1. Write A Java Program for Binary Search Using Array

```java
package module2.ajk.assignment;

import java.util.Scanner;

//Write A Java Program for Binary Search Using Array
public class binearySearch {
	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter the size of array = ");
		int size = sc.nextInt();
		int[] num = new int [size];
		System.out.println("Enter the elements");
		for (int i = 0; i < num.length; i++) {
			num[i] += sc.nextInt();
		}
		//sorting
		int temp = 0;
		System.out.println("Sorted values");
		for (int i = 0; i < num.length; i++) {
			for (int j = i+1; j < num.length; j++) {
				if(num[i] > num[j]) {
					temp = num[i];
					num[i] = num[j];
					num[j] = temp;
				}
			}
			System.out.println(num[i]);
		}
		System.out.println("enter search value = ");
		int search = sc.nextInt();
		//binary algorithm
		int firstI =0;
		int lastI = num.length;
		int flag = 0;
		while(firstI <= lastI) {
			int midl = (firstI+lastI)/2;
			if (num[midl] == search) {
				System.out.println("element indx is = "+midl);
				System.out.println("value is = "+num[midl]);
				flag =1;
				break;
			}

			if(num[midl]<search) {
				firstI = midl+1;
			}
			if(num[midl]>search) {
				lastI = midl-1;
			}
		}
		if(flag == 0) {
			System.out.println("No element ");
		}
	}
```

```
}
```

```
Output:-

Enter the size of array = 5
Enter the elements
12
34
18
20
14
Sorted values
12
14
18
20
34
enter search value =
12
element indx is = 0
      value is = 12
```

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2. How To Find Third Largest and Second Smallest Element in An Array

```
package module2.ajk.assignment;

import java.util.Scanner;

public class findThiredLsecondSmall {

      public static void main(String[] args) {
            Scanner sc = new Scanner(System.in);
            // array size
            System.out.print("Enter the array size = ");
            int size = sc.nextInt();
            // elements input
            System.out.println("Enter the values or elements = ");
            int[] num = new int[size];
            for (int i = 0; i < num.length; i++) {
                  num[i]=sc.nextInt();
            }
            // sorting the elements assenting order
            System.out.println("Sorted order");
            for (int i = 0; i < num.length; i++) {
                  for (int j = i+1; j < num.length; j++) {
                        if (num[i] > num[j]) {
                              int tmp = num[i];
                              num[i] = num[j];
                              num[j] = tmp;
                        }
                  }
                  System.out.println(num[i]);
            }
            // Algorithm for element 3rd Largest = num.length - 3 and
second smallest element =  num[i+1]
```

```
            int thirdLgst = num[num.length-3];
            int secondSmallest = num[1];
            System.out.print("Third Largest Number is = ");
            System.out.print(thirdLgst);
            System.out.println();
            System.out.print("second smallest Number is = ");
            System.out.print(secondSmallest);
      }

}
```

Output : -

```
Enter the array size = 8
Enter the values or elements =
9
5
3
6
3
4
8
1
Sorted order
1
3
3
4
5
6
8
9
Third Largest Number is = 6
second smallest Number is = 3
```

3.Write A Java Program How to Merge Two Arrays

```
package module2.ajk.assignment;

import java.util.Scanner;
import java.util.Arrays;
public class ArrayMerge {


      public static void main(String[] args) {
            Scanner sc = new Scanner(System.in);
            int i;
            System.out.println("First array");
            // array size
            System.out.print("Enter the first array size = ");
            int size = sc.nextInt();
            // elements input
            System.out.println("Enter the first array elements = ");
            int[] num1 = new int[size];
            for ( i = 0; i < num1.length; i++) {
                  num1[i]=sc.nextInt();
            }
            for ( i = 0; i < num1.length; i++) {
                  System.out.println(num1[i]);
            }
```

```
            System.out.println("second array");
            // array size
            System.out.print("Enter the second array size = ");
            int size1 = sc.nextInt();
            // elements input
            System.out.println("Enter the second array elements = ");
            int[] num = new int[size1];
            for ( i = 0; i < num.length; i++) {
                  num[i]=sc.nextInt();
            }
            for ( i = 0; i < num1.length; i++) {
                  System.out.println(num[i]);
            }
            //merge
            int num3 = num1.length;
            int num4 = num.length;
            int length = num3 + num4;
            int[] result = new int[length];
            System.arraycopy(num1, 0, result, 0, num3);
        System.arraycopy(num, 0, result, num3, num4);
        System.out.print("Merge array is = ");
        System.out.print(Arrays.toString(result));


    }


}
OutPut:-
First array
Enter the first array size = 3
Enter the first array elements =
1
2
3

1
2
3

second array
Enter the second array size = 3
Enter the second array elements =
1
2
3

1
2
3

Merge array is = [1, 2, 3, 1, 2, 3]
```