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Literate Data Model

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Preliminaries

the basic structure of the model

In Literate Data Modeling, the main components of interest are typically Classes, Attributes, Models, and Subjects. However, to streamline the model and promote reusability, we introduce a supertype called Component. By defining common attributes and behaviors in the Component class, we can inherit them in the subclasses, ensuring consistency and reducing duplication throughout the model.

We present the Component class first because it is a best practice in modeling to introduce supertypes before their subtypes. This approach allows readers to understand the general concepts and shared properties before delving into the specifics of each specialized component.

Component

An element or building block of the literate data model

PLURAL Components

UMEDPLURAL Components

PENDENTS Annotation

UBTYPES LiterateDataModel , Subject , Class , Key , AttributeSection , Attribute , Constraint , Method , ParameterAnInputToAMethod

Name the name of the component, not in camel case

*(**String** value 0_0)*

warning This is a warning with emoji

name The name of the component

*(**CamelName** value 0_0)*

Name *(**QualifiedCamel** value 0_0)*

Name a short form of the component's name, used for cross references and improved readability.

*(**CamelName** value 0_0)*

example "LDM" is the short form of "Literate Data Model".

DEFAULT name - how do you say name in english?

OCL x.name == y

STRAINTS the abbreviated name should be shorter than the actual name

OCL len(abbreviatedName) < len(name)

MESSAGE Why have an abbreviation longer than the name?

SEVERITY Warning

note Does this annotation find it's way to the Constraint? YES! It's fixed!

eLiner A brief, one-line definition or description of the component, suitable for use in a descriptive table of contents. _

*(**OneLiner** value 0_0)*

ration A more detailed explanation or discussion of the component _

*(**RichText** value 0_0)*

y mechanical attributes

nment Indicates whether this component is an embellishment added during post-parsing processing _

*(**Boolean** value 0_0)*

DEFAULT false

note

> This attribute is set to true for components that are automatically generated or added during the fleshing out, review, or rendering processes, such as implied attributes or suggested model elements. It helps distinguish embellishments from the core model elements defined in the original LDM source.

```
  Diagram produced for Component
  erDiagram
Annotation }o--|| Component : based_on
LiterateDataModel ||--|| Component : subtype_of
Subject ||--|| Component : subtype_of
Subject }o--|| LiterateDataModel : based_on
Subject |o--o| Subject : parentSubject
Class_ ||--|| Component : subtype_of
Class_ |o--o| Class_ : basedOn
Key ||--|| Component : subtype_of
Key }o--|| Class_ : based_on
AttributeSection ||--|| Component : subtype_of
AttributeSection }o--|| Class_ : based_on
Attribute ||--|| Component : subtype_of
Attribute }o--|| AttributeSection : based_on
Constraint ||--|| Component : subtype_of
Method ||--|| Component : subtype_of
ParameterAnInputToAMethod ||--|| Component : subtype_of
```

erDiagram Annotation }o--|| Component : based_on LiterateDataModel ||--|| Component : subtype_of Subject ||--|| Component : subtype_of Subject }o--|| LiterateDataModel : based_on Subject |o--o| Subject : parentSubject Class_ ||--|| Component : subtype_of Class_ |o--o| Class_ : basedOn Key ||--|| Component : subtype_of Key }o--|| Class_ : based_on AttributeSection ||--|| Component : subtype_of AttributeSection }o--|| Class_ : based_on Attribute ||--|| Component : subtype_of Attribute }o--|| AttributeSection : based_on Constraint ||--|| Component : subtype_of Method ||--|| Component : subtype_of ParameterAnInputToAMethod ||--|| Component : subtype_of

AnnotationType

a kind of note, or aside, used to call attention to additional information about some Component.

note Each LDM declares a set of Annotation Types, with defined labels, emojis, and clearly documented purposes. These are *recognized* or *registered* Annotation Types.

Plural AnnotationTypes

umedPlural AnnotationTypes

asedOn LiterateDataModel

emoji an emoji

(Emoji value O_O)

Name an emoji

(String value O_O)

icode the Unicode for the emoji

(String value O_O)

label A short label to indicate the purpose of the annotation _

(LowerCamel value O_O)

plural the plural form of the label

(UpperCamel value O_O)

Default based on label

rpose the intended reason for the annotation.

(OneLiner value O_O)

utes

ataModel A link back to the LiterateDataModel on which this AnnotationType depends.

(LiterateDataModel value M_1)

utes

otationTyp nverse attribute for Annotation.annotationType from which this was implied.

(Annotation value M_1)

Inverse Annotation.annotationType

Diagram produced for AnnotationType
erDiagram
AnnotationType }o--|| LiterateDataModel : based_on
Annotation |o--o| AnnotationType : annotationType

```
erDiagram AnnotationType }o--|| LiterateDataModel : based_on Annotation |o--o| AnnotationType : annotationType
```

Annotation

A note or comment associated with a model element

PLURAL Annotations

UMEDPLURAL Annotations

BASEDON Component

nType *(Optional AnnotationType value O_O)*

note An Annotation is considered to *recognized* if the label is associated with an Annotation Type. otherwise it is *ad hoc* .

note Should be a Value Type

INVERSE AnnotationType.inverseOfAnnotationType

label A short label to indicate the purpose of the annotation _ *(CamelName value O_O)*

But any short label is valid.

