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SWDV-691
Design: Service Layer

Overview

The UHealth application appears to be fairly complex from a high level, but very few endpoints are actually required to gather data. The UHealth application will utilize endpoints in the service layer to handle all of the HTTP GET service calls. For minimum viable product, no POST service calls are required because the user cannot change any of the data that exists in the database. The UHealth application is primarily for displaying information and providing data to a user in a meaningful way, and not for changing data that currently exists. All of the information returned by a GET is returned as JSON that is later deserialized by the user interface.

Endpoints

The service layer will consist of ten endpoints:

- GetLocation(string) : Location
- GetFacility(string) : List<Facility>
- GetFacilityFilter(string, string, string, string, string) : List<Facility>
- GetFacilityTypes(string) : List<FacilityTypes>
- GetSpecialties(int) : List<Specialty>
- GetInsurance(int) : List<Insurance>
- GetPhysicians(int) : List<Physician>
- GetPhysiciansAtFacility(string) : List<Physician>
- GetProcedureCodes(int) : List<ProcedureCode>
- GetProcedureStatistics(int) List<ProcedureStats>
- GetPhysicianReview(int) List<PhysicianReview> (Stretch Goal)

The GetLocation() endpoint is used, as the name describes, to get the location of the user. The Google Maps API that will be leveraged for the mapping portion of the UHealth application only takes in latitudes and longitudes, so the GetLocation() endpoint is used to do the conversion of zip code to latitude and longitude. The GetLocation() endpoint takes in a string parameter and returns a JSON Location object. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetFacility() endpoint is used to get the facilities in the location provided by the user. The endpoint takes a zipcode. This endpoint returns a list of facilities to the user interface to consume. This is the most basic service call that the application relies on for map data. The GetFacility() endpoint takes an string parameter, a zip code, and returns a list of Facility objects. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetFacilityTypes() endpoint is used to get the facility types for the filter dropdown in the user interface. This endpoint retrieves information from the database based on available facilities in the location desired by the user. The GetFacilityTypes endpoint takes an optional string parameter and will return a List of FacilityTypes objects. The optional parameter is used to determine where the service layer should return the entire list of Facility Types or just the Types found in a certain location. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetSpecialties() endpoint is used to get the physician specialties for the filter dropdown in the user interface. This endpoint retrieves information from the database based on the available facilities in

the location desired by the user. If the specialty does not link to a facility in the location, it will not be available in the dropdown for selection. The GetSpecialties() endpoint takes an optional integer, the facility key, and returns a list of Specialties for a given facility, otherwise, the entire specialty list. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetInsurance() endpoint is used to get the insurance types for the filter dropdown in the user interface. This endpoint retrieves information from the database based on the available insurance types in the location desired by the user. If the insurance type does not link to a facility in the location, it will not be available in the dropdown for selection. The GetInsurance() endpoint takes an optional integer parameter, the facility key, and returns a list of Insurance accepted at a given facility, otherwise the entire list of Insurance types. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetPhysicians() and GetPhysiciansAt Facility() endpoints are used to get the physicians for display in the user interface. These endpoints retrieve information from the database based on the physicians in the location desired by the user. If the physician does not link to a facility in the location, it will not be displayed in the UI modal or individual hospital pages. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetProcedureCodes() endpoint is used to get the procedure types for the filter dropdown in the user interface. This endpoint retrieves information from the database based on the available procedures in the location desired by the user. If the procedure does not link to a facility in the location, it will not be available in the dropdown for selection. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetProcedureStatistics() endpoint is used to get statistical data for procedures performed at individual facilities for display. This endpoint returns information from the procedure_facility_bridge table such as total_cost, length_of_stay, major_complications and so on. This information is then consumed by the user interface for display to the user in the modal pop-out and on the individual facility pages. This endpoint is also utilized for the comparison tool, but the actual comparison will be performed and displayed by the user interface in the appropriate element, such as a table or graph. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetFacilityFilter() endpoint does all of the heavy lifting for the filtering portion of the user interface. One the location has been determined, and all of the other endpoints are utilized to fill the filter dropdown elements, the GetFacilityFilter() endpoint is called for each filter performed and returns on the data within those parameters. The GetFacilityFilter() endpoint takes in 5 optional string parameters, each parameter coinciding with a UI selection from a filter dropdown. The GetFacilityFilter then returns a filtered list of facilities for consumption by the UI. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.

