Practical No 3

Aim of the Practical - Study practical on software development lifecycle

Software Required - Browser

Practical No. 03

Aim of the practical : Study Practical on software development lifecycle.

Software Required : Browser

Theory :

A software life cycle model (also termed process model is a pictorial and diagrammatic representation of the software lifecycle. A Lifecycle model represents all the methods required to make a software product transit through its lifecycle stages. It also captures the structure in which these methods are to be undertaken.

In other words, a lifecycle model maps the various activities performed on a software product from its inception to retirements.

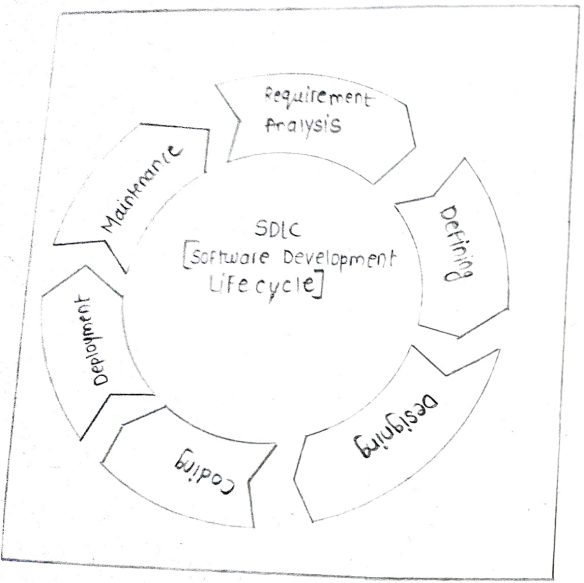
Need of SDLC :

The development team must determine a suitable lifecycle model for particular plan and then observe to it. Without using an exact lifecycle model, the development of a software product would not be in a systematic and disciplined manner. Without software lifecycle models, it becomes tough for software project managers to monitors the progress of the project.

P. R. POTE(PATIL) GROUP OF EDU. INSTITUTION'S, AMRAVATI

P. R. POTE(PATIL) GROUP OF EDU. INSTITUTION'S, AMRAVATI Page No.

SDLC cycle :



SDLC cycle represents the process of developing software.
SDLC framework includes the following types.

The stages of SDLC are as follows.

Stage 1 : Requirement analysis and planning –

Requirement analysis is the most important and necessary stage in SDLC. Planning for the quality assurance requirem and identification of the risks associated with the project is also done at this stage.

Stage 2 : Defining Requirement

Once the requirement analysis is done, the next stage is to certainly represent and document the software requirement and get them accepted from the project stakeholders.

Stage 3 : Designing the software

The next stage is about bring down all the knowledge o requirements analysis and design of the software projects.

Stage 4 : Testing

After code is generated, it is tested against requirement make sure that the product are solving the needs addresses and gathered during the requirement stage

Stage 6 : Deployment -

Once the software is specified or certified and no bugs and errors are stated then it is deployed. After software deployed the maintenance begins.

Stage 7 : Maintenance -

This procedure where the care is taken for the developed product known as maintenance.

Pre Lab Questions :

1. What is SDLC ?

⇒ The software development Life cycle SDLC is a structured process that enables the production of high quality, low cost software, in the shortest possible production time.

2. what is the most important part in SDLC ?

⇒ The testing phase of the SDLC is one of the most important. It is impossible to deliver quality software without testing.

3. Which phase of SDLC is most difficult ?

⇒ Developing the software and implementing the requirement is obviously the longest and hardest of SDLC.

P. R. POTE(PATIL) GROUP OF EDU. INSTITUTION'S, AMRAVATI Page No. 22
P. R. POTE(PATIL) GROUP OF EDU. INSTITUTION'S, AMRAVATI Page No. 23

Conclusion – Thus we have studied the practical on Software development life cycle.

Post Lab Questions :

1. What is the examples of SDLC ?

⟹ Popular SDLC models include the waterfall model, Spiral model and Agile model.

2. How many steps there are in SDLC.

⟹ There are usually six stages in cycle requirement analysis, design development and testing, implementation, documentation and evaluation.

3. Who are involved in SDLC.

⟹ In addition to the developers, it's mandatory to include a Product Owner (PO), Project Manager (PM) and technical Lead (TL) in the team.