DEFAULT from annotationType

emoji *(Optional Emoji value O_O)*

DEFAULT from annotation type

ntent The content or body of the annotation *(RichText value O_O)*

y

nment Indicates whether this annotation is an embellishment added during post-parsing processing _ *(Boolean value O_O)*

DEFAULT false

note This attribute is set to true for annotations that are automatically generated or added during the fleshing out, review, or rendering processes, such as suggestions, issues, or diagnostic messages. It helps distinguish embellishment annotations from the annotations defined in the original LDM source.

utes

onent A link back to the Component on which this Annotation depends. *(Component value M_1)*

Diagram produced for Annotation

```
erDiagram
Annotation }o--|| Component : based_on
Annotation |o--o| AnnotationType : annotationType
```

```
erDiagram Annotation }o--|| Component : based_on Annotation |o--o|
AnnotationType : annotationType
```

The Model and its Subjects

LiterateDataModel

A representation of a domain's entities, attributes, and relationships, along with explanatory text and examples

LURAL LiterateDataModels

DENTS AnnotationType , Subject

YPEOF Component

me ***(UpperCamel value O_O)***

RRIDES Component.name

cts list of all classes in the model, as ordered in the definition of the model.
(List of Classes value O_O)

VERSE Class.inverseOfAllSubjects

/ATION gathering s.allSubjects over s in subjectAreas

RAINTS Subject names must be unique across the model.

es list of all classes in the model, as ordered in the definition of the model.
(List of Classes value O_O)

VERSE Class.inverseOfAllClasses

/ATION gathering s.allClasses over s in allSubjects.

RAINTS Class names must be unique across the model.

es ***(List of AnnotationTypes value O_O)***

Language the recommended lanquage for expressing derivation, defaults, and constraints
(CodingLanguage value O_O)

EFAULT OCL

anguages ***(Optional List of CodingLanguages value O_O)***

teLanguage the recommended lanquage for expressing derivation, defaults, and constraints
(TemplateLanguage value O_O)

EFAULT Handlebars

eLanguages ***(Optional List of TemplateLanguages value O_O)***

ns A list of functions that require sophisticated AI-powered implementation *
(List of String value O_O)

/ATION ['aiEnglishPlural()']

```
  Diagram produced for LiterateDataModel
  erDiagram
AnnotationType }o--|| LiterateDataModel : based_on
LiterateDataModel ||--|| Component : subtype_of
Subject ||--|| Component : subtype_of
Subject }o--|| LiterateDataModel : based_on
Subject |o--o| Subject : parentSubject
```

erDiagram AnnotationType }o--|| LiterateDataModel : based_on LiterateDataModel ||--|| Component : subtype_of Subject ||--|| Component : subtype_of Subject }o--|| LiterateDataModel : based_on Subject |o--o| Subject : parentSubject

Subject

A specific topic or theme within the model

Subjects are the chapters an sections of the model.

- A subject need not contain any Classes if it’s just expository.

LURAL Subjects

SEDON LiterateDataModel

YPEOF Component

TYPES SubjectArea

me ***(UpperCamel value O_O)***

RRIDES Component.name

ect The parent subject, if any, under which this subject is nested _ ***(Optional Subject value O_O)***

VERSE Subject.inverseOfParentSubject

es The major classes related to this subject, in the order in which they should be presented _ ***(List of Classes value O_O)***

issue define chapter, section, subsection as levels?

VERSE Class.inverseOfClasses

cts Any child subjects nested under this subject, in the order in which they should be presented _ ***(List of Subjects value O_O)***

DSL : the Classes within a Subject are always displayed before the childSubjects.

VERSE Subject.inverseOfChildSubjects

s

Model A link back to the LiterateDataModel on which this Subject depends. ***(LiterateDataModel value M_1)***

Subject Inverse attribute for Subject.parentSubject from which this was implied. ***(Subject value M_1)***

VERSE Subject.parentSubject

ubjects Inverse attribute for Subject.childSubjects from which this was implied. ***(Subject value M_1)***

INVERSE Subject.childSubjects

Diagram produced for Subject
erDiagram
LiterateDataModel ||--|| Component : subtype_of
Subject ||--|| Component : subtype_of
Subject }o--|| LiterateDataModel : based_on
Subject |o--o| Subject : parentSubject
SubjectArea ||--|| Subject : subtype_of

erDiagram LiterateDataModel ||--|| Component : subtype_of Subject ||--|| Component : subtype_of Subject }o--|| LiterateDataModel : based_on Subject |o--o| Subject : parentSubject SubjectArea ||--|| Subject : subtype_of

SubjectArea
A main topic or area of focus within the model, containing related subjects and classes

WHERE parentSubject is absent
PLURAL SubjectAreas
BASEDON LiterateModel , Xyz
BTYPEOF Subject

utes
Model

A link back to the LiterateModel on which this SubjectArea depends.
(LiterateModel value M_1)

utes
seXyz

A link back to the Xyz on which this SubjectArea depends.
(Xyz value M_1)

Diagram produced for SubjectArea
erDiagram
Subject |o--o| Subject : parentSubject
SubjectArea ||--|| Subject : subtype_of

erDiagram Subject |o--o| Subject : parentSubject SubjectArea ||--|| Subject : subtype_of

Classes

Class

A key entity or object type in the model, often corresponding to a real-world concept

PLURAL Classes

PENDENTS Subtyping , Key , AttributeSection , ClassConstraint

BTYPEOF Component

SUBTYPES ReferenceType

STRAINTS Within each Class, attribute names must be unique.

lForm the normal English plural form of the name of the Class

(UpperCamel value O_O)

Might be Books for the Book class or other regular plurals.

