**Test on 20-12-2024**

1. **What is devops ?**

* 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 methodology and contains set of tools to automate it.
* 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.

1. **Why devops?**

The main goal of DevOps is to

**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.

1. **What is need of devOps?**

DevOps addresses several challenges faced by traditional development and operations teams.In order to minimize it we are using devops:

* Slow Release Cycles
* Inefficient Collaboration
* Lack of Continuous Feedback
* Relases the application fastly

1. **What are the devOps tools?**

**Tools used in Devops**

1. Planning/coding/SCM:Git or Jira
2. Building code:Maven,Gradle,Apche ANT
3. Testing:Selenium with python
4. Integration:Jenkins(CI/CD)
5. Deployment:Docker,Kubernetes
6. Operations:Ansible
7. Monitoring:Terraforms
8. **Difference b/w break continue and pass ?**

**Break** is to **e**xit the loop entirely, regardless of the loop condition.

**Example**:

for i in range(5):

if i == 3:

break

print(i)

**O/p:**

0

1

2

**Continue** will Skips the rest of the code for the current iteration and moves to the next iteration of the loop.

**Example:**

for i in range(5):

if i == 3:

continue

print(i)

**O/P:**

0

1

2

4

**Pass** does nothing and is used as a placeholder.

**Example:**

for i in range(5):

if i == 3:

pass # Placeholder

print(i)

**O/P:**

0

1

2

3

4

1. **d/w remove , delete, pop and write an example program in**

**python to demonstrate 3 of them.?**

**del():**Delete is  is used to delete items from a list by index or to remove the entire list.

**Syntax**: del list[index]

**Example:**

shailu=[1,2,"shailaja","sreekar","kiran",2.3,2+2j]  
del shailu[1]  
print(shailu)

**O/P:**

[**1, 'shailaja', 'sreekar', 'kiran', 2.3, (2+2j)]**

**remove():**Remove method used to remove the first matching value from the list. It requires the value we want to remove from list as its argument.

**Syntax:** list.remove(value)

**Example:**

shailu=[1,2,"shailaja","sreekar","kiran",2.3,2+2j]  
shailu.remove("sreekar")  
print(shailu)

O/P:

[1, 2, 'shailaja', 'kiran', 2.3, (2+2j)]

**pop():**Pop method removes and returns an element from the list. By default, it removes the last element, but we can specify an index to remove an element at a particular position.

**Syntax:list.**pop(index)

**Example:**

shailu=[1,2,"shailaja","sreekar","kiran",2.3,2+2j,1]  
shailu.pop(1)  
print(shailu)

O/P:

[1, 'shailaja', 'sreekar', 'kiran', 2.3, (2+2j), 1]

1. **D/w append and extend..?**

**Append:**Append is to Add a single element to the end of a list.

**Syntax:**

list.append(element)

**Example:**

shailu=[1,2,"shailaja","sreekar","kiran",2.3,2+2j]  
shailu.append("jatothu")  
print(shailu)

**O/P:**

[1, 2, 'shailaja', 'sreekar', 'kiran', 2.3, (2+2j), 'jatothu']

**Extend:**Extend is to Adds all elements of an iterable (such as a list, tuple, or set) to the end of a list.

**Syntax:**

list.extend(iterable)

**Example:**

shailu=[1,2,"shailaja","sreekar","kiran",2.3,2+2j]  
shailaja=["mounika","srikanth"]  
shailu.extend(shailaja)  
print(shailu)

O/P:

[1, 2, 'shailaja', 'sreekar', 'kiran', 2.3, (2+2j), 'mounika', 'srikanth']

1. **Write a python program to print the element in the array with negative elements (ex : print the element which is present in -2 positions) ..?**

array=[1,2,4,5,7,8]  
print(array[-2])

**O/P:**

7

1. **Explain about lamda function?**

A **lambda function** is a small anonymous function that is defined using the lambda keyword, rather than the def keyword used for normal functions.

