CS6440: Introduction to Health Informatics
FHIR Shorthand (FSH) Lab Report

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***Abstract*—**This report documents the FHIR Shorthand (FSH) Lab conducted in the Spring 2024 offering of CS6440: Introduction to Health Informatics. The lab focuses on creating a FHIR Implementation Guide using FSH, encompassing profiles, extensions, and examples that demonstrate the utility and application of FSH in defining FHIR resources.

GITHUB REPOSITORY

Access to the GitHub repository: https://github.gatech.edu/jhuang709/fsh-lab. TAs have been granted access as per the assignment requirements.

SUSHI-CONFIG.YAML

Link to the `sushi-config.yaml` in the repository: sushi-config.yaml.

PROFILES AND EXTENSION

MyPatient Profile

- FSH Input File: MyPatient.fsh
- Generated JSON: StructureDefinition-MyPatient.json
- Screenshot of MyPatient Differential Table 1:

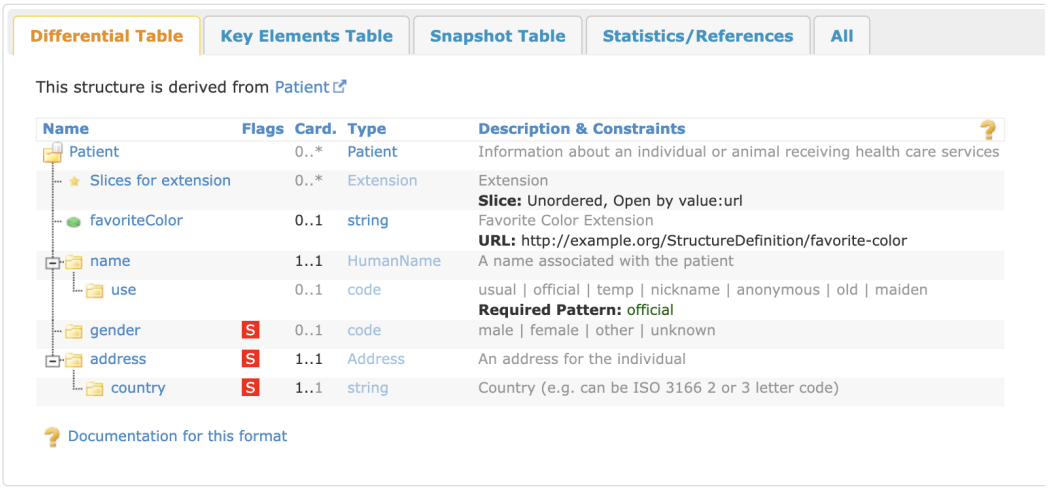

Figure 1—Screenshot of MyPatient Differential Table

WeightObservation Profile

- FSH Input File: WeightObservation.fsh
- Generated JSON: StructureDefinition-WeightObservation.json
- Screenshot of WeightObservation Differential Table 2:

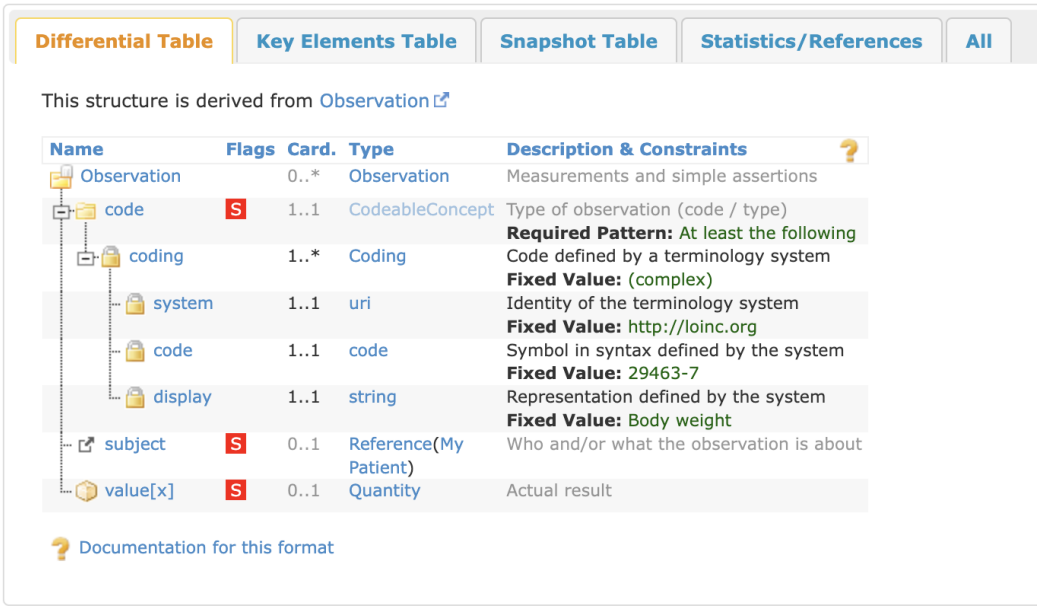

Figure 2—Screenshot of WeightObservation Differential Table

FavoriteColorExtension

- FSH Input File: FavoriteColorExtension.fsh
- Generated JSON: StructureDefinition-FavoriteColor.json
- Screenshot of FavoriteColor Differential Table 3:

