



UNIVERSIDAD
PANAMERICANA

Introducción a las Bases de Datos

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Que se vio la clase pasada

Recordar es vivir!

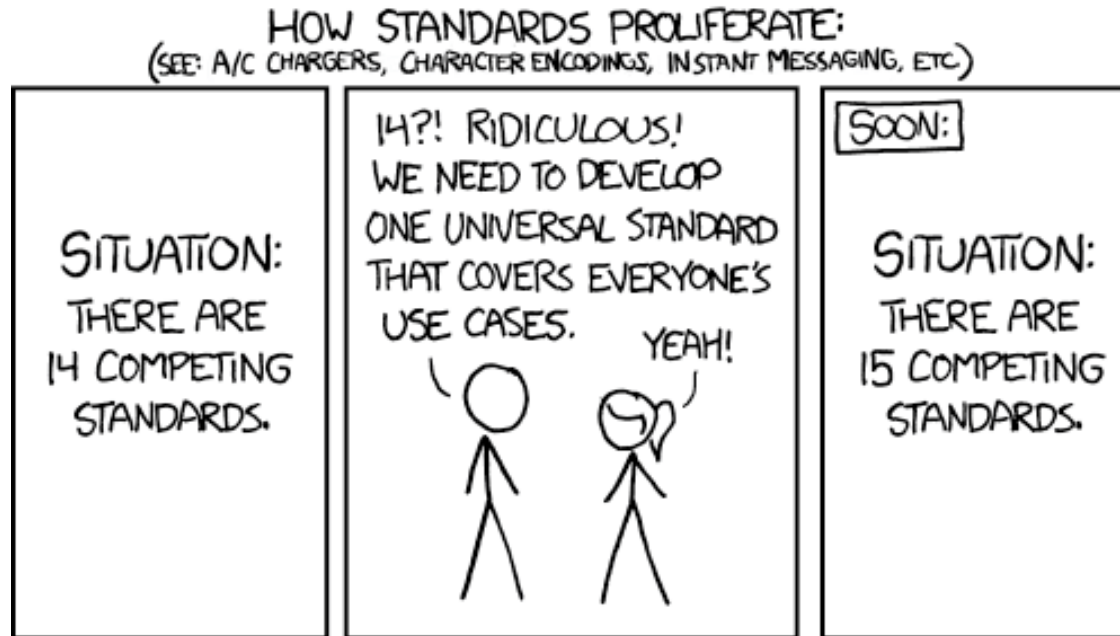
Por que habría otros modelos?

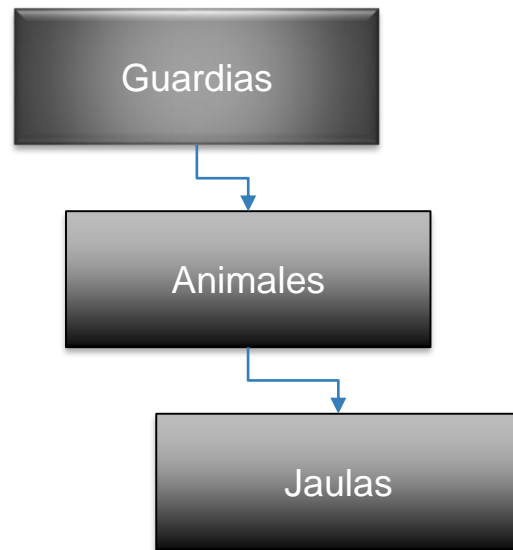
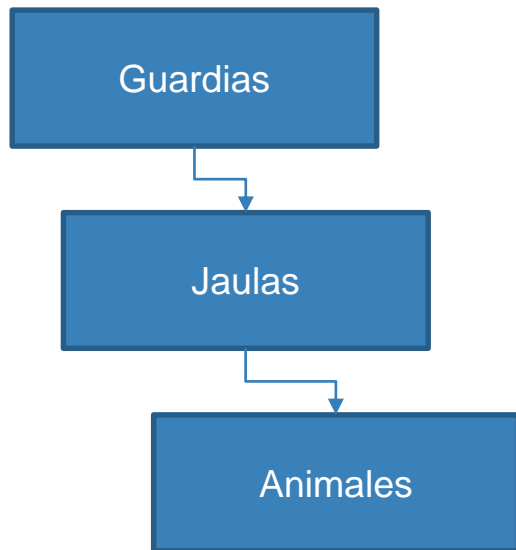


■ Hay 3 modelos principales:

- ▷ Jerarquico
- ▷ De red (network)
- ▷ Relacional

¿Por que estudiamos bases de datos viejas?





