if... else

UPDATE table, SET column, =
CASE
WHEN columnx, = value1
THEN newvalue, (put it here) } if
WHEN column y, = value 2, } else if
THEN new value
...
ELSE ....
END;

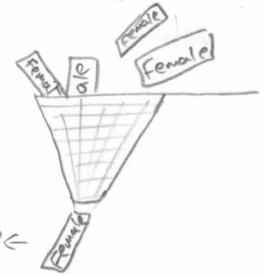
also with: DELETE, SELECT, INSERT

+ WHERE ...

Do... While

SELECT DISTINCT column

FROM table



return unique value only once

SELECT ...

ORDER BY column

accept 1 / more

(+DESC → ...)

LIMIT X

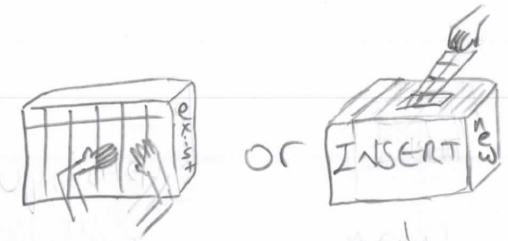
↓

how many results I get in return

LIMIT X, Y

↓

from result no. x (start = 0) to result no. y



change 1 or more value

↓

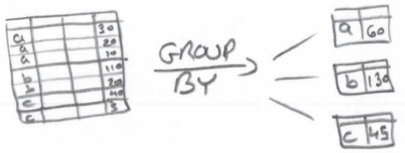
Modify what is already inside the table

add a new row or more

f(x)

#SELECT SUM(column.sum)
FROM table

#SELECT ... SUM .. FROM
WHERE condition



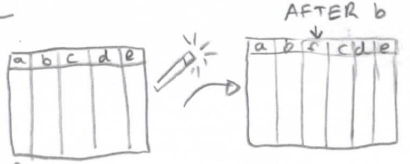
SELECT ... SUM ... FROM
GROUP BY column
ORDER BY column.sum, DESC;

#AVG → SUM

#MIN
#MAX
#COUNT → how many rows. null

ALTER

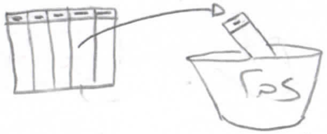
Add a column



change — ALTER TABLE table
what — ADD COLUMN column type

FIRST | AFTER(x) BEFORE(y) | LAST — איפה זה ימוקם

Delete column



ALTER TABLE table
DROP COLUMN name

Rename TABLE / COLUMN

projekt2 → project

sp-rename ?

ALTER TABLE table
RENAME TO new_name;
//RENAME column TO new-name;

change: # column's type and name

type a → type b NOT NULL

ALTER TABLE table
CHANGE COLUMN old_name
new_name type NOT NULL ...

column's type

type a → type b

MODIFY COLUMN name
new type;

String f(x)

מאפשרות להחזיר חלק מה text-

SELECT RIGHT/LEFT (column, no) FROM table
(no = how many char from the — side to select)

SELECT SUBSTRING_INDEX(column, '_', no)
FROM table

איפה לחתוך (תו, סימן) — לחתוך בפעם ה-no שהוא מוצא את התו

String f(x) ניתנות לשימוש עם: SELECT, UPDATE, DELETE

... SUBSTRING(string, start_position, length) ...
(start_position: האות במיקום ה-no שבה נתחיל; length: כמה מה-string נקבל ב-return)

... UPPER/LOWER(string)

... REVERSE(string)

... L/RTRIM(string) → trim extra spaces from left\right

... LENGTH(string)

Str ing = String

הפונקציות לא משנות את ה-data בטבלאות
they return the outcome

DB

tables · connected MUST

class ← book · inst var, field

ID	name	autor	year
32	"Harg"	"J.F"	2000

object · object

new object · a record

CREATE DATABASE dbn;

USE DATABASE dbn;

DROP TABLE

= · != · <> · < · > · between (≥x≤)

CREATE TABLE table (
row_name VARCHAR(10), → seperete 2 colums
row_name VARCHAR(25)
); data type

open the list of colums · close them

INSERT INTO table (coulom1, coulom2, coulom3...) VALUES ('value1', 'value2', values...)

we can: INSERT... VALUES · VALUES

SELECT * FROM table;

SELECT * FROM table WHERE column = value;

is → true → return row · False → return nothing

copy → condition = true

SELECT column1, col2, col3...
From table WHERE condition
AND condition

NULL

SELECT ... WHERE y = NULL

y IS NULL

SELECT ... WHERE column IN (value1, value2, ...)

