**DAWS-74S Contents**

# **Session-10:**

DATE: 14-AUG-2023

**Topics discussed:**

* We configured shipping, RabbitMQ, payment and dispatch services.
* We discussed the difference between synchronous and asynchronous communication.
* How does DNS work?
* How to buy a domain in Hostinger?
* How to transfer domain control to AWS.

# **Session-11:**

DATE: 15-AUG-2023

**Topics discussed:**

* DNS records are created for the domain.
* Configured records instead of IP.
* Discussed Git.
* Discussed why we should use shell.
* Created Git repo.
* Centralised vs Distributed.
* Git commands add, commit and push.

**Assignments:**

* Centralised vs Distributed version control system
* Why do we have staging area or temp area in Git

# **Session-12:**

DATE: 16-AUG-2023

**Topics discussed:**

* SSH connectivity to GitHub
* How to convert existing folder as git
* Git add, commit and push commands
* Shell scripting shebang
* Variables and different ways.

**Assignments:**

* Create SSH authentication to your repo
* Practice variables with multiple programs.

# **Session-13:**

DATE: 17-AUG-2023

**Topics discussed:**

* Conditions
* Functions
* Redirections and Logs
* Exit status and special variables
* Loops

**Assignments:**

* Improvise 12-loops.sh using above concepts

# **Session-14:**

DATE: 18-AUG-2023

**Topics discussed:**

* Improved 12-loops.sh
* Deleting old log files
* Schedule through crontab
* Sending gmail from linux server

**Assignments:**

* Write a script that reads a text file and generates a list of words along with their frequencies. Bonus points for sorting the list by frequency.
* Develop a script that takes a text file and replaces all occurrences of a specific word or phrase with another word or phrase.
* Write a script that checks whether a given word or phrase is a palindrome (reads the same forwards and backwards).
* Develop a script that reverses the order of characters in each line of a text file.

# **Session-15:**

DATE: 21-AUG-2023

**Topics discussed:**

* Disk Usage Shell script
* Sending gmail from linux server
* SED editor
* Formatting Gmail
* Roboshop MongoDB configuration through shell

**Assignments:**

* Automate Gmail configuration in Linux server, prompt user for credentials.
* Practice sed editor.
* Monitor RAM usage through **free command**  and send email if it is more than threshold.
* You can continue configuring roboshop components using shell script.

# **Session-16:**

DATE: 23-AUG-2023

**Topics discussed:**

* Completed roboshop shellscript configuration
* Telnet command

**Assignments:**

* Improve cart.sh, check if user roboshop already exists or not and app directory exist or not.

# **Session-17:**

DATE: 24-AUG-2023

**Topics discussed:**

* Aws command line script to create servers and route53 records
* Ansible introduction
* Push vs pull in configuration managements
* Advantages of ansible over shell scrit

**Assignments:**

* Read push vs pull
* Ansible advantages over Shell script

# **Session-18:**

DATE: 28-AUG-2023

**Topics discussed:**

* Ansible introduction recap
* Push vs Pull
* Installed ansible
* Ansible inventory file
* Connecting Ansible server and nodes.
* Ansible adhoc commands
* XML vs JSON vs YAML
* Playbooks
* Variables

**Assignments:**

* Practise different YAML.
* What is ansible adhoc command
* What is push vs pull in ansible
* What are ansible advantages

# **Session-19:**

DATE: 29-AUG-2023

**Topics discussed:**

* Variables from PLAY
* Variables from files
* Variables from prompt
* Variables from inventory
* Variables from command line
* Variables from tasks
* Variables precedence
* Conditions
* How to check user exists or not

**Assignments:**

* take username as variable, and then dynamically check user exists or not then create
* check if a directory exists or not, if it does not exist create it.

# **Session-20:**

DATE: 30-AUG-2023

**Topics discussed:**

* Loops
* Advanced loop
* Installed MongoDB
* Installed Catalogue
* Installed Web

**Assignments:**

* Understand the difference between **Shell vs Command module in ansible.**

# **Session-21:**

DATE: 31-AUG-2023

**Topics discussed:**

* Ansible Playbook for
  + Redis
  + User
  + Cart
  + MySQL
  + Shipping
  + Payment

**Assignments:**

* Try to create EC2 instances and update route53 records through Ansible playbook.
* NOTE: Ansible server should have the role.

# **Session-22:**

DATE: 04-SEP-2023

**Topics discussed:**

* Ansible Roles
* Roboshop using Ansible Roles

**Assignments:**

* What is ansible role?
* What are handlers?

