

DBMS LAB-4

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Exercise 1:-

#Create table employee with the following constraints;

CREATE TABLE employee(emp_id, emp_name ,emp_dept emp_age, place, income);

Set emp_id as the primary key with auto increment starting from 2505.

ANSWER:-

```
mysql> CREATE TABLE employee(emp_id int, emp_name varchar(20), emp_dept varchar(20),
-> emp_age int, place varchar(20), income int, doj date);
Query OK, 0 rows affected (0.02 sec)

mysql> ALTER TABLE employee
-> add primary key(emp_id)
-> ;
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> ALTER TABLE employee auto_increment=2505;
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

Table after construction:-

```
mysql> select * from employee;
```

emp_id	emp_name	emp_dept	emp_age	place	income	doj
2505	peter	Finance	32	Newyork	100000	2002-08-25
2506	Mark	HR	32	California	120000	1980-03-25
2507	Donald	Finance	28	Arizona	100000	1995-12-26
2508	Obama	Management	35	Florida	500000	1990-10-30
2509	Linklon	HR	25	Georgia	25000	2008-08-08
2510	Kane	Sales	29	Alaska	30000	2000-01-01
2511	Adam	Management	38	California	540000	2020-10-25
2512	Mac	Finance	40	Florida	280000	1970-06-09
2513	Manas	Accounts	29	India	600000	1990-12-11
2514	Vasin	Accounts	30	India	800000	1989-10-10
2515	peter	Finance	32	Newyork	100000	1989-10-10
2516	Mark	HR	32	California	120000	1990-12-11
2517	Donald	Finance	28	Arizona	100000	1970-06-09
2518	Obama	Management	35	Florida	500000	2020-10-25
2519	Linklon	HR	25	Georgia	25000	2000-01-01
2520	Kane	Sales	29	Alaska	30000	2008-08-08
2521	Adam	Management	38	California	540000	1990-10-30
2522	Mac	Finance	40	Florida	280000	1995-12-26
2523	Manas	Accounts	29	India	600000	1980-03-25
2524	Vasin	Accounts	30	India	800000	2002-08-25

```
20 rows in set (0.00 sec)
```

Questionnaire set:-

1. Calculate the total number of employees name available in the table.

ANSWER:-

```
mysql> select count(emp_name) as no_of_emp from employee;
```

no_of_emp
20

```
1 row in set (0.01 sec)
```

```
mysql>
```

2. Display the maximum salary of each department and also all departments put together .

ANSWER:-

```
mysql> select emp_dept,max(income) from employee group by emp_dept;
+-----+-----+
| emp_dept | max(income) |
+-----+-----+
| Finance  |      280000 |
| HR       |      120000 |
| Management |     540000 |
| Sales    |       30000 |
| Accounts |     800000 |
+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

3.Find the employees whose salary is between 100000 and 500000 but not exactly 120000.

ANSWER:-

```
mysql> select emp_name,income from employee
-> where income > 100000 and income < 500000 and not income = 120000
+-----+-----+
| emp_name | income |
+-----+-----+
| Mac      | 280000 |
| Mac      | 280000 |
+-----+-----+
2 rows in set (0.00 sec)

mysql> _
```

4.Get the count of employees whose income is more than 1 lakh.

ANSWER:-

```
mysql> select count(emp_name) from employee where income>100000;
+-----+
| count(emp_name) |
+-----+
|                12 |
+-----+
1 row in set (0.00 sec)

mysql>
```

5. List the employees according to ascending order of salary.

ANSWER:-

```
mysql> select emp_name,income from employee order by income asc;
+-----+-----+
| emp_name | income |
+-----+-----+
| Linklon  | 25000  |
| Linklon  | 25000  |
| Kane     | 30000  |
| Kane     | 30000  |
| peter    | 100000 |
| Donald   | 100000 |
| peter    | 100000 |
| Donald   | 100000 |
| Mark     | 120000 |
| Mark     | 120000 |
| Mac      | 280000 |
| Mac      | 280000 |
| Obama    | 500000 |
| Obama    | 500000 |
| Adam     | 540000 |
| Adam     | 540000 |
| Manas    | 600000 |
| Manas    | 600000 |
| Vasin    | 800000 |
| Vasin    | 800000 |
+-----+-----+
20 rows in set (0.00 sec)

mysql> _
```

6. For each department, retrieve the department name, the number of employees in the department, and Maximum income for the department.

