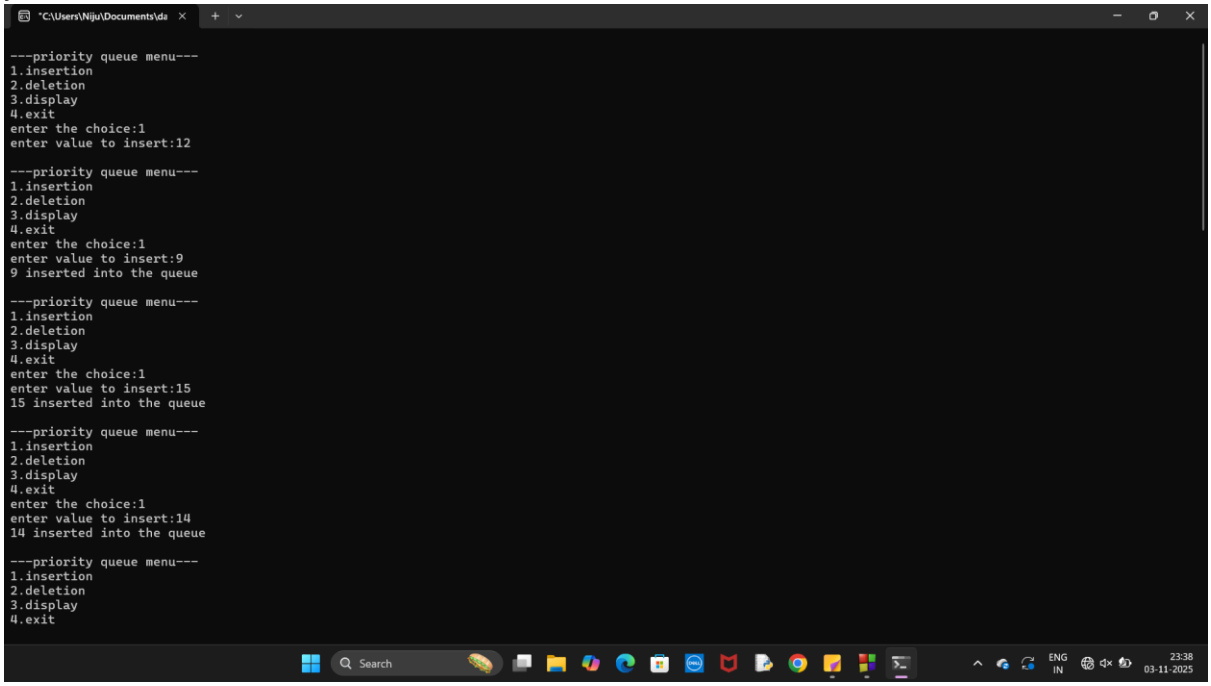
Write a program to stimulate the working of priority queue of integers using an array.
Provide the following operations: insert, delete, display.
The program should print appropriate for queue empty and queue overflow conditions.

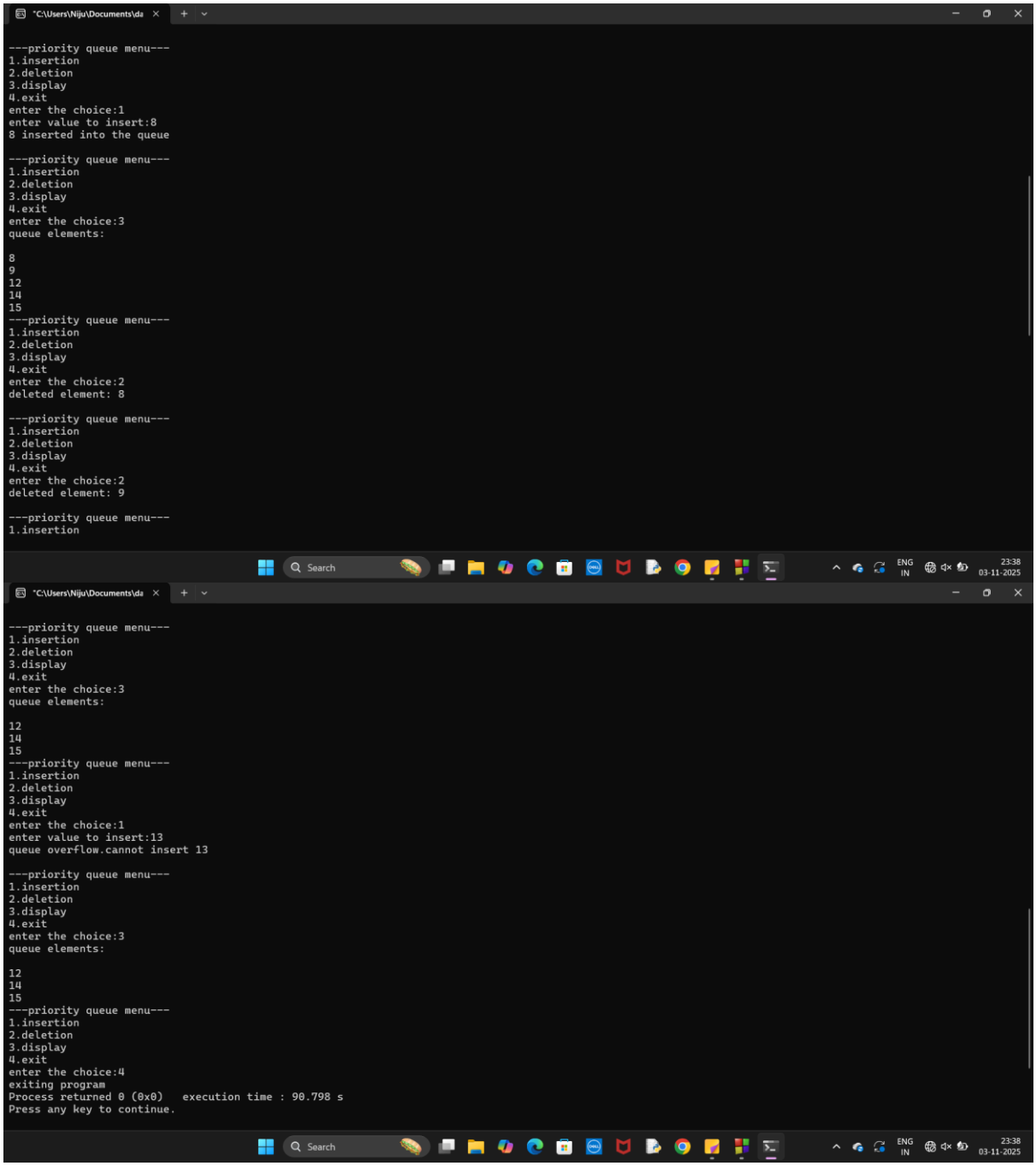
```
//operations over priority queue(ascending order)
#include<stdio.h>
#include<stdlib.h>
#define max 5
int queue[max];
int front=-1,rear=-1;

void insertion(int item)
{
   if(rear==max-1)
   {
      printf("queue overflow.cannot insert %d\n",item);
   }
   else if(front==-1)
      {
         front=0;
         rear=0;
         queue[rear]=item;
      }
   else
      {
         int j=rear;
         while(j>=0&&item<queue[j])
         {
            queue[j+1]=queue[j];
            j--;
         }
       queue[j+1]=item;
       rear=rear+1;
       printf("%d inserted into the queue\n",queue[j+1]);
      }
}
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;
    }
  }
}
void display()
{
  if(front==-1)
  {
    printf("queue is empty\n");
  }
  else
  {
    printf("queue elements:\n");
    for(int i=front;i<=rear;i++)
    {
      printf("\n%d ",queue[i]);
    }
  }
}
int main()
{
  int choice,value;
  while(1)
  {
    printf("\n---priority queue menu---");
    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 try again\n");
        }
    }
    return 0;
}
```




"C:\Users\Niju\Documents\da
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:1
enter value to insert:8
8 inserted into the queue
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
8
9
12
14
15
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:2
deleted element: 8
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:2
deleted element: 9
---priority queue menu---
1.insertion
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"C:\Users\Niju\Documents\da
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
12
14
15
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:1
enter value to insert:13
queue overflow.cannot insert 13
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:3
queue elements:
12
14
15
---priority queue menu---
1.insertion
2.deletion
3.display
4.exit
enter the choice:4
exiting program
Process returned 0 (0x0)   execution time : 90.798 s
Press any key to continue.
Search
ENG
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23:38
03-11-2025