

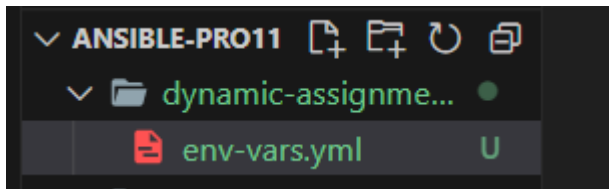
PROJECT 13

ANSIBLE DYNAMIC ASSIGNMENT AND CONCEPT OF ROLES

In this project, we introduced the concept of the use of Dynamic assignments. The major difference between static and dynamic assignments is in the use of `import` and `include` statements.

Include does similar thing as Imports but differs because it is dynamic. Dynamic in the sense that ansible is able pick changes in playbooks added to a master playbook in real time. In import ansible preprocesses everything runs the playbook with the data it has. Changes made while executing the playbook is ignored.

- I Created a folder called `dynamic-assignments` and a file inside it called `env-vars.yml`.



- I Started a new branch called `dynamic-assignments` in my `ansible-pro11` GitHub repository;

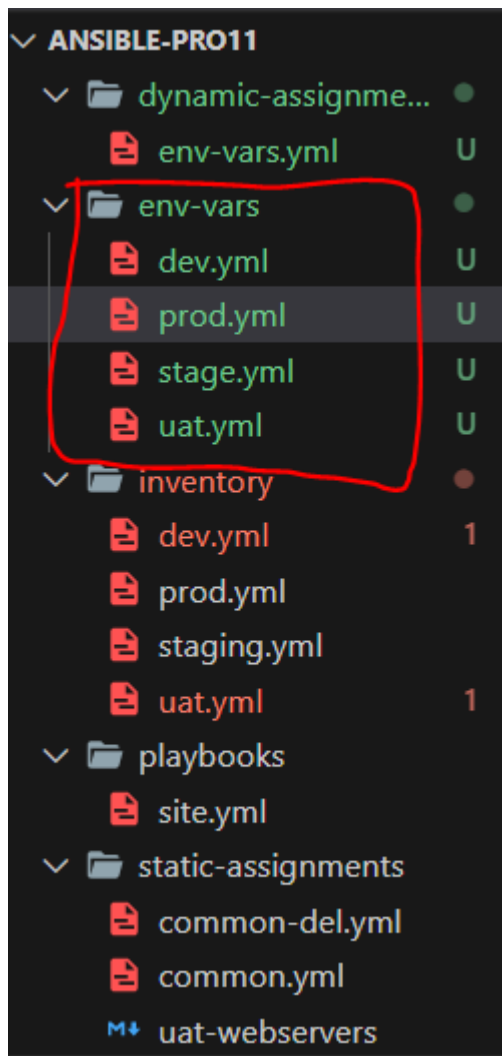
```
HP@DESKTOP-RG8894F MINGW64 ~/Pro11/Ansible-Pro11 (main)
$ git checkout -b dynamic-assignments
Switched to a new branch 'dynamic-assignments'

HP@DESKTOP-RG8894F MINGW64 ~/Pro11/Ansible-Pro11 (dynamic-assignments)
$
```