Bases de datos jerárquicas comerciales

IMS (IBM)

- ▶ Cada segmento tiene una hierarchichal sequential key (HSK)

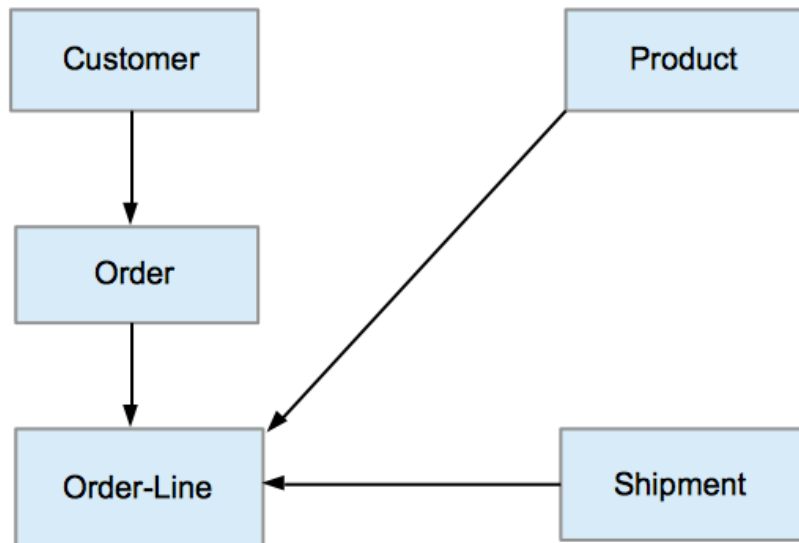
Lenguaje propio:

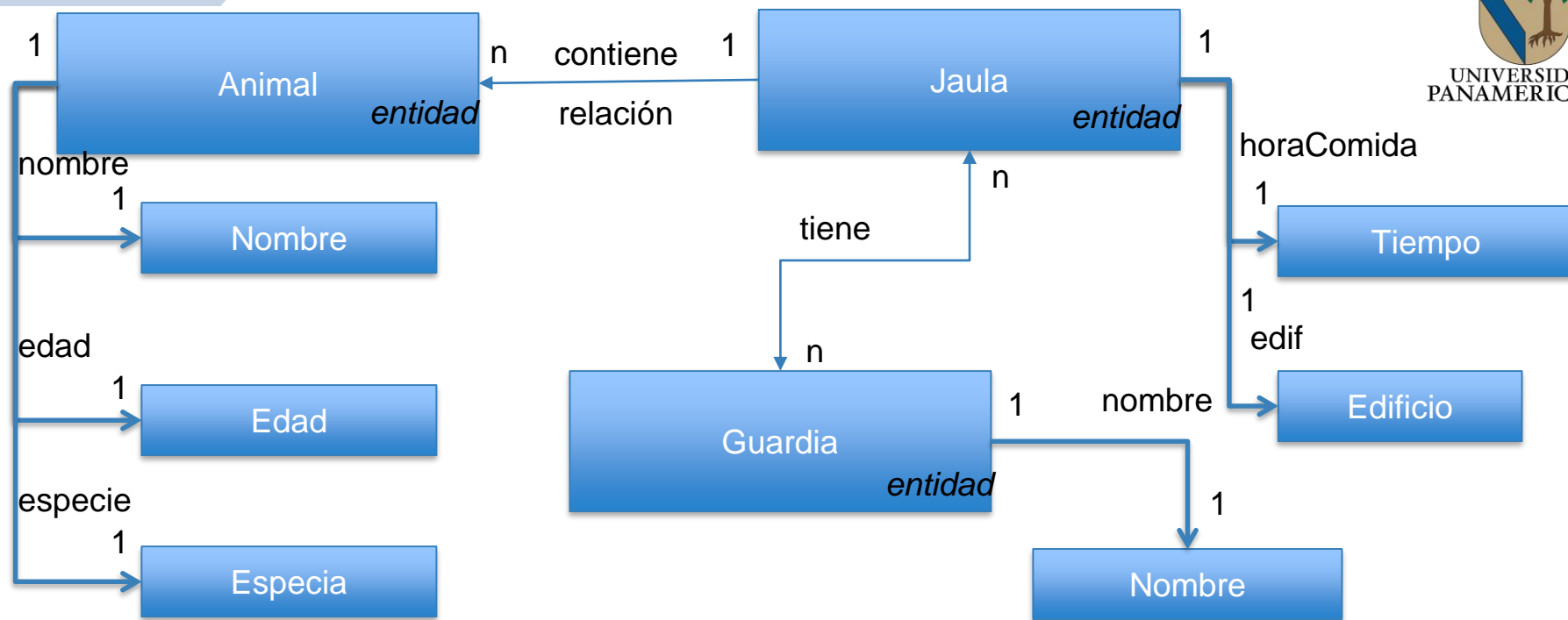
- ▶ Encontrar todos los guardias de la jaula 5
 - ▶ GU Guardia
 - ▶ GNP Jaulas (id = 6)
 - ▶ Until no more
 - ▶ GN Guardia
 - ▶ GNP Jaulas (id = 6)