WHERE NOT IN LIKE BETWEEN

DATA TYPES

INT

DEC 0.0034...

DATE 20-20-21

BLOB blabla...

DATETIME 20-20-21 08:50

TIME 08:50

CHAR (x)

VARCHAR (max 255ch)

values

NOT NULL value = must

DEFAULT

Char

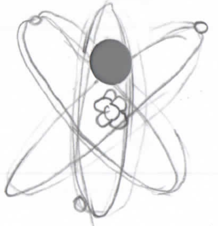
[x-y]	[^x]	[x]	_	%
c[a-d]t	h[^oa]t	h[oa]t	h_t	bl%
cat cbt cct cdt	hit	hot hat	hot hat hit	black blabla block

ex return

DELETE FROM table
WHERE condition

SELECT ... WHERE
↓
DELETE ... WHERE

אם אני לא בטוחה תמיד



1 coulumn = 1 value

טבלה אחת = נושא אחד

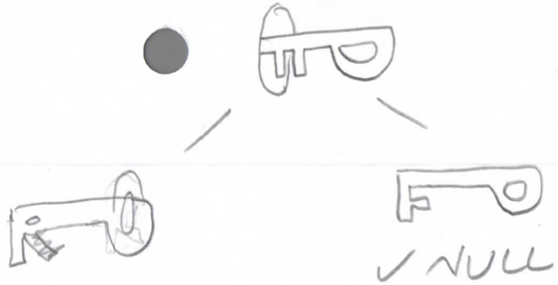
Each row contain values

+

Each row [PK]
- unique
- NO NULL
- never change

⇓

1NF

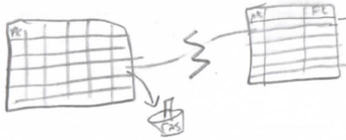


PK
- ✗ NO NULL
- ✓ UNIQUE

FK
- ✓ NULL
- ✗ Unique
- Only ref a unique value from the parent table

constrains
- CHECK
- UNIQUE

Force



orphan
a FK that its PK(parent) is no longer exist
הכוונה PK ב-DB וכו'...

+ constrain ⇒ ERROR ⇒ first delete the FK columns and than the parent [FK]

modifie values

update in process

UPDATE table
SET new value
WHERE old value

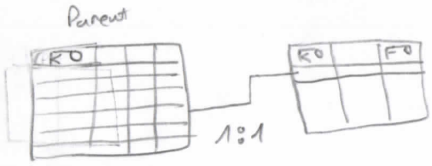
זיהוי

SHOW (return)
- CREATE TABLE table returns the script
- WARNING returns the warning
- COLUMNS FROM table → coulmns + data type
- INDEX FROM table → indexed columns

PK
(name INT NO NULL AUTO_INCREMENT
.... → other columns ...
PRIMARY KEY name)

FK
- ✓ NULL
- ✗ UNIQUE

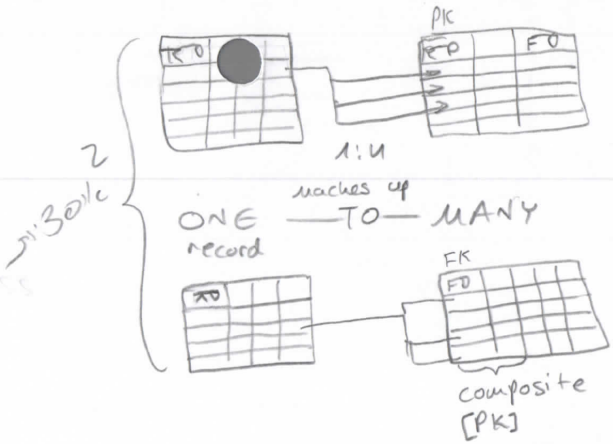
ALTER TABLE table
- ADD CONSTRAINT fk_name FOREIGN KEY (col_name) REFERENCES table.ref (col_name);
- DROP CONSTRAINT fk_name
(חיבור הכל מקובל אם מרבים זקנות אני)

