Visual database modeling with PgMDD

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PgMDD

stands for

MicroOLAP Database Designer
for PostgreSQL

HOLUB!!!

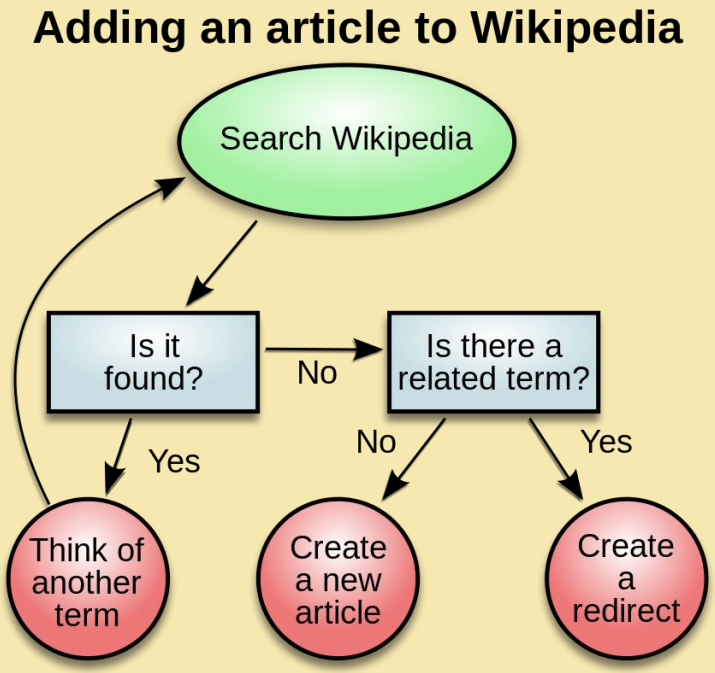
SLONIK!!!

Visual Data Modeling

Definition of visual modeling

Definition of visual modeling

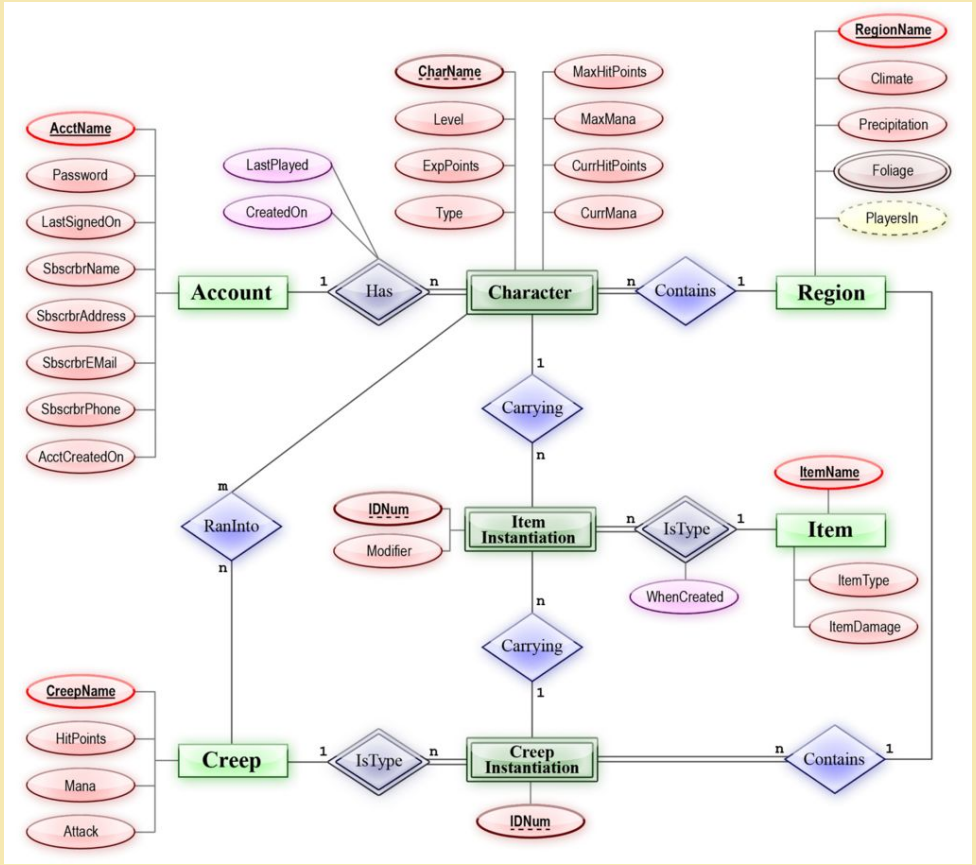
- Visual modeling is modeling using standard graphical notations



Sample flowchart representing the decision process to add a new article to Wikipedia.

Definition of visual modeling

- Visual modeling is modeling using standard graphical notations
- **Collection of visual objects for describing data, relationships, semantics and consistency constraints**



An entity–relationship diagram using Chen's notation

Definition of visual modeling

- Visual modeling is modeling using standard graphical notations
- Collection of visual objects for describing data, relationships, semantics and consistency constraints
- **Data model is conceptual representation of structures used for expressing and communicating bussines requirements**

Definition of visual modeling

- Visual modeling is modeling using standard graphical notations
- Collection of visual objects for describing data, relationships, semantics and consistency constraints
- Data model is conceptual representation of structures used for expressing and communicating bussines requirements
- **Data model visualy represents nature of data, rules and processes, and how it will be organized in database**

Visual Data Modeling

Purposes of visual modeling

Purposes of visual modeling

- **Communication Tool:**
  - **use to capture bussiness logic, then analyze and design your database**

