SAP Customer Experience

# Product Modeling

THE BEST RUN SAP

# The Context

There are four approaches to **modeling your products** in SAP Commerce: modifying the **type system**, defining and using a **classification system**, using **variant product** modeling, and defining **configurable products**.

# PCM

**PCM**
Product Modeling
Classification
Product Variants
Configurable Products

# Core I18N Features

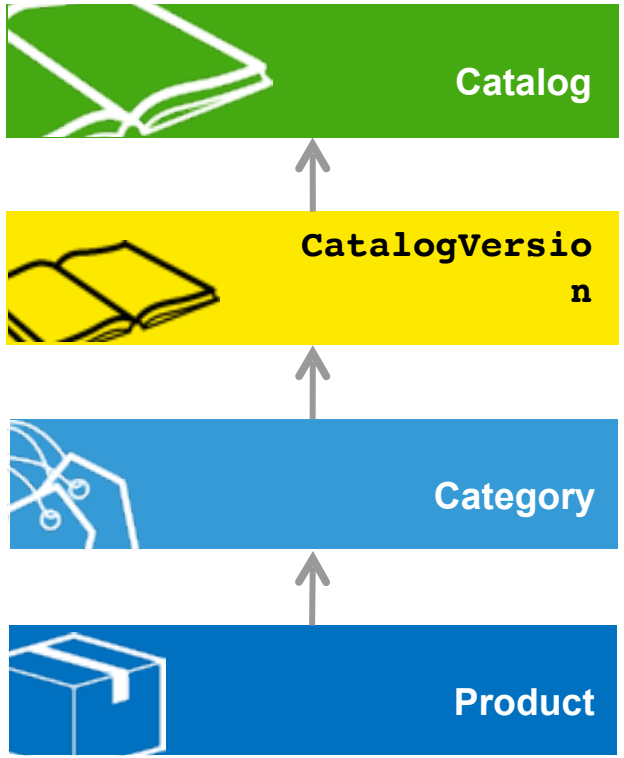
- Out-of-the-box support for:
  - Languages (localizations of business objects)
  - Countries and Regions (tax regulations)
  - Currencies (currency formats, rounding)
  - Number Formats (separation characters)
- Intuitive UI to manage localized items
- Standards-based API (Java Locale objects)
- Advanced features, such as Language packs, Language Fallbacks

# Catalog Overview

- Catalogs provide functionality to hold, structure and manage products and product information
- A catalog is a list of available catalog-aware items
- Products are typically the basic elements of each catalog
- Catalogs allow you to set up visibility
- Several catalog versions can be available in your platform

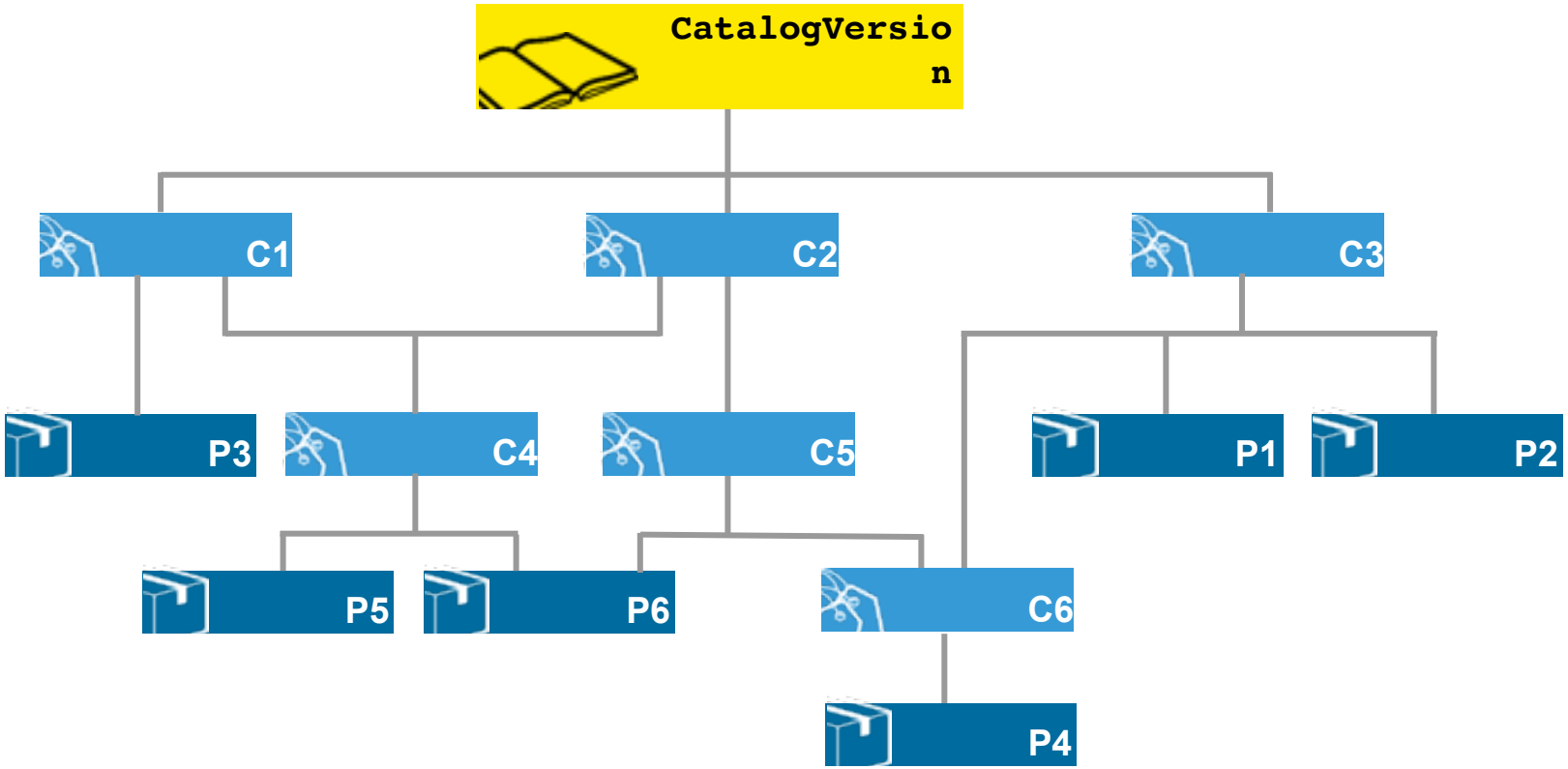
# Products and Categories

- A catalog contains one or more catalog versions (e.g. staging & online)
- A catalog version has a hierarchy of categories, containing products
- Products are the basic element of a catalog, and correspond to SKUs

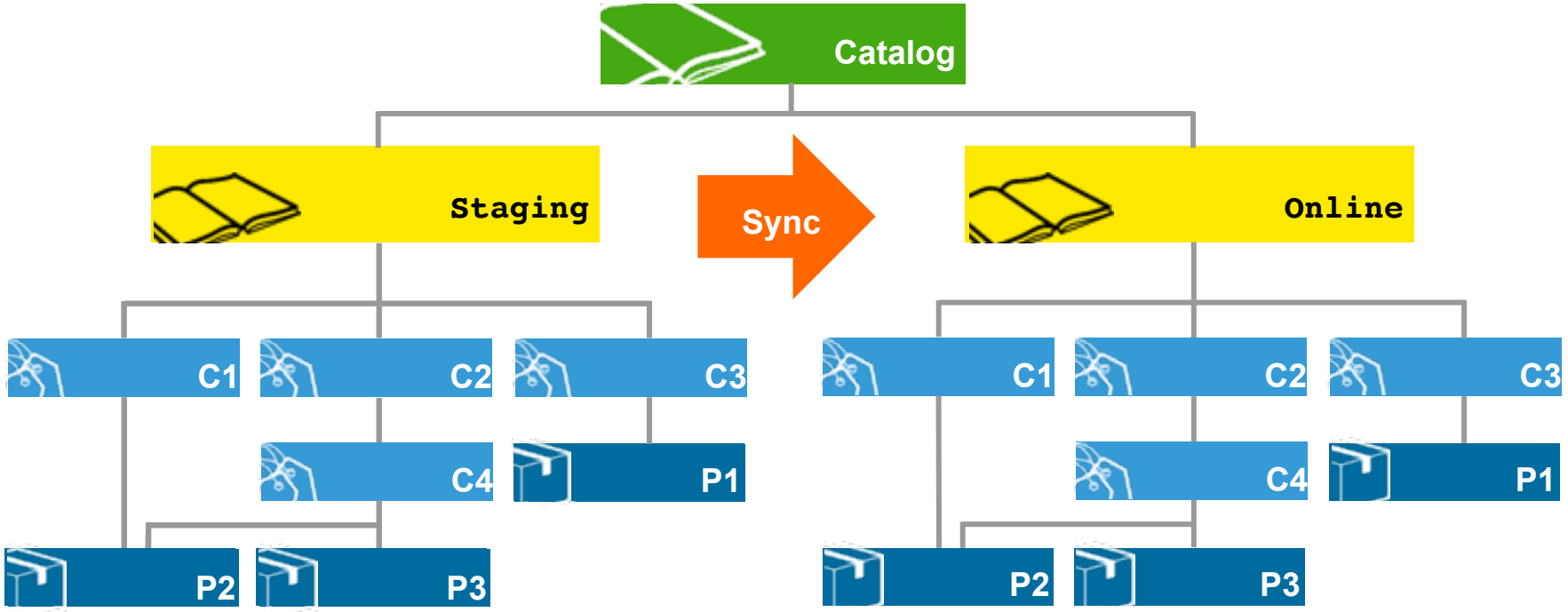


# Category Structure • 1

- Categories can have multiple parent categories
- Products can belong to multiple categories