Conclusion : Thus we have studied a practial on software development life cycle.

Assesment Scheme :

Pre Lab Test(2)	In Lab Perform(5)	Post Lab Test (3)	Record (5)	Total (15)

Practical No : 04

Aim of the Practical :- Study Practical on devops lifecycle and Stages.

Software required :- Browser

Practical No 04

Aim of the Practical :- Study Practical on devops lifecycle and Stages.

Software Required :- Browser

Theory :-

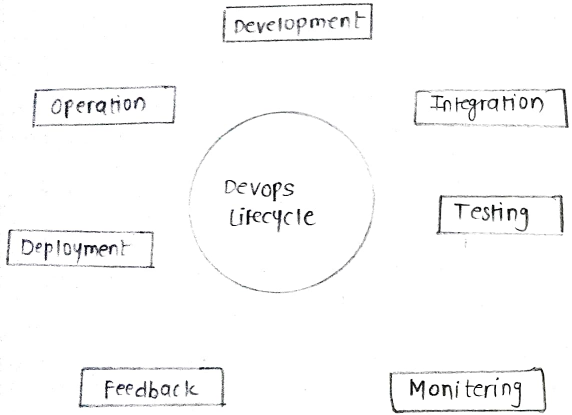
Devops Lifecycle defines an agile relationship between operations and development. It is a process that is practiced by the development team and operations engineers together from beginning to the final stage of the product.

Learning Devops is not complete without understanding the Devops lifecycle phases. The Devops lifecycle includes seven phases given below.

1] Continuous Development :- This phase involves the planning and coding of the software. The vision of the project is decided during the planning phase. And the developers begin developing the code for the application.

2] Continuous Integration :- This stage is the heart of the entire Devops lifecycle. It is software development practice in which developer require to commit changes to the source code more frequently.

3] Continuous Testing :- This phase where the developed software is continuously testing for bugs. For constant testing, automation testing tools such as TestNG, JUnit, selenium etc are used



4) Continuous Monitoring :— Monitoring is a phase that involves all operational factors of the entire Devops process, where important information about the use of the software is recorded & carefully processed to find out trends and identify problem areas.

5) Continuous feedback :— The application development is consistently improved by analyzing the results from the operations of the software. This is carried out by placing the critical phase of constant feedback between the operation & development of the next version of current software application.

6) Continuous Deployment :— In this phase, the code is deployed, to the production servers. Also it is essential to ensure that the code is correctly used on all the servers.

7) Continuous operations :— All Devops operations are based on the continuity with complete automation of the release process and allow the organization to accelerate the overall time to market continuingly.

PreLab Questions :—

1. What are four basic stages of Devops
Ans : ① Continuous Exploration
② Continuous Integration
③ Continuous Deployment
④ Release on Demand.

2. What is the last stage of Devops cycle
Ans : Continuous operation is the last stage of Devops lifecycle.

3. What is DevOps full form.

⇒ DevOps (a portmanteau of "development" and "operations").

Post lab Questions :-

1. What is one key purpose of DevOps.

⇒ The key purpose of DevOps is to create a more coesive development cycle.

2. What are 3 P's of Devops.

⇒ The three stage conversation: people, process, products, develop is the corelation of people, process and products to enable continuous delivery of value to end users.

3. What is the difference between staging & deploy?

⇒ A staging environment or staging site is a copy of your live website and is the last step in the deployment process before changes are deployed to your live website.

Conclusion :- Thus we have studied practical on DevOps lifecycle & stages.

Assesment Scheme :-

Pre Lab	In lab	Post lab	Record	Total
Test (2)	Perform (5)	Test (3)	(5)	(15)

Practical No. 05

Aim of the practical : Study practical on DevOps Tools (Docker, Jenkins, Git, Jira, Copado)

Software Required : Browser

Practical No. 05

Aim of the Practical : Study practical on DevOps tools (Docker, Jenkins, Git, Jira, Copado).

Software Required : Browser

Theory :

The DevOps is the combinations of two words, one is Development and other is Operations. It is a culture to promote the development and operation process collectively.

The Devops will help you to learn DevOps basics and provide depth knowledge of various DevOps tools such as Git, Ansible, Docker, Puppet, Jenkins, chef, Nagios and kubernetes.

