Istanbul Technical University
Faculty of Computer and Informatics
Computer Engineering Department

BLG 233E
Data Structures and Laboratory
Homework 3
Report

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1 Used Libraries and Methods

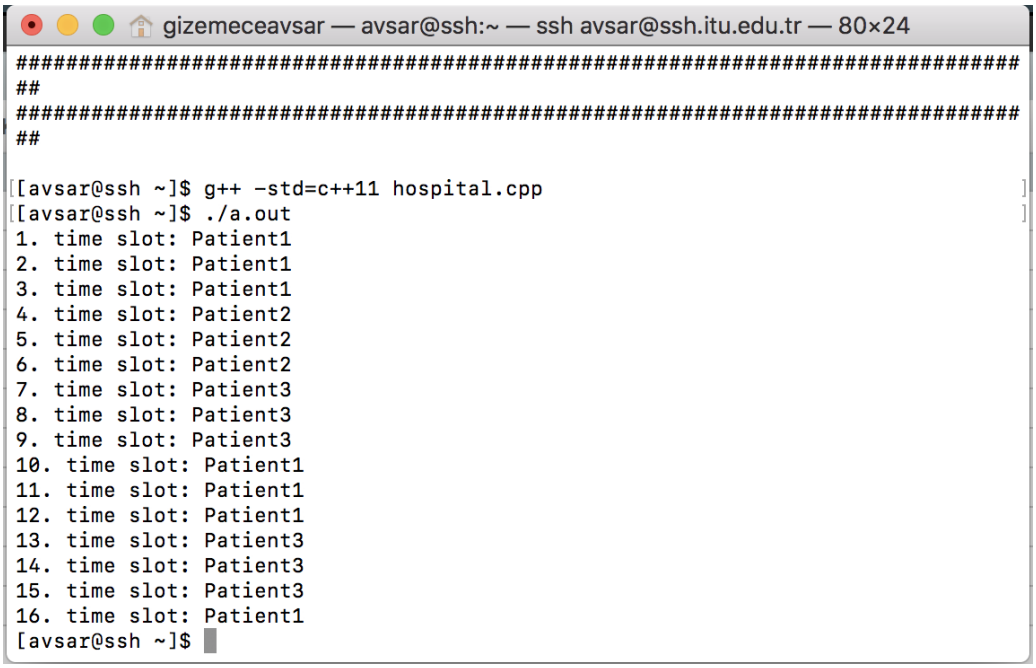
In this assignment, *streams* are used for file handling (fstream) and parsing (stringstream) due to their simplicity. Names and patient codes are kept as *strings*. The queue structure is implemented as a *linked list* since the number of patients is unknown.

Additional information is given in the code with the comments. This report also includes the pseudocode of the patient care algorithm.

2 Console Output

Figure 1: OS versions

Figure 2: Console Output



The code is compiled with C++11 standards and run. Compilation command:

```
g++ -std=c++11 hospital.cpp
```

3 Pseudocode

Algorithm 1 Pseudocode for the hospital simulation

```
while hospital is not empty do
    if there are red coded patients then
        doctor takes the first red coded patient
        time passes
        if patient's treatment is completely over then
            patient leaves
        else
            patient becomes yellow
        end if
    else if there are yellow coded patients then
        doctor takes the first yellow coded patient
        for i from 0 to minimum time of yellow code do
            time passes
            if patient's treatment is completely over then
                patient leaves
            end if
        end for
        if patient didn't leave then
            patient becomes green
        end if
    else if there are green coded patients then
        doctor takes the first green coded patient
        for i from 0 to minimum time of green code do
            time passes
            if patient's treatment is completely over then
                patient leaves
            end if
        end for
        if patient didn't leave then
            patient becomes green
        end if
    else
        time passes
    end if
end while
```