CIS2107
Computer Systems & Low-Level Programming

Lab06. Race

Format

- ➔ Upload a single `.c` files (**`Race.c`**) to Canvas
  - *As Always! Test on cis-linux2 server !!!!*
- ➔ Comments at top of the file:
  - Name, Date, Course
  - Homework number (Lab 5 2D Arrays...)
  - Statement of problem

Random Number Generation

```
#include <time.h>

#define RAND_MIN 0

#define RAND_MAX 100

srand((unsigned)time(NULL)); //only need to call once

rand() % (RAND_MAX+1)+ RAND_MIN;
```

Recommendations

➔ Store position of the Tortoise and the Hare in pointers

➔ Each turn:

- Check `if TortPos == HarePos`
  `(OUCH !!!)`
- Check `if TortPos/HarePos >= 70`
  `(TORTOISE WINS!!! YAY!!)` or
  `(Hare wins. Yuch.)`

`sleep()` Vs. `Sleep()`

- Using the **`sleep()`** function in Linux/Unix (as opposed to Windows).

- The Linux/Unix version is **`sleep()`** which accepts *seconds* as an input.
- The Windows version is **`Sleep()`** which accepts *milliseconds* as an input.

- Both **`sleep()`** and **`Sleep()`** take an **`int`** as input, meaning that the lowest **`sleep()`** time on Linux/Unix is **`1`** second.

- On Linux/Unix, **`sleep()`** is found in the **`<unistd.h>`** lib, not **`<time.h>`**

Recommendations

Generate a random value between **1** and **10**:

- If **value** is a **1, 2, 3, 4, or 5**
  "**fast plod**"
- If **value** is a **6** or **7**
  "**slip**"
- If **value** is a **8, 9,** or **10**
  "**slow plod**"

Animal	Move Type	Percentage of the time	Actual Move
Tortoise	Fast plod	50%	3 squares to the right
	Slip	20%	6 squares to the left
	Slow plod	30%	1 square to the right
Hare	Sleep	20%	No move at all
	Big hop	20%	9 squares to the right
	Big slip	10%	12 squares to the left
	Small hop	30%	1 square to the right
	Small slip	20%	2 squares to the left

Checklist

- Does my race output look nice?
- Did I use the **`sleep()`** function to slow the race down so it can be watched?
- Does my race look different each time I run the program?
- Does my program compile and run on the **`cis-linux2 server`**?