Initial release	1966; 52 years ago
Stable release	IMS V15 / October 3, 2017; 10 months ago
Operating system	z/OS V2.2 or later
Platform	IBM System z
Type	Database & transaction processing subsystem
License	proprietary
Website	IBM IMS Product Page

Base de Datos de Red





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Normalización

Bases de Bases de Datos

Evil

***bad design is not just
ugly, it is dangerous***

- M. Cobanli

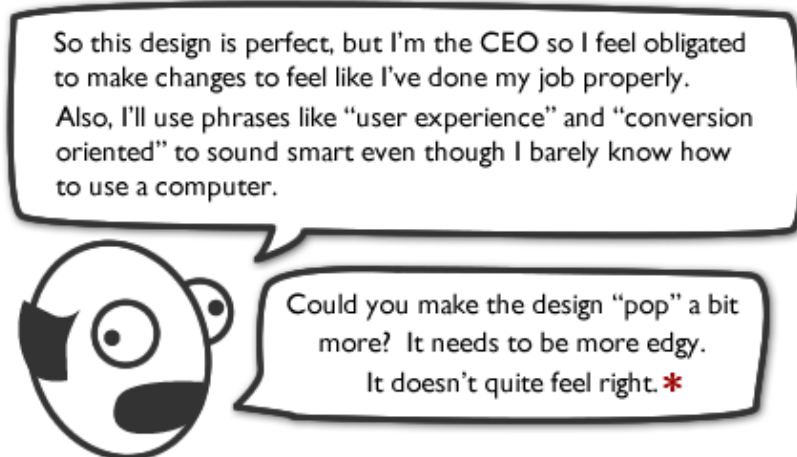
EMBRACE THE COMPETITION.

A'DESIGN AWARD
& COMPETITION 

You re-design the website.
It looks nice and works well. This is the high point of the design.



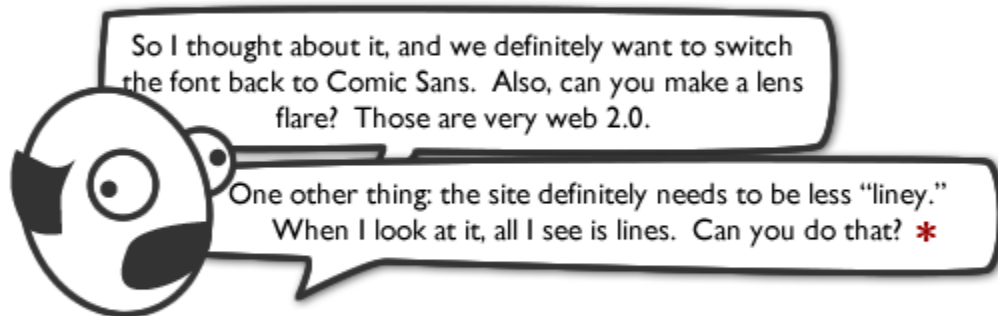
Just a few “minor” changes.