- But also might be People for Person.

note When inputting a model, you will rarely need to specify the plural form. The input program will just look it up.

DEFAULT the regular plural, formed by adding "s" or "es".

sedOn the Class or Classes on which this class is dependent

(Set of Class value O_O)

This is solely based on **Existence Dependency** . A true dependent entity cannot logically exist without the related parent entity. For instance, an Order Item cannot exist without an Order. If removing the parent entity logically implies removing the dependent entity, then it is a dependent entity.

note that basedOn and dependentOf are being used synonymousle in this metamodel.

INVERSE Class.inverseOfBasedOn

rtypes The parent class

(Es value O_O)

pings the criteria, or dimensions, by which the class can be divided into subtypes

(List of Subtypings value O_O)

example in a library model, the `Book` class could have subtypings based on genre (e.g., Fiction, Non-fiction), format (e.g., Hardcover, Paperback), or subject (e.g., Science, History).

INVERSE Subtyping.inverseOfSubtypings

types Any subtypes or specializations of this class based on it's subtypings.

(List of Classes value O_O)

ample For instance, using the `Book` example, the subtypes could include `FictionBook` , `Non-fictionBook` , `HardcoverBook` , `PaperbackBook` , `ScienceBook` , and `HistoryBook` .

VERSE Class.inverseOfSubtypes

tes The attributes or properties of the class, in the order in which they should be presented _
(List of Attributes value O_O)

VERSE Attribute.inverseOfAttributes

ns additional attributes or properties of the class, grouped for clarity and elaboration. _
(List of AttributeSections value O_O)

VERSE AttributeSection.inverseOfAttributeSections

nts Any constraints, rules, or validations specific to this class _
(List of Constraints value O_O)

note Constraints may be expressed on either the Class or the Attribute. Always?

ds Any behaviors or operations associated with this class _
(List of Methods value O_O)

VERSE Method.inverseOfMethods

s

nts the Classes which are basedOn this Class
(Optional Set of Classes value O_O)

VERSE Class.basedOn

ys *(Optional Set of UniqueKeys value O_O)*

VERSE UniqueKey.basedOn

s

ects Inverse attribute for LiterateDataModel.allSubjects from which this was implied.
(LiterateDataModel value M_1)

VERSE LiterateDataModel.allSubjects

ses Inverse attribute for LiterateDataModel.allClasses from which this was implied.
(LiterateDataModel value M_1)

VERSE LiterateDataModel.allClasses

es Inverse attribute for Subject.classes from which this was implied.
(Subject value M_1)

INVERSE Subject.classes

sedOn Inverse attribute for Class.basedOn from which this was implied.

(Class value M_1)

INVERSE Class.basedOn

types Inverse attribute for Class.subtypes from which this was implied.

(Class value M_1)

INVERSE Class.subtypes

asses Inverse attribute for Subtyping.classes from which this was implied.

(Subtyping value M_1)

INVERSE Subtyping.classes

eClass Inverse attribute for SimpleDataTypeSubtpeOfDataType.coreClass from which this was implied.

(SimpleDataTypeSubtpeOfDataType value M_1)

INVERSE SimpleDataTypeSubtpeOfDataType.coreClass

Diagram produced for Class_
erDiagram
Class_ ||--|| Component : subtype_of
Class_ |o--o| Class_ : basedOn
Subtyping }o--|| Class_ : based_on
ReferenceType ||--|| Class_ : subtype_of
Key ||--|| Component : subtype_of
Key }o--|| Class_ : based_on
AttributeSection ||--|| Component : subtype_of
AttributeSection }o--|| Class_ : based_on
ClassConstraint }o--|| Class_ : based_on

erDiagram Class_ ||--|| Component : subtype_of Class_ |o--o| Class_ : basedOn Subtyping }o--|| Class_ : based_on ReferenceType ||--|| Class_ : subtype_of Key ||--|| Component : subtype_of Key }o--|| Class_ : based_on AttributeSection ||--|| Component : subtype_of AttributeSection }o--|| Class_ : based_on ClassConstraint }o--|| Class_ : based_on

Subtyping

a way in which subtypes of a Class may be classified

LURAL Subtypings

EDPLURAL Subtypings

SEDON Class

me ***(LowerCamel value O_O)***

ive ***(Boolean value O_O)***

EFAULT true

ive ***(Boolean value O_O)***

EFAULT true

es ***(List of Classes value O_O)***

DSL : Shown in the DSL as

  - Subbtypes: byBrand - Brand1, Brand2,... (non exclusive, exhaustive)
- on the super class. And as
  - Subtype of: SuperClass byBrand
- on the subclass.

note every class can have an unnamed subtyping.