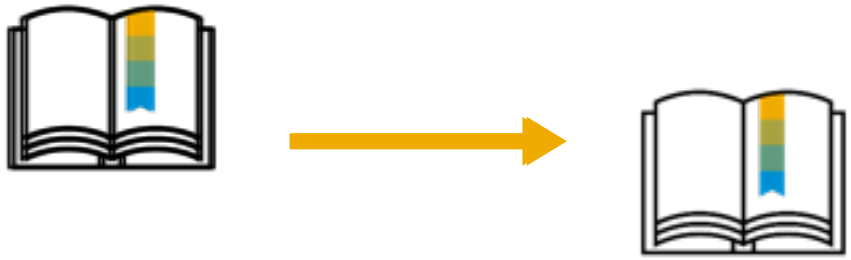


# Catalog Structure • 2

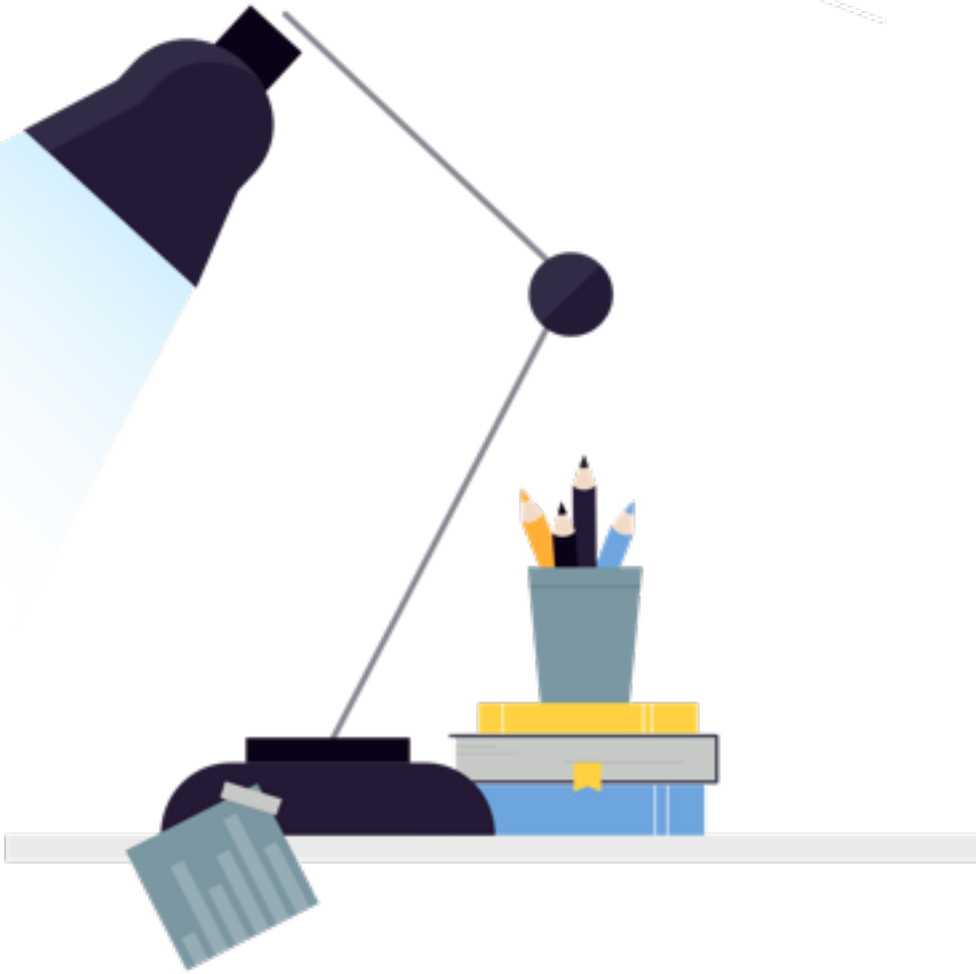


# Catalog Versions - Synchronization

- Synchronization copies specified content from source to target catalog versions
- Referenced items are updated to their counterparts in the target version
- Synchronization can be launched either manually or through a CronJob
  - Can affect the entire catalog version, or only selected categories or products
- If needed, define rules to specify how product data should be copied to target



# Demo



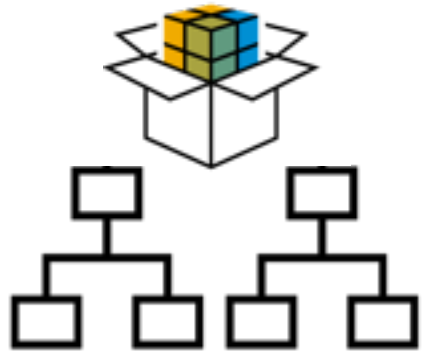
# Product Modeling

PCM
**Product Modeling**
Classification
Product Variants
Configurable Products

# Product Modeling

- SAP Commerce offers four ways to model your product data
  1. **Classification**
     - allows your product attribute sets to be altered frequently or dynamically
  2. **Product Variants**
     - best for catalogs where products' attribute sets rarely change
  3. **Multi Dimensional Product Variants**
     - provides more flexibility in defining attributes
  4. **Configurable Products**
     - provides information as user input to complete the purchase flow

- We will focus on classification in our exercises



# Classification

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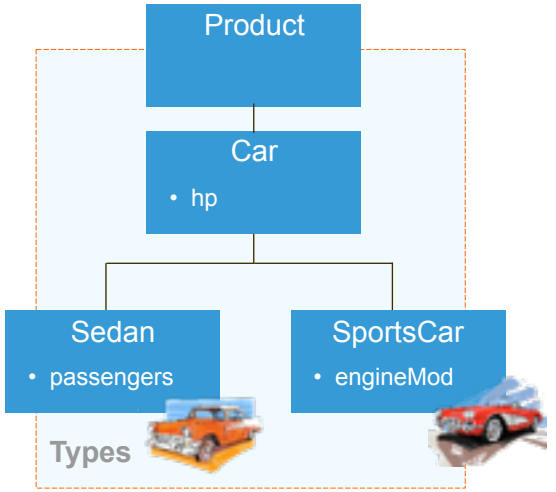
# Product features vs Product attributes

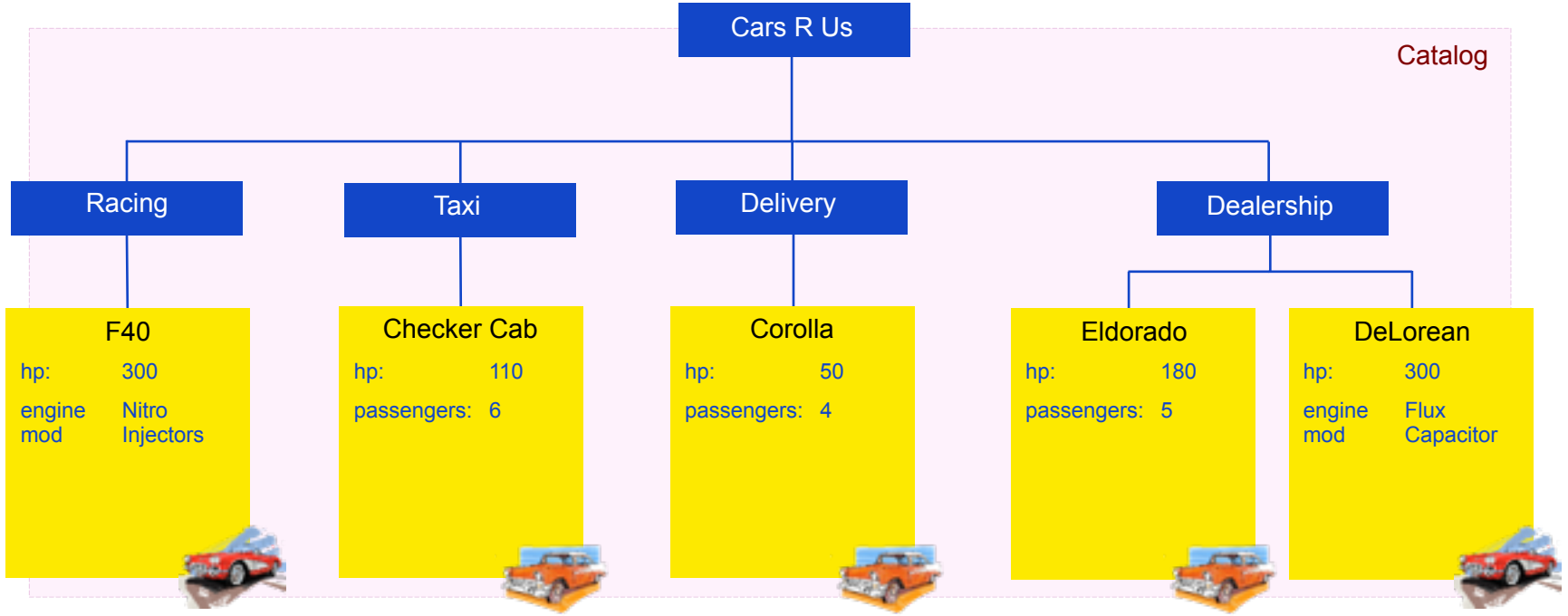
- Product features (aka Class attributes)
  - Created from Classification Guide
  - Runtime changes
  - Significant cost in terms of performance and scalability
  - Not easily accessible from SAP Commerce API
  - Should be used for situations where the available attributes change frequently or for attributes that are shared by a small range of products
- Product attributes
  - Defined in `-items.xml` file
  - More efficient, but requires deployment
  - Should be used for attributes that belong to most items (e.g. height, width) or for attributes that are Item references (e.g. reference to Media)

