



INDIAN INSTITUTE OF
INFORMATION
TECHNOLOGY

DevOps & its Applications (CS457)

Assignment 2

Under the Guidance of - **Dr. Uma S**

Submitted by -

Advay Aggarwal (18BCS002)

Meghna Hadimani (18BCS052)

Perumalla Tushar (18BCS065)

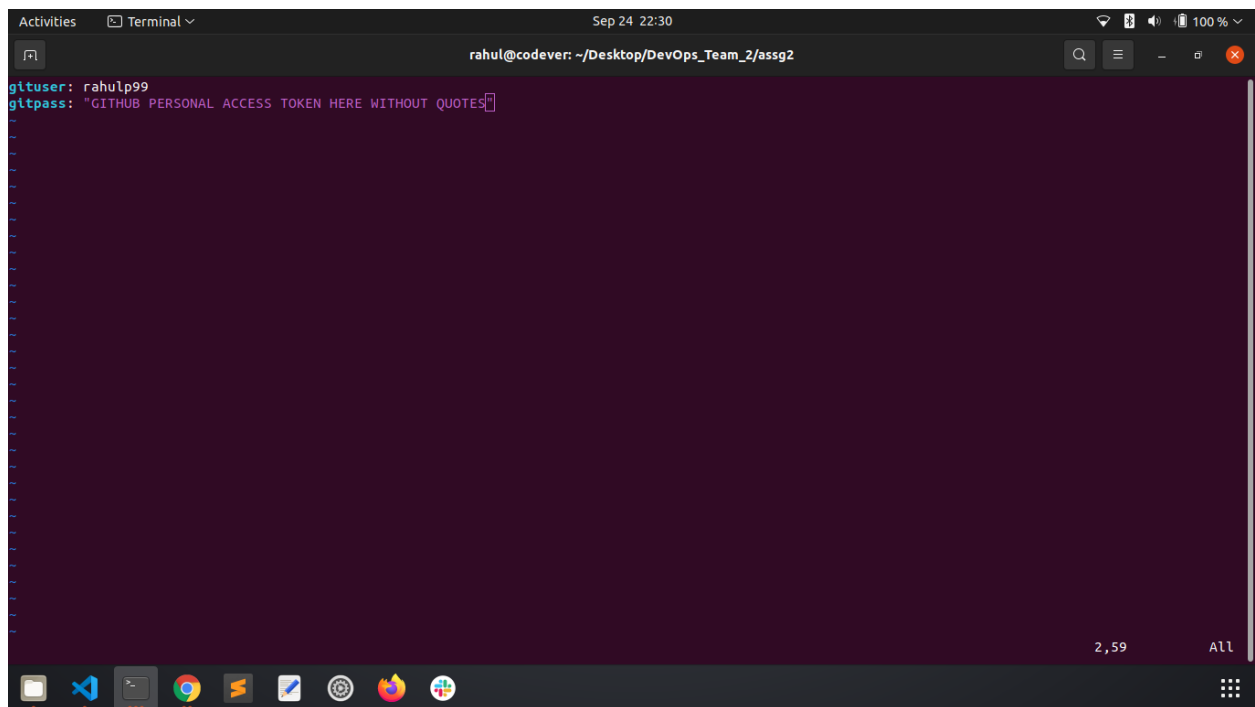
Rahul Priyadarshi (18BCS074)

Samana B S (18BCS088)

Ansible Playbook to checkout Web App source code from Git Repo and deploy on AWS EC2 Instance

