CSC236 Fall 2016

More Practice 08

Let's number the two exercises that you did in the last tutorial, Examples 78 and 79.

- **Example 80.** Prove the following algorithm is correct

```
Algorithm Factorial(n)
    precondition: n ∈ ℕ
    postcondition: Return n!

    i = 1
    factorial = 1
    while i < n
        i = i + 1
        f = f * i
    return f
```

- **Example 81.** Prove the following algorithm is correct

```
Algorithm Division(A, B)
    precondition: A, B > 0 ∈ ℕ
    postcondition: Return q and r where A=Bq+r and r<B

    r = A
    q = 0
    while r ≥ B
        r = r − B
        q = q + 1
    return q, r
```

- **Example 82.** Prove the following algorithm is correct

```
Algorithm LeastCommonMultiple(A, B)
    precondition: ?
    postcondition: ?

    p = A
    q = B
    while p ≠ q
        if p < q: p = p + A
        else: q = q + B
    return p
```

We do not intend to publish solutions (or solutions outline) for any of the questions of the course notes, or extra practices. You are more than welcome to discuss your solutions with us.