Ex1:

Before the semester is opening, the school will hold a health examination for every freshmen to check their body health. And doctors will analyze the data to know the student's health condition. Please design a program to help the doctors analyze easilier, the data will include student's name, sex, height, weight, blood pressure and blood lipids (血脂) from the file "patients_data.txt", and you need to store the information in a structure array, and according the input from keyboard input to print out the patients' informations.

The structure contains a string and a boolean for sex (True is female, False is male), a floating point array with the size of 4 for other informations. The program should be able to do the following:

Input an integer, which is the size of the array.

Read the information from the file (same sequence as above).

Input an integer being 0, 1, 2, which represents choosing male, female, or all, respectively.

Input an integer being 0, 1, 2, or 3, which represents choosing height, weight, blood pressure, or blood lipids, respectively.

Input two numbers, find the patients with the chosen attribute between two input numbers (lower bound first, and the range without boundary), and print their names and its attribute.

```
please input the size of data.
4
please input which sex we want to select.
1
please input which attribute we want to choose.
0
please input the range of concern.
150 160
Maria_Curie 1 155.600000 40.300000 90.700000 75.300000
```

```
please input the size of data.
8
please input which sex we want to select.
2
please input which attribute we want to choose.
0
please input the range of concern.
150 160
Maria_Curie 1 155.600000 40.300000 90.700000 75.300000
Jolin_Tsai 1 158.900000 41.300000 84.600000 91.600000
```

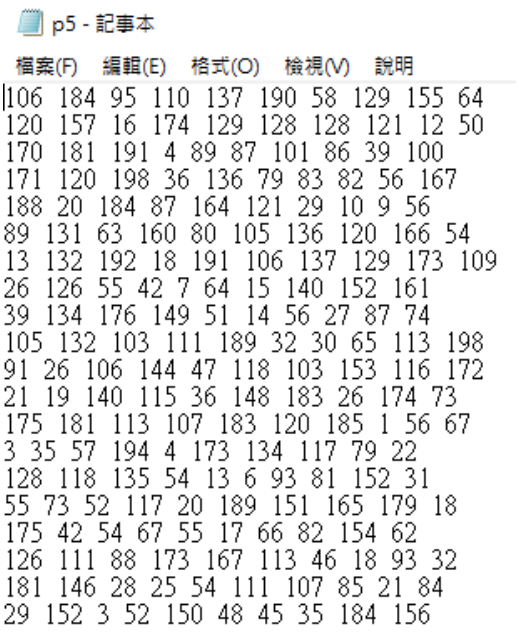
EX2:

You are given a sequence$\{a_k\}_1^n$ consisting of integers from 1 to n.
(You may store it as an integer array from index 0 to n-1.)
The sequence may contain duplicates (i.e. some elements can be equal).
Find the number of tuples of 3 elements such that the maximum number in the tuple differs from the minimum by no more than 2.
Formally, you need to find the number of triples of indices i<j<z such that

$$\max(a_i, a_j, a_z) - \min(a_i, a_j, a_z) \leq 2$$

For example, if n=4 and a=[1,2,4,3], then there are two such triples (i=1,j=2,z=4 and i=2,j=3,z=4). If n=4 and a=[1,1,1,1], then all four possible triples are suitable. Moreover, if n=10 and a=[5, 6, 1, 3, 2, 9, 8, 1, 2, 4], then there are 15 such triples.

Input : You need to read 200 integers from file “p5.txt”
Note that you may try the example above to debug.



Output : The number of Close Tuples