# Classification - Key Facts

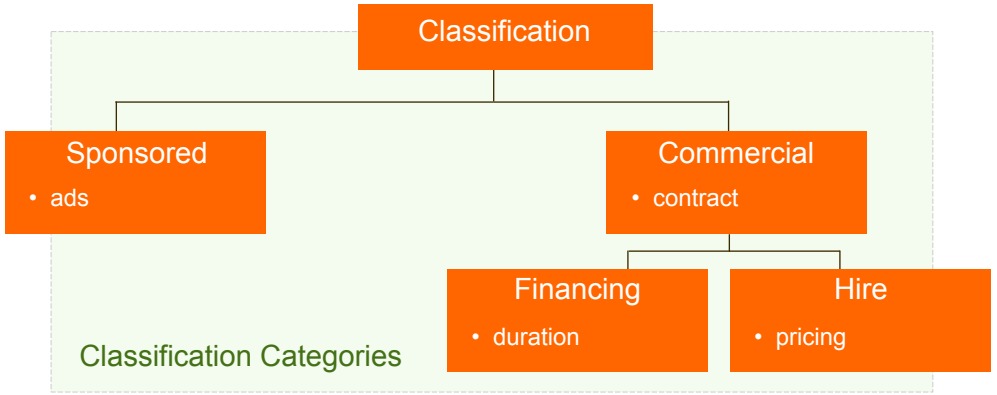
- Classification helps simplify management of frequently-changing product data
  - child products gain the attributes defined for all classification categories above it in the hierarchy.
- Classification systems are independent of product catalogs
- Multi-classification is supported

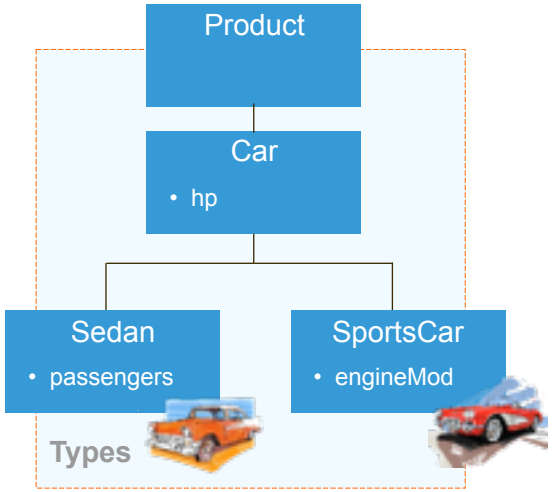
# Add Properties by Extending the Type System

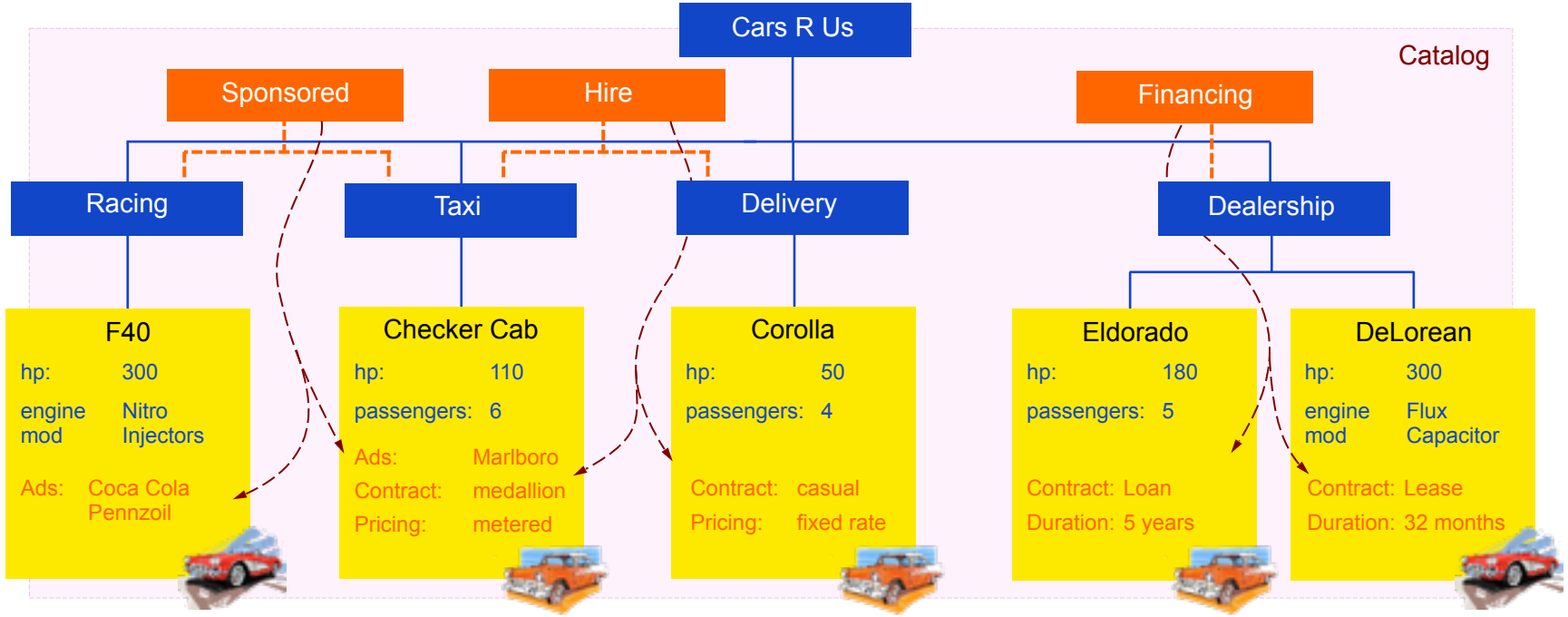


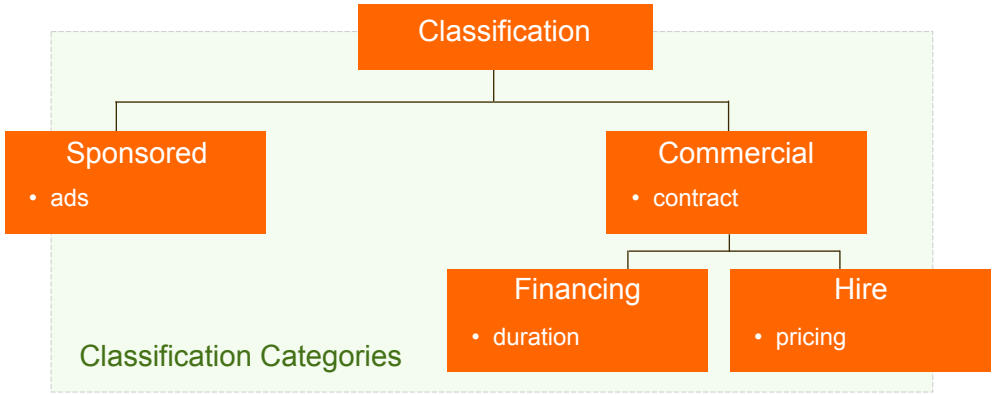
# Add Properties using Classification Categories

