**SQL**

1. **what is database ..? what is DBMS and explain types of DBMS ..?**

It is storing ,manipulating and retrieving data in database.

DBMS:-(DATABASE MANAGEMENT SYSTEM)

* It store the data in the form of tables.
* Data base management system it is a software that is used to define, create maintain a database and provides controlled access to the data.
* It store data the files.
* Data store generally is either hierarchical form or a navigational form.
* No relationship between data. It supports the single user.
* It is used for small organization and small data.

RDBMS:-(RELATIONAL DATABASE MANAGEMENT SYSTEM)

* It is an advance version of the DBMS.
* It is store data a tabular forms.it is used in tabular structure .
* Data is in a tabular form it is relationship between each other.
* It supports the multiple users. It handle large amount of data.

How to create DataBase:-

create database database\_name;

ex:-create database Kalyani;

How to use database:-

Use database\_name;

ex:-use Kalyani;

**2. what are DDL and DML commands mention example of each one ..?**

**Data Definition Language (DDL):-**

DDL commands are used to define or modify the structure of a database, the creation, alteration, and deletion of database objects like tables, indexes.

create :-

CREATE TABLE table\_name (

column1\_name column1\_datatype constraints,

column2\_name column2\_datatype constraints,);

ex:- CREATE TABLE Employees (

EmployeeID INT PRIMARY KEY,

FirstName VARCHAR(50),

LastName VARCHAR(50),

BirthDate DATE,

Position VARCHAR(50));

**ALTER:-**

It is modify the structure of an existing database object, such as a table. You can use it to add, delete, or modify columns in a table.

**Syntax:-** ALTER TABLE table\_name ADD column\_name datatype;

Ex:- ALTER TABLE Employees **ADD** Email VARCHAR(100);

**Syntax**:-ALTER TABLE table\_name **DROP** COLUMN column\_name;

**Syntax:-**ALTER TABLE table\_name **MODIFY** COLUMN column\_name new\_datatype;

**Drop:-**

It is used to specified object is permanently removed,

**Syntax:-**DROP TABLE table\_name;

Ex:- DROP TABLE Employees;

**TRUNCATE:-**

The TRUNCATE statement in SQL is used to remove all rows from a table.

**Syntax**:- TRUNCATE TABLE table\_name;

ex:- TRUNCATE TABLE Employees;

**Data Manipulation Language (DML)**

DML commands are used to manage data within database objects. These commands allow you to insert, update, delete from tables.

INSERT:-

INSERT INTO Employees (EmployeeID, FirstName, LastName, BirthDate, HireDate, Position, Salary)

VALUES (1, 'John', 'Doe', '1980-05-15', '2020-06-01', 'Manager', 75000.00);

**DELETE:-**

It is used to remove one or more rows from a table based on specified conditions. **Syntax**:- DELETE FROM table\_name WHERE condition;

ex:- DELETE FROM Employees WHERE EmployeeID = 1;

**UPDATE:-**

It is used to modify existing data in a table. It allows you to update one or more rows in a table based on specified conditions.

**Syntax:-**

UPDATE table\_name SET column1 = value1, column2 = value2, ...WHERE condition;

EX:- UPDATE Employees SET Salary = 80000 WHERE EmployeeID = 1;

**SELECT :-**

The select statement is used to select data from a database.

**SYNTAX**:-SELECT column1, column2, ...FROM table\_name WHERE condition;

FOR ALL COLUMNS:- SELECT \* FROM Employees;

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

**WHERE CLAUSE**:-

There where clause is used filter records. It is used to extract only records that fulfill a specified condition.

**SYNTAX**:-SELECT column1, column2, ...FROM table\_name WHERE condition;

EX:- SELECT FirstName, LastName, Salary FROM Employees WHERE Salary > 50000;

**NOTE**:-The where clause is not only used in select statements ,it is also used in update ,delete .

**ORDER BY:-**

The order by keyword is used to sort the result set in ascending or descending order.

The order by keyword sorts the records in ascending order by default.To sort the records in descending order, use the desc keyword.

**SYNTAX**:- SELECT column1, column2, ...FROM table\_nameORDER BY column\_name [ASC|DESC];

ex:- SELECT FirstName, LastName, Salary FROM Employees ORDER BY LastName ASC;

**GROUP BY:-**

The group by clause is used to group rows by one or more columns.

