Tutorial 2

- Quick review of C syntax
- Implementing a few functions
- Recursion in C
My first C programs

All we have so far is:

- int types
- simple functions
- main with only trace_int

Let's try using them in Seashell by implementing the factorial function:

```c
// factorial(n) calculates the value of n! (n factorial)
// requires: n >= 0
```
Practice Problem 1:
Define, Document and Test Ceil Function

Define the following C function:

```c
// ceiling(a, b) calculates the value of a / b
// rounded up to the nearest integer
// requires: a >= 0, b > 0
```
Practice Problem 2
Translating Racket to C

Translate the following Racket function to C:

```racket
;; (sumpow n pow) sums up i^pow with i from 0 to n
;; sumpow: Nat Nat -> Nat

(define (sumpow n pow)
  (cond [(zero? n) (expt 0 pow)]
        [else (+ (expt n pow)
                 (sumpow (sub1 n) pow))]))
```
Practice Problem 3

Printing a Rectangle

Write the following C function

// rectangle() asks the user for two integers, width and height. A rectangle with these dimensions is printed. // requires: width, height >= 1.

Example:

// IN: width = 4, height = 3

// OUT:

*****
*****
*****
*****