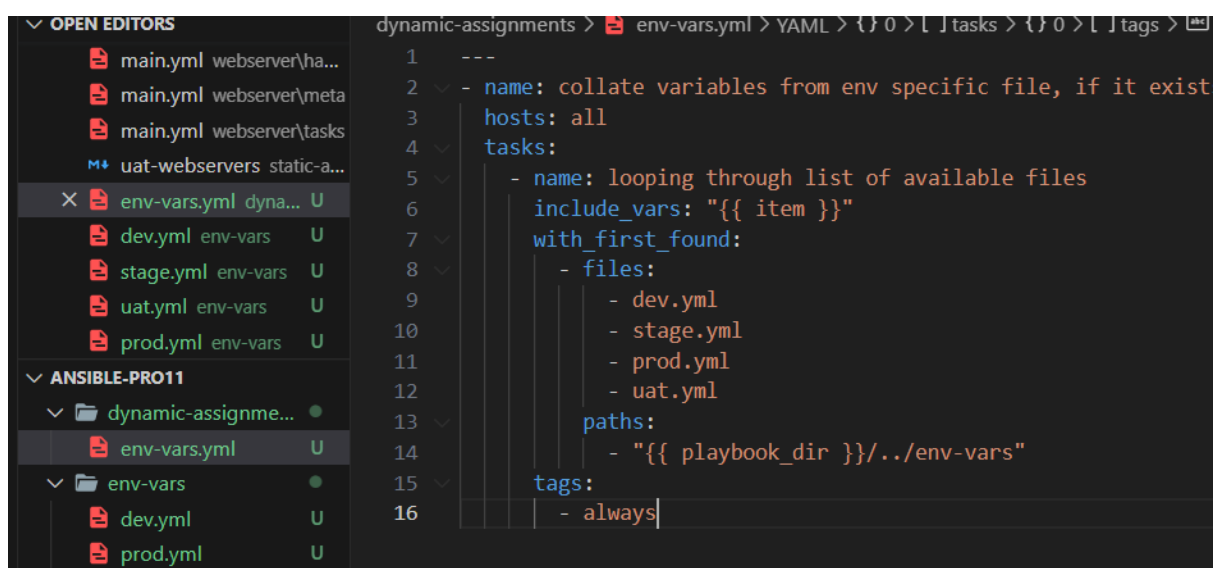
Since we will be using the same Ansible to configure multiple environments, and each of these environments will have certain unique attributes, such as **servername**, **ip-address** etc., we will need a way to set values to variables per specific environment.

For this reason, we will now create a folder to keep each environment's variables file. Therefore, create a new folder `env-vars`, then for each environment, create new **YAML** files which we will use to set variables.

Your layout should now look like this;

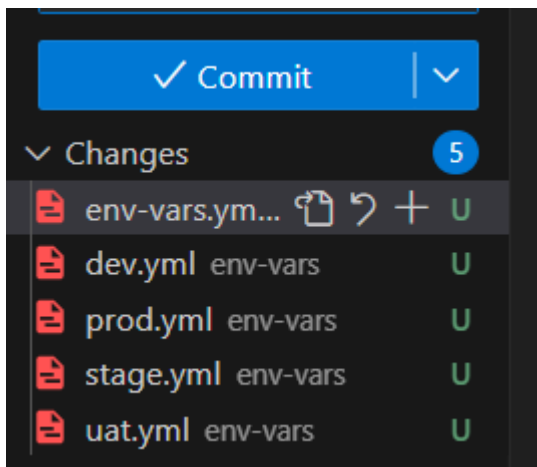


- Now paste the instruction below into the `env-vars.yml` file

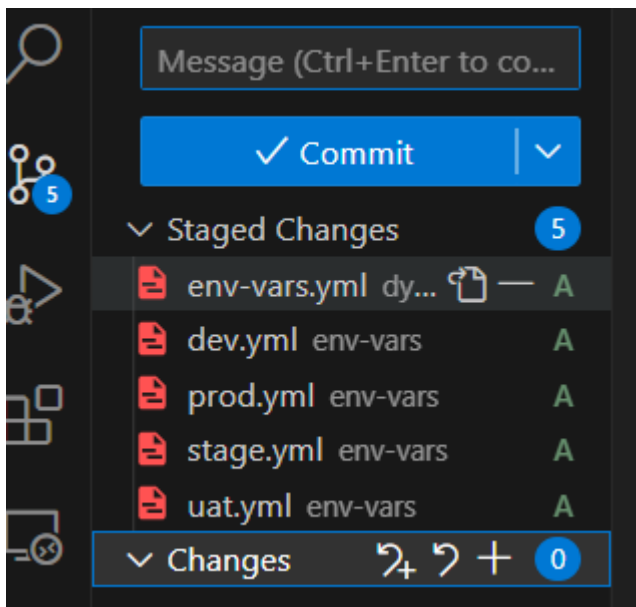


- At this moment I committed my code;

Before the commit;



After the commit;



UPDATE SITE.YML WITH DYNAMIC ASSIGNMENTS

```
playbooks > site.yml > YAML > {} 3
You, 4 minutes ago | 1 author (You) | Ansible Playbook - Ansible playbook files (ansible.json)
1  ---
2  - hosts: all
3  - name: Include dynamic variables
4    tasks:
5      import_playbook: ../static-assignments/common.yml
6      include: ../dynamic-assignments/env-vars.yml
7    tags:
8      - always
9
10 - hosts: uat-webservers
11 - import_playbook: ../static-assignments/uat-webservers.yml
12
```

