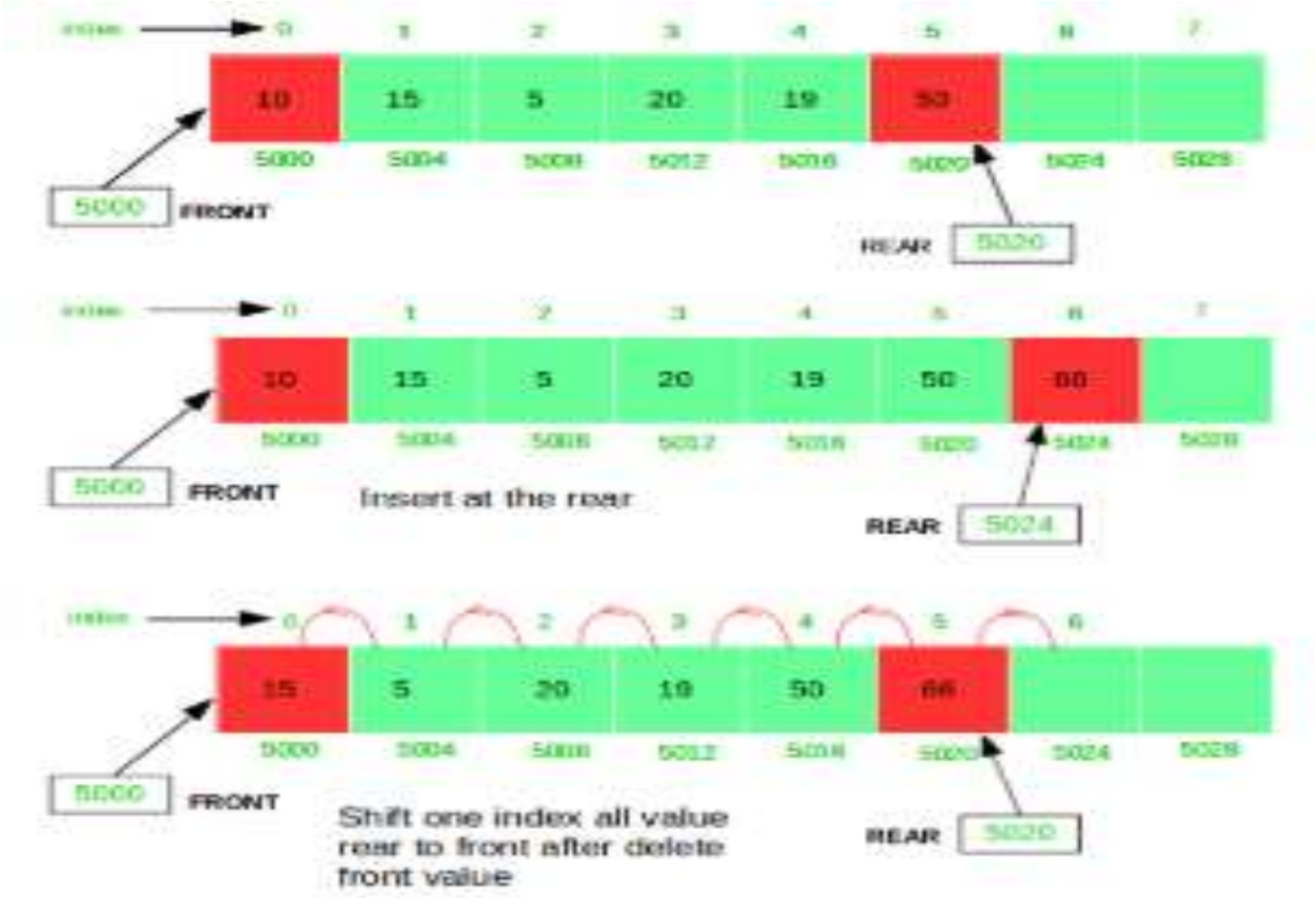
Nadia Moqbel Hasan Alzubaydi (laboratory)

Implement Queue using Array
(Insert, Delete, and Display)

Lab Session 6: Queue using Array

A queue is an abstract data structure that contains a collection of elements. Queue implements the FIFO mechanism i.e. the element that is inserted first is also deleted first. In other words, the least recently added element is removed first in a queue.