Note:The group by clause is used in conjunction with aggregate function such as min(),max(),sum(),avg() and count()etc..

**SYNTAX**:- SELECT column1, aggregate\_function(column2) FROM table\_name

WHERE condition GROUP BY column1;

Ex:-select country sum (salary)as total salary from employee group by county.

**HAVING:-**

The having clause was added to sql because the where keyword cannot be used with aggregate function. we can use the group by clause with having clause to filter the result set based on aggregate functions.

**SYNTAX**:-SELECT column1, aggregate\_function(column2) FROM table\_name GROUP BY column1

HAVING aggregate\_function(column2) condition;

Ex:- SELECT Department, COUNT(\*) AS EmployeeCount FROM Employees GROUP BY Department

HAVING COUNT(\*) > 5;

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

It is used to retrieve data from 2 or more related tables. In genral tables are related to each using foreign key.

EX:SELECT \*from userinfo join statesinfo on userinfo.stateid=statesinfo.stateid.

Here are the different types of the JOINs :

* (INNER) JOIN: Returns records that have matching values in both tables
* LEFT (OUTER) JOIN: Returns all records from the left table, and the matched records from the right table
* RIGHT (OUTER) JOIN: Returns all records from the right table, and the matched records from the left table
* FULL (OUTER) JOIN: Returns all records when there is a match in either left or right table.

EX:-

* select \*from Emp inner join Departments on Emp.employeeID=Departments.DepartmentID;
* select \*from Emp left join Departments on Emp.employeeID=Departments.DepartmentID;
* select \*from Emp right join Departments on Emp.employeeID=Departments.DepartmentID;
* select \*from Emp cross join Departments on Emp.employeeID=Departments.DepartmentID;

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

Triggers are special stored programs that are activated automatically in response to certain events on a table.

There are several types of triggers, each associated with different actions and timings.

1. BEFORE Triggers

BEFORE INSERT: Activated before a new row is inserted into the table.

BEFORE UPDATE: Activated before an existing row is updated.

BEFORE DELETE: Activated before a row is deleted from the table.

BEFORE INSERT example:;

create table

>>CREATE TABLE activity1.employees (

id INT AUTO\_INCREMENT PRIMARY KEY,

name VARCHAR(100),

position VARCHAR(50),

hire\_date DATE,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

====================================================================================

**AWS**

**1. What is cloud …Explain top10 cloud provides.**

**CLOUD:-**

* The cloud allow users to access data, applications and computing resources from anywhere in the world.
* Without internet you can’t access them is know as a cloud.

There are 10 cloud providers:

1.AWS 6.Alibaba Cloud

2.Microsoft Azure 7.Salesforce

3.IBM Cloud 8.Digital Ocean

4.Google Cloud 9.VMware Cloud

Oracle Cloud 10.Tencent Cloud

**2.What is cloud computing and explain types.**

Cloud computing refers to the delivery of computing services, including servers storage, database, networking, software and analytics, over the internet.

In cloud computing we have 2 types :

1. Deployment Model
2. Services Model

**Deployment Model : -**

Cloud deployment model defines the who can access the cloud resources and how a cloud is located is know as a deployment model.

In deployment model we have 4 types:-

1. Public Cloud
2. Private Cloud
3. Hybrid Cloud
4. Community Cloud.

**Services model:-**

It has a four models :

1. Software as a service (SAAS)
2. Platform of a service(PAAS)
3. Infrastructure as a service (IAAS)
4. Function as a service(FAAS)

**4.Explain the architecture of service model with real time examples.**

**Services model:-**

It has a four models :

1. Software as a service (SAAS)
2. Platform of a service(PAAS)
3. Infrastructure as a service (IAAS)
4. Function as a service(FAAS)

**Software as a service (SAAS):-**

Saas it is pre-existed application are accessible through internet connection.

1.google app. engine

2.salesforce.com

**Platform of a service(PAAS)**

It develop new IT system application with help of cloud platform. cloud offers the rent the platform to developers/organization.

**Infrastructure as a service (IAAS)**

Virtualized infrastructure can rent and develop a new application.

