

## Problem Set 0—Please finish by Monday, January 10

### NOT to be Turned In

This assignment is to get you ready for some future topics of program verification and testing. Real assignments will come soon.

### Problem 1.

Code a C function to implement binary search. More formally, your function takes as input: a sorted array  $A$  of  $n$  integers (the input can be a pointer to the array); an integer  $n$  (the array length), and a target integer  $t$ .

Your function should return "-1" if  $t$  is not in  $A$ , and the position of  $t$  if it is in the array (if  $t$  is in multiple positions, you may return any of them).

Notes: Bently comments that this is frequently miscoded, even by experienced programmers (such as you). Try and code it carefully before running it. See if you can get it right the first time.

### Problem 2.

Test your function by running it on test arrays where position  $A[i]$  contains the value  $2*i$  (for  $i = 0, 1, \dots, n-1$ ). Look up values  $-1, 0, 1, \dots, 2n, 2n+1$ . Do this test for  $n = 0, 10, 100, 1000$