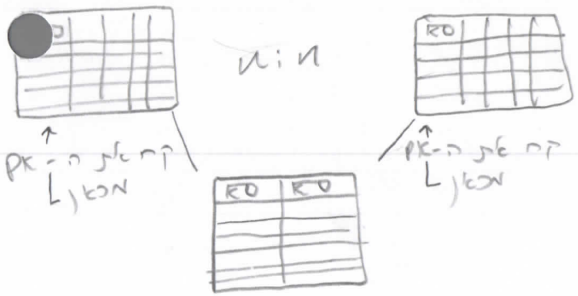


Faster queries

Restrict access

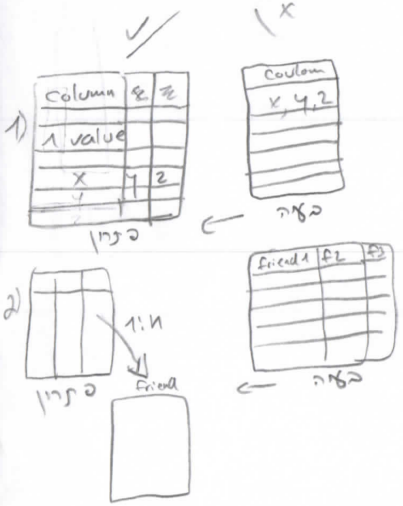
Isoliting NULL





Isoliting huge piece of DATA ex=> BLOB

1NF

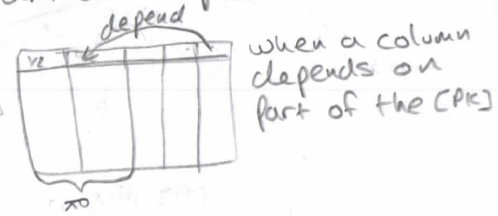


1) Columns → Only atomic values

2) No repeating groups of data

2NF

partial Dependency



All the columns are part of the PK

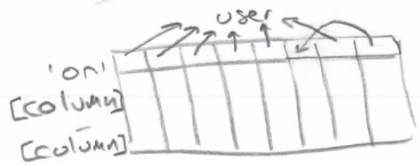
only 1 PK column

use synthetic [PK]

column - Pk relation

3NF

Transitive Dependency



$ € %

CONCAT('$', column)

eliminates duplicates from this column

GROUP BY ORDER BY

GROUP BY and then → ORDER BY

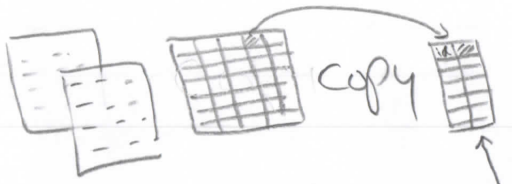
SUBSTR

UPDATE table
SET column = SUBSTR(column, length)

SUBSTR וכ SUBSTRING??

SUBSTRING(starting index, ending index)

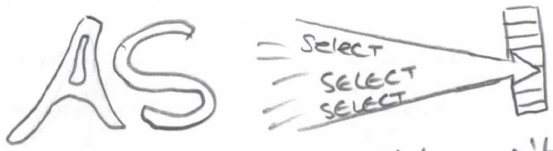
SUBSTR(starting index, no. of char to return)



1# CREATE TABLE table2
(.....).

2# INSERT INTO table2(column1, column2, ...)
SELECT(columns 2 B copied) FROM table1
WHERE condition

INSERT INTO table2
SELECT * FROM table1



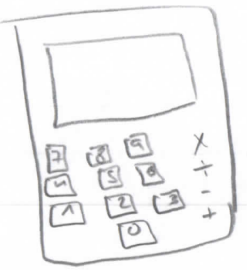
populate a new table with the results of the SELECT

ALIASES

column/table AS alias → nickname

the column/table will be presented as indicated in the alias name BUT their name doesn't change

INSERT INTO table2
SELECT * FROM table1



SELECT col1, col2,
col3, col1+col2 AS sum,
....

