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CHENNAI

SWE3001 – Operating Systems Laboratory Manual

Lab - 03

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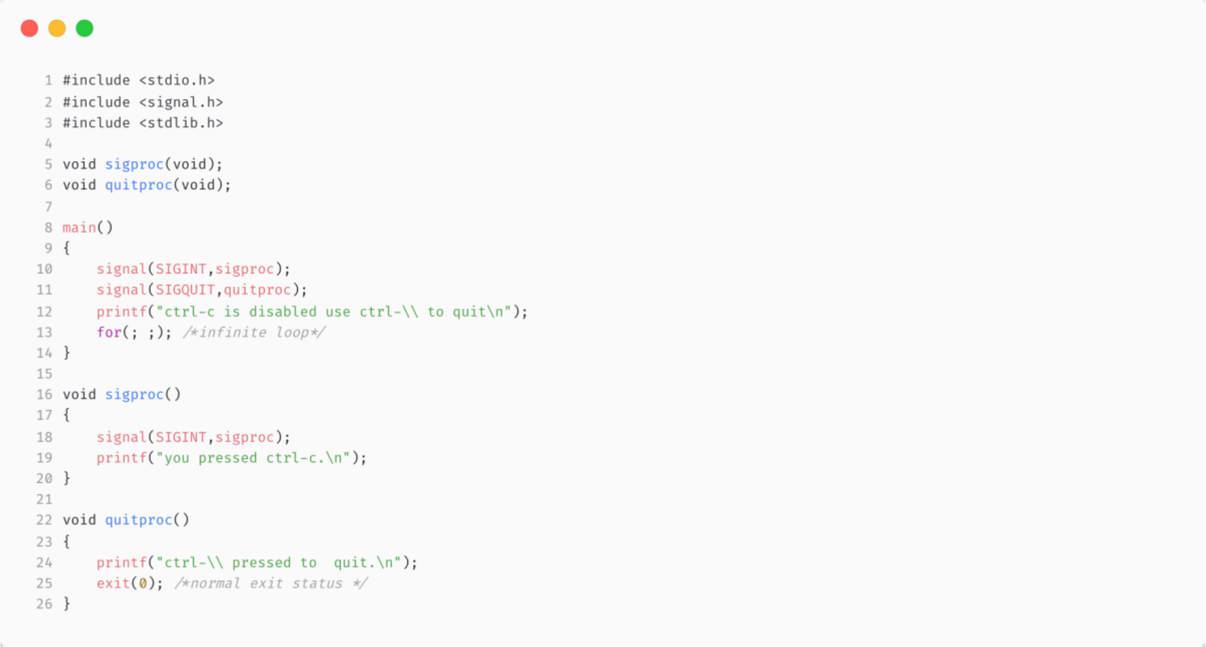
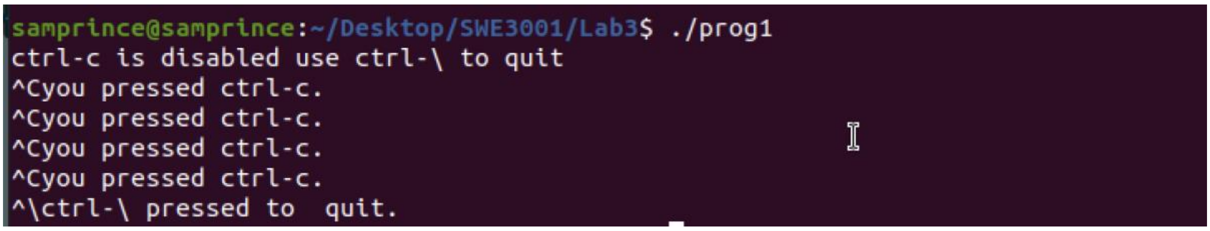
Signal Handling – signal ( )

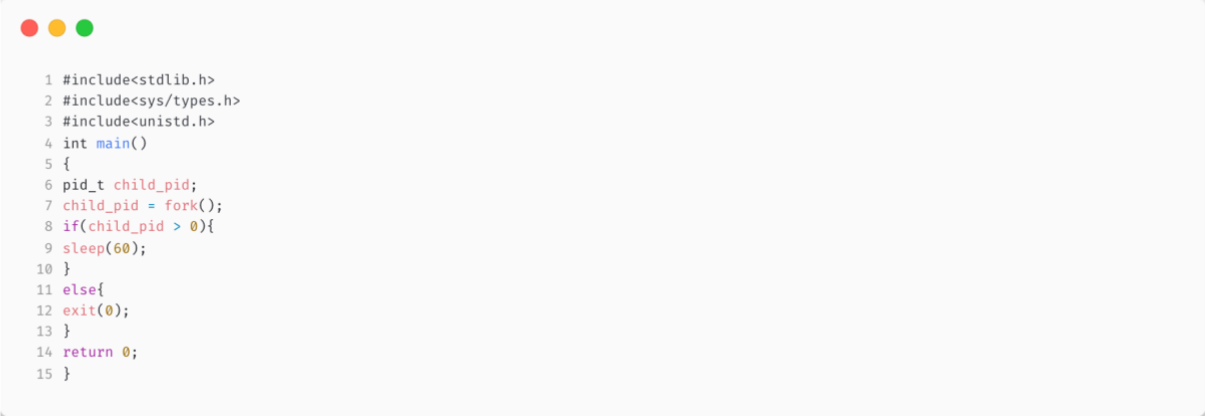


```c
#include <stdio.h>
#include <signal.h>
#include <stdlib.h>

void sigproc(void);
void quitproc(void);

main()
{
    signal(SIGINT,sigproc);
    signal(SIGQUIT,quitproc);
    printf("ctrl-c is disabled use ctrl-\\ to quit\n");
    for(; ;); /*infinite loop*/
}

void sigproc()
{
    signal(SIGINT,sigproc);
    printf("you pressed ctrl-c.\n");
}

void quitproc()
{
    printf("ctrl-\\ pressed to  quit.\n");
    exit(0); /*normal exit status */
}
```

