```java
 1:    public static int binarySearch(int[] a, int key) {
 2:        int low = 0;
 3:        int high = a.length - 1;
 4:
 5:        while (low <= high) {
 6:            int mid = (low + high) / 2;
 7:            int midVal = a[mid];
 8:
 9:            if (midVal < key)
10:                low = mid + 1
11:            else if (midVal > key)
12:                high = mid - 1;
13:            else
14:                return mid; // key found
15:        }
16:        return -(low + 1);  // key not found.
17:    }
```