Instructions: Please read carefully

- Please rename this file as only your ID number **(e.g. 18-*****-1.doc or 18-*****-1.pdf).**
- Submit the file within the deadline in the Portal Lab Performance section labeled **Lab task 4.** **If you cannot complete the full task, do not worry. Just upload what you have completed.**

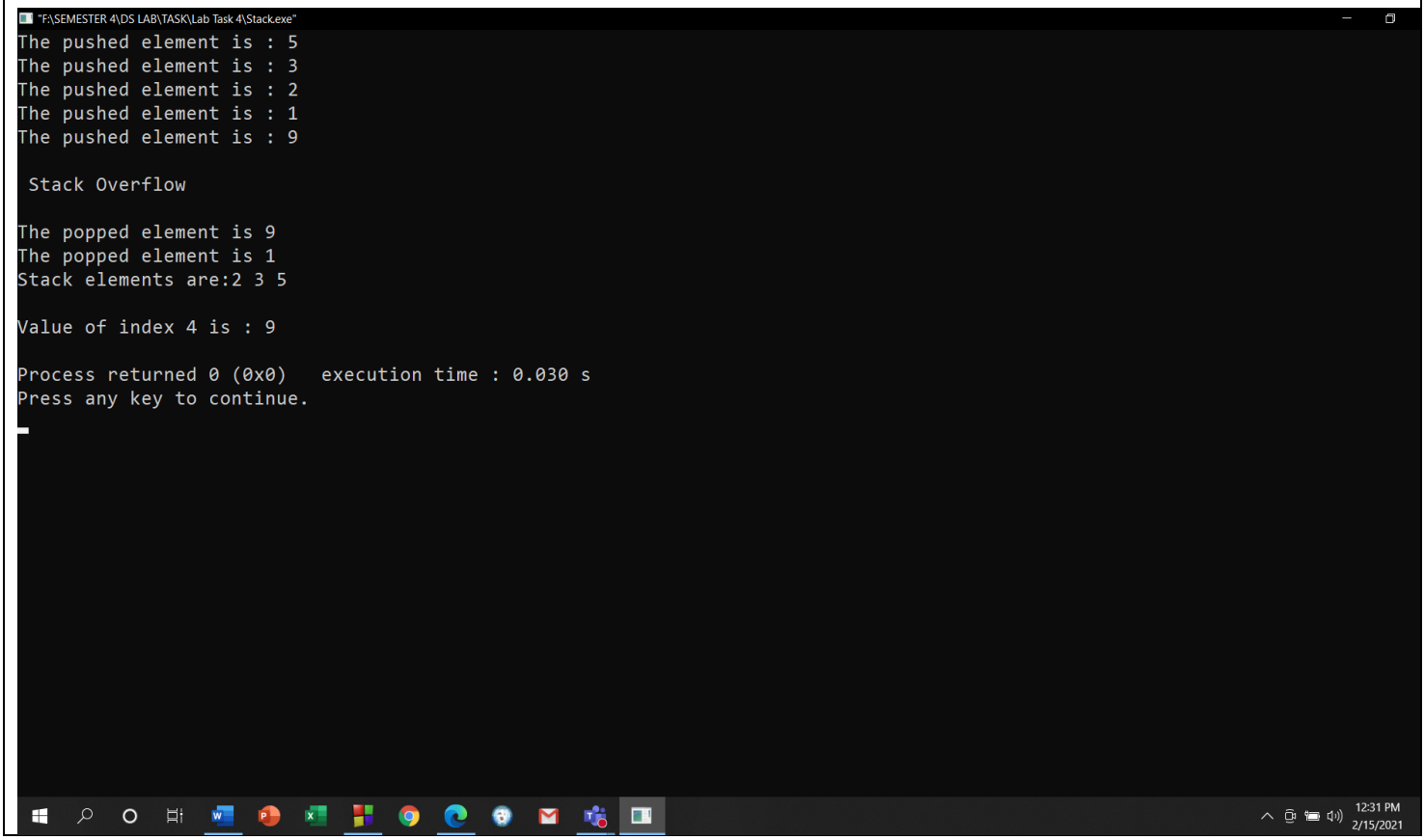
1. Write C++ code to implement a stack and its operations.

Your code here:

```
#include <iostream>
using namespace std;
int stack[5], n = 5, toa = -1;
void push(int a) {
  if(toa >= n-1)
    cout<<"\n Stack Overflow\n"<<endl;
  else {
    toa++;
    stack[toa] = a;
    cout<<"The pushed element is : "<<stack[toa]<<endl;
  }
}

void pop() {
  if(toa <= -1)
    cout<<"\nStack Underflow\n"<<endl;
  else {
    cout<<"The popped element is "<< stack[toa] <<endl;
    toa--;
  }
}

void display() {
  if(toa>= 0) {
    cout<<"Stack elements are:";
    for(int i = toa; i>= 0; i--)
      cout<<stack[i]<<" ";
    cout<<endl;
  } else
    cout<<"Stack is empty";
}
int main() {
  int  a;

        push(5);
        push(3);
        push(2);
        push(1);
        push(9);
        push(7);

        pop();
        pop();
```

```
        display();

        cout<<endl<<"Value of index 4 is : "<<stack[4]<<endl;

  return 0;
}
```

Your whole Screenshot here: (Console Output):