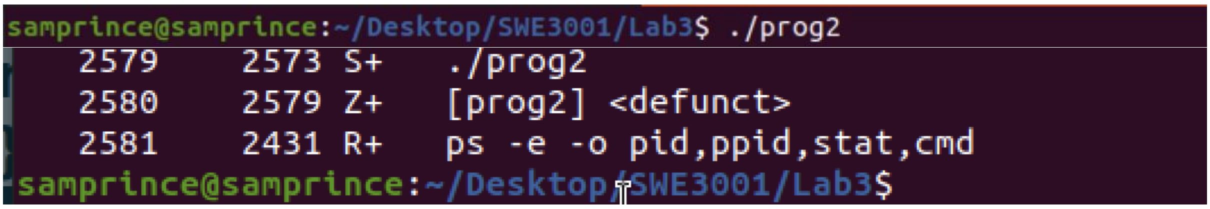


```
samprince@samprince:~/Desktop/SWE3001/Lab3$ ./prog1
ctrl-c is disabled use ctrl-\ to quit
^Cyou pressed ctrl-c.
^Cyou pressed ctrl-c.
^Cyou pressed ctrl-c.
^Cyou pressed ctrl-c.
^\ctrl-\ pressed to  quit.
```

Zombie Processes

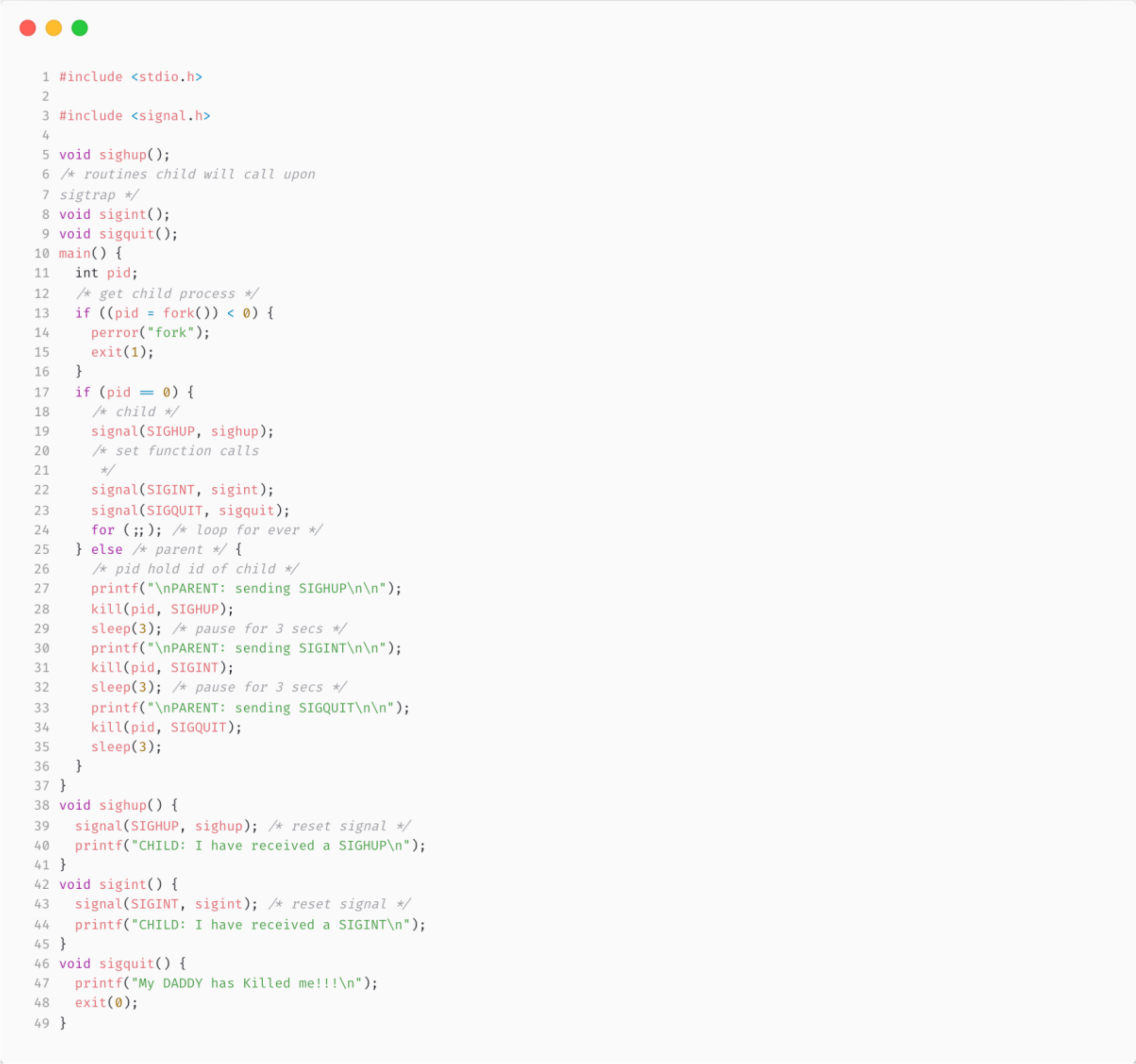


```c
#include<stdlib.h>
#include<sys/types.h>
#include<unistd.h>
int main()
{
pid_t child_pid;
child_pid = fork();
if(child_pid > 0){
sleep(60);
}
else{
exit(0);
}
return 0;
}
```