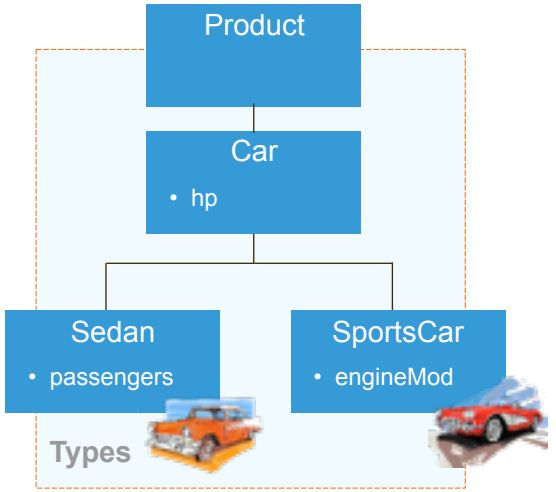


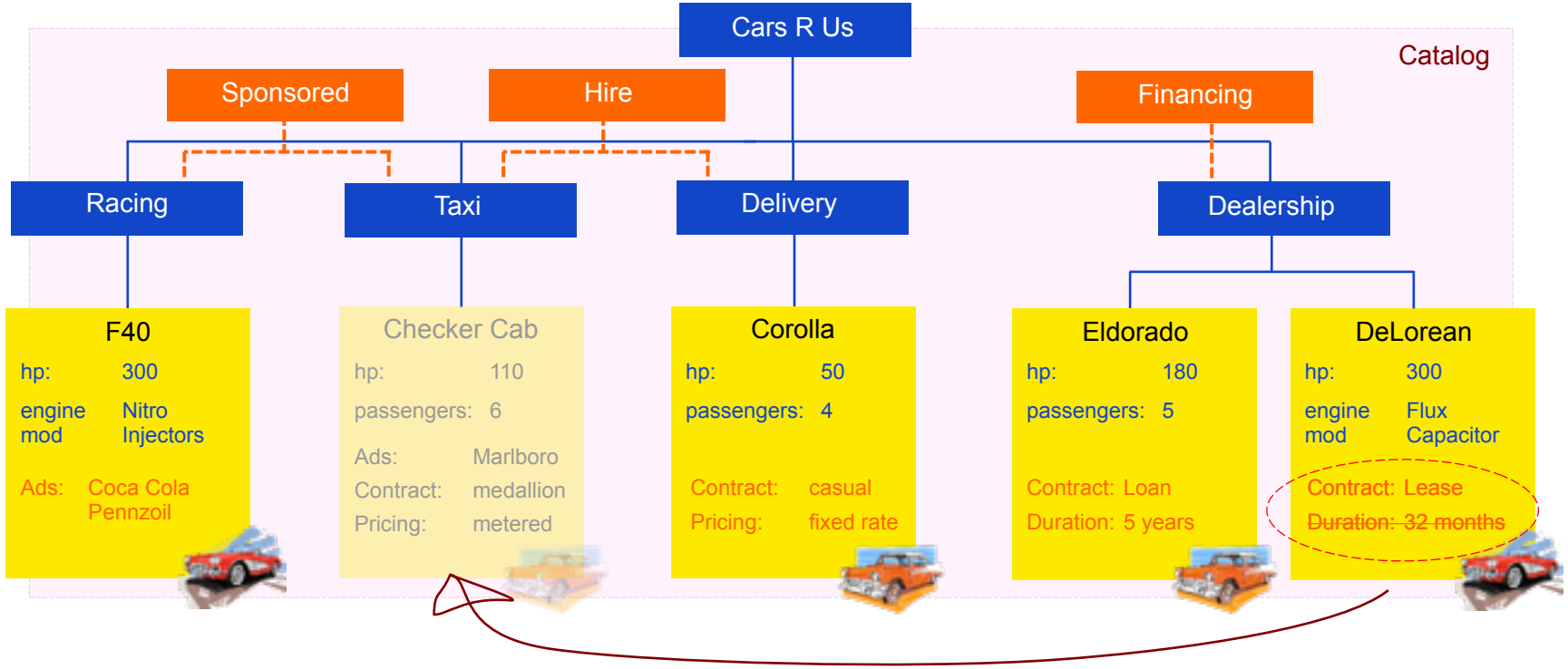



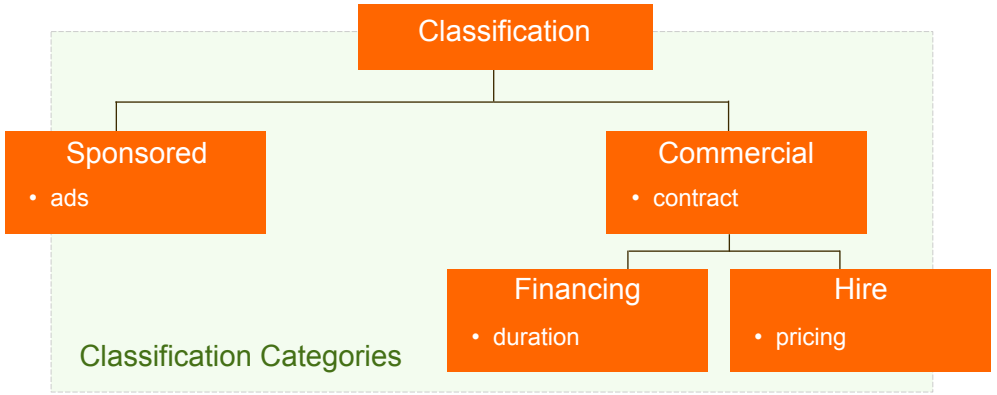
# Reassign Product • 1

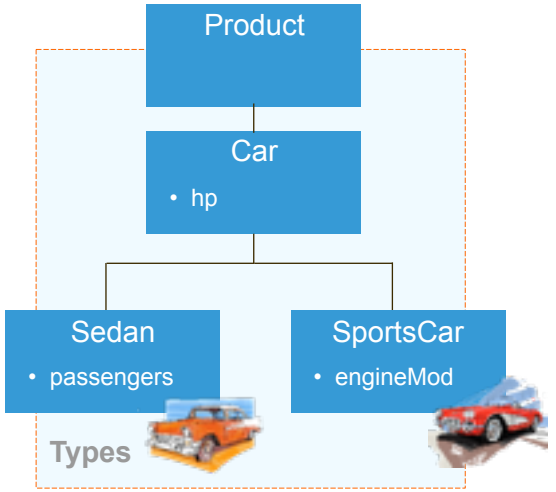


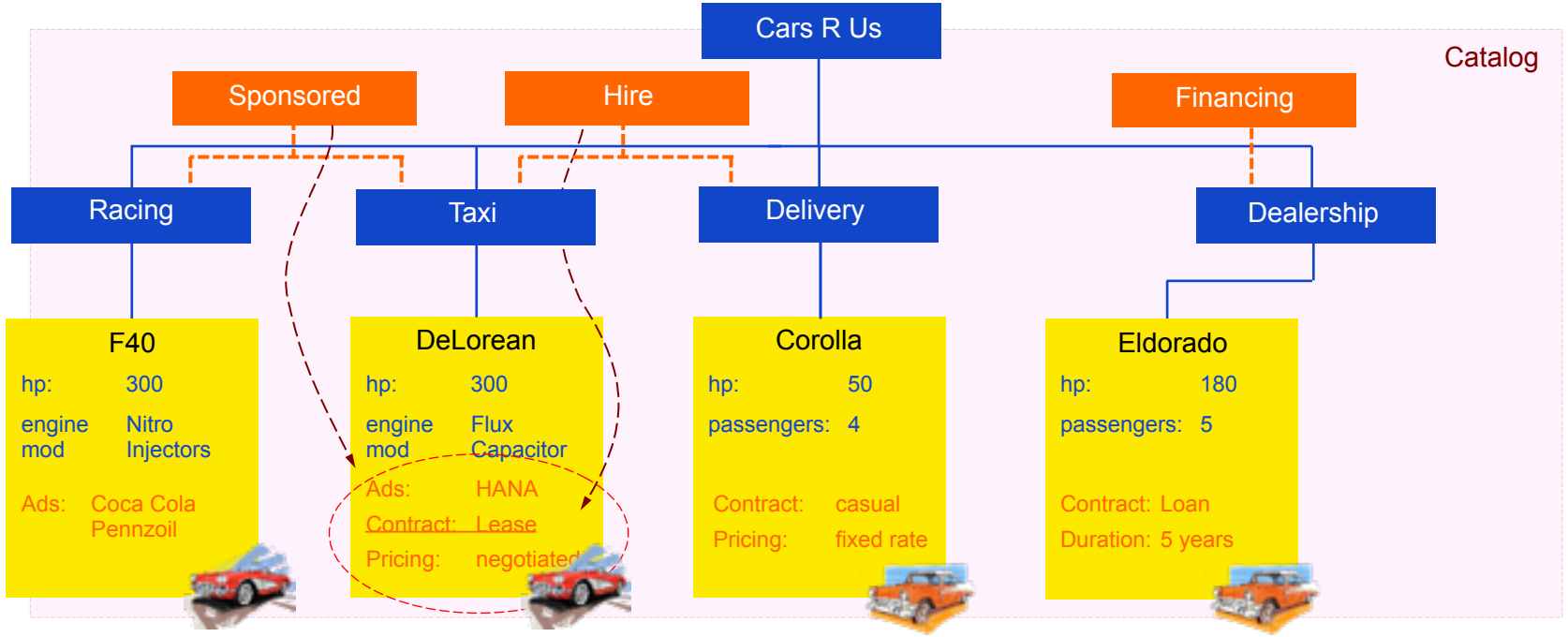



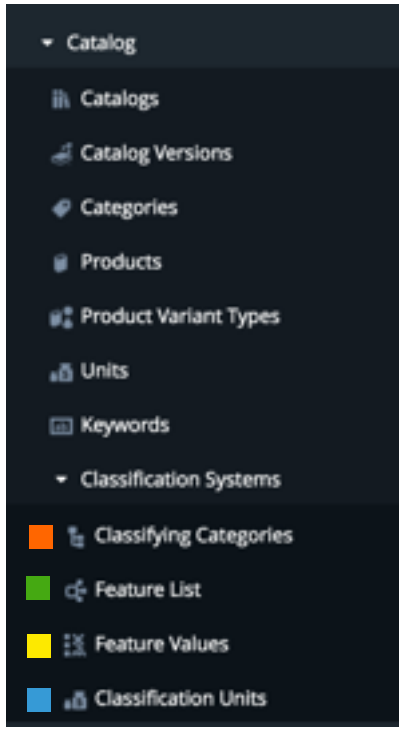
# Reassign Product • 2



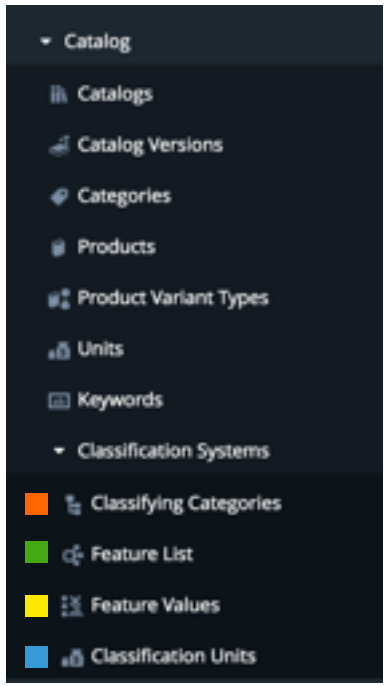



# Classification objects in the Backoffice




- **Classifying Categories** keep track of the properties they confer in a list ClassAttributeAssignmentModel objects
  - Each contains a reference to:
    - a Feature descriptor (required)
    - an array of Feature descriptor Values (optional)
    - a Classification Unit (optional)
- The **Feature descriptor** identifies the property
- The **Feature descriptor Values** provide valid choices for the property, much like an enumeration
- The **Classification Units** facilitates conversion to other units of the same *type*, using its Conversion factor attribute. For example, the *centimeter*, *meter*, and *kilometer* units might all have the *length* type, and a conversion factor of 0.01, 1, and 1000, respectively.
  - A unit's *symbol* attribute can be appended to value when it is displayed — **"** for inches, **kg** for kilograms, **Mb** for megabytes, etc.

