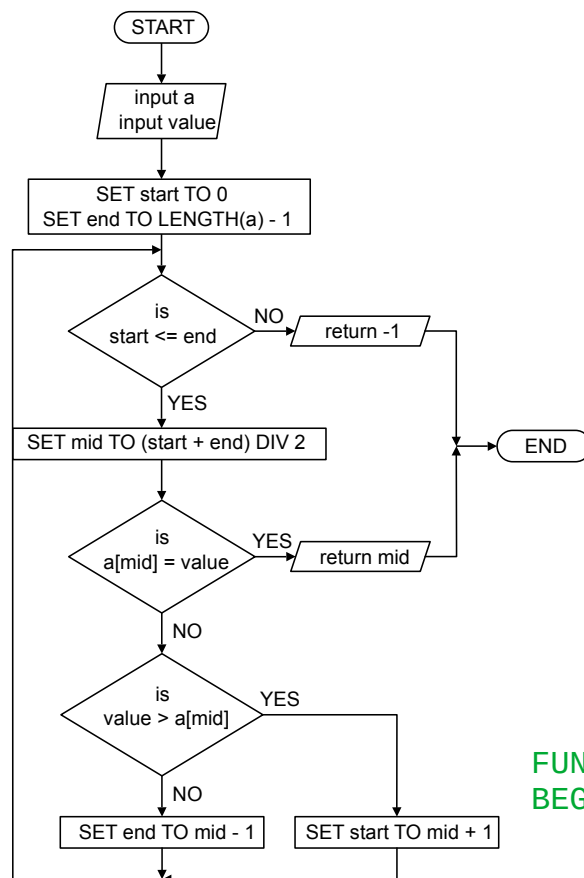


Worksheet: Binary Search

1. Draw a **flowchart subprocess** that represents the **binary search** algorithm that will find a specific value in a **sorted** array, then write the **pseudocode** for the flowchart as a **function** named **binarySearch**.

- **Inputs:** the array (call it **a**), and the value to search for (call it **value**).
- **Output:** the **index** in the array where the value is found; or a value of **-1** if the value is not found in the array.

Use proper indentation!

Subprocess: binarySearch

```

FUNCTION binarySearch( a, value )
BEGIN FUNCTION
  SET start TO 0
  SET end TO LENGTH(a) - 1
  WHILE (start <= end) DO
    SET mid TO (start+end) DIV 2
    IF (a[mid] = value) THEN
      RETURN mid
    END IF
    IF (value > a[mid]) THEN
      SET start TO mid + 1
    ELSE
      SET end TO mid - 1
    END IF
  END WHILE
  RETURN -1
END FUNCTION
  
```