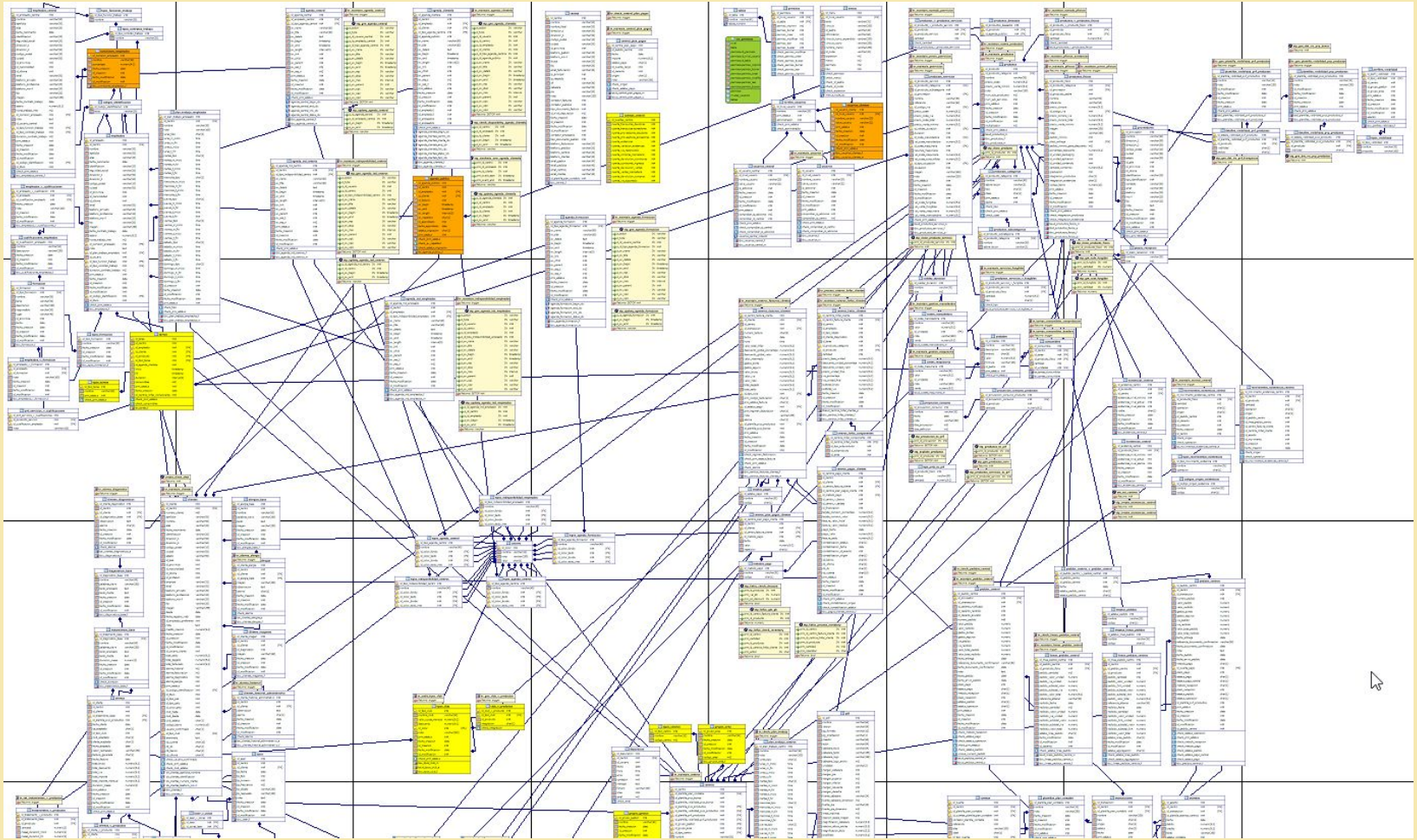
Communication is a key to success!

Purposes of visual modeling

- Communication Tool:
  - use to capture bussiness logic, then analyze and design your database

- **Manages Complexity:**
  - **human mind can hold up to 7 objects at once**

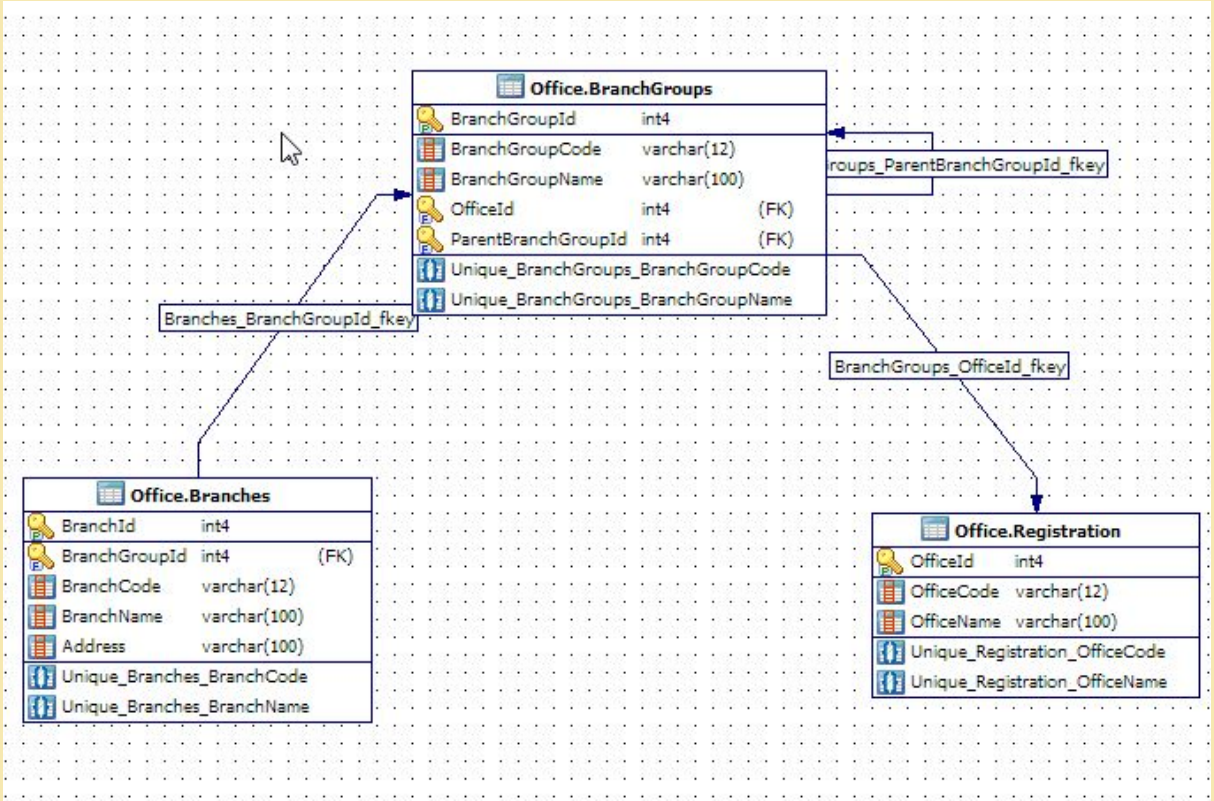
Blame ~~Magnus~~… them! #blamemagnus



No, really! I know how pain may look like...

Purposes of visual modeling

- Communication Tool:
  - use to capture bussiness logic, then analyze and design your database
- Manages Complexity:
  - human mind can hold up to 7 objects at once
- **Promotes reuse:**
  - **some models may be the parts of bigger one, or may be used as templates**



Some usual stuff...

Visual Data Modeling

Abstraction levels of diagrams

Abstraction Levels of Diagrams:

Conceptual

- WHAT subject area consists of
- Made by business / system analyst
- Information gathered from business requirements
- Defined using human readable representation
- The need of satisfying the database design is not considered yet
- Conceptual ERD is the simplest model among all

Abstraction Levels of Diagrams:

Logical

- HOW the system should be implemented regardless of DBMS
- Made by data architect
- Information also gathered from business requirements
- Column types are set (optionally)
- It has nothing to do with database creation yet

Abstraction Levels of Diagrams:

Physical

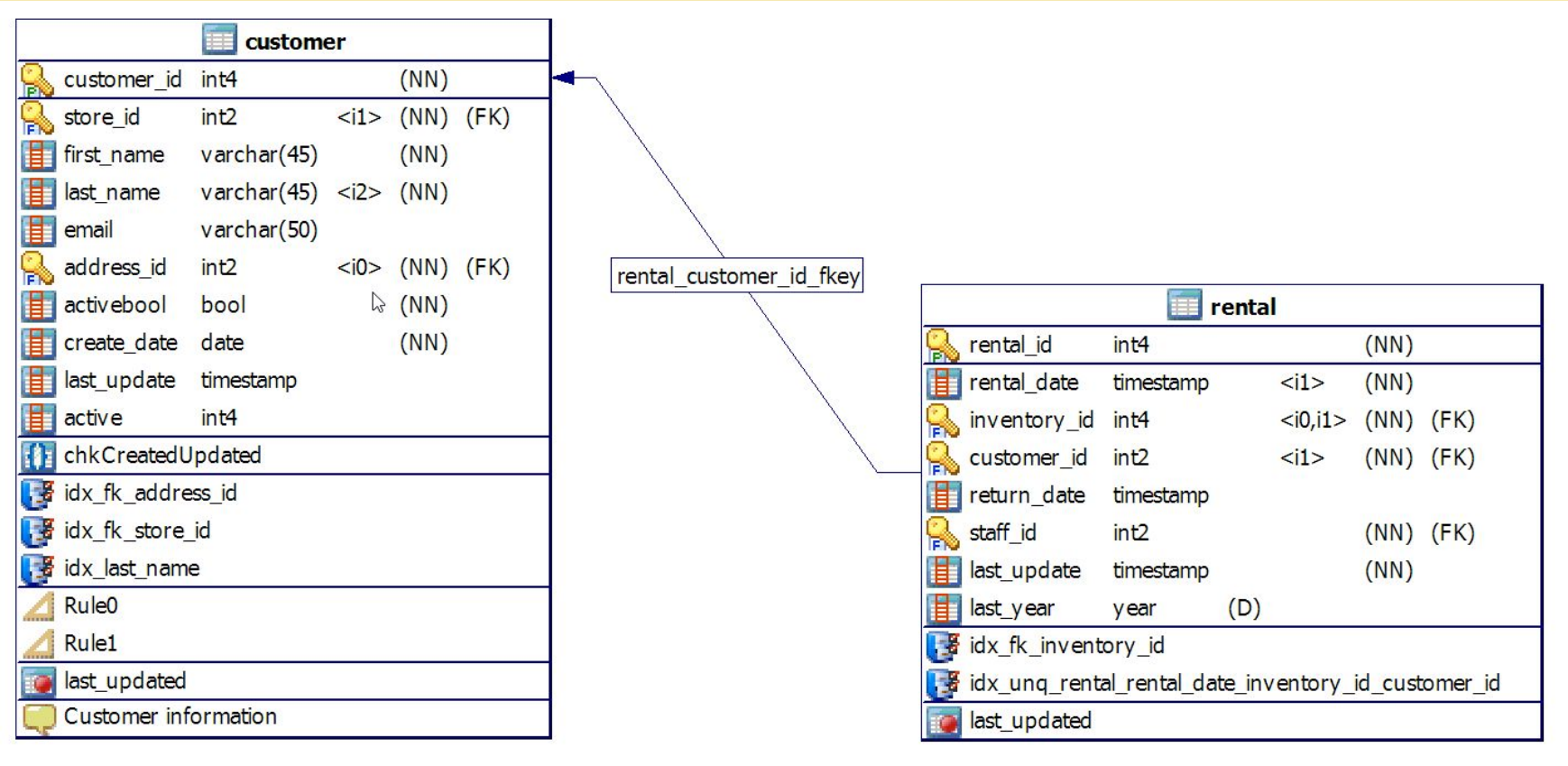
- HOW the system will be implemented using a specific DBMS
- Made by database administrator
- Represents the actual design blueprint of a database
- Convention and restriction of the DBMS should be considered
- Use of data type is needed for entity columns
- Specific features may be added to the diagram (views, rules, triggers etc.)

Objects notations

Used in PgMDD

Tables

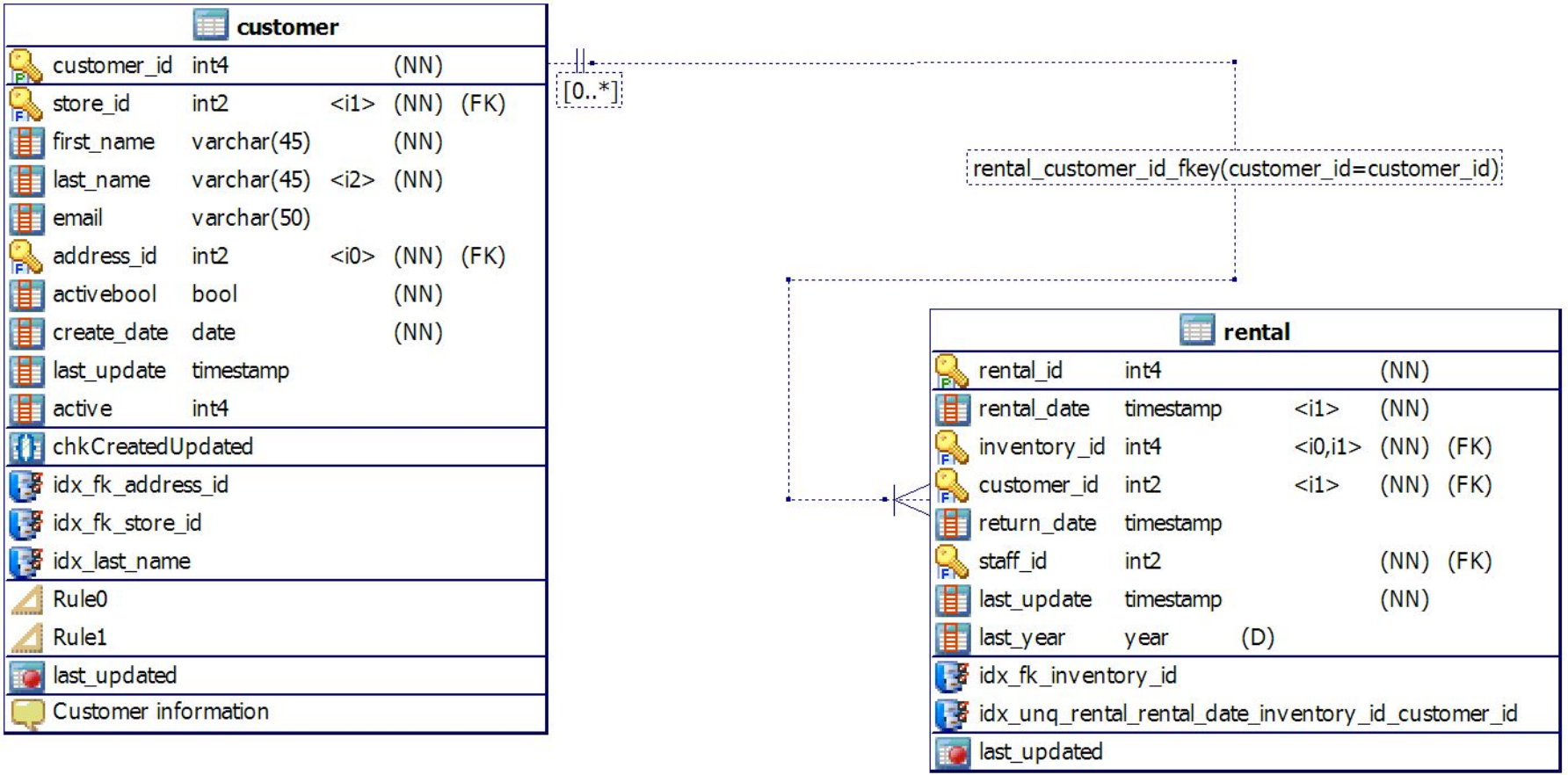
- Represented as rectangles
- Attributes listed as rows
- Attributes properties described in columns
- Comments may be displayed in the bottom



