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**TASK 1**: Using Terraform below task performed

1. Created a VPC , 2 Public , 2 Private , Internet gateway , NAT gateway and route tables to associate with public and private subnets.
2. Created a Security groups for public and private subnets. Allowing Self IP to SSH under public security groups
3. Created the 3 EC2 instance as names below and launched Bastion EC2 into public subnet and other two Jenkins-EC2 and App-ec2 under private subnets

Bastion-ec2

Jenkins-ec2

App-ec2

1. Modified the security groups accordingly such that from Bastion-ec2 can access both Jenkins-ec2 instance and app-ec2 instance

**TASK 2**:

1. SSH into Bastion-ec2 and installed Ansible.
2. Created an inventory file for Jenkins-ec2 and app-ec2 instances and added details like private ip, username and path to pem files.
3. Created a docker-play book file and installed Docker on Jenkins-ec2 and app-ec2 instances through ansible playbook file
4. On Bastion-ec2 created an application Load balancer and registered Jenkins-ec2 and app-ec2 instances
5. Form Bastion-ec2, SSH into Jenkins-ec2 and Verified Docker installation version
6. Installed Jenkins such that it access to LoadBalancer\_DNS/Jenkins

**TASK3**:

On Bastion-ec2 , created a Docker file for node app and pushed into git hub repository

Opened the Jenkins server , configured the clouds (appserver) node then created a declarative pipeline code such that it download the docker file from GitHub , build it , and pushed into AWS ECR. ( Added applicable plugins to perform this step)

From Jenkins pipeline code , SSH into APP server and deployed the nodeapp in to app server.

GitHub link for all the terraform, ansible and Docker files