

Report

Assignment 1 – xv6 kernel

System Calls

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In this part of the test, I have done 5 test and I will report in this document.

1. Compilation Test

Makefile

```
CS333_PROJECT ?= 0
PRINT_SYSCALLS ?= 0
CS333_CFLAGS ?= -DPDX_XV6
```

```
CS333_PROJECT ?= 1
PRINT_SYSCALLS ?= 0
CS333_CFLAGS ?= -DPDX_XV6
```

2. System Call Tracing

syscall.c

```
void
syscall(void)
{
    int num;
    struct proc *curproc = myproc();

    num = curproc->tf->eax;
    if(num > 0 && num < NELEM(syscalls) && syscalls[num])
    {
        curproc->tf->eax = syscalls[num]();
        #ifdef PRINT_SYSCALLS
            cprintf("%s -> %d \n", syscallnames[num], curproc->tf->eax);
        #endif
    } else {
        cprintf("%d %s: unknown sys call %d\n",
            curproc->pid, curproc->name, num);
        curproc->tf->eax = -1;
    }
}
```

Makefile

```
CS333_PROJECT ?= 1
PRINT_SYSCALLS ?= 0
CS333_CFLAGS ?= -DPDX_XV6

CS333_PROJECT ?= 1
PRINT_SYSCALLS ?= 1
CS333_CFLAGS ?= -DPDX_XV6
```

3. Conditional Compilation

Makefile

```
CS333_PROJECT ?= 0
PRINT_SYSCALLS ?= 0
CS333_CFLAGS ?= -DPDX_XV6
```

Makefile

```
CS333_PROJECT ?= 1
PRINT_SYSCALLS ?= 0
CS333_CFLAGS ?= -DPDX_XV6
```

4. Date System Call

Makefile

```
ifeq ($(CS333_PROJECT), 1)
CS333_CFLAGS += -DCS333_P1
CS333_UPROGS += #_date
Endif

ifeq ($(CS333_PROJECT), 1)
CS333_CFLAGS += -DCS333_P1
CS333_UPROGS += _date
Endif
```

user.h

```
#ifdef CS333_P1
int date(struct rtcdate*);
#endif // CS333_P1

int halt(void);
```

5. Process Information

proc.c

```
#elif defined(CS333_P1)
void
procdumpP1(struct proc *p, char *state_string)
{
    cprintf("TODO for Project 1, delete this line and implement procdumpP1()
in proc.c to print a row\n");
    return;
}
#endif
```

Changed

```
#elif defined(CS333_P1)
void
procdumpP1(struct proc *p, char *state_string)
{
    int sekarang = ticks - (p -> start_ticks);
    cprintf("%d\t%s\t\t%d,%d\t%s\t%d\t", p->pid, p->name, sekarang/1000 ,
sekarang%1000, states[p->state], p->sz);
    return;
}
#endif
```

proc.h

```
uint start_ticks;

struct proc
```