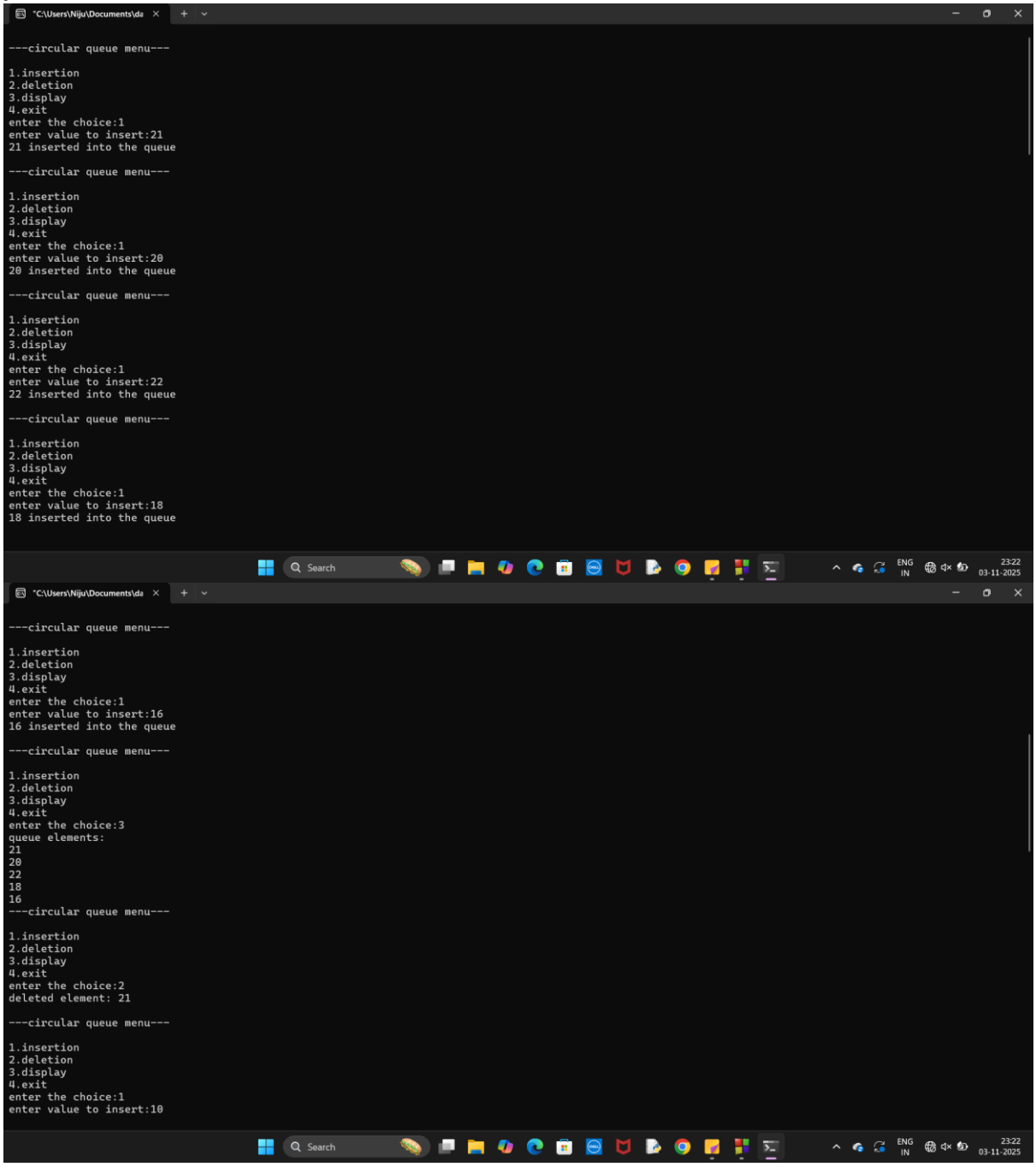
Write a program to stimulate the working of circular queue of integers using an array.
Provide the following operations: insert, delete, display.
The program should print appropriate for queue empty and queue overflow conditions.

