

1.

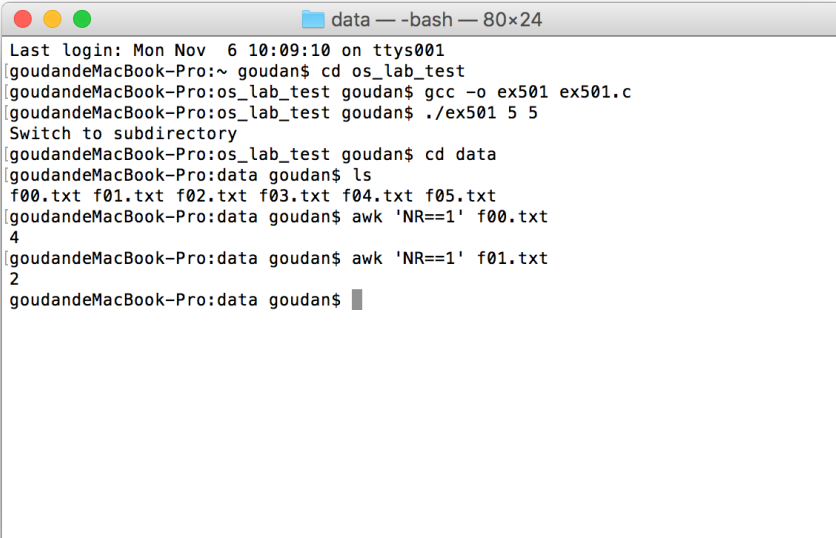
Use access() to determining if a directory exists

Use mkdir() to creating a directory

Use chdir() to switch to a directory

Use fopen() to creating .txt file

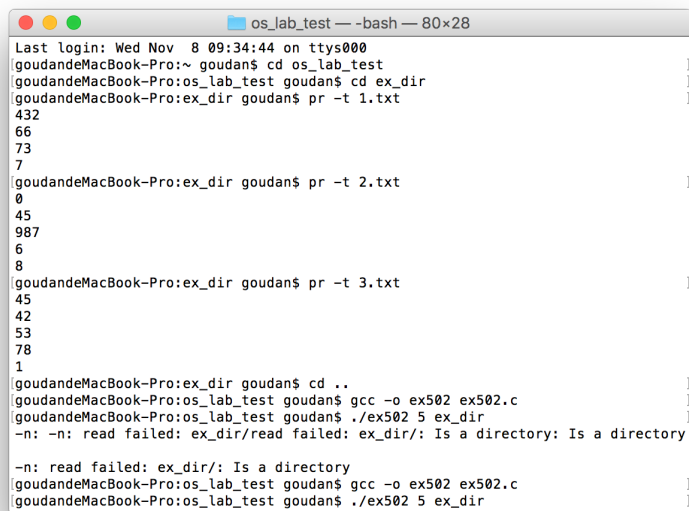
Use rand() to generate a random number



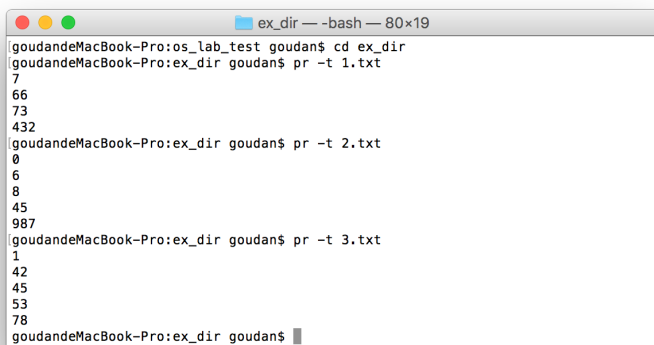
```
data — -bash — 80x24
Last login: Mon Nov  6 10:09:10 on ttys001
[goudandeMacBook-Pro:~ goudan$ cd os_lab_test
[goudandeMacBook-Pro:os_lab_test goudan$ gcc -o ex501 ex501.c
[goudandeMacBook-Pro:os_lab_test goudan$ ./ex501 5 5
Switch to subdirectory
[goudandeMacBook-Pro:os_lab_test goudan$ cd data
[goudandeMacBook-Pro:data goudan$ ls
f00.txt f01.txt f02.txt f03.txt f04.txt f05.txt
[goudandeMacBook-Pro:data goudan$ awk 'NR==1' f00.txt
4
[goudandeMacBook-Pro:data goudan$ awk 'NR==1' f01.txt
2
[goudandeMacBook-Pro:data goudan$
```

2.

```
execlp("sort", "-n", "-k", "1", "-u", "-o", strcat(dirname,buf),dirname,  
(char*)NULL);
```



```
os_lab_test -- -bash -- 80x28
Last login: Wed Nov  8 09:34:44 on ttys000
goudandeMacBook-Pro:~ goudan$ cd os_lab_test
goudandeMacBook-Pro:os_lab_test goudan$ cd ex_dir
goudandeMacBook-Pro:ex_dir goudan$ pr -t 1.txt
432
66
73
7
goudandeMacBook-Pro:ex_dir goudan$ pr -t 2.txt
0
45
987
6
8
goudandeMacBook-Pro:ex_dir goudan$ pr -t 3.txt
45
42
53
78
1
goudandeMacBook-Pro:ex_dir goudan$ cd ..
goudandeMacBook-Pro:os_lab_test goudan$ gcc -o ex502 ex502.c
goudandeMacBook-Pro:os_lab_test goudan$ ./ex502 5 ex_dir
-n: read failed: ex_dir/read failed: ex_dir/: Is a directory: Is a directory
-n: read failed: ex_dir/: Is a directory
goudandeMacBook-Pro:os_lab_test goudan$ gcc -o ex502 ex502.c
goudandeMacBook-Pro:os_lab_test goudan$ ./ex502 5 ex_dir
```



```
ex_dir -- -bash -- 80x19
goudandeMacBook-Pro:os_lab_test goudan$ cd ex_dir
goudandeMacBook-Pro:ex_dir goudan$ pr -t 1.txt
7
66
73
432
goudandeMacBook-Pro:ex_dir goudan$ pr -t 2.txt
0
6
8
45
987
goudandeMacBook-Pro:ex_dir goudan$ pr -t 3.txt
1
42
45
53
78
goudandeMacBook-Pro:ex_dir goudan$
```

3.

```
char *ars[] = {"sort", "-n -k 1 -u -o", strcat(dirname,buf),dirname,  
(char*)NULL};  
execv("sort",ars);
```