Community Roles

Download Mysql Ansible Role

```
ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ sudo ansible-galaxy install geerlingguy.mysql
- downloading role 'mysql', owned by geerlingguy
- downloading role from https://github.com/geerlingguy/ansible-role-mysql/archive/4.3.3.tar.gz
- extracting geerlingguy.mysql to /home/ubuntu/ansible-config-artifact/roles/geerlingguy.mysql
- geerlingguy.mysql (4.3.3) was installed successfully
ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ ls
geerlingguy.mysql  webserver
ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ mv geerlingguy.mysql/ mysql
mv: cannot move 'geerlingguy.mysql/' to 'mysql': Permission denied
ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ sudo mv geerlingguy.mysql/ mysql
ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ ls
mysql  webserver
ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$
```

```
git add .
git commit -m "Commit new role files into GitHub"
git push --set-upstream origin roles-feature
```

```
ubuntu@ip-172-31-24-30:~/ansible-config-artifact$ git push --set-upstream origin roles-feature
Enumerating objects: 69, done.
Counting objects: 100% (69/69), done.
Delta compression using up to 2 threads
Compressing objects: 100% (61/61), done.
Writing objects: 100% (68/68), 20.54 KiB | 1.21 MiB/s, done.
Total 68 (delta 10), reused 0 (delta 0)
remote: Resolving deltas: 100% (10/10), completed with 1 local object.
remote:
remote: Create a pull request for 'roles-feature' on GitHub by visiting:
remote:   https://github.com/ovaga/Ansible-Pro11/pull/new/roles-feature
remote:
To https://github.com/ovaga/Ansible-Pro11.git
 * [new branch]      roles-feature -> roles-feature
Branch 'roles-feature' set up to track remote branch 'roles-feature' from 'origin'.
ubuntu@ip-172-31-24-30:~/ansible-config-artifact$
```

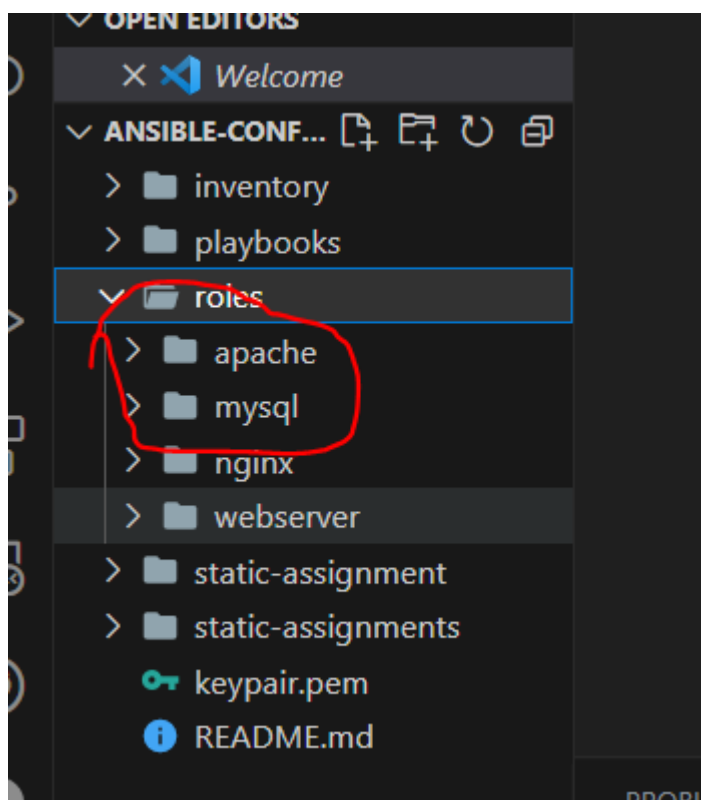
The screenshot shows the GitHub web interface for a repository. At the top, there's a navigation bar with 'main' selected, '5 branches', and '0 tags'. A 'Go to' button is on the right. Below this, a 'Switch branches/tags' dropdown menu is open. It has a search bar with the text 'Find or create a branch...'. Under the 'Branches' tab, a list of branches is shown: 'main' (checked and marked 'default'), 'branch4project11', 'dynamic-assignments', 'refactor', and 'roles-feature' (which is circled in red). A 'View all branches' link is at the bottom of the list. To the right of the dropdown, a commit history table is visible, showing a commit on the 'roles-feature' branch with the message 'Commit new role files into GitHub'. Below the commit history, a file named 'README.md' is shown with an 'update' status.

