What is database?

A database is a large collection of data that is organized in rows, columns and tables which is called as collection of records. So that it can be accessed managed and update.

What is a table?  
A table is a data structure that organizes information into rows and columns, database store the information in the tables so that it can be accessed quickly from specific rows. Database contain multiple tables each table with a specific purpose.

What is a row?  
In relational databases, a row is s data record within a table, each row represents the complete record of specific item data, a row is either called as tuple/record in a table.

What is a column?  
In databases column is a set of data values, all of a single type in a table. Columns define the data in the table and rows populate the data.

Example for inner join?  
The Joins are mostly used when we want to extract data from multiple tables on a specific condition, Inner joins keyword is used for selecting all the rows from both the tables as long as there is a match between the columns in both the tables.  
Ex:  
select student\_name, student\_grade, teacher\_id from Student  
INNER JOIN Teacher  
ON Student.student\_id = Teacher.student\_id

Example for Left Outer Join?  
By using Left Outer Join it will returns the complete rows from the left table with the matching rows from the right table. Result will be NULL if there is no match from right table.  
Ex:  
select student\_name, student\_grade, teacher\_id from Student  
LEFT OUTER JOIN Teacher  
ON Student.student\_id = Teacher.student\_id

Example for Right Outer Join?  
By using Right Outer Join it will returns the complete rows from the right table with the matching rows from the let table. Result is NULL if there is no match from left table.  
Ex:  
select student\_name, student\_grade, teacher\_id from Student  
RIGHT OUTER JOIN Teacher  
ON Student.student\_id = Teacher.student\_id

Example for SUM MAX AVG?  
SUM function is used to return the sum of all values in the specified columns.  
Select SUM(student\_marks) from Student.

MAX function is used to return the largest value in the column.  
select MAX(student\_marks) from Student.

AVG functions gives average of all the values in the specified columns.  
select AVG(Student\_marks) from Student.

Example for GROUP By?  
GROUP BY clause in sql command is used to group rows that have the same values.  
select class\_id, student\_id, student\_name, student\_grade from Student GROUP BY class\_id;

Example for Having?  
If we want to restrict our results to specific criteria we use having clause  
select class\_id, student\_id, student\_name, student\_grade from Student GROUP BY class\_id HAVING class\_id = 10;

Example for WHERE condition?  
By using the select command we can retrieve the data from tables, if we want to restrict our results to a specific conditions we use WHERE clause/condition.   
select \* from Student where student\_id = 112233;

Example for Primary key?  
Primary Key constraint uniquely identifies the each record in the database table. Primary keys must contain unique values, each table can have one primary key. Primary key should not be NULL.  
Create table(student\_id NOT NULL, student\_name, student\_grade, PRIMARY KEY(student\_id))

Example for Foreign Key?  
A foreign key in one table points to a primary key in another table.  
Create table(teacher\_id NOT NULL, teacher\_name, teacher\_subject, student\_id, PRIMARY KEY(teacher\_id), FOREIGN KEY (student\_id) REFERENCES Student(student\_id))

Find second highest salary from row table?  
Select MAX(salary) from teacher  
WHERE salary NOT IN (select MAX(salary) from Teacher);