**Function as a service(FAAS)**

It breaks cloud applications down into even smaller components that only run when they are needed.

**5.Explain deployment mode.**

Cloud deployment model defines the who can access the cloud resources and how a cloud is located is know as a deployment model.

In deployment model we have 4 types:-

* + Public Cloud

Private Cloud

* + Hybrid Cloud
  + Community Cloud.

**Public Cloud:-**

A public cloud is a cloud computing model in which services are delivered over the public internet and share across organizations. public cloud allows every one can access the cloud with the help of internet connection

Advantages:-

* Low cost
* No maintance
* Reliable.

**Private cloud:-**

In private cloud means in private cloud resources allows only with in the Organization.

operate only with in a particular organization.It “**pay per use”**

**Advantages:-**

* High security
* More control.

**Hybrid Cloud:-**

It is a combination of public and private.

**Advantage:-**

* flexible and secure
* cost effective.

Community cloud:-

It access the group of organization is know as a community cloud .

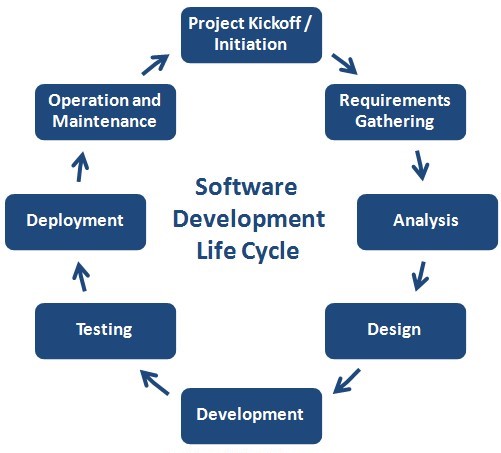
**6.Mention few difference between AWS ,MicrosoftAZURES AND GCP**

| **Subject** | **Google Cloud Platform** | **Microsoft Azure** | **Amazon Web services** |
| --- | --- | --- | --- |
| **Launched** | 2008 | 2009 | 2006 |
| **Storage Domain** | Cloud Storage | Blocked storage | S3 |
| **Monitoring** | Stackdriver monitoring services | Azure Application Insight | [Cloud watch](https://www.geeksforgeeks.org/introduction-to-amazon-cloudwatch/) |
| **Block Storage** | Persistent disk | Page blobs | EBS |
| **Firewall** | Fortigate Next Generation Firewall | Application Gate Away | Web Application Firewall |
| **Cloud Services(Protection)** | Shield | DDos | [Cloud Armor](https://www.geeksforgeeks.org/google-cloud-armor/) |
| **Market Share** | 9% | 22% | 33% |
| **DNS Service** | Cloud DNS | Azure traffic manager | [Amazon Route 53](https://www.geeksforgeeks.org/introduction-to-amazon-route53/) |
| **Automation** | Compute Engine Management | Azure Automation | AWS Opsworks |
| **Location** | 22 Regions (61 zones Zones) | 60+ Regions | 26 Regions |
| **Security** | Cloud security Command Centre | Azure Security Centre | AWS Security Hub |

**TESTING**

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

It is process used by software industry. There are 7 ways to used the SDLC:-



**1.Software Requirements& Gathering:-**

Here business analyst will collect the requirements from the client. After gathering the requirements will prepare the document **Business Requirements** **Specifications**(BRS). After sending requirements to forward to analysis**.**

**2.Analysis & Planning:-**

The documents are Studie and understanding the document what is the requirements will do or not. After complete the understanding they will prepare the document is **Software Requirement Specification**(SRS). And also planning the team ,schedules, strategy etc..

**3.Design:-**

There will prepare the blue print for the application.

**4.coding:**

Starting the coding to the client requirement and there complete the coding there will send testers.

**5.Testing:-**

The testers follows the verification and validation process and there verify the requirement document functional and non-functionality (functional means click button actions and linking actions etc.. and non functionality means graphical visible etc.)

**6.Deployment:-**

Release the software application to client there check the application for there requirements or not.

**7.Maintance:-**

Give the updates for the client side requirements.