# **Session-23:**

DATE: 05-SEP-2023

**Topics discussed:**

* Ansible configuration
* Multiple environments
* Tags
* Parellelism
* Heterogenous and gather facts
* Function/Fileters

# **Session-24:**

DATE: 06-SEP-2023

**Topics discussed:**

* Intro to IaaC
* Terraform advantages
* ENV setup
* Terraform providers
* Creation of EC2 and SG
* Variables

Assignment:

* Understand Terraform advantages
* Variables and data types

# **Session-25:**

DATE: 07-SEP-2023

**Topics discussed:**

* Maps in variables
* Count and Count index
* Conditions
* Functions
* Outputs
* Locals
* Data sources

Assignment:

* Write a data source to fetch devops-practice AMI

# **Session-26:**

DATE: 08-SEP-2023

**Topics discussed:**

* For each
* Dynamic block
* State and Remote state and lock file

# **Session-27:**

DATE: 11-SEP-2023

**Topics discussed:**

* tfvars
* Module development

# **Session-28:**

DATE: 12-SEP-2023

**Topics discussed:**

* CIDR
* VPC
* Subnets
* Internet Gateway
* Route tables
* Security Groups
* EC2 instance

**Assignments:**

* **Private vs Public subnet**
* **High Availability in AWS**
* **NAT Gateway**

# **Session-29:**

DATE: 12-SEP-2023

**Topics discussed:**

* VPC module development

**Assignments:**

* **Clone** [**https://github.com/sivadevopsdaws74s/terraform-aws-vpc.git**](https://github.com/sivadevopsdaws74s/terraform-aws-vpc.git) **into your workspace and start using it.**
* **Create your VPC module and start using it.**

# **Session-30:**

DATE: 14-SEP-2023

**Topics discussed:**

* VPC module development
* NAT Gateway
* Using module source from GitHub

**Assignments:**

* **Clone** [**https://github.com/sivadevopsdaws74s/terraform-aws-vpc-advanced.git**](https://github.com/sivadevopsdaws74s/terraform-aws-vpc-advanced.git) **and write readme.MD to tell users about inputs and outputs**
* **Develop your own VPC module and push to internet, others test that module**

# **Session-31:**

DATE: 19-SEP-2023

**Topics discussed:**

* SG module development
* Using EC2 and R53 records modules
* Configuring entire roboshop project

Assignment:

* Create a module for EC2 instance

# **Session-32:**

DATE: 20-SEP-2023

**Topics discussed:**

* ELK installation
* Shipping logs from nginx to elastic search through filebeat
* Filebeat to logstash and elasticsearch
* Logstash filters

# **Session-33:**

DATE: 21-SEP-2023

**Topics discussed:**

* ELK installation
* Filebeat to logstash and elasticsearch
* Logstash Grok filters
* Kibana graphs of latency, traffic, errors
* VPC Peering

**Assignment:**

* Create 2 VPC, IGW, Subnets
* Create private subnet in VPC-2
* Launch EC2 in private subnet of VPC-2
* Launch EC2 in public subnet of VPC-1
* Try to connect EC2 in VPC-2 from EC2 in VPC-1

# **Session-34:**

DATE: 22-SEP-2023

**Topics discussed:**

* VPC Peering and routes through infra
* Storing parameters
* VPN
* MongoDB

**Assignment:**

* Your VPC module should be able to support peering on any condition
  + VPC in same account same region
  + VPC in same account different region
  + VPC in diff account same region
  + VPC in diff account diff region

# **Session-35:**

DATE: 25-SEP-2023

**Topics discussed:**

* Launch template
* Auto scaling
* Target Group
* ALB
* Listeners
* Rules
* Security groups

# **Session-36:**

DATE: 26-SEP-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Launch template
* Auto scaling
* Target Group
* ALB
* Listeners
* Rules
* Security groups
* Catalogue component

# **Session-37:**

DATE: 28-SEP-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Customised module for roboshop components
* Security group corrections

# **Session-38:**

DATE: 29-SEP-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Redis
* User

# **Session-39:**

DATE: 03-OCT-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Cart
* MySQL
* Shipping
* RabbitMQ
* Payment
* CI Introduction

# **Session-40:**

DATE: 04-OCT-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Jenkins Installation
* Freestyle job
* Agent installation
* Running job on agent
* Pipeline job
* Post section
* Running Terraform roboshop VPC on Jenkins

# **Session-41:**

DATE: 05-OCT-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Pipeline Syntax
* Sonar Server Installation
* Sonar Scanner
* Quality gates