VERSE Class.inverseOfClasses

s
ings

Inverse attribute for Class.subtypings from which this was implied.

(Class value M_1)

VERSE Class.subtypings

ss

A link back to the Class on which this Subtyping depends.

(Class value M_1)

Diagram produced for Subtyping
erDiagram
Class_ |o--o| Class_ : basedOn
Subtyping }o--|| Class_ : based_on

erDiagram Class_ |o--o| Class_ : basedOn Subtyping }o--|| Class_ : based_on

ReferenceType
A class that is presumed to be used as a reference, rather than a value

PLURAL ReferenceTypes
UMEDPLURAL ReferenceTypes
BTYPEOF [Class]

Diagram produced for ReferenceType
erDiagram
Class_ |o--o| Class_ : basedOn
ReferenceType ||--|| Class_ : subtype_of

erDiagram Class_ |o--o| Class_ : basedOn ReferenceType ||--|| Class_ : subtype_of

lue Type **CodeType**
A data type or enumeration used in the model

PLURAL CodeTypes
UMEDPLURAL CodeTypes
PENDENTS [CodeValue]

aptive the code type was implied by use in an attribute and is only used for that attribute
(Boolean value O_O)

Diagram produced for CodeType
erDiagram
CodeValue }o--|| CodeType : based_on

erDiagram CodeValue }o--|| CodeType : based_on

lue Type **CodeValue**
A possible value for an enumerated data class

PLURAL CodeValues
UMEDPLURAL CodeValues
BASEDON [CodeType]

code A short code or abbreviationi for the value _
(NameString value O_O)

iption an explanation of what the code means
(RichText value O_O)

note Often, a CodeType will be assigned to just one attribute in the model. In such cases, there's no need to declare a new Code Type and invent a name for it. Instead:

s
pe

A link back to the CodeType on which this CodeValue depends.

(CodeType value M_1)

Diagram produced for CodeValue
erDiagram
CodeValue }o--|| CodeType : based_on

erDiagram CodeValue }o--|| CodeType : based_on

Key

a list of attributes of a class

PLURAL Keys

UMEDPLURAL Keys

BASEDON Class

BTYPEOF Component

SUBTYPES UniqueKey

butes the attributes of the base Class.

(List of Attributes value O_O)

INVERSE Attribute.inverseOfKeyAttributes

STRAINTS each attribute must be a direct or inherited of the base class.

STRAINTS no repetitions allowed in keyAttributes

☛ **Issue** : introduce PureLists?

issue need ascending descending to support index keys or ordering keys.

utes
Class A link back to the Class on which this Key depends.

(Class value M_1)

Diagram produced for Key
erDiagram
Class_ ||--|| Component : subtype_of
Class_ |o--o| Class_ : basedOn
Key ||--|| Component : subtype_of
Key }o--|| Class_ : based_on
UniqueKey ||--|| Key : subtype_of

erDiagram Class_ ||--|| Component : subtype_of Class_ |o--o| Class_ : basedOn Key ||--|| Component : subtype_of Key }o--|| Class_ : based_on UniqueKey ||--|| Key : subtype_of

UniqueKey

a list of attributes on which instances of the base class may be keyed.

note order unimportant for Unique Keys.

LURAL UniqueKeys

EDPLURAL UniqueKeys

YPEOF Key

Diagram produced for UniqueKey
erDiagram
UniqueKey ||--|| Key : subtype_of

erDiagram UniqueKey ||--|| Key : subtype_of

Attributes

AttributeSection

a group of attributes for a class that merit a shared explanation.

LURAL AttributeSections
EDPLURAL AttributeSections
SEDON Class
DENTS Attribute
YPEOF Component

nal

whether the attributes in this section, taken together, are optional.

*(**Boolean** value O_O)*

If the Attribute Section is required,then each Attribute within the sectional is optional ot required, depending on how it is marked.

-
- But if the Arrribute Section is optional each attribute in the section is only required if any attribute in the section is ptresent.

s
teSections

Inverse attribute for Class.attributeSections from which this was implied.

*(**Class** value M_1)*

VERSE Class.attributeSections

s
ss

A link back to the Class on which this AttributeSection depends.

*(**Class** value M_1)*

Diagram produced for AttributeSection
erDiagram
Class_ ||--|| Component : subtype_of
Class_ |o--o| Class_ : basedOn
AttributeSection ||--|| Component : subtype_of
AttributeSection }o--|| Class_ : based_on
Attribute ||--|| Component : subtype_of
Attribute }o--|| AttributeSection : based_on

erDiagram Class_ ||--|| Component : subtype_of Class_ |o--o| Class_ : basedOn AttributeSection ||--|| Component : subtype_of AttributeSection }o--|| Class_ : based_on Attribute ||--|| Component : subtype_of Attribute }o--|| AttributeSection : based_on

Attribute
A property or characteristic of a class

PLURAL Attributes
BASEDON AttributeSection
PENDENTS AttributeConstraint
BTYPEOF Component

name ***(LowerCamel value O_O)***

VERRIDES Component.name

aType The kind of object to which the attribute refers. _ ***(DataType value O_O)***

But,

- ◦ List of Editions
- ◦ Set of Edition
- ◦ ... and more complicated cases.

see the section below on Data Type Specifiers.

