C++ Programming

Recursive Functions

Homework 1

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Teaching, Training and Coaching since more than a decade!

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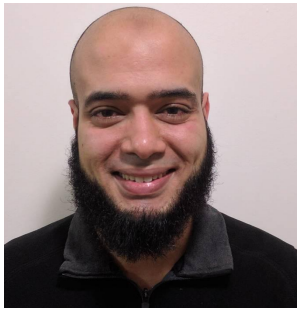

Homework 1: Length of 3n+1

- Implement 3n+1 function to compute the length of the sequence
- **int** length_3n_plus_1(int n)
- E.g. length_3n_plus_1(6) ⇒ 9

Homework 2: Power function

- int my_pow(int value, int p = 2)
- Return value * value ….. * value p times
- E.g. my_pow(7, 3) = 7 * 7 * 7 = 343
- Note: if p = 0, answer is 1

Homework 3: Array maximum

- int arr_max(int arr[], int len);
- Write a function that computes array maximum
- Input 1, 8, 2, 10, 3 ⇒ 10

Homework 4: Array sum

- Int sum(int arr[], int len);
- Write a function that computes array sum
- Input 1, 8, 2, 10, 3 ⇒ 24

Homework 5: Array average

- double average(int arr[], int len);
- Write a function that computes array average
  - Don’t divide by length in the main
- Input 1, 8, 2, 10, 3 ⇒ 4.8

Homework 6: Array Increment

- void array_increment(int arr[], int len)
- The function increments each arr[i] with i
- E.g. for input
  - [1, 2, 5, 9] it be [1+0, 2+1, 5+2, 9+3]
  - 1 8 2 10 3 ⇒ 1 9 4 13 7

Homework 7: Array Accumulation

- Given an array we want to accumulate it as following:
  - Input 1 2 3 4 5 6
  - Output array
    - 1, 1+2, 1+2+3, 1+2+3+4, 1+2+3+4+5, 1+2+3+4+5+6
    - 1, 3, 6, 10, 15, 21
  - That is return arr[i] = sum of all numbers from 0 to i
- void accumulate_arr(int arr[], int len);
  - Input 1 8 2 10 3 ⇒ 1 9 11 21 24

Homework 8: Left-Max

- Given array, change each element at position i to be the maximum of numbers from 0 to index i
- E.g. input 1 3 5 7 4 2 ⇒ [1, 3, 5, 7, 7, 7]
- Void left_max(int arr[], int len);

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."