HW 2: Time Command

https://github.com/Mar915/myxv6

Task 1. Implement a time1 command that reports elapsed time.

```
$ time1 matmul
Time: 7 ticks
elpased time: 301 ticks
$ time1 matmul &; time1 matmul
Time: 12 ticks
elpased time: 575 ticks
Time: 12 ticks
elpased time: 575 ticks
$
```

I learned how to handle command arguments from the command line and pass them onto functions.

I did not have any problems doing this task.

Task 2. Keep track of how much cputime a process has used.

I changed the file "proc.h" in order to add the cputime field. With that change I able keep track of how much cputime is being used whenever a process was done with their time slice. I also incremented the cputime whenever a process was done with their time slice.

I got a better understanding on how C uses 'structs'.

My main issue with this task was updating the "cputime" field, but reading the C programming book helped get this task done.

Task 3. Implement a wait2() system call that waits for a child to exit and returns the child's status and rusage.

I changed the files "defs.h", "pstat.h", "syscall.c", "syscall.h", and "sysproc.c" in order to complete this task.

I learned how user and kernel interact with each other. By using helper functions calling one another and passing values throughout eachother.

The main problem I had was not knowing the user and kernel help each other process things. Going to office hours and Ariath explaining this concept to me it what helped me get this task done.

Task 4. Implement a time command that runs the command given to it as an argument and outputs elapsed time, CPU time, and %CPU used.

```
$ time matmul
elpased time: 12208 ticks, cpu time: 5324 ticks
elpased time: 12210 ticks, cpu time: 1 ticks
$ Time: 6 ticks
Time: 12 ticks
```

I was not able to produce the CPU percentage without the program erroring out.

Extra Credit (5 points). Discuss limitations of our time command. (Hint: For one limitation, consider what would happen if the command that is being timed forks child processes).

The limitations with the time command is that we are not taking account of the child processes still being ran.