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1. The software uses visual FHIR as a graphical tool to represent the contents of FHIR and enables browsing, profiling, and extension definition to be visualized. The following summarizes the system architecture: Clinical Context of Use, Visual FHIR, and FHIR Specification. Users may engage in interactivity by visualizing browsing, profiling, and extension creating in Visual FHIR.

   A FHIR file can be entered by users. The system parses the schema and presents a tree graph representation of the FHIR Profile if they want to explore an FHIR resource. The system parses through Structure Definition and displays a tree and relational graph of the profile or extensions if the user chooses to browse a FHIR profile or extension.

   Here is our flowchart of the system and the use case diagram

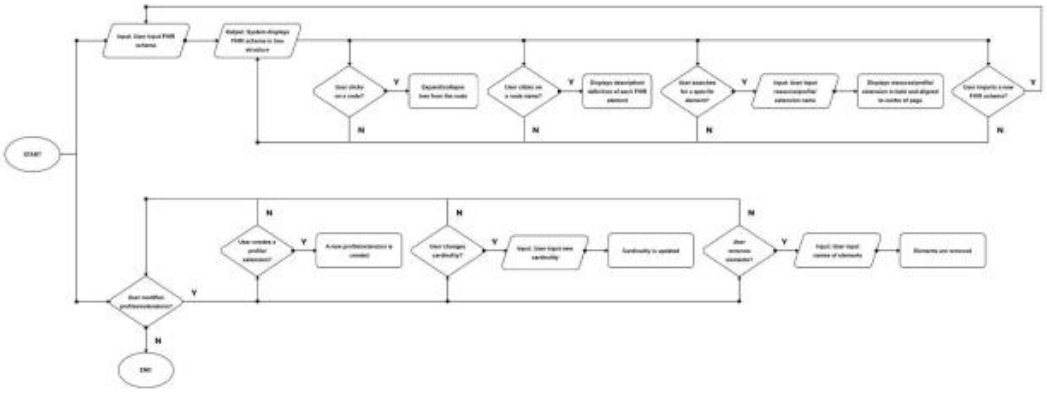

**Figure 2.1** Flowchart of the System

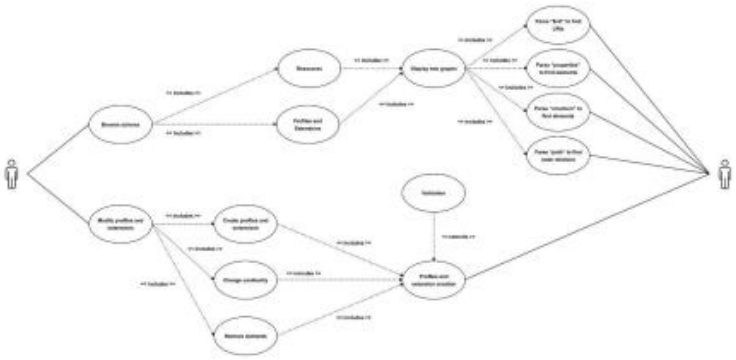

**Figure 2.2** Use Case Diagram of the System

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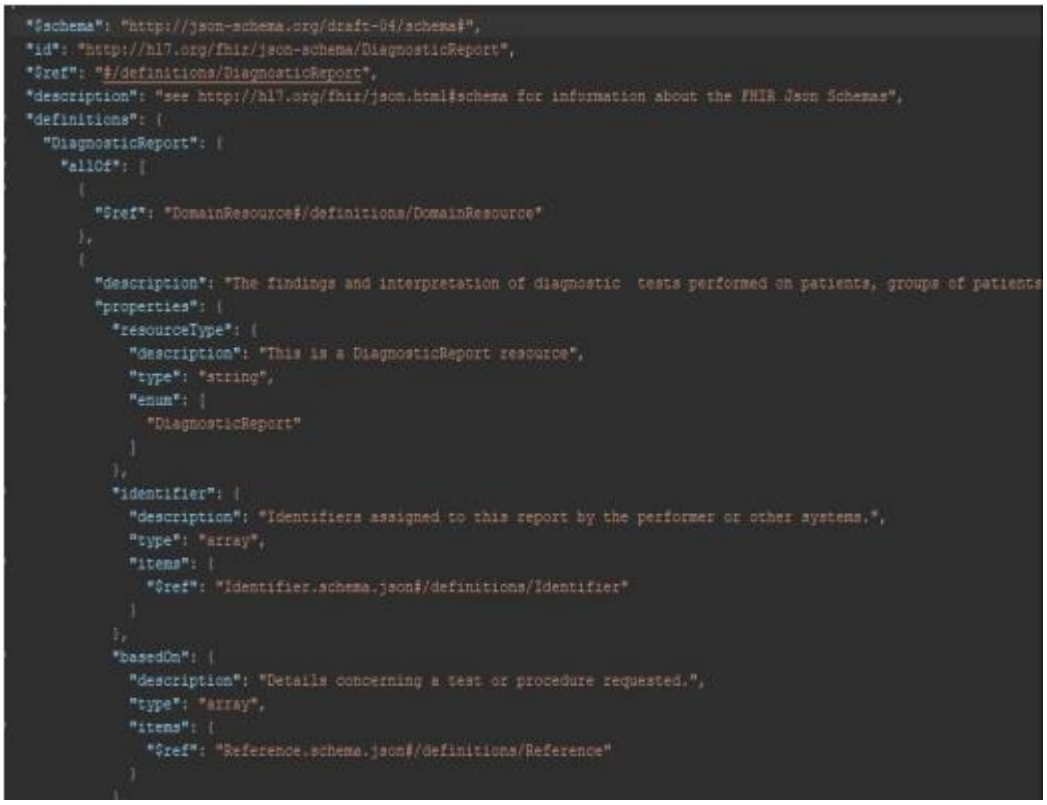
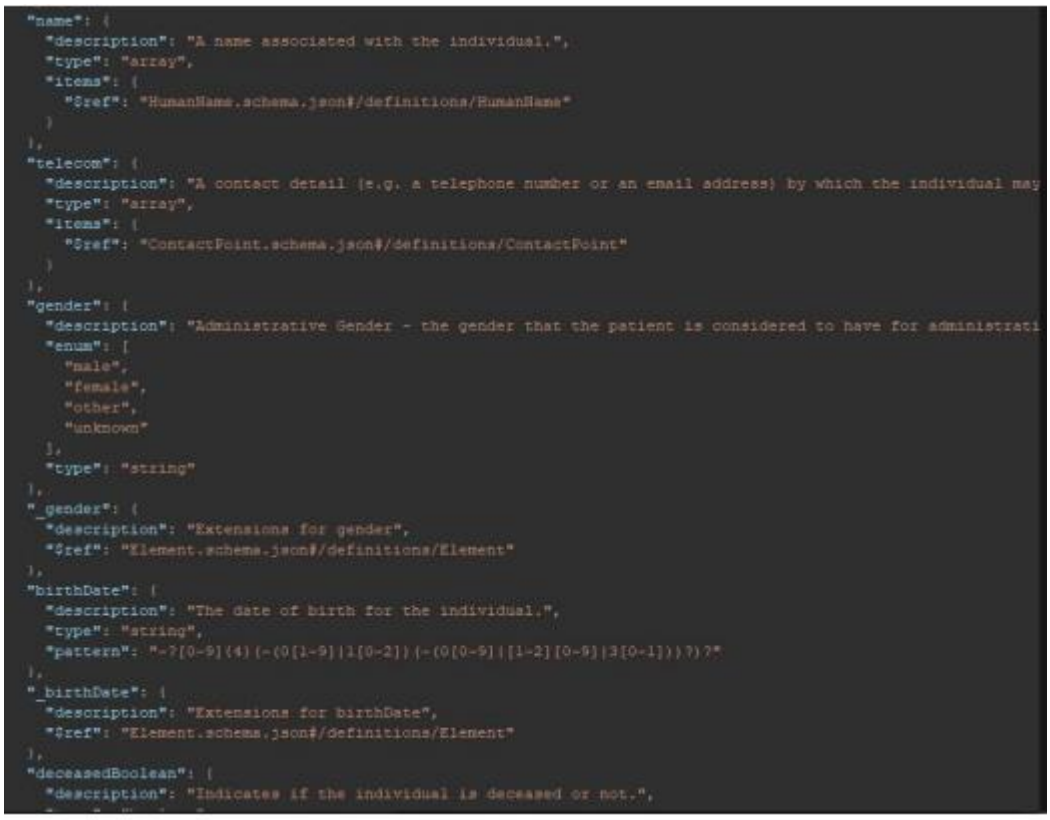
2. The source code of the project includes the Json file schema for storing the data and the CSS file to make the visualization.



```
"$schema": "http://json-schema.org/draft-04/schema#",
"id": "http://hl7.org/fhir/json-schema/DiagnosticReport",
"$ref": "#/definitions/DiagnosticReport",
"description": "see http://hl7.org/fhir/json.html#schema for information about the FHIR Json Schemas",
"definitions": {
  "DiagnosticReport": {
    "allOf": [
      {
        "$ref": "DomainResource#/definitions/DomainResource"
      },
      {
        "description": "The findings and interpretation of diagnostic  tests performed on patients, groups of patients
        "properties": {
          "resourceType": {
            "description": "This is a DiagnosticReport resource",
            "type": "string",
            "enum": [
              "DiagnosticReport"
            ]
          },
          "identifier": {
            "description": "Identifiers assigned to this report by the performer or other systems.",
            "type": "array",
            "items": {
              "$ref": "Identifier.schema.json#/definitions/Identifier"
            }
          },
          "basedOn": {
            "description": "Details concerning a test or procedure requested.",
            "type": "array",
            "items": {
              "$ref": "Reference.schema.json#/definitions/Reference"
            }
```