The GetPhysicianReview() endpoint will be utilized in the event that a stretch goal is reached. This endpoint will allows a user to see physician reviews when looking at the information of a facility or comparing specific facilities in the comparison window. The endpoint will take one parameter, the physician NPI, to get the information for the physician in question. Error codes returned are standard HTTP error codes, e.g., 500, 404, 200, etc.
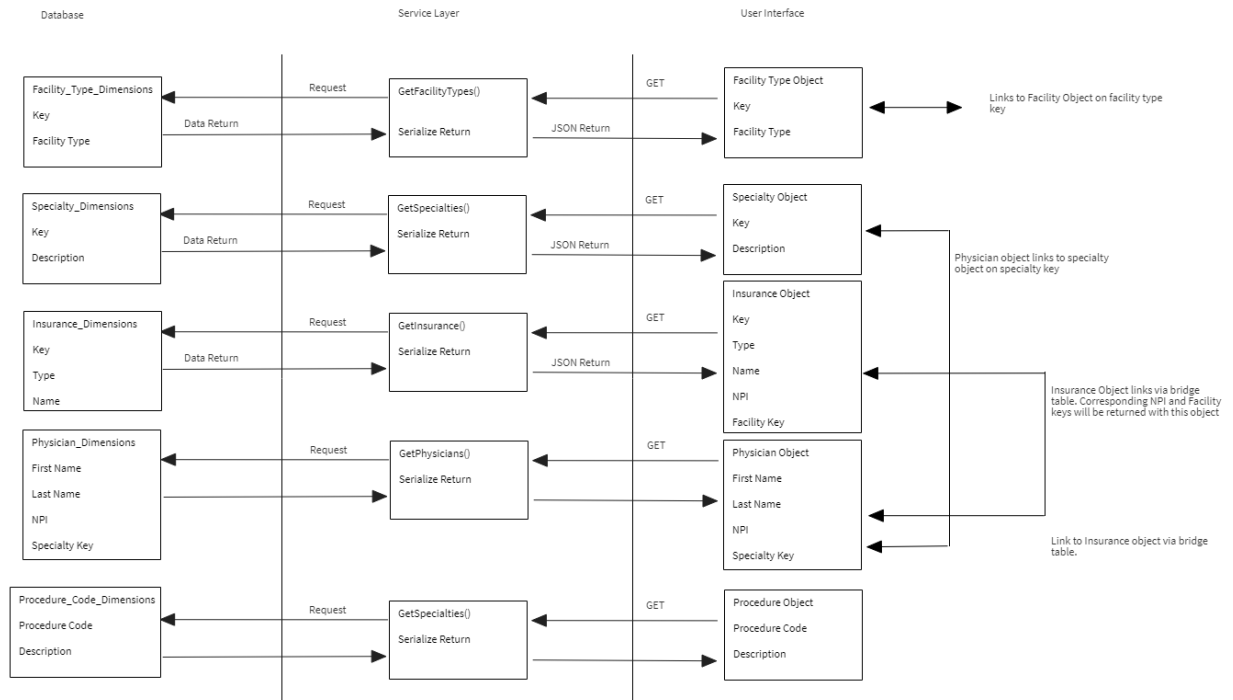
Diagrams
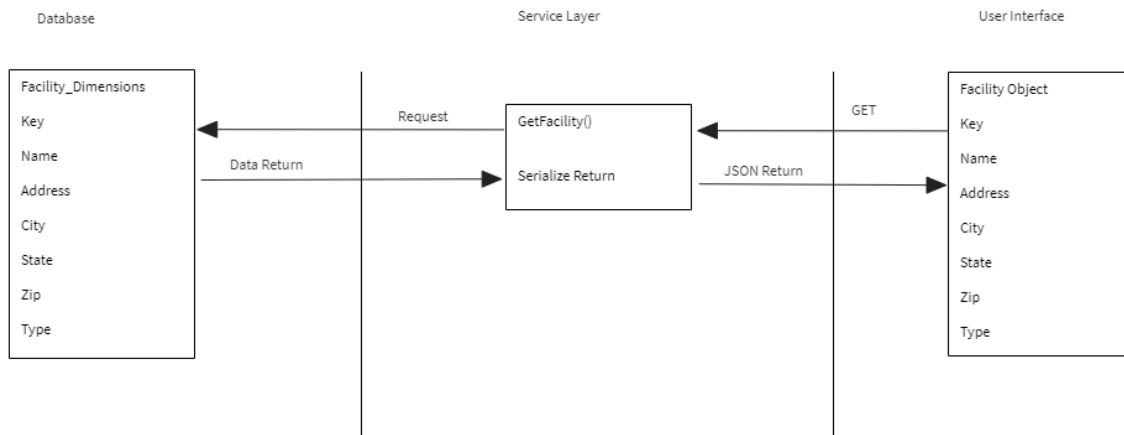
A basic facility search by location.
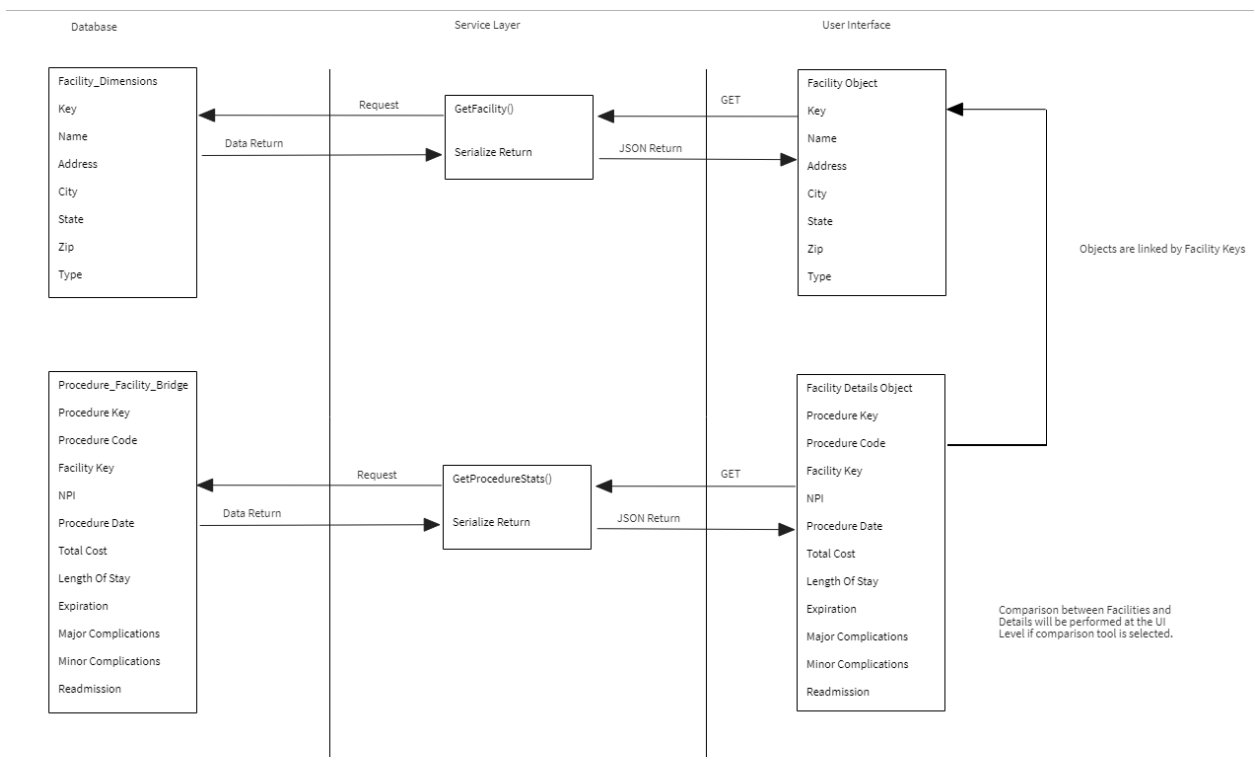
A base search that leads to user looking at more information on the facility.

Filter searches and how the objects relate in the User Interface.

All of the service calls will be made on the main page of the application and then passed down to the child components of each. These service calls are very light and inexpensive to call, especially as data is being filtered down. Once the parent component, the main page, has all of the details for the facilities in question, the comparison will be conducted in the user interface and then displayed to the user in a separate page. Since each child page or element has access to the data held by the parent, passing the information through the application will be light and simple.