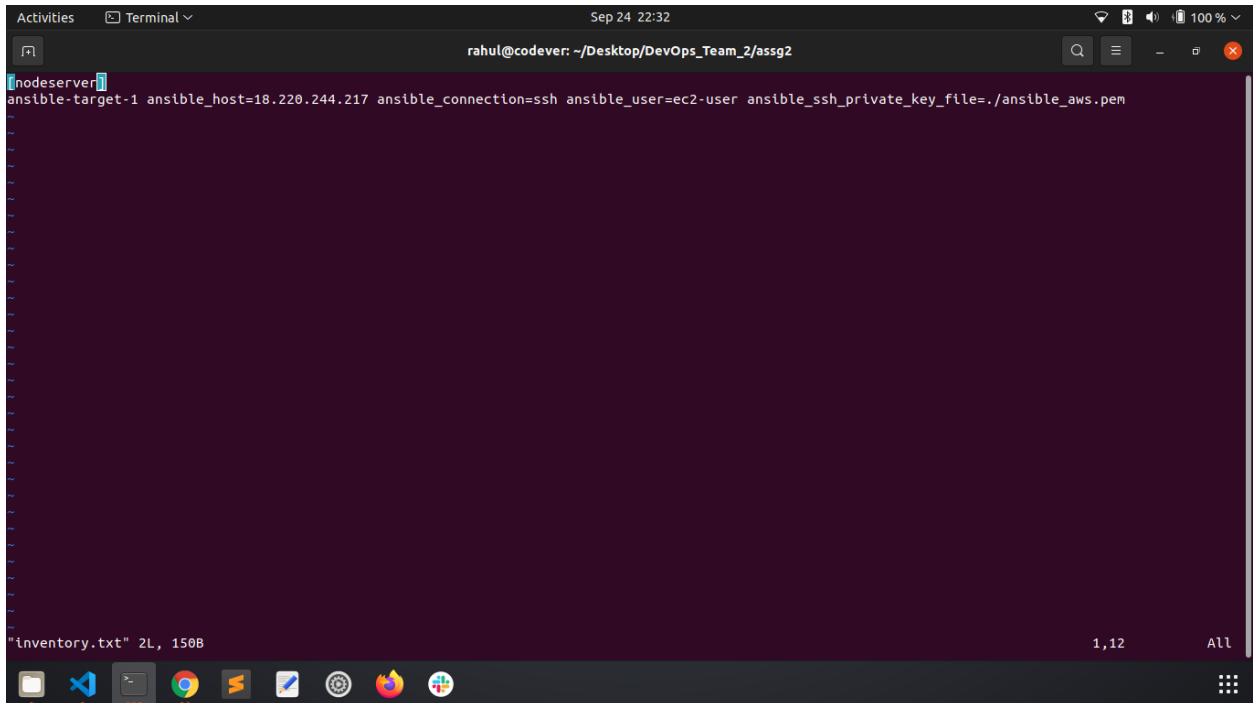
Step 1: First we have to create a Personal Access Token (PAT) for GitHub (or, any other platform like BitBucket).

Step 2: Then we have to create a `secret.yml` file which will contain our GitHub userID and PAT and encrypt it within `ansible-vault`. (Command shown in the first terminal screenshot below). The `secret.yml` file format is shown in the screenshot below.

A terminal window screenshot with a dark background. The title bar shows 'Activities', 'Terminal', and the date 'Sep 24 22:30'. The terminal text shows the user 'rahul@codever' at the directory '~/Desktop/DevOps_Team_2/assg2'. The prompt 'gituser:' is followed by 'rahulp99'. The prompt 'gitpass:' is followed by '"GITHUB PERSONAL ACCESS TOKEN HERE WITHOUT QUOTES"'. The terminal has a scrollbar on the right showing '2,59' and 'All'. The bottom of the window shows a Linux desktop taskbar with icons for various applications.

```
rahul@codever: ~/Desktop/DevOps_Team_2/assg2
gituser: rahulp99
gitpass: "GITHUB PERSONAL ACCESS TOKEN HERE WITHOUT QUOTES"
```

Step 3: Now we have to create our inventory file (inventory.txt here). This file contains the details (like public IP, private-key file name, etc) of the EC2 instance where we will be deploying the web app.

