getrmr() << endl;
363             }
364         }
365     }
366     else if (option == 2)//if user choose gender
367     {
368         system("CLS");//clearing command prompt
369         string gender;//declaring a variable char for user input
370         int y = 0;
371         cout << "\nEnter staff gender .\n";
372         cout << "Gender: ";//asking user to input gender
373         cin >> gender;
374         while (gender != "Male" && gender != "Female")
375         {//input validation for gender
376             cout << "Input the correct value.\n";
377             cout << "'Male' for male and 'Female' for female.\n";
378             cout << "Enter:";
379             cin >> gender;
380         }
381         //to display data
382         for (int i = 0; i < val; i++)
383         {//loop to find all the data with the same gender as user entered.
384             if (gender == ob1[i].getGender())//comparing user input with array
385             {//printing out all information within the gender
386                 cout << "\nName: " << ob1[i].getName() << endl;
387                 cout << "Staff ID: " << ob1[i].getStaff() << endl;
388                 cout << "Gender: " << ob1[i].getGender() << endl;
389                 cout << "Date Of Birth: " << ob1[i].getdate() << ob1[i].getdate2
                      () << "/" << ob1[i].getmonth() << ob1[i].getmonth2() << "/" <<
                       ob1[i].getyear() << endl;
390                 cout << "Age: " << ob1[i].getAge() << endl;
391                 cout << "Weight: " << ob1[i].getWeight() << endl;
392                 cout << "Height: " << ob1[i].getHeight() << endl;
393                 cout << "BMI: " << ob1[i].getbmi() << endl;
394                 cout << "BMR: " << ob1[i].getbmr() << endl;
395                 cout << "RMR: " << ob1[i].getrmr() << endl;
396                 y = y + 1;//counter to calculate total number of male or female
                      staff.
397             }
398         }//displaying total number of male or female staff.
399         cout << endl << y << " number of staffs are " << gender << ".\n";
```

```
400     }
401     else if (option == 3)//if user choose age
402     {
403         system("CLS");//clearing command prompt
404         int AGE, AGE2, z = 0;//declaring 2 variable to input age range
405         cout << "\nEnter staff age .\n";
406         cout << "MinAge: ";//entering minimum age range
407         cin >> AGE;
408         while (AGE < 18 || AGE>100)
409         {//input validation
410             cout << "Input the correct value.\n";
411             cout << "Enter:";
412             cin >> AGE;
413         }
414         cout << "MaxAge:";//entering maximum age range
415         cin >> AGE2;
416         while (AGE2 < 18 || AGE2>100)
417         {//input validation
418             cout << "Input the correct value.\n";
419             cout << "Enter:";
420             cin >> AGE2;
421         }
422         //displaying data in table like form.
423         for (int i = 0; i < val; i++)
424         {//looping to search staff within the age range
425             if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))//age range
426             {//displaying staff within the range
427                 cout << "\nName: " << ob1[i].getName() << endl;
428                 cout << "Staff ID: " << ob1[i].getStaff() << endl;
429                 cout << "Gender: " << ob1[i].getGender() << endl;
430                 cout << "Date Of Birth: " << ob1[i].getdate() << ob1[i].getdate2
                      () << "/" << ob1[i].getmonth() << ob1[i].getmonth2() << "/" <<
                       ob1[i].getyear() << endl;
431                 cout << "Age: " << ob1[i].getAge() << endl;
432                 cout << "Weight: " << ob1[i].getWeight() << endl;
433                 cout << "Height: " << ob1[i].getHeight() << endl;
434                 cout << "BMI: " << ob1[i].getbmi() << endl;
435                 cout << "BMR: " << ob1[i].getbmr() << endl;
436                 cout << "RMR: " << ob1[i].getrmr() << endl;
437                 z = z + 1;//to calculate number of staff within the range.
438             }
439         }//to display number of staff within the range.
440         cout << endl << z << " number of staff are the same age.\n";
441     }
442     system("PAUSE");//pausing the command prompt.
443 }
444
445 void combine(staff ob1[], int val)
446 {
447     //First user will choose bmi,bmr or rmr.Then they will select age
          (range),gender or all staffs to combine with bmi,bmr and rmr.
448     //After that user have to choose bmi,bmr and rmr range.
```

```
449     //<,>,<=,>= and in between range (range input by user).
450     //after all this program will compare every array depending on the above
          requirements.
451     //this is how this combined search function will work.
452     system("CLS");//clearing command prompt
453     int enter, start;
454     cout << "\nSearch for.....\n";
455     cout << "1.BMI\n2.BMR\n3.RMR\nOption:";
456     cin >> start;
457     while (start < 1 || start >3)
458     {//input validation
459         cout << "Input the correct value.\n";
460         cout << "Enter:";
461         cin >> start;
462     }
463
464     if (start == 1)//combined search under BMI.
465     {
466         int begin, AGE, AGE2;
467         string Gender;
468         cout << "\nSearch by...\n";
469         cout << "1.Age\n2.Gender\n3.All staffs\nOptions:";
470         cin >> begin;//asking user to choose combined
471         while (begin < 1 || begin >3)
472         {//input validation
473             cout << "Input the correct value.\n";
474             cout << "Enter:";
475             cin >> begin;
476         }
477
478         if (begin == 1)
479         {
480             cout << "Enter age.Min age:";
481             cin >> AGE;
482             while (AGE < 18 || AGE >100)
483             {
484                 cout << "Input the correct value.\n";
485                 cout << "Enter:";
486                 cin >> AGE;
487             }
488             cout << "\nMax age:";
489             cin >> AGE2;
490             while (AGE2 < 18 || AGE2 >100)
491             {
492                 cout << "Input the correct value.\n";
493                 cout << "Enter:";
494                 cin >> AGE2;
495             }
496             int enter, value, value2;
497             cout << "\n1.BMI less than.\n2.BMI more than.\n";
498             cout << "3.BMI less than equals to.\n4.BMI more than equals to.\n";
499             cout << "5.BMI within range.\nOptions:";
```

```
500             cin >> enter;
501             while (enter < 1 || enter >5)
502             {
503                 cout << "Input the correct value.\n";
504                 cout << "Enter:";
505                 cin >> enter;
506             }
507 
508             if (enter == 1)
509             {
510                 cout << "Enter value of BMI:";
511                 cin >> value;
512                 while (value < 1 || value >100)
513                 {
514                     cout << "Input the correct value.\n";
515                     cout << "Enter:";
516                     cin >> value;
517                 }
518                 cout << "\nNo\tName\t" << "\t\tStaffID\t\t" << "Age\t" <<
                      "Gender\t" << "BMI\n";
519                 for (int i = 0; i < val; i++)
520                 {
521                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
522                     {
523                         if (ob1[i].getbmi() < value)
524                         {
525                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
526                             cout << "\n";
527                         }
528                     }
529                 }
530             }
531             else if (enter == 2)
532             {
533                 cout << "Enter value of BMI:";
534                 cin >> value;
535                 while (value < 1 || value >100)
536                 {
537                     cout << "Input the correct value.\n";
538                     cout << "Enter:";
539                     cin >> value;
540                 }
541                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMI\n";
542                 for (int i = 0; i < val; i++)
543                 {
544                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
545                     {
546                         if (ob1[i].getbmi() > value)
547                         {
```

```
548                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
549                             cout << "\n";
550                         }
551                     }
552                 }
553             }
554             else if (enter == 3)
555             {
556                 cout << "Enter value of BMI:";
557                 cin >> value;
558                 while (value < 1 || value >100)
559                 {
560                     cout << "Input the correct value.\n";
561                     cout << "Enter:";
562                     cin >> value;
563                 }
564                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                    \t" << "BMI\n";
565                 for (int i = 0; i < val; i++)
566                 {
567                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
568                     {
569                         if (ob1[i].getbmi() <= value)
570                         {
571                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
572                             cout << "\n";
573                         }
574                     }
575                 }
576             }
577             else if (enter == 4)
578             {
579                 cout << "Enter value of BMI:";
580                 cin >> value;
581                 while (value < 1 || value >100)
582                 {
583                     cout << "Input the correct value.\n";
584                     cout << "Enter:";
585                     cin >> value;
586                 }
587                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                    \t" << "BMI\n";
588                 for (int i = 0; i < val; i++)
589                 {
590                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
591                     {
592                         if (ob1[i].getbmi() >= value)
593                         {
```

