

## CS-205, Assignment-II

Assignment Date: 7/08/17

Submission Deadline -13/08/17

- A. Solve the following problems using recursion only.
- Find the count of odd digits in a given number (Upload Assign2Aa.c)
  - Find the largest and smallest digit in a given number (Upload Assign2Ab.c)
  - Write a function which prints a binary equivalent of a given number. (Upload Assign2Ac.c)
  - Write a recursive sorting routine using a recursive routine for finding max-min. (Upload Assign2Ad.c)
  - Find recursive sum of a given number (Upload Assign2Ae.c)  
Example of recursive sum:  $75 \rightarrow 12 \rightarrow 3$
- B. Implement search in sorted list using following strategies:
- Split the input not into two sets of almost-equal sizes, but into three sets of sizes approximately one-third. (Upload Assign2Ba.c)
  - Split the input not only into two sets of almost equal sizes, but into two sets of sizes approximately two-fifth and three-fifth. (Upload Assign2Bb.c)
- C. Read a positive integer value, and compute the following sequence using a recursive function: If the number is even, halve it; if it's odd, multiply by 3 and add 1. Repeat this process until the value is 1, printing out each value. Finally, print out how many of these operations you performed. If the input value is less than 1, print a message containing the word "Error". (Upload Assign2C.c)

Typical output might be:

Initial value is 9  
Next value is 28  
Next value is 14  
Next value is 7  
Next value is 22  
Next value is 11  
Next value is 34  
Next value is 17  
Next value is 52  
Next value is 26  
Next value is 13  
Next value is 40  
Next value is 20  
Next value is 10  
Next value is 5  
Next value is 16  
Next value is 8  
Next value is 4  
Next value is 2  
Final value 1, number of steps 19