# Elements of a Classification System




ClassAttribute Assignment Model

FeatureDescriptorType=String|Number|Boolean|Date
FeatureDesciptor
Unit

FeatureDescriptor
Contract

ClassificationUnit
terms

ClassAttribute Assignment Model

FeatureDescriptorType=ValueList
FeatureDesciptor
Unit
FeatureDescriptorValues

FeatureDescriptor
Pricing

ClassificationUnit
rate

allClassificationAttributeAssignments

ClassificationCategory
Hire

Category
Taxi

Sedan
Corolla

```
code         checkercab
hp           110
passengers   6
contract     199 terms
Pricing      metered rate
...
```

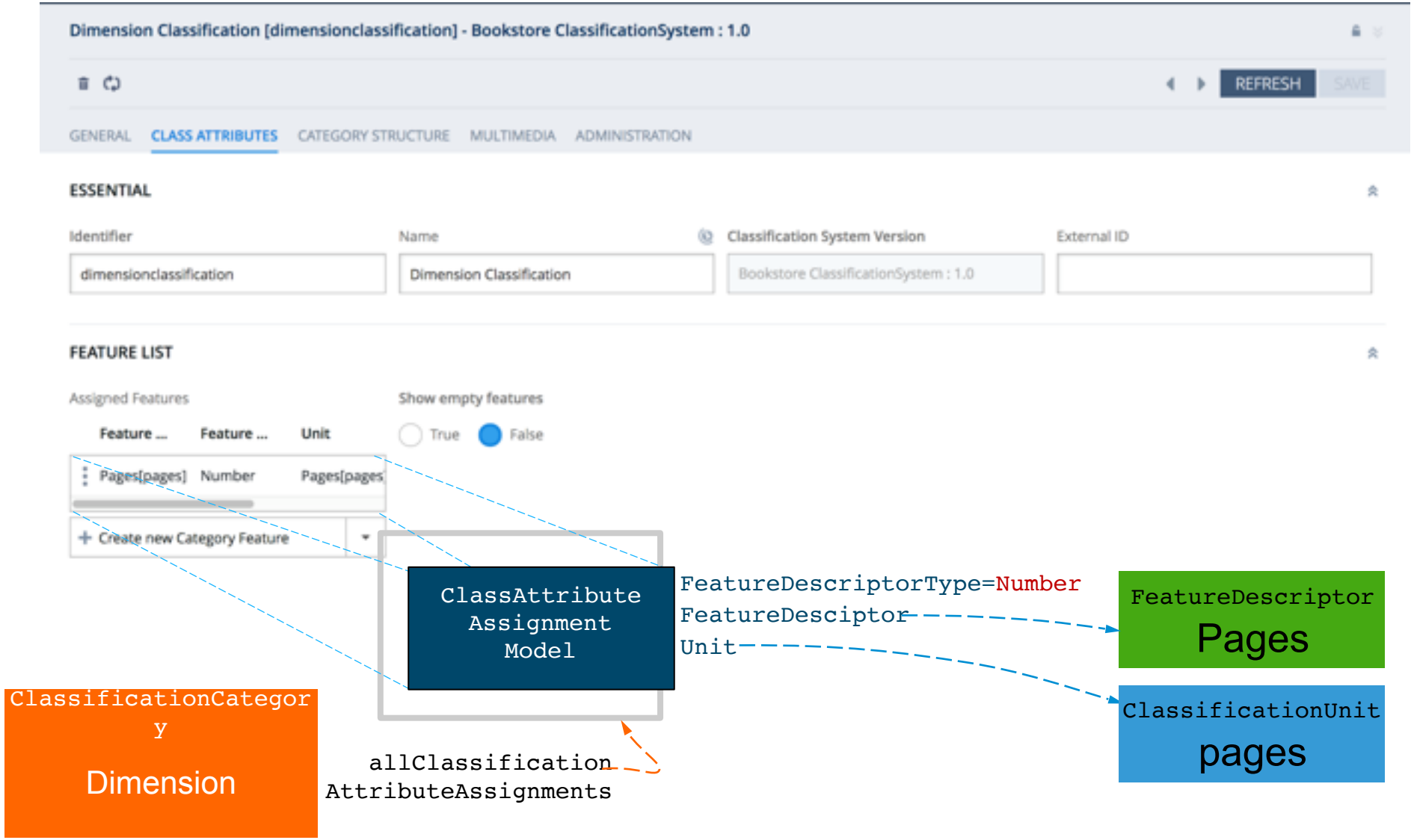
FeatureValue
metered

FeatureValue
negotiated

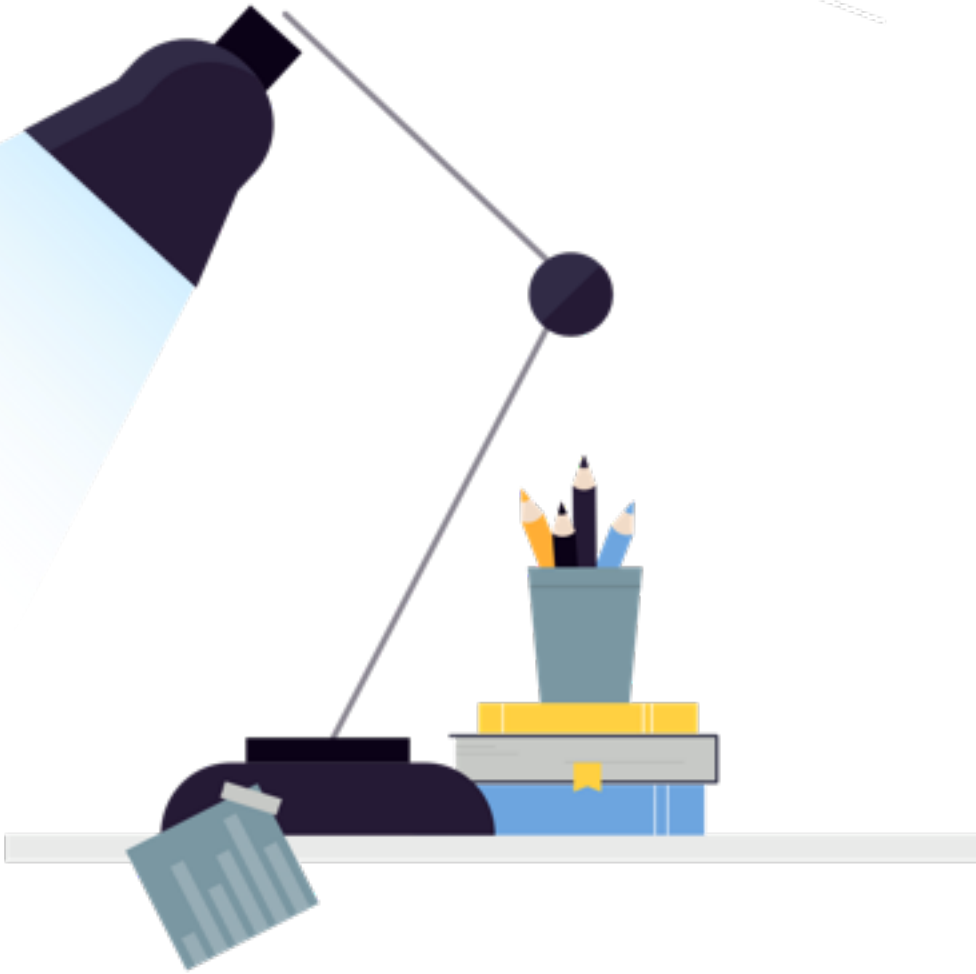
FeatureValue
fixed rate

FeatureValue