2.**Difference between the waterfall and align models**

| **Aspect** | **Agile Testing** | **Waterfall Testing** |
| --- | --- | --- |
| **Testing Phase** | In [agile testing](https://www.geeksforgeeks.org/agile-software-testing/), testing is not a separate phase. | In [waterfall testing](https://www.geeksforgeeks.org/waterfall-software-testing/), testing is a separate phase. |
| **Integration With Development** | In agile testing, testing is performed alongside the development. | In waterfall testing, testing is carried out only after the completion of development. |
| **Collaboration** | In agile testing, development team and testing team work together. | In waterfall testing, development team and testing team work separately. |
| **Tester Involvement** | In agile testing, testers are involved in the requirements. | In waterfall testing, testers may or may not be involve in the requirements.. |
| **Acceptance Testing** | In agile testing, acceptance testing is carried out after every iteration. | In waterfall testing, acceptance testing is carried out only in the end. |
| **Regression Testing** | In agile testing, regression testing is carried out after every iteration. | In waterfall testing, regression testing is carried out only in the end. |
| **Time Delay** | In agile testing, there is no time delays between coding and testing. | In waterfall testing, there is normal time delays between coding and testing. |
| **Testing Levels** | In agile testing, different testing levels overlap. | In waterfall testing, testing levels can’t overlap. |
| **Flexibility** | Agile testing methodologies are more flexible. | Waterfall testing methodologies are very rigid compared to agile testing. |
| **Test Plan** | In agile testing, the test plan is reviewed after each cycle/sprint. | In waterfall testing,  the test plan is not discussed during a cycle. |

What is devops?

It is a combinations of development and operations.It is process of delivery the product /project by ensuring automation in place, ensuring the quality with continuous monitoring and testing.

3.Why devops?

To deliver the software or project etc….on time.

DevOps uses the CI/CD(Continuous Integration (CI)/ Continuous Delivery (CD)

4.**What is need of devops?**

The goal of DevOps is to increase an organization’s speed when it comes to delivering applications and services.

**5.What are the devops tools?**

* Git
* Jenkins
* Docker
* Kubernetes
* AWS
* Azure
* GCP

PYTHON

1**.Difference between the break, continue and pass?**

**Break statement** is used to terminate the current loop and resumes execution at the next statement, just like the traditional . The **break statement** can be used in both Python while and for loops.

Syntax:-

looping statement:

condition check:

break

EX:-

for letter in 'Python':

if letter == 'h':

break

print ("Current Letter :", letter)

print ("Good bye!")

output:-

Current Letter : P

Current Letter : y

Current Letter : t

Good bye!

**Continue statement**:-

The **continue statement** is just the opposite to that of break. It skips the remaining statements in the current loop and starts the next iteration.

Syntax:-

looping statement:

condition check:

continue

Ex:-

for letter in 'Python':

if letter == 'h':

continue print ('Current Letter :', letter)

print ("Good bye!")

Ex:-

Current Letter : P

Current Letter : y

Current Letter : t

Current Letter : o

Current Letter : n

Good bye!

**Pass Statement:-**

python **pass statement** is used when a statement is required syntactically but you do not want any command or code to execute.

**2.Explain about the LAMBA function**.

A lambda function can take any number of arguments, but can only have one expression.

Syntax

lambda *arguments*: *expression*

*Ex:-*

Add 10 to argument a, and return the result:

x = lambda a : a + 10  
print(x(5))

**3.Difference between the delete ,remove and pop with examples?**

Pop():it remove the element which placed as 1st element.

Remove():it remove a specific element from the set if the element is not available it raises an exception key error

# pop()  
k = {1, 2, 3}  
element = k.pop()  
print(element)  
# Output: 1  
print(k)  
# Output: {2, 3}  
# remove()  
my\_set = {1, 2, 3}  
my\_set.remove(2)  
print(my\_set)  
# Output: {1, 3}  
**4.Difference between append and extend method**

**append() Method:-**

This method is used to add a single element to the end of a list. This element can be any data type, a number, a string, another list, or even an object.

Ex:-

a = ['geeks', 'for']

a.append('geeks')

print(a)

**extend() Method**

**This** method is used to **add all elements from an iterable** (e.g., a list, [tuple](https://www.geeksforgeeks.org/tuples-in-python/), or [set](https://www.geeksforgeeks.org/sets-in-python/)) to the end of the current list.

