MySQL **SQL -**

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Read and Write Consistency :

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* **in** a multi-**user** environment,
  when you **SELECT from** a **table,** you can **view only** the committed **data of** other users
  plus the changes made **by** you

* **when** you **UPDATE or DELETE** a **row,** that **row is** automatically locked **for** other users **ROW**
  LOCKING **IS** AUTOMATIC **IN** MySQL **AND** ORACLE

* **when** you **UPDATE or DELETE** a **row,** that **row** becomes **READ ONLY for** other users

* other users can **SELECT from** that **table;** they will **view** the **old data before** your changes

* other users can **INSERT rows into** that **table**

* other users can **UPDATE/DELETE** "other" **rows from** that **table no** other **user** can
  UPDATE or DELETE your locked **row,** till you have issued a **Rollback or Commit**

* LOCKS **ARE** AUTOMATICALLY RELEASED **WHEN** YOU **ROLLBACK OR COMMIT**

OPTMISTIC **ROW** LOCKING MECHANISM **OF** MySQL **->** automatic **row** locking
PESIMISTIC **ROW** LOCKING **->** you manually **lock** the **rows in** advance **BEFORE** issuing **UPDATE or DELETE**

* **To lock** the **rows** manually, you have **to use SELECT statement with** the **FOR UPDATE** clause
e.g. **select * from** dept **for update; select from** emp **for update;**

```
SQL> select from emp where deptno = 10 for update wait;
SQL> select from emp where deptno = 10 for update nowait;
SQL> select from emp where deptno = 10 for update wait 60;<- seconds
```

--> if row is avilable, then it will acquire the lock if row is unavailable,
then it will wait **in** the Request queue **for** the specified **time** period;
accordingly it will acquire the **lock or** abort the **operation**

```
SQL> select from emp where deptno = 10 for update nowait;
--> if row is avilable, then it will acquire the lock if row is unavailable, then it will
abort the operation
```

* **To** try **out Row** locking **in** MySQL Workbench: **-**
Click **on** Query **(**menu **at** the top**) ->**
New tab **to current** server **>**
click **on** it now you have 2 query windows **to** try **out** locking

Type here **to search**
To try **out Row** locking **in** MySQL Workbench, **if** you **get** stuck **in** the Request Queue, **to** abor
the oprtation: **-**
Click **on** Query **(**menu **at** the top**) ->** Click **on** Stop
Manual **row** locking **in** MySQL :
WAIT **and NOWAIT** options **are not** available **in** MySQL

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MySQL **- SQL - Character** Functions

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1. Rouutine that **Returns** a **value (return statement)**
2. You can **parameters/**arguments **to** a **function**
3. **Function** can be overloaded

```
create table emp(fname varchar(20),lname varchar(20));
mysql> insert into emp
values('Arun','Purun'),('Tarun','Arun'),('Sirun','Kirun'),('Nutan','Puran');
```

```
mysql> select * from emp;
+-------+-------+
| fname | lname |
+-------+-------+
| Arun  | Purun |
| Tarun | Arun  |
| Sirun | Kirun |
| Nutan | Puran |
+-------+-------+
select fname,lname from emp;
mysql> select fname,lname from emp;
+-------+-------+
| fname | lname |
+-------+-------+
| Arun  | Purun |
| Tarun | Arun  |
| Sirun | Kirun |
| Nutan | Puran |
+-------+-------+
```

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Concatenate-to join

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```
Concat(str1,str2)
Select concat(fname,lname)from emp;
mysql> Select concat(fname,lname)from emp;
+---------------------+
| concat(fname,lname) |
+---------------------+
| ArunPurun           |
| TarunArun           |
| SirunKirun          |
| NutanPuran          |
+---------------------+
to blankspace in the middle
Select concat(fname,'',lname)from emp;--will not work because to accecpt two
parameters/arguments

* use nested function outerfunction and innerfunction
* innerfunction will executed then outer function executed
* max upto 255 leveles for function withib function(common for all RBBMS)
* upper limit will exceeded by views


concat(str1,str2,str3........strn)

mysql> select concat(concat(fname,' '),lname) from emp;
+---------------------------------+
| concat(concat(fname,' '),lname) |
+---------------------------------+
| Arun Purun                      |
| Tarun Arun                      |
| Sirun Kirun                     |
| Nutan Puran                     |
+---------------------------------+

mysql> Select concat('Mr. ',fname,' ',lname)from emp;
+-------------------------------+
| concat('Mr. ',fname,' ',lname) |
+-------------------------------+
| Mr. Arun Purun                |
| Mr. Tarun Arun                |
| Mr. Sirun Kirun               |
| Mr. Nutan Puran               |
+-------------------------------+
mysql> select upper(fname) from emp;
+--------------+
| upper(fname) |
+--------------+
| ARUN         |
| TARUN        |
| SIRUN        |
```

