

# CLASS ASSIGNMENT 3

## ID : 12341550

### TASK 1

**FILE :** proc.h

*in struct proc added shed\_count and run\_ticks*

```
int shed_count;  
int run_ticks;
```

### TASK 2

**FILE :** proc.c

*in allocproc() function before return p statement*

```
p->shed_count = 0;
```

### TASK 3

**FILE :** proc.c

*in scheduler() function before context switch happens*

```
p->shed_count++;
```

### TASK 4

**FILE :** trap.c

*in trap() function , in switch case T\_IRQ0 + IRQ\_TIMER:*

```
if(myproc() && myproc()->state == RUNNING){  
    myproc()->run_ticks++;  
}
```

## TASK 5

**FILE :** syscall.h

```
#define SYS_getstats 25
```

**FILE :** syscall.c

```
extern int sys_getstats(void);
```

```
[SYS_getstats] sys_getstats,
```

## TASK 6

**FILE :** sysproc.c

```
int
sys_getstats(void)
{
    int *user_stats_ptr;

    if(argptr(0, (void*)&user_stats_ptr , 2 * sizeof(int)) < 0)
        return -1;
    struct proc * p = myproc();
    int kernel_stats[2];
    kernel_stats[0] = p->shed_count;
    kernel_stats[1] = p->run_ticks;

    if(copyout(p->pgdir , (uint)user_stats_ptr , (char*)kernel_stats ,
sizeof(kernel_stats)) < 0)
        return -1;

    return 0;
}
```

## TASK 7

**FILE :** user.h

```
struct procstats
{
    int count;
    int ticks;
};
...
int getstats(int * stats_array);
```

**FILE :** usys.S

*SYSCALL(getstats)*

## TASK 8

**FILE :** statstest.c

```
#include "types.h"
#include "stat.h"
#include "user.h"
int main(void)
{
    int stats[2];
    int i;
    for (i = 0; i < 2; i++)
    {
        // When you pass 'stats', you are correctly passing a pointer to the
        // beginning of the array .
        if (getstats(stats) == 0)
        {
            // Access the elements using array indices .
            printf(1, "Scheduled %d times , ran for %d ticks \n", stats[0],
stats[1]);
        }
    }
```

```

else
{
    printf(2, "getstats failed\n ");
}
sleep(10);
}
exit();
}

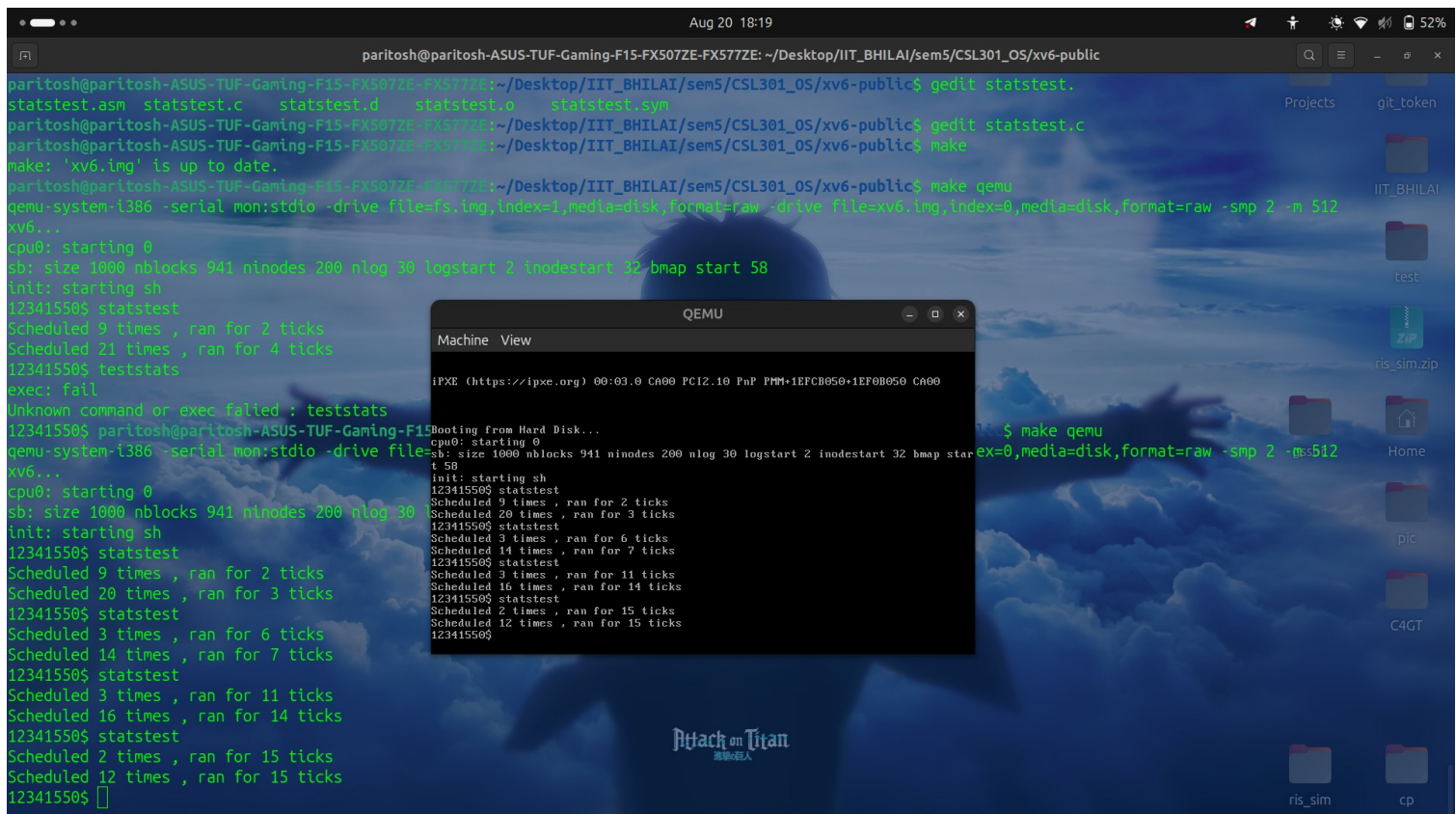
```

