```
Options Available:
1. EnQueue
2. DeQueue
3. Display
4. Exit

---------------
Enter your choice: 2

Queue is empty, Underflow
---------------
Enter your choice: 1
Enter value to insert: 21

Value of 21 inserted in the queue.
---------------
Enter your choice: 1
Enter value to insert: 22

Value of 22 inserted in the queue.
---------------
Enter your choice: 1
Enter value to insert: 23

Value of 23 inserted in the queue.
---------------
Enter your choice: 1
Enter value to insert: 24

Value of 24 inserted in the queue.
---------------
Enter your choice: 1
Enter value to insert: 25

Value of 25 inserted in the queue.
---------------
Enter your choice: 1
Enter value to insert: 26

Queue Overflow
---------------
Enter your choice: 2

Value of 21 deleted from the queue.
---------------
Enter your choice: 1
Enter value to insert: 20

Value of 20 inserted in the queue.
---------------
Enter your choice: 3

Queue items are: 22, 23, 24, 25, 20

---------------
Enter your choice: 4
Exiting program.

Process returned 0 (0x0)   execution time : 559.996 s
Press any key to continue.
```

Lab Program 3b

Program

```
#include <stdio.h>
#define SIZE 5

int queue[SIZE];
int front = -1, rear = -1;

void enqueue(int value)
  {
  if ( (rear+1 % SIZE) == front)
    {
     printf("\n Queue Overflow");
     return;
    }
  if ( front == -1 )
    {
     front = rear = 0;
    }
  else
    {
     rear = (rear+1) % SIZE ; }
     queue[rear] = value;
  } printf("\nValue of %d inserted in the queue",
int value);
void dequeue ()
  {
   if( front = -1)
     {
      printf("Queue is Empty,
              Underflow"); }
      return; }
else
  {
   int item = queue[front];
   front = (front+1) % SIZE;
   printf("Dequeue value = %d", item);
   if(front == rear) { front = rear = -1; }
   return item;
void display
  }

void display()
  {
   if(front == -1)
     {
      printf("\n Queue is empty.");
      return;
     }
   printf("\n Queue items are :");
   int i = front;
   while (i != rear)
     {
      printf("%d, ", queue[i]);
      i = (i+1) % SIZE;
     }
   printf("%d\n", queue[rear]);
  }
int main()
  {
   int choice, value;
   printf("\n Options Available :\n");
   printf("1. EnQueue \n2. DeQueue \n
```

```
3. Display \n 4. Exit\n");

while (1)
 {
  printf("\n- - - - - - - - - - \n");
  printf("Enter your choice : ");
  scanf("%d", &choice);

 switch (choice)
  {
   case 1:
      printf("Enter value to insert :");
      scanf("%d", &value);
      enqueue(value);
      break;
   case 2:
      dequeue();
      break;
   case 3:
      display();
      break;
   case 4:
      printf("Exiting program.\n");
      return 0;
   default:
      printf("Invalid choice\n");
  }
}
```

Output

```
Enter your choice : 1
Enter value to insert : 24
Value of 24 inserted in the
Enter your choice : 3

Options Available
1. EnQueue
2. DeQueue
3. Display
4. Exit

- - - - - - - - -

Enter your choice : 2
Queue is empty, Underflow
- - - - - - - - -
Enter your choice : 1
Enter value to insert : 21
Value of 21 inserted in the queue
- - - - - - - - -
Enter your choice : 1
Enter value to insert : 22
Value of 22 inserted in the queue
- - - - - - - - -
Enter your choice : 1
Enter value to insert : 23
Value of 23 inserted in the que
- - - - - - - - -
Enter your choice : 1
Enter value to insert : 24
```

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Value of 24 inserted in the queue
- - - - - - - - -
Enter your choice : 1
Enter value to insert : 25
Value of 25 inserted in the queue
- - - - - - - - - -
Enter your choice : 1
Enter value to insert : 26
Queue Overflow
- - - - - - - - - -
Enter your choice : 3

Queue items are : 21, 22, 23, 24, 25

- - - - - - - - - -
Enter your choice : 4
Exiting program