ANSWER:-

```
mysql> select emp_dept,count(emp_id),max(income) from employee group by emp_dept;
+-----+-----+-----+
| emp_dept | count(emp_id) | max(income) |
+-----+-----+-----+
| Finance  | 6              | 280000      |
| HR       | 4              | 120000      |
| Management | 4              | 540000      |
| Sales    | 2              | 30000       |
| Accounts | 4              | 800000      |
+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> _
```

7. List the number of employees in each place.

ANSWER:-

```
mysql> select count(emp_id),place from employee group by place;
+-----+-----+
| count(emp_id) | place      |
+-----+-----+
| 2             | Newyork    |
| 4             | California |
| 2             | Arizona    |
| 4             | Florida    |
| 2             | Georgia    |
| 2             | Alaska     |
| 4             | India      |
+-----+-----+
7 rows in set (0.00 sec)

mysql>
```

8. List the number of employee in each country sorted high to low.

ANSWER:-

```
mysql> select count(emp_id),place from employee group by place order by count(emp_id) desc;
+-----+-----+
| count(emp_id) | place      |
+-----+-----+
| 4             | California |
| 4             | Florida    |
| 4             | India      |
| 2             | Newyork    |
| 2             | Arizona    |
| 2             | Georgia    |
| 2             | Alaska     |
+-----+-----+
7 rows in set (0.00 sec)

mysql> _
```

9. List the number of employees in each place. (Only include places with more than 1 employee).

ANSWER:-

```
mysql> select count(emp_id),place from employee group by place having count(emp_id)>1;
+-----+-----+
| count(emp_id) | place      |
+-----+-----+
| 2             | Newyork    |
| 4             | California |
| 2             | Arizona    |
| 4             | Florida    |
| 2             | Georgia    |
| 2             | Alaska     |
| 4             | India      |
+-----+-----+
7 rows in set (0.00 sec)

mysql> _
```

10. List the number of employees in each place, except the California, sorted high to low. Only include places with 2 or more employees.

ANSWER:-

```
mysql> select count(emp_id),place from employee
-> group by place
-> having count(emp_id)>=2
-> and not place = 'California'
-> order by count(emp_id) desc;
+-----+-----+
| count(emp_id) | place      |
+-----+-----+
| 4             | Florida    |
| 4             | India      |
| 2             | Newyork    |
| 2             | Arizona    |
| 2             | Georgia    |
| 2             | Alaska     |
+-----+-----+
6 rows in set (0.00 sec)

mysql> _
```

Exercise2:

Tables for Exercise2:-

1. Create table customer (customer_name char(20),customer_street char(30),customer_city char(30),PRIMARY KEY(customer_name));

ANSWER:-

```
mysql> select * from customer;
```

customer_name	customer_street	customer_city
Adams	Spring	Pittsfield
Brooks	Senator	Brooklyn
Curry	North	Rye
Glenn	Sand Hill	Woodside
Green	Walnut	Stamford
Hayes	Main	Harrison
Johnson	Alma	Palo Alto
Jones	Main	Harrison
Lindsay	Park	Pittsfield
Smith	North	Rye
Turner	Putnam	Stamford
Williams	Nassau	Princeton

```
12 rows in set (0.00 sec)
```

```
mysql> _
```

2. Create table branch (branch_name char(15),branch_city char(30),assets numeric(16,2),PRIMARY KEY(branch_name));

ANSWER:-

```
mysql> select * from branch;
```

branch_name	branch_city	assets
Brighton	Brooklyn	7100000.00
Downtown	Brooklyn	9000000.00
Mianus	Horseneck	400000.00
North Town	Rye	3700000.00
Perryridge	Horseneck	1700000.00
Pownal	Bennington	300000.00
Redwood	Palo Alto	2100000.00
Round Hill	Horseneck	8000000.00

```
8 rows in set (0.00 sec)
```

```
mysql>
```