* Author's note: Clients have actually said all these things to me. To this day I still don't know what “pop” or “edgy” mean in regards to web design. I also don't know how to design websites based on someone else's feelings.

Minor changes start to add up

Soon they become not-so-minor



* Author's note: a client actually said this to me. The design had no horizontal rules or lines of any kind, they were referring to the rectangular shape created by things such as `<div>` or `<p>` tags.

The client gets others involved

“Looks great, but I want to get feedback from my friend, co-workers, uncle, pet hamster, etc”



* Author's note: I actually had a client include their mother in the design process so she could provide feedback and criticism.

All hope is lost

You begin to fantasize about other careers, like someone who digs ditches for a living or gives sponge baths to the elderly.



Ok so my dog, Miffles, is a big deal. He's basically the most important part of my life. I want you to add "stream of consciousness" copy to the web page, where it's like Miffles is talking to the user. I'll send you a few pages of narration of what Miffles is probably thinking about, such as "I love tasty treats!" and "Hello! Welcome to my website! I am a dog and you should shake my paw! LOL" *

* Author's note: I did not make this up - a client **actually** made this request. I've never come closer to braining someone with a car battery as I did that day.

You are no longer a web designer

You are now a mouse cursor inside a graphics program which the client can control by speaking, emailing, and instant messaging.



* Author's note: I once had a client take my design and start revising it themselves in photoshop. They would then send me updated versions of how they felt it should look. After the 13th revision I fired the client.

An abomination is born

The client has completely forgotten that they hired *you*, the web designer, to build them a great product.

If you were an engineer designing the turbine of a commercial airplane, would they interfere then, I wonder?



Hello! Welcome to our website! I am miffles!
I love treats and biscuits! LOL
P.S. My owner is a retard



The Toast

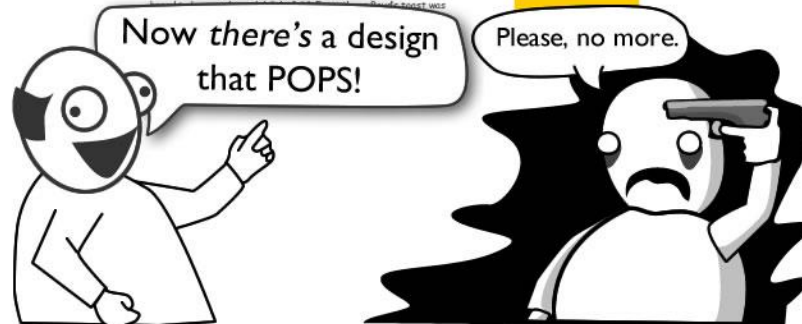
Boyd's has been in business since 2003 selling toast which pretty much changed the world. When you eat our toast, your mouth is taken on an enchanting journey of awe and wonder. [Click here](#)

A Little History

Matthew Boyd Zinnman was sitting in his kitchen one day eating bread. He thought to himself "This is super lame! I want this toast to be better." [Click here](#)

Flavors

Burnt to Perfection
Bacon Toast
Lightning Toast
[More Flavors](#)



Esto también pasa con las bases de datos (y cualquier cosa que implique diseño)



The Oatmeal

■ Hay tres tipos de errores:

- ▶ Anomalía de Actualización (update anomaly)
- ▶ Anomalía de Inserción (insertion anomaly)
- ▶ Anomalía de Borrado (deletion anomaly)

- Los errores son efectos secundarios de un mal diseño de base de datos.
- En el diseño de una base de datos, se deben de atender estos errores.
- Cuando uno hace las bases de datos al “aventón” no se fija en estos errores.

- Nos contrata una innovadora startup que va a revolucionar el futuro de la música.



- Vamos a minar el Billboard 100 para obtener una base de datos de artistas.



