**Assignment on** **20-12-2024**

1. **What is devops ?**

Ans : It is process of delivering the product or a project by ensuring the automation in place, ensuring the quality with continuous monitoring and continuous testing.

1. **Why devops?**

Ans : DevOps is used to improve the collaboration and communication between software development and IT operations teams. The ultimate goal is to shorten the development lifecycle, increase the frequency of software releases, and improve the reliability and quality of software deployments.

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

Ans :

* Faster Time to delivery to product to the Market.
* Collaboration Between Development and Operations.
* Increased Demand for Continuous Innovation.
* Quality and Reliability of Software.
* Scalability and Flexibility.
* Cost Efficiency.
* Customer Satisfaction.

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

Ans :

1. **Version Control Tools**

Git

1. **Continuous Integration/Continuous Deployment (CI/CD)**

Jenkins

1. **Configuration Management**

Ansible

**4.Containerization and Virtualization**

Docker

5. **Monitor**

Terraform

6. **Testing**

Selenium

1. **Difference b/w break continue and pass ?**

**Ans :** These are used in conditional statements used to manage the control of execution in loops.

**Break :** It is used to terminate the loop based on the condition.

**Continue :** It is used to skip the particular iteration based on condition.

**Pass :** The pass statement is used when you need to syntactically have a statement, but no action is required

1. **d/w remove , delete, pop and write an example program in python to demonstrate 3 of them.?**

Ans: **remove** is used to remove the specified value mentioned in the that operation.

fruits = ["apple", "banana", "cherry", "apple", "mango", "orange"]  
  
fruits.remove("banana")  
  
print(fruits)

output = ["apple", "cherry", "apple", "mango", "orange"]

**delete is used to delete the element at specific index.**

fruits = ["apple", "banana", "cherry", "apple", "mango", "orange"]  
  
del fruits[1]  
  
print(fruits)

output = ["apple", "cherry", "apple", "mango", "orange"]

**pop** is used to remove the peak element in the list if we are not mentioned any index.

fruits = ["apple", "banana", "cherry", "apple", "mango", "orange"]  
  
 fruits.pop()  
  
print(fruits)

output = ["apple", "banana", "cherry", "apple", "mango"]

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

These two are methods in python used to add elements in list.

**append():**

Adds a single element to the end of the list.

**Extend():**

We can add multiple elements to the list.

# d/w append and extend  
# this is example of append keyword  
fruits = ["apple", "banana"]  
fruits.append("cherry")  
print(fruits)  
  
# this is the example for extend keyword  
fruits.extend(["cherry","promogranate","orange"])  
print(fruits)

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

# negitive indexes   
list = [3,54,3,6,2,-5,3,6,4,-6]  
  
print(list[-2])

1. **Explain about lambda function?**

**Ans :** lambda function in python is a anonymous function that means no name. This lambda function is used to create simple and one line function.

add = lambda x, y: x + y

print(add(3, 5))

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

**The cloud** refers to the use of remote servers hosted on the internet to store, manage, and process data, rather than using a local server or personal computer. Cloud computing enables users to access a variety of computing resources and services (such as storage, computing power, and software applications) via the internet, instead of maintaining physical infrastructure..

1. Amazon Web Services (AWS)
2. Microsoft Azure
3. Google Cloud Platform (GCP)
4. IBM Cloud
5. Oracle Cloud
6. Alibaba Cloud
7. Salesforce
8. DigitalOcean
9. VMware Cloud

10.Tencent Cloud

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

**Cloud computing** refers to the delivery of computing services like servers, storage, database, software and etc.. over the internet with out maintaining our own centres. Cloud computing offers flexibility, scalability, and cost-effectiveness, enabling users to access data and applications from anywhere with an internet connection.

**Cloud computing can be categorized based on service models and deployment models:**

1. **Cloud Service Models:**
2. **Infrastructure as a Service (IaaS):**

**IaaS** provides virtualized computing resources over the internet. Users can rent servers, storage, networking, and other fundamental computing resources.

**Ex**: Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP).

1. **Platform as a Service (PaaS)**:

PaaS provides a platform that allows developers to build, deploy, and manage applications without dealing with the underlying hardware or software layers.

