

Mid Term Exam

Total Marks:100

100 Marks Deadline: 31 October, 2023

90 Marks Deadline: 01 November,2023

Q.No	QUESTIONS	Marks
1	<p>Write the difference between Primary Key and Composite Primary Key</p> <p>Ans : primary key consist of a single parameter or attributes, in contrast composite primary key consist of two or more parameters or attributes.</p>	5
2	<p>Write the difference between using JOIN Query and not using JOIN query</p> <p>Ans : using join query database internally maps the attributes which we need to join. It is an efficient way. On the other hand if we don't use a join query database will try to compare a certain attribute every time with another attribute which is not an efficient way and it is computationally costly.</p>	5
3	<p>Create a table of Employees which has the following fields</p> <ul style="list-style-type: none">a. First Nameb. Last Namec. Date of Birthd. Department Ide. Salary <p>Create a table of Departments which has the following fields</p> <ul style="list-style-type: none">a. Department Idb. Department Name <p>Create both of the tables using proper constraints</p>	20

	<p>Ans :</p> <pre>create table employees(first_name varchar(20) not null, last_name varchar(20) not null, date_of_birth date, department_id char(10) primary key, salary float check(salary>0); Create table departments(department_id char(10) primary key, Department_name varchar(30) not null);</pre>	
Use dummydb in MySQL to answer the following questions: Link		
4	<p>Write SQL Query to get the second max salary</p> <p>Ans :</p> <pre>select max(salary) from employees where salary<(select max(salary) from employees);</pre>	10
5	<p>Write SQL Query to show the department names and the average salary of the departments</p> <p>Ans :</p> <pre>select departments.department_name, avg(employees.salary) from employees join departments on employees.department_id = departments.department_id group by departments.department_name;</pre>	10

6

Illustrate the INNER, LEFT, RIGHT, SELF Joins

Ans :

Inner join : it joins the common elements from both table.it is like a set intersection operation.

select

employees.first_name,departments.department_name

from employees

inner join departments

on

employees.department_id=departments.department_id

first_name	department_name
Jennifer	Administration
Michael	Marketing
Pat	Marketing
Den	Purchasing
Alexander	Purchasing
Shelli	Purchasing
Sigal	Purchasing
Guy	Purchasing
Karen	Purchasing
Susan	Human Resources

Left join : it will show all elements from the employee table. It doesn't matter if they both(employee and departments) have the same elements or not. If department table does not have an element which is in employee table it will show null.

select

employees.first_name,departments.department_name

from employees

left join departments

on

employees.department_id=departments.department_id;

10

first_name	department_na...
Steven	Executive
Neena	Executive
Lex	Executive
Alexander	IT
Bruce	IT
David	IT
Valli	IT
Diana	IT
Nancy	Finance
Daniel	Finance
John	Finance
Ismael	Finance
Jose Manuel	Finance

Right join : it will show all elements from the departments table. It doesn't matter if they both(employee and departments) have the same elements or not. If the employees table does not have an element which is in the departments table it will show null.

first_name	department_name
Jennifer	Administration
Michael	Marketing
Pat	Marketing
Den	Purchasing
Alexander	Purchasing
Shelli	Purchasing
Sigal	Purchasing
Guy	Purchasing
Karen	Purchasing
Susan	Human Resources
Matthew	Shipping
Adam	Shipping

Self join : it joins two or more columns from a single table

```
select emp.first_name,m.first_name
from employees as emp
join employees as m
on m.manager_id=emp.employee_id
```

	<table><tr><th>first_name</th><th>first_name</th></tr><tr><td>Steven</td><td>Neena</td></tr><tr><td>Steven</td><td>Lex</td></tr><tr><td>Lex</td><td>Alexander</td></tr><tr><td>Alexander</td><td>Bruce</td></tr><tr><td>Alexander</td><td>David</td></tr><tr><td>Alexander</td><td>Valli</td></tr><tr><td>Alexander</td><td>Diana</td></tr><tr><td>Neena</td><td>Nancy</td></tr><tr><td>Nancy</td><td>Daniel</td></tr><tr><td>Nancy</td><td>John</td></tr><tr><td>Nancy</td><td>Ismael</td></tr><tr><td>Nancy</td><td>Jose Manuel</td></tr></table>	first_name	first_name	Steven	Neena	Steven	Lex	Lex	Alexander	Alexander	Bruce	Alexander	David	Alexander	Valli	Alexander	Diana	Neena	Nancy	Nancy	Daniel	Nancy	John	Nancy	Ismael	Nancy	Jose Manuel	
first_name	first_name																											
Steven	Neena																											
Steven	Lex																											
Lex	Alexander																											
Alexander	Bruce																											
Alexander	David																											
Alexander	Valli																											
Alexander	Diana																											
Neena	Nancy																											
Nancy	Daniel																											
Nancy	John																											
Nancy	Ismael																											
Nancy	Jose Manuel																											
7	<p>What is a subquery? Write with an example</p> <p>Ans : subquery is more like query within a query</p> <pre>select first_name from employees where salary > (select salary from employees where employee_id = 101);</pre>	10																										
8	<p>Show the names of the employees who get less salary than Steve</p> <p>Ans :</p> <pre>select first_name from employees where salary < (select max(salary) from employees where first_name = 'Steven');</pre>	10																										

