

IT 3100 Systems Design and Administration I

Practical Test Part I Fall 2005

Instructions:

- Complete each task as described on your IT3100 computer.
- Reference material may be used. This includes online references and completed homeworks, but does not include other people.
- The value of each task is listed in () after the task number.
- Some tasks require the completion of previous tasks. If you wish to concede points on a prerequisite step contact the instructor.
- Pass off your tasks with the instructor before leaving.
- Pass offs will cease at 8:55 a.m.

Tasks:

1. (20) Create a shell script that meets the following requirements:

- The script will be named `user_exists.bash`.
- The script will be stored in `/it3100/prac01`.
- The script will examine `/etc/passwd` to determine if a user account exists.
- The script will take one command line argument, the name of the user account.
- The script will output one of two messages: “user does exist.” or “user does not exist.”. The messages must be exact.

Sample executions:

```
./user_exists.bash bart  
bart does exist.
```

```
./user_exists.bash unicorn  
unicorn does not exist.
```

2. (20) Configure the following debian packages :

- Install `cpuid`.
- Install `nasm`.
- Remove `eject`
- Remove `mpack`

3. (30) Create the user accounts and user group as described in the following constraints:

- Create the accounts with the group listed in the table using the `make-group.bash` script from the assignments.
- Disable the `raichu` account by setting the account shell to `/bin/false`.
- Create a directory `/pokemon`.
- `/pokemon` shall be owned by the `snorlax` user and the `pokemon` group.
- The `/pokemon` directory shall have read, write and execute permissions for the user and group. It shall have no permissions for the rest of the world.

Username	Group	Real Name
snorlax	pokemon	Snorlax
pikachu	pokemon	Pikachu
raichu	pokemon	Raichu

4. (40) Create a DNS subdomain conforming to the following constraints:

- The subdomain shall be `pokemon.yourdomain` where `yourdomain` is your main domain.
- The subdomain zone file shall be stored in `/etc/bind/db.pokemon.yourdomain`.
- The subdomain shall have the host names `www`, and `mail` with A records that point to your server computer's IP address.
- The subdomain shall have the host name alias `ash` that points to the `www` host.
- For the test, do not use backup servers.

IT 3100 Systems Design and Administration I

Practical Test Part II Fall 2005

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- Pass off your tasks with the instructor before leaving.
- Pass offs will cease at 8:55 a.m.

Tasks:

1. (40) Reconfigure mail services with the following constraints:
 - Add a DNS A record so that `fire.yourdomain` will be translated to your IP address.
 - All email that is destined for `fire.yourdomain` shall be accepted for local delivery.
 - By default, email that is sent from your system shall appear to come from `fire.yourdomain`.
 - Mail for the user `betty` shall be forwarded to the `betty@ns1.horgoth.com`.
You may view this mailbox at the URL `http://east.horgoth.com/sm/`. The username and password are `betty` and `\+change\+me\+`.
 - Send an email from an email account outside of your system to `betty@fire.yourdomain`.
 - Send an email from the `pikachu` account on your system directly to `betty@ns1.horgoth.com`.
2. (40) Reconfigure the web server according to the following constraints:
 - Add a DNS CNAME record so that `www.fire.yourdomain` will be translated to `fire.yourdomain`.
 - Add a virtual host for `fire.yourdomain`.
 - Allow both `fire.yourdomain` and `www.fire.yourdomain` to identify this virtual host.
 - Set up the directory for this virtual host, `/var/www/fire.yourdomain/`.
 - Install a unique web page for this virtual host.
 - Give ownership to the directory and web pages to the `pikachu` account and the `pokemon` group. Set file permissions so that any user in the group may add or edit files in the directory.
3. (20) Reconfigure the FTP server according to the following constraints:
 - Change the anonymous ftp directory to `/var/ftp`.
 - Add a file `POKEMON.txt` to the anonymous ftp directory. The contents of the file should be a single line with your computer's IP address.

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Practical Test Part III Fall 2005

Instructions:

- Complete each task as described on your IT3100 computer.
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- The value of each task is listed in () after the task number.
- Some tasks require the completion of previous tasks. If you wish to concede points on a prerequisite step contact the instructor.
- Pass off your tasks with the instructor before leaving.
- Pass offs will cease at 8:55 a.m.

Tasks:

1. (30) Configure the database management system as follows:
 - Create a database called **rock**.
 - Create a user **geodude** that has all privileges on the **rock** database. Give the user the password **graveler**.
 - From the **bash** prompt issue the following command.

```
# mysqldump -u root -p mysql > MYSQL-DATA-01.sql
```
 - Delete the **mysql geodude** user.
 - Delete the **rock** database entry from the **mysql** administration tables.
 - From the **bash** prompt issue the following command.

```
# mysqldump -u root -p mysql > MYSQL-DATA-02.sql
```
 - Move the 2 **.sql** files created above to **/it3100/prac03/**.
2. (40) Complete the following filesystem tasks.
 - Re-use one of the partitions from the partition assignment. (You will need to report the partition name for passoff).
 - Be sure the partition is not mounted before beginning this work.
 - Create an **ext2** filesystem.
 - The filesystem shall have 1 percent of the space reserved for the super user.
 - The filesystem shall have a block size of 2048 bytes.
 - The filesystem shall have 48192 inodes.
 - Measure the maximum number of files and the largest file that can be stored on this file system by a non-root user. Store these numbers in the file **/it3100/prac03/counts.txt**, one number per line, with the big file size first.
Sample file for 1 million bytes in the largest file, and 1 thousand files:

```
1000000
1000
```

3. (30) Install the simple web application as follows:

- Install the package `WaterPokemon.tgz` found on the course examples page. Unpack the package and follow the instructions in the `README.txt` file. Use the following parameters:
 - The database shall be called `mizu`.
 - The `mysql` user shall be called `h2o`. The password for `h2o` shall be `hydrogendioxide`.
- Directories already exist for `psyduck` and `golduck`. Use the web interface to add their links to the list of sites listed on the web page.
- From the `bash` prompt issue the following commands.

```
# mysqldump -u root -p mysql > MYSQL-DATA-03.sql
# mysqldump -u root -p mizu > MYSQL-DATA-04.sql
```
- Move the 2 `.sql` files created above to `/it3100/prac03/`.