3. Create table account (account_number char(15),branch_name char (15),balance numeric(12,2),PRIMARY KEY(account_number), FOREIGN KEY (branch_name) REFERENCES branch(branch_name));

ANSWER:-

```
mysql> select * from account;
+-----+-----+-----+
| account_number | branch_name | balance |
+-----+-----+-----+
| A-101          | Downtown   | 500.00  |
| A-102          | Perryridge | 400.00  |
| A-201          | Brighton   | 900.00  |
| A-215          | Mianus     | 700.00  |
| A-217          | Brighton   | 750.00  |
| A-222          | Redwood    | 700.00  |
| A-305          | Round Hill | 350.00  |
+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> 
```

4. Create table depositor(customer_name char(20),account_number char(10),PRIMARY KEY(customer_name,account_number),FOREIGN KEY (customer_name) REFERENCES customer(customer_name), FOREIGN KEY (account_number) REFERENCES account(account_number));

ANSWER:-

```
mysql> select * from depositor;
+-----+-----+
| customer_name | account_number |
+-----+-----+
| Johnson       | A-101          |
| Hayes         | A-102          |
| Johnson       | A-201          |
| Smith         | A-215          |
| Jones         | A-217          |
| Lindsay       | A-222          |
| Turner        | A-305          |
+-----+-----+
7 rows in set (0.00 sec)

mysql> 
```


5. Create table loan(loan_number varchar(6),branch_name char(15),amount int,PRIMARY KEY(loan_number),FOREIGN KEY (branch_name) REFERENCES branch(branch_name));

ANSWER:-

```
mysql> select * from loan;
+-----+-----+-----+
| loan_number | branch_name | amount |
+-----+-----+-----+
| L-11       | Round Hill  | 900    |
| L-14       | Downtown   | 1500   |
| L-15       | Perryridge | 1500   |
| L-16       | Perryridge | 1300   |
| L-17       | Downtown   | 1000   |
| L-23       | Redwood    | 2000   |
| L-93       | Mianus     | 500    |
+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> _
```

6. Create table borrower(customer_name char(20),loan_number varchar(6),PRIMARY KEY(customer_name,loan_number),FOREIGN KEY (customer_name) REFERENCES customer(customer_name), FOREIGN KEY (loan_number) REFERENCES loan(loan_number));