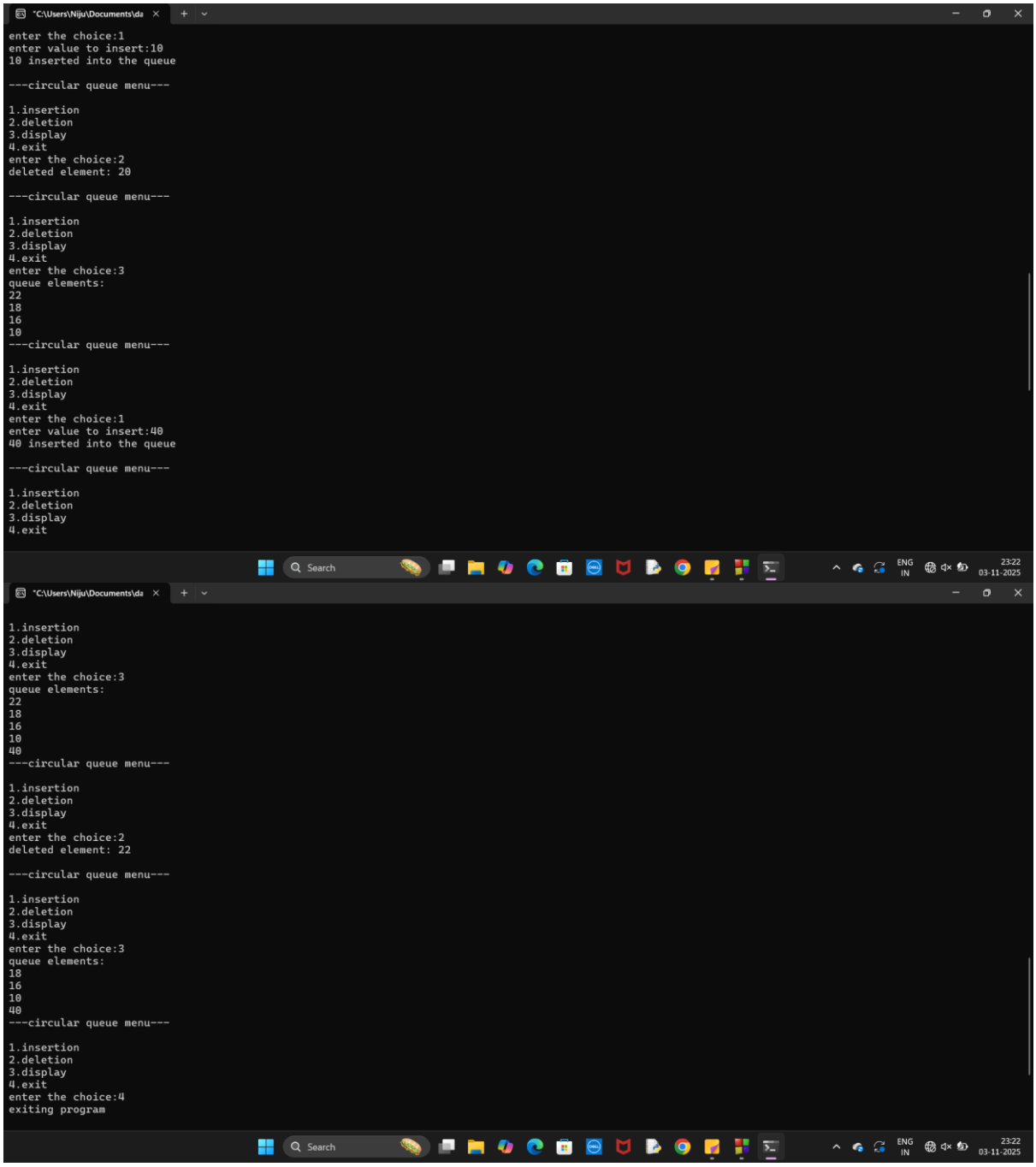
```
//operations over circular queue
#include<stdio.h>
#include<stdlib.h>
#define max 5
int queue[max];
int front=-1,rear=-1;

void insertion(int value)
{
  if((front==0&&rear==max-1)||(front==(rear+1)%max))
  {
    printf("queue overflow.cannot insert %d\n",value);
  }
  else
  {
    if(front==-1)
    {
      front=0;
      rear=0;
    }
    else{
      rear=(rear+1)%max;
    }
  queue[rear]=value;
  printf("%d inserted into the queue\n",value);
  }
}
void deletion()
{
  if(front==-1)
  {
    printf("queue underflow. queue is empty\n");
  }
  else
  {
    printf("deleted element: %d\n",queue[front]);
    if(front==rear)
    {
      front=-1;
      rear=-1;
    }
    else
    {
      front=(front+1)%max;
    }
```

```
    }
}
void display()
{
    if(front==-1)
    {
        printf("queue is empty\n");
    }
    else
    {
        printf("queue elements:");
        int i=front;
        while(1)
        {
            printf("\n%d",queue[i]);
            if(i==rear)
                break;
            i=(i+1)%max;
        }
    }
}
int main()
{
    int choice,value;
    while(1)
    {
        printf("\n---circular queue menu---\n");
        printf("\n1.insertion \n2.deletion \n3.display \n4.exit \n");
        printf("enter the choice:");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:
                printf("enter value to insert:");
                scanf("%d",&value);
                insertion(value);
            break;
            case 2:
                deletion();
                break;