salaried

# Accessing the ClassAttributeAssignmentModel



# Demo



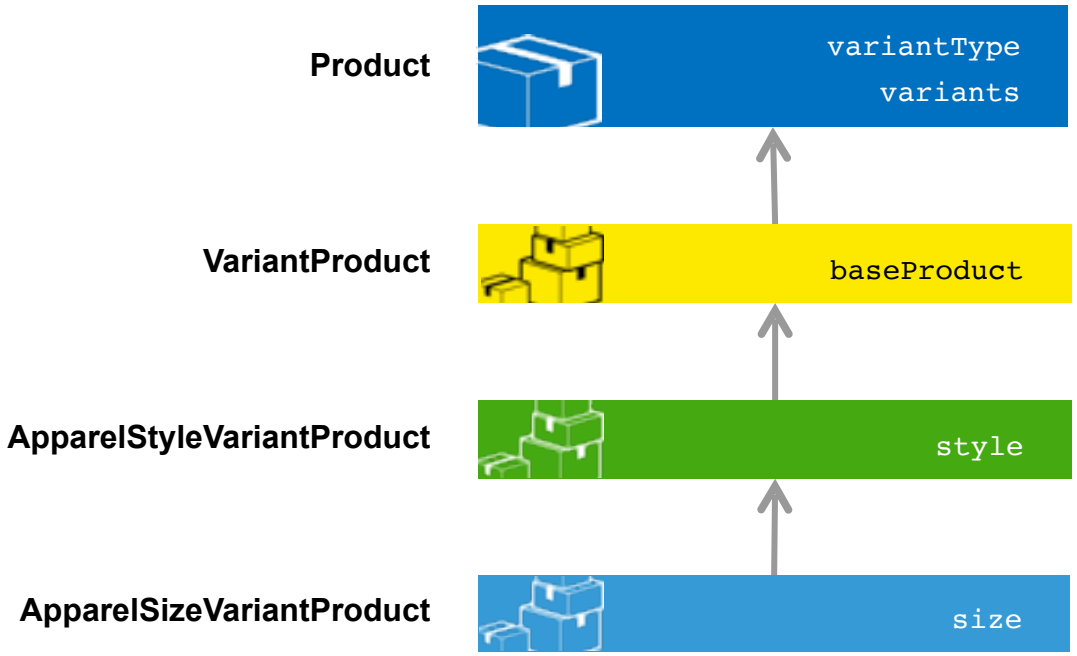
# Product Variants

PCM
Product Modeling
Classification
**Product Variants**
Configurable Products

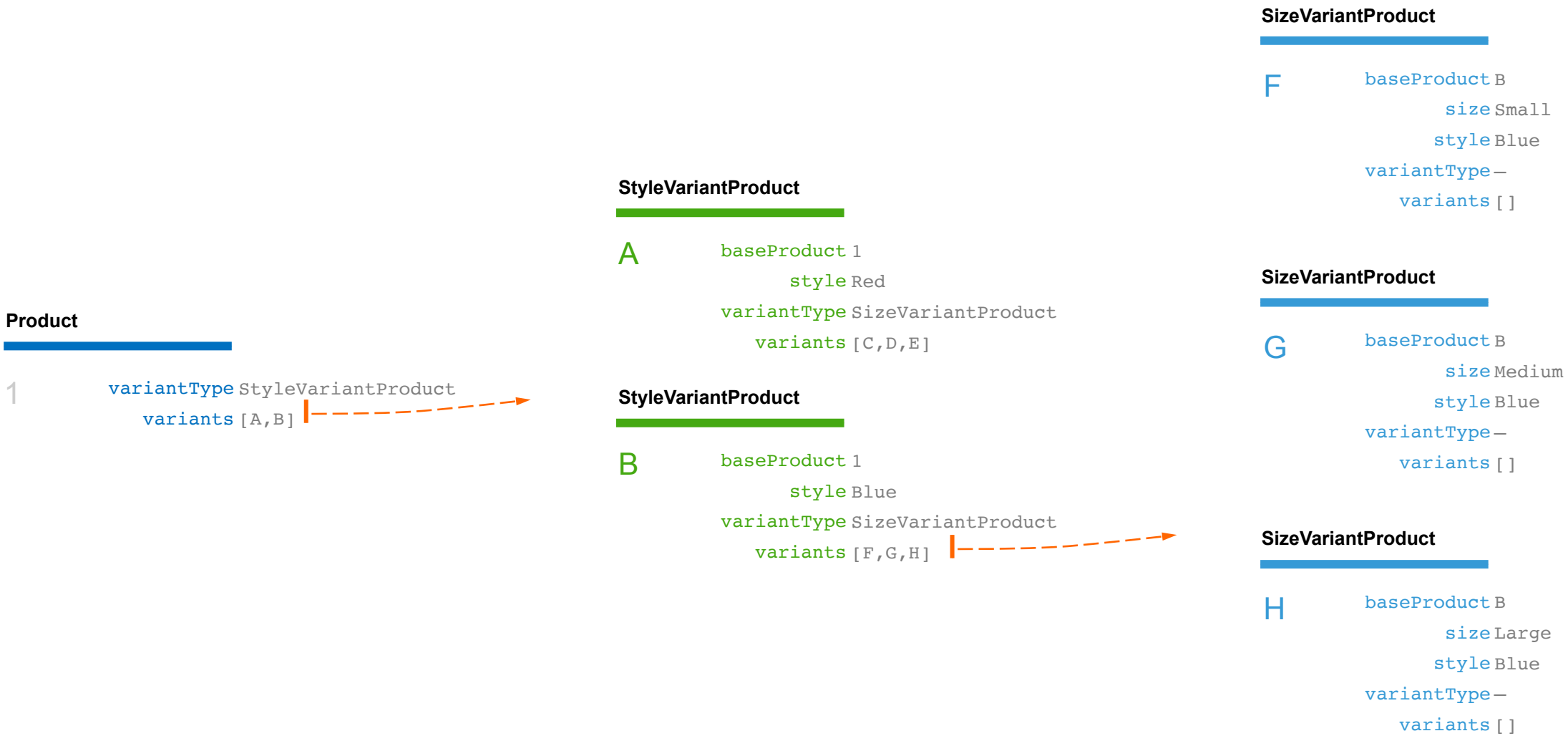
# Product Variants Model

- Variants are products that differ in some aspects but are based on same model. For example, color or size are variants of a base product which is a T-shirt

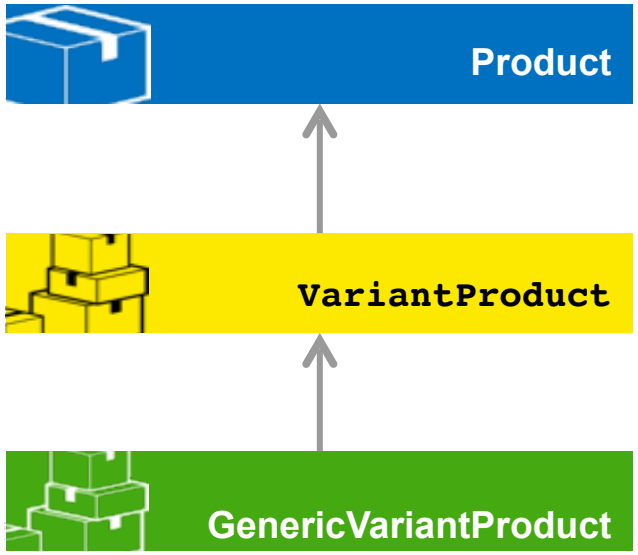
- There are 3 ways to create Variants:
  - Using a **Subtype** of Product and a Subtype of VariantProduct
    - Define attributes in Product type in items.xml file
    - Use dynamic attributes on either type
  - Using **Classification**
  - Using **Categorization**