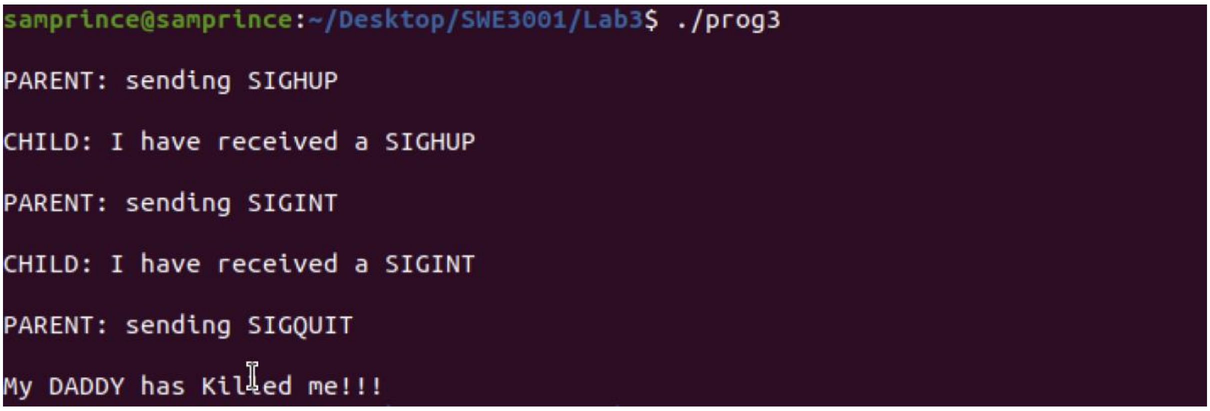


```
samprince@samprince:~/Desktop/SWE3001/Lab3$ ./prog2
   2579     2573 S+    ./prog2
   2580     2579 Z+    [prog2] <defunct>
   2581     2431 R+    ps -e -o pid,ppid,stat,cmd
samprince@samprince:~/Desktop/SWE3001/Lab3$
```

sig_talk.c



```c
#include <stdio.h>

#include <signal.h>

void sighup();
/* routines child will call upon
sigtrap */
void sigint();
void sigquit();
main() {
  int pid;
  /* get child process */
  if ((pid = fork()) < 0) {
    perror("fork");
    exit(1);
  }
  if (pid == 0) {
    /* child */
    signal(SIGHUP, sighup);
    /* set function calls
     */
    signal(SIGINT, sigint);
    signal(SIGQUIT, sigquit);
    for (;;); /* loop for ever */
  } else /* parent */ {
    /* pid hold id of child */
    printf("\nPARENT: sending SIGHUP\n\n");
    kill(pid, SIGHUP);
    sleep(3); /* pause for 3 secs */
    printf("\nPARENT: sending SIGINT\n\n");
    kill(pid, SIGINT);
    sleep(3); /* pause for 3 secs */
    printf("\nPARENT: sending SIGQUIT\n\n");
    kill(pid, SIGQUIT);
    sleep(3);
  }
}
void sighup() {
  signal(SIGHUP, sighup); /* reset signal */
  printf("CHILD: I have received a SIGHUP\n");
}
void sigint() {
  signal(SIGINT, sigint); /* reset signal */
  printf("CHILD: I have received a SIGINT\n");
}
void sigquit() {
  printf("My DADDY has Killed me!!!\n");
  exit(0);
}
```



```
samprince@samprince:~/Desktop/SWE3001/Lab3$ ./prog3

PARENT: sending SIGHUP

CHILD: I have received a SIGHUP

PARENT: sending SIGINT

CHILD: I have received a SIGINT

PARENT: sending SIGQUIT

My DADDY has Killed me!!!
```