online SQL Compiler -----> https://sqliteonline.com/

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Data Base:-

Data base collection of information ogarnize for easy acces and managent and maintainces

ex:-

Student information
telephone directory
product information
wether report
register

Data model:-(Data models define how data is connected to each other and how they are processed and stored inside the system. The very first data model could be flat data-models, where all the data used are to be kept in the same plane)

Graphical or logicalreprasatation of DB

1)record base logical model
i)Hierachical data model
ii)Network data model
iii)Realtion data model

2)Object base logical model
i)Entity Realtion model(ER model)

DBMS (Data base managent section)Operation:-

i)Adding new file
ii)inestertion data
iii)retriving data
iv)modifing data
v)removing data
vi)removing file

Advantages of DBMS:-

.Sharing of data accross application
.Enhance security
.better transaction
.backup and recovery feature

RDBMS(Relation data managent system):-

.refer to a Db that store data in structure formate.Using row and colom.
.make easire to locate and access specfic value within the DB
."relation" because the value are within each table relate to each other
.table sturuct makes possible to run queires across multiple table

Feature of RDBMS:-

.ever pice of data store in table formate
.has primary key (unique key)idnetification of row
.has foregin key to ensure data integrity(Data integrity is a concept and process that ensures the accuracy,

completeness, consistency, and
validity of an organization's data.)
.provide SQl for data Access
.use index for faster data retrival

Normalization(IMP concept):-
.Decompose larger,complex table into simpler and smaller one
.moves form lower normal form to higher normal form
types:- i)1Nf ii)2NF iii)3NF iv)higher normal form
.BCNF .4NF .5NF

Need:-
.in oder to produce good DB design
.*To ensure all DB to effciently performed*
.Aviod any expensive DBMS operation
.Avoid unncessary replication of information

Function depandancy:-
RAW database:-
Student:

Std_detail	Course_detail	pre_requis	Result_detail
101 jack 11/2022	M1 maths 17	basic maths	3/2022 82 A
102 Rock 10/2022	M2 Science 18	basic Science	22/2022 83 B
103 Marry 10/2022	M3 History 16	basic History	24/2022 63 c

Types of function depandancy:-
i) Partial Function Dependancy

Attrbrite Q is partiall Dependancy on attributre P,
only if it is depenad on the subset of attributre P

ii) Transitive Dependancy
X ---->Y Y----->Z X----->z

Normalization:-

1NF:-
Rule: -All attributre in the relation atomic
-And there is no repetaion element or group of element

St_id#	Name	DOB	Course#	Co_N	Co_id	Sub_subj	DOE	Mar	Grad
101	jack	11/2022	M1	maths	17	basic maths	3/2022	82	A
102	Rock	10/2022	M2	Science	18	basic Science	22/2022	83	B
103	Marry	10/2022	M3	History	16	basic History	24/2022	63	c

2NF:-

Rule:- -it should be 1NF
-No partial depandancy exists between non-key attributre key attributre

Student:

St_id#	Name	DOB
101	jack	11/2022
102	Rock	10/2022
103	Marry	10/2022

Course:

Course#	Co_N	Co_id	Sub_subj	DOE
M1	Maths	17	basic maths	3/2022
M2	Science	18	basic science	22/2022
m3	History	16	basic History	24/2022

Result :

student#	Course#	DOE	Marks	Grad
101	M1	3/2022	82	A
102	M2	22/2022	83	B
103	M3	24/2022	63	c

3NF:-

Result :

student#	Course#	Marks	Grad
101	M1	82	A
102	M2	63	B
103	M3	63	c

What is SQl:
Programming language specficially for working with DB to...
.creat
.manpulate
.share/acces

Adv:
.Allow your to communicate eg.access and manpulate DB
.Allow user to retrive data form DB
.Allow user to creat,update,modify and delet the DB

Data:
Data is define as fact or figure ,or information that store in or used by a computer

Database:
A database is organization of data/information so that it can be easliy accessed ,manged and update

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Sql Data type:

Numric - bit,tinyint ,smallint,int,bigint ,decimal,numiric,float,real
Character/String- Char,Varchar,Text
Date/Time - Time,Date,Datetime,Timestamp,Year

Sql Constraints-
- .Not null
- .Default
- .Unique/Primary
- .Check
- .Index

Sql Command Group-
.DDL(data defination Lang): Creation of Object
.DML(data Mauipulation Lang): Mauipulation of data
.DCL(data Contrl Lang): Assignment and Removal of permission
.TCL(transation Contrl Lang): Saving and restoring cahnge to a DB

DDL --> Create, Alter,Drop,Truncate,Rename
DML -->insert,Update,Delet
DCL -->Grant ,Revok
TCL -->Commit,Rollback,savepoint

SQl Operators:
where clause:
Used to specify a condition while fetchig the data form a single table or by join with multiple table.

Logical:
AND,OR,NOT

Comparison:

Symbol	meaning
=	equal to
>	greater than
<	less than
>=	greater than or equal to
<=	less than or equal to
!=	Not equal to

Specail:
Between(display),Like, Is Null, IN(chek), Distinct

Aggreations:
Avg(),Count(),Max(),Min(),Sum()

Group By Clause:

Select max(marks),first_name form student GROUP By first_name

HAVING Claus:

.Having for the condationion
.after groupp by clause
eg .select avg(salary),dep_id from employ GROUP By dep_id having count(dep_id)>=2;
where <----- GROUP By ---> having

ORDER BY Clause:
Ascending (ASC)
Desecending(DESC)
selct * form student odery by marks desc;

Union:
//single value
select product_name form product1
Union
select product_name form product2;

Union ALL:
//duplicate value
select product_name form product1
Union All
select product_name form product2;

JOINS(VVIMP):
Combine rows/colomns form two or more tables ,based relate coloum between them in DB
i)inner join (A---> (1,2,3) table<-----B(1,4,5))(1)

syntxa: select table1.col1, table2.col2,.....
form table1
inner join table2
ON table1.commonfield = table2.commonfield

ii)left join (A(all value)---->table<---B)

syntxa: select table1.col1, table2.col2,.....
form table1
Left jion table2
ON table1.commonfield = table2.commonfield

iii)right join (A---->table<---B(all value))

syntxa: select table1.col1, table2.col2,.....
form table1
right jion table2
ON table1.commonfield = table2.commonfield

iv) full outer join (A--->union<----B)

syntxa: select table1.col1, table2.col2,.....
form table1
Left jion table2
ON table1.commonfield = table2.commonfield

Unionsyntxa: select table1.col1, table2.col2,.....
form table1
Left jion table2
ON table1.commonfield = table2.commonfield

v)cross join (A->1,2,3 B->1,2,3)
syntax: Select *from table1 Cross Join Table2;

Vi)self join

Acid property in DB?
A ----> Atomicity
C ----> Consistency
I ---->Isolation
D ---->Durability

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differnt Relationship:
i)one to one
ii)one to many
iii)many to many

View:
virtual table which consist of data contain of subset of data contained in a table
.Snapshop of table or another view
.making complex query simpler.
.provide diff view
.ensure data indpendency