## TASK 9

FILE : Makefile

\_statstest\

OUTPUT :



```

paritosh@paritosh-ASUS-TUF-Gaming-F15-FX507ZE-FX577ZE: ~/Desktop/IIT_BHILAI/sem5/CSL301_OS/xv6-public
paritosh@paritosh-ASUS-TUF-Gaming-F15-FX507ZE-FX577ZE:~/Desktop/IIT_BHILAI/sem5/CSL301_OS/xv6-public$ gedit statstest.
statstest.asm statstest.c statstest.d statstest.o statstest.sym
paritosh@paritosh-ASUS-TUF-Gaming-F15-FX507ZE-FX577ZE:~/Desktop/IIT_BHILAI/sem5/CSL301_OS/xv6-public$ gedit statstest.c
paritosh@paritosh-ASUS-TUF-Gaming-F15-FX507ZE-FX577ZE:~/Desktop/IIT_BHILAI/sem5/CSL301_OS/xv6-public$ make
make: 'xv6.img' is up to date.
paritosh@paritosh-ASUS-TUF-Gaming-F15-FX507ZE-FX577ZE:~/Desktop/IIT_BHILAI/sem5/CSL301_OS/xv6-public$ make qemu
qemu-system-i386 -serial mon:stdio -drive file=fs.img,index=1,media=disk,format=raw -drive file=xv6.img,index=0,media=disk,format=raw -smp 2 -m 512
xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
12341550$ statstest
Scheduled 9 times , ran for 2 ticks
Scheduled 21 times , ran for 4 ticks
12341550$ teststats
exec: fail
Unknown command or exec failed: teststats
12341550$ paritosh@paritosh-ASUS-TUF-Gaming-F15-FX507ZE-FX577ZE:~/Desktop/IIT_BHILAI/sem5/CSL301_OS/xv6-public$ make qemu
qemu-system-i386 -serial mon:stdio -drive file=fs.img,index=1,media=disk,format=raw -drive file=xv6.img,index=0,media=disk,format=raw -smp 2 -m 512
xv6...
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
12341550$ statstest
Scheduled 9 times , ran for 2 ticks
Scheduled 20 times , ran for 3 ticks
12341550$ statstest
Scheduled 3 times , ran for 6 ticks
Scheduled 14 times , ran for 7 ticks
12341550$ statstest
Scheduled 16 times , ran for 11 ticks
Scheduled 3 times , ran for 14 ticks
12341550$ statstest
Scheduled 2 times , ran for 15 ticks
Scheduled 12 times , ran for 15 ticks
12341550$

```