COMP.2030 Lab 1 9/13/22

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Pseudo-C is a subset of C that limits the use of control-flow statements, like while loops. Instead, the only control statements allowed in pseudo-C are:
   1. Labels (with any name of your choice) and goto label\_name
   2. A conditional jump of the form if (condition) goto label\_name

Rewrite the C function below into pseudo-C:

int test(int x, int y){

int val = 4\*x;

if (y > 0) {

if (x < y) {

val = x-y;

} else {

val = x^y;

}

} else {

if (y < -2) {

val = x+y;

}

}

return val;

}

1. Suppose you have an integer array A with N elements (A and N are global). The array A is sorted in ascending order. Function bin\_search() performs a binary search of A looking for a key and returns the index of the key (or -1 if not found). The following C code on the left continuously subdivides a range in halves until the key is found or min and max cross each other. In the space on the right, convert this C code to a Pseudo-C version:

int bin\_search(int key){

int found = 0;

int j = 1;

int min=0;

int max=N-1;

int bin\_search(int key) {

int found = 0;

int j = 1;

int min = 0;

int max = N-1;

while (!found) {

if (min > max) {

break;

} else {

j=floor((min+max)/2);

if (key == A[j]) {

found = 1;

} else {

if (key < A[j]) {

max = j - 1;

} else {

min = j + 1;

}

}

}

return j;

}