Syntax:

lambda arguments: expression

**Example:**

add = lambda x, y: x + y  
result = add(5, 3)  
print("The sum is:", result)

**O/P:**

8

1. **What is cloud ..? explain top 10 cloud providers ..?**

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

**Top 10 Cloud Providers**

1. Amazon web service(36%)
2. Microsoft Azure(25%)
3. Google cloud platform(11%)
4. Alibaba Cloud(4%)
5. Salesforce(3%)
6. IBM(2%)
7. Oracle(2%)
8. Tencent cloud(2%)
9. Digital ocean(1%)
10. VMware cloud(1%)

**11. what is cloud computing and explain types ..?**

Cloud computing is an on demand delivery of resources and services over the internet allowing users to access storage,applications and other resources without owning the infrastructure.

Cloud computing offers pay as you use.

**Two Types Of cloud Computing models**

**Service Model:**Cloud models in cloud computing define how cloud providers deliver resources and services to users.

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

**12. what are the different levels of cloud storages ..?**

* Cloud storage is a service model that enables data to be stored on remote servers accessed via the internet, rather than on local devices.
* These remote servers are maintained by third-party providers who manage the infrastructure, security, and availability of the data.
* Users can upload, store, and retrieve their files from anywhere with an internet connection, facilitating data accessibility and collaboration.

Different Levels of Cloud Storages:

1. **Block Based Cloud Storage:**

* In Block Based data is divided into fixed-size blocks, each with a unique identifier.
* It is used for applications requiring high-performance storage, such as databases and virtual machine file systems.
* Ex:EBS

1. **Object Based Cloud Storage:**

* In Object based data is stored as discrete units called objects, each containing the data itself, metadata, and a unique identifier.
* It is well suited for unstructured data like multimedia files, backups, and big data analytics.
* **Ex**:Google cloud storage

1. **File Based Cloud Storage:**

In file based data is organized hierarchically in directories and subdirectories, similar to traditional file systems.

It is Suitable for shared storage scenarios, content management systems, and home directories.

Ex:Azure Files

1. **explain the architecture of service model with real time examples?**

**Iaas(Infrastucture as Service):**

It is computing Infrastructure managed over the internet.The main advantage of using Iaas is it helps users to avoid cost and complexity of purchasing and managing the physical servers.

**Ex:**

Amazon Web Services (AWS) provides IaaS through services like Amazon Elastic Compute Cloud (EC2), which allows users to launch virtual servers and scale computing capacity based on demand. This is particularly beneficial for businesses experiencing fluctuating workloads, such as e-commerce platforms during peak shopping seasons.

**Paas(Platform as Service):**

Paas is created for the programmer to develop,test,run and manage the applications.

**Ex:**

Google App Engine is a PaaS offering that enables developers to create and deploy applications in various programming languages. For instance, a startup developing a new web application can use App Engine to focus on coding and functionality, while Google manages the infrastructure, scaling, and maintenance.

**Saas(Software as Service):I**t is a software in which applications are hosted by a cloud service provider.Users can access these applications with the help of internet connection and browser.

**Ex:**

Salesforce is a SaaS provider offering customer relationship management (CRM) software. Businesses use Salesforce to manage customer interactions, sales processes, and marketing campaigns without the need to install software on individual computers.

**14. explain 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.

15.**mention few differences b/w AWS , MICROSOFT AZURE , AND GCP?**

|  |  |  |
| --- | --- | --- |
| **AWS** | **Microsoft** | **GCP** |
| Largest cloud service provider with a significant global presence. | Strong presence, especially among enterprises using Microsoft products. | Rapidly growing, particularly in data analytics and machine learning. |
| Amazon S3 for object storage; EBS for block storage. | Azure Blob Storage for unstructured data; Disk Storage for block-level storage. | Cloud Storage for object storage; Persistent Disks for block storage. |
| Pay-as-you-go with options for Reserved Instances. | Pay-as-you-go with Reserved Savings for long-term commitments. | Pay-as-you-go with Committed Use Discounts. |
| Amazon EC2 instances with various configurations. | Azure Virtual Machines supporting multiple OS options | Compute Engine instances optimized for scalability. |
| Redshift for data warehousing; SageMaker for machine learning. | Azure Synapse Analytics; Azure Machine Learning services. | BigQuery for data warehousing; TensorFlow for machine learning. |

