```c
#include<stdio.h>
#include<stdlib.h>
int size=4,f=-1,r=-1,item;
int Q[4];
void insert();
void delete1();
void display();
int main()
{
        while(1)
        {
                int ch;
                printf("\n1.insert \n2.delete\n3.display\n4.exit");
                printf("\nEnter your choice\n");
            scanf("%d",&ch);
            switch(ch)
            {
                case 1:insert();
                    break;
              case 2:delete1();
                    break;
                case 3:display();
                    break;
                case 4:exit(0);

                default:printf("\nInvalid choice");
                }
                printf("\n\n");
        }
        return 0;
}
```

```c
void insert()
{
        if((f==0 && r==size-1) || f==r+1)
        {
                printf("Queue in overflow");
                return;
        }
        printf("enter element\n");
        scanf("%d",&item);
        if(f==-1 && r==-1)
        {
                f++;
                Q[++r]=item;
        }
        else if(f>0 && r==size-1)
        {
                r=(r+1)%size;
                Q[r]=item;
        }
        else
                Q[++r]=item;
        return;
}
void delete1()
{
        if(f==-1 && r==-1)
        {
                printf("\nQueue is underflow");
                return;
        }
        if(f==r)
```

```c
        {
            printf("%d",Q[r]);
            f=-1,r=-1;
            return;
        }
        if(f<r)
        {
                printf("Popped element is %d",Q[f++]);
                return;
        }
        if(r<f)
        {
                if(f==size-1)
                {
                        f=(f+1)%size;
                }
          printf("Popped element is %d",Q[f++]);
        }
}
void display()
{
        if(f==-1 && r==-1)
        {
                printf("\nQueue is underflow");
                return;
        }
        printf("elements are");
        if(f<r)
        {
          for(int i=f;i<=r;i++)
          {
```

```c
        printf("\n%d",Q[i]);
    }
}
else
{
    for(int i=f;i<size;i++)
    {
        printf("\n%d",Q[i]);
    }
    for(int i=0;i<=r;i++)
        printf("\n%d",Q[i]);
}
return;
}
```

```
Output

/tmp/c7agV3lPgA.o
1.insert
2.delete
3.display
4.exit
Enter your choice
1
enter element
23
1.insert
2.delete
3.display
4.exit
Enter your choice
1
enter element
45
1.insert
2.delete
3.display
4.exit
Enter your choice
3
elements are
23
45


1.insert
2.delete
3.display
4.exit
Enter your choice
4
```