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Dental Chart: Clinical Model Derived HL7 CDA Templates in Rapid Development Environment

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Modelling

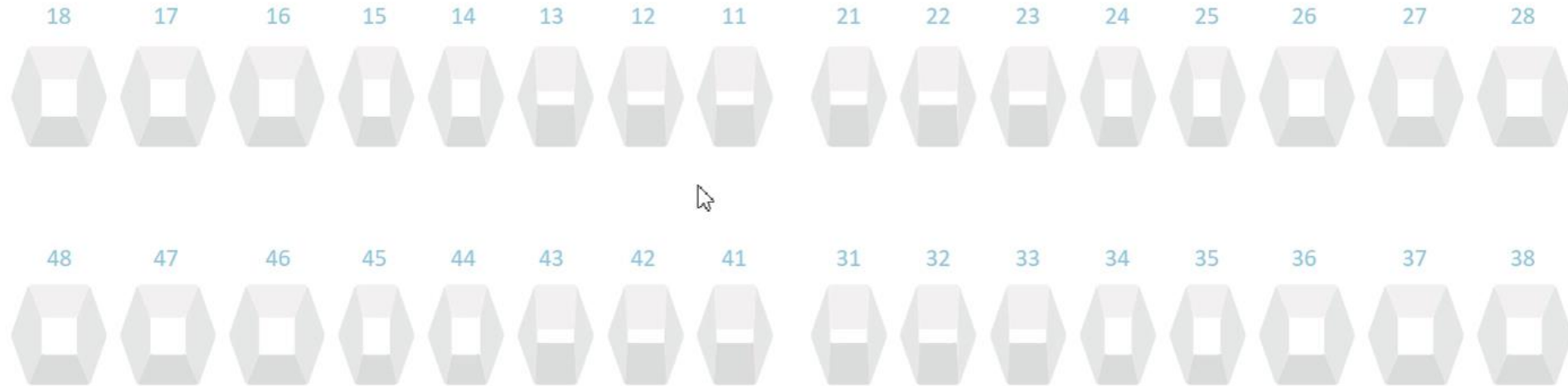
- Domain clinical model (DCM) for the dental chart have been created:
 - using Clinical Information Modeling Initiative (CIMI) approach,
 - adequate UML profile has been chosen in conformance to Archetype Modelling Language (AML).
- The model covered:
 - different types of dental charts,
 - tooth organs and their surfaces,
 - tooth statuses and conditions,
 - kind of procedures to be performed on teeth.
- The model was the central pillar for creation of HL7 CDA R-MIM based templates.



Templates and terminology

- We have designed HL7 CDA implementation guide in a form of templates defined using HL7 Templates standard (formerly DECOR).
- Regarding terminology for precise coding of teeth, conditions and kind of procedures:
 - SNOMED-CT has been chosen,
 - proper value sets have been defined to be used in templates.
- We have used ART-DECOR environment for templates and values sets creation
 - ART-DECOR project XML specification file was the main processable artifact to support software implementation.

User interface



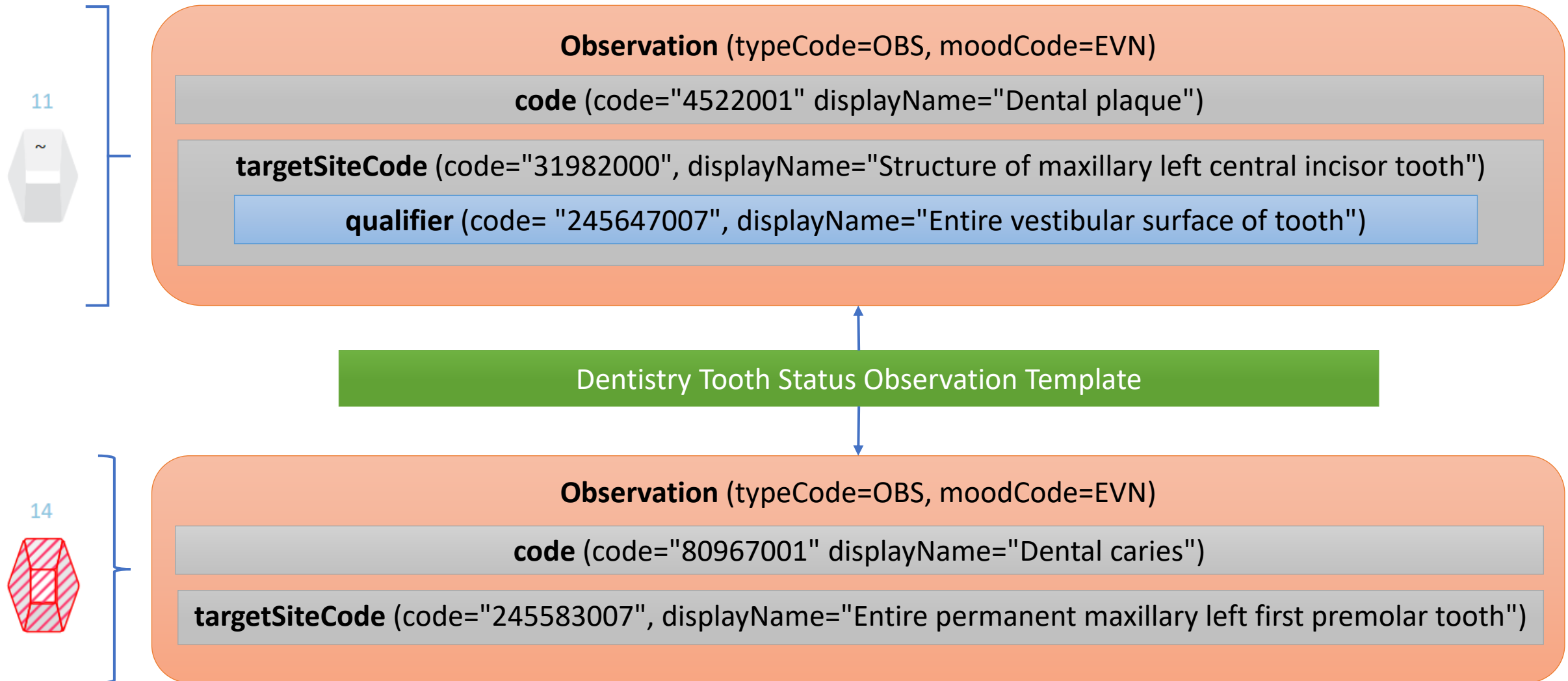
- Usage of complex terminology powered by the SNOMED-CT coding, which is transparent to the end-user because of the properly designed and functional front-end interface