**16.Write a python program to print your name , designation, technology 100 times ?**  
name="Shailaja Jatothu"  
designation="Developer"  
technology="Devops"  
for i in range(0,100):  
 print(f"name:{name},designation:{designation},technology:{technology}")

**O/P:**

**name:Shailaja Jatothu,designation:Developer,technology:Devops**

**15.d/w agile and waterfall models..?**

|  |  |
| --- | --- |
| **Agile** | **Waterfall model** |
| * It is an incremental and iterative model | * It is linear and sequential model |
| * Changes can be made at any stage. | * Changes cannot be made after the completion of a phase |
| * After each cycle test plan is discussed. | * Hardly any test plan is discussed during a cycle. |
| * It takes 6 to 12 months to develop a software or application. | * As Agile is iterative approach we can deliver the software at any time. |
| * The testing part can be started before the development of the entire product. | * Testing can only be performed when the complete product is ready. |
| * It is useful in large and complex projects. | * It is mainly used for small projects. |

**18.explain about arithmetic an relational operators with example..?**

**Arithmetic Operator**

**Addition(+):**Adds two operands

**Substraction(-):**substracts second operand from first operand

**Multiplication(\*):**Multiply two operands

**Division(/):**Divides the first operand by the second; always returns a float.

**Modulus(%):**Returns the remainder of the division of the first operand by the second.

**Floor Division(//):**Divides the first operand by the second and returns the largest integer ≤ quotient.

**Exponentiation(\*\*):**Raises the first operand to the power of the second operand.

**Examples**:

a=10  
b=15  
print(a+b)  
print(a-b)  
print(a\*b)  
print(a/b)  
print(a%b)  
print(a//b)  
print(a\*\*b)

**Relational Operators:**

(==):Returns true if two operands are equal

(!=):Returns true if two operands are not equal

(>):Evaluates to True if the left operand is greater than the right operand.

(<):Evaluates to True if the Right operand is greater than the left operand.

(>=):Evaluates to True if the left operand is greater than or equal to the right operand.

(<=):Evaluates to True if the left operand is less than or equal to the right operand.

**Ex:**

a=10  
b=15  
print(a<b)  
print(a>b)  
print(a<=b)  
print(a>=b)  
print(a==b)  
print(a!=b)

**19.compares b/w set, list, tuple and dictionary ?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Feature** | **List** | **Tuple** | **Set** | **Dictionary** |
| Ordered | Yes | Yes | No | No |
| Mutable | Yes | No | Yes | Yes |
| Duplicates | Allowed | Allowed | Not allowed | Keys are not allowed but values can be allowed |
| Access by index | Yes | Yes | No | Only keys are allowed |
| Example | [1,2,2.3,2+2i] | (1,2,4,6,7) | {1,2,3,5,7} | {a:’shailaja’,b:21} |

**20.Explain the phases involved in software development life cycle..?**

**Phases in the SDLC**

**1. Requirement Analysis:** Gathering and collecting the data from stakeholders and understanding the scope and objective of the application.SRS(System Requirement Specification) is documented which contains the requirements, scope, and objectives and is used for designing in the next phase.

**2. System Design**: Based on the requirements gathered ,the system architectures,components and designs are planned and assigning work/tasks to teams.It includes high level design and low level design.The low level which contains internal structure each modules and high contains overall architecture how different modules or components of the system interact..Coding will be done with Implementation in the second phase.

**3.Implementation:** It Integrates all the coding done in the previous phase and starts testing.It checks whether application is meeting client requirement and includes various testing strategies like unit,integration and system testing

**4.Deployment:**Complete application will be moved to global server from local server as per the requirement of the client.

**5.Maintenance:**The last phase in waterfall model where monitoring bug fixes,adding new features to the application and collect feedback from clients and try to improve overall product.

