Example Pseudocode

Problem: Given a sorted array a with n elements (i.e., a[0] <= a[1] <= … a[n-1]) and a number m, find if m is in the array.

# 1. Main pseudo code

**data**

**given data**

*n*: the number of integers given

*a*[0], …, *a*[n-1]: the given integers

*m*: given integer (to check if it is in *a*)

**unknown data**: N.A.

**intermediate data**:

*found*: indicating if *m* is found from *a*

**plan**

// get array *a*, *n* from user input (numbers in *a* must be ordered).

n = getseries(a)

// find if *m* is in array *a* from index 0 to n-1

found = search(a, 0 , n-1, m)

if *found* print  *m* is found in *a.*

Otherwise print *m* is not found in *a*.

(*Pseudo code for all functions used in the main pseudocode*)

# 2. Pseudo code for *search* function

**Function name:** search

**input:**

*a*: an array of numbers

*bottom, top*: bottom and top index

*m*: the number to search from *a*[*bottom*] to *a*[*top*]

**output:**

*b*: 1 if *m* is in *a a*[*bottom*] to *a*[*top*]*,* 0 otherwise

**Data**

*mid*: middle index of the array

**plan:**

if (*bottom > top*) b = 0 and stop.

find the mid point *mid* of the array between *bottom* and *top*

if (*a*[*mid*] == *m*) *b* = 1

else if (*m* > *a[mid]*)

**P2.1 //** find if *m* is in *a* from *mid+1* to *top*:

*b = search(a, mid+1, top, m)*

else **P2.2 //** find if *m is* in *a* from *bottom* to *mid-1*

*b = search(a, bottom, mid-1,m)*

# 3. Pseudo code for *getSeries* function

*omitted here*