```
| NUTAN        |
+--------------+

update emp set fname=upper(fname);
mysql> select * from emp;
+-------+-------+
| fname | lname |
+-------+-------+
| ARUN  | Purun |
| TARUN | Arun  |
| SIRUN | Kirun |
| NUTAN | Puran |
+-------+-------+

mysql> select lower(fname)from emp;
+--------------+
| lower(fname) |
+--------------+
| arun         |
| tarun        |
| sirun        |
| nutan        |
+--------------+

In orcale
Solutuion for case-insensitive query in oracle:
mysql> select * from emp where lower(fname)='arun';
+-------+-------+
| fname | lname |
+-------+-------+
| Arun  | Purun |
+-------+-------+
In oracle
select initcap(fanme)from emp;
select Ucase(Sname) from Salespeople;
select Ucase(left(Sname,1)) from Salespeople;
select substring(sname,2) from Salespeople;
select Concat(substring(sname,2,5)) from Salespeople;
select Concat(Ucase(left(Sname,1)),substring(sname,2)) from Salespeople;

mysql> select * from salespeople;
+------+---------+-----------+------+
| Snum | Sname   | City      | Comm |
+------+---------+-----------+------+
| 1001 | Peel    | London    | 0.12 |
| 1002 | Serres  |  San Jose | 0.13 |
+------+-------++-------++-------++-
==========================================================================================
Leftpad and rightpad
==========================================================================================
Uses
left pad use;
1. right justification output
2. billing receipt
3. cheque printing

Right pad use;
1.left justification
2.to convert varchar to char(varible length to fixed length)


mysql> select lpad(fname,25,' ')from emp;
+--------------------------+
| lpad(fname,25,' ')       |
+--------------------------+
|                      Arun |
|                     Tarun |
|                     Sirun |
|                     Nutan |
+--------------------------+
```

```
mysql> select lpad(fname,25,'*')from emp;
+---------------------------+
| lpad(fname,25,'*')        |
+---------------------------+
| **********************Arun |
| **********************Tarun |
| **********************Sirun |
| **********************Nutan |
+---------------------------+

mysql> select rpad(fname,25,' ')from emp;
+---------------------------+
| rpad(fname,25,' ')        |
+---------------------------+
| Arun                      |
| Tarun                     |
| Sirun                     |
| Nutan                     |
+---------------------------+

mysql> select rpad(fname,25,'*')from emp;
+---------------------------+
| rpad(fname,25,'*')        |
+---------------------------+
| Arun********************* |
| Tarun********************* |
| Sirun********************* |
| Nutan********************* |
+---------------------------+
```

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left trim and right trim

==========4

```
select rtrim(ename)from emp;
```

==========

use:

* **char data(not** columns**) to varchar convert(data type convert)**
* fixed **length to** fixed **LENGTH**
* **right** justification **of char** COLUMNS

  lpad(rtrim(ename**),....,...)**

  (*interview Question**)**

```
mysql>  select rtrim(fname)from emp;
+--------------+
| rtrim(fname) |
+--------------+
| Arun         |
| Tarun        |
| Sirun        |
| Nutan        |
+--------------+

mysql>  select ltrim(fname)from emp;
+--------------+
| ltrim(fname) |
+--------------+
| Arun         |
| Tarun        |
| Sirun        |
| Nutan        |
+--------------+
```

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Substring

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```
select substr(ename,'un') from emp;(not work in mysql only works with ORACLE)
* 3rd paramter compulsaory

select substr(ename,'un') from emp;
returns starting position of string if string is not found then it return 0.

Use:
1.to check if one string exists in another string
2.substr(instr(experience,'oracle'))

mysql> select substr(fname,3) from emp;
+-----------------+
| substr(fname,3) |
+-----------------+
| un              |
| run             |
| run             |
| tan             |
+-----------------+

mysql> select substr(fname,4) from emp;
+-----------------+
| substr(fname,4) |
+-----------------+
| n               |
| un              |
| un              |
| an              |
+-----------------+


(fname,3,2)
* starting postition
* number of characters
*  minus sign start from end


mysql> select substr(fname,3,2) from emp;
+-------------------+
| substr(fname,3,2) |
+-------------------+
| un                |
| ru                |
| ru                |
| ta                |
+-------------------+
4 rows in set (0.00 sec)

mysql> select substr(fname,3,5) from emp;
+-------------------+
| substr(fname,3,5) |
+-------------------+
| un                |
| run               |
| run               |
| tan               |
+-------------------+

(fname,-3)
* last character
* stop character
* use exact part of string to executed

mysql> select substr(fname,-3) from emp;
+------------------+
| substr(fname,-3) |
+------------------+
| run              |
| run              |
| run              |
| tan              |
```

```
+------------------+
mysql> select substr(fname,-3,2) from emp;
+--------------------+
| substr(fname,-3,2) |
+--------------------+
| ru                 |
| ru                 |
| ru                 |
| ta                 |
+--------------------+

mysql> select substr('Dnyaneshwar',-3) from emp;
+--------------------------+
| substr('Dnyaneshwar',-3) |
+--------------------------+
| war                      |
| war                      |
| war                      |
| war                      |
+--------------------------+


mysql> select substr('Dnyaneshwar',3) from emp;
+-------------------------+
| substr('Dnyaneshwar',3) |
+-------------------------+
| yaneshwar               |
| yaneshwar               |
| yaneshwar               |
| yaneshwar               |
+-------------------------+


mysql> select substr('Dnyaneshwar',3,1) from emp;
+---------------------------+
| substr('Dnyaneshwar',3,1) |
+---------------------------+
| y                         |
| y                         |
| y                         |
| y                         |
+---------------------------+
mysql> select substr('Dnyaneshwar',3,5) from emp;
+---------------------------+
| substr('Dnyaneshwar',3,5) |
+---------------------------+
| yanes                     |
| yanes                     |
| yanes                     |
| yanes                     |
+---------------------------+

mysql> select substr('Dnyaneshwar',1,5) from emp;
+---------------------------+
| substr('Dnyaneshwar',1,5) |
+---------------------------+
| Dnyan                     |
| Dnyan                     |
| Dnyan                     |
| Dnyan                     |
+---------------------------+
mysql> select substr('Dnyaneshwar',-5) from emp;
+--------------------------+
| substr('Dnyaneshwar',-5) |
+--------------------------+
| shwar                    |
| shwar                    |
| shwar                    |
| shwar                    |
+--------------------------+
```

```
mysql> select substr('Dnyaneshwar',-5,2) from emp;
+----------------------------+
| substr('Dnyaneshwar',-5,2) |
+----------------------------+-
| sh                         |
| sh                         |
| sh                         |
| sh                         |
+----------------------------+
```

