CS312 Homework #1 Answer Key

January 19, 2016

Questions

1. List four tasks that system administrators are expected to perform on a regular basis.

   - **Account provisioning**
   - **Adding and Removing Hardware**
   - **Performing Backups**
   - **Installing and Upgrading Software**
   - **Monitoring the System**
   - **Troubleshooting**
   - **Maintaining Local Documentation**
   - **Vigilantly Monitoring Security**
   - **"Fire Fighting"**

2. List the four early Linux distributions that most modern distributions are based off of.

   - **Slackware**
   - **Debian**
   - **RedHat**
   - **SuSE**

3. Which distribution is CentOS a re-compilation of?

(a) Fedora

(b) Debian

(c) **Redhat Enterprise Linux**

(d) Slackware

4. Which manpage section includes standard file format information?

   (a) 8

   (b) **5**

   (c) 1

   (d) 9

5. Select any of the following which is a communication channel that's created for every process in Linux.

   (a) `STDDEBUG`

   (b) **STDOUT**

   (c) `STDLOG`

   (d) **STDERR**

   (e) **STDIN**

6. Which bash argument prints each command that is run before executing it?

   (a) **-x**

   (b) `-c`

   (c) `-p`

   (d) `-v`

7. What command is used to count the number of lines, words or characters in a file?

   (a) `count`

   (b) `words`

   (c) `count-lines`

(d) **wc**

8. Write a regular expression which matches a US zip code.

   Five digit Zip Code:
   ^\d{5}$

   OR

   Five digit with extended Zip:
   ^\d{5}(-\d{4})?$

9. Given the following sshd_config authentication options, what is the suggested configuration? Please use either yes or no for each.

   (a) RhostsAuthentication **no**
   (b) RhostsRSAAuthentication **no**
   (c) RSAAuthentication **yes**
   (d) PasswordAuthentication **yes or no**
   (e) PermitRootLogin **no**

   Password Auth should probably be disabled for security reasons, however the book does not state that so either answer works.

10. Please correctly order the following boot steps.

    <u>5</u> Administrator intervention (single-user mode only)
    <u>2</u> Loading and initialization of the kernel
    <u>1</u> Reading of the boot loader from the master boot record
    <u>3</u> Device detection and configuration
    <u>6</u> Execution of system startup scripts
    <u>4</u> Creation of kernel processes

11. Which directory contains network interface settings on Redhat

    (a) /etc/network

(b) **/etc/sysconfig/network-scripts**

(c) /etc/network-interfaces

(d) /etc/conf.d/net

12. Given the following sudoers config:

```
Cmnd_Alias  SHELLS = /bin/sh, /bin/bash
john        ALL = (ALL),!SHELLS
```

The user john has the ability to run a shell as root

(a) **True**

(b) False

The user john could do the following and gain a root shell:

```
$ cp -p /bin/sh /tmp/sh
$ sudo /tmp/sh
```

13. The passwd command does not require setuid to be set.

(a) True

(b) **False**

Regular users need to be able to change their own passwords and requires setuid to be set for this to work properly.

14. Please correctly order the fields in a /etc/passwd file

7 Login shell

3 UID (user ID) number

2 Encrypted password placeholder

6 Home directory

4 Default GID (group ID) number

5 'GECOS' information

1 Login name

15. Which is the proper command to directly edit the /etc/passwd file?

(a) **vipw**

(b) `vim /etc/passwd`

(c) `useredit`

(d) `sudo vim /etc/passwd`

16. Provide the command (including the arguments) that creates a user with the following settings:

(a) Login name: `john`

(b) Shell: `/bin/false`

(c) Home directory: `/home/john`

(d) UID: `4000`

**`useradd -s /bin/false -d /home/john -m -u 4000 john`
The -d /home/john and -m aren't strictly required.**

17. If the `umask` is set to `022`, the default file permissions for **new files** would be:

(a) `723`

(b) `023`

(c) **644**

(d) `744`

18. The package manager that has support for remote repositories in CentOS is:

(a) **yum**

(b) `apt`

(c) `rpm`

(d) `deb`

19. Which top-level directory contains information about running processes?

(a) `/dev`

(b) `/sys`

(c) `/kernel`

(d) **/proc**

20. Given the following bash script:

```
VAR="The cow is brown."
echo ${VAR/brown/black and white}
```

What would it print on the prompt?

(a) **The cow is black and white.**

(b) The cow is brown.

(c) The cow is black.

(d) The cow is and white.