## **Eggshell Database - Business Rules & Assumptions**

**Transaction Control (TC) statements**

* COMMIT permanently records changes.
* ROLLBACK undoes changes made. Eg. if there's an issue with the decorator choice update, a ROLLBACK will undo the changes.
* SAVEPOINT sets a “save point” to allow rollback to a point. Eg. If you update multiple parts of the sale process (escrow deposit, style selection) and may need to rollback only certain parts, we can use SAVEPOINT.

## **Business Rules**

1. **Construction Progress**

* **Construction manager** must update the construction progress for each lot, and include the latest stage and estimated completion time; **Construction manager** must be able to update buyers on the construction status.
* When there are construction updates, the construction manager can choose to update the individual task items or update the construction progress directly. For example, if the manager chooses to update the task of fitting windows for a given property, they may choose to update the percentage completion of that specific task. If there is no specific task level updates, or if they simply want to give a broader overview update, they may choose to update the time estimate in the progress table.
* To update the progress table, the managers must execute the database procedure update\_construction\_progress.
* To handle the potential discrepancies between individual tasks and the overall progress, if the estimated time for the overall progress is less than 5 days, all tasks associated with that progress will be marked complete (percentage complete to 100). This ensures that no tasks linger after its parent progress is completed.
* When progress is updated in the database, the trigger log\_lot\_progress\_update will execute. In the console, oracle will print out a summary report of the change, which includes the lot id, old stage number, new stage number, and date changed. The manager must confirm and log those outputs to ensure consistency.

1. **Decorator Choices**

* When buyers want to modify their decorator choices (eg. interior options) at different stages of the construction process (stages 1, 4, and 7), **construction representatives** help them to update the decorator items and thus update the decorator choice table(date of such modification). There might be a change in cost in labor and material associated with such modifications.
* To insert or update a decorator choice, the responsible manager should create or update deco\_items. To do so, the manager first looks up the option id associated with the customer's choice (options are given in the options table, with set details and prices). To update deco\_item, managers add or replace deco\_item entry with the corresponding option\_id, price, description, room\_id, and the corresponding decorator\_choice\_id of the ticket. Eggshell will also assign such action with a deco\_item\_id. As business grows, eggshell should consider using sequence to populate deco\_item\_id.
* When customers choose the decorator items, they need to choose from the option tables. They can choose as many options as they want, as long as the options are available/applicable, and one deco\_item entry is created for each option applied.
* The options are constantly updated according to demands and business needs. To perform those business analytics, a view named popular\_deco\_options is created which presents popular options and stages of them being chosen. Sales managers should check the view often to update business and supply chain strategies.

1. Sale

* While the base price is firm based on different lots, the lot premium is flexible based on different choices made by the customers and they can negotiate the price with sales representatives. Sales representatives have responsibility to set up and record accurate base prices and lot premiums.
* To compute the total price (base price + premium) and to avoid errors and improve consistency, the sales manager must use the function given in the database calculate\_total\_sale.
* Sales representatives and customers should be aware that eggshell's prices increase by 2 percent every year to account for inflation. This price increase procedure is a scheduled job in the database which will be executed every 1 year.

1. Escrow

* Escrow is a neutral third party that manages the transaction among customers, bank and sale. Once a customer signs the contract and the sale information is inserted, the escrow agent holds the customer's money (may or may not include the mortgage customers receive from the bank) in an escrow account to make sure that both parties would fulfill their obligation. When contractual obligations are fulfilled, the escrow agent will coordinate with the customer and real estate to transfer the ownership of such a building.

## **Assumptions**

1. Subdivision style: Each subdivision has a specific house style assigned to every lot.
2. Elevation: Each style has distinct exterior variations known as elevations, which are dependent on the style; clients can choose one elevation per style.
3. Construction progress table: There is only one construction progress table associated with each lot ID.
4. Cost equals price: The cost is assumed to be equal to the price, including any additional charges.
5. Lot premiums: Lot premiums are considered attributes for each sale record, as they are negotiable factors in determining the final price.
6. Base price: The base price is confirmed only after the client discusses their chosen elevation with the sales representative. Therefore, the base price is not an inherent attribute of the lot itself and is treated as a column in the sales table.