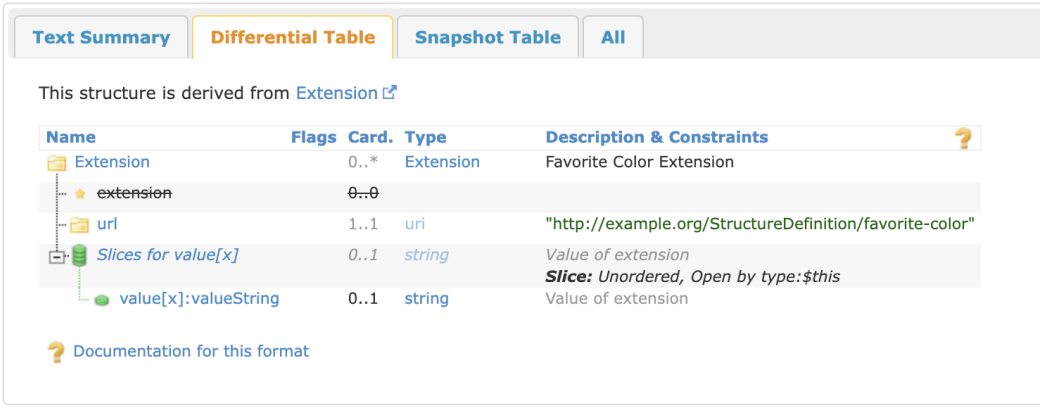

Figure 3—Screenshot of FavoriteColor Differential Table

SpecificVaccination Profile (Custom Profile)

- FSH Input File: SpecificVaccination.fsh
- Generated JSON: StructureDefinition-SpecificVaccination.json
- Screenshot of SpecificVaccination Differential Table 4:

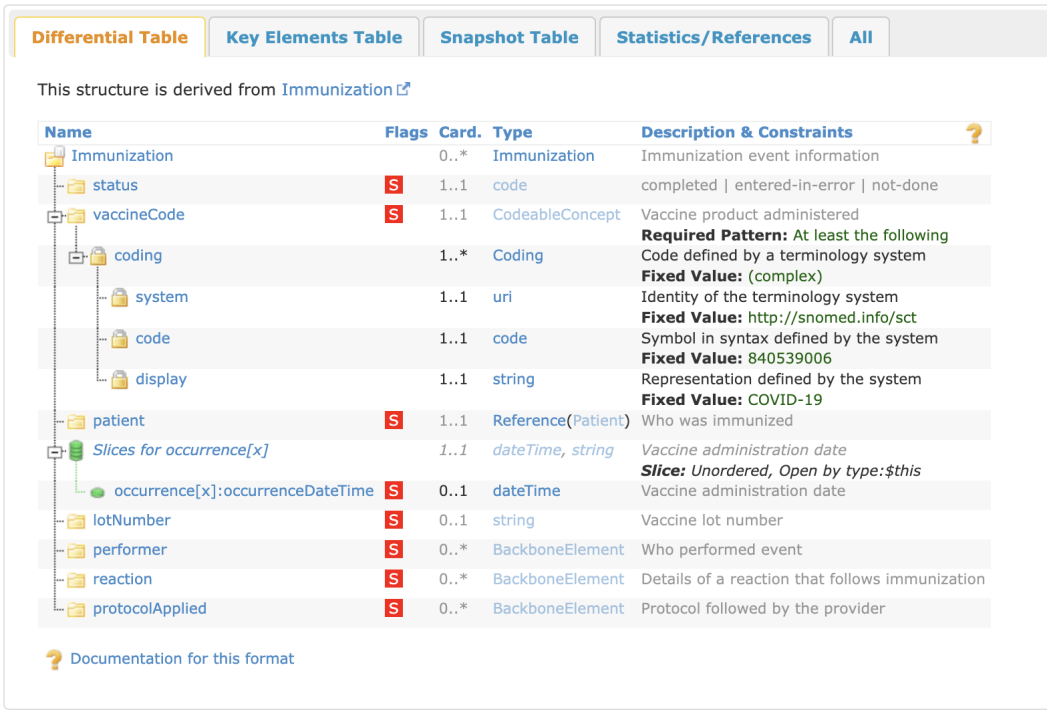

Figure 4—Screenshot of SpecificVaccination Differential Table

- Constraints Implemented:
  1. **Status Must Support**: A *cardinality* constraint ensuring the `status` element is marked as must support.
  2. **Vaccine Code Fixed to "COVID-19 vaccine"**: A *fixed value* constraint where the `vaccineCode` element is set to a specific LOINC code for "COVID-19 vaccine".
  3. **Vaccine Code Must Support**: A *cardinality* constraint, marking the `vaccineCode` element as must support.
  4. **Patient Must Support**: A *cardinality* constraint indicating the `patient` element as must support.
  5. **Occurrence DateTime Must Support**: A *cardinality* constraint for the `occurrenceDateTime` element.
  6. **Lot Number Must Support**: A *cardinality* constraint marking the `lotNumber` as must support.
  7. **Performer Must Support**: A *cardinality* constraint to ensure `performer` is must support.
  8. **Reaction Must Support**: A *cardinality* constraint for the `reaction` element.

9. **Protocol Applied Must Support**: A *cardinality* constraint on the `protocolApplied` element.

ALIASES.FSH

Link to the `Aliases.fsh` file in the repository: Aliases.fsh.