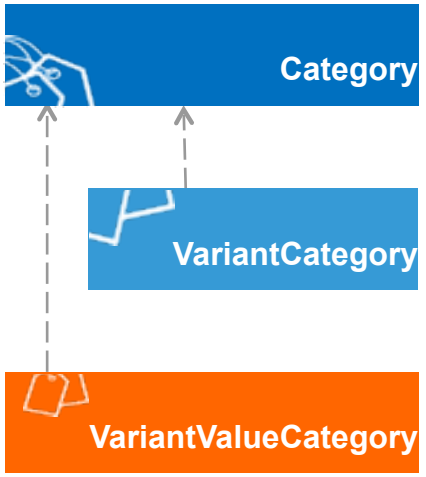


# B2C Variant Products • Structure

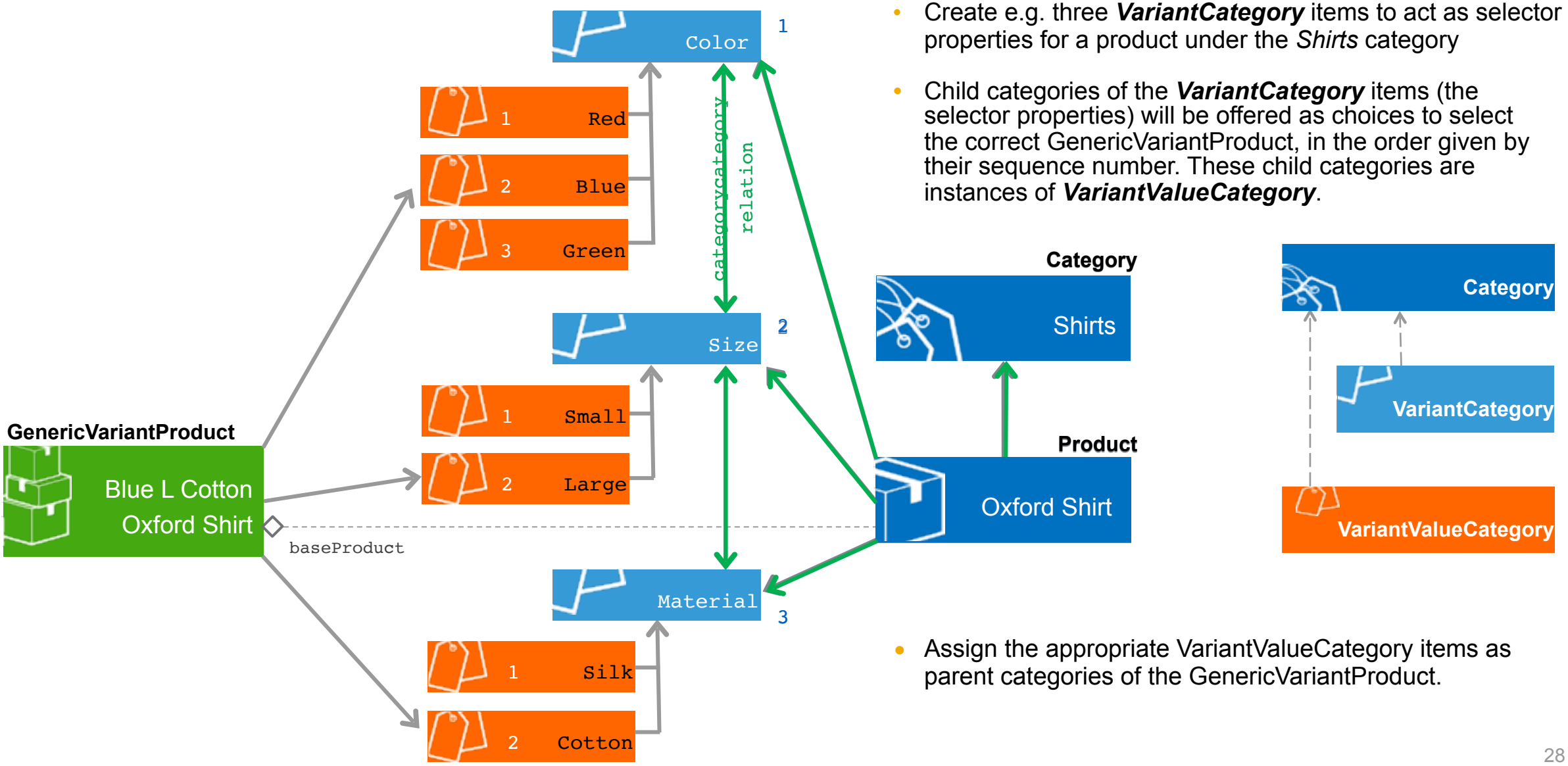


# Multi-dimensional Product Variants



# Multi-dimensional Product Variants • 2




- Create e.g. three ***VariantCategory*** items to act as selector properties for a product under the *Shirts* category
- Child categories of the ***VariantCategory*** items (the selector properties) will be offered as choices to select the correct GenericVariantProduct, in the order given by their sequence number. These child categories are instances of ***VariantValueCategory***.
- Assign the appropriate VariantValueCategory items as parent categories of the GenericVariantProduct.

# How to Create Multi-dimensional Product Variants

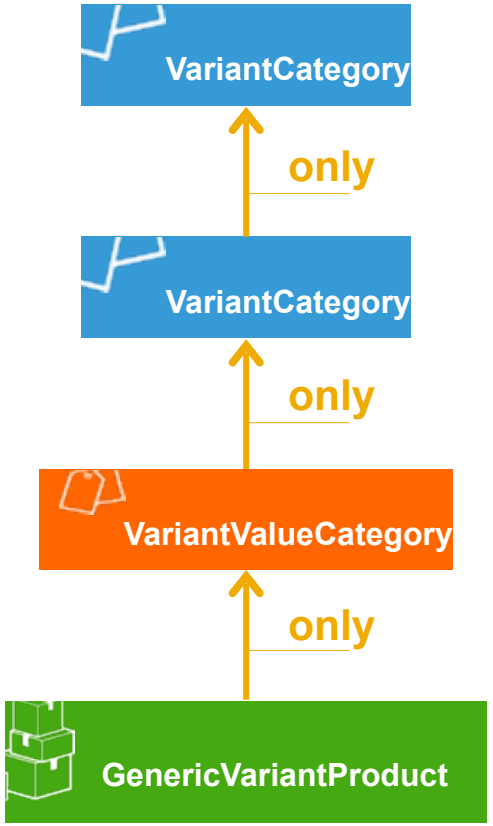
- The super categories of VariantCategory must be of type VariantCategory and the sub categories of VariantCategory must of type VariantCategory or VariantValueCategory
- The super categories of VariantValueCategory must be of type VariantCategory
- The super categories of GenericVariantProduct must be of type VariantValueCategory.

