Mazen Kamel
900212271

Assignment 2 Report
Workshop

Output

Output 1 (Empty Files):

```
Input number of mechanics: 3     Number of mechanics/customers to load from file/input
Input number of customers: 4
Mechanic #1:
Input mechanic's name: Ayman
Input mechanic's Id: 1
Mechanic #2:                     Inputting mechanics (assuming file is found empty)
Input mechanic's name: Khalid
Input mechanic's Id: 13
Mechanic #3:
Input mechanic's name: Mai
Input mechanic's Id: 7
Customer #1:
Input customer's name: Ahmed
Input customer's appointment hour: 1
Input customer's appointment minute: 00
Customer #2:
Input customer's name: Sara
Input customer's appointment hour: 4
Input customer's appointment minute: 00
Customer #3:                     Inputting customers (assuming file is found empty)
Input customer's name: Kareem
Input customer's appointment hour: 3
Input customer's appointment minute: 00
Customer #4:
Input customer's name: Mohammed
Input customer's appointment hour: 1
Input customer's appointment minute: 00
Customer Ahmed is assigned to mechanic Ayman at 1:00
Customer Mohammed is assigned to mechanic Khalid at 1:00
Customer Kareem is assigned to mechanic Mai at 3:00     Sorted Output of scheduled/processed customers
Customer Sara is assigned to mechanic Khalid at 4:00

                                 Assignment 2\ConsoleApplication\x64\Debug\ConsoleApplication.exe (process 21908) exited with code 0.
Press any key to close this window . . .
```

Output 2 (Mechanics File Filled):

```
Input number of mechanics: 3     Number of mechanics/customer to load from file/input
Input number of customers: 4                                                                    No Mechanics input
Customer #1:                                                                                      (Filled file)
Input customer's name: Ahmed
Input customer's appointment hour: 1
Input customer's appointment minute: 00
Customer #2:
Input customer's name: Sara
Input customer's appointment hour: 4
Input customer's appointment minute: 00
Customer #3:                     Inputting customers (assuming file is found empty)
Input customer's name: Kareem
Input customer's appointment hour: 3
Input customer's appointment minute: 00
Customer #4:
Input customer's name: Mohammed
Input customer's appointment hour: 1
Input customer's appointment minute: 00
Customer Ahmed is assigned to mechanic Ayman at 1:00
Customer Mohammed is assigned to mechanic Khalid at 1:00
Customer Kareem is assigned to mechanic Mai at 3:00     Sorted output of scheduled/processed customers
Customer Sara is assigned to mechanic Khalid at 4:00

                                 Assignments\Assignment 2\ConsoleApplication\x64\Debug\ConsoleApplication.e
xe (process 24180) exited with code 0.
Press any key to close this window . . .
```

Mazen Kamel
900212271

Output 3 (Mechanics and Customers Files Filled):

```
Input number of mechanics: 3      Number of mechanics/customers to load from file/input
Input number of customers: 4
No empty slots for customer Mohammed at 1:00
Customer Ahmed is assigned to mechanic Mai at 1:00      Sorted output of scheduled/processed customers
Customer Kareem is assigned to mechanic Khalid at 3:00
Customer Sara is assigned to mechanic Khalid at 4:00

                                    Assignments\Assignment 2\ConsoleApplication\x64\Debug\ConsoleApplication.e
xe (process 24040) exited with code 0.
Press any key to close this window . . ._

          No mechanics or customers input (both files filled)
```

Notes/Remarks

1. I may have deviated a little bit from the exact assignment requirement but it was for the purpose of producing better and cleaner code.
2. The data manager class functions (load_mechanics_from_file and load_customers_from_file) are very horribly done but they do work. Each different mechanic/customer is separated by a '#' and each data count (relative line number) corresponds to a specific data variable. Minutes and Hours were done using even and odd number of line and the counter for the mechanic was ignored since it is already incremented when adding the read appointments. Those 2 functions are extremely fragile.
3. At some parts, the customers queue was converted into an array for sorting purposes only and was then converted back into a queue, since the data was needed multiple times to sort it, I had to use a different data type.
4. workshop::process_customers goes through all the customers, checks if their appointment is available.
   a. If available, the mechanic adds the appointment, the customer sets the mechanic's id, the queue pops the customer and pushes it back in (in order to access the next customer).
   b. If not available then the loop continues to the next mechanic till an available one is found.
   c. If non are available, then the customer gets rejected, a message gets displayed, and the customer is popped.

Mazen Kamel
900212271

5. Extensive efforts were made to ensure that there is no memory leaks, I don't know if that was required or not but it felt like the right thing. There should be no memory leaks in this pogram.