Day - 4

* Within a transaction, you can have 2 savepoints with the same name
* the latest savepoint supercedes the previous one
* the older savepoint no longer exists.

Mysql - Read and write Consistency
* in a multi-user environment when you SELECT from a table you can view only the committed data of all users plus/union.
changes made by you.

ACID properties in RDBMS :-

A → Atomicity
C → Consistency
I → Isolation
D → Durability

~~Atid~~ Atomicity :- The entire transaction takes place at once or doesn't happe at all
(e.g. You withdraw Rs. 500/- from your bank account...)

Consistency :- the database must be consistent before the and after the transaction
(e.g. same as above, Deposits and Balances Tables)

Isolation :- Multiple transaction occur independently without interference.

Durability :- The changes of a Successful transaction are permanently even if after the system failure occurs.

* Automatic row locking mechanism in Mysql:-
* When you update or Delete a row, that row is automatically "locked" for other users
* Row Locking In mysql is automatic
* When you Update or Delete a row, that row becomes READ-Only for other users.
* Other users can Insert rows into that table
* other wers can Update or Delete "other" rows from that table.
* Locks Are Automatically Released when you Rollback or commit

Eclect * from emp.
where deptno = 10;
for update wait 30; ← seconds

* if row is available, then lock it; wait in the request for the specified time period; if row is still unavailable, then abort the operation

* Locks are Automatically Released when you Rollback or commit

MySQL - SQL - Functions

Character function
* Applicable for car datatype

* Concatination

Select (concat (fname, lname) from emp;
output :- ArunVerun.

* uses.
a) ~~for presentation~~
* max upto levels for function within function

* select upper (fname) from emp;

* update emp set fname = upper (fname);
* update emp set fname = uppe (fname) were...;

* lpad command (left pad
select lpad(ename, 25, ' ') from emp;//
----------ename. //25 words contains and write ~~ena~~
~~select lpad~~ ename in last 5 spaces.

Select lpad(ename, 25, '*') from emp;
*********ename
uses :-
a. write justification
b. check printing

Select rpad (ename, 25, ' ') from emp;
sellect rpad (sal, 25, ' ') from emp;

Select rpad (ename, 25, '*') from emp;

Uses
a. Left justification of numeric data.
b. convert to varchar to char (convert variable length to fixed length).

* Exercises.
- Implement INITCAP of ENAME in MYSQL
AMIT -> Amit

* Display the ENAMES centre-justified
Assume screen width is 80 characters.
38*Amit38*
37* DIPESH 37*
37* NIDHI 38*

* Select ltrim (ename) fromemp ; // left Trim

Uses :-
a. Left justification
eg rpad (ltrim (.....)...)

* select rtrim (ename) from emp;
uses:-
a. convert char to varchar (convert fixed-length to variable length).

b. Right justification of char data.
lpad (rtrim(....)....)

Select trim(ename) from emp; // Removes blank spaces from both the side in mysql.

Substring

Select Substr(ename, 3) from emp;
Select substr(ename, 3, 2) from emp;
select substr(ename, -3) from emp;
select substr(ename, -3, 2) from emp;

Update emp set ename = substr(.....);
Uses :-
a. used to extract apart of the string
~~Select replace~~

* Select replace (enam, 'un', 'xy') from emp;
un → xyz

Arxyz Parxyz
Tarxyz Arxyz
etc.

* Select instr(enum, 'un') from emp;
// Returns starting position if string is not found then it returns 0

→ Check 'un' in the string position

Uses :-
a. used to check if one string exists in another one

* select length(ename) from emp;
// select length of ename column

* select ascii(ename) from dual

select ascii('z') from emp;
122
122
122

* select distinct ascii('z') from emp;
122 // remove duplicates
1

* selectasciic 'z') from dual;
* Dual is system table
* it is automatically createdwhen you installmysql
* common for allRDBMS
* Dual contains only 1 row and 1 column
* Dual is a dumy table.

* MySQL - SQL Number function

* ~~Select no~~ Emp

~~Emp~~	Salary
	2772.6789
	2582.6259
	5792.3279
	8772.2121

* Sselect round(sal) from emp;

2772
2582
5792

* Select round(sal, 1) from emp;

2772.6
2582.6
5792.32

* Select round(Sal, 2) from emp;

2772.67
2582.62
5792.32

* select round(Sal, -2) from emp;

~~2772~~6 2800
2600
5800
4700

* Select truncate (Sal, 0) from emp;
// Remove the decimal.
2772.
2582
5792

uses :-
Age calculator,
Time calculation.

Select truncate (sal, 1) fromemp;
~~1234~~.2772.6
2582.6
5792.3

select truncate (sal, -2) from emp;
2700
2500
5700

* Ceil → ceiling
select ceil (sal) from emp
// if any value in decimal then it is add 1 whole number.
2773
2583
5793
8743

* Select floor (Sal) from emp;
// Remove the decimal.

2772
2582
5792
8742

* difference between truncate and floor

Select truncate(3.6,0), floor(3.6), truncate(-3.6,0) floor(-3.6) from dual;

3.6 3.6 -3 -4.

* Select sign(-15) from dual;

-1

if the number is positive return 1
if the number is Negative return -1
if the numbe is 0 return 0.

uses :-
a) check if number is positive or negative
b] sign(temperature)
c] blood group, stock market

* Select mod function
select mod (9,5) from dual;
4
Select mod (8.22, 2.2) from dual
1.62.

* select sqrt (81) from dual;
9
// only work with positive number

* select power (10,3) from dual;
$10^3 = 1000$

* select abs (-10) from dual; // absolute value
10 // always output positive value.

* MySQL Date and time function and format
* Date, Time, Datetime, year
* 1st Jan 1000 AD to 31st Dec 9999 AD
* No problem of Y2K
* '-838:59:59' to '838:59:59'
* YYYY-MM-DD is the default Date format
* YYYY-MM-DD or YY-mm-DD
* 1970 is the year of the epoch.
* 7 bytes of storage
* Internall date is stored as a fixed size

* select Sysdate() from dual;
2024-10-11. 20:10:41
* returns DB server machine date and time

* select sysdate(), now(), sleep(10), sysdate, now() from dual;
---- 20:17:18, 20:17:18, 0, 20:17:28, 20:17:18

sysdate();
uses :-
a. Date and time displays.
b.

now
uses :-
a. Maintain logs of user action/operations

* select adddate(sysdate(),1) from dual.
→ Kal kya date hai, after 1 day Date

* select adddate(sysdate(),-1) from dual;
→ Kal kya date tha:, before 1 day date.

* select datediff(sysdate(), hiredate) from emp;
// returns number of calender days between the two

* select date_add(hiredate, interval 2 month) from emp;
// add to months
2023-10-02 → 2023-12-02.
2024-12-02 → 2025-02-02

* select date_add(hiredate, interval -2 month) from emp;
// subtract 2 months.
2023-10-02 → 2023-08-02.

* Select date_add(hiredate, interval 1 year) from
* Select date_add(hiredate, interval -1 year) from emp

: add time

* select addtime('2010-01-15 10:00:00', (-1) from dual.
→ 9:59:58. // -1 sec.

* select addtime('2010-01-15 10:00:00', '1') from dual;
→ 2010-01-15 10:00:01 // add 1 sec

* select addtime('2010-01-15 10:00:00', '1:30:45') from...;
2010-01-15 11:30:45 // add 1hr 30 min 45sec.