Lab program 1

```
public class LP1_LinearSearch {
    public static void main(String args[]) {
        Scanner sc=new Scanner(System.in);
        int arr[]=new int [10];
        int i,n,key;
        boolean found=false;
        System.out.print("Enter Number of Elements: ");
        n=sc.nextInt();
        System.out.println("Enter the Elements:");
        for(i=0;i<n;i++) {
            arr[i]=sc.nextInt();
        }
        System.out.println();
        System.out.print("Enter the search Element: ");
        key=sc.nextInt();
        for(i=0;i<n;i++) {
            if(key==arr[i]) {
                System.out.println(key+" found at position "+(i+1));
                found=true;
            }
        }
        if(!found) {
            System.out.println(key+" not found!");
        }
    }
}
```

Lab Program 3

```
public class LP3_MaxMin {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        int arr[] = new int[10];
        int i, n;
        System.out.print("Enter Number of Elements: ");
        n = sc.nextInt();
        System.out.println("Enter the Elements:");
        for (i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }
        System.out.println();
        int min = arr[0], max = arr[n - 1];
        for (i = 0; i < n; i++) {
            if (arr[i] < min) {
                min = arr[i];
            }
            if (arr[i] > max) {
                max = arr[i];
            }
        }
        System.out.println("The minimum of all elements is: " + min);
        System.out.println("The maximum of all elements is: " + max);
    }
}
```

Lab Program 2

```
public class LP2_BinarySearch {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        int arr[] = new int[10];
        int i, n, key;
        boolean found = false;
        System.out.print("Enter Number of Elements: ");
        n = sc.nextInt();
        System.out.println("Enter the Elements in ascending order:");
        for (i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }
        System.out.println();
        System.out.print("Enter the search Element: ");
        key = sc.nextInt();
        int low = 0, high = n - 1, mid;
        while (low <= high) {
            mid = (low + high) / 2;
            if (arr[mid] == key) {
                found = true;
                System.out.println("The element " + key + " is found at: " + (mid + 1));
                break;
            } else if (arr[mid] > key) {
                high = mid - 1;
            } else if (arr[mid] < key) {
                low = mid + 1;
            }
        }
        if (!found) {
            System.out.println("The search element " + key + " is not found ");
        }
    }
}
```

Lab Program 4

```
public class LP4_Fib {
    static int fib(int x) {
        if (x == 1)
            return 15;
        if (x == 2)
            return 23;
        else
            return fib(x - 1) + fib(x - 2);
    }
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("The next 3 terms of the series 15,23,38,61 is: ");
        for (int i = 1; i <= 7; i++)
            System.out.print(fib(i) + " ");
    }
}
```