

OS Lab 2: Report

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PART 1

Implementation:

The String "Hello World" is initialized first. Then, pass the string along with 0 and its size to the function `print_char()`.

`print_char()` is implemented recursively. The stopping condition for recursion is the state where current index is less than the length of string.

In each recursive call, we first fork the process (using `fork()` function) and store it in *pid*. Then, access the index of string and print it along with *pid*.

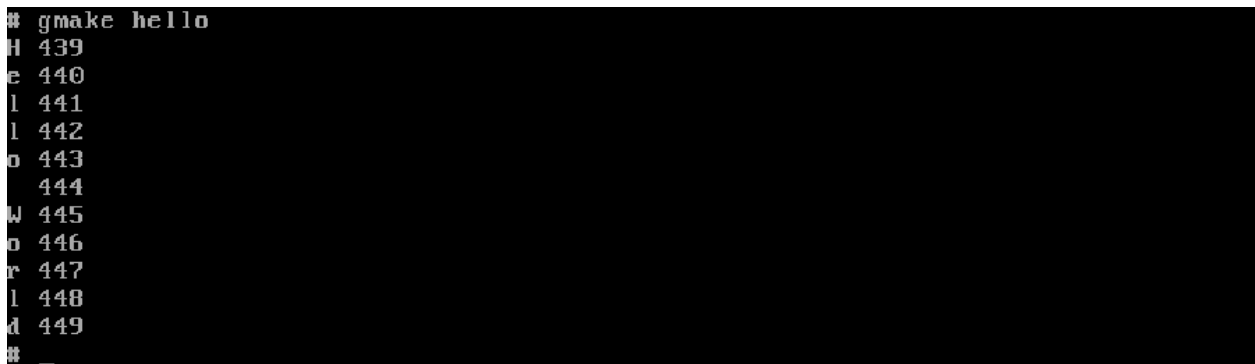
For pause, `sleep()` function is used, where a random number is generated between 1 to 4 using '%' operator:

```
sleep(rand()%4 + 1);
```

Next we call the `print_char()` function, with index as `(i+1)`.

It stops when we reach the end of the string.

Screenshot of output:



```
# gmake hello
H 439
e 440
l 441
l 442
o 443
  444
W 445
o 446
r 447
l 448
d 449
# _
```

PART 2

Implementation:

In forkexit.c file present in minix/servers/pm/ directory, add a printf() function printing the new_pid when it is generated. (i.e. at 116th line).

Similarly, add another printf() function printing the mp_pid when exit_proc() is called. (at 247th line).

Screenshots of Output:

i) After reboot:

```
Minix: PID 204 created
Minix: PID 204 exited
$kpaswdd is not enabled - see rc.conf(5).
Use the following if you wish to perform the operation:
    kpaswdd onestart
Minix: PID 203 exited
Minix: PID 199 exited
sshd Minix: PID 205 created
Starting sshd.
Minix: PID 206 created
Minix: PID 207 created
Minix: PID 206 exited
Minix: PID 205 exited
done.
Minix: PID 182 exited
Minix: PID 108 exited
Minix: PID 13 exited
Minix: PID 208 created
Minix: PID 209 created
Minix: PID 210 created
Minix: PID 211 created

Minix/i386 (192.168.29.144) (console)
login
```

ii) After login:

```
login:root
Password:
Login incorrect or refused on this terminal.
login: root
Password:
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    2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013
    The NetBSD Foundation, Inc. All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
    The Regents of the University of California. All rights reserved.

For post-installation usage tips such as installing binary
packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation

For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

Minix: PID 212 created
Minix: PID 212 exited
Minix: PID 213 created
Minix: PID 213 exited
#
```