**Devops for Java Devlopers**

**What is a microservice?**

Microservice is a small and focused that is also autonomous, that is it can be built and deployed on its own without impacting other services. Each microservices communicates with each other with API network calls.

**What are advantages using microservices ?**

1. **Heterogenous** : Each of our microservice can be written in a different programming language and they can run on different platform or operating system and they communicate with APIs they expose.
2. **Robustness** : When one microservice is down its wont effect the whole application.
3. **Scalability** : If huge load is coming for one or two microservice we need to just deploy an another for that two services only, but in case of monolith application whole application must be deployed.
4. **Reusability and Replaceable** : One microservice can be used by another microservices and if we want to replace an microservice with third party vendor it will be easy.

**What is cloud computing?**

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. Large clouds often have functions distributed over multiple locations, each location being a data center.

In the simplest terms, cloud computing means storing and accessing data and programs over the internet instead of your computer's hard drive. ... When you store data on or run programs from the hard drive, that's called local storage and computing.

Types of Cloud :

* public : AWS, GCP, AZURE
* private : DELL, 3M, Siemens
* Hybrid: public + private

CLOUD PROVIDERS: Cloud providers are like AWS, GCP, AZURE and they provide cloud computing platform.

**Service Models** : A service model is the way that a firm offers intangible value to customers.

Cloud computing is offered in three different service models which each satisfy a unique set of business requirements. These three models are known as Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).

Graphical user interface, application

Description automatically generated

**IaaS** : When you use IaaS you need take care from O/S to Application, , and rest i.e from Networking to Virtualization will be taken care by cloud provider.

**PaaS** : When you use PaaS, you need to take care Application and data, and rest i.e from Networking to runtime will be taken care by cloud provider.

**Saas** : When you use Saas we need concentrate only on Application and rest everything will be taken care by cloud provider.

**SSH**: SSH stands for Secure Shell, it uses port 22 to communicate between client and remote machine.

**Useful information**

**sudo -i**: To make you as a root user in EC2.

**ls/**: shows the files in the directory.

**ls**: shows the sub folders in the directory.

**mkdir**: MKDIR creates a directory.

**cat> myfile.txt**: It creates a myfile.txt, then you can write text in it. Then enter command ctrl + c to come out.

**ls -l**: It gives more info about file like who created it.

**ls -a:** It gives all files and hidden files.

**ls -r**: It shows sub-directories and files in current directory.

**cp myfile.txt myfile2.txt**: It copies myfile.txt to myfile2.txt.

**rm file name**: removes file.

**rm -rf <directory-name>:** Removes the directory.

**vi myfile.txt:** It opens myfile.txt if present, if not present it will create myfile.txt and it will open it.

**vi-editor**: Three modes

* + - command mode
    - insert mode
    - execute mode
* If you want to insert data, when you open vi-editor “type/press i”, we can type anything.
* To go from insert mode to command mode press “escape key”.
* To exit from the vi-editor mode
* Come out from insert mode by pressing escape key
* Press shift + :
* Type wq or q! (for forcefully quit without saving).

**Some Yum comamnds**

yum repolist

yum list installed

yum install httpd

service httpd start

service httpd stop

yum remove httpd

tail -5 /var/log/yum.log -> [ To see logs ]

yum history

yum install java-1.8.0-openjdk

yum install maven

Install an executable jar in EC2 instance:

1. Upload jar to S3 bucket then go to Actions & get pre-assigned url.
2. Now go to EC2 instance as a root user( sudo -i). wget -O name-of-jar “presigned url”
3. java -jar JAR-NAME

To make the jar run whenever the EC2 instance follows the next steps.

1. cp couponservice-0.0.1-SNAPSHOT.jar /home/ec2-user/
2. vi /etc/rc.local and java -jar /home/ec2-user/couponservice-0.0.1-SNAPSHOT.jar
3. chmod +x /etc/rc.d/rc.local

To install mysql in EC2 server

1. yum install -y mariadb-server
2. systemctl enable mariadb
3. systemctl start mariadb
4. mysql\_secure\_installation
5. mysql -uroot -p

To install java in EC2 instance

1. yum install java-1.8.0-openjdk
2. alternatives --config java

**Install a jar in EC2 Instance:**

*scp -i awssolutionarchitectassociate.pem student-0.0.1-SNAPSHOT.jar ec2-user@3.140.197.40:data*

Install an executable jar in EC2 instance using S3 bucket:

1. Upload jar to S3 bucket then go to Actions & get pre-assigned url.
2. Now go to EC2 instance as a root user( sudo -i). wget -O name-of-jar “presigned url”
3. java -jar JAR-NAME

To kill the running java jar in EC2 instance

1. ps -ef | grep java
2. sudo kill -9 <pid>

To run the jar when ever the instance started

1. cp student-0.0.1-SNAPSHOT.jar /home/ec2-user/
2. vi /etc/rc.local ***and*** paste the beside command java -jar /home/ec2-user/student-0.0.1-SNAPSHOT.jar

Installing amazon extras

1. amazon-linux-extras install epel -y