Templates-driven implementation

- MARC-HI Everest Framework is used for serialization and deserialization of HL7 CDA documents.
- Main clinical document object model in a form of template classes with annotations derived from Templates ITS (DECOR) specification:
 - code base: CDA R2 R-MIM classes generated using MARC-HI Everest GPMR utility from MIF definition,
 - template classes and value set enumerations generation supported by MARC-HI Everest Sherpas functionality.
- Microsoft Visual Studio as the development environment:
 - build-in graphical form designer,
 - implementation of input and context data processing,
 - custom libraries created to support creation of data bindings between form controls, input data and template elements.
- Document instance validation based on Everest build-in validation capability.

Clinical document entries



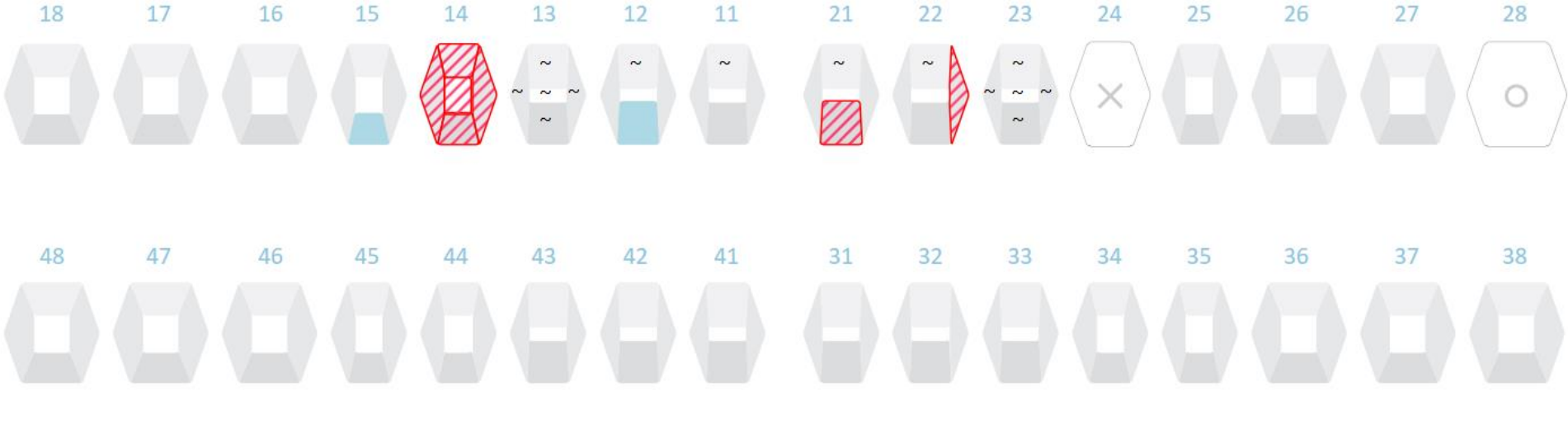
Clinical document entries

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value

representation (value="B64")

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Dentistry Dental Chart Observation Media Template