Chapter 3 Haskell Test

2018-09-21T07:28:38-05:00

Unless you are completely confident of your signature-writing skills, please use "concrete" type classes like `Double` or `Integer` instead of class constraints like `(Floating a)` or `(Integral a)` everywhere you write code that will actually run.

{{< use-mathjax >}}

Part I: No Computer

This is the only part of the test where you should attempt to use class constraints (if you know them).

1. The `whatSig` function takes in an ordered pair, a distance, and two strings. If the ordered pair is within the distance of (0,0), then the answer is the first string, otherwise the answer is the second string. What is an appropriate the *signature* (only) for this function?

   ```
   haskell  whatSig (3,4) 10 "Close" "Far" == "Close"
   ```

2. Give an example of an ability that the `Fractional` class constraint provides that is not available with an `Integral` class constraint.

3. Give an example of an ability that the `Floating` class constraint provides that is not available with `Fractional`.

4. (`someSqrt`) Write a signature and the function. The `someSqrt` function that takes in a list of x values and puts out a list of points:

   - x values less than 10 are ignored (no corresponding point is output)
   - otherwise output a point on the graph of $y = \sqrt{x}$

Part II: Computer

5. (`midAvg`) Given a list of `Double` numbers with 3 or more elements, the `midAvg` function gets rid of the first and the last element, then finds the

average of the remaining list. Write the complete function, including signature.

6. oddVowels. A word is an odd vowel word if all of the vowels in the word appear in odd index positions (remember indexing starts at zero).

   - 6a. `odA theWord`: Determine if a single word is an odd vowel word.
   - 6b. `odB theList`: Return a list of all of the odd vowel words in theList.

```
odA "pizzza" == True
odA "cucumber" == False
```