Registration Part:

Firstly, we use user interaction method to complete information data collected. We use three txt files to store each personal information while personal address represented the nearest hospital considering their location in three hospitals. The information includes Name, ID, profession, age, risk status. Then we restore this information into a class named patient in a queue with the maxsize 20.

Queueing and assignment of appointments Part:

Then we create a Fibonacci heap (Min-Heap) to find the person with the highest priority. We design a class named FibNode, which inherits the parent class, patient and has its own field to store its Fibonacci characteristic. In our measurement of priority, the risk status will be considered first (i.e., The low and zero risk is the first, then is the middle risk, finally is the high risk, the detailed method is to set middle risk patients supposed to 30, and priority of middle risk’s will never lower than lower risk’s, then set the high risks to the final) then the profession, age, timestamp factors are considered sequentially. If the patient wants to withdraw, we will remove it from the Fibonacci heap and record its name in a blacklist. When we insert the patient into Fibonacci heap, we will firstly check whether he is in the backlist. If it is true, setting his suppose filed to 15 days

Appointment processing Part:

Then we assume the several locations with a limited daily capacity (default value is 1 for easy test) to receive the patient with the highest priority from the Fibonacci heap. We arrange the patient into the location according to their address if the location is not full. We will arrange the patient to other location when their best location choice is failed. We will not stop arranging patient until all three hospitals are full. We assume the treatment time is 0.5 days, after each 0.5 days, all people

Reporting part:

For each week, we store the patients in hospital registered list, in treatment list into two lists separately. Also, we record the last day’s patients who are still waiting in Fibonacci list into a list. Then we display all patient’s information. Then clear all the three lists.

Then we use six variations to record how many people have registered, how many of them are waiting, how many are waiting in total, how many treatment appointments have been made, the average waiting time, and the number of people who withdrew their registration after each information updated. After a month, we will display a report and clear these six variations.

Tips: There several alterable items in main function, such as for how long report one time, and the capacity of hospital and for how many days the middle patient must wait.