```
594                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
595                             cout << "\n";
596                         }
597                     }
598                 }
599             }
600             else if (enter == 5)
601             {
602                 cout << "Enter value of BMI:\nMin Value1:";
603                 cin >> value;
604                 while (value < 1 || value >100)
605                 {
606                     cout << "Input the correct value.\n";
607                     cout << "Enter:";
608                     cin >> value;
609                 }
610                 cout << "\nMax Value:";
611                 cin >> value2;
612                 while (value2 < 1 || value2 >100)
613                 {
614                     cout << "Input the correct value.\n";
615                     cout << "Enter:";
616                     cin >> value2;
617                 }
618                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                    \t" << "BMI\n";
619                 for (int i = 0; i < val; i++)
620                 {
621                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
622                     {
623                         if ((ob1[i].getbmi() > value) && (ob1[i].getbmi() <
                        value2))
624                         {
625                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
626                             cout << "\n";
627                         }
628                     }
629                 }
630             }
631         }
632         else if (begin == 2)
633         {
634             cout << "Enter gender.'Male' for male and 'Female' for female.
                  \nGender:";
635             cin >> Gender;
636             while (Gender != "Male" && Gender != "Female")
637             {
638                 cout << "Input the correct value.\n";
```

```
639                 cout << "'Male' for male and 'Female' for female.\n";
640                 cout << "Enter:";
641                 cin >> Gender;
642             }
643             int enter, value, value2;
644             cout << "\n1.BMI less than.\n2.BMI more than.\n";
645             cout << "3.BMI less than equals to.\n4.BMI more than equals to.\n";
646             cout << "5.BMI within range.\nOptions:";
647             cin >> enter;
648             while (enter < 1 || enter >5)
649             {
650                 cout << "Input the correct value.\n";
651                 cout << "Enter:";
652                 cin >> enter;
653             }
654             if (enter == 1)
655             {
656                 cout << "Enter value of BMI:";
657                 cin >> value;
658                 while (value < 1 || value >100)
659                 {
660                     cout << "Input the correct value.\n";
661                     cout << "Enter:";
662                     cin >> value;
663                 }
664                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMI\n";
665                 for (int i = 0; i < val; i++)
666                 {
667                     if (Gender == ob1[i].getGender())
668                     {
669                         if (ob1[i].getbmi() < value)
670                         {
671                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
672                             cout << "\n";
673                         }
674                     }
675                 }
676             }
677             else if (enter == 2)
678             {
679                 cout << "Enter value of BMI:";
680                 cin >> value;
681                 while (value < 1 || value >100)
682                 {
683                     cout << "Input the correct value.\n";
684                     cout << "Enter:";
685                     cin >> value;
686                 }
687                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
```

```
                    \t" << "BMI\n";
688                 for (int i = 0; i < val; i++)
689                 {
690                     if (Gender == ob1[i].getGender())
691                     {
692                         if (ob1[i].getbmi() > value)
693                         {
694                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
695                             cout << "\n";
696                         }
697                     }
698                 }
699             }
700             else if (enter == 3)
701             {
702                 cout << "Enter value of BMI:";
703                 cin >> value;
704                 while (value < 1 || value >100)
705                 {
706                     cout << "Input the correct value.\n";
707                     cout << "Enter:";
708                     cin >> value;
709                 }
710                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age ↵
                    \t" << "BMI\n";
711                 for (int i = 0; i < val; i++)
712                 {
713                     if (Gender == ob1[i].getGender())
714                     {
715                         if (ob1[i].getbmi() <= value)
716                         {
717                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
718                             cout << "\n";
719                         }
720                     }
721                 }
722             }
723             else if (enter == 4)
724             {
725                 cout << "Enter value of BMI:";
726                 cin >> value;
727                 while (value < 1 || value >100)
728                 {
729                     cout << "Input the correct value.\n";
730                     cout << "Enter:";
731                     cin >> value;
732                 }
733                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age ↵
```

```
                    \t" << "BMI\n";
734                 for (int i = 0; i < val; i++)
735                 {
736                     if (Gender == ob1[i].getGender())
737                     {
738                         if (ob1[i].getbmi() >= value)
739                         {
740                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
741                             cout << "\n";
742                         }
743                     }
744                 }
745             }
746             else if (enter == 5)
747             {
748                 cout << "Enter value of BMI:\nMin Value1:";
749                 cin >> value;
750                 while (value < 1 || value >100)
751                 {
752                     cout << "Input the correct value.\n";
753                     cout << "Enter:";
754                     cin >> value;
755                 }
756                 cout << "\nMax Value:";
757                 cin >> value2;
758                 while (value2 < 1 || value2 >100)
759                 {
760                     cout << "Input the correct value.\n";
761                     cout << "Enter:";
762                     cin >> value2;
763                 }
764                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                    \t" << "BMI\n";
765                 for (int i = 0; i < val; i++)
766                 {
767                     if (Gender == ob1[i].getGender())
768                     {
769                         if ((ob1[i].getbmi() > value) && (ob1[i].getbmi() <
                        value2))
770                         {
771                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmi();
772                             cout << "\n";
773                         }
774                     }
775                 }
776             }
777         }
778         else if (begin == 3)
```

```
779         {
780             int enter, value, value2;
781             cout << "\n1.BMI less than.\n2.BMI more than.\n";
782             cout << "3.BMI less than equals to.\n4.BMI more than equals to.\n";
783             cout << "5.BMI within range.\nOptions:";
784             cin >> enter;
785             while (enter < 1 || enter >100)
786             {
787                 cout << "Input the correct value.\n";
788                 cout << "Enter:";
789                 cin >> enter;
790             }
791             if (enter == 1)
792             {
793                 cout << "Enter value of BMI:";
794                 cin >> value;
795                 while (value < 1 || value >100)
796                 {
797                     cout << "Input the correct value.\n";
798                     cout << "Enter:";
799                     cin >> value;
800                 }
801                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMI\n";
802                 for (int i = 0; i < val; i++)
803                 {
804                     if (ob1[i].getbmi() < value)
805                     {
806                         cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                         << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                          << ob1[i].getAge() << "\t" << ob1[i].getbmi();
807                         cout << "\n";
808                     }
809                 }
810             }
811             else if (enter == 2)
812             {
813                 cout << "Enter value of BMI:";
814                 cin >> value;
815                 while (value < 1 || value >100)
816                 {
817                     cout << "Input the correct value.\n";
818                     cout << "Enter:";
819                     cin >> value;
820                 }
821                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMI\n";
822                 for (int i = 0; i < val; i++)
823                 {
824                     if (ob1[i].getbmi() > value)
825                     {
826                         cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
```

```
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getbmi();
827                         cout << "\n";
828                     }
829                 }
830             }
831             else if (enter == 3)
832             {
833                 cout << "Enter value of BMI:";
834                 cin >> value;
835                 while (value < 1 || value >100)
836                 {
837                     cout << "Input the correct value.\n";
838                     cout << "Enter:";
839                     cin >> value;
840                 }
841                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMI\n";
842                 for (int i = 0; i < val; i++)
843                 {
844                     if (ob1[i].getbmi() <= value)
845                     {
846                         cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getbmi();
847                         cout << "\n";
848                     }
849                 }
850             }
851             else if (enter == 4)
852             {
853                 cout << "Enter value of BMI:";
854                 cin >> value;
855                 while (value < 1 || value >100)
856                 {
857                     cout << "Input the correct value.\n";
858                     cout << "Enter:";
859                     cin >> value;
860                 }
861                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMI\n";
862                 for (int i = 0; i < val; i++)
863                 {
864                     if (ob1[i].getbmi() >= value)
865                     {
866                         cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getbmi();
867                         cout << "\n";
868                     }
869                 }
870             }
```