**21.what is database ..? what is dbms and explain types of dbms ..?**

**Database:**Itis an application that stores the collection of data.

**DBMS(Database Management System):**It thatcan store data in the form of tables.

**The database is of 2 types:**

1. **RDMS(Relational Database Management System):** It stores the data in the form of tables and map the data from one location to another location.

**Advantages:**

* It will retrieve data very quickly.
* Operations are also very effective.

1. **Non-RDMS(Non-Relational Database Management system):** It stores the data in the form of key values format.

**22. what are ddl and dml commands mention example of each one ..?**

**1.DDL(Data Definition Language):**

DDL commands create, modify, and delete the database's structure like table, and schemas.

**Commands**

1. **Create:** Used to create databases, tables.

Ex:create table student(sid int(10) primary key,sname varchar(20))

1. **Alter:** Add a row or column to the existing table.

Ex:Alter table student add coulmn email varchar(20)

1. **Drop:** delete records from the database.

Ex:Drop table student

1. **Truncate:**It will remove the records from the table.

Ex:Truncate table student

**2.DML(Data Manipulation Language):**It deals with the manipulation of the data present in the database.

**Commands**

**Insert:** Used to insert data into the table.

Insert into student values(101,”shailaja”)

**Update:** Update the existing data in a table.

Update student set name=”shailu” where id=102

**Delete** Deletes the records from the database.

Delete from student where id=103

**Call:** Call a PL/SQL or Java subprogram.

**Explain call:** Describe the access path to the data**.**

1. **what are clauses and explain with example..?**

**Clauses** in SQL define specific **components**, **actions**, or **conditions** that determine how the query retrieves, manipulates, or filters the data.

Some of the SQL clauses:

**SELECT :It is to display / to obtain the data from particular table**

**Ex:Select \* from student**

**WHERE:It is used to exact particular record in a table**

**Ex:select \* from student where marks>60**

**GROUP BY:It groups the data present in the rows with same value**

****Ex**:Select sid,sname from student where marks>60 groupby marks order by sid**

**ORDER BY :**Used for sorting the records in the table

**Ex: Select \* from student order by sid**

**JOIN Clauses:Joins are used with select statement used to retrieve data from multiple tables from the same database.**

**Two tables: orders and products joining by their productid**

****Ex**:Select orderid,ordername,productname from orders join products on orders.productid=product.productid**

**LIMIT Clause:To specify only particular number of records to return**

****Ex**:Select sid,sname from studentwhere marks>80 limit 2;**

**24.explain the concept of joins with examples..?**

Joins are used with select statement.It is used to retrieve data from multiple tables from same database.

It is easy to fetch the records from different tables easily

2 tables as product and order

**Product**:Productname,productid,orderid

**Order**:orderid,ordername

We have 3 types of joins

1. **Inner Join**:In order to return all the rows from multiple tables where join condition is satisfy.

Ex:Select orderid,productid,productname from order join product on order.productid=product.productid

1. **Left Outer Join(Outer Join):**Returns all rows from left hand side table and all the rows from the right hand side by satisfying the join condition.

Ex:Select orderid,productid,productname from order Left join product on order.productid=product.productid

1. **Right outer Join(Right Join)::**Returns all rows from right hand side table and all the rows from the left hand side by satisfying the join condition

**Ex**:Select orderid,productid,productname from order Right join product on order.productid=product.productid

**25.create a trigger and explain..?**

Triggers are specialized procedures that automatically respond to certain events on a table or view.These events include actions such as INSERT, UPDATE, or DELETE.

**Creation of a trigger**

**Create trigger -->**Creates a new trigger in the database

Create Trigger Trigger\_name {before|after} {insert|update|delete} on table\_name for each row

Begin

[Trigger\_Body]

End;

Here Trigger\_name is the name of the trigger

{Before|after}-->It indicates whether the trigger action should happen before or after the event.

{insert|update|delete}-->It indicates which operation should be performed on trigger.

Table\_name-->Name of the table

For each row:Trigger will be executed for each row

Begin&end-->The Sql statementsto be executed when trigger is activated.