**DOCUMENT ON THE DAY 1 OF TRAINING ON DEVOPS**

**What is Cloud:** It is the distributed Collection of servers that are hosted on the internet, instead of local servers.

Processes the data and uses the application.

**What is Cloud Computing**

**Two Types of Cloud Computing models**

**1.Service Model:**

**2. Deployment Model:** The deployment model is a way of how resources are available to the users and how they are managed. There are 4 types of Deployment model:

1. **Private Cloud:** In the Private cloud the resources are shared with the single organization.

**Example:** College Website for checking the attendance

1. **Public Cloud:** In the public cloud the cloud resources are shared to the industry group by the cloud service provider.

**Example:** Social media

1. **Hybrid Cloud:** Hybrid Cloud combines elements of both public and private clouds, allowing data and applications to be shared between them.

**Example:** Netflix

1. **Community Cloud:** Community cloud that combines two organizations that may have the same interests and objectives.

**Example:** Two Organizations combine and work on the research paper.

What is deployment mode?

It is one of the of cloud computing type

It is moving local server from global server

**AWS**

* AWS is one of the top and best cloud providers started in 2005 offered by Amazon.
* Aws is the first cloud introduced into the market.
* AWS offers tools such as computing, storage and content delivery
* The advantage of AWS is without any physical space it allows people to store the data.
* Around 18 geographical locations, AWS is located.
* 36% of the companies are using the AWS Cloud Platform.
* In 2006, it offered the IaaS Infrastructure services.
* With more than 200 services, AWS offering for individuals and the public as well as private organizations to create applications.
* The first company that introduced the “pay as you go” how much service they are used for that they need to pay the cost.

**TOP 10 CLOUD PROVIDERS**

Here’s a simple list of the top 10 cloud providers:

1.AWS - Leader in cloud, broad services.

2.Microsoft Azure - Great for enterprises and hybrid cloud.

3.Google Cloud - Best for AI and data analytics.

4.IBM Cloud - Focus on AI, hybrid, and enterprise.

5.Oracle Cloud - Specialized in databases.

6.Alibaba Cloud - Leading in Asia, e-commerce focus.

7.Salesforce - CRM and SaaS services.

8.Tencent Cloud - Strong in gaming and media.

9.SAP Cloud - ERP and enterprise tools.

10.Digital Ocean- Simple, budget-friendly for developers.

**DevOps**

* DevOps is a combination of the development team and the Operation`s team.
* DevOps is a methodology.
* It is a set of tools.
* It is a way to automate tools.
* DevOps is a process of delivering a project/product or application by ensuring the automation in place, by ensuring quality with continuous monitoring and continuous testing.
* DevOps is a software development approach by emphasizes communication, automating, and delivering the application to the customers in a high-quality manner as quickly as possible.
* It allows to handle the complete application from development to testing and operations to development.

**Why DevOps**

The main goal of DevOps is as follows:

**To Provide High-quality Software/projects:** DevOps is a continuous testing and continuous monitoring that can deliver high-quality applications.

**Delivers product Quickly:** Both the Development team and operations team combine and deliver the product fast.

**Continuous Improvement:** By continuous monitoring, collect the feedback from the client and given the developer team to minimize it.

**Improved Customer Satisfaction:** By Continuous Improvement of the application customers will be satisfied with the product.

**SDLC**

**1. Waterfall Model:**

Waterfall is a linear sequential model in the software development life cycle that consists of several phases.

It is one of the simplest models, used for smaller projects.

In each phase where the output of the current phase is the input to the next phase.

The waterfall model is used when the project requirements and goals are clear.

**Phases in the Waterfall model**

1. **Requirements Analysis**
   * Gather and document all functional and non-functional requirements.
   * This phase ensures that developers and stakeholders have a clear understanding of what the software should achieve.
2. **System Design**
   * Create detailed software and hardware system specifications based on the requirements.
   * This phase defines the architecture, modules, data flow, and system interfaces.
3. **Implementation (Coding)**
   * Developers write code based on the design documents.
   * This phase focuses on converting design specifications into a working software product.
4. **Integration and Testing**
   * Test the software to ensure it meets the requirements and is free of defects.
   * Types of testing include unit testing, system testing, integration testing, and acceptance testing.
5. **Deployment**
   * Deliver the completed software to the client or end-users.
   * This phase includes installation, configuration, and initial setup.
6. **Maintenance**
   * Fix bugs, update the system for compatibility with new technologies, and address any issues that arise post-deployment.

**Day 2**

**Agile Model**

**What is Agile model?**

1.its an iterative process can deliver the software at any stage or time

2.Agile means the ability to respond to any changes from the requirements

3.its is User Friendly (every user can easily understand the model)

4.Its an Incremental model and also called as Iterative model

In Every Software Model like shopping App, Social Media we use this Agile Model.

**Advantages**

1.The Requirement changes are allowed at any stage of the process of development

2.the project release will fast (within 1 week)

3.clients will no need wait for the time for the software

4.Good Communication will be there between the all the teams who are involved in the process

5.client will be statisfied with the project

6.Easy model to adopt

**Disadvantages**

1.less focus on documentation and design

**MANUAL TESTING**

**Manual Testing**

**WHITE BOX**

**GRAY BOX**

**BLACK BOX**

**White Box testing**

* Each and Every line of the code will be tested
* Testers need programming skills to design the test cases
* Programming skills like (Mysql, java, python…)
* Developers fixes bugs and perform one round of whitebox testing and send it to the testing team.

**Black Box Testing**

Examine the functionality of the software system and it has two types of testing in it

**Functional Testing** checks *what* the software does.

**Non-Functional Testing** checks *how well* the software does it.

BLACK BOX TESTING

FUNCTIONAL TESTING NON-FUNCTIONAL TESTING

1.Unit testing = only test piece of software

2.Integration testing= units or combined in this Integration testing

3.System testing = whole system will be tested

**What is error?**

Mistakes in coding done by the Developer

**What is bug?**

Operations team`s (testing team) finds any errors are called as bugs

**What is defect?**

Error accepted by the Developer

**What is Failure?**

Total wrong of the software system

**TOOLS REQUIRED IN DEVOPS**

* **Planning/coding/SCM - Git, jira**
* **Building coding - Maven, Gradle, Apache ant**
* **Testing - Selenium with python**
* **Integration - Jenkins**
* **Deployment - Dockers, Kubernets**
* **Operations - Ansible (managing tool)**
* **Monitoring -Teraform**