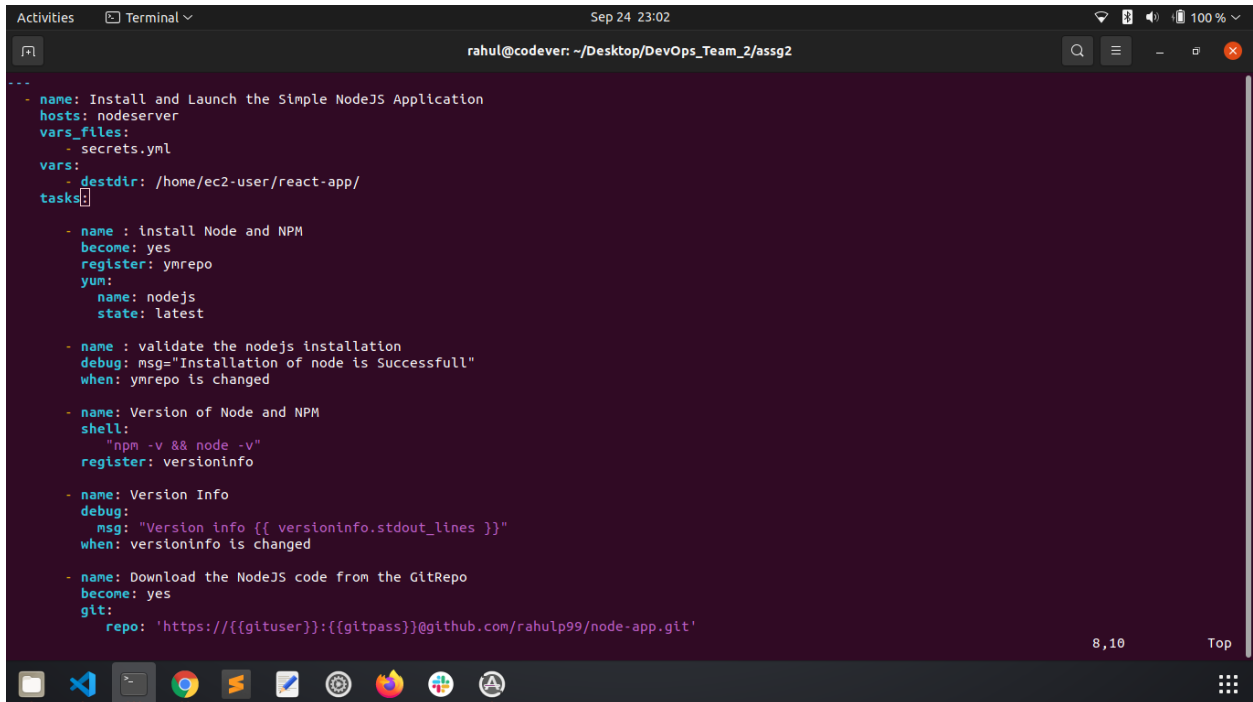


A terminal window titled 'rahul@codever: ~/Desktop/DevOps_Team_2/assg2' showing the contents of a file named 'inventory.txt'. The file contains the following text:

```
nodeserver
ansible-target-1 ansible_host=18.220.244.217 ansible_connection=ssh ansible_user=ec2-user ansible_ssh_private_key_file=./ansible_aws.pem
```

The terminal window also shows the file size '1,12' and 'All' at the bottom right.

Step 4: Then we have to create our Ansible Playbook (deploy2.yml here). The contents of the playbook have been shown in three screenshots below.



A terminal window titled 'rahul@codever: ~/Desktop/DevOps_Team_2/assg2' showing the contents of a file named 'deploy2.yml'. The file contains the following text:

```
---
- name: Install and Launch the Simple NodeJS Application
  hosts: nodeserver
  vars_files:
    - secrets.yml
  vars:
    - destdir: /home/ec2-user/react-app/
  tasks:
    - name: install Node and NPM
      become: yes
      register: ymrepo
      yum:
        name: nodejs
        state: latest

    - name: validate the nodejs installation
      debug: msg="Installation of node is Successfull"
      when: ymrepo is changed

    - name: Version of Node and NPM
      shell:
        "npm -v && node -v"
      register: versioninfo

    - name: Version Info
      debug:
        msg: "Version info {{ versioninfo.stdout_lines }}"
      when: versioninfo is changed

    - name: Download the NodeJS code from the GitRepo
      become: yes
      git:
        repo: 'https://[gituser]:[gitpass]@github.com/rahulp99/node-app.git'
```