ANSWER:-

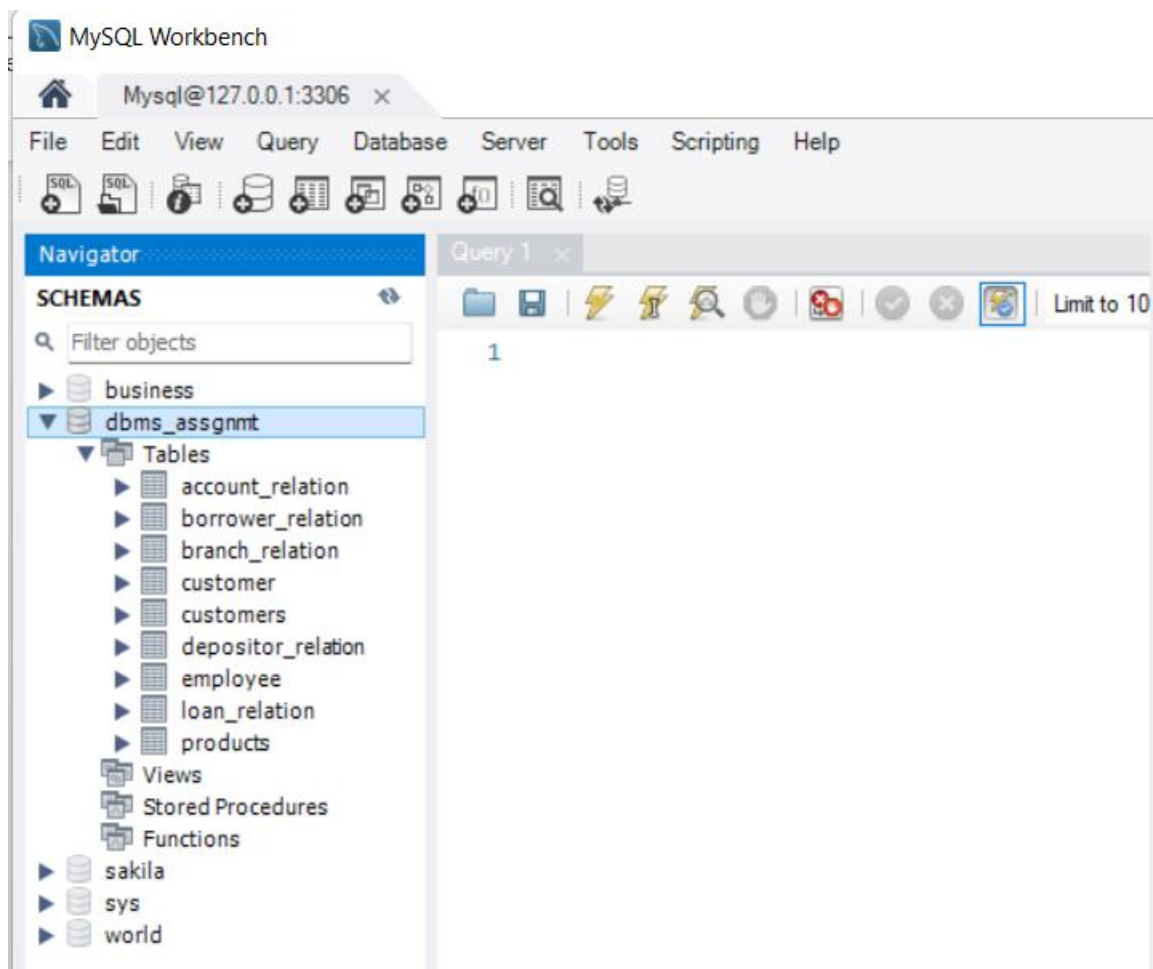
```
mysql> select * from borrower;
+-----+-----+
| customer_name | loan_number |
+-----+-----+
| Smith        | L-11       |
| Hayes        | L-15       |
| Adams        | L-16       |
| Jones        | L-17       |
| Williams     | L-17       |
| Smith        | L-23       |
| Curry        | L-93       |
+-----+-----+
7 rows in set (0.00 sec)

mysql> _
```

Questionnaire set 2:-

1. Create the tables for above schema and load data from the respective .csv files.

ANSWER:-



2. For all customers who have loan from the bank,find their names,loan numbers and loan amount(with and without renaming tables).

ANSWER:-

```
mysql> select customer_name,loan_number,amount from borrower natural join loan;
+-----+-----+-----+
| customer_name | loan_number | amount |
+-----+-----+-----+
| Smith         | L-11       | 900    |
| Hayes         | L-15       | 1500   |
| Adams         | L-16       | 1300   |
| Jones         | L-17       | 1000   |
| Williams      | L-17       | 1000   |
| Smith         | L-23       | 2000   |
| Curry         | L-93       | 500    |
+-----+-----+-----+
7 rows in set (0.00 sec)

mysql>
```

3. Find the customer names,loan numbers and loan amounts for all loans at perryridge branch.

ANSWER:-

```
mysql> select customer_name,loan_number,amount from depositor
-> natural join loan where loan.branch_name='Perryridge';
+-----+-----+-----+
| customer_name | loan_number | amount |
+-----+-----+-----+
| Johnson       | L-16       | 1300   |
| Johnson       | L-15       | 1500   |
| Hayes         | L-16       | 1300   |
| Hayes         | L-15       | 1500   |
| Johnson       | L-16       | 1300   |
| Johnson       | L-15       | 1500   |
| Smith         | L-16       | 1300   |
| Smith         | L-15       | 1500   |
| Jones         | L-16       | 1300   |
| Jones         | L-15       | 1500   |
| Lindsay       | L-16       | 1300   |
| Lindsay       | L-15       | 1500   |
| Turner        | L-16       | 1300   |
| Turner        | L-15       | 1500   |
+-----+-----+-----+
14 rows in set (0.01 sec)

mysql>
```