Tables notation

Relationships

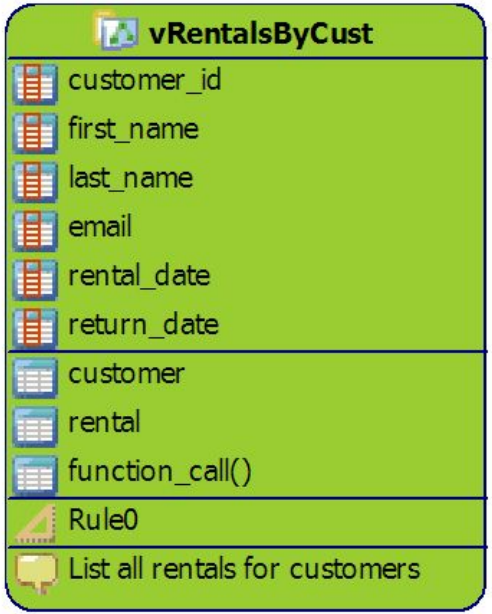
- Represented as connections
- May have arrows aka Bachman notation
- May have Crow's foot notation
- Labels with additional info are attached
- There is possibility to add custom points



References notation

Views

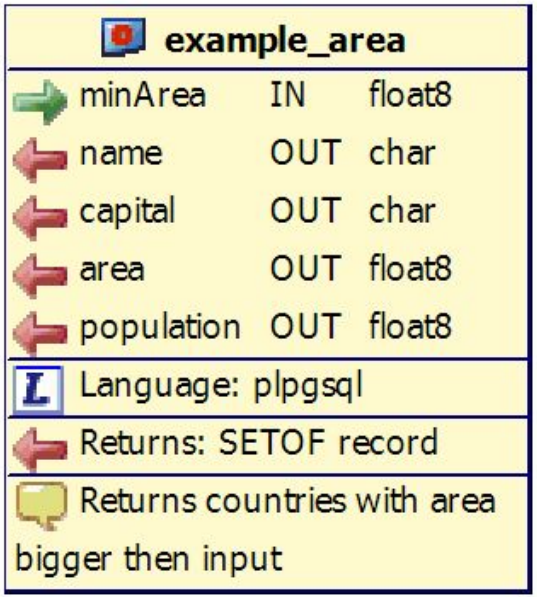
- Represented as rectangles with rounded corners
- Attributes parsed from SQL
- Comments may be displayed in the bottom

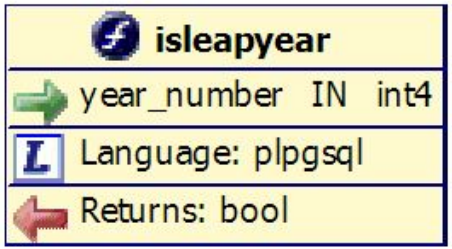


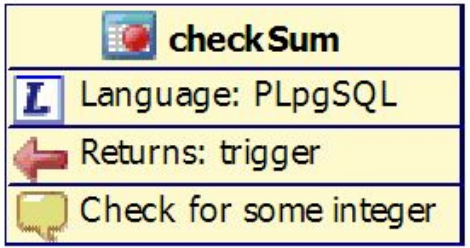
Views notation

Stored routines

- Represented as rectangles
- Parameters listed as rows
- Language used displayed
- Comments may be displayed



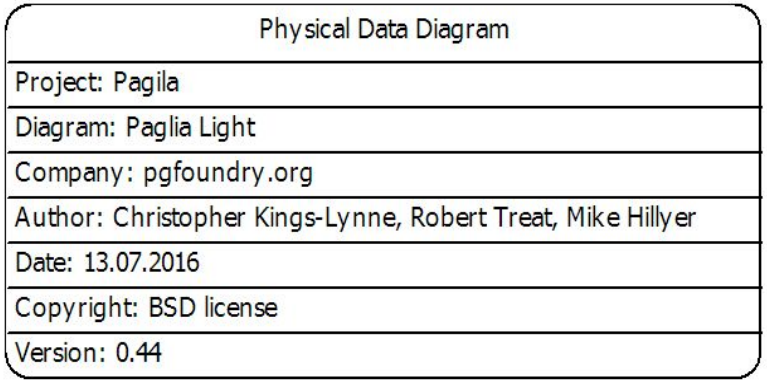




Views notation

Stamps and Notes

- Special objects without underlying database representation
- Used to display custom diagram information



Pagila is a port of the Sakila example database available for MySQL, which was originally developed by Mike Hillyer of the MySQL AB documentation team. It is intended to provide a standard schema that can be used for examples in books, tutorials, articles, samples, etc.

The schema and data for the Sakila database were made available under the BSD license which can be found at http://www.opensource.org/licenses/bsd-license.php. The pagila database is made available under this license as well.

