**1.What is Database?**

A database is a collection of [information](http://searchsqlserver.techtarget.com/definition/information) that is organized so that it can easily be accessed, managed, and updated.

**2. What is Table?**

A database is a collection of values, represented in the form of horizontal Rows and Vertical Columns, the cell being the unit where a row and column intersect.

**3. What is Column?**

a **column** is a set of data values of a particular type, one for each row of the table. The **columns** provide the structure according to which the rows are composed.

**4.What is Row?**

Each row in a table represents a set of related data, and every row in the table has the same structure.

**5. Example for Inner join**

The **INNER JOIN** creates a new result table by combining column values of two tables (table1 and table2) based upon the **join**-predicate.

Eg: select \* from Students S INNER JOIN Advisors A ON S.Advisor\_ID=A.Advisor\_ID

**6. Example for Left outer join**

A **left outer join** returns all the values from an inner **join** plus all values in the **left** table that do not match to the right.

Eg: SELECT OrderNumber, TotalAmount, FirstName, LastName, City, Country FROM Customer C LEFT JOIN [Order] O ON O.CustomerId = C.Id ORDER BY TotalAmount

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Order no | Total | F.Name | L.Name | City | Country |
| Null | Null | Mario | Kline | Newyork | USA |
| Null | Null | Leena | Paolo | Paris | France |
| 3452 | 23.34 | Carly | Wilson | Portland | USA |
| 5432 | 27.45 | Nicole | James | Hyd | India |
| 6457 | 56.50 | Fran | Barry | Torino | Italy |

**7. Example for Right outer join**

RIGHT JOIN performs a join starting with the second (right-most) table and then any matching first (left-most) table records.

Eg: select \* from Students S RIGHT OUTER JOIN Advisors A ON S.Advisor\_ID=A.Advisor\_ID

**8. Example for Max, sum, Avg**

|  |
| --- |
| CUSTOMER |
| Id |
| FirstName |
| LastName |
| City |
| Country |
| Phone |

|  |
| --- |
| **ORDER** |
| Id |
| OrderDate |
| OrderNumber |
| CustomerId |
| TotalAmount |

Max: SELECT COUNT(Id) FROM (Customer)

Result: Count=56

Sum: SELECT SUM(Total amount) FROM (Order) where (year)=2016

Result: Sum=45634.65

Avg: SELECT AVG (Total amount) FROM (Order)

Result: Avg= 123.435

**9. Example for Group by**

The GROUP BY clause groups records into summary rows.

SELECT COUNT(Id), Country FROM Customer GROUP BY Country

Result:

|  |  |
| --- | --- |
| Count | Country |
| 3 | Argentina |
| 3 | Austria |
| 2 | Belgium |
| 7 | Brazil |
| 2 | Canada |

**10. Example for Having**

HAVING filters records that work on summarized GROUP BY results.

SELECT COUNT(Id), Country FROM Customer GROUP BY Country HAVING COUNT(Id) > 10

Result:

|  |  |
| --- | --- |
| Count | Country |
| 11 | France |
| 11 | Germeny |
| 14 | USA |

**11. Example for Where condition**

To limit the number of rows use the WHERE clause.

The WHERE clause filters for rows that meet certain criteria.

WHERE is followed by a condition that returns either true or false.

Eg: SELECT Id, FirstName, LastName, City, Country, Phone FROM Customer WHERE Country = 'USA'

Result:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Id | FirstName | LastName | City | Country | Phone |
| 45 | Kayle | Kline | houston | USA | 2341232345 |
| 87 | Amanda | Cox | dallas | USA | 3635725357 |

**12. Example for Primary key**

A primary key, also called a primary keyword, is a key in a relational database that is unique for each record.

**13. Example for Foreign key**

A foreign key or foreign keyword, in a database table is a key from another table that refers to a specific key, usually the primary key, in the table being used.

**14. Finding second highest salary from row table**

SELECT MAX (salary) FROM Employee WHERE Salary NOT IN (SELECT MAX(Salary)FROM employee)