	<table><tr><th>first_name</th></tr><tr><td>Neena</td></tr><tr><td>Lex</td></tr><tr><td>Alexander</td></tr><tr><td>Bruce</td></tr><tr><td>David</td></tr><tr><td>Valli</td></tr><tr><td>Diana</td></tr><tr><td>Nancy</td></tr><tr><td>Daniel</td></tr><tr><td>John</td></tr><tr><td>Ismael</td></tr><tr><td>Jose Manuel</td></tr></table> <pre>select first_name from employees where salary<(select min(salary) from employees where first_name ='steven');</pre> <table><tr><th>first_name</th></tr><tr><td>TJ</td></tr></table>	first_name	Neena	Lex	Alexander	Bruce	David	Valli	Diana	Nancy	Daniel	John	Ismael	Jose Manuel	first_name	TJ	
first_name																	
Neena																	
Lex																	
Alexander																	
Bruce																	
David																	
Valli																	
Diana																	
Nancy																	
Daniel																	
John																	
Ismael																	
Jose Manuel																	
first_name																	
TJ																	
9	<p>Count the number of employees of each job type</p> <p>Ans :</p> <pre>select count(*), job_id from employees group by job_id;</pre>	10															

	<table><tr><th>count(*)</th><th>job_id</th></tr><tr><td>1</td><td>AC_ACCOUNT</td></tr><tr><td>1</td><td>AC_MGR</td></tr><tr><td>1</td><td>AD_ASST</td></tr><tr><td>1</td><td>AD PRES</td></tr><tr><td>2</td><td>AD_VP</td></tr><tr><td>5</td><td>FI_ACCOUNT</td></tr><tr><td>1</td><td>FI_MGR</td></tr><tr><td>1</td><td>HR_REP</td></tr><tr><td>5</td><td>IT_PROG</td></tr><tr><td>1</td><td>MK_MAN</td></tr><tr><td>1</td><td>MK_REP</td></tr><tr><td>1</td><td>PR_REP</td></tr><tr><td>5</td><td>PU_CLERK</td></tr><tr><td>1</td><td>PU_MAN</td></tr><tr><td>5</td><td>SA_MAN</td></tr><tr><td>30</td><td>SA_REP</td></tr><tr><td>20</td><td>SH_CLERK</td></tr><tr><td>20</td><td>ST_CLERK</td></tr><tr><td>5</td><td>ST_MAN</td></tr></table>	count(*)	job_id	1	AC_ACCOUNT	1	AC_MGR	1	AD_ASST	1	AD PRES	2	AD_VP	5	FI_ACCOUNT	1	FI_MGR	1	HR_REP	5	IT_PROG	1	MK_MAN	1	MK_REP	1	PR_REP	5	PU_CLERK	1	PU_MAN	5	SA_MAN	30	SA_REP	20	SH_CLERK	20	ST_CLERK	5	ST_MAN	
count(*)	job_id																																									
1	AC_ACCOUNT																																									
1	AC_MGR																																									
1	AD_ASST																																									
1	AD PRES																																									
2	AD_VP																																									
5	FI_ACCOUNT																																									
1	FI_MGR																																									
1	HR_REP																																									
5	IT_PROG																																									
1	MK_MAN																																									
1	MK_REP																																									
1	PR_REP																																									
5	PU_CLERK																																									
1	PU_MAN																																									
5	SA_MAN																																									
30	SA_REP																																									
20	SH_CLERK																																									
20	ST_CLERK																																									
5	ST_MAN																																									
10	<p>Show the names of Departments which doesn't have any employees</p> <p>Ans :</p> <p>select departments.department_name from departments left join employees on employees.department_id = departments.department_id where employees.department_id is null;</p> <table><tr><th>department_name</th></tr><tr><td>Treasury</td></tr><tr><td>Corporate Tax</td></tr><tr><td>Control And Credit</td></tr><tr><td>Shareholder Services</td></tr><tr><td>Benefits</td></tr><tr><td>Manufacturing</td></tr><tr><td>Construction</td></tr><tr><td>Contracting</td></tr><tr><td>Operations</td></tr><tr><td>IT Support</td></tr><tr><td>NOC</td></tr><tr><td>IT Helpdesk</td></tr><tr><td>Government Sales</td></tr><tr><td>Retail Sales</td></tr><tr><td>Recruiting</td></tr><tr><td>Payroll</td></tr></table>	department_name	Treasury	Corporate Tax	Control And Credit	Shareholder Services	Benefits	Manufacturing	Construction	Contracting	Operations	IT Support	NOC	IT Helpdesk	Government Sales	Retail Sales	Recruiting	Payroll	10																							
department_name																																										
Treasury																																										
Corporate Tax																																										
Control And Credit																																										
Shareholder Services																																										
Benefits																																										
Manufacturing																																										
Construction																																										
Contracting																																										
Operations																																										
IT Support																																										
NOC																																										
IT Helpdesk																																										
Government Sales																																										
Retail Sales																																										
Recruiting																																										
Payroll																																										