CHECK

לא עובר

ADD CONSTRAINTS cont.name

תווך ערכים

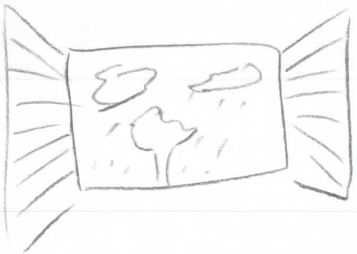
CHECK('col_name' IN(accepted values)

בודק שה-value שאני מכניס נמצא
בתווך ערכים מורשה שאני מגדיר
(value 1, value 2, ...)

CHECK work with

+	/	ו	×	(-)
And	OR	IN	NOT	BETWEEN

but not with SubQuery



VIEWS
(virtual table)

CREAT VIEW view.name AS

SELCT...

אני כותב את ה-select ...
קודם שהכל עובד ... ואז
מוסיף את CREATE view לפני

 a view

SELECT * FROM view.name

Constrains

- NOT NULL
- PK
- FK
- UNIQUE
- CHECK

view is like a Subq:

SELECT * FROM view.name

=

SELECT * FROM
(SELECT col1, col3 ...)
AS

אני חייב לציין AS כיוון שה-FORM
מצפה למשהו ... אם לא From What..?

view is a virtual table
but any operation I can
do on a table can B preform
on the view

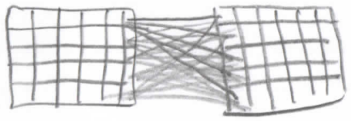
ה-view לא נשמר ב-DB
הוא נמחק אחרי שימוש

view

I CAN
DELETE FROM...
UPDATE
DROP VIEW

CROSS

SELECT tbl¹.clm¹, tbl².clm²,
FROM tbl¹,
CROSS JOIN tbl²,



takes each value from the 1st tbl and pair it with each value of the 2nd } exact

no' rows in table 1
*
no rows in table 2 — how many results
=
no rows in the join

used to test speed of the RDBMS — cons

#Help to figure up how to fix a join

SELECT tbl¹.clm¹, tbl².clm² — 2ème Syntax
FROM tbl¹, clm¹;

clm= column
tbl= table

INNER

SELECT columns,
FROM tbl¹,
INNER JOIN tbl²,
ON condition, //WHERE

combines the records from two tables using comparison operetors in a condition

#Equijoin =

ON tbl¹ שדה = tbl² שדה
רוצים רק את השורות בהן
PK ל- FK תואמה בין

#Non Equijoin < >

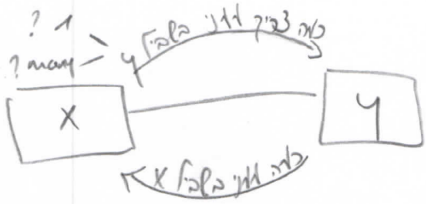
ON tbl¹ שדה <> tbl² שדה
רוצים רק את השורות בהן אין
PK ל- FK תואמה בין
(ההפך מ Equijoin)

Natural

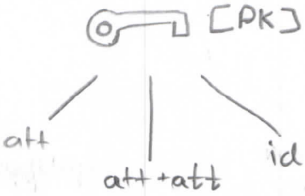
SELECT columns,
FROM tbl¹,
NATURAL JOIN tbl²,

works only if the
[PK] column name
=
[FK] column name

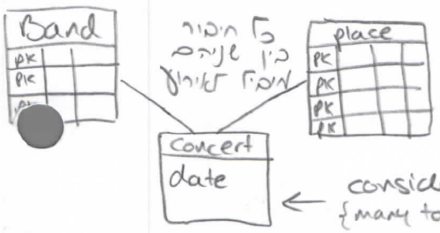
openclass



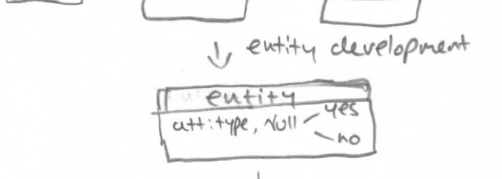
[PK] :
- 1. unique
- 2. never change
- 3. never null



Association Class



Class diagram (דיאגרמה)
↓
client review
↓
Finish the class diagram
↓
physical model
✓att ✓PK ✓att.type
✓accept/not NULL
✓relations (1:1, 1:many, many:many)



SQL Power Archi

1. יצירת כל הטבלאות
2. יצירת כל ה-columns
3. [PK] הגדרת
4. יצירת relation

FK = PK of the main table

types