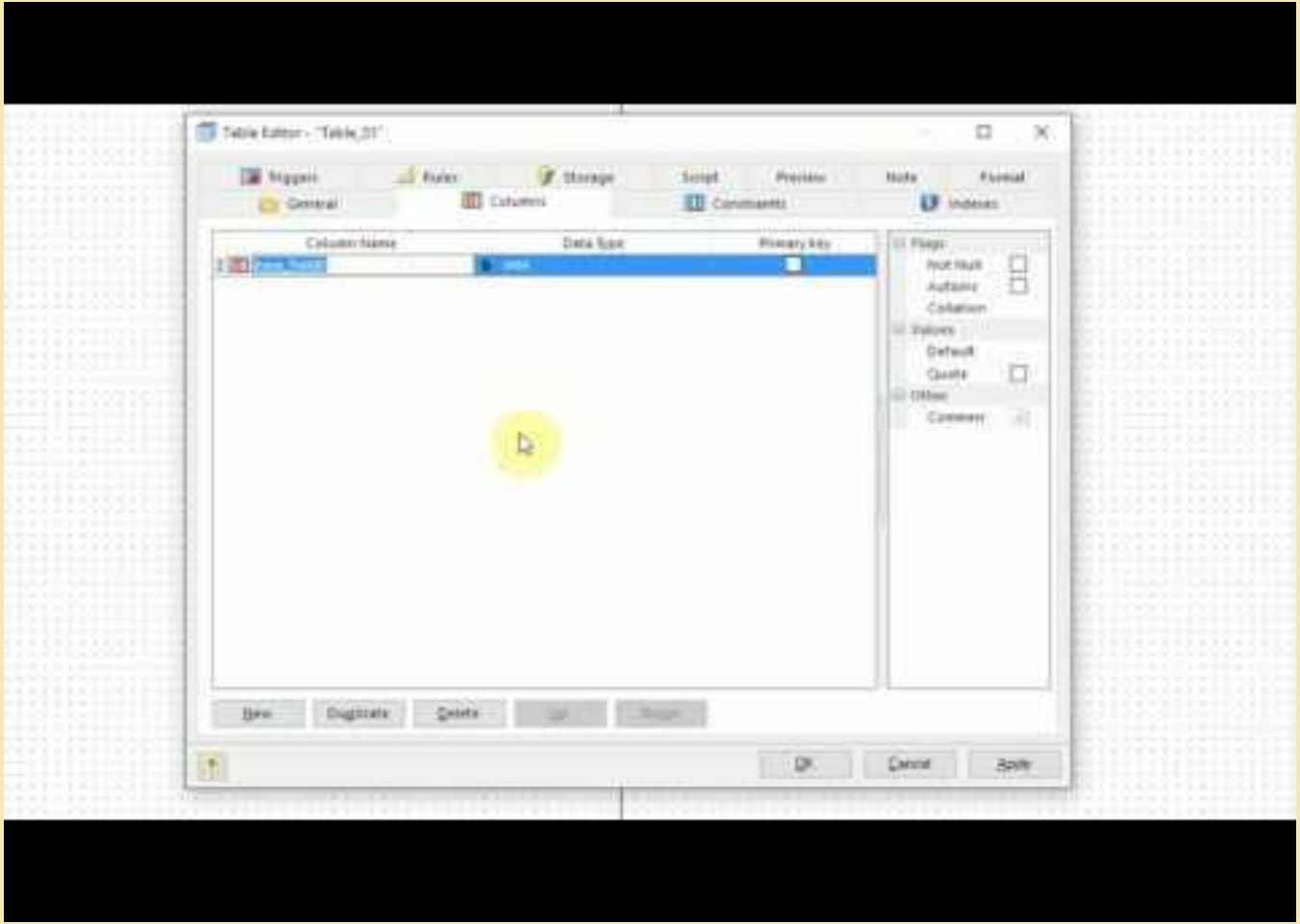
Stamps and Notes notation

Main workflows

Creating model and generating the database

Creating and Editing Tables

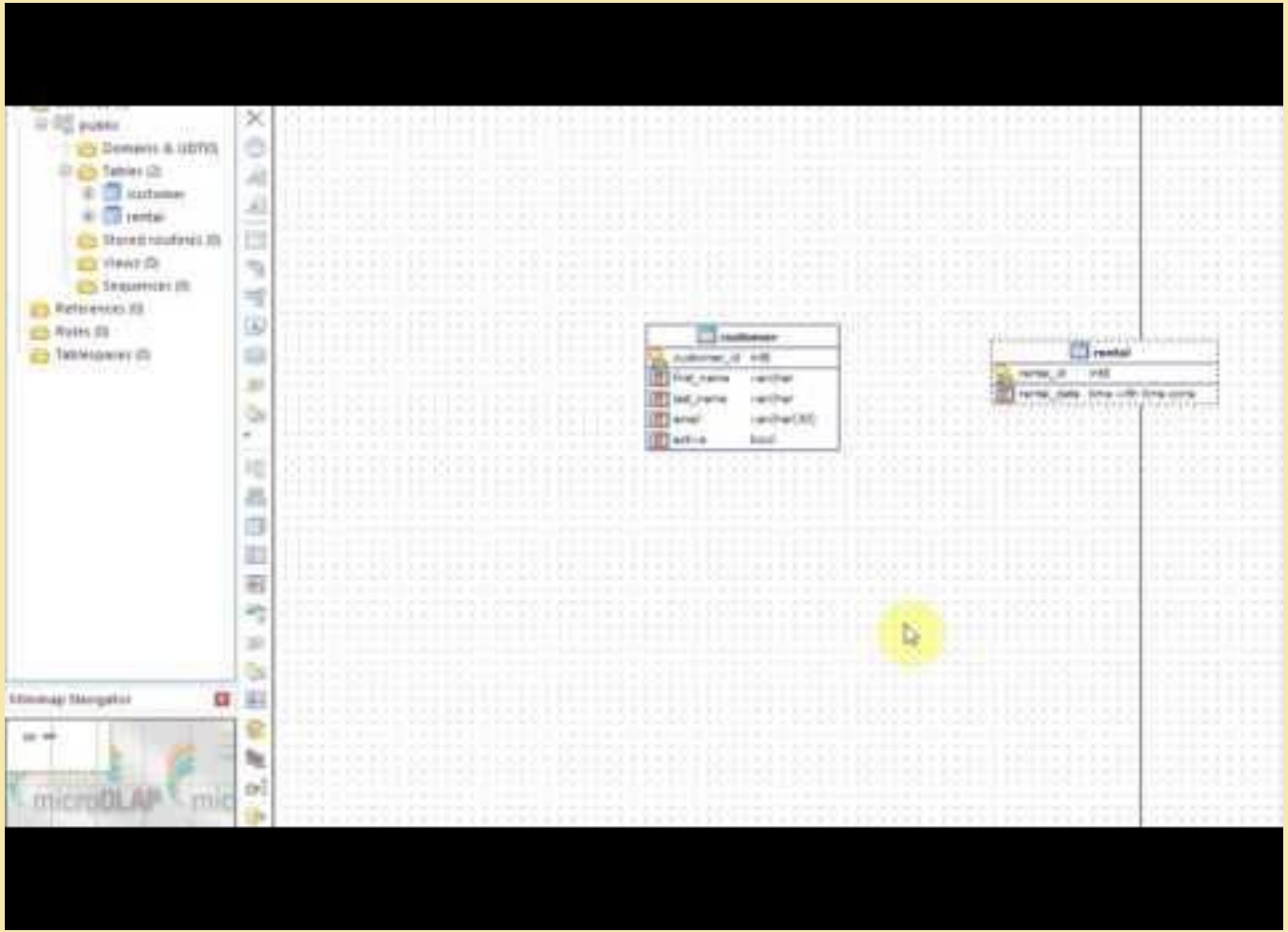
- Identifying attributes (columns, fields)
- Defining the attribute's data type
- Assigning keys
- Introducing constraints
- Adding indexes, rules, triggers
- Formatting



