Practical - 6

Aim : Consider a process executing on a CPU. Give an example scenario that can cause the process to undergo:
(a) A voluntary context switch.
(b) An involuntary context switch
Write the program for both the cases.

Voluntary Context Switch Code:

```
#include <stdio.h>
#include <unistd.h>
#include<string.h>
int main(int argc, char *argv[]){
        printf("PID : %d\n",getpid() );
        int i,j;
        char file[10];
        const char b;
        FILE *fp;
        strcpy(file,"a.txt");
        for(i = 0; i < 50000; i++){
                fp = fopen(file,"r");
                sleep(1);
                fclose(fp);
        }
}
```

Output:

```
bhishm@BhishmDaslaniya:/$ cat proc/2687/status | grep ctxt
voluntary_ctxt_switches:        595
nonvoluntary_ctxt_switches:     0
bhishm@BhishmDaslaniya:/$
```

Involuntary Context Switch Code:

```
#include <stdio.h>
#include <unistd.h>
int main(int argc, char *argv[]){
        printf("PID : %d\n",getpid());
        unsigned int i,j;
        while(1){
                j = 1;
                for(i = 1; i <= 10; i++){
                        j = j*i;
                }
        }
}
```

Output:

```
bhishm@BhishmDaslaniya:/$ cat proc/2831/status | grep ctxt
voluntary_ctxt_switches:        5
nonvoluntary_ctxt_switches:     452
bhishm@BhishmDaslaniya:/$
```

Conclusion: From this practical I learnt about voluntary and involuntary context switches.