Ex : Google App Engine, Microsoft Azure App Service.

1. **Software as a Service (SaaS)**:

SaaS delivers fully managed applications over the internet. Users access software through a web browser without needing to install or maintain it.

Ex : Google Workspace , Microsoft 365, Dropbox.

1. **Cloud Deployment Models**:
2. **Public Cloud**: These resources are shared across multiple users. These resources anyone can access across the world.
3. **Private Cloud**: A **private cloud** is a cloud environment that is dedicated to a single organization. No outside organizations are accessed.
4. **Hybrid Cloud :** Hybrid cloud is a combination of both public and private clouds, allowing data and applications are shared between them.
5. **Community Cloud:** In this cloud infrastructure shared by several organizations that have common interests such as security, or industry specific needs.

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

Cloud storage services are typically divided into different levels or types based on the specific use case, performance requirements, and cost considerations. These levels are often categorized by the frequency of access, retrieval times, and durability of the data.

**1. Hot Storage (Active Storage)**

* Hot storage refers to cloud storage solutions designed for frequently accessed or actively used data.

**2. Cool Storage (Cold Storage)**

* Cool storage is designed for infrequently accessed data. This storage tier is cost-effective for data that doesn't need to be accessed frequently but still needs to be readily available when necessary.

**3. Cold Storage (Archive Storage)**

* Cold storage or archive storage is designed for long-term storage of data that is rarely or never accessed. This tier is the most cost-effective, but retrieval times can be long, and there might be additional retrieval costs.

**4. Object Storage**

* Object storage is a highly scalable storage model that manages data as objects, as opposed to blocks or files. Data can be stored at any level (hot, cool, cold), but object storage is ideal for handling large amounts of unstructured data.

**5. File Storage**

* File storage (also known as file-level storage) is a traditional storage model where data is stored in a hierarchical file system with directories and files. It is typically used for applications requiring file-based storage access.

**6. Block Storage**

* Block storage provides high-performance storage, where data is stored in fixed-size blocks. It’s often used for applications that require low latency and high throughput, such as databases and virtual machines.

**7. Hybrid Storage**

* Hybrid cloud storage combines both on-premises and cloud storage to meet different performance, security, and regulatory needs. It can use a combination of on-site hardware for sensitive or high-performance data and cloud storage for scalability and backup.

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

**Ans :** Cloud computing service models define the level of abstraction and management responsibility in the cloud infrastructure. These service models represent how much control the user has over the resources and what is managed by the cloud provider. The primary service models are:

1. Infrastructure as a Service (IaaS)
2. Platform as a Service (PaaS)
3. Software as a Service (SaaS)

**14. explain deployment model?**

Deployment model is nothing we can move our data from local sever or local computer to global server or git.

**Cloud Deployment Models**:

1. **Public Cloud**: These resources are shared across multiple users. These resources anyone can access across the world.
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**15. mention few differences b/w AWS , MICROSOFT AZURE , AND GCP?**

AWS, Microsoft Azure, and Google Cloud Platform these are cloud providers which are store online space with different scenarios.

**AWS :** AWS is is a amazon web services which is biggest cloud provider. Aws was introduced in the year of 2006.

It provides services like EC2 and simple storage.

It uses pay as you go model.

**MICROSOFT AZURE :** this is owned by Microsoft introduced in the year of 2009.

It Uses Virtual Machines.

**GCP**: **GCP**: While growing rapidly, GCP has a smaller market share compared to AWS and Azure. It is particularly strong in big data, machine learning, and containerized workloads.

Provides Compute Engine.

**16. Write a python program to print your name , designation, technology 100 times ?**

**# printing name designation and technology 100 times**for i in range(100):  
 print("name : Manibabu kanda , Designation : software Developer, Technology : DevOps")

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

**Waterfall Model**

The Waterfall model is one of the earliest and most traditional approaches to software development. It follows a linear, sequential design process. In this model, each phase must be completed before the next phase can begin.

