**Take-Home Quiz 6 (15 pts) – Arrays**

**NOTE: Please submit your hard copy solution in lab this week**

1. (6 pts) Write a function called count\_digits() that accepts an array of *characters* and the *number* of items in the array as parameters, and returns the number of *digit* characters in the array. For example, if the array contains [‘C’, ‘p’, ‘t’, ‘S’, ‘1’, ‘2’, ‘1’], then the function returns 3. Note: if the array does not contain any digit characters, then the function returns 0. You may use functions in <ctype.h>. Hint: isdigit ().

int count\_digits (char characters[ ], int num\_items)

{

int i; int count = 0;

for (i = 0; i < num\_items; ++i)

{

if ( (int)characters[ i ] >= 48 && (int)characters[ i ] <= 57 )

//the values of digit characters are from 48 to 57

{

count++;

}

}

return count;

}

1. (9 pts) Write a function called remove\_whitespace() that accepts an array of *characters* and the *number* of items in the array as parameters, *removes* all *whitespace* (' ') characters from the array, and returns the *number* of whitespace characters removed.

For example, if the array contains ['C', 'p', 't', 'S', ' ', '1', '2', '1', ' ', 'i', 's', ' ', 'f', 'u', 'n'], then the function should remove the whitespace characters. The function must remove the whitespace characters by shifting all characters to the right of each whitespace character, left by one spot in the array. This will overwrite the whitespace characters, resulting in: ['C', 'p', 't', 'S', '1', '2', '1', 'i', 's', 'f', 'u', 'n']. In this case, the function returns 3. Note: if the array does not contain any whitespace characters, then the array is unchanged and the function returns 0.

int remove\_whitespace (char characters[ ], int \*num\_items)

{

int i = 0, count = 0, j = 0;

while ( i < \*num\_items )

{

if ( characters[ i ] == ' ' )

{

if ( i == \*num\_items - 1 ) //The final position

{

- - \* num\_items;

}

else

{

for ( j = i; j < \*num\_items - 1; j + +)

{

characters[ j ] = characters[ j + 1 ];

}

-- \* num\_items;

-- i;

}

count + +; //count the number of whitespace characters

}

i + +;

}

return count;

}