How to create a table: https://youtu.be/kO3Xd_9nEjo

Determine relationships

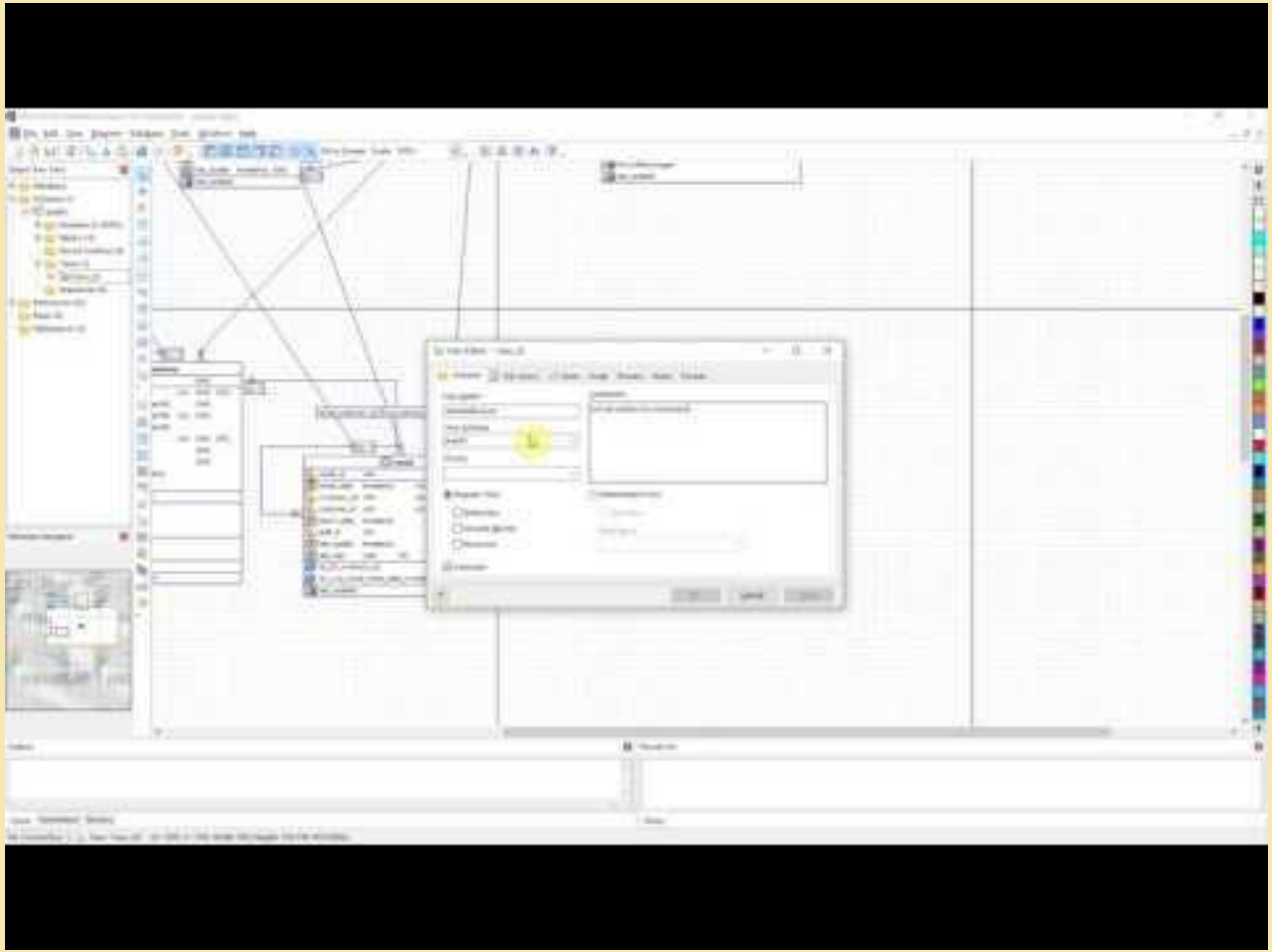
- Identify their cardinality
- Identifying connection
- Manage constraints