tional Indicates whether the attribute must have a value for every instance of the class _ ***(Boolean value O_O)***

DEFAULT *** False

inality The cardinality of the relationship represented by the attribute _ ***(CardinalityCode value O_O)***

DEFAULT

*** For a singular attribute, the default cardinality is N:1. If the attribute is 1:1, it must be stated explicitly. For a collective attribute, the default is 1:N. If the attribute is N:M, it must be stated explicitly.

rExample

uthor ***(InventedName value O_O)***

books ***(Optional InventedName value O_O)***

note how this works with optionality

utes
ertible ***(Boolean value O_O)***

ERIVATION true if the data type is a class or a simple collection of members of a class.

ss the class which contains, or would contain the inverse attribute

(Optional Class value O_O)

VATION from the data type. Null unless arrribute is invertible.

ute *(Optional Attribute value O_O)*

nal *(Optional Attribute value O_O)*

ult The rule or formula for calculating the value, if no value is supplied Now running to a second line with the parenthetical on yet a third line

(Optional Derivation value O_O)

note even when an Attribute has a default derivation, there’s no guarantee that every instance will have an assigned value. Example needed.

on For derived attributes, the rule or formula for calculating the value _

(Optional Derivation value O_O)

issue on insert vs on access?

nts Any validation rules specific to this attribute _

(List of Constraints value O_O)

note from Class.constraints

q

les

s

tes Inverse attribute for Class.attributes from which this was implied.

(Class value M_1)

VERSE Class.attributes

ributes Inverse attribute for Key.keyAttributes from which this was implied.

(Key value M_1)

VERSE Key.keyAttributes

tion A link back to the AttributeSection on which this Attribute depends.

(AttributeSection value M_1)

Diagram produced for Attribute

erDiagram

AttributeSection ||--|| Component : subtype_of

Attribute ||--|| Component : subtype_of

Attribute }o--|| AttributeSection : based_on

Attribute |o--o| DataType : dataType

AttributeConstraint }o--|| Attribute : based_on

erDiagram AttributeSection ||--|| Component : subtype_of Attribute ||--|| Component : subtype_of Attribute }o--|| AttributeSection : based_on Attribute |o--o| DataType : dataType AttributeConstraint }o--|| Attribute : based_on

lue Type **Derivation**
A rule or formula for deriving the value of an attribute

PLURAL Derivations

ement An English language statement of the derivation rule _
(RichText value O_O)

ssion The formal expression of the derivation in a programming language _
(CodeExpression value O_O)

No diagram produced for Derivation

lue Type **Constraint**
A rule, condition, or validation that must be satisfied by the model

PLURAL Constraints
BTYPEOF Component
UBTYPES ClassConstraint , AttributeConstraint

ement An English language statement of the constraint _
(RichText value O_O)

ssion The formal expression of the constraint in a programming language
(InventedName value O_O)

verity ***(Code value O_O)***

```
Warning, nothing fatal; just a caution
Error, serious. Fix now
```

Diagram produced for Constraint
erDiagram
Constraint ||--|| Component : subtype_of
ClassConstraint ||--|| Constraint : subtype_of
AttributeConstraint ||--|| Constraint : subtype_of

erDiagram Constraint ||--|| Component : subtype_of ClassConstraint ||--||

Constraint : subtype_of AttributeConstraint ||--|| Constraint : subtype_of

Type **Message**

LURAL Messages

EDPLURAL Messages

Message is trivial; no diagram

Type **ClassConstraint**

LURAL ClassConstraints

EDPLURAL ClassConstraints

SEDON Class

YPEOF Constraint

s

ss A link back to the Class on which this ClassConstraint depends.

(Class value M_1)

Diagram produced for ClassConstraint
erDiagram
Class_ |o--o| Class_ : basedOn
ClassConstraint ||--|| Constraint : subtype_of
ClassConstraint }o--|| Class_ : based_on

erDiagram Class_ |o--o| Class_ : basedOn ClassConstraint ||--|| Constraint : subtype_of ClassConstraint }o--|| Class_ : based_on

Type **AttributeConstraint**

LURAL AttributeConstraints

EDPLURAL AttributeConstraints

SEDON Attribute

YPEOF Constraint

s

ute A link back to the Attribute on which this AttributeConstraint depends.

(Attribute value M_1)

Diagram produced for AttributeConstraint
erDiagram
AttributeConstraint ||--|| Constraint : subtype_of

AttributeConstraint }o--|| Attribute : based_on

erDiagram AttributeConstraint ||--|| Constraint : subtype_of AttributeConstraint }o--|| Attribute : based_on

lue Type **CodeExpression**

PLURAL CodeExpressions

UMEDPLURAL CodeExpressions

guage the programming language

(Code value O_O)

```
OCL, Object Constraint Language
Java, Java
```

ession *(String value O_O)*

CodeExpression is trivial; no diagram

BLANK

Methods

Method

A behavior or operation associated with a class

LURAL Methods

YPEOF Component

ers

The input parameters of the method _

(List of Parameters value O_O)

VERSE ParameterAnInputToAMethod.inverseOfParameters

pe

The data type of the value returned by the method _

(DataType value O_O)

s

ds

Inverse attribute for Class.methods from which this was implied.