1] Docker ⇒ Docker represented by a logo with a friendly looking whale is an open source project that facilitates deployments of application inside of software containers. It is basic functionality enables by resource isolation feature of Linux kernal, but it provides a user friendly API on top of it.

2] Jenkins ⇒ Jenkins is an open source continuous integrations / continuous delivery and deployment (CI/CD) automation software DevOps tool written in the Java programming language. It is used to implement CI/CD workflow called pipelines.

3] Git ⇒ Git is a distributed opensource version control system (VCS) that enable you to store code, track revision history, merge code

changes, and revert to earlier code version when needed. Git stores your sources code and its full deployment history locally in a repository.

4] Jira ⟹ Jira software is the single source of truth for your entire development lifecycle. Azure DevOps is a suite of software development tools. Jira software helps teams manage software development, in whatever flavour of agile works best.

5] Copado ⟹ Copado is the leading DevOps and testing solution for low code SaaS platform that run the world's largest digital transformation.

Prelab Question :

1. How many types of DevOps tools are there?
⟹ 9 Tool types for DevOps Toolbelt.

2. What is the use of Tools in DevOps?
⟹ DevOps Tools make it easier by binging in a new flow across SDLC and addresses key aspects of your DevOps environment by automating the process chain using Build, Test, Deploy & Release feature.

3. What is the use of Copado?
⟹ Copado is the leading DevOps & testing solution for low code SaaS platform that run the world's largest digital transformation.

Post lab Questions :

1. What kind of tools in DevOps ?

⟹ DevOps testing tools are designed to help software development and delivery teams test their code more effectively.

2. Name some important Devops tools ?

⟹ The list of most important DevOps Tools are :

1) Git	4) Jenkins	7) chef	10) Jira
2) Maven	5) Docker	8) Ansible	11) Docker
3) Selenium	6) Puppet	9) Nagios	12) Copado

3. What are the advantages of Git.

⟹
① Data redendancy & replication.
② High availability.
③ Collaboration Friendly.
④ Cand be used for any sort of project.
⑤ Only one git directory per repository.

Conclusion : Thus we have studied variows DevOps Tools (Docker, Jenkins, Git, Jira, copado).

Assesment Scheme :

Prelab	In lab	Postlab	Record	Total
Test(2)	Perform(5)	Test(3)	(5)	(15)

Practical No. 07

Aim of the Practical ⟹ study practical on AWS for Devops.

Software Required ⟹ Browser

Practical No. 07

Aim of the Practical : Study Practical on AWS for Devops.

Software Required : Browser

Theory :

AWS is the best cloud service provider, and DevOps is the implementation of the software development lifecycle. Here are some reasons which makes AWS DevOps a highly popular combination, such as,

- AWS Cloud Formation
- AWS EC2
- AWS cloudwatch
- AWS codePipeline

Let's see all of these by one in brief such as,

AWS cloud Formation ⟹ DevOps teams is required to create and release cloud instances and services more frequently in comparis to development teams. Templates of AWS resources such as EC2 instances, ECS containers and S3 storage buckets lets you set up the entire stack without having to bring everything toget

AWS EC2 ⟹ You can run containers inside EC2 instances. Hence can leverage the AWS security & management features.

AWS cloudWatch ⇒ This monitoring tool track every resources that AWS has offer. It makes it easy to use third party tools for monitoring such as sumo login etc.

AWS codepipeline ⟹ codepipeline is an essential feature from AWS which highly simplifies the way you manage your CI/CD toolset. It intigrates with tools such as Jenkins, GitHub and codeDeploy that enables you to visually control the flow of app updates from build to productions.

Pre-Lab Test Question :

1. What is AWS Devops?
⟹ Devops is the compination of cultural, philosophies, practices and tools that increases an organization's ability to deliver application and services at high velocity.

2. What is the role of AWS in Devops.
⟹ AWS provides services that helps you practice devOps at your company and that are built first for use with AWS.

3. What is fullform of AWS?
⟹ Amazon web services is the longform of Devops.

Post Lab Questions:

1. What is Amazon EC2?

⇒ Amazon EC2 or Elastic compute cloud as it is called is a secure web service that strilles to provide scalable computation power in the cloud.