This is the json schema for the diagnostic report of the patient



```
"name": {
  "description": "A name associated with the individual.",
  "type": "array",
  "items": {
    "$ref": "HumanName.schema.json#/definitions/HumanName"
  }
},
"telecom": {
  "description": "A contact detail (e.g. a telephone number or an email address) by which the individual may
  "type": "array",
  "items": {
    "$ref": "ContactPoint.schema.json#/definitions/ContactPoint"
  }
},
"gender": {
  "description": "Administrative Gender - the gender that the patient is considered to have for administrati
  "enum": [
    "male",
    "female",
    "other",
    "unknown"
  ],
  "type": "string"
},
"_gender": {
  "description": "Extensions for gender",
  "$ref": "Element.schema.json#/definitions/Element"
},
"birthDate": {
  "description": "The date of birth for the individual.",
  "type": "string",
  "pattern": "-?[0-9]{4}(-(0[1-9]|1[0-2])(-(0[0-9]|[1-2][0-9]|3[0-1]))?)?"
},
"_birthDate": {
  "description": "Extensions for birthDate",
  "$ref": "Element.schema.json#/definitions/Element"
},
"deceasedBoolean": {
  "description": "Indicates if the individual is deceased or not.",
```

This is the contact detail for the FHIR visualization written in json

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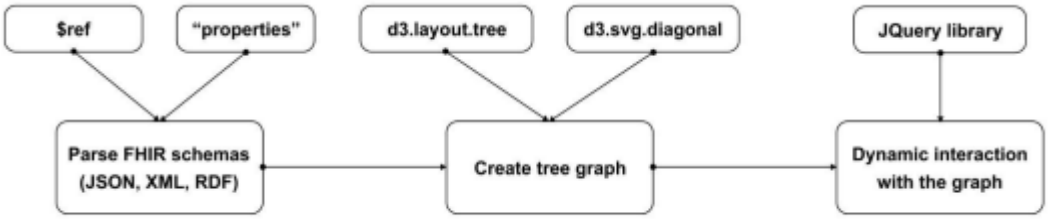
3. Because the source code is old, some code didn’t work properly because of the outdated framework.

4. Introduction

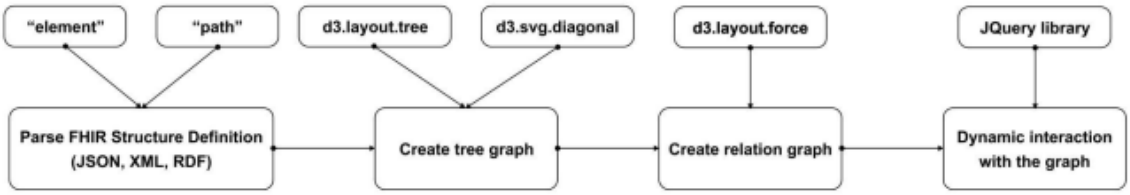
   Due to its complicated semantic representation and structural description, the FHIR standard can be challenging to comprehend and use. This led to the creation of "An Interactive Visualization Tool for HL7 FHIR Specification Browsing and Profiling." To aid FHIR users in better comprehending and utilizing the specification, tooling support for model browsing and interactive authoring for FHIR models was intended. It aims to add more interactive features to the HTML-based browsing approach offered by HL7.

   Methods

   The program parsed the FHIR resources' schemas to enable browsing. It does this by following "$ref" to get the URIs, or Uniform Resource Identifiers. Each schema file's components may be identified by parsing the word "properties." The collapsible tree graph of the schema is built using the functions d3.layout.tree and d3.svg.diagonal. To support interactive features, JQuery is used.




   The Structure of StructureDefinition file is processed to provide items under "snapshot" nodes for browsing FHIR profiles and extensions. By analyzing the node attribute "path," one may determine the connections between the tree's nodes. The relation graph is built using the functions d3.layout.force and d3.svg.diagonal, and the graph is built using d3.layout.tree.




   Results and discussion

   Due to the complexity and the outdated of the code and the lack of resources, we are facing a slight adversity that the code cannot run, we are trying to recreate the browsing profiling using the FHIR framework. Right now we are trying to run and optimize the user friendliness of the code.

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