(Class value M_1)

VERSE Class.methods

Diagram produced for Method

erDiagram

Method ||--|| Component : subtype_of

Method |o--o| DataType : returnType

erDiagram Method ||--|| Component : subtype_of Method |o--o| DataType : returnType

ParameterAnInputToAMethod

PLURAL Parameters

BTYPEOF Component

type

The data type of the parameter _

(DataType value O_O)

inality

The cardinality of the parameter

(InventedName value O_O)

utes

ameters

thod

Inverse attribute for Method.parameters from which this was implied.

(Method value M_1)

INVERSE Method.parameters

Diagram produced for ParameterAnInputToAMethod
erDiagram
ParameterAnInputToAMethod ||--|| Component : subtype_of
ParameterAnInputToAMethod |o--o| DataType : type

erDiagram ParameterAnInputToAMethod ||--|| Component : subtype_of
ParameterAnInputToAMethod |o--o| DataType : type

BLANK

Data Types

Type **DataType**

LURAL DataTypes

EDPLURAL DataTypes

Diagram produced for DataType
erDiagram
Attribute |o--o| DataType : dataType
Method |o--o| DataType : returnType
ParameterAnInputToAMethod |o--o| DataType : type

erDiagram Attribute |o--o| DataType : dataType Method |o--o| DataType : returnType ParameterAnInputToAMethod |o--o| DataType : type

Type **SimpleDataTypeSubtpeOfDataType**

LURAL SimpleDataTypeSubtpeOfDataTypes

EDPLURAL SimpleDataTypeSubtpeOfDataTypes

ss *(Class value O_O)*

VERSE Class.inverseOfCoreClass

SimpleDataTypeSubtpeOfDataType is trivial; no diagram

Type **ComplexDataType**

LURAL ComplexDataTypes

EDPLURAL ComplexDataTypes

on *(AggregatingOperator value O_O)*

es *(List of DataTypes value O_O)*

Diagram produced for ComplexDataType
erDiagram

erDiagram

Type **AggregatingOperator**

LURAL AggregatingOperators

EDPLURAL AggregatingOperators

me *(Code value O_O)*

```
 SetOf
ListOf
Mapping
```

arity (Integer value O_O)

elling (Template value O_O)

AggregatingOperator is trivial; no diagram

BLANK

Low level Data Types

insert Camel Case.md

Type **Emoji**

LURAL Emojis

EDPLURAL Emojis

Emoji is trivial; no diagram

Type **String**

LURAL Strings

EDPLURAL Strings

String is trivial; no diagram

Type **CamelName**

A short string without punctuation or spaces, suitable for names, labels, or identifiers and presented in camel case.

LURAL CamelNames

EDPLURAL CamelNames

YPEOF String

TYPES UpperCamel , LowerCamel

ng ***(String value O_O)***

RAINTS Must follow the camel case naming convention and not be empty.

xample "firstName", "orderDate", "customerID"

ngNote

- *CamelName* is presented here, just after its first usage by another class (Component), to provide context and understanding before it is used further in the model.

CamelName is trivial; no diagram

Type **UpperCamel**

a CamelName that begins with a capital letter

ample _ "Customer", "ProductCategory", "PaymentMethod"

WHERE content begins with an upper case letter.

PLURAL UpperCamels

UMEDPLURAL UpperCamels

BTYPEOF CamelName

UpperCamel is trivial; no diagram

lue Type **LowerCamel**

a CamelName that begins with a lower case letter

example "firstName", "orderTotal", "shippingAddress"

WHERE content begins with a lower case letter.

PLURAL LowerCamels

UMEDPLURAL LowerCamels

BTYPEOF CamelName

LowerCamel is trivial; no diagram

lue Type **QualifiedCamel**

an expression consisting of Camel Names separated by periods

PLURAL QualifiedCamels

UMEDPLURAL QualifiedCamels

BTYPEOF String

STRAINTS

content consists of CamelNames, separated by periods. Each of the camel names must be Upper Camel except, possibly, the first.

QualifiedCamel is trivial; no diagram

ValueTypeRichText
A string with markup for block level formatting.

LURAL ValueTypeRichTexts
EDPLURAL ValueTypeRichTexts
YPEOF String

lue the string content
(String value O_O)

nat the rich text coding language used
(Code value O_O)

```
HTML
MarkDown
```

ValueTypeRichText is trivial; no diagram

Type **OneLiner**
String with markup for line level formatting.

LURAL OneLiners
EDPLURAL OneLiners
YPEOF RichText

lue the string content
(String value O_O)

RAINTS must not containa line break or new line character
ESSAGE A line can't span two lines

OneLiner is trivial; no diagram

Type **PrimitiveType**
A basic, built-in data type

LURAL PrimitiveTypes
EDPLURAL PrimitiveTypes
TYPES String , Integer , Decimal , Boolean , Date , Time , DateTime

PrimitiveType is trivial; no diagram

Type **String**

PLURAL Strings
UMEDPLURAL Strings
BTYPEOF PrimitiveType
SUBTYPES CamelName , QualifiedCamel , ValueTypeRichText