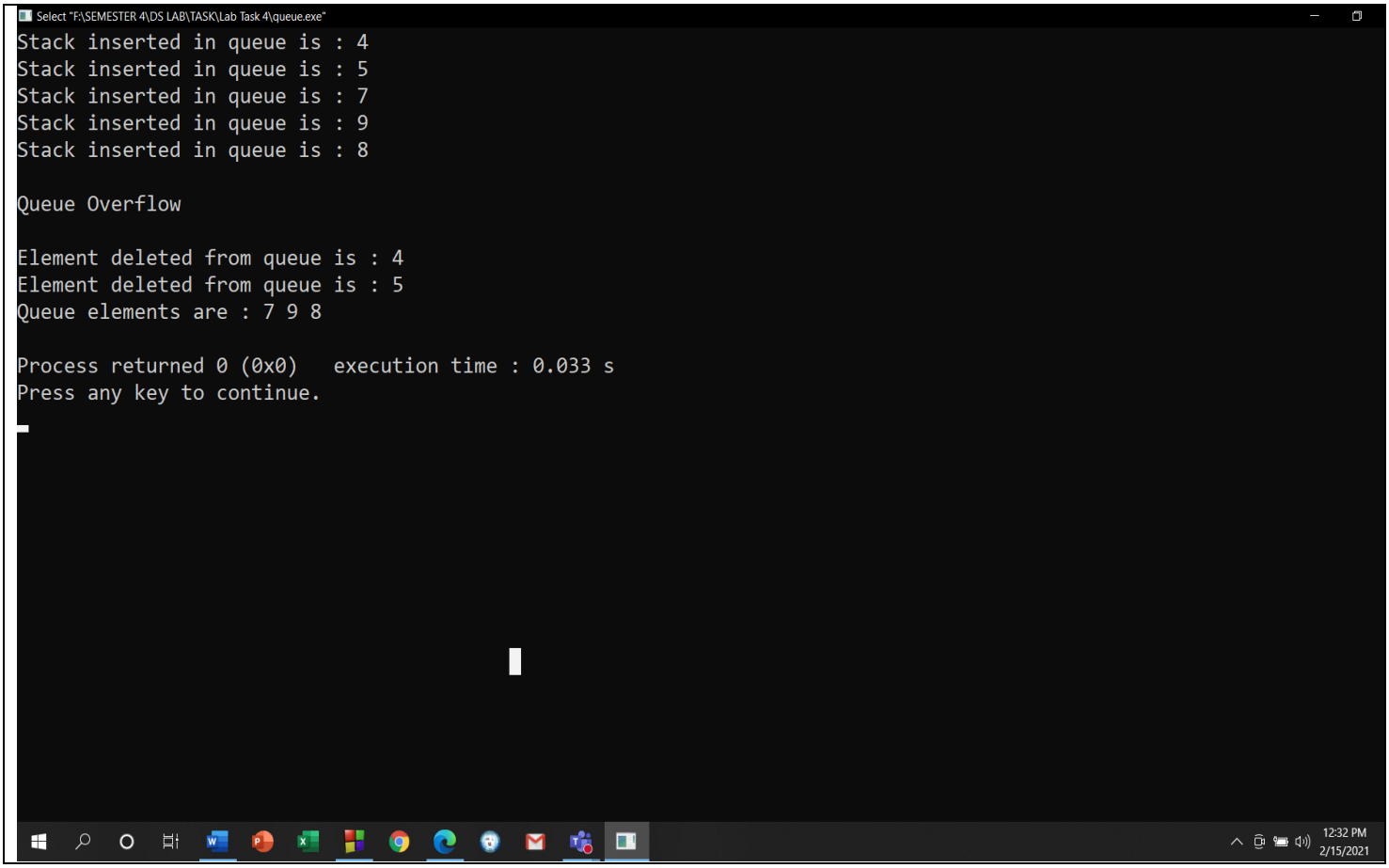
2. Write C++ code to implement a queue and its operations.

Your code here:

```
#include <iostream>
using namespace std;
int queue[5], n = 5, f = - 1, r = - 1;

void enqueue(int a) {
  if(r >= n-1)
    cout<<"\nQueue Overflow\n"<<endl;
  else {
     f=0;
    r++;
    queue[r] = a;
    cout<<"Stack inserted in queue is : "<<queue[r]<<endl;
  }
}
void dequeue() {
```

```
  if (f == - 1 || f > r) {
    cout<<"Queue Underflow ";
    return ;
  } else {
    cout<<"Element deleted from queue is : "<< queue[f] <<endl;
    f++;;
  }
}
void Display() {
  if (f == - 1)
  cout<<"Queue is empty"<<endl;
  else {
    cout<<"Queue elements are : ";
    for (int i = f; i <= r; i++)
    cout<<queue[i]<<" ";
      cout<<endl;
  }
}
int main() {
   int a;

        enqueue(4);
         enqueue(5);
         enqueue(7);
         enqueue(9);
         enqueue(8);
         enqueue(2);

       dequeue();
       dequeue();
      Display();
  return 0;
}
```

Your whole Screenshot here: (Console Output):


Select "F:\SEMESTER 4\DS LAB\TASK\Lab Task 4\queue.exe"
Stack inserted in queue is : 4
Stack inserted in queue is : 5
Stack inserted in queue is : 7
Stack inserted in queue is : 9
Stack inserted in queue is : 8
Queue Overflow
Element deleted from queue is : 4
Element deleted from queue is : 5
Queue elements are : 7 9 8
Process returned 0 (0x0) execution time : 0.033 s
Press any key to continue.
12:32 PM
2/15/2021