4. Find the names of all branches that have assets greater than at least one branch located at Brooklyn.

ANSWER:-

```
mysql> select branch_name from branch where assets > (select min(assets) from branch where branch_city = 'Brooklyn');
+-----+
| branch_name |
+-----+
| Downtown   |
| Round Hill |
+-----+
2 rows in set (0.01 sec)

mysql> _
```

5. List in alphabetical order all customers who have loans at the perryridge branch.

ANSWER:-

```
mysql> select customer_name
-> from borrower,loan
-> where loan.branch_name = 'Perryridge' and borrower.loan_number = loan.loan_number
-> order by customer_name;
+-----+
| customer_name |
+-----+
| Adams         |
| Hayes         |
+-----+
2 rows in set (0.01 sec)
```

6. Print the entire Loan relation in descending order of amount.If several loans have the same amount,order them in ascending order by loan number.

ANSWER:-

```
mysql> SELECT * from loan
-> order by amount DESC, loan_number ASC;
+-----+-----+-----+
| loan_number | branch_name | amount |
+-----+-----+-----+
| L-23        | Redwood     | 2000   |
| L-14        | Downtown    | 1500   |
| L-15        | Perryridge  | 1500   |
| L-16        | Perryridge  | 1300   |
| L-17        | Downtown    | 1000   |
| L-11        | Round Hill  | 900    |
| L-93        | Mianus      | 500    |
+-----+-----+-----+
7 rows in set (0.00 sec)
```

7. Find the average balance for all accounts.

ANSWER:-

```
mysql> select avg(balance)
-> from account;
+-----+
| avg(balance) |
+-----+
|    614.285714 |
+-----+
1 row in set (0.00 sec)

mysql>
```

8. Find no.of tuples in customer relation.

ANSWER:-

```
mysql> select count(customer_name)
-> from customer;
+-----+
| count(customer_name) |
+-----+
|                12 |
+-----+
1 row in set (0.03 sec)

mysql> _
```

9. Find the total of all loan amounts.

ANSWER:-

```
mysql> select sum(amount)
-> from loan;
+-----+
| sum(amount) |
+-----+
|        8700 |
+-----+
1 row in set (0.00 sec)

mysql>
```

10. Find the average account balance at the Perryridge branch.

ANSWER:-

```
mysql> SELECT avg(balance)
-> from account
-> where branch_name = 'Perryridge';
+-----+
| avg(balance) |
+-----+
| 400.000000 |
+-----+
1 row in set (0.00 sec)

mysql>
```

11. Find the average account balance at each branch.

ANSWER:-

```
mysql> SELECT branch_name, avg(balance)
-> from account
-> group by branch_name;
+-----+-----+
| branch_name | avg(balance) |
+-----+-----+
| Brighton    | 825.000000 |
| Downtown    | 500.000000 |
| Mianus       | 700.000000 |
| Perryridge   | 400.000000 |
| Redwood     | 700.000000 |
| Round Hill   | 350.000000 |
+-----+-----+
6 rows in set (0.00 sec)

mysql>
```

12. Find the average account balance at each branch ,where the account balance is more than 1200.

ANSWER:-

```
mysql> SELECT branch_name, avg(balance)
-> from account
-> where balance > 1200
-> group by branch_name;
Empty set (0.00 sec)

mysql> _
```

13. Find the number of depositors for each branch.

ANSWER:-

```
mysql> SELECT account.branch_name, count(depositor.customer_name)
-> from account, depositor
-> where depositor.account_number = account.account_number
-> group by branch_name;
```

branch_name	count(depositor.customer_name)
Brighton	2
Downtown	1
Mianus	1
Perryridge	1
Redwood	1
Round Hill	1

```
6 rows in set (0.00 sec)

mysql>
```

14. Find the average balance for each customer who lives in "Harrison" and has at least 3 accounts.

ANSWER:-

```
mysql> SELECT depositor.customer_name, avg(balance)
-> from depositor, account, customer
-> where depositor.account_number = account.account_number and
-> depositor.customer_name = customer.customer_name and
-> customer_city = 'Harrison'
-> group by depositor.customer_name
-> having count(depositor.account_number) >= 3;
```

Empty set (0.01 sec)

```
mysql>
```

Exercise-3:-

1) Display your name with the first letter being capital, where the entered name is in lower case.

