

```

1  /** Returns index j such that data[j] == val, or -1 if no such element. */
2  public static int arrayFind(int[ ] data, int val) {
3      int n = data.length;
4      int j = 0;
5      while (j < n) { // val is not equal to any of the first j elements of data
6          if (data[j] == val)
7              return j; // a match was found at index j
8              j++; // continue to next index
9          // val is not equal to any of the first j elements of data
10     }
11     return -1; // if we reach this, no match found
12 }

```

overall
Claim
f

Code Fragment 4.11: Algorithm arrayFind for finding the first index at which a given element occurs in an array.

sub claim f_j : val is not equal to any of the first j elements of data.

f_0 : vacuously true

f_j : if true before, true after

f_n : true after, so if we get here, val not in data