LOAD BALANCER ROLES

Using ansible galaxy, installing configuration roles for apache and nginx. This configurations have been pre-written and referenced inside our static-assignments.

```
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact$ cd roles
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ ansible-galaxy install geerlingguy.nginx
- downloading role 'nginx', owned by geerlingguy
- downloading role from https://github.com/geerlingguy/ansible-role-nginx/archive/3.1.4.tar.gz
- extracting geerlingguy.nginx to /home/ubuntu/ansible-config-artifact/roles/geerlingguy.nginx
- geerlingguy.nginx (3.1.4) was installed successfully
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ ansible-galaxy install geerlingguy.apache
- downloading role 'apache', owned by geerlingguy
- downloading role from https://github.com/geerlingguy/ansible-role-apache/archive/3.3.0.tar.gz
- extracting geerlingguy.apache to /home/ubuntu/ansible-config-artifact/roles/geerlingguy.apache
- geerlingguy.apache (3.3.0) was installed successfully
○ ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$
```

```
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ ls
geerlingguy.apache geerlingguy.nginx mysql webserver
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ mv geerlingguy.nginx/ nginx
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ mv geerlingguy.apache/ apache
● ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$ ls
apache mysql nginx webserver
○ ubuntu@ip-172-31-24-30:~/ansible-config-artifact/roles$
```



It is now time to twirk the configurations;

```

ANSIBLE-PROJ...
├── dynamic-assignments
├── env-vars
├── inventory
├── playbooks
├── roles
│   ├── apache
│   ├── mysql
│   └── nginx
├── static-assignments
│   ├── common-del.yml
│   ├── common.yml
│   ├── db.yml
│   ├── lb.yml
│   └── uat-webservers
├── webserver
└── README.md

ubuntu@ip-172-31-24-30:~$ ansible uat-webservers -m ping
ansible uat-webservers: command not found
ubuntu@ip-172-31-24-30:~$ ansible uat-webservers -m ping
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names but is
configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by
setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
[DEPRECATION WARNING]: Distribution rhel 9.2 on host 172.31.19.230 should use /usr/libexec/platform-python for
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered python
https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more info
Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
172.31.19.230 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
[DEPRECATION WARNING]: Distribution rhel 9.2 on host 172.31.25.233 should use /usr/libexec/platform-python for
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered python
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172.31.25.233 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}

```

```

ubuntu@ip-172-31-24-30:~$ ansible uat-webservers -m ping
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names but is
configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by
setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
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Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
172.31.19.230 | SUCCESS => {
  "ansible_facts": {
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  },
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Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
172.31.25.233 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
ubuntu@ip-172-31-24-30:~$

```

```
dev.yml
prod.yml
staging.yml
uat.yml
playbooks
├── roles
├── apache
├── mysql
├── .github
├── defaults
│   └── main.yml
├── handlers
├── meta
├── molecule
├── tasks
├── templates
├── vars
└── .ansible-lint
> OUTLINE

ubuntu@ip-172-31-24-30:~/Ansible-Pro11$ ansible-playbook -i inventory/uat.yml playbooks/site.yml
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this w
configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting deprecat
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [collate variables from env specific file, if it exists] *****

TASK [Gathering Facts] *****
[DEPRECATION WARNING]: Distribution rhel 9.2 on host 172.31.25.233 should use /usr/libexec/platform-python, but is using /usr/bin/p
prior Ansible releases. A future Ansible release will default to using the discovered platform python for this host. See
https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information. This feature will be re
warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [172.31.25.233]
[DEPRECATION WARNING]: Distribution rhel 9.2 on host 172.31.19.230 should use /usr/libexec/platform-python, but is using /usr/bin/p
prior Ansible releases. A future Ansible release will default to using the discovered platform python for this host. See
https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information. This feature will be re
warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [172.31.19.230]

TASK [looping through list of available files] *****
ok: [172.31.25.233] => (item=/home/ubuntu/Ansible-Pro11/env-vars/dev.yml)
ok: [172.31.19.230] => (item=/home/ubuntu/Ansible-Pro11/env-vars/dev.yml)

PLAY [uat-webservers] *****

TASK [Gathering Facts] *****
ok: [172.31.25.233]
```