WEEK 4

1)Queue using arrays

```
#include<stdio.h>
#include<stdlib.h>
#define QUE_SIZE 5
int item,front=0,rear=-1,q[10];
void insertrear()
{
        if(rear==QUE_SIZE-1)
        {
          printf("\nQueue is full//Overflow\n");
          return;
        }
        printf("\nEnter the item to be inserted\n");
        scanf("%d",&item);
        rear=rear+1;
        q[rear]=item;
}
int deletefront()
{
    if (front>rear)
        {
          front=0;
          rear=-1;
          return -1;
```

```
        }
        return q[front++];
}
void displayQ()
{
        int i;
        if (front>rear)
        {
                printf("\nQueue is empty\n");
                return;
        }
        printf("\nContents of queue\n");
        for(i=front;i<=rear;i++)
        {
                printf("%d  ",q[i]);
        }
}
int main()
{
        int choice;
        for(;;)
        {
                printf("\n1:Insert rear\n2:Delete front\n3:Display\n4:exit\n");
                printf("Enter the choice\n");
                scanf("%d",&choice);
```

```
            switch(choice)
            {
                case 1:     insertrear ();
                            break;
                case 2:     item=deletefront();
                            if(item==-1)
                            printf("\nQueue is empty//Underflow\n");
                            else
                            printf("Item deleted=%d\n",item);
                            break;
                case 3:     displayQ();
                        break;
                default:exit (0);

            }

        }
}
```

```
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1

Enter the iten to be inserted
12

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1

Enter the iten to be inserted
13

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1

Enter the iten to be inserted
14

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1

Enter the iten to be inserted
15

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1

Enter the iten to be inserted
16

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
3

Contents of queue
12  13  14  15  16
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
2
Item deleted=12

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
1
```

```
Queue is full//Overflow

1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
3

Contents of queue
13  14  15  16
1:Insert rear
2:Delete front
3:Display
4:exit
Enter the choice
4

--------------------------------
Process exited after 26.55 seconds with return value 0
Press any key to continue . . .
```

2)Cqueue using Array

```
#include<stdio.h>
#include<stdlib.h>

#define que_size 5
int item,front=0,rear=-1,q[que_size],count=0;
void insertrear()
{
 if(count==que_size)
 {
  printf("\nQueue is full//Overflow\n");
  return;
 }
 printf("\nEnter the item to be inserted: ");
 scanf("%d",&item);
 rear=(rear+1)%que_size;
 q[rear]=item;
 count++;
}
int deletefront()
{
 if(count==0) return -1;
 item = q[front];
 front=(front+1)%que_size;
 count=count-1;
```

```
 return item;
}
void displayq()
{
 int i,f;
 if(count==0)
 {
  printf("\nQueue is empty\n");
  return;
 }
 f=front;
 printf("\nContents of queue \n");
 for(i=0;i<count;i++)
 {
  printf("%d\n",q[f]);
  f=(f+1)%que_size;
 }
}
void main()
{
 int choice;
 for(;;)
 {
  printf("\n1.Insert rear \n2.Delete front \n3.Display \n4.Exit \n");
  printf("Enter the choice : ");
```

```
 scanf("%d",&choice);
 switch(choice)
 {
  case 1:insertrear();
         break;
  case 2:item=deletefront();
      if(item==-1)
      printf("\nQueue is empty//Underflow\n");
      else
      printf("Item deleted is: %d \n",item);
      break;
        case 3:displayq();
      break;
    default:exit(0);
  }
 }

}
```

```
1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1

Enter the iten to be inserted: 12

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1

Enter the iten to be inserted: 13

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1

Enter the iten to be inserted: 14

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1

Enter the iten to be inserted: 15

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1

Enter the iten to be inserted: 16

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1

Queue is full//Overflow

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 3

Contents of queue
12
13
14
15
16

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 2
Item deleted is: 12

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 1
```

```
Enter the iten to be inserted: 17

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 3

Contents of queue
13
14
15
16
17

1.Insert rear
2.Delete front
3.Display
4.Exit
Enter the choice : 4

--------------------------------
Process exited after 32.79 seconds with return value 0
Press any key to continue . . .
```