

14.10.20

Lab 3

Write a program to stimulate the working of a queue of integers using an array. Provide the following operations.

- Insert Rear
- Delete Front
- Display the contents of queue

The program should print the appropriate message for a queue empty and queue full condition.

```
#include <stdio.h>
#include <conio.h>
#include <process.h>
#define QUEUE_SIZE 3
int item, front = 0, rear = -1, q[10];

void insertrear()
{
    if (rear == QUEUE_SIZE - 1)
    {
        printf("Queue Overflow\n");
        return;
    }
    rear = rear + 1;
    q[rear] = item;
}

int deletefront() {
    if (front > rear)
    {
        return -1;
    }
    front = front + 1;
}
```



```

front = 0;
rear = -1;
return = -1;
}
return q[front++];
}
void display()
{
    int i;
    if (front > rear) {
        printf("Queue is empty");
        return;
    }
    else
        printf("contents of queue \n");
    for (i = front; i <= rear; i++) {
        printf("%d \n", q[i]);
    }
}
void main()
{
    int choice;
    for (;;) {
        printf("\n 1: insert rear \n 2: delete front \n\n 3: display \n 4: exit \n");
        scanf("%d", &choice);
        switch (choice) {
            case 1: printf("Enter the item to be inserted \n");
                    scanf("%d", &item);
                    insertrear();
                    break;

```


Date _____
Page _____

```

Case 2: item = deletefront();
if (item == -1)
    printf("queue is empty \n");
else
    printf("item deleted = %d \n", item);
break;
case 3: display();
break;
default: exit(0);
}
}
}

```

Output

1. insert rear
2. delete front
3. display
4. exit

Enter the choice

1

Enter the item to be inserted

22

1. insert rear
2. delete front
3. display
4. exit

Enter the choice

1

Enter the item to be deleted inserted

56

1. insert rear
2. delete front
3. display
4. exit
Enter the choice

1

Enter the item to be inserted
45

1. insert rear
2. delete front
3. display
4. exit.

Enter the choice

1

Enter the item to be inserted
78

Queue Overflow

1. insert rear
2. delete front
3. display
4. exit

Enter the choice

3

contents of queue

22

56

45

1. insert rear
2. delete front
3. display
4. exit.

Enter the choice

2

item deleted = 22

1. insert rear
2. delete front
3. display
4. exit

Enter the choice

2

item deleted = 45

1. insert rear
2. delete front
3. display
4. exit

Enter the choice

2

Queue is empty

1. insert rear
2. delete front
3. display
4. exit.