Finding element in infinite array

public class MyClass {

public static void main(String args[])

{

int[] arr={2,3,8,9,12,11,20,22,............};

System.out.println(BinarySearch(arr,10));

}

public static int BinarySearch(int[] arr,int val)

{

int result=0;

int start=0;

int end=1;

while(arr[end]>val)

{

start=end;

if(end<arr.length-1)

{

end=2\*end;

}

else

{

end=arr.length-1;

}

}

while(start<=end)

{

int mid=start + (end-start)/2;

if(arr[mid]==val)

{

return mid;

}

if(arr[mid]<val)

{

start=mid+1;

}

else if(arr[mid]>val)

{

result=mid;

end=mid-1;

}

}

return result;

}

}