LINEAR QUEUE

Q 1. WAP to simulate the working of a queue of integers using an array. Provide the following operations

a) Insert

b) Delete

c) Display

The program should print appropriate messages for queue empty and queue overflow conditions.

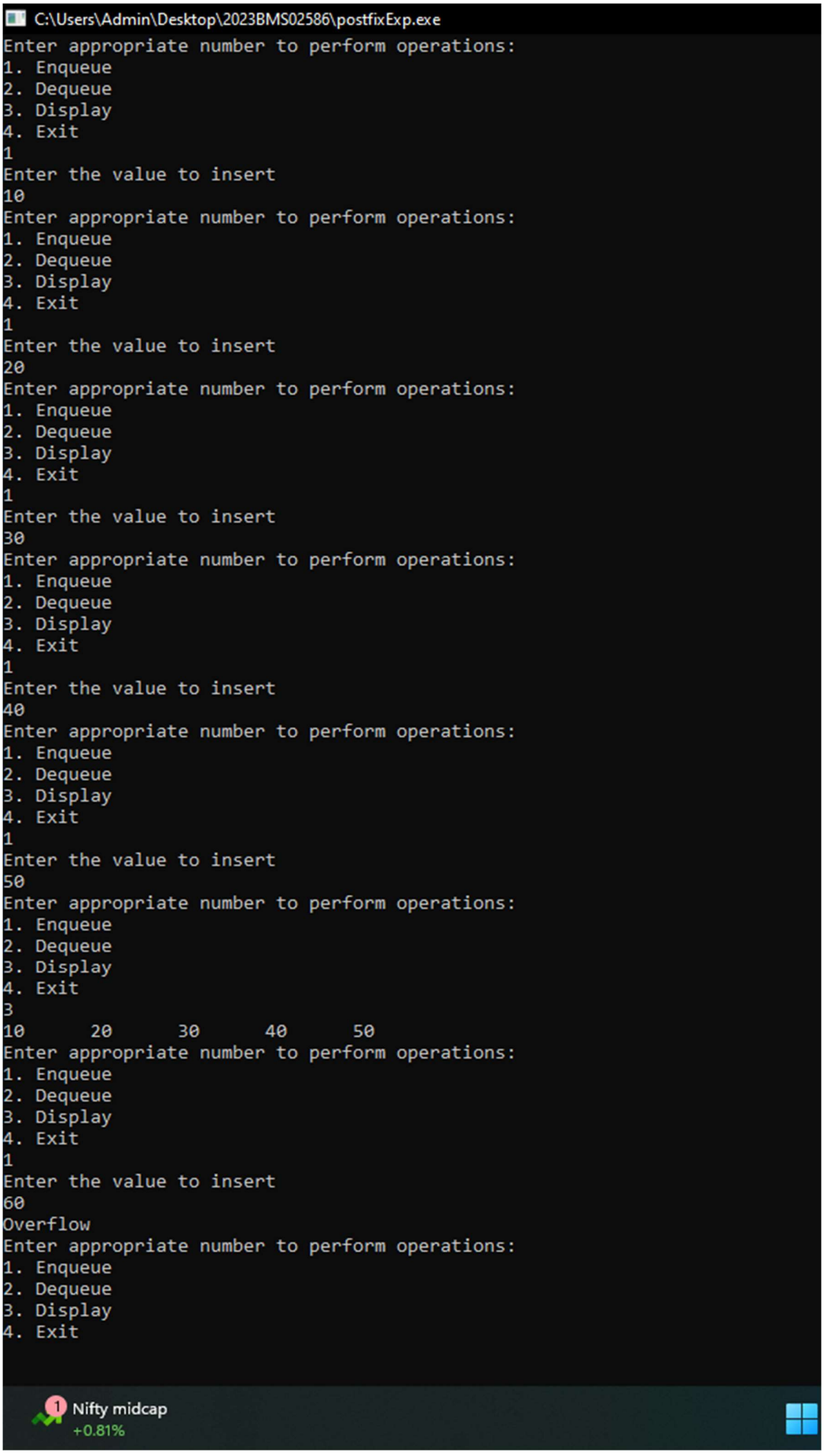
```
#include <stdio.h>
int rear = -1;
int front = -1;
int max = 5;

void Enqueue(int arr[], int *value) {
   if (rear == -1 || front == -1) {
      rear++;
      front++;
      arr[rear] = *value;
      rear++;
   } else if (rear == max) {
      printf("Overflow\n");
   } else {
      arr[rear] = *value;
      rear++;
   }
}

void Dequeue(int arr[]) {
   if (front == -1 || rear == -1) {
      printf("Underflow\n");
```

```
    } else if (front == (rear - 1)) {
        printf("Deleted element = %d\n", arr[front]);
        rear = -1;
        front = -1;
    } else {
        int temp = arr[front];
        front++;
        printf("Deleted element = %d\n", temp);
    }
}
void display(int arr[]) {
    for (front; front <rear; front++) {
        printf("%d\t", arr[front]);
    }
    printf("\n");
}

int main() {
    int choice;
    int arr[5];
    int value;

    void operations() {
        printf("Enter appropriate number to perform operations: \n1. Enqueue \n2. Dequeue \n3.
Display \n4. Exit\n");
        scanf("%d", &choice);
        switch (choice) {
            case 1:
                printf("Enter the value to insert\n");
                scanf("%d", &value);
                Enqueue(arr, &value);
```

