Exercises Computational Semantics 2

Here are some further Haskell exercises.

Exercise 1 *The Body mass index (or BMI, or Quetelet index) of a person is calculated as weight in kilograms divided by the square of height in metres. (See the Wikipedia entry on* Body mass index *for further information.) Here is a simple Haskell exercise for you. Open a textfile*

```
myprograms.hs
```

and write a function for computing body mass index (BMI). The type is

```
bmi :: Float -> Float -> Float
```

The first argument is the weight in kilograms, the second argument the height in metres. The result is a floating point number.

Exercise 2 *Now let us report on BMI. People with a BMI under 18.5 are underweight, people with a BMI between 18.5 and 25 have normal weight, people with a BMI over 25 are overweight, and those with a BMI over 30 are seriously overweight and are called obese. Write a function*

```
reportBMI :: Float -> Float -> String
```

that reports on body mass index using this classification. The first argument is the weight in kilograms, the second argument the height in metres. The result gives the verdict.

Exercise 3 *Adults cannot influence their height with their eating or exercising habits, but they can influence their weight. So a very useful tool is a function that computes their healthy weight range on the basis of BMI. Write a function*

```
healthyRange :: Float -> (Float,Float)
```

that takes length in metres and gives healthy weight range for that length in kilogrammes. The first number in the result pair should give the lower range, the second number in the pair should give the upper range.

Exercise 4 *BMI Prime gives the ratio between actual BMI and upper limit BMI. This is useful for overweight people, for a BMI Prime of* 1.25, *for instance, indicates that they are 25 percent overweight. Write a function for this. The type is*

```
bmiPrime :: Float -> Float -> Float
```