

DEVOPS PLANS

DAY 1: LEARN LINUX COMMANDS AND BASIC SCRIPTING

- <http://ryanstutorials.net/linuxtutorial/>

DAY 2: PRACTICAL LAB EXERCISES IN GIT

- Basic Git Commands, Initializing the GIT, Mapping GIT Repository, Pulling from Git, Pushing and Committing to GIT, Branching and Merging the Branch. All from the Terminal and command line...
- <https://git-scm.com/book/en/v2>
- <http://rypress.com/tutorials/git/index>

WEEK 1 AND 2: WRITING PYTHON PROGRAMS

- Around 30 Programs of Logic Programming and checking the code to GIT Repository. This is to get comfortable with Python as well as Linux and Github.

WEEK 3: GETTING STARTED WITH AWS

- **MONDAY**

- WHAT IS AWS?
- INTRODUCTION TO AWS
- STORAGE BASICS ON AWS
- SECURITY ON AWS
- UNDERSTANDING AWS GLOBAL INFRASTRUCTURE

- **TUESDAY**

- **IDENTITY AND ACCESS MANAGEMENT (IAM)**

- IAM CONCEPTS
- GETTING STARTED WITH IAM
- EC2 ROLE DEMONSTRATION

- **SIMPLE STORAGE SERVICE (S3)**

- GETTING STARTED WITH S3 AND RRS STORAGE CLASS
- S3 ESSENTIALS
- S3 BUCKET OBJECT VERSIONING
- USING AWS COMMAND LINE INTERFACE WITH S3

- **CLOUDFRONT**

- CLOUDFRONT ESSENTIALS
- ARCHITECTING APPLICATIONS WITH AWS

- **PRACTICAL IMPLEMENTATION**

- **WEDNESDAY**

- **ELASTIC COMPUTE CLOUD (EC2)**

- EC2 ESSENTIALS
- LAUNCHING AN EC2 INSTANCE INTO THE DEFAULT VPC
- SELECTING AND BUILDING EC2 INSTANCES
- EBS VOLUMES AND SNAPSHOTS
- WORKING WITH PUBLIC AND PRIVATE IP ADDRESSES

- CLOUD INIT AND USER DATA
- WORKING WITH EC2 CLASSIC SECURITY GROUPS
- CLOUDWATCH AND EC2
- WHAT ARE EC2 PLACEMENT GROUPS
- CONTROLLING EC2 WITH COMMAND LINE INTERFACE

----- PRACTICAL IMPLEMENTATION

- **THURSDAY**

----- ROUTE 53

- ROUTE 53 ESSENTIALS
- ROUTE 53 AND DNS FAILOVER
- LATENCY BASED ROUTING
- WEIGHTED ROUTING POLICIES IN ROUTE 53

----- RELATIONAL DATABASE SERVICE (RDS)

- RDS CONCEPTS
- LAUNCHING AN RDS INSTANCE INTO DEFAULT VPC
- GETTING STARTED WITH RDS
- RDS SECURITY GROUPS

----- CLOUDFORMATION

- CLOUDFORMATION ESSENTIALS
- CLOUDFORMATION EXAMPLES

----- PRACTICAL IMPLEMENTATION

- CREATING AN EC2 INSTANCE USING CLOUDFORMATION.
- CREATING AN S3 BUCKET USING CLOUDFORMATION

- **FRIDAY**

----- VIRTUAL PRIVATE CLOUD (VPC)

- VPC ESSENTIALS
- BUILDING A NON DEFAULT VPC
- VPC SECURITY
- CONFIGURING A VPC NAT INSTANCE
- VPC NETWORKING
- ELASTIC IP ADDRESSES AND ELASTIC NETWORK INTERFACES

----- DYNAMO DATABASE NOSQL SERVICE

- DYNAMO DB ESSENTIALS
- AMAZON DYNAMO DB

----- PRACTICAL IMPLEMENTATION

- **SATURDAY**

----- ARCHITECTURE DESIGN PATTERNS

- TRADITIONAL VS CLOUD HOSTED APPLICATION ARCHITECTURE
- WEB APPLICATION HOSTING
- HIGH AVAILABILITY AND FAULT TOLERANCE

----- AMAZON ELASTIC BEANSTALK

- ELASTIC BEANSTALK OVERVIEW
- WORKING WITH THE ELASTIC BEANSTALK CONTROL PANEL

----- DISTRIBUTED SYSTEMS

- AMAZON SQS
- AMAZON SIMPLE WORKFLOW SERVICE

----- ELASTIC LOAD BALANCER (ELB)

- ELB ESSENTIALS
- CONFIGURING THE ELB

WEEK 4: CONCEPT TO PRODUCTION: BUILDING A HIGHLY AVAILABLE WORDPRESS APP LAMP STACK

- OVERVIEW OF APPLICATION AND GOALS
- PREPARING EC2 SECURITY GROUPS AND RDS INSTANCE FOR OUR APP
- CONFIGURING IAM ROLES
- PREPARING OUR CODES AND S3 BUCKETS
- S3 AND CLOUDFRONT
- CONFIGURING THE ELASTIC LOAD BALANCER (ELB) AND ROUTE 53
- CONFIGURING THE AMI FOR OUR WEB APPLICATION
- AUTO SCALING AND BOOTSTRAPPING