ANSWER:-

```
mysql> SELECT CONCAT(UPPER(SUBSTR("abhisikh",1,1)),LOWER(SUBSTR("abhisikh",2)));
+-----+
| CONCAT(UPPER(SUBSTR("abhisikh",1,1)),LOWER(SUBSTR("abhisikh",2))) |
+-----+
| Abhisikh |
+-----+
1 row in set (0.00 sec)
```

2) Display 2nd- 6th characters of your name.

ANSWER:-

```
mysql> select substr("abhisikh",2,5);
+-----+
| substr("abhisikh",2,5) |
+-----+
| bhish |
+-----+
1 row in set (0.00 sec)

mysql>
```

3) Find the length of your full institute name.

ANSWER:-

```
mysql> SELECT LENGTH("Indian Institute Of Information Technology Sri City");
+-----+
| LENGTH("Indian Institute Of Information Technology Sri City") |
+-----+
| 51 |
+-----+
1 row in set (0.00 sec)

mysql>
```


4) Display all the Employee names with its first letter in upper case.

ANSWER:-

```
mysql> SELECT CONCAT(UPPER(SUBSTR(emp_name,1,1)),LOWER(SUBSTR(emp_name,2))) from
+-----+
| CONCAT(UPPER(SUBSTR(emp_name,1,1)),LOWER(SUBSTR(emp_name,2))) |
+-----+
| Peter |
| Mark  |
| Donald|
| Obama |
| Linklon|
| Kane  |
| Adam  |
| Mac    |
| Manas  |
| Vasin  |
| Peter  |
| Mark   |
| Donald |
| Obama  |
| Linklon|
| Kane   |
| Adam   |
| Mac     |
| Manas  |
| Vasin  |
+-----+
20 rows in set (0.00 sec)
```

5) List the department name of each employee as a three letter code.

ANSWER:-

```
mysql> SELECT SUBSTR(emp_dept,1,3) from employee;
+-----+
| SUBSTR(emp_dept,1,3) |
+-----+
| Fin |
| HR  |
| Fin |
| Man |
| HR  |
| Sal |
| Man |
| Fin |
| Acc |
| Acc |
| Fin |
| HR  |
| Fin |
| Man |
| HR  |
| Sal |
| Man |
| Fin |
| Acc |
| Acc |
+-----+
20 rows in set (0.00 sec)
```

6) Display the month of the joining of each employee.

ANSWER:-

```
mysql> SELECT Date_Format(doj,"%M") from employee;
+-----+
| Date_Format(doj,"%M") |
+-----+
| August                 |
| March                  |
| December               |
| October                |
| August                 |
| January                |
| October                |
| June                   |
| December               |
| October                |
| October                |
| December               |
| June                   |
| October                |
| January                |
| August                 |
| October                |
| December               |
| March                  |
| August                 |
+-----+
20 rows in set (0.01 sec)
```

7) Display the date of joining of each employee in dd/mm/yy format.

ANSWER:-

```
mysql> SELECT DATE_FORMAT(doj, "%d/%c/%y") from employee;
+-----+
| DATE_FORMAT(doj, "%d/%c/%y") |
+-----+
| 25/8/02                      |
| 25/3/80                      |
| 26/12/95                     |
| 30/10/90                     |
| 08/8/08                      |
| 01/1/00                      |
| 25/10/20                     |
| 09/6/70                      |
| 11/12/90                     |
| 10/10/89                     |
| 10/10/89                     |
| 11/12/90                     |
| 09/6/70                      |
| 25/10/20                     |
| 01/1/00                      |
| 08/8/08                      |
| 30/10/90                     |
| 26/12/95                     |
| 25/3/80                      |
| 25/8/02                      |
+-----+
20 rows in set (0.00 sec)

mysql>
```

8) Display the experience of each employee in terms of months.

