

Array should be sorted before running this function. Otherwise it is impossible to find a key in array with running time $\log(n)$.

```
program locate(array A, key)
  imin = 0;
  imax = length of A;
  // continue searching while [imin,imax] is not empty
  while imax >= imin
    // calculate the midpoint for roughly equal partition
    imid = (imin + imax) / 2;

    // determine which subarray to search
    if A[imid] < key
      // change min index to search upper subarray
      imin = imid + 1;
    else
      if A[imid] > key
        // change max index to search lower subarray
        imax = imid - 1;
      else
        // key found at index imid
        print imid;
  // key not found
  print -1;
```