# 3)QUEUE implementation using arrays

```
#include <stdio.h>
int queue[100], choice, front = -1, rear = -1, x, i, n;
void enqueue(void);
void dequeue(void);
void display(void);
int main() {
   front = rear = -1;
   printf("\n Enter the size of the queue[max:100]:");
   scanf("%d", &n);
   printf("\n\tQUEUE OPERATIONS USING ARRAYS");
   printf("\n\t1.ENQUEUE\n\t2.DEQUEUE\n\t3.DISPLAY\n\t4.EXIT\n");
   do {
      printf("Enter the choice:");
      scanf("%d", &choice);
      switch (choice) {
         case 1: {
            enqueue();
            break;
         }
         case 2: {
            dequeue();
            break;
         }
         case 3: {
```

```
            display();
            break;
        }
        case 4: {
            printf("\n EXIT POINT");
            break;
        }
        default: {
            printf("\n PLEASE ENTER A VALID OPTION");
        }
      }
   }
   while (choice != 4);
   return 0;
}
void enqueue() {
   if (rear == n - 1) {
      printf("\n\t QUEUE OVERFLOW\n");
   } else {
      printf("\n Enter a value to be enqueued:");
      scanf("%d", &x);
      if (front == -1)
         front = 0;
      rear++;
      queue[rear] = x;
   }
}
void dequeue() {
```

```
    if (front == -1 || front > rear) {
        printf("\n\n QUEUE IS UNDERFLOW \n");
    } else {
        printf("\n\t The dequeued value is %d\n", queue[front]);
        front++;
        if (front > rear)
            front = rear = -1;
    }
}
void display() {
    if (front == -1) {
        printf("\n The queue is empty!!\n");
    } else {
        printf("\n The elements in the queue are: \n");
        for (i = front; i <= rear; i++) {
            printf("%d ", queue[i]);
        }
        printf("\n Press next choice\n");
    }
}
```

# Output

```
Enter the size of the queue[max:100]:3
QUEUE OPERATIONS USING ARRAYS
        1. ENQUEUE
        2. DEQUEUE
        3. DISPLAY
        4. EXIT
Enter the choice:1
```

Enter a value to be enqueued:2

Enter the choice:1

Enter a value to be enqueued:4

Enter the choice:1

Enter a value to be enqueued:6

Enter the choice:1

QUEUE OVERFLOW

Enter the choice:3

The elements in the queue are:

2 4 6

Press next choice

Enter the choice:2

The dequeued value is 2

Enter the choice:2

The dequeued value is 4

Enter the choice:2

The dequeued value is 6

Enter the choice:2

QUEUE IS UNDERFLOW

Enter the choice:4

EXIT POINT