- relational database. Managing and quercing querring
- Data Manipulation language (DML): Allowing quetrying, inserting, deleting and modifying tuples in the database.
- Data Definition Language (DDL): Used to define schemas, integraty constraints, views & control transactions.
- (preimary by, forcieign key, not null constraints)
- DDL-Data Defination Language
 . Used for specifying relations (tables),
 including attributes & types & integrity
 constraints.

Example:

Create table instructor(

ID charcls),

name varicharc(20),

dept name varicharc(20),

salarry numeric (8,2).

Domain types 6m priparom not been

- Charcin : Fixed length characters oftning
- Natichardin): variable longth characters.
 - int, smallint: Integer values.
 - D'numercic (P,d): P Fired Point numbers.
 - Porceal, double precision: Floating point

Integraty constraints of the string of the s

- . Primary sey Uniquely identifies trows.
- Forceign to references another table to maintain Telationships.
 - · Not null : Ensurces a column connot have null values.

SQL Quercies:

1. select clause: used to specify the columns to retirieve

select name from instructor;

engition arms of

· use distinct to remove dublicates and of to select all column.

2. Where clause: Applies conditions to filter results.

select name from instructore where dept-name = "comp. sci."

3. From clause: specifies the tables involved in
the querry.

Example: select & from instructore

4. Join operators: Combining Traw from two orc more tables based on a related column.

5. Fename operation: SQL allows remained relation and attraibute uping the on clause.

Select distinct table name

troom instructors on instructors table,

instructors on salarry

where table salarry s. salarry and s. dept_no

='comp. sci'

(2) Intercept if a war in a manual income the

incompanie

(servent course it thom section covere series soprand & Selicot course it from section covere series soprand &

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(A) Strong opercation is not soils in the sound - sound

The like operactor is used fore pattern ma-tching

. 1. Matches any substaining

bevorn stool in a mingle charcacter out

Example:

select name tocom instructor where name like V. darzi.

source lapting board con a Tice set operation

1) Union: Combine - rasults from two quercies.

Combining Team Hum

Example:

(select course-id from section where sem = 'Fall' and year = 2017)

ent bridge should forther Land

unjon

(select course id from section where sem = 'spring' & year = 2018);

2) Interesects: Petutons common Tresults between -two quercies.

Example:

(select course_id from section where sem 21 Far and year = 2017)

(select course-id from section contre sem = 'spring' & YEATC = 20187:

· Except : Returen - the difference between two queries.

Exm:

(select course id from section where sem = 'Fall' and

Years = 2017)

(select course id from section where sem = spring, and
years = 2018); oil percent

Null values:

A SOL allows hull values, representing unknown ore

Use null or is not null to check fore nulls.

Exm: select name from instructore whose malatry

Assuragate function

· Operate on sets of values to return a single value.

- · min() 5- Hads the minimum of the susses of
- The work will appoint of the wax with
 - · sum () s sum the values
 - · Count() -> counts the number of values.

Exambre in (Relias) Eno - mourtage to of

select ang (salary) from instructore connected comprise.";

Geroup abyore Havingoroffile of point of: +900x3.

· Getoup by: Used to group Teous shorting of

· Having clause: Applies conditions to groups
after aggragation (810)

example.

Select dept-name, any (salary) on any -salary
-from instructor attouped by dept-name
having any (salary) > 42000;

Nested subquetties:

·SQL allows queroies with in quercies (subqueroies)

Exm!

select name from instructore where salary).

(select any (salary) from instructore);

Screens by: bereous trows sharing a value select dept-name, and (salarry) as and salarry from instanctor group by dept-name;

thing: Filtere groups aftere aggregation:
select dept-name, and (salary) on and-salary
from instructore
group by dept-name

having ang (salary) > 42000;

- CONTAN MACA

Subqueries in the from clause!

· SQL allows the use of subquercy expressions in the troom clause, theating the results on a temporarry relation.

Frmple:

Select dept-norme, ang-salarry

Arom (select dept-norme, ang(salarry) on ang-salarry

Arom instructors

group by dept-norme)

Where ang-salarry > 42000;

with clause

with clause in SQL allows the creation of temporcarry relations that can be recused within a query.

exm: with max-budget (value) on (
select max (budget)
-from department

Select department. name
Acom department, max-budget
Where department, budget = max-budget. Value'

Complex queries uning with chuse

· with clause can be used to break complex queries into smaller more manageable parts.

example:

with dept-total (dept-name, value) on (
select dept-name, sum (salarcy)

Arom Instructorz
group by dept-name
);

dept-total-ang (value) on (select ang (value) from dept-total

Select dept-nome from dept-total, dept-total-avg where dept-total. value I dept-total_avg. Scalez subquerry

A sealest subquercy is a subquercy that tecturens a single value, typically used where a single value is expected like in the select, where ore from clause.

example; male monte occor

select dept-name, en ryonale

(select count(\$)

Morre department. dept-name = instructor. dept_name)

non deparetment;

Modification of the database:

Example: inserct into instructore values (102111', Smith: Biology', 66000);

· Delete: Delete dorta troom a tebu example: delete from instructore where dept-name = 'Finance';

· Update: Modify existing data.

Example: update instructor Set salary =

Salary + 1.05 where salary < 70000;

Case statement:

· conditional logic inside SQL queries. private value. Applicably used concre

value is expected like in the sole selection

· (000ab rycolois rations)

(Emont

INTONS

update instructor

set salarry z case

When salatey <=10000 Than salaty 1005

is the small sunt say imment

troughorogole inoth

yout a of what LEAR formant

. otab parteixs vibbon istebal.

Second Level - for mother / Long

Galete Subjective

mooran clave -

else salary 1.03

2 11 SCI') coview snotountent office forcem " significan

in - Most a month of obligious of office.

example! details from instanctore where depthaces

exercipe update instanctore set salony

Salary + 10 1.05 covere salary (10000

end;

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