Insert

```java
import java.util.*;

class arr3

{

public static void main(String args[])

{

Scanner sc = new Scanner(System.in);

    int i,n,number,pos;

System.out.println("Enter the number of elements:") ;

n = sc.nextInt();

int[] a = new int[n+1];
```

```java
System.out.println("Enter the elements") ;

for(i=0;i<n;i++)

{

    a[i] = sc.nextInt();

}



System.out.println("Enter the number which you want to insert");

number = sc.nextInt();



System.out.println("Enter the position where you want to insert the number");

pos = sc.nextInt();



for(i=n-1;i>=pos;i--)
```

```java
            {

                a[i+1]=a[i];

            }

        n=n+1;

        a[pos]=number;

    System.out.println("\nOn inserting new array we get is\n");

        for(i=0;i<n;i++)

        {

            System.out.println("a["+i+"] = "+a[i]);

        }

    }

}
```

Delete

```java
import java.util.*;
class arraydel
{
 public static void main(String arg[])
 {
  Scanner o =new Scanner(System.in);   int n,pos;
  System.out.print("Enter the number of Elements:");
  n=o.nextInt();
  int[] a=new int[n];
  System.out.print("Enter the Elements:");
  for(int i=0;i<n;i++)
   a[i]=o.nextInt();
  System.out.print("Enter the position of the number which is to be deleted:");
pos=o.nextInt();
  for(int i=pos; i<n-1;i++)
  {
   a[i]=a[i+1];
  }
  n=n-1;
  System.out.println("After Deleting an Element");
```

```java
System.out.print("The Array is\n");

for(int i=0;i<n;i++)

System.out.println("a["+i+"]="+a[i]);

}

}
```

--- **Stack**

```java
import java.util.*;  class stack1{

Scanner o=new Scanner(System.in);

int s[] = new int[10];

int top;

stack1(){

top=-1;

}

void push(int item)

{

if(top==9)

System.out.println("Stack is Full");

else {

s[++top]=item;

System.out.println("The Item successfully added into the stack.....");    }

}

void pop()

{
```

```java
      if(top>=0)
        System.out.println( s[top--]);
      else
        System.out.println("Stack is Empty");
      }
    void print()
    {
      for (int i=0 ;i<=top;i++)
        System.out.print(" "+s[i]+"\n");
      int free=(10-top-1);
      double freeper=(free/10.0)*100;
      System.out.println("Free Space Percentage:"+freeper);
      }
    }
public class Stackmain {
  public static void main(String arg[])
  {
    int item=0,choice,i=0;
    Scanner o=new Scanner(System.in);
    stack1 s1=new stack1();
    do{
    System.out.println("\n-----------MENU------------");
    System.out.println("1.PUSH operation");
    System.out.println("2.POP operation");
```

```java
System.out.println("3.DISPLAY the Status of the Stack");
System.out.println("----------------------------");
System.out.println("enter your Choice:");
choice=o.nextInt();
switch(choice)
{
case 1:
System.out.println("Enter a element to push:");
item=o.nextInt();
s1.push(item);
break;
case 2:
s1.pop();
break;
case 3:
System.out.println("the Stack is ");    s1.print();
break;
default:
}
} while(choice<5);
}
}
```

