

## Language Assignment #4: Go

**Issued:** Tuesday, April 18

**Due:** Thursday, April 27

### Purpose

This assignment asks you to begin using a garbage-collected, concurrent, object-oriented, and imperative programming language named Go. Go has been considered a competitor of the venerable systems-programming duo of C and C++, but it has garbage collection. Go was designed by Robert Griesemer, Rob Pike, and Ken Thompson, at Google, in 2009.

### Documentation

Go lecture slides are at:

`pub/slides/slides-go.pdf`

Go is demonstrated by:

`pub/sum/go`  
`pub/etc/sleepsort`

Go is too new to be described in our textbook.

Links to programming-language documentation can be found at:

`http://cswb.boisestate.edu/~buff/pl.html`

## Assignment

Begin, by porting the simple banking application at:

`pub/1a4`

from Java to Go. Model your Go solution on the Java solution. Thus, you will have multiple Go packages. Use the patterns we saw in:

`pub/etc/student`

Then, reimplement the **Accrue** functions, to use goroutines. This is a bit silly, since interest-accrual is too simple to deserve separate threads. In any event, use a channel, so the bank's **Accrue** function can sum the interest, and print the total. Use the patterns we saw in:

`pub/etc/sleepsort`

## Hints and Advice

- An abstract class/method can be approximated with an interface that declares a function that has no definition.
- Your bank can represent its set of accounts as a map from interface pointers to interface values. An interface value is essentially an object reference:

```
accounts map[*IAccount]IAccount
```

and iterate over them like this:

```
for _,a:=range b.accounts {
    ...
}
```