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## Planning :

Proposition 15 was chosen to be theme of the website, First Website's functionality and Data models was detailed and documented like this :

- Self-Installation in the first use :
  - Database creation + Tables
  - Creation of an Admin account with CEO privileges
- Admin management:
  - Admin Model:
    - ID: Unique identifier number
    - Username: Admins username, used in authentication
    - Password: Admins password, used in authentication
    - IS CEO : Yes : Admin with CEO privileges
  - **Only an admin with CEO privileges** can Add/Edit/Delete admins accounts
- Materials Management:
  - Material Model:
    - ID
    - Name: Name of material
    - IS Available(is\_free): Yes : material is available and can be rented
    - Number of rents
    - Clients list: Hold client's id who rented this material
    - Image path: Hold image file name , default image : default.png
  - **Only logged in admin** can Add/Edit/Delete materials
- Clients Management:
  - Client Model:
    - ID

- First name

- Last name

- Email

- Phone number

- Status : Hold an int of violations + 1 , used to punish clients who reach specific number of violations

- **Only logged in admin** can Add/Edit/Delete clients

- Rents Management:

- Rents Model:

- ID

- Client ID : Holds client's id who rented

- Material ID : Hold material's id who got rented

- Price

- Creation date

- Deadline date : Holds date when the rent ends

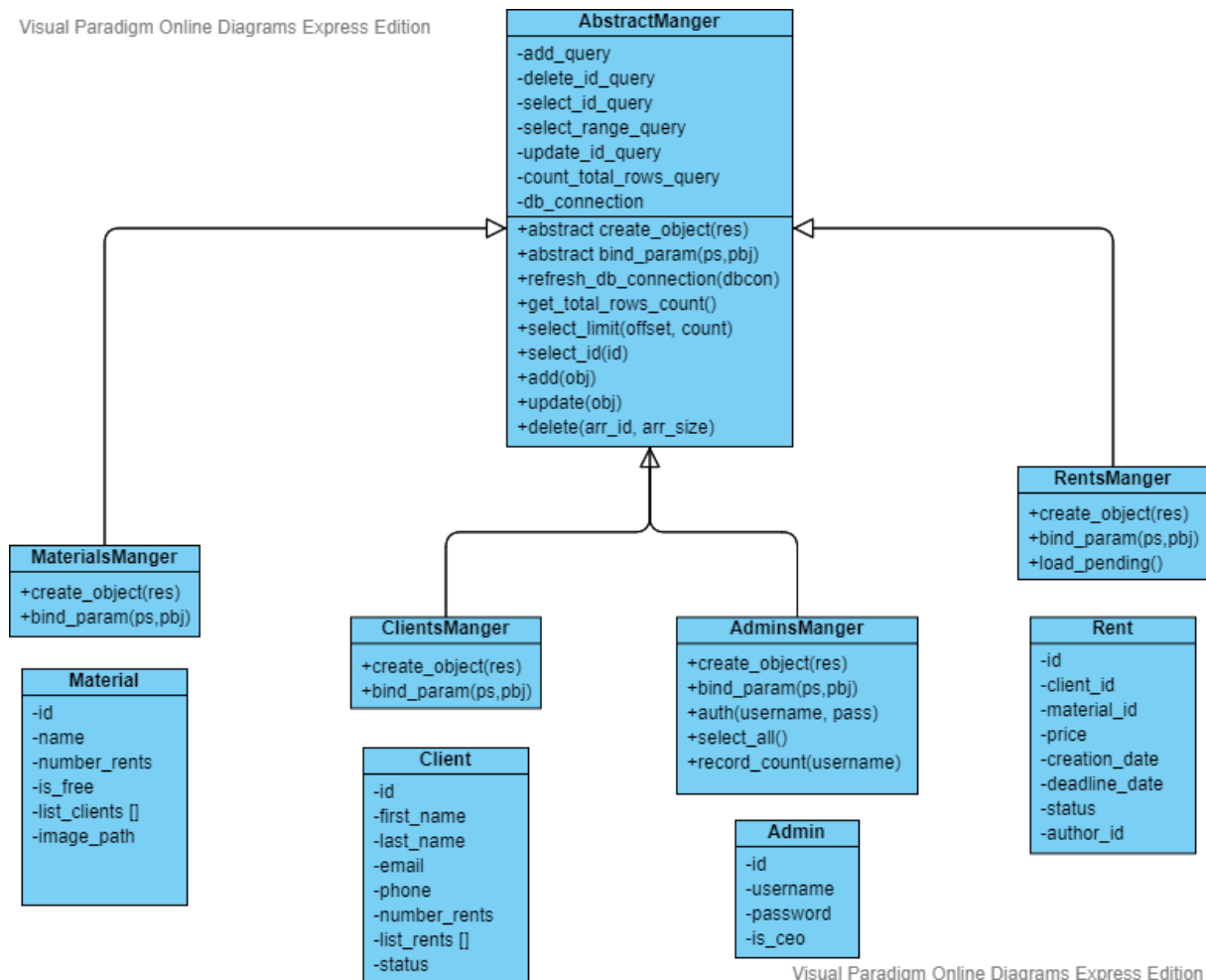
- Status: Holds the state of the rent, 1 : Pending, 2 : Done, 3 : Late delivery/payment