-- **<u>Queue</u>**

```java
import java.util.*; class Queue{

int size=10;

int Q[]=new int[size];  int front,rear;

Queue(){

 front=-1;

 rear=-1;

}

void enqueue(int item){

if((front==0)&&(rear==size-1))

 System.out.println("Queue is Full");

else{

 if(front==-1){

  front=0;

 }

rear++;

Q[rear]=item;

System.out.println("An item is inserted on the Queue");  }

}

void dequeue(){

 int element;

 if((front==-1)&&(rear==-1))

  System.out.println("Queue is Empty");

 else{

  element=Q[front];
```

```java
      if(front>=rear){

       front=-1;

       rear=-1;

       }

      else{

       front++;

       }

      System.out.println(element+" is deleted");

       }

      }

     void display(){

      if(front==-1)

       System.out.println("Queue is Empty");

      else{

       System.out.println("\n Front Index ->"+front);

       System.out.println("Items ->");

       for (int i=front;i<=rear;i++)

        System.out.print(" "+Q[i]+"\n");

       }

      }

     }

    class queueop{

     public static void main(String arg[]){

      int item=0,choice,i=0;
```

```java
Scanner o=new Scanner(System.in);

Queue q1=new Queue();

do{

System.out.println("\n-----------MENU------------");

System.out.println("1.ENQUEUE operation");

System.out.println("2.DEQUEUE operation");

System.out.println("3.DISPLAY the Status of the Queue");

System.out.println("----------------------------");

System.out.println("enter your Choice:");

choice=o.nextInt();

switch(choice)

{

case 1:

System.out.println("Enter a element to insert:");

item=o.nextInt();

q1.enqueue(item);

break;

case 2:

q1.dequeue();

break;

case 3:

q1.display();

break;

default:

}
```

```java
  } while(choice<5);

 }

}
```

Linked list

```java
import java.util.*;
class Linkedlist{
 Node head;
 class Node{
  int data;
  Node next;
  Node(int val){
   data=val;
   next=null;
  }
 }
 Linkedlist(){
  head=null;
 }
 public void InsertAtBegin(int val){
  Node newnode=new Node(val);
  if(head==null)
```

```java
    head=newnode;

  else{

   newnode.next=head;

   head=newnode;

  }

  System.out.println("Element is inserted at beginning");

 }

 public void display(){

  Node temp=head;

  while(temp!=null){

   System.out.print(temp.data+" ");

   temp=temp.next;

  }

 }

 public void InsertAtPos(int pos,int val){

  if(pos==0)

  {

   InsertAtBegin(val);

   return;

  }

  Node Newnode=new Node(val);

  Node temp=head;

  for(int i=1;i<pos;i++)

   temp=temp.next;
```

```java
    if(temp==null){

      System.out.println("Invalid position");

      return;

    }

  Newnode.next=temp.next;

  temp.next=Newnode;

  System.out.println("Element is inserted at "+pos);

 }
public void DeleteAtPos(int pos){

 if(head==null){

 System.out.println("List is Empty");

 }

 if (pos==0){

 head=head.next;

 return;

 }

 Node temp=head;

 Node prev=null ;

 for(int i=0;i<pos;i++){

 prev=temp;

 temp=temp.next;

 }

 prev.next=temp.next;

 System.out.println("\nElement is Deleted");  }
```

```java
}
class Listop{
 public static void main(String s[])
 {
  int val=0,choice=0;
  int pos;
  Scanner o=new Scanner(System.in);
  Linkedlist list=new Linkedlist();
  do{
  System.out.println("\n-----------MENU------------");
System.out.println("1.Insertion at Beginning");
  System.out.println("2.Insertion at Position");
  System.out.println("3.DISPLAY the Linked List");
System.out.println("4.Deletion at Position");
  System.out.println("---------------------------");
  System.out.println("enter your Choice:");
  choice=o.nextInt();
  switch(choice)
  {
   case 1:
    System.out.print("Enter a element to insert:");
    val=o.nextInt();
    list.InsertAtBegin(val);
    break;
   case 2:
```

```java
                System.out.print("Enter a element to insert:");

                val=o.nextInt();

                System.out.print("Enter a position to insert:");

                pos=o.nextInt();

                list.InsertAtPos(val,pos);

                break;

            case 3:

                System.out.print("the Linked List is ");

                list.display();

                break;

            case 4:

                System.out.print("Enter a Position to delete:");

                pos=o.nextInt();

                list.DeleteAtPos(pos);

                break;

            default:

            }

        } while(choice<5);

    }

}
```