**Phases involved in this are :**

* Requirement gathering.
* System design
* Implementation
* Integration and Testing
* Deployment
* Maintenance

**Agile Model:**

The **Agile** model is an iterative and incremental approach to software development. Unlike Waterfall, Agile is flexible, allowing for continuous improvement, adaptation to changes, and active collaboration between developers, stakeholders, and customers.

**Phases involved in this are :**

* Planning
* Iteration/Deployment
* Review
* Testing and Deployment
* Repeat new features are developed and released incrementally in each sprint.

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

Ans :

**Arithmetic operators** are used to perform mathematical calculations in Python. There is several operator for doing the tasks.

# Arthmetic operators  
# 1. Addition (+)  
a = 5  
b = 3  
result = a + b  
print(result) # Output: 8  
  
# 2. Subtraction (-)  
a = 5  
b = 3  
# result = a - b  
print(result) # 5-3 Output: 2  
  
# 3, Multiplication (\*)  
a = 5  
b = 3  
# result = a \* b  
print(result) # Output: 15  
  
# 4. Division (/)  
a = 5  
b = 2  
result = a / b  
print(result) # Output: 2.5  
  
# 5. Floor Division (//)  
a = 5  
b = 2  
result = a // b  
print(result) # Output: 2  
  
# 6. Modulus (%)  
a = 5  
b = 2  
result = a % b  
print(result) # Output: 1  
  
# 7. Exponentiation (\*\*)  
a = 2  
b = 3  
# result = a \*\* b  
print(result) # Output: 8  
  
# Unary Plus (+)  
a = 5  
result = +a  
print(result) # Output: 5  
  
# 9. Unary Minus (-)  
a = 5  
result = -a  
print(result) # Output: -5

**Relational operators** :

These operators are used to compare two values. These operators return a Boolean value (True or False) depending on the result of the comparison.

# 1. Equal to (==)  
a = 5  
b = 5  
result = a == b  
print(result) # Output: True  
  
# 2. Not equal to (!=)  
a = 5  
b = 3  
result = a != b  
print(result) # Output: True  
  
# 3. Greater than (>)  
a = 5  
b = 3  
result = a > b  
print(result) # Output: True  
  
# 4. Less than (<)  
a = 5  
b = 7  
result = a < b  
print(result) # Output: True  
  
# 5. Greater than or equal to (>=)  
a = 5  
b = 5  
result = a >= b  
print(result) # Output: True  
  
# 6. Less than or equal to (<=)  
a = 5  
b = 7  
result = a <= b  
print(result)

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

Ans: SET : A set is an unordered collection of unique elements. And it is mutable. We are not able to access elements by using indexes.

set = {1, 2, 3, 4}

set.add(5)

set.remove(2)

print(set)

**list :** A list is an ordered collection of elements, which can be hold any type of data means store strings, integer and float values. It is mutable. And can have a duplicates also.

list = [1,2,4,2,4]

print(list)

print(list)

**Tuple :** A tuple is an ordered, immutable collection of elements. It can hold duplicates also.

tuple = (1,2,3,4)

print(tuple)

**Dictionary :** It is a unordered collection of elements present as a key-value pairs like a json format. It is mutable so we can operation after creating dictionary also. And also values can be duplicates and keys must be unique.

my\_dict = {  
 "name": "manibabu",  
 "age": 24,  
 "city": "Hitech city"  
}  
print(my\_dict)  
  
print(my\_dict["name"])  
  
del my\_dict["city"]  
my\_dict.pop("age")  
  
print(my\_dict)  
  
# for getting key and values  
print(my\_dict.keys())  
print(my\_dict.values())  
print(my\_dict.items())

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

The **Software Development Life Cycle (SDLC)** is a systematic process used by software engineers and developers to design, develop, test, and deploy software. It consists of various phases

1. **Requirement Gathering and Analysis:**

Understand and document the requirements of the system from the stakeholders, clients, and end-users.

1. **System Design :** Convert the gathered requirements into a system design blueprint that defines the architecture of the system.
2. **Implementation :** Develop the software based on the design specifications.
3. **Testing :** In this testers verify the software is working properly or not based on the requirements.
4. **Deployment :** Deploy the software for use in the real-world environment.
5. **Maintenance and Support :** Monitor and maintain the software after deployment because product is work properly or not.