WEEK 5: GETTING STARTED: DEVOPS CONCEPTS, TOOLS AND TECHNOLOGIES

• MONDAY - TUESDAY

----- UNDERSTANDING THE DEVOPS MOVEMENT

- THE WATERFALL MODEL
- THE AGILE MODEL
- WHY DEVOPS?
- THE BENIFITS OF DEVOPS

----- THE DEVOPS LIFECYCLE

- BUILD AUTOMATION
- CONTINUOUS INTEGRATION
- CONFIGURATION MANAGEMENT
- CONTINUOUS DELIVERY / CONTINUOUS DEPLOYMENT
 - BEST PRACTICES FOR CONTINUOUS DELIVERY
- CONTINUOUS MONITORING
- CONTINUOUS FEEDBACK

----- TOOLS AND TECHNOLOGIES

- CODE REPOSITORIES - GITHUB
 - KEY FEATURES AND BENEFITS
- CONTINUOUS INTEGRATION TOOLS - JENKINS
 - KEY FEATURES AND BENEFITS
- CONFIGURATION MANAGEMENT TOOLS - CHEF
 - KEY FEATURES AND BENEFITS
- CLOUD SERVICE PROVIDERS - AWS
 - KEY FEATURES AND BENEFITS
- CONTAINER TECHNOLOGY - DOCKER
 - KEY FEATURES AND BENEFITS
- MONITORING TOOLS - NAGIOS

- KEY FEATURES AND BENEFITS
- DEVOPS DASHBOARD - HYGIEIA

- **WEDNESDAY - THURSDAY**

- **CONTINUOUS INTEGRATION WITH JENKINS**

- INSTALLING JENKINS
- CONFIGURING JAVA AND MAVEN IN JENKINS
- CREATING AND CONFIGURING A BUILD JOB FOR A JAVA APPLICATION USING MAVEN
- CONFIGURING AND AUTHENTICATING SOURCE CODE ON GITHUB
- CONFIGURING BUILD JOB
- THE DASHBOARD VIEW PLUGIN - OVERVIEW AND USAGE
- SENDING EMAIL AND SLACK NOTIFICATIONS BASED ON BUILD STATUS
- INTEGRATING JENKINS WITH SONAR

- **FRIDAY - SATURDAY**

- **BUILDING THE CODE AND CONFIGURING THE BUILD PIPELINE**

- CREATING BUILT-IN DELIVERY PIPELINES
- CREATING A PIPELINE FOR COMPILING AND EXECUTING TEST UNITS
- USING THE BUILD PIPELINE PLUGIN
- INTEGRATING THE DEPLOYMENT OPERATION

WEEK 6: INSTALLING AND CONFIGURING DOCKER

- OVERVIEW OF DOCKER CONTAINERS
- UNDERSTANDING THE DIFFERENCE BETWEEN VIRTUAL MACHINES AND CONTAINERS
- INSTALLING AND CONFIGURING DOCKER ON UBUNTU
- CREATING YOUR FIRST DOCKER CONTAINER
- UNDERSTANDING THE CLIENT-SERVER ARCHITECTURE OF DOCKER
- MANAGING CONTAINERS
- CREATING A DOCKER IMAGE FROM DOCKERFILE

- **PRACTICAL IMPLEMENTATION**

WEEK 7: INSTALLING AND CONFIGURING CHEF

- GETTING STARTED WITH CHEF
- OVERVIEW OF HOSTED CHEF
- INSTALLING AND CONFIGURING A CHEF WORKSTATION
- CONVERGING A CHEF NODE USING A CHEF WORKSTATION
- INSTALLING SOFTWARE PACKAGES USING COOKBOOKS
- CREATING A ROLE

WEEK 8: CLOUD PROVISIONING AND CONFIGURATION MANAGEMENT WITH CHEF

- CHEF AND CLOUD PROVISIONING
- INSTALLING KNIFE PLUGIN FOR AMAZON WEB SERVICES

- CREATING AND CONFIGURING A VIRTUAL MACHINE IN AWS EC2
- DEPLOYING APPLICATION ON REMOTE SERVER
- DEPLOYING APPLICATION ON AWS
- DEPLOYING APPLICATION ON DOCKER

WEEK 9: MONITORING INFRASTRUCTURE AND ORCHESTRATING APPLICATION DEPLOYMENT

- GETTING STARTED - MONITORING
 - OVERVIEW OF MONITORING TOOLS AND TECHNIQUES - NAGIOS
- MONITORING AWS ELASTIC BEANSTALK
- CREATING BUILD JOBS FOR END TO END AUTOMATION
- CONFIGURING SSH AUTHENTICATION USING A KEY
- CONFIGURING THE BUILD PIPELINE FOR BUILD JOB ORCHESTRATION
- EXECUTING THE PIPELINE FOR APPLICATION DEPLOYMENT AUTOMATION
- HYGIEIA - A DEVOPS DASHBOARD

WEEK 10: BACKUPS

- BACKING UP OF STATIC FILES FROM EBS VOLUME
- CENTRALISED LOGS TO S3 STORAGE
- CREATING MYSQL DUMP AND BACKING UP WITH S3 STORAGE
- CREATING COMPRESSED TAR ARCHIVE FILE BEFORE TRANSFERRING TO S3 STORAGE
- CONTINUOUS ARCHIVING FROM S3 TO AWS GLACIER

WEEK 11-12: PROBLEM STATEMENT