**DBMS**

**1. What are the types of Database languages available ?**

There are four sorts of database languages:

Data Definition Language (DDL) uses some of the basic commands such as CREATE, ALTER, DROP, TRUNCATE, RENAME, etc. for updating the info that’s why they’re referred to as Data Definition Language.

Data Manipulation Language (DML) uses such commands as SELECT, UPDATE, INSERT, DELETE, etc are the commands that are used for the manipulation of already updated data so they’re a part of Data Manipulation Language.

DATA Control Language (DCL) such commands as GRANT and REVOKE are the commands that are used for adding and removing the user access to the database. So, they’re a part of the Data Control Language.

Transaction Control Language (TCL) such commands as COMMIT, ROLLBACK, and SAVEPOINT. These are the commands used for managing transactions within the database. TCL is employed for managing the changes made by DML.

Database language implies the queries that are used for the updating, modifying and manipulating the info in the system.

**2. What is a Data Model according to you ?**

The Data model is specified as a set of conceptual tools for describing data, data relationships, data semantics and constraints. These models are to describe the connection between the entities and their attributes.

There is the amount of knowledge models:

Hierarchical data model

Network model

Relational model

Entity-Relationship model then on.

**3. What is the difference between NOW() and CURRENT\_DATE()?**  
Answer: Both NOW() and CURRENT\_DATE() are built-in MySQL methods. NOW() is  
used to show the current date and time of the server and CURRENT\_DATE() is used to  
show only the date of the server.

**4. How can you change the name of any existing table by using the SQL  
statement?**  
Answer: The following SQL command is used to rename an existing table of the  
database.  
RENAME TABLE table\_name TO new\_nam OR ALTER TABLE TABLENAME RENAME TO NEWTABLENAME

**5.What is a join? Explain the different types of MySQL joins.**  
Answer: The SQL statement that is used to make a connection between two or more  
tables based on the matching columns is called a join. It is mainly used for complex  
queries.  
Different types of SQL joins are mentioned below:  
• Inner Join: It is a default join. It returns records when the values match in  
the joining tables.  
• Left Outer Join: It returns all the records from the left table based on the  
matched records from the right table.  
• Right Outer Join: It returns all the records from the right table based on  
the matched records from the left table.  
• Full Outer Join: It returns all the records that match from the left or right  
table.

SELF JOIN AND NATURAL JOIN AND CROSS AND EQUI JOIN

**6. What is a transaction? Describe MySQL transaction properties.**Answer: When a group of database operations is done as a single unit then it is called a  
transaction. If any task of the transactional tasks remains incomplete then the  
transaction will not succeed. Hence, it is mandatory to complete all the tasks of a  
transaction to make the transaction successful.  
A transaction has four properties which are known as ACID property. These properties  
are described below.  
• Atomicity: It ensures that all the tasks of a transaction will be completed  
successfully otherwise all the completed tasks will be rolled back to the  
previous state for any failure.  
• Consistency: It ensures that the database state must be changed  
accurately for the committed transaction.

• Isolation: It ensures that all the tasks of a transaction will be done  
independently and transparently.  
• Durability: It ensures that all the committed transaction is consistent for  
any type of system failure

**LINUX**

1. **How to identify which shell you are using?**

Open the terminal and run:

$ echo $SHELL

This will print the name of the Shell being used.

**PYTHON**

### ****What is \_\_init\_\_?****

***Ans:*** \_\_init\_\_ is a method or constructor in Python. This method is automatically called to allocate memory when a new object/ instance of a class is created. All classes have the \_\_init\_\_ method.

1. **What is a lambda function?**

***Ans:*** An anonymous function is known as a lambda function. This function can have any number of parameters but, can have just one statement.

**Example:**

|  |  |
| --- | --- |
| 1  2 | a = lambda x,y : x+y  print(a(5, 6)) |

**CLOUD**

1. What Are Some of the Security Best Practices for Amazon EC2?

**Security**

* Manage access to AWS resources and APIs using identity federation, IAM users, and IAM roles. Establish credential management policies and procedures for creating, distributing, rotating, and revoking AWS access credentials. For more information, see [IAM Best Practices](https://docs.aws.amazon.com/IAM/latest/UserGuide/IAMBestPractices.html) in the *IAM User Guide*.
* Implement the least permissive rules for your security group. For more information, see [Security group rules](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/security-group-rules.html).
* Regularly patch, update, and secure the operating system and applications on your instance. For more information about updating Amazon Linux 2 or the Amazon Linux AMI, see [Manage software on your Linux instance](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/managing-software.html) in the *Amazon EC2 User Guide for Linux Instances*.
* Use Amazon Inspector to automatically discover and scan Amazon EC2 instances for software vulnerabilities and unintended network exposure. For more information, see the [Amazon Inspector User Guide](https://docs.aws.amazon.com/inspector/latest/user/what-is-inspector.html).

### What are the different types of virtualization in AWS, and what are the differences between them?

The three major types of virtualization in AWS are:

#### Hardware Virtual Machine (HVM)

It is a fully virtualized hardware, where all the virtual machines act separate from each other. These virtual machines boot by executing a master boot record in the root block device of your image.

#### Paravirtualization (PV)

Paravirtualization-GRUB is the bootloader that boots the PV AMIs. The PV-GRUB chain loads the kernel specified in the menu.

#### Paravirtualization on HVM

PV on HVM helps operating systems take advantage of storage and network I/O available through the host.

### What is the difference between stopping and terminating an EC2 instance?

While you may think that both stopping and terminating are the same, there is a difference. When you stop an EC2 instance, it performs a normal shutdown on the instance and moves to a stopped state. However, when you terminate the instance, it is transferred to a stopped state, and the EBS volumes attached to it are deleted and can never be recovered.

CASSNDRA

### ****State the differences between a node, a cluster, and a data center in Cassandra.****

There are various components of Cassandra. While a node is a single machine running Cassandra, cluster is a collection of nodes that have similar types of data grouped together. Data centers are useful components when serving customers in different geographical areas. You can group different nodes of a cluster into different data centers.

### ****What is Cassandra Data Model?****

Cassandra data model consists of four main components:  
Cluster: Made up of multiple nodes and keyspaces  
Keyspace: A namespace to group multiple column families, especially one per partition  
Column: Consisting of a column name, value, and timestamp  
Column Family: Multiple columns with the row key reference

MONGODB

1. **How is MongoDB better than other SQL databases?**

MongoDB allows a highly flexible and scalable document structure. For e.g. one data document in MongoDB can have five columns and the other one in the same collection can have ten columns. Also, MongoDB database are faster as compared to SQL databases due to efficient indexing and storage techniques.

1. **What is a Namespace in MongoDB?**

A Namespace is the concatenation of the database name and collection name. For e.g. school.students with school as the database and students as the collection

REDIS

1. **Which are the different data types used in Redis?**

There are mainly 5 types of data types supported by Redis:

* Strings
* Hashes
* Lists
* Sets
* Sorted Sets

Java

1. **What is jit complier and java complier ?**
2. **What is interpreter do in java?**
3. **What is object is class?**