Green University of Bangladesh
Department of Computer Science and Engineering (CSE)
Faculty of Sciences and Engineering
Semester: Fall, Year: 2022, B.Sc. in CSE

LAB REPORT NO - 2

Course Title: Data Structured Lab
Course Code: CSE 106 Section: D4

Lab Experiment Name: Implementation of Queue, using arrays with a user-defined function

Student Details

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Lab Date : 7 November 2022
Submission Date : 14 November 2022
Course Teacher's Name : S.M. Rashidul Hasan Nijhum

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Lab Report Status

Marks: .....
Signature: .....
Comments: .....
Date: .....

1. TITLE OF THE LAB EXPERIMENT

Implementation of Queue, using arrays with a user-defined function

2. OBJECTIVES/AIM [1]

1) Used multiple functions.
2) In the enqueue and dequeue functions the logic was implemented.
3) Clearing the screen after completing a particular operation.

3. IMPLEMENTATION [2]

```cpp
// Written by: Md. Maruf Sarker
// Platform: Arch Linux
// Problem: Implementation of Queue, using arrays with a user defined function
// Language: cpp / go / c / python
// Date: 2022-11-10

#include <bits/stdc++.h>
using namespace std;



#define endl "\n"
#define pb push_back
#define space = " "
#define pi 3.14159265358979323846
#define mod 1000000007
#define ll long long
#define ull unsigned long long
#define ld long double

int Queue[100], front = -1, rear = -1, n = 100;
```

```
void enqueue(int x){
   system("clear");
   if (rear == n - 1){
       cout << "Queue is full" << endl;
       return;
   }
   if (front == -1 && rear == -1) front = rear = 0;
   else rear++;

   Queue[rear] = x;
}

void dequeue(){
   system("clear");
   if (front == -1 || front > rear){
       cout << "Queue is empty" << endl;
       return;
   }
   else front++;
}

void display(){
   system("clear");
   if (front == -1 || front > rear){
       cout << "Queue is empty" << endl;
       return;
   }
   for (int i = front; i <= rear; i++) cout << Queue[i] << " ";
   cout << endl;
}
```

```
int main(){
   int choice, x;
   do{
         cout << "Implementation of Queue, \nusing arrays with a
user defined function" << endl;
       cout << "----------------------------\n";
       cout << "1. Enqueue" << endl;
       cout << "2. Dequeue" << endl;
       cout << "3. Display" << endl;
       cout << "4. Exit" << endl;
       cout << "Enter your choice: ";
       cin >> choice;
       switch (choice){
           case 1:
               cout << "Enter the element to be inserted: ";
               cin >> x;
               enqueue(x);
               break;
           case 2:
               dequeue();
               break;
           case 3:
               display();
               break;
           case 4:
               cout << "Exit" << endl;
               break;
           default:
               cout << "Invalid choice" << endl;
       }
   } while (choice != 4);
   return 0;
}
```

4. TEST RESULT / OUTPUT [2]

```
[maruf@mms initial]$ run
Implementation of Queue,
using arrays with a user defined function
---------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 1
Enter the element to be inserted: 5
```

```
Implementation of Queue,
using arrays with a user defined function
---------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 1
Enter the element to be inserted: 6
```

```
Implementation of Queue,
using arrays with a user defined function
---------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 3
```

```
5 6
Implementation of Queue,
using arrays with a user defined function
---------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice:
```

```
5 6
Implementation of Queue,
using arrays with a user defined function
---------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 2
```

```
Implementation of Queue,
using arrays with a user defined function
---------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 3
```

```
6
Implementation of Queue,
using arrays with a user defined function
--------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice:
```

```
Implementation of Queue,
using arrays with a user defined function
--------------------------
1. Enqueue
2. Dequeue
3. Display
4. Exit
Enter your choice: 4
Exit
[maruf@mms initial]$
```

5. ANALYSIS AND DISCUSSION [2]

1) Take a lot of time by debugging the logic.
2) Used 3 functions. One for enqueue, one for dequeue, and the last one for printing its current children.

6. SUMMARY:

This project helps me how queue and dequeue operation works and how to implement the logic.