**EXPERIMENT NO.1**

**Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Aim:** Write a program for Binary Search in java.

**Algorithm/Pseudo-Code:**

binary\_search(a[],lb,ub,item,loc)

beg=lb

end=ub

mid=((beg+end)/2)

while(a[mid]>item)

end=mid-1

else

brg=mid+1

mid = int((beg+end)/2)

if(a[mid]==item)

loc=mid

else

loc=-1

return(loc)

**Program:**

class BinarySearch {

int binarySearch(int arr[], int l, int r, int x)

{

if (r >= l) {

int mid = l + (r - l) / 2;

if (arr[mid] == x)

return mid;

if (arr[mid] > x)

return binarySearch(arr, l, mid - 1, x);

return binarySearch(arr, mid + 1, r, x);

}

return -1;

}

public static void main(String args[])

{

BinarySearch ob = new BinarySearch();

int arr[] = { 2, 3, 4, 10, 40 };

int n = arr.length;

int x = 10;

int result = ob.binarySearch(arr, 0, n - 1, x);

if (result == -1)

System.out.println("Element not present");

else

System.out.println("Element found at index " + result);

}

}

**Output:**

