Creating Reusable Templates in Terraform

- Context: we need to create 2 security groups
    - web server
    - db server
- We have already written security group in template yesterday Refer Here
- We want to create a vpc with public and private subnets we have already written that as part of the template.
- I want to reuse the work to create a reusable assets that can be used by any of the projects in my org
- Terraform modules are resuable assets Refer Here
- Recommended structure for module creation

```
<module-name>
|
---- variables.tf  # arguments for the module
---- main.tf  # infra
---- outputs.tf  # atrributes for the module
```

- Refer Here for the vpc module
- Lets use this module in a template

Activity 1

- Create a vpc with 2 subnets by using the module
    - one public and private
- module can be called by using module block Refer Here
- Refer Here for changes

Activity 2

- Create a module for security group and create a web security group and db security group
- Refer Here for changes

Activity 3

- Using git as a module source.
- Terraform allows multiple sources for declaring modules Refer Here
    - local path
    - git or github
    - Terraform Registry

- Lets use the modules from github Refer Here for the changes done

Activity 4

- Lets create a resuable module for ec2 Refer Here
- Refer Here

Exercise

- Try creating modules for
  - virtual network
  - network security group
  - virtual machine
- As we have done for aws.
- Now use modules to create a vnet with 3 subnets (web, app ,db)
- create one security group to open 80 port only
- create 2 vms with size standard_B1s with preschool installed.

Datasources

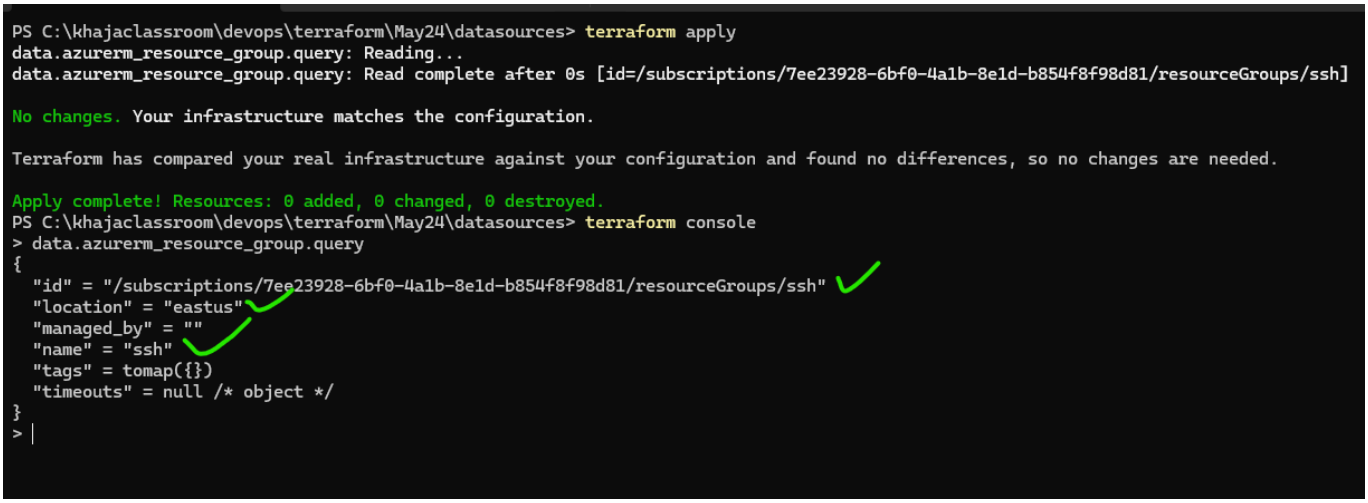
- Datasources are used to query information from provider about resources. Refer Here
- Datasource will have arguments and attributes

lets pull information about the following in Azure

Resource groups

- we have defined the data source block

```
# lets pull information about resource groups
data "azurerm_resource_group" "query" {
    name = "ssh"
}
```



- syntax for using attributes fetched `data.<type>.<name>.<attribute>`

```
> data.azurerm_resource_group.query.id
"/subscriptions/7ee23928-6bf0-4a1b-8e1d-b854f8f98d81/resourceGroups/ssh"
>
```

Virtual machine image

- platform image Refer Here
- Refer Here for the changes done with data sources

Using Module developed by community to create virtual network in azure and vpc in aws

- Registry in terraform is used to store providers and also modules Refer Here
- Refer Here for module to create vnet
- Refer Here for module to create vpc
- Refer Here for changes

Exercise

- Create modules for azure as mentioned above
- You are asked to create vpcs in two regions You can use the module created in class. How can we use two providers one for ap-south-1 and one for oregon (us-west-2)
    - ntier-primary
        - region: mumbai
        - cidr: 10.10.0.0/16
        - public subnets: web1(10.10.0.0/24), web2 (10.10.1.0/24)
        - private subnets: db1, db2
    - ntier-secondary
        - region: oregon
        - cidr: 10.11.0.0/16
        - public subnets: web1 (10.11.0.0/24), web2 (10.11.1.0/24)
        - private subnet db2, db2

Next steps

1. provisioners
2. backend
3. workspace
4. introduction to terraform cloud
5. terraform security scans