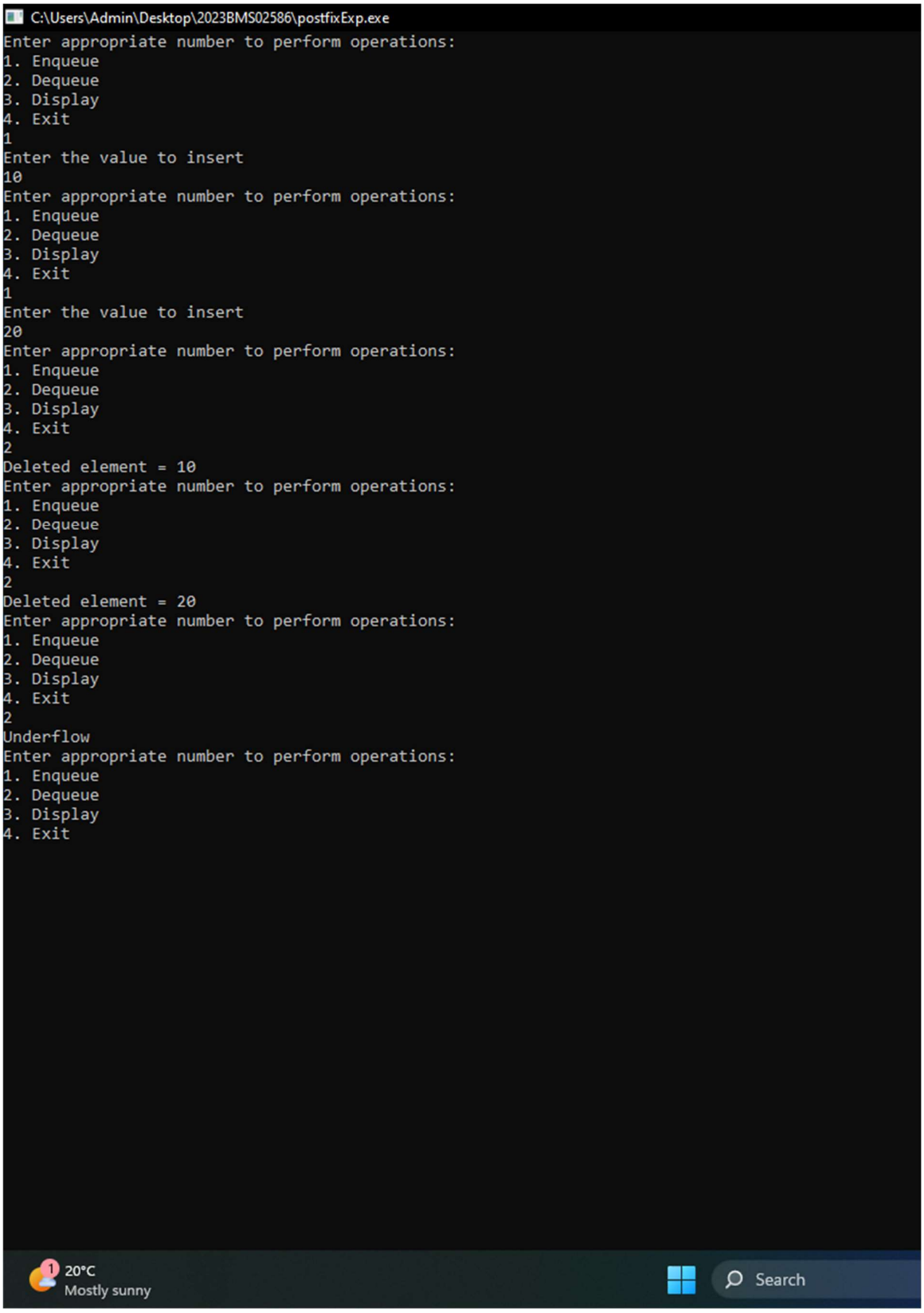
```
            operations();
            break;
        case 2:
            Dequeue(arr);
            operations();
            break;
        case 3:
            display(arr);
            operations();
            break;
        case 4:
            printf("Exited\n");
            break;
        default:
            printf("Invalid choice\n");
            operations();
            break;
      }
   }
   operations();
   return 0;
}
```

Output:

```
OVERFLOW
```


C:\Users\Admin\Desktop\2023BMS02586\postfixExp.exe
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
10
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
20
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
30
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
40
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
50
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
3
10 20 30 40 50
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
60
Overflow
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
Nifty midcap
+0.81%

UNDERFLOW :


C:\Users\Admin\Desktop\2023BMS02586\postfixExp.exe
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
10
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
1
Enter the value to insert
20
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
2
Deleted element = 10
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
2
Deleted element = 20
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
2
Underflow
Enter appropriate number to perform operations:
1. Enqueue
2. Dequeue
3. Display
4. Exit
20°C
Mostly sunny
Search