- Author ID: Holds admins id who created the rent

- **Only logged in admin** can Add/Edit/Delete rents

## **Building The Core:**

After the planning phase, A flexible backbone was needed to hold the website which allows to extend the website more and add new functionality in the future if needed, a structure have been made to accomplish what said before as follows :



- core/config.php is website's configuration file
- Parent class 'AbstractManger' attributes must be defined in each child's constructure.
- Each manger must override the abstracted functions
  - create\_object(res) : mysqli::get\_result()::fetch\_assoc() will be passed as argument in res , it transfer the raw data from SQL Query to specific object (Client, Admin, ....)
  - bind\_param(ps,obj) : prepared statement obj will be pass as ps and the obj that wanted to bind to the statement .
- Each Manger will be created once and save as a SESSION VAR , and must refresh it if needed.
- Manger refreshing (function refresh\_mangers(manger, new\_connection) using bit-flags in systems.php) will refresh db\_connection variable to the new

connection because each time page is closed the connection to database is closed too.

- Rents monitor (function `monitor_rents()` in `systems.php` ) will request all pending rents using `RentsManger::load_pending()` and check if the rent reached the deadline , if yes it will change rents status 3(Late delivery/payment) and adds one penalty to the client.
- `AbstractManger::delete(arr_id, arr_size)` will delete multiple records passed in `arr_id` if `arr_size > 1` , or it will delete only one record if `arr_id` is the only one is sent ex: ( `delete(5)` it will delete the record with `id = 5`).
- `AbstractManger::update(new_obj)` , `new_obj->id` must be set , this function helps us to only update wanted attributes without updating all client attributes every time, it will check `new_obj`'s attributes and builds UPDATE SQL query for attributes that are set and not null, ex: ( `client->id = 5; client->phone = "0665"; client->email = "a@b"; update(client);` it will update client's phone & email with the `id = 5` only ) .
- Multi-language functionality , when a client visit the website for the first time , a new cookie will be created and set to default language , then language data will be loaded from `core/languages.lang` and parsed to a key value array and stored in `SESSION VAR[LANG_DATA]` .

If the client changed the language , the wanted language will be loaded and then overwrite `SESSION VAR[LANG_DATA]` with the new loaded language, the next function can be found in `core/config.php` .

-`LANG(key)` : echo value corresponding to the key in `SESSION VAR[LANG_DATA]`

-`LANG_1(key)` : echo value corresponding to the key in `SESSION VAR[LANG_DATA]` but between " " ,used in HTML attrbs(href,src,...)

-`LANG_R(key)` : Returns raw value corresponding to the key in `SESSION VAR[LANG_DATA]` , used in PHP code

## **Implementing The Core:**

The core was implemented with the help of HTML Forms and JS, for every form there is onsubmit function to check form inputs, check `js/script.js` , Language type is passed to JS on body's onload function.

- For adding form, all input fields must be set.
- For edit form, only one row must be picked and require at least one field set.
- For deleting, in rent page only one row must be picked, in the other pages picking more than one row is allowed.

## **Designing pages layouts:**

- Unified buttons, input fields, titles style.
- Top, bottom bar and side menu have a fixed position.
- Icons are stored in folder named “css”, style data stored in “css/style.css”