How to create a reference: https://youtu.be/wRvjBf5HVZI

Creating views

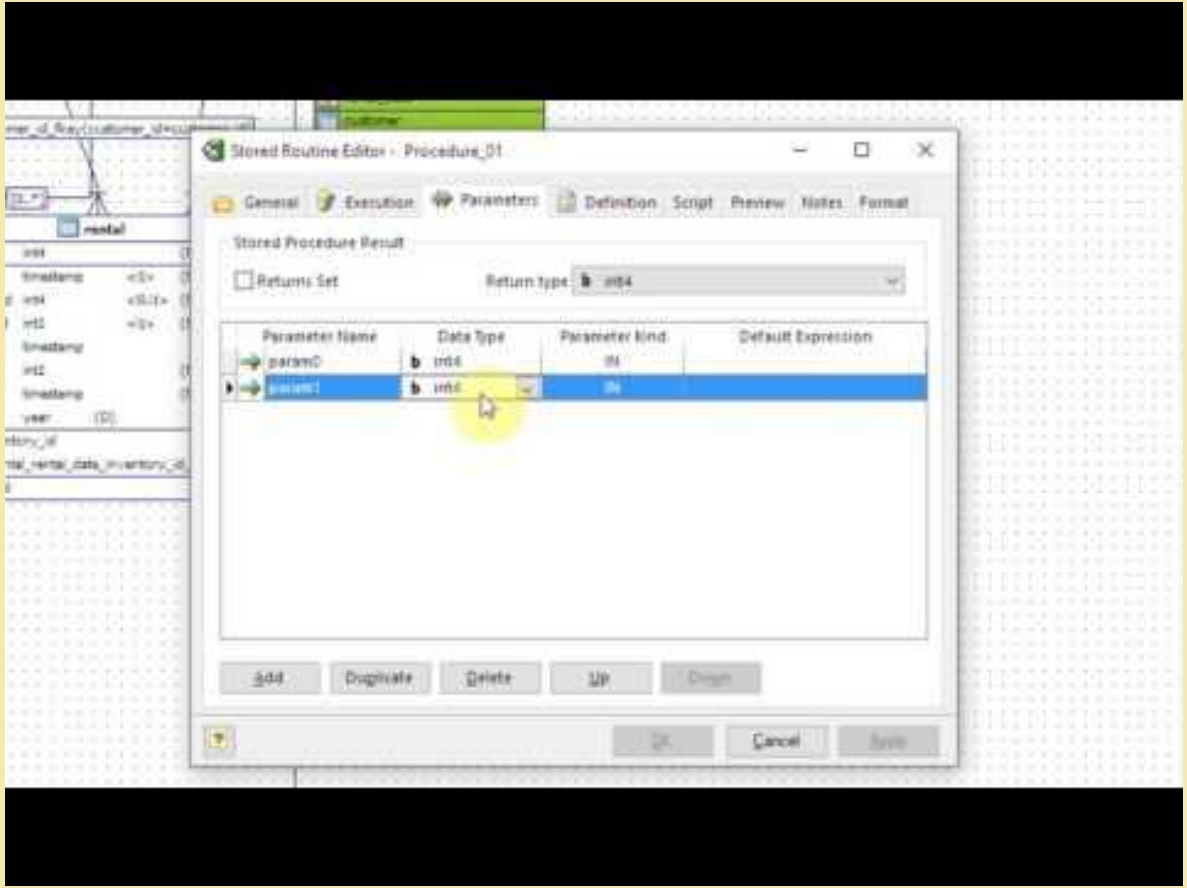
- SQL
- Rules
- Formatting



How to create views: https://youtu.be/saKDlUgal0s

Adding stored routines

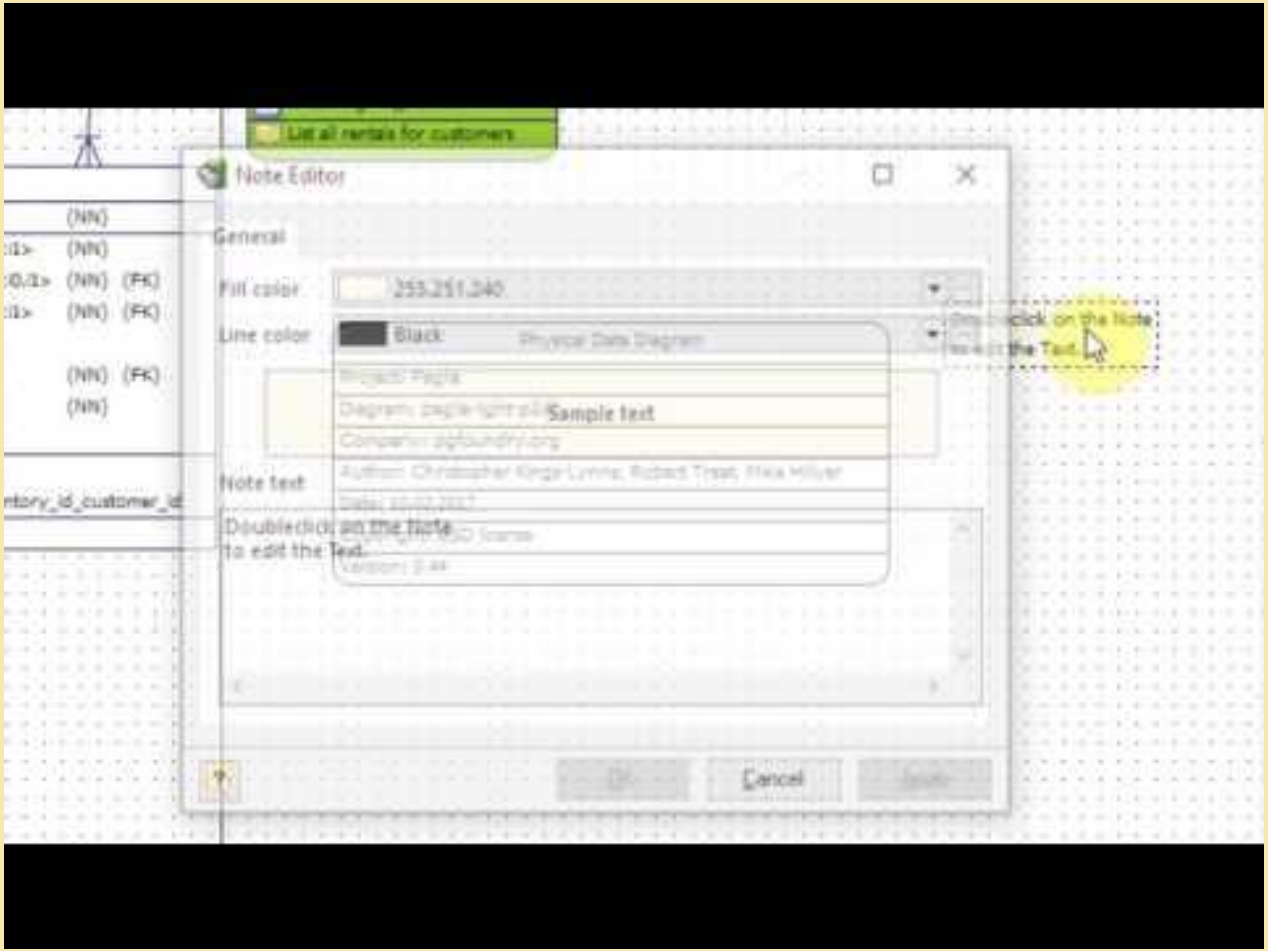
- Parameters
- Source



How to create stored routines: https://youtu.be/lZROhgMQaus

Stamp and Notes

- Stamps
- Notes



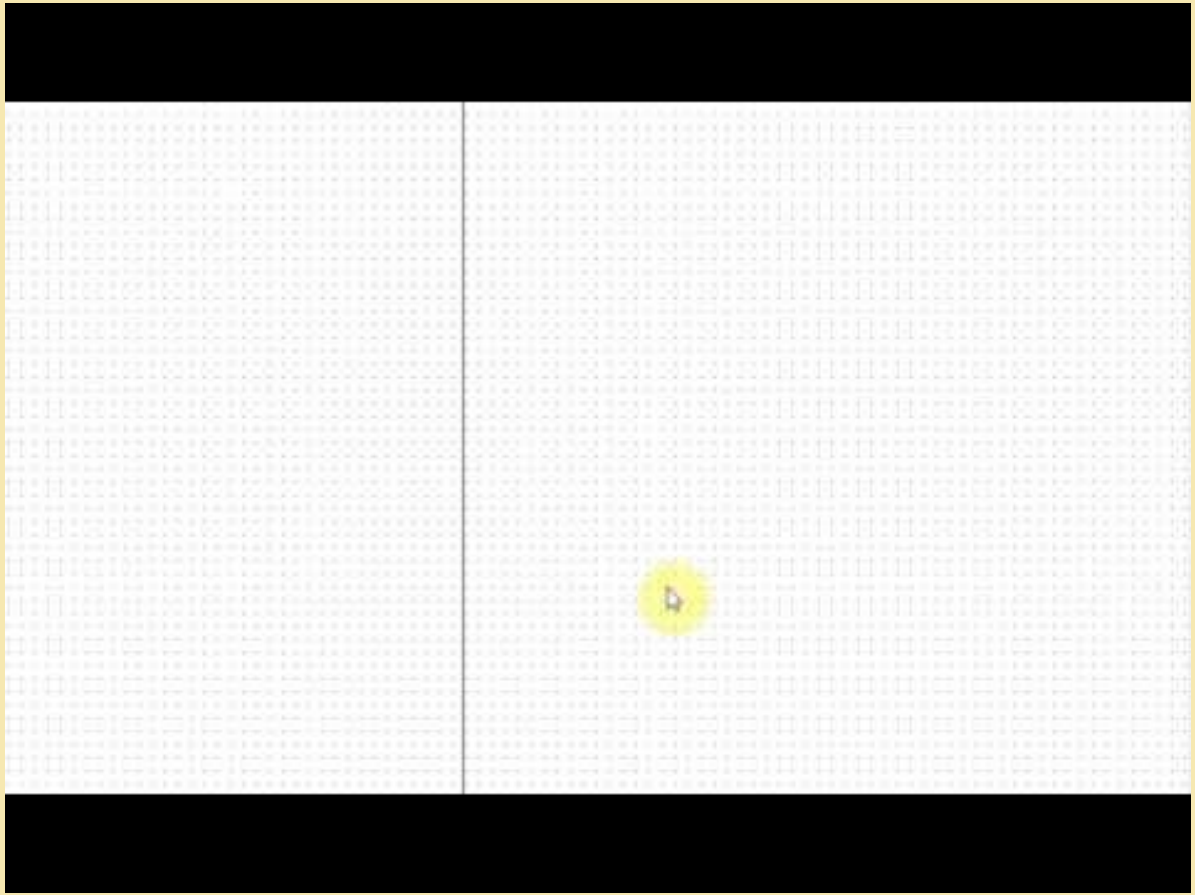
How to create stamps and notes: https://youtu.be/31d7f--5bxU

Main workflows

Reverse Engineering
(import) of the database

Reverse Engineer PostgreSQL database

- Connection
- Selection



How to reverse engineer (import) PostgreSQL database: https://youtu.be/pj3-3VkW3qM

