Some Racket/C++ Comparisons

Comments

Racket

```
; single line comment

#| multi
   line
   comment |#
```

C++

```
// single line comment

/* multi
   line
   comment */
```

Data types

Racket

```
boolean -> #true, #false

number -> 3, -3, 3.0, 3e5, 3/5

string -> "How are you?", "a"

char -> #\a, #\G, #\newline
```

C++

```
bool -> true, false

int -> 3, -46, +568

double -> 3.0, 3e5

char* -> "How are you?", "a"

// BUT! C++ has a string class we will be
//      using as our first choice to represent
//      "stringy" data.

// YOU CAN USE a char* argument for a string
//      parameter!

char -> 'a', 'G', '\n'
```

Named Constants

Racket

```
(define MAX-RED-DESIRED 200)

(define MY-PI 3.14159)

(define LANG "Racket")

(define START-FLAG #true)
```

C++

```
const int MAX_RED_DESIRED = 200;

const double MY_PI = 3.14159;

const string LANG = "C++";

const bool START_FLAG = true;
```

Functions

Racket

```
; signature: rect-area: number number -> number
; purpose: expects a rectangle's length and width, and returns
;     that rectangle's area

(define (rect-area length width)
    (* length width)
)

(check-expect (rect-area 3 5) 15)
(check-within (rect-area 4.6 6) (* 4.6 6) 0.001)

(rect-area 4.6 6)
```

C++

```
/*---
     signature: rect_area: double double -> double
     purpose: expects a rectangle's length and width, and returns
         that rectangle's area
     tests:
         rect_area(3, 5) == 15
         abs( rect_area(4.6, 6) - (4.6 * 6) ) < 0.001

     compile in CS50 IDE terminal (open to same folder as this file) using:
         g++ test.cpp -o test
     run in CS50 IDE terminal (open to same folder as this file) using:
         ./test
---*/

#include <cstdlib>
#include <iostream>
#include <string>
#include <cmath>
using namespace std;

double rect_area(double length, double width)
{
    return length * width;
}

/* testing rect_area */

int main()
{
    cout << boolalpha;
    cout << "***** Testing rect_area *****" << endl;

    cout << (rect_area(3, 5) == 15) << endl;
    cout << ( abs( rect_area(4.6, 6) - (4.6 * 6) ) < 0.001 ) << endl;

    cout << rect_area(4.6, 6) << endl;

    return EXIT_SUCCESS;
}
```