## (Optional)

### The nice Command

The nice command can run a command/program at a different priority. The syntax is:

nice [ +n | -n ] command

The value of process priority can range from -20 to 19, with 19 being the lowest. The default value of process priority is 10.

**+n**      Increment the process priority value by n.

**-n**      Decrement by n. This argument can be used only by the super user.

Example:

```
nice +4  circle&
```

will run circle in the background at priority 14 that is lower than the default.

### The nohup Command

The nohup command runs a command immune to hang-ups.

Example:

```
nohup nice +4 circle&
```

will run circle immunized from hang-up in background at priority 14.

## The find Command

You can use the find command to find files matching an expression. The syntax is:

find path ... expression

Options:

-name          Will searches a file by name.

-user          Will find all files that are owned by someone.

Example:

```
mars% find ~ -name "assignment*"
/home/sliao/2022/test/test1/assignment1
/home/sliao/2022/test/test1/assignment2
/home/sliao/2022/test/test1/assignment3
/home/sliao/2022/test/test1/assignment4
/home/sliao/2022/test/test1/assignment4/assignment3
mars%
```

## The file Command

The file command can determine file type.

Examples:

```
mars% ls -l
total 16
-rw-------. 1 sliao sliao 1206 Feb  6 16:52 2022
drwxr-xr-x. 3 sliao sliao 4096 Mar 13 12:40 PartII
-rw-------. 1 sliao sliao 1787 Feb 27 12:50 record
drwx------. 2 sliao sliao 4096 Mar  6 22:12 test
drwx------. 2 sliao sliao   40 Feb  1 23:23 test1
mars% file *
2022:   ASCII text
PartII: directory
record: ASCII text
test:   directory
test1:  directory
mars%
```

## Creating a Tape Archive:    tar

You can save and restore multiple files on a single file (tape archive) by using the tar command. To create a tape archive, the syntax is:

tar  [cvf] *taredfile path*

c:      creates a new tarfile and writes the named files onto it.

v:      makes tar print the name of each file it processes (normally tar does its work silently).

f:      tells the tar command to use the next argument as the name of the archive instead of /dev/rmtnh.

Example:

tar cvf myfiles.tar .

will tar all directories and files under current directory into myfiles.tar.

## Restoring (extracting) all files from a tared file:

tar [xvf] *taredfile*

x:      extracts all tared files from the named *taredfile*.

Example:

tar xf myfiles.tar

will extract all directories and files from myfiles.tar and restore them under the current working directory.

Example:

```
[sliao@gegenbauer sliao]$ pwd
/usr/home/sliao
[sliao@gegenbauer sliao]$ mkdir pearl
[sliao@gegenbauer sliao]$ ftp pearl
Connected to pearl.uwinnipeg.ca.
.
.
.
Name (pearl:sliao):
331 Password required for sliao.
Password:
230 User sliao logged in.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> bi
200 Type set to I.
ftp> cd /usr/local/tmp
250 CWD command successful.
ftp> get sliao.tar.Z
.
.
.
ftp> bye
221 Goodbye.
[sliao@gegenbauer sliao]$ uncompress sliao.tar.Z
[sliao@gegenbauer sliao]$ mv sliao.tar pearl
[sliao@gegenbauer sliao]$ cd pearl
[sliao@gegenbauer pearl]$ ls -l
total 1658364
-rw-rw-r--    1 sliao    sliao    1696499712 Mar 19 11:40 sliao.tar
[sliao@gegenbauer pearl]$ tar xf sliao.tar
[sliao@gegenbauer pearl]$
```

Compressing a File:  compress (uncompress)

You can compress a file by using the compress command.
The syntax is:

compress [-c] [*file…*]

-c     tells compress (uncompress) to write the output in standard
       format. No files are changed and no .Z files are created.

Examples:

compress information

will result information.Z.

uncompress information.Z

will uncompress information.Z to information.

Examples:

```
pearl% ls -l mbox
-rw-------    1 sliao     other     1879308 Mar 15 10:41 mbox
pearl% compress mbox
pearl% ls -l mbox*
-rw-------    1 sliao     other     1315683 Mar 15 10:41 mbox.Z
pearl% uncompress mbox.Z
pearl% ls -l mbox
-rw-------    1 sliao     other     1879308 Mar 15 10:41 mbox
pearl%
```

The behavior of zcat is identical to that of

uncompress -c

## The du Command

The du command can display a summary of disk usage. The syntax is:

du [-ks] [*directory*...]

-k    Write the files sizes in units of 1k bytes.

-m    Write the files sizes in units of 1m bytes.

-s    Instead of the default output, report only the total sum for each of the specified files.

Examples:

```
mars% du -sk ~
143152  /home/sliao
mars% du -sm ~
140     /home/sliao
mars%
```

You only can du a directory which you have read permission.