CS212: Paradigms
Dr. Gross, Spring 2016

Lab 11 - See Lab 11 for Information

1. Create a new package called haskell.lastnamelastname
2. Copy the files from the Lab 11 directory (Documents\Lab11) to the package above
3. When you start on your homework, copy your files your homework repo into a new package: haskell.lastname

Some useful Haskell references:
http://www.one-tab.com/page/3qZ4eyDoRq6NR1JagK_-zw
Warning: you may (will) get these errors:

```
<interactive>:6:12: lexical error at character '\SYN'
<interactive>:21:9: lexical error at character '\ESC'
```

Ghci is very sensitive to character input. Try again and **don't copy & paste**.

Due Thursday, April 28 before lab

Part 1: Fix the Bug

The code in factor.hs DocumentsLab11 has a bug. It crashes. Yes, sure, by all means fix the bug, but before you are done you need to be able *to explain what caused the bug in the first place.*

Part 2: Write Some Haskell (in class)

Create a file called lab111.hs in haskell.lastnamelastname and write the following functions

2A Simple integer to boolean functions

Some functions in Haskell take in an integer value and return a boolean. Let's write some!

1. isEven x returns True if the number is even, or False if the number is odd
2. isOdd x returns False if the number is even, or True if the number is odd

Once you have one of these functions, the other is cakewalk *and won't even use a condition or True or False.*

2B Simple integer to integer functions

Some functions in Haskell take in a value (we're only working with integers) and modifies that value. This does NOT mean there's no recursion. For example, factorial x (aka x factorial or x!) multiplies x times each number between 1 and x-1.
Simple functions:

- increment x adds one to x and returns that number

- decrement x subtracts one from x and returns that number

2C Simple list to integer functions

Here are some important list functions:

- sum x adds each element of x and returns that sum
- product x multiplies each element of x and returns that product
- count x returns the number of elements in x

2D Simple list to list functions

- evens x returns a list of the elements in x that are even
- odds x returns a list of elements in x that are even

2A' Harder integer to boolean functions

1. isPrime x returns True if x is prime or False if x is not prime
2. isFibonacci x returns True if the given number is in the Fibonacci sequence or False if x is not in that sequence

2B' Harder integer to integer functions

- factorial x returns x time each integer between x-1 and 1

2C' Harder list to integer functions

- fibonacci x returns a list of the first x numbers in the fibonacci sequence

Part 3: Homework

tba

Rubric

Standards/comments	5
Time estimate/accounts	5
TBA	
Total	**100**
Not asking Dr. Gross a question in office hours or email	-100