```
871             else if (enter == 5)
872             {
873                 cout << "Enter value of BMI:\nMin Value1:";
874                 cin >> value;
875                 while (value < 1 || value >100)
876                 {
877                     cout << "Input the correct value.\n";
878                     cout << "Enter:";
879                     cin >> value;
880                 }
881                 cout << "\nMax Value:";
882                 cin >> value2;
883                 while (value2 < 1 || value2>100)
884                 {
885                     cout << "Input the correct value.\n";
886                     cout << "Enter:";
887                     cin >> value2;
888                 }
889                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMI\n";
890                 for (int i = 0; i < val; i++)
891                 {
892                     if ((ob1[i].getbmi() > value) && (ob1[i].getbmi() < value2))
893                     {
894                         cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"  ↵
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t" ↵
                         << ob1[i].getAge() << "\t" << ob1[i].getbmi();
895                         cout << "\n";
896                     }
897                 }
898             }
899         }
900     }
901     else if (start == 2)//if user choose combined search for bmr
902     {
903         int begin, AGE, AGE2;
904         string Gender;
905         cout << "\nSearch by...\n";
906         cout << "1.Age\n2.Gender\n3.All Staffs\nOptions:";
907         cin >> begin;
908         while (begin < 1 || begin >3)
909         {
910             cout << "Input the correct value.\n";
911             cout << "Enter:";
912             cin >> begin;
913         }
914         if (begin == 1)
915         {
916             cout << "Enter age.Min age:";
917             cin >> AGE;
918             while (AGE < 18 || AGE>100)
919             {
```

```
920                 cout << "Input the correct value.\n";
921                 cout << "Enter:";
922                 cin >> AGE;
923             }
924             cout << "\nMax age:";
925             cin >> AGE2;
926             while (AGE2 < 18 || AGE2>100)
927             {
928                 cout << "Input the correct value.\n";
929                 cout << "Enter:";
930                 cin >> AGE2;
931             }
932             int enter, value, value2;
933             cout << "\n1.BMR less than.\n2.BMR more than.\n";
934             cout << "3.BMR less than equals to.\n4.BMR more than equals to.\n";
935             cout << "5.BMR within range.\nOptions:";
936             cin >> enter;
937             while (enter < 1 || enter >5)
938             {
939                 cout << "Input the correct value.\n";
940                 cout << "Enter:";
941                 cin >> enter;
942             }
943             if (enter == 1)
944             {
945                 cout << "Enter value of BMR:";
946                 cin >> value;
947                 while (value < 1 || value >5000)
948                 {
949                     cout << "Input the correct value.\n";
950                     cout << "Enter:";
951                     cin >> value;
952                 }
953                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMR\n";
954                 for (int i = 0; i < val; i++)
955                 {
956                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
957                     {
958                         if (ob1[i].getbmr() < value)
959                         {
960                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
961                             cout << "\n";
962                         }
963                     }
964                 }
965             }
966             else if (enter == 2)
967             {
968                 cout << "Enter value of BMR:";
```

```
969                 cin >> value;
970                 while (value < 1 || value >5000)
971                 {
972                     cout << "Input the correct value.\n";
973                     cout << "Enter:";
974                     cin >> value;
975                 }
976                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
977                 for (int i = 0; i < val; i++)
978                 {
979                     if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
980                     {
981                         if (ob1[i].getbmr() > value)
982                         {
983                             cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
984                             cout << "\n";
985                         }
986                     }
987                 }
988             }
989             else if (enter == 3)
990             {
991                 cout << "Enter value of BMR:";
992                 cin >> value;
993                 while (value < 1 || value >5000)
994                 {
995                     cout << "Input the correct value.\n";
996                     cout << "Enter:";
997                     cin >> value;
998                 }
999                 cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1000                for (int i = 0; i < val; i++)
1001                {
1002                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1003                    {
1004                        if (ob1[i].getbmr() <= value)
1005                        {
1006                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1007                            cout << "\n";
1008                        }
1009                    }
1010                }
1011            }
1012            else if (enter == 4)
1013            {
1014                cout << "Enter value of BMR:";
```

```
1015                cin >> value;
1016                while (value < 1 || value >5000)
1017                {
1018                    cout << "Input the correct value.\n";
1019                    cout << "Enter:";
1020                    cin >> value;
1021                }
1022                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1023                for (int i = 0; i < val; i++)
1024                {
1025                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1026                    {
1027                        if (ob1[i].getbmr() >= value)
1028                        {
1029                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1030                            cout << "\n";
1031                        }
1032                    }
1033                }
1034            }
1035            else if (enter == 5)
1036            {
1037                cout << "Enter value of BMR:\nMin Value1:";
1038                cin >> value;
1039                while (value < 1 || value >5000)
1040                {
1041                    cout << "Input the correct value.\n";
1042                    cout << "Enter:";
1043                    cin >> value;
1044                }
1045                cout << "\nMax Value:";
1046                cin >> value2;
1047                while (value2 < 1 || value2 >5000)
1048                {
1049                    cout << "Input the correct value.\n";
1050                    cout << "Enter:";
1051                    cin >> value2;
1052                }
1053                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1054                for (int i = 0; i < val; i++)
1055                {
1056                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1057                    {
1058                        if ((ob1[i].getbmr() > value) && (ob1[i].getbmr() <      ↵
                          value2))
1059                        {
1060                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
```

```
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1061                            cout << "\n";
1062                        }
1063                    }
1064                }
1065            }
1066        }
1067        else if (begin == 2)
1068        {
1069            cout << "Enter gender.'Male' for male and 'Female' for female.
                  \nGender:";
1070            cin >> Gender;
1071            while (Gender != "Male" && Gender != "Female")
1072            {
1073                cout << "Input the correct value.\n";
1074                cout << "'Male' for male and 'Female' for female.\n";
1075                cout << "Enter:";
1076                cin >> Gender;
1077            }
1078            int enter, value, value2;
1079            cout << "\n1.BMR less than.\n2.BMR more than.\n";
1080            cout << "3.BMR less than equals to.\n4.BMR more than equals to.\n";
1081            cout << "5.BMR within range.\nOptions:";
1082            cin >> enter;
1083            while (enter < 1 || enter >5)
1084            {
1085                cout << "Input the correct value.\n";
1086                cout << "Enter:";
1087                cin >> enter;
1088            }
1089            if (enter == 1)
1090            {
1091                cout << "Enter value of BMR:";
1092                cin >> value;
1093                while (value < 1 || value >5000)
1094                {
1095                    cout << "Input the correct value.\n";
1096                    cout << "Enter:";
1097                    cin >> value;
1098                }
1099                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "BMR\n";
1100                for (int i = 0; i < val; i++)
1101                {
1102                    if (Gender == ob1[i].getGender())
1103                    {
1104                        if (ob1[i].getbmr() < value)
1105                        {
1106                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1107                            cout << "\n";
```

```
1108                            }
1109                        }
1110                    }
1111                }
1112                else if (enter == 2)
1113                {
1114                    cout << "Enter value of BMR:";
1115                    cin >> value;
1116                    while (value < 1 || value >5000)
1117                    {
1118                        cout << "Input the correct value.\n";
1119                        cout << "Enter:";
1120                        cin >> value;
1121                    }
1122                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1123                    for (int i = 0; i < val; i++)
1124                    {
1125                        if (Gender == ob1[i].getGender())
1126                        {
1127                            if (ob1[i].getbmr() > value)
1128                            {
1129                                cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1130                                cout << "\n";
1131                            }
1132                        }
1133                    }
1134                }
1135                else if (enter == 3)
1136                {
1137                    cout << "Enter value of BMR:";
1138                    cin >> value;
1139                    while (value < 1 || value >5000)
1140                    {
1141                        cout << "Input the correct value.\n";
1142                        cout << "Enter:";
1143                        cin >> value;
1144                    }
1145                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1146                    for (int i = 0; i < val; i++)
1147                    {
1148                        if (Gender == ob1[i].getGender())
1149                        {
1150                            if (ob1[i].getbmr() <= value)
1151                            {
1152                                cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1153                                cout << "\n";
```

```
1154                            }
1155                        }
1156                    }
1157                }
1158                else if (enter == 4)
1159                {
1160                    cout << "Enter value of BMR:";
1161                    cin >> value;
1162                    while (value < 1 || value >5000)
1163                    {
1164                        cout << "Input the correct value.\n";
1165                        cout << "Enter:";
1166                        cin >> value;
1167                    }
1168                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1169                    for (int i = 0; i < val; i++)
1170                    {
1171                        if (Gender == ob1[i].getGender())
1172                        {
1173                            if (ob1[i].getbmr() >= value)
1174                            {
1175                                cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                                \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                                "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1176                                cout << "\n";
1177                            }
1178                        }
1179                    }
1180                }
1181                else if (enter == 5)
1182                {
1183                    cout << "Enter value of BMR:\nMin Value1:";
1184                    cin >> value;
1185                    while (value < 1 || value >5000)
1186                    {
1187                        cout << "Input the correct value.\n";
1188                        cout << "Enter:";
1189                        cin >> value;
1190                    }
1191                    cout << "\nMax Value:";
1192                    cin >> value2;
1193                    while (value2 < 1 || value2 >5000)
1194                    {
1195                        cout << "Input the correct value.\n";
1196                        cout << "Enter:";
1197                        cin >> value2;
1198                    }
1199                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "BMR\n";
1200                    for (int i = 0; i < val; i++)
1201                    {
```