            case 3:
                display();
                break;
            case 4:
                printf("exiting program");
                exit(0);
            default:
```

```
            printf("invalid choice. please tyr again\n");
        }
    }
    return 0;
}
```




"C:\Users\Niju\Documents\da
enter the choice:1
enter value to insert:10
10 inserted into the queue
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:2
deleted element: 20
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
22
18
16
10
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:1
enter value to insert:40
40 inserted into the queue
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
Search
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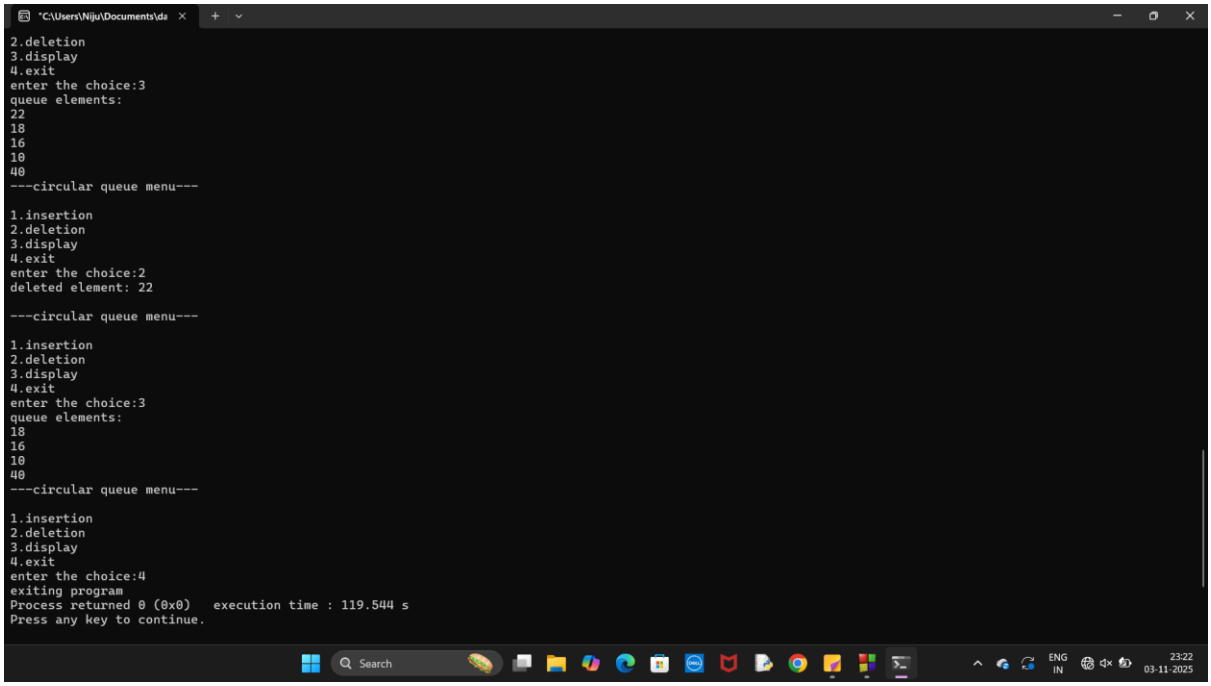
"C:\Users\Niju\Documents\da
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
22
18
16
10
40
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:2
deleted element: 22
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
18
16
10
40
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:4
exiting program
Search
ENG
IN
23:22
03-11-2025


C:\Users\Nijju\Documents\da
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
22
18
16
10
40
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:2
deleted element: 22
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
18
16
10
40
---circular queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:4
exiting program
Process returned 0 (0x0) execution time : 119.544 s
Press any key to continue.
Search
ENG
IN
23:22
03-11-2025