

# Code Modification Report

- **Makefile**

Pada saat System Call Tracing :

```
CS333_PROJECT ?= 1
PRINT_SYSCALLS ?= 1
```

Pada saat Compilation Test dan Conditional Test CS333\_PROJECT enable :

```
CS333_PROJECT ?= 1
PRINT_SYSCALLS ?= 0
```

Saat Conditional Test CS333\_PROJECT disable :

```
CS333_PROJECT ?= 0
PRINT_SYSCALLS ?= 0
```

Untuk Date System Call :

```
CS333_UPROGS += _date
```

- **Task 1 (System Call Tracing)**

- ✓ **syscall.c**

```
#ifdef PRINT_SYSCALLS
    cprintf ("%s -> %d \n", syscallnames[num], syscalls[num]());
#endif
```

- **Task 2 (Date System Call)**

- ✓ **user.h**

Line 28 – line 30

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

- ✓ **usys.S**

Line 33

```
SYSCALL(date)
```

✓ **syscall.h**

Line 24

```
#define SYS_date    SYS_halt+1
```

✓ **syscall.c**

Line 109 – 111

```
#ifdef CS333_P1
extern int sys_date(void);
#endif // CS333_P1
```

Line 138 – 140

```
#ifdef CS333_P1
[SYS_date]    sys_date,
#endif // CS333_P1
```

Line 169 – 171

```
#ifdef CS333_P1
[SYS_date]    "date",
#endif // CS333_P1
```

✓ **sysproc.c**

Line 101 – 109

```
int
sys_date(void)
{
    struct rtcdate *d;
    if(argptr(0, (void*)&d, sizeof(struct rtcdate)) < 0)
        return -1;
    cmostime(d);
    return 0;
}
```

✓ **date.c**

Line 38 – 39

```
//r.hour %= 12;
//if (r.hour == 0) r.hour = 12;
```

Line 41 – 42

```
printf(1, "%s %s  %d %s%d:%s%d:%s%d UTC %d\n", days[day], months[r.month], r.day,
        PAD(r.hour), r.hour, PAD(r.minute), r.minute, PAD(r.second), r.second, r.year, s);
```

- Task 3 (Process Information)

- ✓ **proc.h**  
Line 52

```
uint start_ticks;
```

- ✓ **proc.c**  
Line 152

```
p->start_ticks = ticks;
```

Line 567 – 578

```
int elapsed_time = ticks - p->start_ticks;
int left = elapsed_time / 1000;
int right = elapsed_time % 1000;

char* zero = "";
if(elapsed_time < 100 && elapsed_time >= 10)
    zero = "0";
if(elapsed_time < 10)
    zero = "00";

cprintf("%d\t%s\t%s%d.%s%d\t%s\t%d\t",
        p->pid, p->name, "    ", left, zero, right, states[p->state], p->sz);
```