2. What is Amazon S3 in AWS Devops?

⇒ Amazon S3 or Simple storage service is an object storage service that provides user with a simple and easy to use interface to store data and effectively retrieve it.

3. What is cloud Formation in AWS Devops?

⇒ AWS doud Formation is one of the important services that give developers and business a simple way to create a collection of AWS Resources required and then pass it on for the required teams in a structured manner.

Conclusion: Thus we have successfully executed practical on study of AWS for Devops.

Assesment scheme:

Pre Lab Test (2)	In Lab Perform (5)	Post Lab Test (3)	Record (5)	Total (15)

Practical No. 08

Aim of the Practical : Study practical on MicroSoft Azur for DevOps.

SW Required : Browser

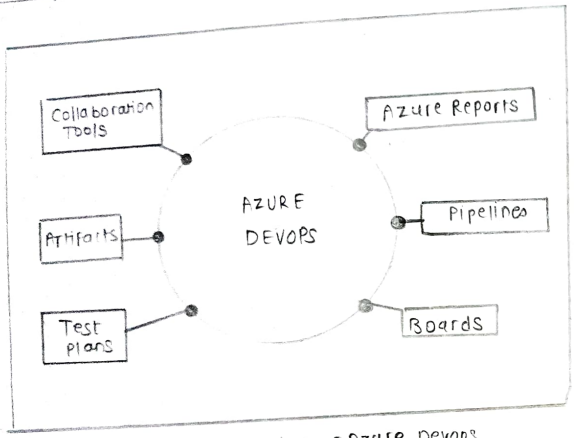


Fig. Services of Azure Devops

Practical No. 08

Aim of the practical : Study practical on microsoft Azure for devops.

SW Required : Browser

Theory :

Azure Devops provides developer service to support team to plan wor collaborate on code, development, build, and deploy the application For example - We have a very simple application, and only develope can make changes to that application. Once the changes are completed, the application will be submitted to testing, and once the testing has been done successfully, it will be published into production However if our application is a very complex application with multip modules, and we have different developer working on the enhanc ment of various modules within the application. Then it will become very complex to make changes done by differen developer and also take it through testing & finally building the application into production. The more developer we have, the more complicated the process is going to be; precisely that complexity can be addressed wing Azure DevOps. We can use Azure DevOps to deploy both infrastructure and code into Azure.

Services of Azure DevOps:

Azure Repository → In Azure repositories, we can create multiple branches and each branch represent a version of code, and we can provide access to a particular branch to specific developer.

Azure Pipeline → we can able to define a build pipeline to build our code to and also a release pipeline to carry out release into a specific destination.

Board → We can create different activities, track activities, and we can move activities between different buckets.

Test Plan → It provides a browser based test management solution with all capabilities required planned manual testing, exploratory testing etc.

Artifacts → It is very important because most of our application will have some dependency on different packages for example NuGet package, npm, Maven package etc.

Collaboration Tools → It includes a customizable team dashboard with configurable widgets to share information progress & trends.

Pre lab Questions

1. What is Devops?

⟹ A DevOps type of automated process for data, known as DevOps for data or DataOps applies DevOps tools are technique to data.

2. Which are some of the most popular Devops Tools?

⟹ The most popular DevOps tools include:

① Selenium ③ chef ⑤ Jenkins ⑦ Docker

② Puppet ④ Git ⑥ Ansible

3. What are advantages of microsoft azure?

⟹ ① Fast reliable content delivery,

② Azure Load Testing

③ Enterprise scale search for app development

Post Lab Questions.

1. What are services for Azure Devops?

⟹ ① Collaboration Tools.

② Artifacts

③ Azure Reports

④ Testplans

⑤ Pipeline

⑥ Boards

2. What container does Azure supports?

⟹ ① Docker

② Azure kubernetes services

③ Asp.Net with container

④ Azure service fabric application with Docker support.

3. What are Azure Devops projects?

⟹ Azure DevOps projects is a simplified way to being existing code and Git repository for the creation of CI & CD pipeline to azure.

Conclusion : Thus we have studied a practical on microsoft Azure for devops.

Assesment Scheme :

Pre lab Test(2)	In lab perform (5)	POST lab Test (3)	Record (5)	Total (15)

Practical No. 03

Aim of the Practical : Study Practical on google cloud for DevOps.