# **Session-42:**

DATE: 06-OCT-2023

**Topics discussed:**

**Creation of below resources through terraform**

* Nexus Server installation
* Nexus artifact uploader
* Provisioners

# **Session-43:**

DATE: 09-OCT-2023

**Topics discussed:**

* **Git**
* **PR**
* **Merge vs rebase**
* **Branching strategy**
* **Merge conflicts**

# **Session-44:**

DATE: 10-OCT-2023

**Topics discussed:**

* **Roboshop DEV Infra**
* **VPN Installation**
* **Overall process**

# **Session-45:**

DATE: 11-OCT-2023

**Topics discussed:**

* **Upstream and Downstream jobs**
* **Reading version in Jenkinsfile**

# **Session-46:**

DATE: 12-OCT-2023

**Topics discussed:**

* **Jenkins, Terraform and Ansible integration**
* **Installing playbook in EC2 through terraform remote provisioner**
* **Taking AMI and deleting instance through terraform**

# **Session-47:**

DATE: 19-OCT-2023

**Topics discussed:**

* **CD process**
* **Running CICD from Jenkins**

# **Session-48:**

DATE: 19-OCT-2023

**Topics discussed:**

* **Jenkins shared libraries**
* **Creation of PROD**
* **Intro to full DEV and PROD deployments**

# **Session-49:**

DATE: 25-OCT-2023

**Topics discussed:**

* **IAM Roles**
* **Attachi catalogue role to catalogue instance**
* **Ansible to lookup SSM parameter store**

# **Session-50:**

DATE: 26-OCT-2023

**Topics discussed:**

* **CICD full process from DEV to PROD**

# **Session-51:**

DATE: 27-OCT-2023

**Topics discussed:**

* **Docker installation**
* **Docker commands**
* **Dockerfile instructions. FROM, RUN, CMD**
* **RUN vs CMD**

# **Session-52:**

DATE: 30-OCT-2023

**Topics discussed:**

* **LABEL**
* **ENV**
* **ADD**
* **COPY**
* **ADD VS COPY**
* **ENTRYPOINT**
* **CMD vs ENTRYPOINT**

**Assignment:**

Prepare a document on Dockerfile instructions and popular interview questions

* **RUN vs CMD**
* **ADD vs COPY**
* **ARG vs ENV**
* **CMD vs ENTRYPOINT**

# **Session-53:**

DATE: 31-OCT-2023

**Topics discussed:**

* **ONBUILD**
* **USER**
* **WORKDIR**
* **ARG**
* **ARG vs ENV**
* **Mongodb component**
* **Catalogue component**
* **Web component**
* **Bridge networking**

# **Session-54**

DATE: 01-NOV-2023

**Topics discussed:**

* **Docker compose**
* **User**
* **Redis**
* **Cart**
* **RabbitMQ**
* **Shipping**
* **Payment**
* **MySQL**

# **Session-55**

DATE: 02-NOV-2023

**Topics discussed:**

* **Docker Volumes**
* **Named vs unnamed volumes**
* **Multi stage builds**
* **Reducing image size**
* **Running container as non root user**

# **Session-56**

DATE: 03-NOV-2023

**Topics discussed:**

* **Docker layers**
* **Docker Architecture**
* **Minikube installation**
* **Kubernetes namespace**

# **Session-57**

DATE: 06-NOV-2023

**Topics discussed:**

* **Pods**
* **Multi containers**
* **Labels**
* **Annotations**
* **Resources**
* **Environment**
* **Configmaps**
* **secrets**
* **Services**
* **Cluster IP**

# **Session-58**

DATE: 07-NOV-2023

**Topics discussed:**

* **NodePort**
* **Load Balancer**
* **Replica Set**
* **Deployment**
* **MongoDB**
* **Catalogue**
* **Web**
* **Mounting nginx.conf as volune**

# **Session-61**

DATE: 15-NOV-2023

**Topics discussed:**

* **K8 volumes and storage**
* **emptyDir**
* **hostPath**
* **Daemonset**
* **Static provisioning**
* **PV**
* **PVC**
* **EBS static provisioning**

# **Session-62**

DATE: 16-NOV-2023

**Topics discussed:**

* **EBS dynamic provisioning**
* **EFS static provisioning**
* **EFS dynamic provisioning**
* **Statefulset**
* **Headless service**

# **Session-63**

DATE: 17-NOV-2023

**Topics discussed:**

* **Roboshop using StatefulSet**
* **Helm**

# **Session-64**

DATE: 21-NOV-2023

**Topics discussed:**

* **RBAC**
* **HorizontalPodAutoscaler**
* **Ingress Controller**

# **Session-67**

DATE: 24-NOV-2023

**Topics discussed:**

* **Java Pipeline**