1. What are Heap tables and what is their max size?

Heap is a table created with a hashed index in the memory storage engine and is used temporarily for high-speed data storage.

The data in the heap table is stored without any specific order. Hence, while retrieving from the heap, it is accessed in order of data pages and not in the order in which it was inserted.

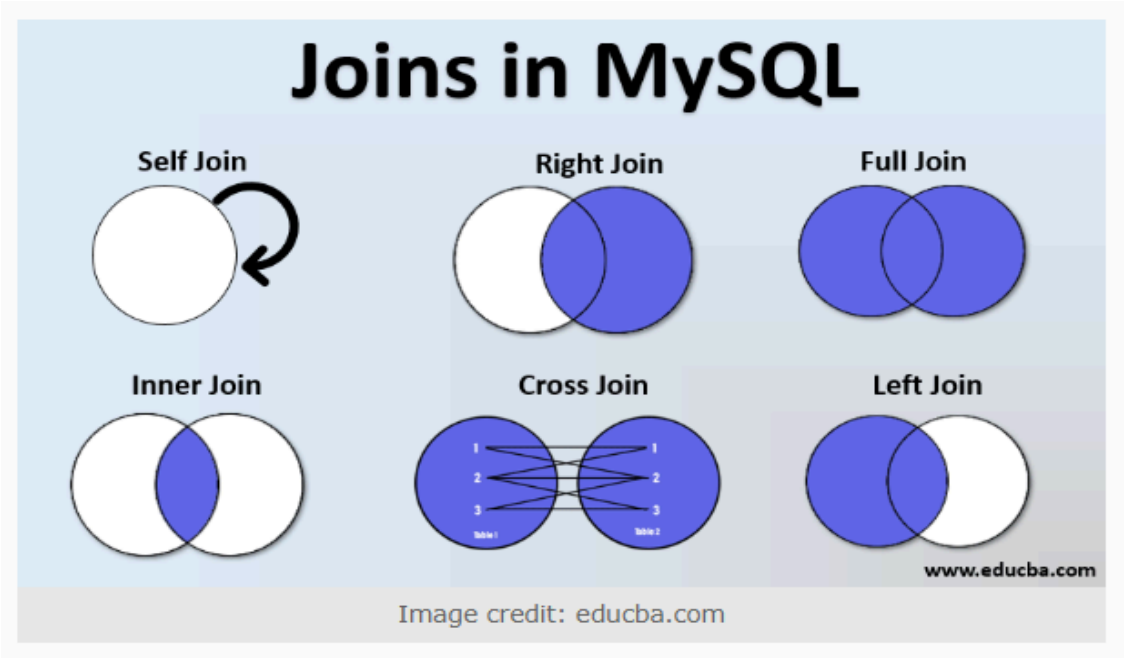
The size of the heap table is controlled by a variable: max_heap_table_size which has a default value of 16MB. You can set the max_heap_table_size based on the maximum size permitted for the system's internal MEMORY tables.

2. How to add new columns, and change column names in MySQL?

```
Syntax to add new columns in MySQL:

ALTER TABLE <code>table_name</code> ADD COLUMN
<code>column_name</code> <code>data_type</code>

Syntax to change column names:

ALTER TABLE table_name

RENAME COLUMN old_column_name TO new_column_name;
```

3. How to join tables in MySQL?

MySQL JOIN command helps in retrieving data from multiple tables into a single table based on a related column in both of them.
There are six types of MySQL JOINs:



Self Join: Table joins with itself
Inner Join: Retrieves records that match in both table
Left Join: Retrieves matching records from the right table and all records from the left table
Right Join: Returns matching records from the left table and all records from the right table
Cross Join: Provides cartesian product of joining tables, i.e. returns all possible combinations of records.
Full-outer join: Retrieves all records from two tables that have a common column.
An example **MySQL query** to perform inner join:
The two tables are Customers and Orders, with CustomerID being the common column in both.

```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
INNER JOIN Customers ON Orders.CustomerID=Customers.CustomerID;
```

4. How to drop the primary key in MySQL?

A primary key is a single or a combination field identifier for each record in a table.
Syntax to drop a primary key:

```
ALTER TABLE table_name

DROP PRIMARY KEY;
```

5. How do you create a Stored Procedure in MySQL?

Syntax to create a Stored Procedure:
`CREATE_PROCEDURE procedure_name[(parameter datatype[, parameter datatype])]`

```
BEGIN

     Body_section of SQL Statements

END;
```

To execute the Stored Procedure:

You use the CALL query to retrieve the saved Stored procedure.

```
CALL stored_procedure_name(argument_list);
```

6. Differentiate between TRUNCATE and DELETE in MySQL.

TRUNCATE	DELETE
It is a Data Definition Language (DDL) command which deletes all rows without removing table structure from the database	It is a Data Manipulation Language (DML) command which also deletes the columns while keeping the table structure intact
It does not reinitialize the table, so on entering the new rows, the AUTO_INCREMENT number starts after the last inserted row	It re-initializes the table and on entering the new rows, the AUTO_INCREMENT number starts from 1
Cannot use the WHERE clause in TRUNCATE	Can use WHERE clause in a DELETE command
You can't use it with indexed views	Can use with indexed views
It is a complex command that deletes data permanently	It is an easy command and deletes data from the table which is retrievable later

7. What are 'triggers'? What are the types of triggers in MySQL?

Triggers are special stored procedures that automatically invoke responses to an event. A trigger only invokes when the data changes in a table, unlike Stored Procedures which you can invoke explicitly.

There are 2 types of triggers in MySQL:
Row-level trigger: Fired when there are INSERT, UPDATE query in MySQL or DELETE statements on any rows.
Statement level trigger: Fired on a table regardless of how many rows are changed.

Interview Questions on MySQL Data Types

8. Differentiate between CHAR and VARCHAR.

CHAR	VARCHAR
Contains non-binary strings and column length is fixed	Contains non-binary strings but column length can vary
Max no of characters – 255	Maximum no of characters –4000
Uses static memory allocation	Uses dynamic memory allocation
Ideal to use when the data sizes for the column is consistent	Ideal to use when the size of data entries vary significantly. When the data length exceeds 8000 bytes, we use VARCHAR(MAX)

9. What is the usage and advantage of ENUMs in MySQL?

ENUMS are string objects that allow limiting the possible values of input data. For example, the following ENUM captures gender data:
ENUM (‘male’, ‘female’, ‘other’)
Hence, any input that is not among the values defined in the ENUM will be rejected.

Advantages of ENUM data type:

- Compact data storage for a column with a limited set of possible values. The string values in ENUM are automatically used as a numeric index.
- Allows readable queries as it can translate the numbers back to the corresponding string.
- Accepts various data types like string, integer, floating-point, and decimal.

10. Differentiate CHAR_LENGTH() and LENGTH()?

Both CHAR_LENGTH() and LENGTH() return the length of a string. But a significant difference is that CHAR_LENGTH() returns the string length as the character count of a variable whereas LENGTH() returns the string length as a byte count.

Example input:

```
SELECT
```

```
CHAR_LENGTH('HackerTrail'),
LENGTH('HackerTrail');

Example output:

+--------------------+---------------+

| CHAR_LENGTH('HackerTrail') | LENGTH('HackerTrail') |

+--------------------+---------------+

|                  11 |             11 |

+--------------------+---------------+
```

11. How many string types are available in MySQL?

The string types available for columns are:

- SET
- BLOB
- ENUM
- CHAR
- TEXT
- VARCHAR
- BINARY
- VARBINARY