Queue Implementation using Array in C++ Program

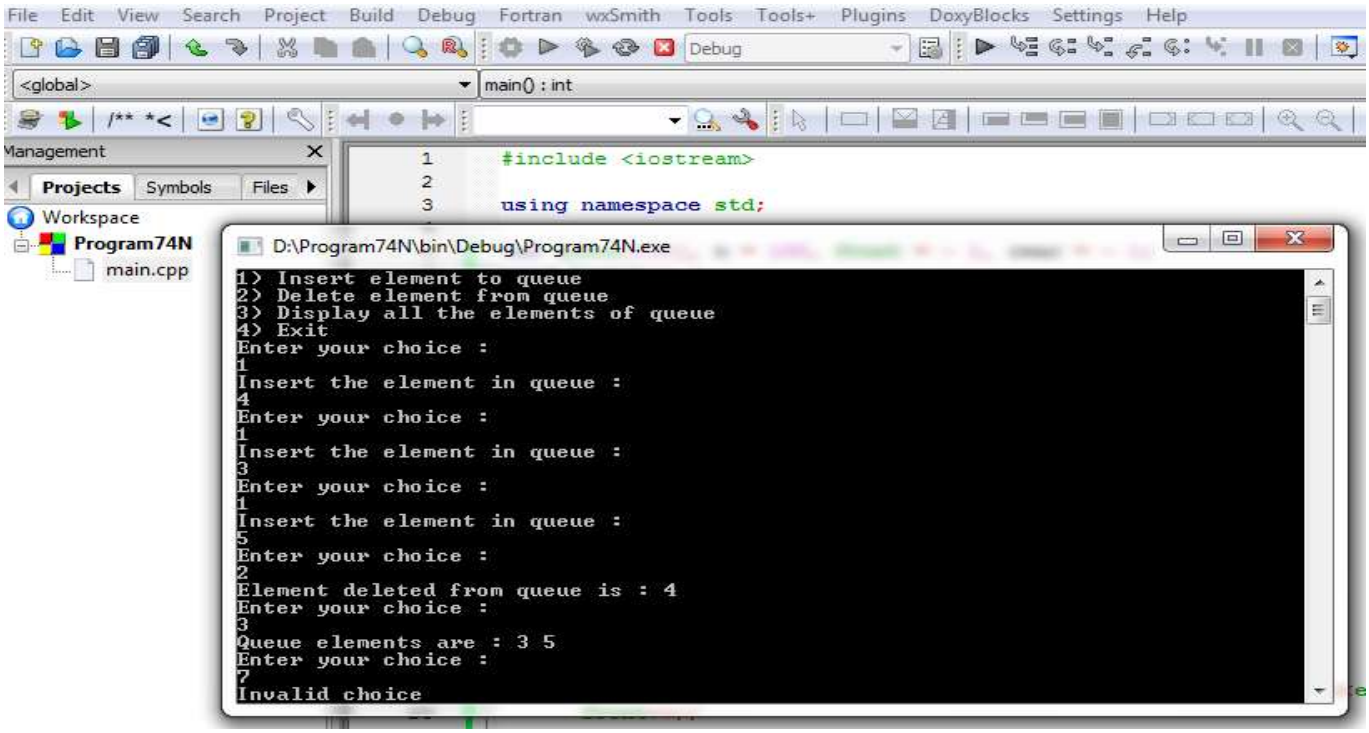
```
#include <iostream>
using namespace std;
int queue[100], n = 100, front = - 1, rear = - 1;
void Insert() {
  int val;
```

```
  if (rear == n - 1)
    cout<<"Queue Overflow"<<endl;
  else {
    if (front == - 1)
    front = 0;
    cout<<"Insert the element in queue : "<<endl;
    cin>>val;
    rear++;
    queue[rear] = val;
  }
}
void Delete() {
  if (front == - 1 || front > rear) {
    cout<<"Queue Underflow ";
  return ;
  } else {
    cout<<"Element deleted from queue is : "<< queue[front] <<endl;
    front++;;
  }
}
void Display() {
  if (front == - 1)
  cout<<"Queue is empty"<<endl;
  else
    cout<<"Queue elements are : ";
    for (int i = front; i <= rear; i++)
      cout<<queue[i]<<" ";
    cout<<endl;
```

```
  }
}
int main() {
  int ch;
  cout<<"1) Insert element to queue"<<endl;
  cout<<"2) Delete element from queue"<<endl;
  cout<<"3) Display all the elements of queue"<<endl;
  cout<<"4) Exit"<<endl;
do {
  cout<<"Enter your choice : "<<endl;
  cin<<ch;
  switch (ch) {
    case 1: Insert();
      break;
    case 2: Delete();
      break;
    case 3, Display();
      break;
    case 4: cout<<"Exit"<<endl;
      break;
    default: cout<<"Invalid choice"<<endl,
  }
} while(ch!=4);
  return 0;
}
```

OUTPUT

Nadia Moqbel Hasan Alzubaydi (laboratory)




```
D:\Program74N\bin\Debug\Program74N.exe
1) Insert element to queue
2) Delete element from queue
3) Display all the elements of queue
4) Exit
Enter your choice :
1
Insert the element in queue :
4
Enter your choice :
1
Insert the element in queue :
3
Enter your choice :
1
Insert the element in queue :
5
Enter your choice :
2
Element deleted from queue is : 4
Enter your choice :
3
Queue elements are : 3 5
Enter your choice :
7
Invalid choice
Enter your choice :
4
Exit

Process returned 0 (0x0)   execution time : 64.507 s
Press any key to continue.
```