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FIT3077 Software Engineering Architecture and design S1 2020

Assignment 2 Design Rationale

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1. Data source

When designing the data model, the Dependency Inversion Principle was considered. This was incorporated by creating a `DataSource` interface. This allows for the Store to depend on the abstract interface of `DataSource` rather than the concrete class of `FHIRServer`.

In doing this, we provide a hinge point that allows for the source of our data to be changed for example a local database. In addition the use of a `DataSource` interface allows us to employ the Open/Closed Principle. The `DataSource` interface allows for additional functionality to be added whilst maintaining a stable and well defined set of methods.

2. Data Store (Redux Store [1])

This is a state container for the whole app. The store is not actually a class, it is an object with methods for accessing and mutating the store. There is only one store instance (a singleton [2])

In this app, the store plays as a data provider, while the components (UI views) are the Observers that subscribe to the store. Any changes to the store's state will trigger updates in the views. The views also can dispatch changes to the store (called actions). Redux Store acts as a data gateway, sitting between UI views and data source, helping us to manage the data efficiently and reducing bugs.

A piece of data could be used in different places (across multiple views, e.g. patient data is used in different tables), hence, the store provides a single source-of-truth, making data consistent.

3. Resources

Resource classes are modelled based on FHIR system, giving the app a strong structure and type safety

Maybe monad is used: `MaybePractitioner`. The monad provides a generic interface for data fetching results (e.g. there could be no practitioner with that identifier)

4. UI Views

PatientsTable view is reusable. The superview just needs to pass the columns and data into PatientsTable to use it.

Reference:

[1] Redux Store. *https://redux.js.org/api/store*
[2] E. Freeman, K. Sierra, “Head First Design Patterns: A Brain-Friendly Guide”, October 2004
[3] Wikipedia Monad *https://en.wikipedia.org/wiki/Monad_(functional_programming)*

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