Ερώτημα 1

Λίστα τροποποιηθέντων αρχείων:

/usr/src/servers/vfs/open.c

 Τροποποιήσεις:

/usr/src/servers/vfs/open.c

Line	Code
611	`printf("newdir: %s %o", fullpath, dirmode);`

```
-bash-4.2# mkdir -m 711 test
newdir: test 711-bash-4.2# _
```

Λίστα τροποποιηθέντων αρχείων:

/usr/src/servers/vfs/open.c

Ερώτημα 2

Λίστα τροποποιηθέντων αρχείων:

/usr/src/kernel/system/do_fork.c

Τροποποιήσεις:

/usr/src/kernel/system/do_fork.c

Line	Code
88	printf("process forked\n");

```
-bash-4.2# ps
process forked
  PID TTY  TIME CMD
  140  co  0:00 -bash
  141  c1  0:00 getty
  142  c2  0:00 getty
  143  c3  0:00 getty
28990  co  0:00 ps
-bash-4.2#
```

Ερώτημα 3

Λίστα τροποποιηθέντων αρχείων:

/usr/src/include/minix/callnr.h
/usr/src/servers/pm/table.c
/usr/src/servers/pm/proto.h
/usr/src/servers/pm/misc.c
/usr/include/prinfo.h
/usr/src/include/prinfo.c Τροποποιήσεις:

Line	Code
63	`int do_prinfo() {`
64	`register struct mproc *pr;`
65	`register int nProc=0;`
66	`register clock_t usrTime=0, sysTime=0;`
67	`for (pr=&mproc[0]; pr<&mproc[NR_PROCS]; pr++) {`
68	`    if(pr->mp_flags & IN_USE) {`
69	`        nProc++;`
70	`        usrTime+=pr->mp_child_utime;`
71	`        sysTime+=pr->mp_child_stime;`
72	`    }`
73	`  }`

Ερώτημα 4

74	printf("processes -> %d\nuser time -> %lu\nsystem time -> %lu", nProc, (unsigned long)usrTime, (unsigned long)sysTime);
75	return 0;

/usr/src/include/minix/callnr.h

Line	Code
68	#define PRINFO 69

/usr/src/servers/pm/table.c

Line	Code
83	do_prinfo,

/usr/src/servers/pm/proto.h

Line	Code
50	int do_prinfo(void);

/usr/src/servers/pm/misc.c

Line	Code
76	}
77	

/usr/src/include/prinfo.h

Line	Code
1	`#include <sys/cdefs.h>`
2	`#include <lib.h>`
3	
4	
5	
6	
7	`int prinfo()`
8	`{`
9	`    message m;`
10	
11	`    return(_syscall(PM_PROC_NR, PRINFO, &m));`
12	`}`
13	

/usr/src/include/prinfo.c

Line	Code
1	`#include "/usr/src/include/prinfo.h"`
2	`#include <stdio.h>`
3	
4	`int main() {`
5	`    prinfo();`
6	`    return 0;`

7	``` } ```
8	

```
-bash-4.2# ./axx
process forked
processes -> 39
user time -> 68
system time -> 164-bash-4.2# _
```

Ερώτημα 4

Λίστα τροποποιηθέντων αρχείων:

/usr/src/include/minix/callnr.h
/usr/src/servers/pm/table.c
/usr/src/servers/pm/proto.h
/usr/src/servers/pm/misc.c
/usr/include/psexists.h
/usr/src/include/psexists.c

Τροποποιήσεις:

/usr/src/include/minix/callnr.h

Line	Code
69	``` #define PSEXISTS 70 ```

/usr/src/servers/pm/table.c

Line	Code
84	``` do_psexists, ```

Line	Code
1	``` #include <sys/cdefs.h> ```
2	``` #include <lib.h> ```
3	

/usr/src/servers/pm/proto.h

Line	Code
51	``` int do_psexists(void); ```

/usr/src/servers/pm/misc.c

Line	Code
77	``` int do_psexists() { ```
78	``` int arg_input = m_in.m1_i1; ```

79	`register struct mproc *pr;`
80	`for (pr=&mproc[0]; pr<&mproc[NR_PROCS]; pr++) {`
81	`    if((int)pr->mp_pid == arg_input) return 1;`
82	`    }`
83	`return 0;`
84	`}`
85	

/usr/src/include/psexists.h

4	
5	
6	
7	`int psexists(int val)`
8	`{`
9	`    message m;`
10	
11	`    m.m1_i1 = val;`
12	
13	`    return(_syscall(PM_PROC_NR, PSEXISTS, &m));`
14	`}`
15	

/usr/src/include/psexists.c

Line	Code
1	`#include "/usr/src/include/psexists.h"`
2	`#include <stdio.h>`
3	`#include <stdlib.h>`

```
4

5   int main(int argc, char **argv) {

6       if (argc!=2) exit(1);

7       int i = atoi(argv[1]);

8       psexists(i);

9       return 0;

10      }

11
```