String is trivial; no diagram

lue Type **Integer**

PLURAL Integers
UMEDPLURAL Integers
BTYPEOF PrimitiveType

Integer is trivial; no diagram

lue Type **Decimal**

PLURAL Decimals
UMEDPLURAL Decimals
BTYPEOF PrimitiveType

Decimal is trivial; no diagram

lue Type **Boolean**

PLURAL Booleans
UMEDPLURAL Booleans
BTYPEOF PrimitiveType

Boolean is trivial; no diagram

lue Type **Date**

PLURAL Dates
UMEDPLURAL Dates
BTYPEOF PrimitiveType

Date is trivial; no diagram

lue Type **Time**

PLURAL Times

EDPLURAL Times
YPEOF PrimitiveType

Time is trivial; no diagram

Type **DateTime**

LURAL DateTimes
EDPLURAL DateTimes
YPEOF PrimitiveType

DateTime is trivial; no diagram

Annotation Types Used

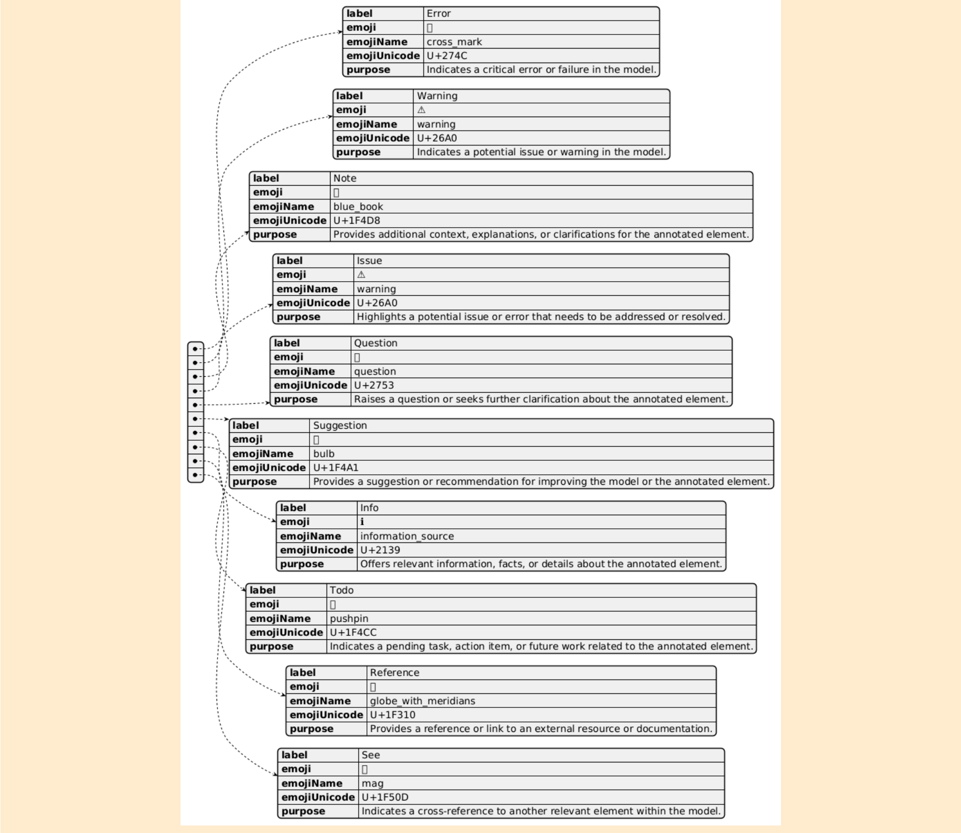
These are the recognized Annotation Types for the LDM model.

And this is how you register the AnnotationTyped for a model. By including this sort of array in the DSL document for the model.

```
@startjson

[
{
"label": "Error",
"emoji": "❌",
"emojiName": "cross_mark",
"emojiUnicode": "U+274C",
"purpose": "Indicates a critical error or failure in the model."
},
{
"label": "Warning",
"emoji": "⚠",
"emojiName": "warning",
"emojiUnicode": "U+26A0",
"purpose": "Indicates a potential issue or warning in the model."
},
{
"label": "Note",
"emoji": "📘",
"emojiName": "blue_book",
"emojiUnicode": "U+1F4D8",
"purpose": "Provides additional context, explanations, or
clarifications for the annotated element."
},
{
"label": "Issue",
"emoji": "⚠",
"emojiName": "warning",
"emojiUnicode": "U+26A0",
"purpose": "Highlights a potential issue or error that needs to be
addressed or resolved."
},
{
"label": "Question",
"emoji": "❓",
"emojiName": "question",
"emojiUnicode": "U+2753",
"purpose": "Raises a question or seeks further clarification about
the annotated element."
},
{
"label": "Suggestion",
"emoji": "💡",
```

Annotation Types Used



label	Error
emoji	▯
emojiName	cross_mark
emojiUnicode	U+274C
purpose	Indicates a critical error or failure in the model.

label	Warning
emoji	⚠
emojiName	warning
emojiUnicode	U+26A0
purpose	Indicates a potential issue or warning in the model.

label	Note
emoji	▯
emojiName	blue_book
emojiUnicode	U+1F4D8
purpose	Provides additional context, explanations, or clarifications for the annotated element.

label	Issue
emoji	⚠
emojiName	warning
emojiUnicode	U+26A0
purpose	Highlights a potential issue or error that needs to be addressed or resolved.

label	Question
emoji	▯
emojiName	question
emojiUnicode	U+2753
purpose	Raises a question or seeks further clarification about the annotated element.

