Answer Script

Question No. 01
Write the difference between Primary Key and Composite Primary Key

Answer No. 01

Primary Key : It is a column that uniquely identifies each row in the table. In a table there can only be one primary key and it cannot be NULL.

Composite Primary Key : A composite primary key is a type of primary key that is composed of two or more columns and multiple columns act together to uniquely identify each record in the table. It is mainly used when a single column is not sufficient to uniquely identify each row.

Question No. 02
Write the difference between using JOIN Query and not using JOIN query

Answer No. 02

1) Join Query used for retrieving data from multiple tables based on logical relationships between tables. Without Join Query we have to retrieve data independently or using subquery which could be lengthy
2) Join Query is more efficient as they allows to retrieve only necessary data in a single query rather than making it multiple queries (M*N) to get data from each table separately.
3) Join query can be more complex to write and understand when there are multiple table and different types of JOINS.

Question No. 03

Create a table of Employees which has the following fields
- a. First Name
- b. Last Name
- c. Date of Birth
- d. Department Id
- e. Salary

Create a table of Departments which has the following fields
- a. Department Id
- b. Department Name

Create both of the tables using proper constraints

Answer No. 03

```
create database mid_term;
use mid_term;
```

1)

```
create table Employees
(
First_Name varchar(20),
Last_Name varchar(20),
Date_of_Birth varchar(20),
Department_Id INT,
Salary INT
);
```

2)

```
create table Departments
(
Department_Id INT,
Department_Name varchar(50)
);
```

3)

```
create table Departments
(
Department_Id INT primary key,
Department_Name varchar(50) NOT NULL
);

create table Employees
(
First_Name varchar(20) NOT NULL,
Last_Name varchar(20) NOT NULL,
Date_of_Birth varchar(20) NOT NULL,
Department_Id INT ,
Salary INT check (salary > 0),
primary key(First_Name,Last_Name,Date_of_Birth),
foreign key (Department_Id) References Departments(Department_Id)
);
```

Question No. 04
Write SQL Query to get the second max salary
Answer No. 04

```
select max(salary)

from employees

where salary<(select max(salary)

                  from employees);
```

Question No. 05

Write SQL Query to show the department names and the average salary of the departments
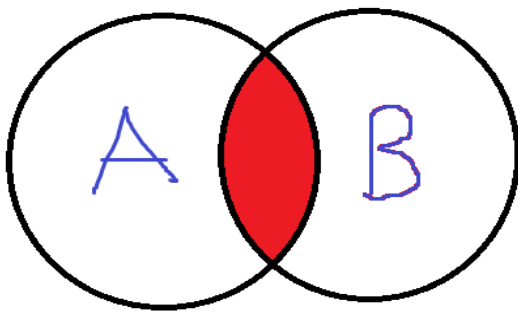
Answer No. 05

select dept.department_name as DepartMent, (Select avg(salary) from employees where
department_id=dept.department_id) as Average_Salary
from departments as dept;

Question No. 06

Illustrate the INNER, LEFT, RIGHT, SELF Joins
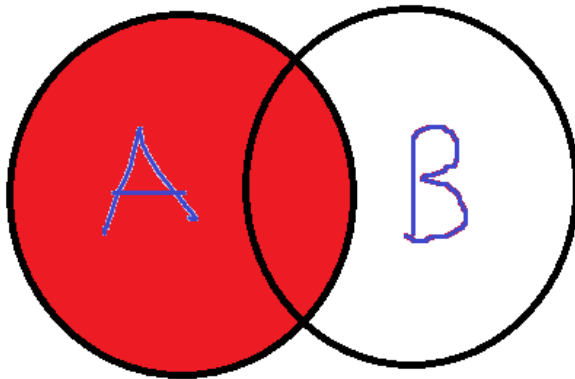
Answer No. 06

Inner Joins : The inner join show data that have been matched or both tables have.

Example:
Select emp.employee_id,emp.First_Name,dept.department_Name
from employees as emp
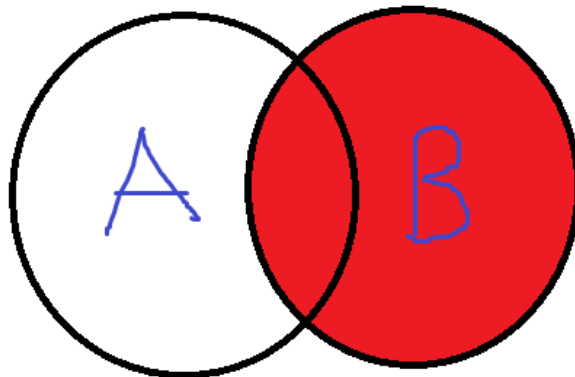inner join departments as dept
on emp.department_id=dept.department_id;

Left Joins : This join shows all data from left table but shows only matched data from right table

Example :
Select emp.employee_id,emp.First_Name,dept.department_Name
from employees as emp
left join departments as dept
on emp.department_id=dept.department_id;

Right Joins : This join shows all data from right table but shows only matched data from left table

Example :
Select emp.employee_id,emp.First_Name,dept.department_Name
from employees as emp
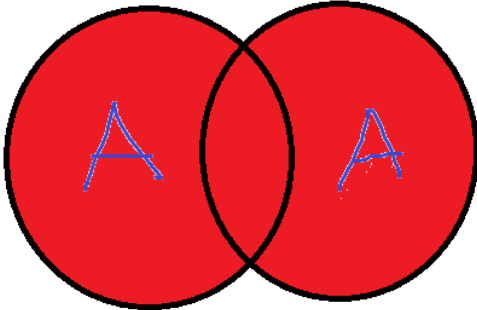right join departments as dept
on emp.department_id=dept.department_id;

Self joins : This join is regular join but the table tis join with itself

Example :
select emp.first_name as Employee, man.first_name as Manager
from employees as emp
left join employees as man
on emp.manager_id=man.employee_id;

Question No. 07
What is a subquery? Write with an example
Answer No. 07

Subquery: A subquery is a nested query. When a query is used into another query its called subquery.

Example :
select first_name,salary
from employees
where salary > (select avg(salary) from employees);

Question No. 08
Show the names of the employees who get less salary than Steven
Answer No. 08
select first_name,salary from employees where salary < (select max(salary) from employees where first_name='steven');

Question No. 09
Count the number of employees of each job type
Answer No. 09
select count(*),job_id from employees group by job_id;

Question No. 10
Show the names of Departments which doesn't have any employees
Answer No. 10
select dept.department_name from departments as dept left join employees as emp on dept.department_id=emp.department_id where emp.department_id is NULL;