```
1202                    if (Gender == ob1[i].getGender())
1203                    {
1204                        if ((ob1[i].getbmr() > value) && (ob1[i].getbmr() <
                        value2))
1205                        {
1206                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1207                            cout << "\n";
1208                        }
1209                    }
1210                }
1211            }
1212        }
1213        else if (begin == 3)
1214        {
1215            int enter, value, value2;
1216            cout << "\n1.BMR less than.\n2.BMR more than.\n";
1217            cout << "3.BMR less than equals to.\n4.BMR more than equals to.\n";
1218            cout << "5.BMR within range.\nOptions:";
1219            cin >> enter;
1220            while (enter < 1 || enter >5)
1221            {
1222                cout << "Input the correct value.\n";
1223                cout << "Enter:";
1224                cin >> enter;
1225            }
1226            if (enter == 1)
1227            {
1228                cout << "Enter value of BMR:";
1229                cin >> value;
1230                while (value < 1 || value >5000)
1231                {
1232                    cout << "Input the correct value.\n";
1233                    cout << "Enter:";
1234                    cin >> value;
1235                }
1236                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                  \t" << "BMR\n";
1237                for (int i = 0; i < val; i++)
1238                {
1239                    if (ob1[i].getbmr() < value)
1240                    {
1241                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1242                        cout << "\n";
1243                    }
1244                }
1245            }
1246            else if (enter == 2)
1247            {
```

```
1248                    cout << "Enter value of BMR:";
1249                    cin >> value;
1250                    while (value < 1 || value >5000)
1251                    {
1252                        cout << "Input the correct value.\n";
1253                        cout << "Enter:";
1254                        cin >> value;
1255                    }
1256                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                          \t" << "BMR\n";
1257                    for (int i = 0; i < val; i++)
1258                    {
1259                        if (ob1[i].getbmr() > value)
1260                        {
1261                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                          << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                           << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1262                            cout << "\n";
1263                        }
1264                    }
1265                }
1266                else if (enter == 3)
1267                {
1268                    cout << "Enter value of BMR:";
1269                    cin >> value;
1270                    while (value < 1 || value >5000)
1271                    {
1272                        cout << "Input the correct value.\n";
1273                        cout << "Enter:";
1274                        cin >> value;
1275                    }
1276                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                          \t" << "BMR\n";
1277                    for (int i = 0; i < val; i++)
1278                    {
1279                        if (ob1[i].getbmr() <= value)
1280                        {
1281                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                          << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                           << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1282                            cout << "\n";
1283                        }
1284                    }
1285                }
1286                else if (enter == 4)
1287                {
1288                    cout << "Enter value of BMR:";
1289                    cin >> value;
1290                    while (value < 1 || value >5000)
1291                    {
1292                        cout << "Input the correct value.\n";
1293                        cout << "Enter:";
```

```
1294                    cin >> value;
1295                }
1296                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age \t" << "BMR\n";
1297                for (int i = 0; i < val; i++)
1298                {
1299                    if (ob1[i].getbmr() >= value)
1300                    {
1301                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1302                        cout << "\n";
1303                    }
1304                }
1305            }
1306            else if (enter == 5)
1307            {
1308                cout << "Enter value of BMR:\nMin Value1:";
1309                cin >> value;
1310                while (value < 1 || value >5000)
1311                {
1312                    cout << "Input the correct value.\n";
1313                    cout << "Enter:";
1314                    cin >> value;
1315                }
1316                cout << "\nMax Value:";
1317                cin >> value2;
1318                while (value2 < 1 || value2 >5000)
1319                {
1320                    cout << "Input the correct value.\n";
1321                    cout << "Enter:";
1322                    cin >> value2;
1323                }
1324                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age \t" << "BMR\n";
1325                for (int i = 0; i < val; i++)
1326                {
1327                    if ((ob1[i].getbmr() > value) && (ob1[i].getbmr() < value2))
1328                    {
1329                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t" << ob1[i].getAge() << "\t" << ob1[i].getbmr();
1330                        cout << "\n";
1331                    }
1332                }
1333            }
1334        }
1335    }
1336    else if (start == 3)//if user choose combined search for rmr
1337    {
1338        int begin, AGE, AGE2;
1339        string Gender;
```

```
1340            cout << "\nSearch by...\n";
1341            cout << "1.Age\n2.Gender\n3.ALL staff.\nOptions:";
1342            cin >> begin;
1343            while (begin < 1 || begin >3)
1344            {
1345                cout << "Input the correct value.\n";
1346                cout << "Enter:";
1347                cin >> begin;
1348            }
1349            if (begin == 1)
1350            {
1351                cout << "Enter age.Min age:";
1352                cin >> AGE;
1353                while (AGE < 18 || AGE >100)
1354                {
1355                    cout << "Input the correct value.\n";
1356                    cout << "Enter:";
1357                    cin >> AGE;
1358                }
1359                cout << "\nMax age:";
1360                cin >> AGE2;
1361                while (AGE2 < 18 || AGE2 >100)
1362                {
1363                    cout << "Input the correct value.\n";
1364                    cout << "Enter:";
1365                    cin >> AGE2;
1366                }
1367                int enter, value, value2;
1368                cout << "\n1.RMR less than.\n2.RMR more than.\n";
1369                cout << "3.RMR less than equals to.\n4.RMR more than equals to.\n";
1370                cout << "5.RMR within range.\nOptions:";
1371                cin >> enter;
1372                while (enter < 1 || enter >5)
1373                {
1374                    cout << "Input the correct value.\n";
1375                    cout << "Enter:";
1376                    cin >> enter;
1377                }
1378                if (enter == 1)
1379                {
1380                    cout << "Enter value of RMR:";
1381                    cin >> value;
1382                    while (value < 1 || value >5000)
1383                    {
1384                        cout << "Input the correct value.\n";
1385                        cout << "Enter:";
1386                        cin >> value;
1387                    }
1388                    cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "RMR\n";
1389                    for (int i = 0; i < val; i++)
1390                    {
```

```
1391                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1392                    {
1393                        if (ob1[i].getrmr() < value)
1394                        {
1395                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                    \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                    "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1396                            cout << "\n";
1397                        }
1398                    }
1399                }
1400            }
1401            else if (enter == 2)
1402            {
1403                cout << "Enter value of RMR:";
1404                cin >> value;
1405                while (value < 1 || value >5000)
1406                {
1407                    cout << "Input the correct value.\n";
1408                    cout << "Enter:";
1409                    cin >> value;
1410                }
1411                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age ↵
                  \t" << "RMR\n";
1412                for (int i = 0; i < val; i++)
1413                {
1414                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1415                    {
1416                        if (ob1[i].getrmr() > value)
1417                        {
1418                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                    \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                    "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1419                            cout << "\n";
1420                        }
1421                    }
1422                }
1423            }
1424            else if (enter == 3)
1425            {
1426                cout << "Enter value of RMR:";
1427                cin >> value;
1428                while (value < 1 || value >5000)
1429                {
1430                    cout << "Input the correct value.\n";
1431                    cout << "Enter:";
1432                    cin >> value;
1433                }
1434                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age ↵
                  \t" << "RMR\n";
1435                for (int i = 0; i < val; i++)
1436                {
```

```
1437                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1438                    {
1439                        if (ob1[i].getrmr() <= value)
1440                        {
1441                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                    \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                    "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1442                            cout << "\n";
1443                        }
1444                    }
1445                }
1446            }
1447            else if (enter == 4)
1448            {
1449                cout << "Enter value of RMR:";
1450                cin >> value;
1451                while (value < 1 || value >5000)
1452                {
1453                    cout << "Input the correct value.\n";
1454                    cout << "Enter:";
1455                    cin >> value;
1456                }
1457                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age ↵
                  \t" << "RMR\n";
1458                for (int i = 0; i < val; i++)
1459                {
1460                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1461                    {
1462                        if (ob1[i].getrmr() >= value)
1463                        {
1464                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                    \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << ↵
                    "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1465                            cout << "\n";
1466                        }
1467                    }
1468                }
1469            }
1470            else if (enter == 5)
1471            {
1472                cout << "Enter value of RMR:\nMin Value1:";
1473                cin >> value;
1474                while (value < 1 || value >5000)
1475                {
1476                    cout << "Input the correct value.\n";
1477                    cout << "Enter:";
1478                    cin >> value;
1479                }
1480                cout << "\nMax Value:";
1481                cin >> value2;
1482                while (value2 < 1 || value2 >5000)
1483                {
```

