

### 3. Writing a program in Java implementing the exponential search algorithm

```
package OnlinePractice4;

import java.util.Arrays;
import java.util.Scanner;

class Exponential
{
    static int exponentialSearch(int arr[],
                                int n, int x)
    {
        if (arr[0] == x)
            return 0;

        int i = 1;

        while (i < n && arr[i] <= x)
            i = i*2;

        return Arrays.binarySearch(arr, i/2,
                                    Math.min(i, n-1), x);
    }

    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter size to array : ");

        int n =sc.nextInt();

        System.out.println("Enter array element : ");

        int arr[] = new int[n];

        for(int i = 0 ; i<arr.length ;++i) {
            arr[i]=sc.nextInt();
        }
    }
}
```

```

        System.out.println("Enter Position : ");

        int x = sc.nextInt();

        int result = exponentialSearch(arr, arr.length, x);

        System.out.println((result < 0) ?
            "Element is not present in array" :
            "Element is present at index " +
                result);
    }
}

```