Lab 07 – 26-10-2023

Task 1: Write template class for Queue data structure. Queue is a data structure has first-in first-out. Keep queue flexible to increase size whenever required through a private member function. Write class with appropriate data members to keep position of both ends, size and dynamic array. Write following member functions:

- parameterized constructor with default value of parameters
- **enqueue** to add element at one end
- **dequeue** to remove element from other end
- **seeFirst** to return first/ earliest element without removal

Demonstrate your class with integer float and string variables separately.

Task 2: Create class Patient with data members:

- turn (use static member to keep sequence)
- time (time required by the patient)

Write following member functions:

- constructor having single parameter with default value
- overload << operator to display object in single line

Using Queue class simulate 6 patients turn by turn, if a patient requires more than 5 minutes, put the patient back of the queue with remaining time. For example, if patient needs 8 minutes, give 2 turns. 5 minutes turn first time and 3 minutes turn after other patients.

Sample Output:

```
Queue: 4 3 6 2 8 4
Patient 1 in service
Patient 2 in service
Patient 3 in service for 5 minutes
Patient 4 in service
Patient 5 in service for 5 minutes
Patient 6 in service
Patient 3 in service
Patient 5 in service
```