```
1484                    cout << "Input the correct value.\n";
1485                    cout << "Enter:";
1486                    cin >> value2;
1487                }
1488                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age \t" << "RMR\n";
1489                for (int i = 0; i < val; i++)
1490                {
1491                    if ((ob1[i].getAge() > AGE) && (ob1[i].getAge() < AGE2))
1492                    {
1493                        if ((ob1[i].getrmr() > value) && (ob1[i].getrmr() < value2))
1494                        {
1495                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1496                            cout << "\n";
1497                        }
1498                    }
1499                }
1500            }
1501        }
1502        else if (begin == 2)
1503        {
1504            cout << "Enter gender.'Male' for male and 'Female' for female. \nGender:";
1505            cin >> Gender;
1506            while (Gender != "Male" && Gender != "Female")
1507            {
1508                cout << "Input the correct value.\n";
1509                cout << "'Male' for male and 'Female' for female.\n";
1510                cout << "Enter:";
1511                cin >> Gender;
1512            }
1513            int enter, value, value2;
1514            cout << "\n1.RMR less than.\n2.RMR more than.\n";
1515            cout << "3.RMR less than equals to.\n4.RMR more than equals to.\n";
1516            cout << "5.RMR within range.\nOptions:";
1517            cin >> enter;
1518            while (enter < 1 || enter >5)
1519            {
1520                cout << "Input the correct value.\n";
1521                cout << "Enter:";
1522                cin >> enter;
1523            }
1524            if (enter == 1)
1525            {
1526                cout << "Enter value of RMR:";
1527                cin >> value;
1528                while (value < 1 || value >5000)
1529                {
1530                    cout << "Input the correct value.\n";
```

```
1531                    cout << "Enter:";
1532                    cin >> value;
1533                }
1534                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "RMR\n";
1535                for (int i = 0; i < val; i++)
1536                {
1537                    if (Gender == ob1[i].getGender())
1538                    {
1539                        if (ob1[i].getrmr() < value)
1540                        {
1541                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1542                            cout << "\n";
1543                        }
1544                    }
1545                }
1546            }
1547            else if (enter == 2)
1548            {
1549                cout << "Enter value of RMR:";
1550                cin >> value;
1551                while (value < 1 || value >5000)
1552                {
1553                    cout << "Input the correct value.\n";
1554                    cout << "Enter:";
1555                    cin >> value;
1556                }
1557                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "RMR\n";
1558                for (int i = 0; i < val; i++)
1559                {
1560                    if (Gender == ob1[i].getGender())
1561                    {
1562                        if (ob1[i].getrmr() > value)
1563                        {
1564                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1565                            cout << "\n";
1566                        }
1567                    }
1568                }
1569            }
1570            else if (enter == 3)
1571            {
1572                cout << "Enter value of RMR:";
1573                cin >> value;
1574                while (value < 1 || value >5000)
1575                {
1576                    cout << "Input the correct value.\n";
```

```
1577                    cout << "Enter:";
1578                    cin >> value;
1579                }
1580                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "RMR\n";
1581                for (int i = 0; i < val; i++)
1582                {
1583                    if (Gender == ob1[i].getGender())
1584                    {
1585                        if (ob1[i].getrmr() <= value)
1586                        {
1587                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1588                            cout << "\n";
1589                        }
1590                    }
1591                }
1592            }
1593            else if (enter == 4)
1594            {
1595                cout << "Enter value of RMR:";
1596                cin >> value;
1597                while (value < 1 || value >5000)
1598                {
1599                    cout << "Input the correct value.\n";
1600                    cout << "Enter:";
1601                    cin >> value;
1602                }
1603                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "RMR\n";
1604                for (int i = 0; i < val; i++)
1605                {
1606                    if (Gender == ob1[i].getGender())
1607                    {
1608                        if (ob1[i].getrmr() >= value)
1609                        {
1610                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                          \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                          "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1611                            cout << "\n";
1612                        }
1613                    }
1614                }
1615            }
1616            else if (enter == 5)
1617            {
1618                cout << "Enter value of RMR:\nMin Value1:";
1619                cin >> value;
1620                while (value < 1 || value >5000)
1621                {
1622                    cout << "Input the correct value.\n";
```

```
1623                    cout << "Enter:";
1624                    cin >> value;
1625                }
1626                cout << "\nMax Value:";
1627                cin >> value2;
1628                while (value2 < 1 || value2 >5000)
1629                {
1630                    cout << "Input the correct value.\n";
1631                    cout << "Enter:";
1632                    cin >> value2;
1633                }
1634                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age  ↵
                      \t" << "RMR\n";
1635                for (int i = 0; i < val; i++)
1636                {
1637                    if (Gender == ob1[i].getGender())
1638                    {
1639                        if ((ob1[i].getrmr() > value) && (ob1[i].getrmr() <      ↵
                        value2))
1640                        {
1641                            cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t ↵
                        \t" << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() <<  ↵
                        "\t" << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1642                            cout << "\n";
1643                        }
1644                    }
1645                }
1646            }
1647        }
1648        else if (begin == 3)
1649        {
1650            int enter, value, value2;
1651            cout << "\n1.RMR less than.\n2.RMR more than.\n";
1652            cout << "3.RMR less than equals to.\n4.RMR more than equals to.\n";
1653            cout << "5.RMR within range.\nOptions:";
1654            cin >> enter;
1655            while (enter < 1 || enter >5)
1656            {
1657                cout << "Input the correct value.\n";
1658                cout << "Enter:";
1659                cin >> enter;
1660            }
1661            if (enter == 1)
1662            {
1663                cout << "Enter value of RMR:";
1664                cin >> value;
1665                while (value < 1 || value >5000)
1666                {
1667                    cout << "Input the correct value.\n";
1668                    cout << "Enter:";
1669                    cin >> value;
1670                }
```

```
1671                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "RMR\n";
1672                for (int i = 0; i < val; i++)
1673                {
1674                    if (ob1[i].getrmr() < value)
1675                    {
1676                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1677                        cout << "\n";
1678                    }
1679                }
1680            }
1681            else if (enter == 2)
1682            {
1683                cout << "Enter value of RMR:";
1684                cin >> value;
1685                while (value < 1 || value >5000)
1686                {
1687                    cout << "Input the correct value.\n";
1688                    cout << "Enter:";
1689                    cin >> value;
1690                }
1691                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "RMR\n";
1692                for (int i = 0; i < val; i++)
1693                {
1694                    if (ob1[i].getrmr() > value)
1695                    {
1696                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1697                        cout << "\n";
1698                    }
1699                }
1700            }
1701            else if (enter == 3)
1702            {
1703                cout << "Enter value of RMR:";
1704                cin >> value;
1705                while (value < 1 || value >5000)
1706                {
1707                    cout << "Input the correct value.\n";
1708                    cout << "Enter:";
1709                    cin >> value;
1710                }
1711                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                      \t" << "RMR\n";
1712                for (int i = 0; i < val; i++)
1713                {
1714                    if (ob1[i].getrmr() <= value)
1715                    {
```

```
1716                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1717                        cout << "\n";
1718                    }
1719                }
1720            }
1721            else if (enter == 4)
1722            {
1723                cout << "Enter value of RMR:";
1724                cin >> value;
1725                while (value < 1 || value >5000)
1726                {
1727                    cout << "Input the correct value.\n";
1728                    cout << "Enter:";
1729                    cin >> value;
1730                }
1731                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                  \t" << "RMR\n";
1732                for (int i = 0; i < val; i++)
1733                {
1734                    if (ob1[i].getrmr() >= value)
1735                    {
1736                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1737                        cout << "\n";
1738                    }
1739                }
1740            }
1741            else if (enter == 5)
1742            {
1743                cout << "Enter value of RMR:\nMin Value1:";
1744                cin >> value;
1745                while (value < 1 || value >5000)
1746                {
1747                    cout << "Input the correct value.\n";
1748                    cout << "Enter:";
1749                    cin >> value;
1750                }
1751                cout << "\nMax Value:";
1752                cin >> value2;
1753                while (value2 < 1 || value2 >5000)
1754                {
1755                    cout << "Input the correct value.\n";
1756                    cout << "Enter:";
1757                    cin >> value2;
1758                }
1759                cout << "\nNo\tName\t" << "\tStaffID\t\t" << "Gender\t" << "Age
                  \t" << "RMR\n";
1760                for (int i = 0; i < val; i++)
1761                {
```