The terminal window also shows the file size '8,10' and 'Top' at the bottom right.

```
Activities Terminal Sep 24 23:03 rahul@codever: ~/Desktop/DevOps_Team_2/assg2

- name: Download the NodeJS code from the GitRepo
  become: yes
  git:
    repo: 'https://{{gituser}}:{{gitpass}}@github.com/rahulp99/node-app.git'
    dest: '{{ destdir }}'

- name: Change the ownership of the directory
  become: yes
  file:
    path: '{{destdir}}'
    owner: 'ec2-user'
    register: chgrpout

- name: Install Dependencies with NPM install command
  shell:
    'sudo npm install'
  args:
    chdir: '{{ destdir }}'
  register: npminstlout

- name: Debug npm install command
  debug: msg='{{npminstlout.stdout_lines}}'

- name: Start the App
  async: 10
  poll: 0
  shell:
    '(node app.js > nodesrv.log 2>&1 &)'
  args:
    chdir: '{{ destdir }}'
  register: appstart

35,18 76%
```

```
Activities Terminal Sep 24 23:03 rahul@codever: ~/Desktop/DevOps_Team_2/assg2

  file:
    path: '{{destdir}}'
    owner: 'ec2-user'
    register: chgrpout

- name: Install Dependencies with NPM install command
  shell:
    'sudo npm install'
  args:
    chdir: '{{ destdir }}'
  register: npminstlout

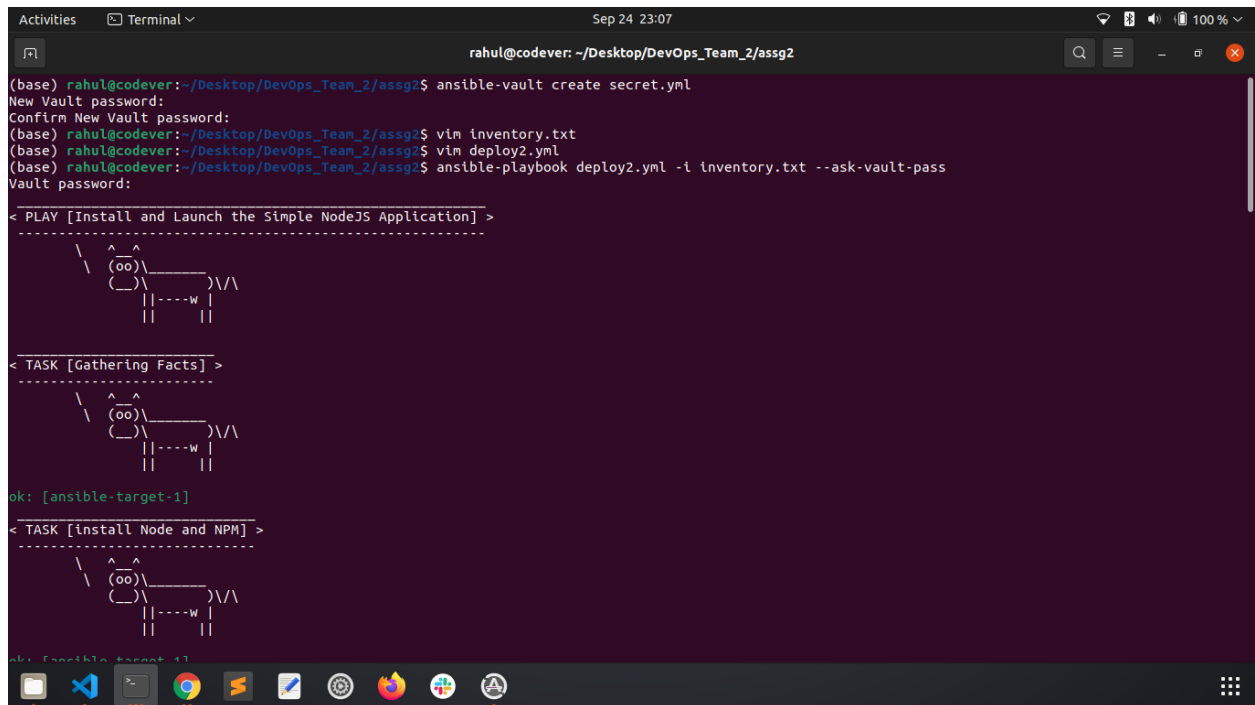
- name: Debug npm install command
  debug: msg='{{npminstlout.stdout_lines}}'

- name: Start the App
  async: 10
  poll: 0
  shell:
    '(node app.js > nodesrv.log 2>&1 &)'
  args:
    chdir: '{{ destdir }}'
  register: appstart

- name: Validating the port is open
  tags: nodevalidate
  wait_for:
    host: 'localhost'
    port: 5000
    delay: 10
    timeout: 30
    state: started
    msg: "NodeJS server is not running"

71,18 Bot
```

