Project 2 Process: Schedule in times

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Target

- Add ctx, a new member to task_struct to record the schedule in times of the process; When a task is scheduled in to run on a cpu, increase ctx of the process
- Export ctx under /proc/XXX/ctx

1. Add ctx to task_struct

In source file `include/linux/sched.h`, find where `task_struct` is, and add a new unsigned int `ctx` to it.

2. Initialize ctx when forked

In source file `kernel/fork.c`, find the `do_fork` function, initialize `ctx` as 0.

3. Add ctx when context switch

In source file `kernel/sched/core.c`, find the place where processes are switched, `ctx` add 1.

4. Create proc files

seq_print can be placed in proc file crate function of any current proc or a new proc

```
struct pid *pid, struct task_struct *task)
{
seq_printf(m, "%d\n", task->ctx);
return 0;
```

```
}
```

5. Compile the kernel

Omitted

6. Test

create a little program `block.c`

```
#include <stdio.h>
int main() {
while (1) getchar();
return 0;
}
```

run and check ctx

```
gcc block.c -o block
./block
```

```
ps aux | grep block
cat /proc/xxxxx/ctx
```

change to `block` and input a char

```
cat /proc/xxxxx/ctx
```