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

**Database :** Database is an organized collection of data. It used to store the data and accessed in easy way.

**DBMS :** Database management system is software that interacts with the database and applications. It will store the data in the form of tables.

**Types of DBMS :**

**DBMS** : It is a database management system used to store the data.

**RDBMS :** Relational database management system used to store the data in the form of tables with relations between them.

It will retrieve data very quickly .

Operations will be very effective.

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

**DDL (Data Definition Language):**

DDL commands are used to define, modify, and manage database structures like tables, schemas, indexes, and constraints. It will change only the database structure not data.

**The commands involved in this are :**

**CREATE**

CREATE TABLE Employees (

ID INT PRIMARY KEY,

Name VARCHAR(100),

Age INT,

Department VARCHAR(50)

);

**ALTER**

ALTER TABLE Employees ADD Salary int;

**DROP**

DROP TABLE Employee;

**TRUNCATE**

TRUNCATE TABLE Employees;

**RENAME**

RENAME TABLE Employees to faculty;

**DML (Data Manipulation Language):**

DML commands are used to manipulate the data within existing database tables. These commands allow users to perform operations are insert, update, and delete the data from the table.

**The commands are :**

**SELECT :** Used to retrieve the data from tables.

**Ex :** SELECT \* FROM Employees;

**INSERT :** It is used to insert into data into the existing tables.

**Ex :** INSERT INTO Employees (ID, Name, Age, Department) VALUES (1, “manibabu”, 25, 'IT');

**UPDATE :** Used to modify the data in the existing tables.

**EX :** UPDATE Employees set age = 22 where id = 1;

**DELETE :** Used to remove rows for the table based on the condition.

**EX :** DELETE from Employees where id = 1;

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

**Ans : 1. SELECT Clause:** used to retrieve the data from the existing table.

**Ex :** **SELECT \* FROM employees;**

1. **FROM Clause :** this is used to specifies from which to retrieve the data.

**Ex : SELECT \* FROM employees;**

1. **WHERE Clause :** It is used to filter the data based on the condition.

**Ex : SELECT \* FROM Employees WHERE Age > 30;**

1. **ORDER BY Clause :** Used to sort the result either ascending or descending order based on one or more columns.

**Ex : Select \* from employees order by age desc;**

1. **GROUP BY Clause :** It is used to group the values in specified column.

**Ex : SELECT Department, COUNT(\*) FROM Employees GROUP BY Department;**

1. **HAVING Clause :** Filters groups after the GROUP BY clause is applied. It is used to filter aggregate results
2. **JOIN Clause:** which is used to combine more then one table in this there is several joins are there

* **INNER JOIN**: Returns rows that have matching values in both tables.
* **LEFT JOIN (OUTER JOIN)**: Returns all rows from the left table and matching rows from the right table.
* **RIGHT JOIN (OUTER JOIN)**: Returns all rows from the right table and matching rows from the left table.
* **FULL JOIN (OUTER JOIN)**: Returns all rows when there is a match in one of the tables.

1. **DISTINCT Clause:** It will retrieve the distinct values present in the column of a tables.
2. **LIMIT:**  This clause is used to restrict the number of rows. And it will return specific number of rows.

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

**Ans :**  Joins in mysql or any database used to combine more then one table based on the requirement. For that purpose we are use SELECT clause for retrieve data from the tables.

**There is types of joins present in the MYSQL are :**

1. **Inner join or join :** Retrieve the matching data from the both tables.
2. **Left join :** Retrieve all data from the left table and matching data from the right table.
3. **Right join :** Retrieve all data from the right table and matching data from the left table.
4. **Self join :** it is used to retrieve data from table itself based on the condition.
5. **Full join :** We can get the total data from the both tables.

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

Trigger is executed whenever there is any changes or modifications occur in the database. It is very powerful for auto update. Trigger operations perform on insert, update and delete in the database.

Syn : create trigger trigger\_name

before | after

Insert | update | delete

For each row

Trigger body