ANSWER:-

```
mysql> SELECT emp_name, TIMESTAMPDIFF(MONTH, doj, curdate()) from employee;
```

emp_name	TIMESTAMPDIFF(MONTH, doj, curdate())
peter	240
Mark	509
Donald	320
Obama	382
Linklon	168
Kane	272
Adam	22
Mac	626
Manas	380
Vasin	394
peter	394
Mark	380
Donald	626
Obama	22
Linklon	272
Kane	168
Adam	382
Mac	320
Manas	509
Vasin	240

```
20 rows in set (0.00 sec)

mysql> _
```

9) Display the experience of each employee in terms of years and months.

ANSWER:-

```
mysql> select emp_name, concat(floor(datediff(curdate(),doj)/365) , 'Years ' ,floor(datediff(curdate(),doj)/365%12) , 'Months') as experience from employee;^Z
```

emp_name	experience
peter	20Years 8Months
Mark	42Years 6Months
Donald	26Years 2Months
Obama	31Years 7Months
Linklon	14Years 2Months
Kane	22Years 10Months
Adam	1Years 1Months
Mac	52Years 4Months
Manas	31Years 7Months
Vasin	32Years 8Months
peter	32Years 8Months
Mark	31Years 7Months
Donald	52Years 4Months
Obama	1Years 1Months
Linklon	22Years 10Months
Kane	14Years 2Months
Adam	31Years 7Months
Mac	26Years 2Months
Manas	42Years 6Months
Vasin	20Years 8Months

```
20 rows in set (0.00 sec)
```

->

10) Display the date of the next Friday after today's date.

ANSWER:-

```
mysql> SELECT if(5-Date_Format(curdate(),"%w")>0, curdate()+ interval 5-Date_Format(curdate(),"%w") day, curdate()+ interval 12-Date_Format(curdate(),"%w") day);
```

if(5-Date_Format(curdate(),"%w")>0, curdate()+ interval 5-Date_Format(curdate(),"%w") day, curdate()+ interval 12-Date_Format(curdate(),"%w") day)
2022-09-09

```
1 row in set (0.01 sec)
```

```
mysql>
```

11) Display the day of joining of each employee.

ANSWER:-

```
mysql> SELECT Date_Format(doj,"%W") from employee;
+-----+
| Date_Format(doj,"%W") |
+-----+
| Sunday                |
| Tuesday               |
| Tuesday               |
| Tuesday               |
| Friday                |
| Saturday              |
| Sunday                |
| Tuesday               |
| Tuesday               |
| Tuesday               |
| Tuesday               |
| Tuesday               |
| Tuesday               |
| Sunday                |
| Saturday              |
| Friday                |
| Tuesday               |
| Tuesday               |
| Tuesday               |
| Sunday                |
+-----+
20 rows in set (0.00 sec)

mysql> _
```

12) Display the date corresponding to 15 days after today's date.

ANSWER:-

```
mysql> select curdate() + interval 15 DAY;
+-----+
| curdate() + interval 15 DAY |
+-----+
| 2022-09-22                  |
+-----+
1 row in set (0.00 sec)

mysql>
```

13) Display the value 94204.27348 truncated up to 2 digits after the decimal point.

ANSWER:-

```
mysql> select Truncate(94204.27348,2);
+-----+
| Truncate(94204.27348,2) |
+-----+
|          94204.27      |
+-----+
1 row in set (0.00 sec)

mysql> _
```

14) Display the value of the expression 5 + 89.

ANSWER:-

```
mysql> select 5+89;
+-----+
| 5+89 |
+-----+
|    94 |
+-----+
1 row in set (0.00 sec)

mysql>
```

15) Find out the square root of 6464312.

ANSWER:-

```
mysql> select sqrt(664312);
+-----+
| sqrt(664312) |
+-----+
| 815.0533724855078 |
+-----+
1 row in set (0.00 sec)

mysql>
```

←THE END→