

# CS312 Project #2 Answer Key

March 2, 2016

## Questions

1. Name and describe the four components of Ansible.

**Modules:** Python-driven code that actually does the work in Ansible and executed on the remote host.

**Inventory:** Defines how Ansible will interact with remote hosts and defines hosts, groups of hosts in a logical manner. You also define host and group variables inside the inventory.

**Playbooks:** Ansible's configuration, deployment and orchestration language that uses the YAML format.

**Roles:** Reusable list of tasks and playbooks typically centered in a specific task, such as deploying a web service

2. Name the Ansible fact variable which provides the operating system family.

**`ansible_os_family`**

3. Show an Ansible inventory file that would do the following:

- Two groups named `oregon` and `washington`
- The `oregon` group contains hosts `www1`, `www2` ... through `www100`
- The `washington` group contains hosts `db1`, `db5` and `www`
- Set the variable `db_host=db.example.org` for the `oregon` group

- Create a group called `pnw` which contains the `oregon` and `washington` groups

```
[oregon]
www[1:100]
```

```
[oregon:vars]
db_host=db.example.org
```

```
[washington]
db1
db5
www
```

```
[pnw:children]
oregon
washington
```

4. Provide an Ansible host pattern that includes all hosts from groups `foo` and `bar` but only if they are also in the `production` group.

**`foo:bar:&production`**

5. Describe the difference between Ansible Roles and Playbooks.

**Ansible Roles contain Playbooks and offer a method for reusing playbooks in an easier manner. Playbooks are more of a lower level way to configure Ansible while Roles provide a way to organize the playbooks in an optimal way.**

6. Handlers in Ansible can only be triggered once

- (a) **True**
- (b) **False**

7. Construct an Ansible playbook that does the following. Include the YAML file and the output from running it with `ansible-playbook -v`.

- Create two loop back devices using `dd` and `losetup` that are each 200M
- Create a volume group named `ansible_vg` using the loop back devices

- Create a logical volume named `data` from the volume group described above with the size of 50M
- Create a logical volume named `www` from the volume group described above filling the remaining space
- Delete a logical volume named `backup` from the volume group described above

See repository at <https://github.com/osuosl/cs312-hw-ansible> and file `proj2/q7.yml` for answer.

8. Provide an Ansible template that will output an HTML file with the following information included which is sourced from Ansible Facts:
  - Hostname
  - Lists all IP addresses
  - Linux distribution name and release version
  - The amount of free memory
  - The total size of `/dev/vda1`

See repository at <https://github.com/osuosl/cs312-hw-ansible> and file `proj2/q8.html.j2` for answer.

9. Construct an Ansible playbook that does the following. Include the YAML file and the output from running it with `ansible-playbook -v`.
  - Installs `epel-release`, `httpd`, `git`, `python-pip` and `python-virtualenv`
  - Enables and starts the `httpd` service
  - Create a system user named `cs312`
  - Using `git`, clone the CS312 class site repository `https://github.com/osuosl/cs312.git` into `/var/www/cs312`
  - Executes the script `scripts/build.sh` inside of the repository

See repository at <https://github.com/osuosl/cs312-hw-ansible> and file `proj2/q9.yml` for answer.

10. Create a new role which does the following. Include all the files (include directories) in a **single** zip or tarball file including the output of running `ansible-playbook -v`.
- Convert the single playbook in #9 into roles splitting out each task as its own role using the recommended best practice
  - Using the template in #8, set the destination to `/var/www/html/index.html`
  - Create a symlink from `/var/www/cs312/build/html` to `/var/www/html/cs312`
  - Set the default playbook (`site.yml`) to use all of the roles and run `ansible-playbook -v` with the playbook.
  - Go to the IP address for your VM in your web browser and ensure that the url `http://<your_ip>/index.html` shows the content of your template, and the CS312 website is accessible at `http://<your_ip>/cs312`

**See repository at <https://github.com/osuosl/cs312-hw-ansible> and directory `proj2/q10` for answer.**