Experiments/linearQueue.c

```c
#include <stdio.h>
#define max 100

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

void insert(void);
int delete(void);
int peek(void);
int display(void);

int main()
{
    int op;

    do{
        printf("\nMenu");
        printf("\n1.Insert\n2.Delete\n3.Peek\n4.Display");
        printf("\nEnter your choice: ");
        scanf("%d",&op);

        switch(op){
            case 1:
            insert();
            break;

            case 2:
            delete();
            break;

            case 3:
            peek();
            break;

            case 4:
            display();
            break;

            default:
            printf("\nInvalid Input\n");
        }
    }
    while(op != 5);

    return 0;
}

void insert(){
    int val;

    if(rear == max - 1){
```

```
52          printf("\nOverflow\n");
53      }
54      else if(front == - 1 && rear == -1){
55          printf("\nEnter the element: ");
56          scanf("%d",&val);
57          front = 0;
58          queue[++rear] = val;
59      }
60      else{
61          printf("\nEnter the element: ");
62          scanf("%d",&val);
63          queue[++rear] = val;
64      }
65  }
66
67  int delete(){
68      int num;
69
70      if(front == -1 || front > rear){
71          printf("\nUnderflow\n");
72          return -1;
73      }
74      else{
75          num = queue[front];
76          front++;
77          printf("\nDeleted element: %d\n",num);
78      }
79      if(front > rear){
80          front = rear = -1;
81      }
82  }
83
84  int peek(){
85      if(front == -1 || front > rear){
86          printf("\nQueue is empty\n");
87          return -1;
88      }
89      else{
90          printf("\n%d\n",queue[front]);
91      }
92  }
93
94  int display(){
95      if(front == -1 && rear == -1){
96          printf("\nQueue is empty\n");
97          return -1;
98      }
99      for(int i=front; i<=rear; i++){
100         printf("\n%d",queue[i]);
101     }
102     printf("\n");
103 }
104
105 /*
```

```
cd "/home/gagan/Desktop/Data_Structure_And_Algorithm/Experiments/" && gcc linearQueue.c -o linearQueue && "/home/gagan/Desktop/Data_Structure_And_A↩
lgogagan@computer-ThinkCentre:~/Desktop/Data_Structure_And_Algorithm$ cd "/home/gagan/Desktop/Data_Structure_And_Algorithm/Experiments/" && gcc linearQueue.c -o linearQueue && "/home/gagan/Desktop/Data_Structure_And_A↩
lgorithm/Experiments/"linearQueue

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 1

Enter the element: 1

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 1

Enter the element: 45

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 1

Enter the element: 78

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 1

Enter the element: 9

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 3

1

Menu
1.Insert
```

```
2.Delete
3.Peek
4.Display
Enter your choice: 4

1
45
78
9

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 2

Deleted element: 1

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 4

45
78
9

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice: 3

45

Menu
1.Insert
2.Delete
3.Peek
4.Display
Enter your choice:
*/
```