Reverse Engineering (import) of database

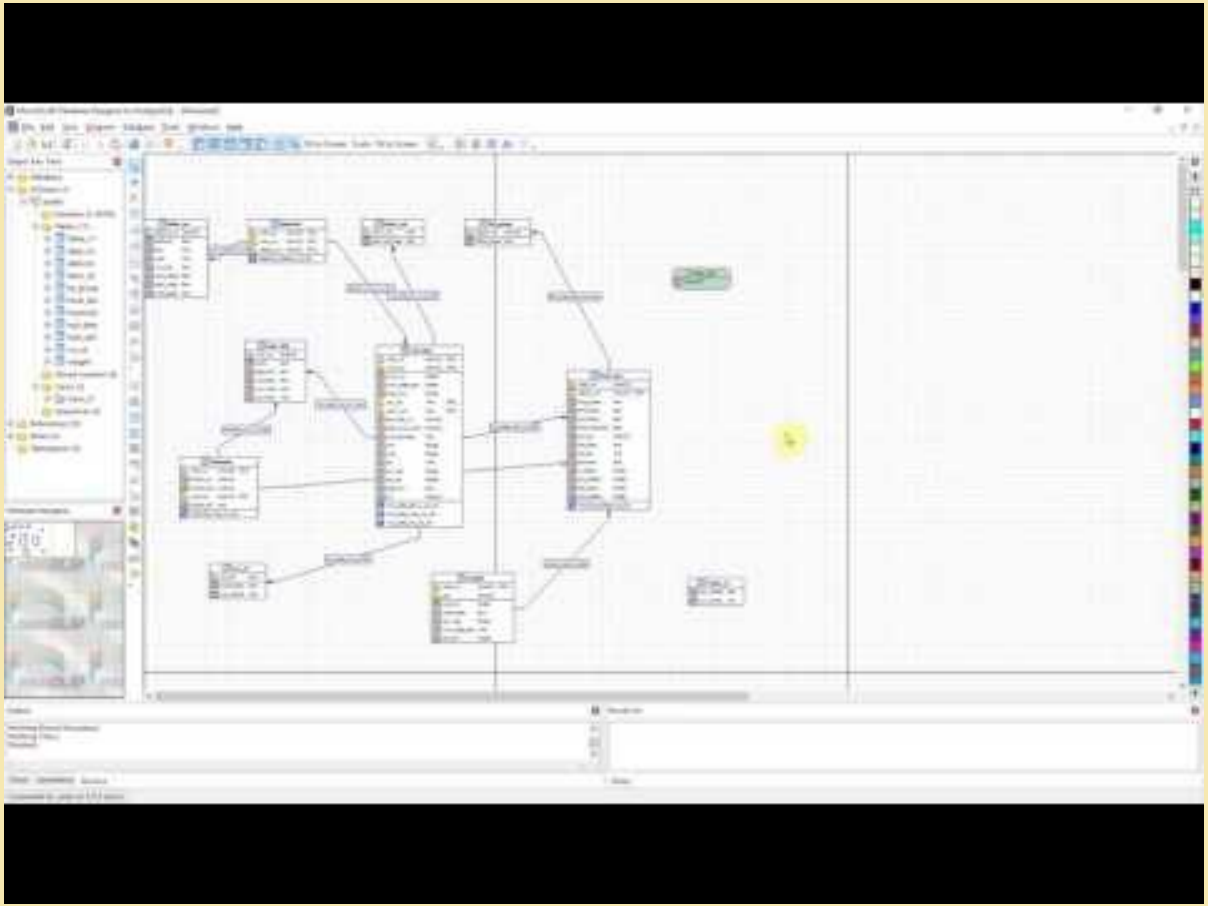
- Import from SQL script
- Import from MS Access
- Universal Reverse Engineering

Main workflows

Modifying the database

Modifying the database

- what objects should be affected
- what to do with affected objects
- generate script to apply modification in one transaction



How to modify PostgreSQL database: https://youtu.be/WCxqhq4Hojo

Main workflows

Documenting

Documenting

- Export as image
  - .jpg, .png, .gif, .bmp
  - .emf
  - file per page
- Printing
- Create report

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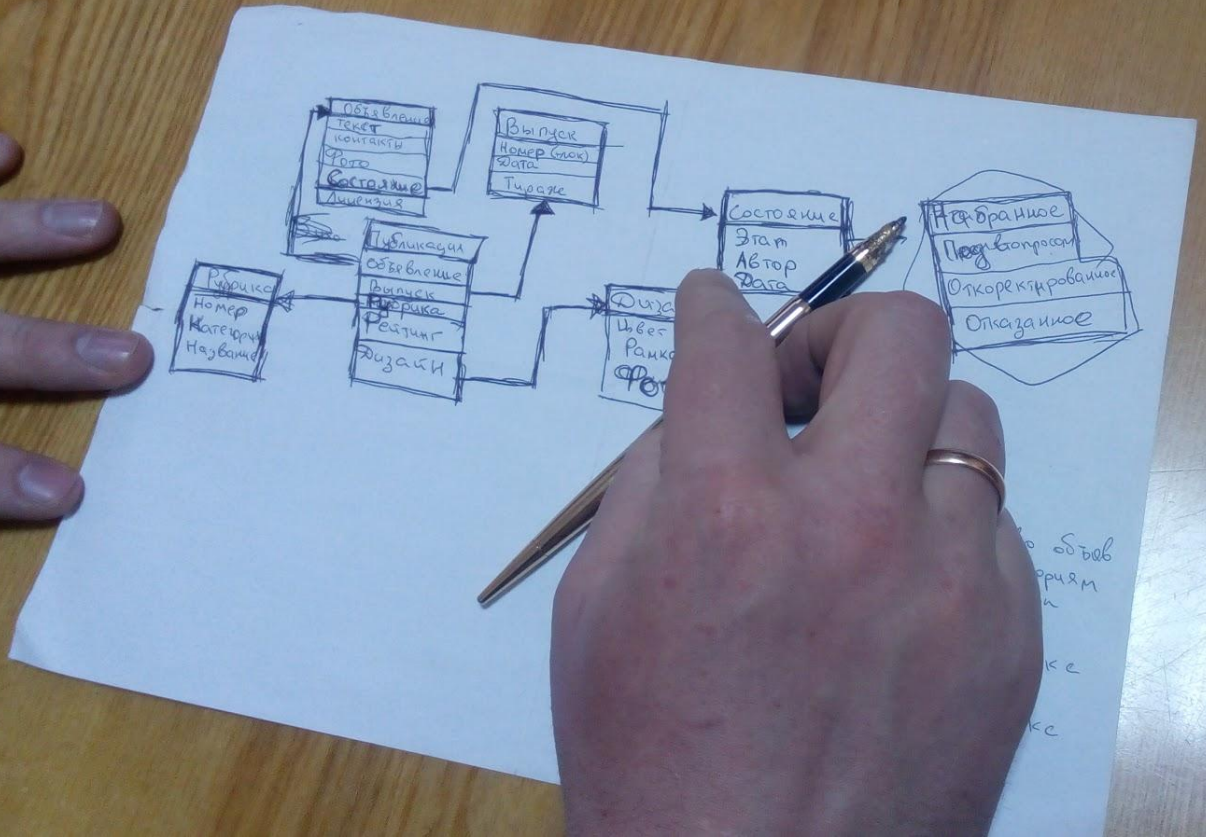
Объявление
текст
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Фото
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Выпуск
Номер (тек)
Дата
Тираж
Состояние
Этап
Автор
Дата
Набранное
Подвопросом
Откорректированное
Отказанное
Публикация
Объявление
Выпуск
Рубрика
Рейтинг
Дизайн
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Номер
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