SW Required : Browser

Practical No. 03

Aim of the Practical : Study Practical on google cloud for DevOps.

SW Required : Browser.

Theory : our Google cloud platform Tutorial contains the basic and advanced concepts of Google cloud platform. This tutorial is designed to help both beginners and professionals.

Cloud computing is defined as the services offered through remote servers on the internet. These services might include database storage, applications, compute power and other IT resources over the pay as you go pricing approach. The remote server allows user to save, modify or process data on the internet or cloud based platform instead of storing it on a local server or their devices.

Cloud computing is evolving due to fast performance, better manageability and less maintenance. It helps organization to minimize the number of resources and overall infrastructure cost. Additionally, it helps IT teams better focus on the important applications, services, and processes and achieve the company's goals.

Typically, the cloud computing providers offer their services according to the following three standard models:

- Platform as a Service (PaaS)
- Software as a Service (SaaS)
- Infrastructure as a Service (IaaS)

Prelab Questions :

1. What does GCP means in DevOps?

⟹ Devops in Google cloud platform (GCP) reduces complexities & increases the efficiency of development and operation workflows.

2. Which cloud is better for Devops?

⟹ AWS and Azure are two top player in cloud technology space.

3. Why DevOps is needed in cloud?

⟹ These services typically store your data in the united states, but may store it globally.

Post-Lab Questions :

1. Is google cloud used for Devops?

⟹ Build & deploy new cloud applications, store artifacts, and monitor app security and reliability on google cloud.

2. Which tools are used for GCP?

⟹ The cloud SDK contains gcloud, gsutil and bq command line tools can used.

3. What is cloud deployment in DevOps?

⟹ Cloud deployment is the process of deploying an application through one or more hosting models - Software as Service (SaaS), Platform as a Service (PaaS), & Infrastructure as a Service (IaaS), that levarage cloud.

Conclusion: Thus we have studied practical on google cloud for Devops.

Assesment Scheme:

PreLab Test(2)	In Lab Perform (5)	Post lab Test3	Record (5)	Total (15)

Practical No. 10

Aim of the Practical : Study Practical on Salesforce with Copado For Devops.

Software Required : Browser

Practical No. 10

Aim of the Practical : Study practical on Salesforce with Copado For devops.

Software Required : Browsers

Theory :

Salesforce is one of the best cloud based CRM platforms. It is an integrated CRM platform that provides a single shared view of each customer for all the departments within an organization, such as marketing, sales, commerce and service. Our salesforce tutorial is designed to help beginners with salesforce and profesionals' basic concept with advanced concept.

Salesforce is a SaaS or Software as a service, which means there is no need to install the software or server to work on. User can simply signup in salesforce.com and can start running the business instantly.

It was founded by Marc Benioff, parker Harris, Dave Moellenhoff, and frank Dominguez in 1999.

Salesforce was started as a CRM software, but today it provides various products and software solutions to user or developers.

It provides one of the best ways to connect with customers, business partners, and client over the single integrated environment. It allows the businesses to identify the customer's requirements, address the problem easily, and provide the same solution in the minimum timeframe.

Pre Lab Questions :

1. What is copado in DevOps?
→ Copado is the 100% native DevOps solution for salesforce.

2. Who invented Salesforce?
→ It was founded by Marc Benioff, parker Harries, Dave Mollenhoff, and Frank Dominguez in 1999.

3. What is the use of copado in salesforce?
→ It allows salesforce clients to handle their end to end release management procedures and Testing Automation requirements.

Post Lab Questions :

1. What are DevOps tools for development in salesforce?
→ Tools to check out in this space include Gearset, Copado, prodly, Flosum, Autorabit and Blue Canvas.

2. What are 4 key components of DevOps?
→ 1] Continuous Development.
2] Continuous Integration.
3] Continuous Testing
4] Continuous Feedback.

3. What is the DevOps process in salesforce?
→ It facilitates teams with the tools and processes required to monitor and roll back changes to their data and metadata & restore complex data hierarchies to their orgs as quickly as possible during any outage.

Conclusion: Thus, we have studied and performed practicals on Salesforce with Copado for devops.

Assesment Scheme:

Pre-Lab Test (2)	In-Lab Perform (5)	Post-Lab Perform (3)	Record (5)	Total (15)