3 essential steps

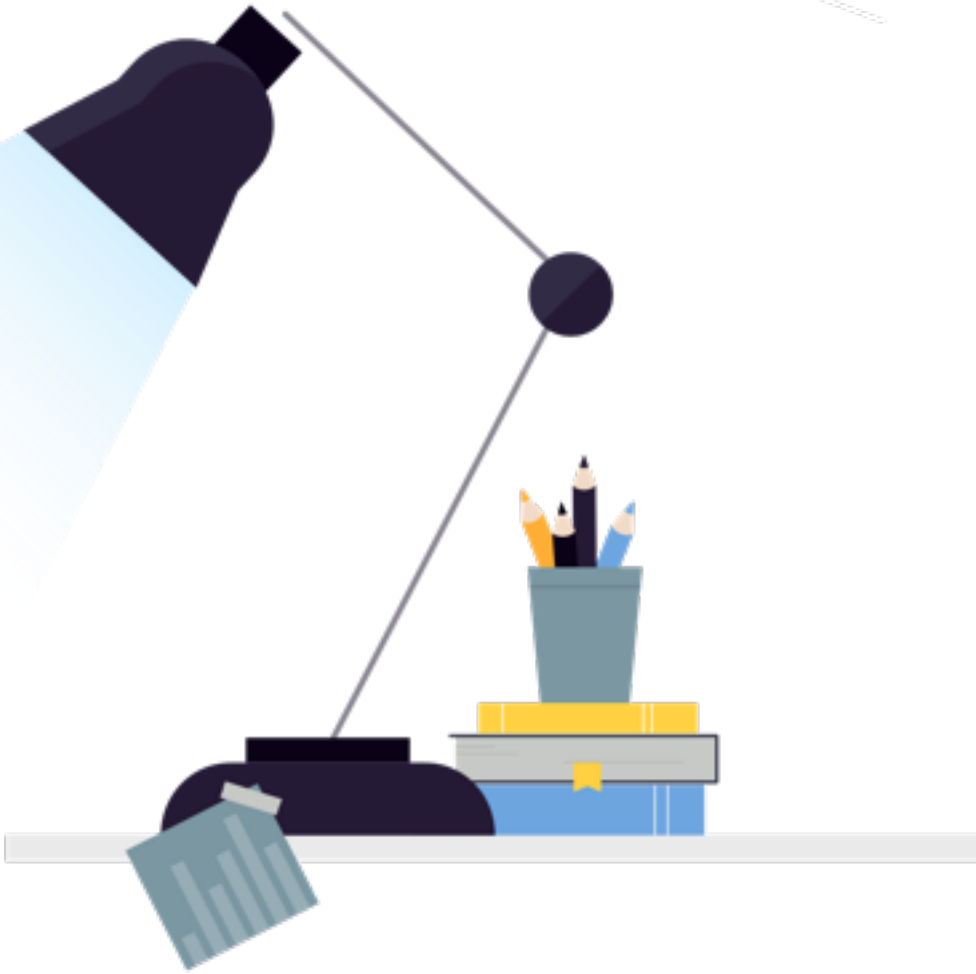
1 Creating Variant Categories

2 Creating Variant Value Categories

3 Creating multi-dimensional Products



# Demo



# Configurable Products

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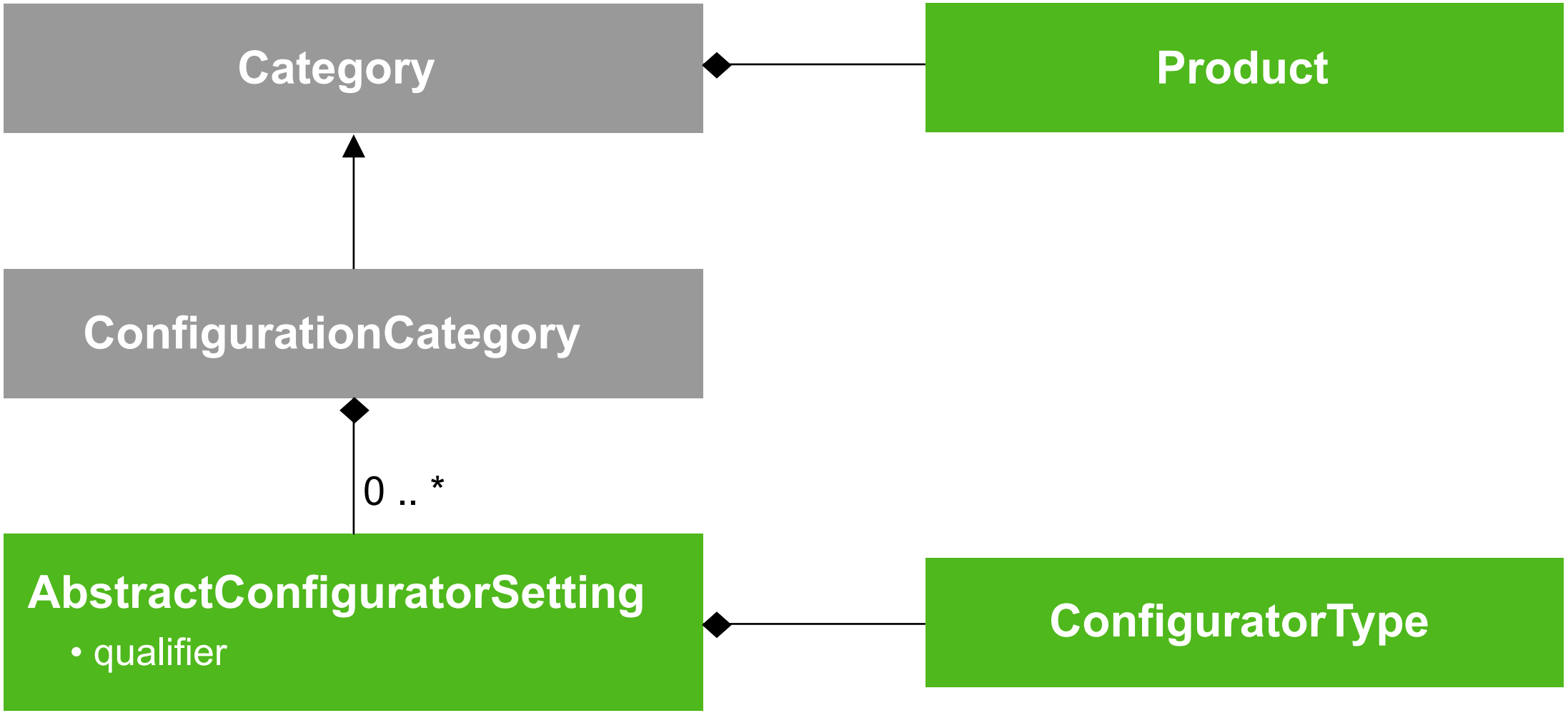
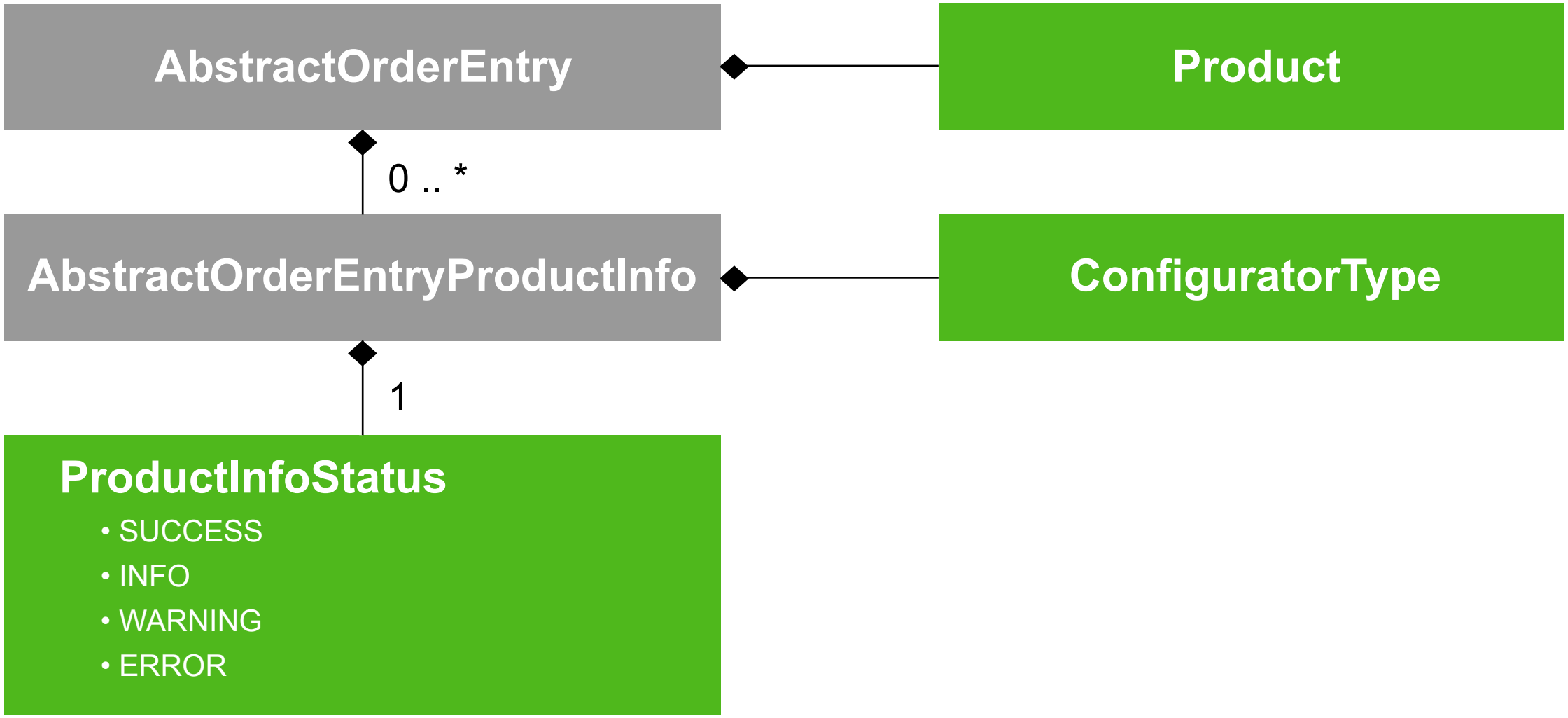
# Configurable Products

- Configurable Products provide product information as user input to complete the purchase flow
  - Configurator settings are linked to products in the catalog
  - Extended Cart functionality to store product configuration
    - available in orders and carts
- Implemented using 2 new Item types:
  1. **ConfigurationCategory**
  2. **Configurator Settings**
     - linked to ConfigurationCategory
     - catalog-aware
     - extensible by actual configurator implementations
- Extended Accelerator provides controls to start configuration from Product listing page and Product details page, linked to ConfigurationCategory

# Configurable Products @Service Layer

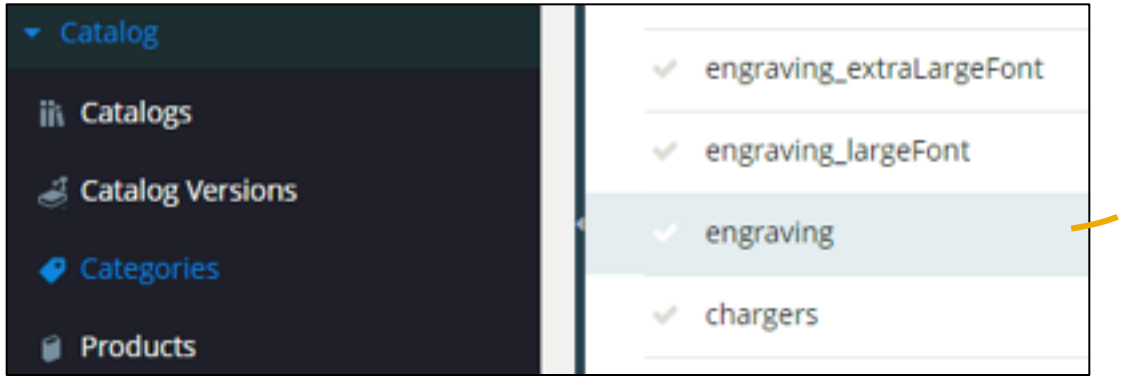


# Configurable Products @Service Layer

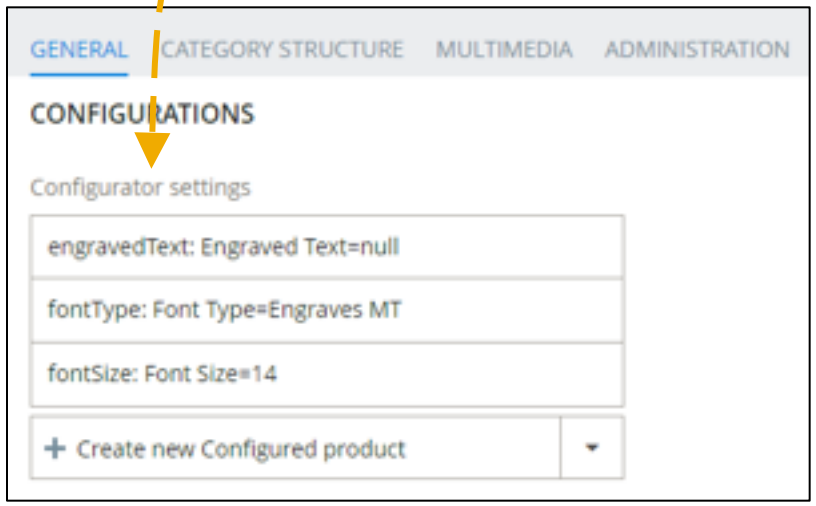


# Configurable Products in Backoffice

- Example Implementation: TextFieldConfigurator




Apply 3 configurators settings




- Applied to camera DSC-H20 in Category Structure

# Configurable Products: Example Storefront

- Product list and details page provide CONFIGURE button:


**Configure product in Textfield-Editor:**
**Provide all 3 values**

- The Cart page shows configuration infos and possible validation errors

# References

- https://wiki.hybris.com/display/hybrisALF/Product+Data+Management
- https://wiki.hybris.com/display/hybrisALF/Products


Basic PCM elements: Catalog, Catalog Version, Category and Products

Different product modeling OOTB: type system-based, product variants, multi-dimensional product variants, classification, and configurable products

Variants are  products that **differ** in **some** aspects but are based on the same **base product**

Classification is a special catalog whose categories (called classifying categories) can contain attributes (also called features)

Classification is used in situations where the attributes themselves change frequently

Classification is the most **flexible** way to model products, but at the expense of **performance**.

Configurable product is used to support product **customization**

It’s quite feasible to create **new** product modeling for a specific industry or use-case

# Exercise

## ProductModeling

# Thank you.