

Model Driven Engineering AA 2022-2023

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Assignment #3 (MPS, TextGen Aspectt)

Consider the MPS “Glott” domain-specific language (DSL) for specifying Web Applications developed in class, which you extended in your assignment #2. It should include the following language concepts:

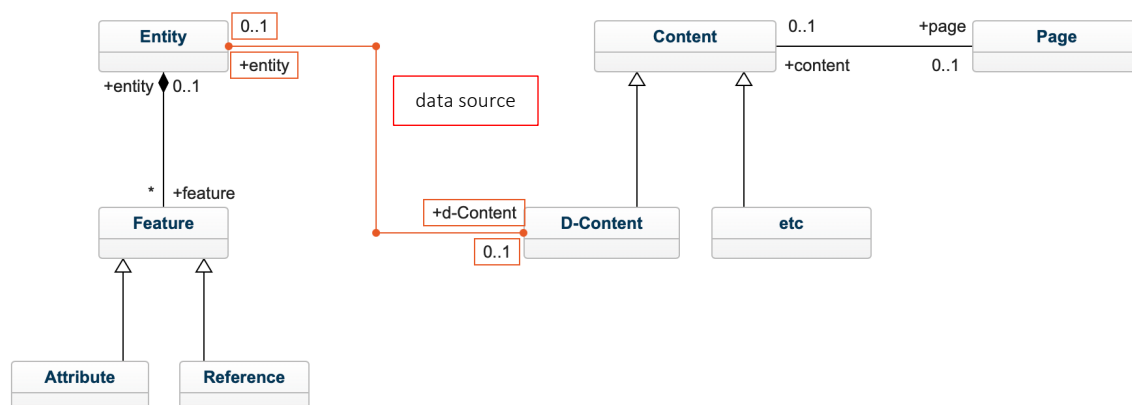
- Entity
 - o Attribute
 - o Reference
- Feature
 - o Dynamic Content
- Content
 - o Dynamic Content
- Etc

In particular, the dynamic content is supposed to model the interplay between pages and entities, or in other words: pages can have dynamic contents that describe how to retrieve persistently stored data in entities to be published on the page.

Such kind of scenarios can (mainly) describe two kinds of content:

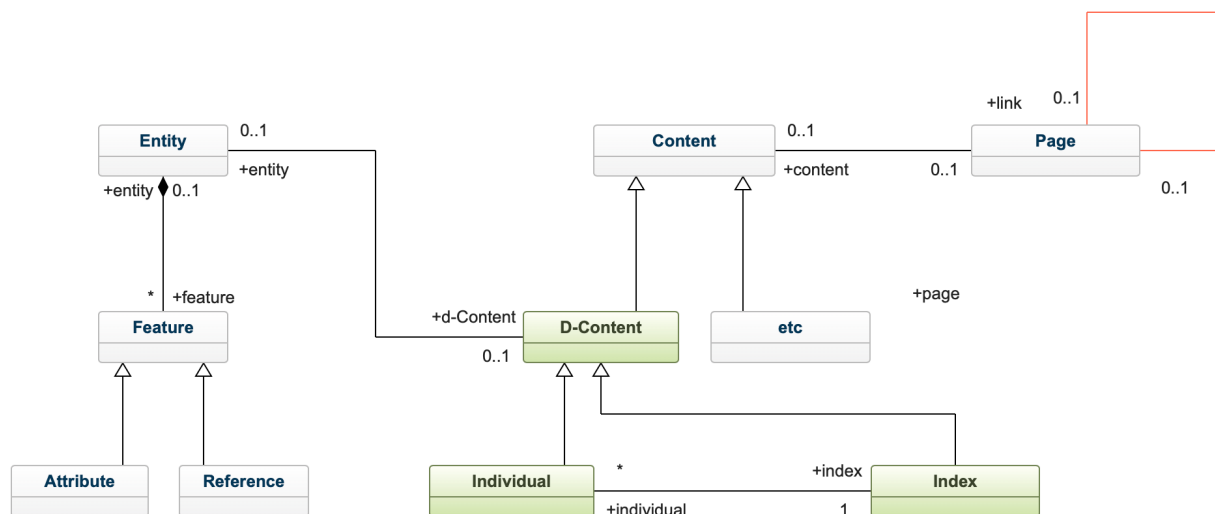
- Indexes (or list of items)
- Individual items (individual items are the typical content of a detail page)

This means that the D-Content is **not enough** to model both indexes and individual contents, i.e., in the following metamodel fragment¹ there is no way to distinguish among them with the only “data source” association.

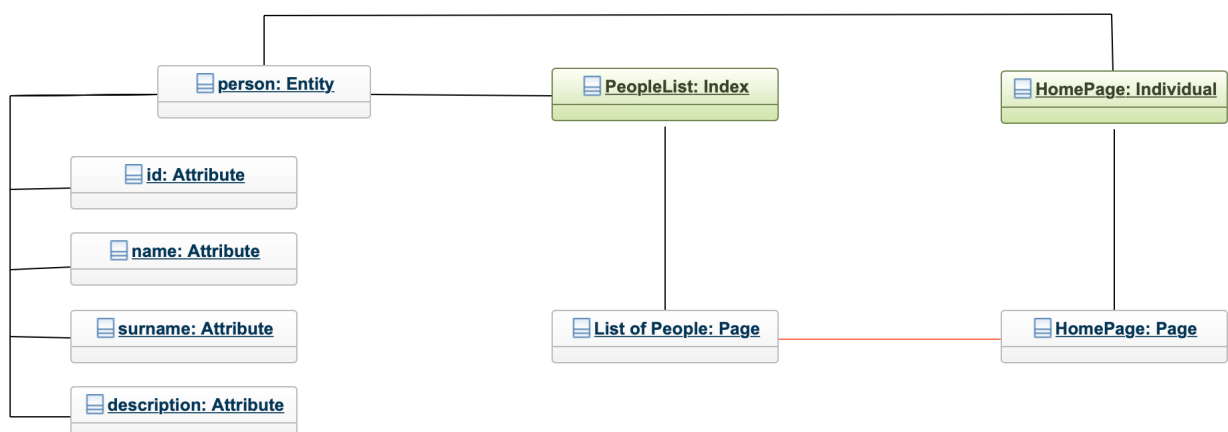


A potential solution is to extend the metamodel in such a way D-Content is specialized in Indexes and Individual so that it is possible to distinguish among them with the corresponding *typing information*, ie with the metaclasses as follows:

¹ Please consider that such a fragment is only illustrative, and you might have wanted to model things differently. The scope of the fragment is to describe the distinctions between *indexes* and *individual items*.



where the modified parts are colored (metaclasses in green, associations in red). At this point, it is possible to model a web application as follows:



in which, an entity “person” consisting of personal data about people is “feeding” the contents in the pages

- List of People
- HomePage

where in the former the list of people present in the entity is published, and in the latter one contains the detail of an individual person supposed that the link in red permits to access the key (id attribute).

What you have to do

- 1) Extend the DSL so that it is possible to distinguish between indexes and individual items and link pages
- 2) Define in the TextGen aspect rules for generating SQL queries capable of retrieving the content for indexes and individual items.

Submission

Extend the project on your local installation of MPS², then upload the zip archive of the folder in which the project is stored. During the submission, you can also upload a report (pdf) to describe and motivate what you have done: keep it simple, go right to the point, and remind that the assessment is about what you have done and not the report (but the report can help to understand the merits of what you have done).

Submission deadline (strict): November 27, 2022 at 20:00

Submission link: <https://forms.gle/HBeH5k2hCoYGmoh58>

² Make sure you are using the last version of MPS, ie 2022.3