```
1762                    if ((ob1[i].getrmr() > value) && (ob1[i].getrmr() < value2))
1763                    {
1764                        cout << (i + 1) << "\t" << ob1[i].getName() << "\t\t\t"
                        << ob1[i].getStaff() << "\t\t" << ob1[i].getGender() << "\t"
                         << ob1[i].getAge() << "\t" << ob1[i].getrmr();
1765                        cout << "\n";
1766                    }
1767                }
1768            }
1769        }
1770    }
1771    system("PAUSE");//pausing command prompt
1772 }
1773
1774 void genstats(staff ob1[], int val)
1775 {
1776     system("CLS");//clearing the command prompt
1777     int age1, age2, under = 0, normal = 0, over = 0, obese = 0, x = 0, enter;
1778     double avebmi = 0, avebmr = 0, avermr = 0;//average for bmi,bmr,rmr
1779     string gender;//declare variable
1780     cout << "Which type of general data do you want?\n";
1781     cout << "1.All staffs\n2.Staffs with age and gender requirement.\n";
1782     cin >> enter;//asking user to  choose how to display information.
1783     //either all staffs or with age and gender requirement.
1784     while (enter < 1 || enter >2)
1785     {//input validation
1786         cout << "Input the correct value.\n";
1787         cout << "Enter:";
1788         cin >> enter;
1789     }
1790
1791     if (enter == 1)//if user choose all staffs.
1792     {
1793         system("CLS");//clearing command prompt.
1794         for (int i = 0; i < val; i++)
1795         {//loop to calculate average bmi,bmr and rmr.
1796             avebmi = avebmi + ob1[i].getbmi();
1797             avebmr = avebmr + ob1[i].getbmr();
1798             avermr = avermr + ob1[i].getrmr();
1799             x = x + 1;//divisor to divide total bmi,bmr,rmr.
1800         }
1801         avebmi = avebmi / x;//average bmi
1802         avebmr = avebmr / x;//average bmr
1803         avermr = avermr / x;//average rmr
1804         cout << "\n1.Average BMI for staffs is " << avebmi << "." << endl;//
           displaying all average
1805         cout << "\n2.Average BMR for staffs is " << avebmr << "." << endl;//
           bmi,bmr and rmr
1806         cout << "\n3.Average RMR for staffs is " << avermr << "." << endl;
1807
1808         for (int i = 0; i < val; i++)
1809         {//loop to determine staff for each weight catogary
```

```
1810             if (ob1[i].getbmi() < 20)
1811             {
1812                 under = under + 1;
1813             }
1814             else if ((ob1[i].getbmi() < 25) && (ob1[i].getbmi() >= 20))
1815             {
1816                 normal = normal + 1;
1817             }
1818             else if ((ob1[i].getbmi() < 30) && (ob1[i].getbmi() >= 25))
1819             {
1820                 over = over + 1;
1821             }
1822             else
1823             {
1824                 obese = obese + 1;
1825             }
1826         }
1827         //displaying number of staff for each weight catogary
1828         cout << "\n1.The number of people in underweight catogary is " << under
               << "." << endl;
1829         cout << "\n2.The number of people in normalweight catogary is " <<
               normal << "." << endl;
1830         cout << "\n3.The number of people in overweight catogary is " << over <<
               "." << endl;
1831         cout << "\n4.The number of people in obese catogary is " << obese << "."
               << endl;
1832         system("PAUSE");//pausing command prompt
1833     }
1834     else if (enter == 2)//if user choose general stats for staff with
          requirements
1835     {
1836         system("CLS");//clearing command prompt
1837         cout << "Enter age range.\nMin age:";
1838         cin >> age1;//user entering min age for age range
1839         while (age1 < 18 || age1>100)
1840         {//input validation for age
1841             cout << "Input the correct value.\n";
1842             cout << "Enter:";
1843             cin >> age1;
1844         }
1845         cout << "Max age:";
1846         cin >> age2;//user entering max age for age range
1847         while (age2 < 18 || age2>100)
1848         {//input validation for age
1849             cout << "Input the correct value.\n";
1850             cout << "Enter:";
1851             cin >> age2;
1852         }
1853         cout << "Enter gender.'Male' for male and 'Female' for female:";
1854         cin >> gender;//asking for gender of staffs
1855         while (gender != "Male" && gender != "Female")
1856         {//input validation for gender
```

```
1857            cout << "Input the correct value.\n";
1858            cout << "'M' for male and 'F' for female.\n";
1859            cout << "Enter:";
1860            cin >> gender;
1861        }
1862
1863        for (int i = 0; i < val; i++)
1864        {//loop to search for number of people in each weight catogary
1865         //within the age range and gender.
1866            if (gender == ob1[i].getGender())
1867            {//searching array for data with same gender
1868                if ((ob1[i].getAge() > age1) && (ob1[i].getAge() < age2))
1869                {//searching array for data within the range.
1870                    if (ob1[i].getbmi() < 20)
1871                    {
1872                        under = under + 1;
1873                    }
1874                    else if ((ob1[i].getbmi() < 25) && (ob1[i].getbmi() >= 20))
1875                    {
1876                        normal = normal + 1;
1877                    }
1878                    else if ((ob1[i].getbmi() < 30) && (ob1[i].getbmi() >= 25))
1879                    {
1880                        over = over + 1;
1881                    }
1882                    else
1883                    {
1884                        obese = obese + 1;
1885                    }
1886                    avebmi = avebmi + ob1[i].getbmi();//calculating average bmi.
1887                    avebmr = avebmr + ob1[i].getbmr();//calculating average bmr.
1888                    avermr = avermr + ob1[i].getrmr();//calculating average rmr.
1889                    x = x + 1;//divisor for average
1890                }
1891            }
1892        }
1893        avebmi = avebmi / x;//calculating average bmi.
1894        avebmr = avebmr / x;//calculating average bmr.
1895        avermr = avermr / x;//calculating average rmr.
1896        //displaying every processed data in this loop.
1897        cout << "\nAge range:" << age1 << "-" << age2 << "\nGender:" << gender
              << ".\n";
1898        cout << "Average BMI:" << avebmi << endl;
1899        cout << "Average BMR:" << avebmr << endl;
1900        cout << "Average RMR:" << avermr << endl;
1901        cout << "\n1)The number of people in underweight catogary is " << under
              << "." << endl;
1902        cout << "\n2)The number of people in normalweight catogary is " <<
              normal << "." << endl;
1903        cout << "\n3)The number of people in overweight catogary is " << over <<
              "." << endl;
1904        cout << "\n4)The number of people in obese catogary is " << obese << "."
```