Step 5: Now the final step is to run the Ansible Playbook that we have created above. Complete execution and workflow for this assignment have been shown in the five screenshots below.



```
(base) rahul@codever: ~/Desktop/DevOps_Team_2/assg2
New Vault password:
Confirm New Vault password:
(base) rahul@codever:~/Desktop/DevOps_Team_2/assg2$ vim inventory.txt
(base) rahul@codever:~/Desktop/DevOps_Team_2/assg2$ vim deploy2.yml
(base) rahul@codever:~/Desktop/DevOps_Team_2/assg2$ ansible-playbook deploy2.yml -i inventory.txt --ask-vault-pass
Vault password:

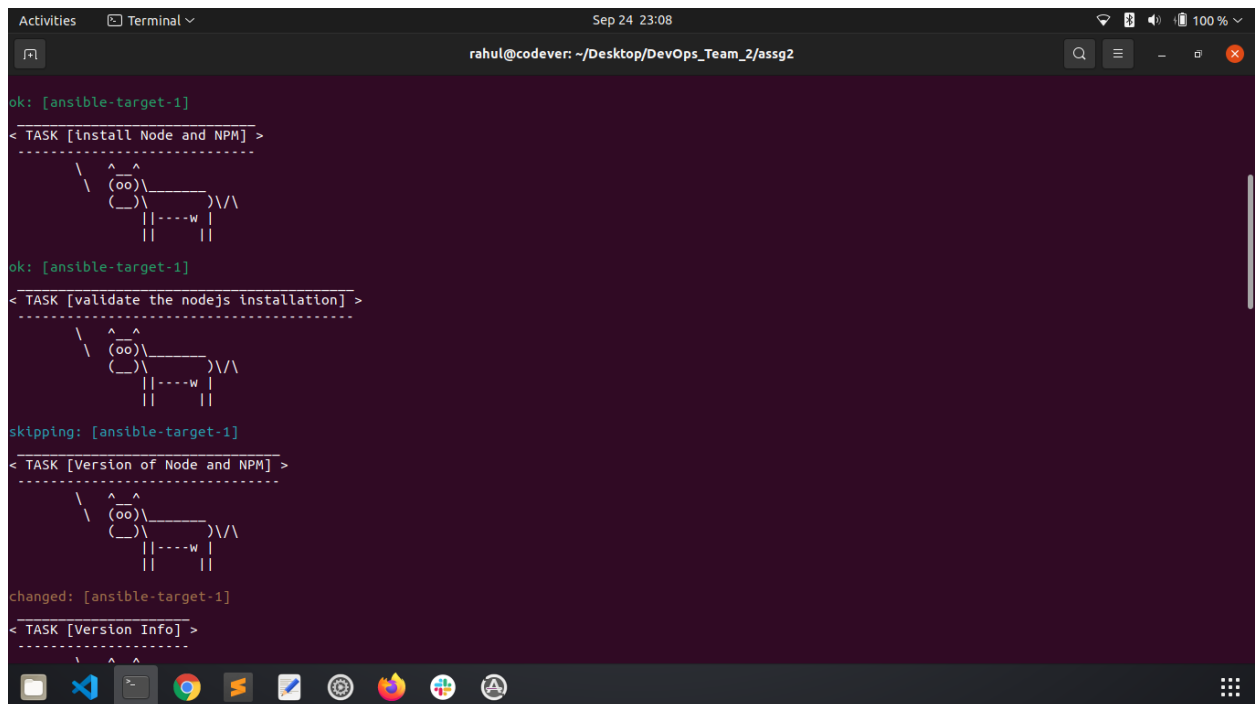
< PLAY [Install and Launch the Simple NodeJS Application] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||

< TASK [Gathering Facts] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||

ok: [ansible-target-1]

< TASK [install Node and NPM] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||

ok: [ansible-target-1]
```



```
ok: [ansible-target-1]

< TASK [install Node and NPM] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||

ok: [ansible-target-1]

< TASK [validate the nodejs installation] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||

skipping: [ansible-target-1]

< TASK [Version of Node and NPM] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||

changed: [ansible-target-1]

< TASK [Version Info] >
-----
      ^
      ^
  (oo)\_____
  (__) \       )\/\
      ||----w |
      ||     ||
```

```
Activities Terminal Sep 24 23:08
rahul@codever: ~/Desktop/DevOps_Team_2/assg2

< TASK [Version Info] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||

ok: [ansible-target-1] => {
  "msg": "Version Info ['6.14.11', 'v10.24.0']"
}

< TASK [Download the NodeJS code from the GitRepo] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||

changed: [ansible-target-1]