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Replace

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```
mysql> select replace('Dnyaneshwar','ane','abc') from emp;
+-----------------------------------+
| replace('Dnyaneshwar','ane','abc') |
+-----------------------------------+
| Dnyabcshwar                       |
| Dnyabcshwar                       |
| Dnyabcshwar                       |
| Dnyabcshwar                       |
+-----------------------------------+
```

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length

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select length(ename) from emp;

==========

USE

length of string

```
mysql> select length(fname) from emp;
+---------------+
| length(fname) |
+---------------+
|             4 |
|             5 |
|             5 |
|             5 |
+---------------+
```

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Ascii function

==========

*** Ascii first character**

```
mysql> select * from emp;
+-------+-------+
| fname | lname |
+-------+-------+
| Arun  | Purun |
| Tarun | Arun  |
| Sirun | Kirun |
| Nutan | Puran |
+-------+-------+
4 rows in set (0.00 sec)

mysql> select ascii(fname) from emp;
+--------------+
| ascii(fname) |
+--------------+
|           65 |
|           84 |
|           83 |
|           78 |
+--------------+

mysql> select ascii(substr(fname,2)) from emp;
+-----------------------+
```

```
| ascii(substr(fname,2)) |
+------------------------+
|                    114 |
|                     97 |
|                    105 |
|                    117 |
+------------------------+
4 rows in set (0.00 sec)

mysql> select ascii(substr(fname,-1)) from emp;
+-------------------------+
| ascii(substr(fname,-1)) |
+-------------------------+
|                     110 |
|                     110 |
|                     110 |
|                     110 |
+-------------------------+
4 rows in set (0.00 sec)

mysql> select ascii(substr(fname,-4)) from emp;
+-------------------------+
| ascii(substr(fname,-4)) |
+-------------------------+
|                      65 |
|                      97 |
|                     105 |
|                     117 |
+-------------------------+
4 rows in set (0.00 sec)

return ascii value of small ZONE
it will work for each in emp table;

mysql> select ascii('z') from emp;
+------------+
| ascii('z') |
+------------+
|        122 |
|        122 |
|        122 |
|        122 |
+------------+
why 3 times output?
it will work for each in emp table.
total number of ROWS

mysql> select distinct ascii('z') from emp;
+------------+
| ascii('z') |
+------------+
|        122 |
+------------+


* dual is a system TABLE(common for RDBMS)
* it contains only 1 row and 1 COLUMNS
* dual is a dummy table

mysql> select 3*12 from dual;
+------+
| 3*12 |
+------+
|   36 |
+------+

mysql> select 'welcome Dnyaneshwar' from dual;
+---------------------+
| welcome Dnyaneshwar |
+---------------------+
| welcome Dnyaneshwar |
```

```
+--------------------+
```

```
================================================================================================
Char function --opposite to ascii function--
================================================================================================
```

```
mysql> select char(65) from dual;
+--------------------+
| char(65)           |
+--------------------+
| 0x41               |
+--------------------+
select * from emp where soundex(fname)=soundex('aruun');
mysql> select * from emp where soundex(fname)=soundex('aruun');
+-------+-------+
| fname | lname |
+-------+-------+
| Arun  | Purun |
+-------+-------+
================================================================================================
```