22 Jan 2018

CECS 424-01 Spring 2018

Assignment 1

Homework 1

1. Git
   1. Read chapter 1 and 2 of “Pro Git”: https://git-scm.com/book/en/v2.
   2. Find, download and install a git client for your preferred OS.
   3. If you don’t have one yet: Create a https://bitbucket.org account.
   4. Create a ***private*** repository named "**CECS 424 Spring 2018 Assignment 1**" and add me **https://bitbucket.org/Gedankenexperiment** (and only me) as a reader.
2. Haskell
   1. Browse the Haskell website: https://www.haskell.org
   2. Read (at least the first two chapters of) “Learn You a Haskell for Great Good!”: http://learnyouahaskell.com/chapters

Lab Assignment 1

1. Remember the sorting algorithms quick sort (Tony Hoare, 1959) and merge sort (John von Neumann, 1945).
2. Implement each sorting algorithm in C and in Haskell by writing the following functions:

```
void qsort(int *a, int n);    // quick sort array a with n elements in place in C
void msort(int *a, int n);    // merge sort array a with n elements in place in C

qsort :: Ord a => [a] -> [a]  -- quick sort a list in Haskell
msort :: Ord a => [a] -> [a]  -- merge sort a list in Haskell
```

3. Write a brief comment for *every* line of your code explaining what it does.
4. In a separate text file write a few sentences explaining how and why the C and Haskell implementations of the same algorithms differ.
5. Write a simple main function (one in C and one in Haskell) to test your sort functions with the input sequence 4, 65, 2, -31, 0, 99, 2, 83, 782, 1 and print the result to the console.

   Deliverable: A folder called “Lab Assignment 1” in your “CECS 424 Spring 2018 Assignment 1” repository that contains your C and Haskell code and the text file.

   Due date: Monday 12 Feb 2018 at the beginning of lecture.