**HAPI-FHIR Starter Project [Enhancement]**

**Terminology Server:**

The HAPI server runs a terminology service which is useful for the task. The only configuration that is needed is to add the ICD-10 conditions as well as the LOINC codes as terminology data to the server.

**ICD-10:**

To add the ICD-10 condition, the following steps need to be performed -

* Use web scraping technique (from the data at: https://icd.who.int/browse10/2019/en) to generate a disease dataset.
* Generate JSON file using code, display and definition for each of the disease available in the dataset.
* Generate a CodeSystem object based on the basic CodeSystem template (from https://www.hl7.org/fhir/codesystem.html).
* Add the concept maps to the CodeSystem in the 'concept' attribute.
* Upload the CodeSystem to the terminology server

This json data basically constitutes the concept map of the terminology. The concept map was directly added to the CodeSystem inside the ‘concept’ array. The CodeSystem was uploaded to the terminology server using the “Update as Create” method to set its ID properly (to ‘icd-10’).

**LOINC:**

Unlike ICD-10, LOINC (https://loinc.org/downloads/) provides a dataset download which can be directly uploaded to the terminology server using the ‘upload-terminology’ cli command available from the hapi-fhir-cli. However, this requires enabling the upload-terminology feature in the server, which is done by flipping a flag in the code.

To add the LOINC codes, the follow steps were performed –

* Download the ‘complete’ package from LOINC
* Define a 'loincupload.properties' file containing the `answerlist.version` and the `conceptmap.version` variables
* Upload the package to the terminology server using the upload-terminology command (specify the LOINC zip file, the 'loincupload.properties' file, the loinc web url and the local hapi server instance)

This creates the official terminology structure containing: a CodeSystem, required ConceptMaps and ValueSets defining the official LOINC value sets. In this case the CodeSystem does not contain all the concept maps, but a few concept maps are generated and stored as separate ConceptMap objects in the terminology server. The official structure includes ValueSets which group these concept maps into subsets.