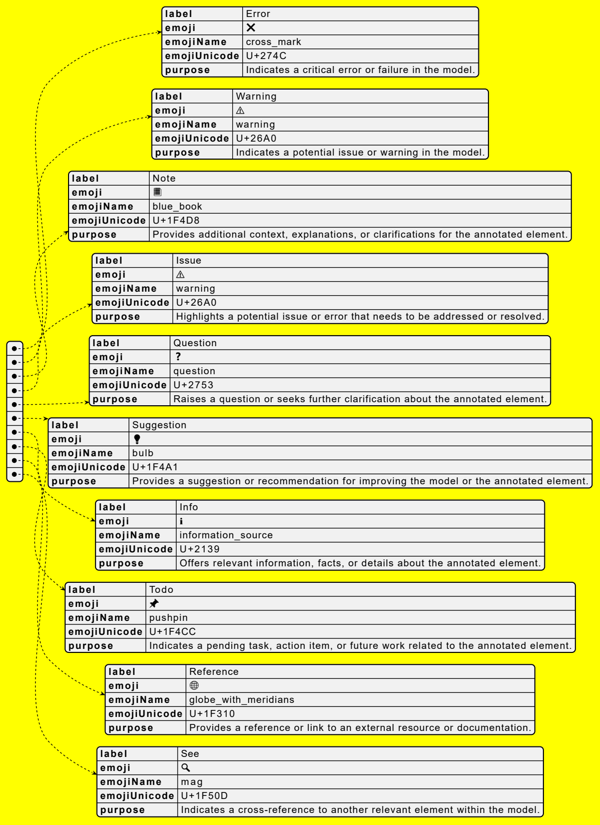
label	Suggestion
emoji	▯
emojiName	bulb
emojiUnicode	U+1F4A1
purpose	Provides a suggestion or recommendation for improving the model or the annotated element.

label	Info
emoji	ℹ
emojiName	information_source
emojiUnicode	U+2139
purpose	Offers relevant information, facts, or details about the annotated element.

label	Todo
emoji	▯
emojiName	pushpin
emojiUnicode	U+1F4CC
purpose	Indicates a pending task, action item, or future work related to the annotated element.

label	Reference
emoji	▯
emojiName	globe_with_meridians
emojiUnicode	U+1F310
purpose	Provides a reference or link to an external resource or documentation.

label	See
emoji	▯
emojiName	mag
emojiUnicode	U+1F50D
purpose	Indicates a cross-reference to another relevant element within the model.



label	Error
emoji	❌
emojiName	cross_mark
emojiUnicode	U+274C
purpose	Indicates a critical error or failure in the model.

label	Warning
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emojiName	warning
emojiUnicode	U+26A0
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label	Question
emoji	❓
emojiName	question
emojiUnicode	U+2753
purpose	Raises a question or seeks further clarification about the annotated element.

label	Suggestion
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emojiName	bulb
emojiUnicode	U+1F4A1
purpose	Provides a suggestion or recommendation for improving the model or the annotated element.

label	Info
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emojiName	information_source
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label	Reference
emoji	🌐
emojiName	globe_with_meridians
emojiUnicode	U+1F310
purpose	Provides a reference or link to an external resource or documentation.

label	See
emoji	🔍
emojiName	mag
emojiUnicode	U+1F50D
purpose	Indicates a cross-reference to another relevant element within the model.

Annotation types as CSV

```
label,emoji,emojiName,emojiUnicode,purpose
Error,❌,cross_mark,U+274C,Indicates a critical error or failure in the model.
Warning,⚠,warning,U+26A0,Indicates a potential issue or warning in the model.
Note,📘,blue_book,U+1F4D8,"Provides additional context, explanations, or clarifications for the annotated element."
Issue,⚠,warning,U+26A0,Highlights a potential issue or error that needs to be addressed or resolved.
Question,❓,question,U+2753,Raises a question or seeks further clarification about the annotated element.
Suggestion,💡,bulb,U+1F4A1,Provides a suggestion or recommendation for improving the model or the annotated element.
Info,ℹ,information_source,U+2139,"Offers relevant information, facts, or details about the annotated element."
Todo,📌,pushpin,U+1F4CC,"Indicates a pending task, action item, or future work related to the annotated element."
Reference,🌐,globe_with_meridians,U+1F310,Provides a reference or link to an external resource or documentation.
See,🔍,mag,U+1F50D,Indicates a cross-reference to another relevant element within the model.
```

	label	emoji	emojiName	emojiUnicode	purpose
0	Error	❌	cross_mark	U+274C	Indicates a critical error or failure in the model.
1	Warning	⚠	warning	U+26A0	Indicates a potential issue or warning in the model.
2	Note	📘	blue_book	U+1F4D8	Provides additional context, explanations, or clarifications for the annotated element.
					Highlights a potential issue

Appendices

various sidebars to include Insert More Sidebars.md Insert Overrides.md insert LDM Intro.md Insert OCL.md Insert Camel Case.md

== content to add