Ex:-

a = ['geeks', 'for']

b = [6, 0, 4,5]

a.extend(b)

print(a)

**5.Explain about arithmetic and relational operations and example?**

Arithmetic operators are used with numeric values to perform common mathematical operations:

|  |  |  |
| --- | --- | --- |
| **Operator** | **Name** | **Example** |
| + | Addition | a + b = 30 |
| - | Subtraction | a – b = -10 |
| \* | Multiplication | a \* b = 200 |
| / | Division | b / a = 2 |
| % | Modulus | b % a = 0 |
| \*\* | Exponent | a\*\*b =10\*\*20 |
| // | Floor Division | 9//2 = 4 |

Ex:-

1.a = 21

b = 10

c = 0

c = a + b

print ("a: b: a+b: ".format(a,b,c))

c = a - b

print ("a: b: a-b: ".format(a,b,c) )

c = a \* b

print ("a: b: a\*b: ".format(a,b,c))

c = a / b

print ("a: b: a/b: ".format(a,b,c))

c = a % b

print ("a: b: a%b: ".format(a,b,c))

a = 2

b = 3

c = a\*\*b

print ("a: b: a\*\*b: ".format(a,b,c))

a = 10

b = 5

c = a//b

print ("a: b: a//b: ".format(a,b,c))

**Comparison operators** are used to compare two values:

|  |  |  |
| --- | --- | --- |
| **operator** | **Name** | **Example** |
| == | Equal | x == y |
| != | Not equal | x != y |
| > | Greater than | x > y |
| < | Less than | x < y |
| >= | Greater than or equal to | x >= y |
| <= | Less than or equal to | x <= y |

x = 5

y = 3

print(x == y)

x = 5

y = 3

print(x != y)

x = 5

y = 3

print(x > y)

x = 5

y = 3

print(x <y)

x = 5

y = 3

print(x >= y)

x = 5

y = 3

print(x <= y)

6**.Compares between set, list, tuple and dictionary.**

| **List** | **Tuple** | **Set** | **Dictionary** |
| --- | --- | --- | --- |
| A list is a non-homogeneous data structure that stores the elements in columns of a single row or multiple rows. | A Tuple is a non-homogeneous data structure that stores elements in columns of a single row or multiple rows. | The set data structure is non-homogeneous but stores the elements in a single row. | A dictionary is also a non-homogeneous data structure that stores key-value pairs. |
| The list can be represented by [ ] | A tuple can be represented by  ( ) | The set can be represented by { } | The dictionary can be represented by { } |
| The list allows duplicate elements | Tuple allows duplicate elements | The Set will not allow duplicate elements | The dictionary doesn’t allow duplicate keys. |
| The list can be nested among all | A tuple can be nested among all | The set can be nested among all | The dictionary can be nested among all |
| Example: [1, 2, 3, 4, 5] | Example: (1, 2, 3, 4, 5) | Example: {1, 2, 3, 4, 5} | Example: {1: “a”, 2: “b”, 3: “c”, 4: “d”, 5: “e”} |
| A list can be created using the **list()**function | Tuple can be created using the **tuple()** function. | A set can be created using the **set()** function | A dictionary can be created using the **dict()**function. |
| A list is mutable i.e we can make any changes in the list. | A tuple is immutable i.e we can not make any changes in the tuple. | A set is mutable i.e we can make any changes in the set, its elements are not duplicated. | A dictionary is mutable, its Keys are not duplicated. |
| List is ordered | Tuple is ordered | Set is unordered | Dictionary is ordered (Python 3.7 and above) |
| Creating an empty list  l=[] | Creating an empty Tuple  t=() | Creating a set  a=set() b=set(a) | Creating an empty dictionary  d={} |

|  |  |
| --- | --- |
|  |  |
|  |

7.Write a python program to print the name ,designation technology 100 times.

Program:-

name='kalyani'

designation="trainer"

technology="devops"

for i in range (100):

print(name,designation,technology)

8.write a python program to print the elements in the array with negative elements.(ex:-print the elements which is present in 2 position.

Program:-

s=[1,2,3,4,5]

negative =s[-2]

print(negative)