

## Homework 5 Report

Instructor: Doç.Dr. Erchan Aptoula

Name: Zeynep Nazire Yüksel

Student Id: 161044068

First, I read the file according to florist and client number. I wrote two functions for these findFloristNum and findClientNum. For the florists and clients pointers that I created globally, I allocated according to the number of florists and clients. Then I went back to the beginning of the file and filled in the client and florists arrays according to the file format. I did this stuffing in the readFlorists and readClients functions. After clients are placed on the array, each client is sent to the findFloristToOrder function to find out the total order of each florist. Since the second parameter of the function is 1, it is only found which florist the client belongs to, and the total order number of that florist increases by one. For each florist thread to be used in threads, a mutex and conditional variable are created and init. Then the thread is created up to the number of florists. Then each order is sent one by one to the request queue of the florist to which it belongs. When clients are finished, main thread florist waits for threads to finish orders with a different variable condition (signal variable). Every florist looks at the queue if it's empty and there's still a future order waiting for the main thread order to arrive. After the order arrives, he prepares the order. When the total order is the number of clients, the signal is sent to the main thread and the main continues where it left off. The Main thread sends a signal to each of the dormant florist threads to wake them up, and the florists close their store. Main thread joins florist threads and collects return values from threads. Then it creates the sale statistic with these values. Finally, destroy and free operations are done and the program ends.

## INPUTS-OUTPUTS

Output for data.dat

```
gcc -c program.c
gcc -Wall -Wextra -pedantic program.c -o program -pthread
zeynep@zeynep-VirtualBox:~/Desktop$ ./program -l data.dat
Florist application initializing from file: data.dat
3 florists have been created
Processing requests
Florist Ayse has delivered a orchid to client4 in 132ms
Florist Murat has delivered a orchid to client1 in 135ms
Florist Ayse has delivered a orchid to client6 in 32ms
Florist Fatma has delivered a clove to client2 in 29ms
Florist Murat has delivered a daffodil to client3 in 251ms
Florist Fatma has delivered a rose to client9 in 27ms
Florist Ayse has delivered a rose to client7 in 250ms
Florist Ayse has delivered a rose to client8 in 201ms
Florist Murat has delivered a violet to client5 in 272ms
Florist Fatma has delivered a clove to client13 in 156ms
Florist Fatma has delivered a clove to client16 in 240ms
Florist Murat has delivered a orchid to client11 in 154ms
Florist Ayse has delivered a violet to client10 in 24ms
Florist Fatma has delivered a daffodil to client17 in 200ms
Florist Murat has delivered a violet to client12 in 19ms
Florist Murat has delivered a orchid to client15 in 186ms
Florist Fatma has delivered a daffodil to client18 in 28ms
Florist Ayse has delivered a orchid to client14 in 176ms
Florist Murat has delivered a orchid to client20 in 148ms
Florist Fatma has delivered a daffodil to client21 in 48ms
Florist Ayse has delivered a rose to client19 in 181ms
Florist Ayse has delivered a rose to client22 in 143ms
Florist Ayse has delivered a rose to client23 in 187ms
Florist Ayse has delivered a orchid to client24 in 160ms
All requests processed.
Fatma closing shop.
Ayse closing shop.
Murat closing shop.
Sale statistics for today:
-----
Florist      # of sales      Total time
-----
Ayse         19              1486ms
Fatma        7               728ms
Murat        7              1165ms
-----
zeynep@zeynep-VirtualBox:~/Desktop$
```

Output for 120,161 client and 72 florist

```

jks closing shop.
dkjcv closing shop.
djk closing shop.
acjk closing shop.
aala closing shop.
aaka closing shop.
ahs closing shop.
tjcx closing shop.
sdjkc closing shop.
sj closing shop.
ajkcs closing shop.
Sale statistics for today:
-----
Florist      # of sales    Total time
-----
Ayse         41838         5644118ms
Fatmaa       29161         3942898ms
Murat        29162         4082006ms
a            0             0ms
aa          0             0ms
aaa         0             0ms

```