```
//linear queue
#include <stdio.h>
#include <stdlib.h>
#define max 4
int rear=-1;
int front=-1;
int q[max];
void enqueue(int x)
{
   if (rear==max-1)
   {
      printf("queue overflow\n");
   }
   else if(front==-1 && rear==-1)
   {
      front=rear=0;
   }
   else{
      rear++;
   }
   q[rear]=x;
}
int dequeue()
{
   int x=-1;
   if (front==-1 || front>rear)
   {
      printf("\nunderflow");
      return -1;
   }
   else
```

```
    {
        x=q[front];
        front++;
        if(front>rear)
            front=rear=-1;
        return x;

    }
}
void display()
{
    if(front==-1 || front>rear)
    {
        printf("\nunderflow");
    }
    else
    {
        for(int i=front;i<=rear;i++)
        {
            printf("%d\t",q[i]);
        }

    }
}
void main()
{
    int c,no,x;
    while(1)
    {
        printf("enter 1 for insert 2 for delete 3 for display 4 for exit\n");
        printf("enter the choice:");
```

```
        scanf("%d",&c);
        switch (c)
        {
        case 1:
           printf("enter the no:");
           scanf("%d",&no);
           enqueue(no);

           break;
        case 2:x=dequeue();
              if (x!=-1)
              {
                 printf("%d is popped\n",x);
              }
              break;
        case 3:display();
              break;
        case 4:exit(0);
              // break;


        default:printf("invalid\n");
           break;
     }
}
}
```

Output

```
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:1
enter the no:10
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:1
enter the no:20
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:1
enter the no:30
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:3
10      20      30      enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:2
10 is popped
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:2
20 is popped
enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:3
30      enter 1 for insert 2 for delete 3 for display 4 for exit
enter the choice:4
```