< TASK [Change the ownership of the directory] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||

ok: [ansible-target-1]

< TASK [Install Dependencies with NPM install command] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||
```

```
Activities Terminal Sep 24 23:08
rahul@codever: ~/Desktop/DevOps_Team_2/assg2

< TASK [Install Dependencies with NPM install command] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||

[WARNING]: Consider using 'become', 'become_method', and 'become_user' rather than running sudo
changed: [ansible-target-1]

< TASK [Debug npm install command] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||

ok: [ansible-target-1] => {
  "msg": [
    "audited 50 packages in 0.781s",
    "found 0 vulnerabilities"
  ]
}

< TASK [Start the App] >
-----
      \   ^__^
       (oo)\_______
          (__)\       )\/\
             ||----w |
             ||     ||

changed: [ansible-target-1]
```

```
Activities Terminal Sep 24 23:08 100%
rahul@codever: ~/Desktop/DevOps_Team_2/assg2

    ]
    "found 0 vulnerabilities"
  )
< TASK [Start the App] >
  \
  ^ ^
  (oo)\_____)\
  (___)\       )\/\
      ||----w |
      ||     ||
changed: [ansible-target-1]
< TASK [Validating the port is open] >
  \
  ^ ^
  (oo)\_____)\
  (___)\       )\/\
      ||----w |
      ||     ||
ok: [ansible-target-1]
< PLAY RECAP >
  \
  ^ ^
  (oo)\_____)\
  (___)\       )\/\
      ||----w |
      ||     ||
ansible-target-1 : ok=10  changed=4  unreachable=0  failed=0  skipped=1  rescued=0  ignored=0
(base) rahul@codever:~/Desktop/DevOps_Team_2/assg2$
```

THE OUTCOME

After the complete execution of the Ansible Playbook above, the moment of truth is here! Our Web App is successfully deployed on the AWS EC2 instance from our GitHub repository. The Web App is running on Port 5000 of the EC2 instance as can be seen in the screenshot below along with our enthusiastic DevOps Team 2.