```
            << endl;
1905        system("PAUSE");//pausing command prompt.
1906    }
1907 }
1908
1909 void staff::health()
1910 {
1911     system("CLS");//clearing command prompt
1912     double calc, calc2, height, ideal, days;
1913     height = (getHeight() / 2.54) - 60;//convert height to inches and sub with
          5feet.
1914     ideal = 50 + (height * 2.3);//formula to find ideal weight
1915     //displaying all data within the search.
1916     cout << "\nName: " << getName() << endl;
1917     cout << "Staff ID: " << getStaff() << endl;
1918     cout << "Gender: " << getGender() << endl;
1919     cout << "Date Of Birth: " << getdate() << getdate2() << "/" << getmonth() <<
          getmonth2() << "/" << getyear() << endl;
1920     cout << "Gender: " << getGender() << endl;
1921     cout << "Age: " << getAge() << endl;
1922     cout << "Weight: " << getWeight() << endl;
1923     cout << "Height: " << getHeight() << endl;
1924     cout << "BMI: " << getbmi() << endl;
1925     cout << "BMR: " << getbmr() << endl;
1926     cout << "RMR: " << getrmr() << endl;
1927
1928     if (getbmi() < 20)
1929     {
1930         cout << "You are in underweight catogary.\n";
1931         calc = (getbmr() * 1.3) * 1.25;//formula for calories
1932         calc2 = (getbmr() * 1.3) * 1.75;//formula for calories
1933         days = (ideal - getWeight()) / (0.5 / 7);//number of days to reach ideal
              weight.
1934         cout << "Your ideal weight is " << ideal << "kg.\n";
1935         cout << "You need to increase your weight.\n";//displaying advice
1936         cout << "You need to consume at least " << calc << " to " << calc2 << "
              calories everyday\n";
1937         cout << " until you reach your ideal weight.\n";
1938         cout << "This will help you to reach your goal in " << days << "days.
              \n";
1939     }
1940     else if ((getbmi() < 25) && (getbmi() >= 20))
1941     {
1942         cout << "\nYou are in normalweight catogary.\n";
1943         calc = (getbmr() * 1.3);//formula for calories.
1944         cout << "Your ideal weight is " << ideal << "kg.\n";//display ideal
              weight
1945         cout << "You are in the ideal weight catogary.\n";//display advice
1946         cout << "You need to consume at least " << calc << " calories everyday
              \n";
1947         cout << " to maintain your ideal weight.\n";
1948     }
```

```
1949      else if ((getbmi() < 30) && (getbmi() >= 25))
1950      {
1951          cout << "You are in overweight catogary.\n";
1952          calc = (getbmr() * 1.3) * 0.75;//formula calories
1953          days = (getWeight() - ideal) / (0.5 / 7);//number of days to reach ideal
                weight.
1954          cout << "Your ideal weight is " << ideal << "kg.\n";//display ideal
                weight
1955          cout << "\nYou need to consume only " << calc << " calories everyday\n";
1956          cout << " until you reach your ideal weight.\n";//display advice.
1957          cout << "This will help you to reach your goal in " << days << "days.
                \n";
1958          cout << "You must not lose weight more than that because of its negative
                health effects.\n";
1959      }
1960      else
1961      {
1962          cout << "You are in obese catogary.\n";
1963          calc = (getbmr() * 1.3) * 0.75;//formula calories
1964          days = (getWeight() - ideal) / (0.5 / 7);//number of days to reach ideal
                weight.
1965          cout << "Your ideal weight is " << ideal << "kg.\n";//display ideal
                weight
1966          cout << "\nYou need to consume only " << calc << " calories everyday\n";
1967          cout << " until you reach your ideal weight.\n";//display advice
1968          cout << "This will help you to reach your goal in " << days << "days.
                \n";
1969          cout << "You must not lose weight more than that because of its negative
                health effects.\n";
1970      }
1971      system("PAUSE");//pausing command prompt
1972  }
1973
1974  void output(staff ob1[], int val)
1975  {
1976      ofstream OutputFile;//declaring output file
1977      OutputFile.open("output.txt", ios::out);//opening output file
1978
1979      if (OutputFile)
1980      {
1981          for (int i = 0; i < val; i++) {
1982              //loop to display all staffs data in output file.
1983              OutputFile << left << setw(30) << ob1[i].getName() << "\t" << left
                    << setw(12) << ob1[i].getStaff() << "\t" << left << setw(6) << ob1
                    [i].getGender() << "\t";
1984              OutputFile << internal << setw(3) << ob1[i].getAge() << "\t" <<
                    internal<< setw(2) << ob1[i].getWeight() << "\t" << internal <<
                    setw(3) << ob1[i].getHeight() << "\t";
1985              OutputFile << internal << setw(1) << ob1[i].getdate() << internal <<
                     setw(1) << ob1[i].getdate2() << "/" << internal << setw(1) << ob1
                    [i].getmonth();
1986              OutputFile << internal << setw(1) << ob1[i].getmonth2() << "/" <<
```

```
                    internal << setw(4) << ob1[i].getyear() << "\t";
1987              OutputFile << right << setw(10) << ob1[i].getbmi() << "\t" << right
                    << setw(10) << ob1[i].getbmr() << "\t" << right << setw(10) << ob1
                    [i].getrmr() << "\n";
1988          }
1989      }
1990      OutputFile.close();
1991  }
1992
1993  staff::staff()//constructor
1994  {
1995      age = 0;
1996      bmi = 0;
1997      bmr = 0;
1998      rmr = 0;
1999      year = 0;
2000      date = " "; date2 = " ";
2001      month = " "; month2 = " ";
2002  }
2003
2004  staff::~staff()//destructor
2005  {
2006      age = 0;
2007      bmi = 0;
2008      bmr = 0;
2009      rmr = 0;
2010      year = 0;
2011      date = " "; date2 = " ";
2012      month = " "; month2 = " ";
2013  }
2014
2015
```

```cpp
#include<iostream>
#include<string>
#include<iomanip>
#include<fstream>
#include "Fitness.h"
#include "Staff.h"
#include "Personal.h"

using namespace std;

int main()
{
    const int size = 300;//declaring variables
    int count = 0, age = 0, begin = 0, choose = 0, yesno = 0;
    staff ob1[size];
    string filename, filename2, name, gender;
    string id, id1;
    double weight = 0, height = 0, bi = 0, br = 0, rr = 0;
    char option = ' ';

    ifstream dataReadFile, dataReadFile2;//two input files
    cout << "Enter file's name that contains personal info:";
    cout << "\nEnter filename with (.txt) :";
    cin >> filename;

    while (!dataReadFile)//input validation for file name
    {
        system("CLS");
        cout << "Wrong Filename!!!\n";
        cout << "Enter the correct personal file with (.txt) :";
        cin >> filename;
        dataReadFile.open(filename, ios::in);
    }

    dataReadFile.open(filename, ios::in);//opening file that has personal info

    if (dataReadFile)
    {
        for (int i = 0; i < size && (!dataReadFile.eof()); i++)
        {
            dataReadFile >> id;//reading from file and setting it into array
              object
            dataReadFile.ignore();
            getline(dataReadFile, name, '\t');
            dataReadFile >> gender;
            ob1[i].Data(id, name, gender);
            dataReadFile.ignore();
            count = count + 1;
        }
    }
    dataReadFile.close();//closing personal file
    system("CLS");
```

```
52      cout << "Enter file's name that contains fitness info:";
53      cout << "\nEnter filename with (.txt) :";
54      cin >> filename2;
55
56      dataReadFile2.open(filename2, ios::in);//opening fitness file
57
58      while (!dataReadFile2)//input validation for filename
59      {
60          system("CLS");
61          cout << "Wrong Filename!!!\n";
62          cout << "Enter the correct fitness file with (.txt) :";
63          cin >> filename2;
64          dataReadFile2.open(filename2, ios::in);
65      }
66
67      if (dataReadFile2)
68      {
69          for (int i = 0; i < size && (!dataReadFile2.eof()); i++)
70          {
71              dataReadFile2 >> id1;//reading fitness info and settinginto array
                  object
72              dataReadFile2 >> weight;
73              dataReadFile2 >> height;
74              for (int i = 0; i < size; i++)//because the values in fitness info
                  not arranged properly
75              {//for loop used to sort weight and height according to their staffid
76                  if (id1 == ob1[i].getStaff())
77                  {
78                      ob1[i].Data2(weight, height);
79                  }
80              }
81          }
82      }
83      dataReadFile2.close();//closing fitness file
84
85      for (int i = 0; i < count; i++)//calculates and  sets bmi,bmr and rmr value
86      {
87          ob1[i].calculation();
88      }
89
90      cout << "\nType 1 to start the program.\n";
91      cin >> begin;//this input is to loop the main menu.User must 1 to reach menu.
92
93      while (begin != 1)//input validate for input used to reach main menu.
94      {
95          cout << "Enter the correct input!\n";
96          cin >> begin;//this will loop until the 1  is pressed.
97      }
98
99      system("CLS");//clearing commmend prom
100
```