Normalización

Se repite



Nombre Artista	Id	Canción	Ranking	Disquera
Drake	012354	In my feelings	1	Young Money
Maroon 5	025644	Girls you like	2	Interscope
Cardi B	023245	I like It	3	Atlantic
Bad Bunny	031548	I like It	3	Atlantic
Drake	012354	Nice for What	12	Young Money

■ Anomalía por actualización

Nombre Artista	Id	Canción	Ranking	Disquera
Drake	012354	In my feelings	1	Young Money
Maroon 5	025644	Girls you like	2	Interscope
Cardi B	023245	I like It	3	Atlantic
Bad Bunny	031548	I like It	3	Atlantic
Drake	012354	Nice for What	12	Old Money

■ Que error se cometió en el diseño original?

- Que error se cometió en el diseño original?
 - Se repite información para el mismo artista.
 - Se requieren hacer múltiples actualizaciones para garantizar consistencia.

Normalización

Nombre Artista	Id	Último Ranking	Disquera
Drake	012354	1	Young Money
Maroon 5	025644	2	Interscope
Cardi B	023245	3	Atlantic
Bad Bunny	031548	3	Atlantic

Nombre Artista	Id	Último Ranking	Disquera
Drake	012354	1	Young Money
Maroon 5	025644	2	Interscope
Cardi B	023245	3	Atlantic
Bad Bunny	031548	3	Atlantic

León UP

031549

■ Anomalía por Inserción

Nombre Artista	Id	Último Ranking	Disquera
Drake	012354	1	Young Money
Maroon 5	025644	2	Interscope
Cardi B	023245	3	Atlantic
Bad Bunny	031548	3	Atlantic

León UP

031549

■ Que error cometimos?

- ▶ Al no estar familiarizados con el negocio, pusimos demasiados campos.
- ▶ Hicimos campos llaves, campos que no necesariamente están para todos.
- ▶ No pensamos que iba a pasar con nuevas entradas.

Normalización

Nombre Artista	Id	Último Ranking	Disquera
Drake	012354	1	Young Money
Maroon 5	025644	2	Interscope
Cardi B	023245	3	Atlantic
Bad Bunny	031548	3	Atlantic

■ Que pasaría si la disquera deja de existir?

Nombre Artista	Id	Último Ranking	Disquera
Drake	012354	1	Young Money
Maroon 5	025644	2	Interscope
Cardi B	023245	3	Atlantic
Bad Bunny	031548	3	Atlantic

■ Que error se cometió:

- ▶ Al poner el campo disquera, este se vuelve tan importante como el de artista.
- ▶ Al borrar una disquera, podemos borrar al artista.
- ▶ Se puede poner NULL
 - ▶ Y si es campo llave?

- Una base de datos normalizada:
 - ▶ Permite que la estructura se extienda, sin tener que hacer mayores cambios al diseño original.

■ Tuvimos que cambiar campos y entradas!

Nombre Artista	Id	Canción	Ranking	Disquera
Drake	012354	In my feelings	1	Young Money
Maroon 5	025644	Girls you like	2	Interscope
Cardi B	023245	I like It	3	Atlantic
Bad Bunny	031548	I like It	3	Atlantic
Drake	012354	Nice for What	12	Young Money

- Por que creen que es necesario mantener la estructura lo mas estable posible?

■ La estabilidad ayuda:

- ▶ A que las aplicaciones no tengan que reescribirse.
- ▶ A que los Query sean “constantes” con los cambios.
- ▶ A que las vistas sigan existiendo.