```
101     while (begin == 1)//loop for main menu
102     {
103         cout << "\n\n*****************\n";
104         cout << "Let's Get Fit\n";
105         cout << "*****************";
106         cout << "\n!!!MAIN MENU!!!\n";
107         cout << "Enter a number according to the below options.\n";
108         cout << "1.Information about staff.\n2.Search\n";
109         cout << "3.Statistics\n4.Health Advisor.\n";
110         cout << "Options:";//option that are given to user
111         cin >> option;//each option will go to different case in switch.
112 
113         while (option != '1' && option != '2' && option != '3' && option != '4')
114         {//input validation for option.
115             cout << "Input the correct value.\n";
116             cout << "Options:";
117             cin >> option;//it will loop until input is correct
118         }
119 
120         switch (option)
121         {
122         case'1': //when user choose option one above
123         {
124             int yn;
125             cout << "Do you want to access data?\n";
126             cout << "1.Yes.\n2.No\nOption:";
127             cin >> yn;//this input is to create loop whithin the case
128             while (yn < 1 || yn>2)//input validation for yn
129             {
130                 cout << "Input the correct value.\n";
131                 cout << "Options:";
132                 cin >> yn;//it will loop until input is correct
133             }
134             while (yn == 1)//loop within the case
135             {
136                 system("CLS");
137                 cout << "\n\nInformation about staffs\n";
138                 cout << "1.Update data.\n2.Add new data.\n";//choices given to
                      user
139                 cout << "3.Display particular staff's data.\n4.Display all data
                      \nOption:";
140                 cin >> choose;//this input is to call each function.
141                 //each call fuction has its own usage.
142                 while (choose < 1 || choose>4)//input validate for choose
                      variable
143                 {
144                     cout << "Input the correct value.\n";
145                     cout << "Options:";
146                     cin >> choose;
147                 }
148 
149                 if (choose == 1)
```

```
150                 {//function called to edit data
151                     string staffid;//declare variable
152                     cout << "\nWho's data you want to edit?\n";
153                     cout << "Enter the staffID of the person you want to edit.
                         \n";
154                     cin >> staffid;//asking user for staff id whose data they
                         want to edit
155                     for (int i = 0; i < size; i++)
156                     {
157                         if (staffid == ob1[i].getStaff())
158                         {
159                             ob1[i].editData();
160                         }
161                     }
162                 }
163                 else if (choose == 2)
164                 {
165                     system("CLS");//clearing command prompt
166                     int y = 0, x = 0;//y is number of staff user want to add
167                     //x is the new size of of array(changed using & for val in
                         function)
168                     cout << "How many new data do you want to add?\n";
169                     cin >> y;//asking user to input number of new staffs
170                     while (y < 0 || y>count)//input validation
171                     {
172                         cout << "Input the correct value.\n";
173                         cout << "Enter:";
174                         cin >> y;
175                     }
176                     x = count + y;//changing sizeof array
177                     for (int i = count; i < x; i++)
178                     {
179                         ob1[i].addData();
180                     }
181                     count = x;
182                 }
183                 else if (choose == 3)
184                 {//function called to only display particular staff
185                     displayOne(ob1, count);
186                 }
187                 else if (choose == 4)
188                 {//function called to  display all staff
189                     for (int i = 0; i < count; i++)
190                     {
191                         ob1[i].displayAll();
192                     }
193                     system("PAUSE");
194                 }
195                 cout << "Do you want to access more data?\n";
196                 cout << "1.Yes.\n2.No\nOption:";
197                 cin >> yn;//input for continue looping or to exit the loop
198                 while (yn < 1 || yn>2)//input validation
```

```
199                 {
200                     cout << "Input the correct value.\n";
201                     cout << "Options:";
202                     cin >> yn;
203                 }
204             }
205             break;//exiting the switch
206         }
207         case'2':
208         {
209             int yn;
210             cout << "Do you want to search data?\n";
211             cout << "1.Yes.\n2.No\nOption:";
212             cin >> yn;//input to loop case2
213             while (yn < 1 || yn>2)//input validation
214             {
215                 cout << "Input the correct value.\n";
216                 cout << "Options:";
217                 cin >> yn;
218             }
219 
220             while (yn == 1) //this is to loop the case 2.
221             {
222                 int enter;//declare variable
223                 cout << "\nSearch Data.\n***************\n";
224                 cout << "Enter\n1.Simple search\n2.Combined search\nOption:";
225                 cin >> enter;//options given to user to call different function
226                 while (enter < 1 || enter>2)
227                 {//input validation for enter
228                     cout << "Input the correct value.\n";
229                     cout << "Options:";
230                     cin >> enter;
231                 }
232 
233                 if (enter == 1)
234                 {//function call for simple search
235                     simple(ob1, count);
236                 }
237                 else if (enter == 2)
238                 {//function call for combined search
239                     combine(ob1, count);
240                 }
241                 cout << "Do you want to search more?\n";
242                 cout << "1.Yes.\n2.No\nOption:";
243                 cin >> yn;//input to continue looping or exit it
244                 while (yn < 1 || yn>2)
245                 {//input validation
246                     cout << "Input the correct value.\n";
247                     cout << "Options:";
248                     cin >> yn;
249                 }
250             }
```

```
251             break;//exiting case 2
252         }
253         case'3':
254         {
255             int yn;
256             cout << "Statistical Informations\n";
257             cout << "1.Enter.\n2.Exit\nOption:";
258             cin >> yn;//input to loop case3
259             while (yn < 1 || yn>2)
260             {//input validation
261                 cout << "Input the correct value.\n";
262                 cout << "Options:";
263                 cin >> yn;
264             }
265 
266             while (yn == 1)//looping case 3
267             {
268                 system("CLS");//clearing command prompt
269                 cout << "\nStatistical Information\n";
270                 //calling function for statistical information
271                 genstats(ob1, count);
272                 system("PAUSE");//pausing the command prompt
273                 cout << "Do you want to access for statistical information?\n";
274                 cout << "1.Yes.\n2.No\nOption:";
275                 cin >> yn;//input to continue looping or to exit case 3
276                 while (yn < 1 || yn>2)
277                 {//input validation
278                     cout << "Input the correct value.\n";
279                     cout << "Options:";
280                     cin >> yn;
281                 }
282             }
283             break;//exiting case 3
284         }
285         case'4':
286         {
287             int yn;
288             cout << "\nHealth Advisor.\n";
289             cout << "1.Enter.\n2.Exit\nOption:";
290             cin >> yn;//input to loop case 4
291             while (yn < 1 || yn>2)
292             {//input validaion
293                 cout << "Input the correct value.\n";
294                 cout << "Options:";
295                 cin >> yn;
296             }
297 
298             while (yn == 1)//looping case 4
299             {
300                 system("CLS");//clearing screen
301                 cout << "\nHealth Advisor\n";
302                 string staff;
```

```
303                 int z = 0;
304                 cout << "\nEnter staff's ID:";//asking user to input staff id.
305                 cin >> staff;
306 
307                 for (int i = 0; i < count; i++)
308                 {
309                     if (staff == ob1[i].getStaff())
310                     {
311                         z = z + 1;
312                     }
313                 }
314                 while (z != 1)
315                 {
316                     system("CLS");
317                     cout << "This staffID does not exist in file.\n";
318                     cout << "Enter the correct id:";
319                     cin >> staff;
320                     for (int i = 0; i < count; i++)
321                     {
322                         if (staff == ob1[i].getStaff())
323                         {
324                             z = z + 1;
325                         }
326                     }
327                 }
328                 for (int i = 0; i < count; i++)
329                 {
330                     if (staff == ob1[i].getStaff()) { ob1[i].health(); }
331                 }
332                 cout << "Do you want to continue using health advisor?\n";
333                 cout << "1.Yes.\n2.No\nOption:";
334                 cin >> yn;//input to continue looping or to exit case 4
335                 while (yn < 1 || yn>2)
336                 {//input validation
337                     cout << "Input the correct value.\n";
338                     cout << "Options:";
339                     cin >> yn;
340                 }
341             }
342             break;//exiting case 4
343         }
344 
345         }
346         system("CLS");//clearing command prompt
347         cout << "\n\nLet's Get Fit(Enter number according to below option)\n";
348         cout << "1.Back to main menu.\n2.Exit.\nOption:";
349         cin >> begin;//input to loop or exit main menu
350         while (begin < 1 || begin>2)
351         {//input validation
352             cout << "Input the correct value.\n";
353             cout << "Options:";
354             cin >> begin;
```

```
355         }
356         system("CLS");//clearing command prompt
357     }
358     //calling function which will write all processed data into a file
359     output(ob1, count);
360     system("CLS");//clearing command prompt
361     cout << "\n\nEnd of program.\nThank you for using.\n";//program ends
362     system("PAUSE");//pausing command prompt
363     return 0;//return value in main is 0
364 }
365
366
```