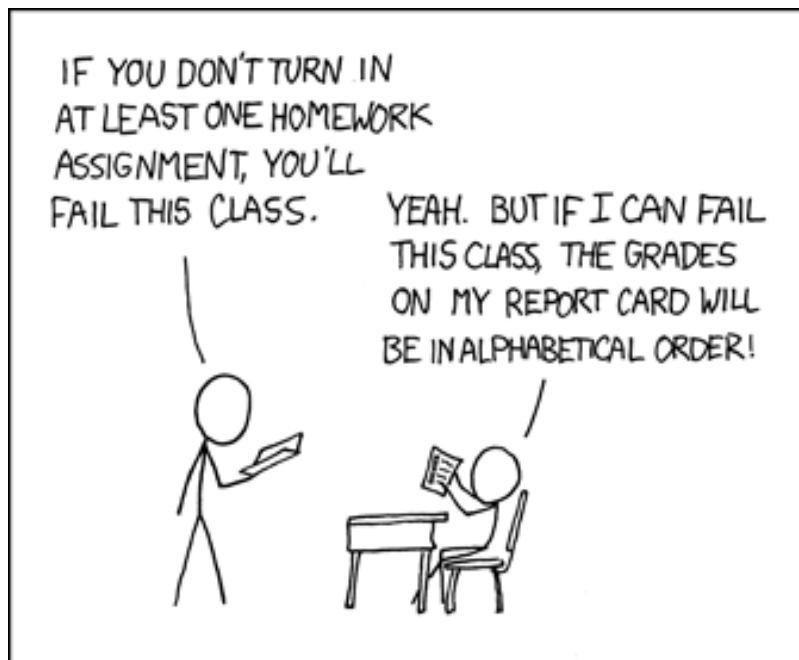
■ Se crearon las formas normales:

- ▷ Quién las creó?
- ▷ Con que se comen?
- ▷ Para que sirven?

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Tarea

Hay que trabajar en casa!



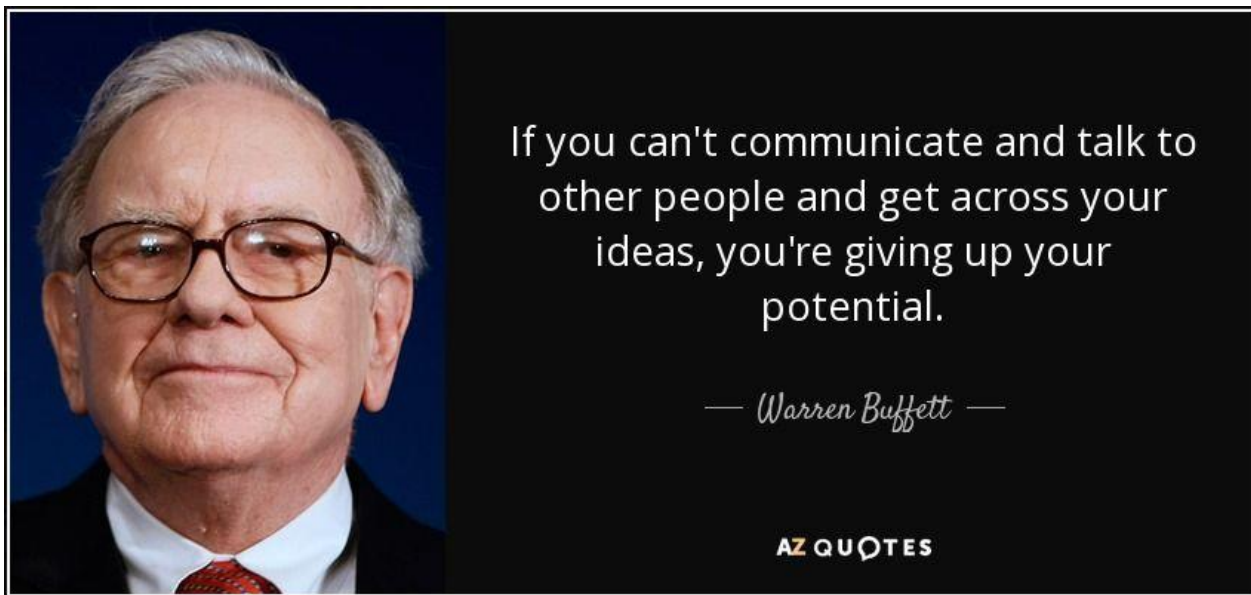
Tarea

■ Investigar y reportar que son:

- ▷ Formas Normales
- ▷ Tipos de Forma normal
 - ▷ UNF, 1NF, 2NF, 3NF

■ Puntos extras:

- ▷ 4NF, 5NF, 6NF



QUESTIONS?