Resource

The afferent modules, Ca, for the Resource Management service are the Customer service, the Flight Mangement service, and the GUI. The efferent modules, Ce, are the Ledger service, and the Authentication service. This gives:

* Ca = 3 modules
* Ce = 2 modules
* Instability = I = Ce / (Ce + Ca) = 2 / (2 + 3) = 0.4

The concrete and non-instantiable classes, Nc, for the Resource Management service include the interfaces and abstract classes (Entity, Observer, ResourceManagementService, Subject, Visitable, and Visitor), Na, plus the concrete classes (CommunicationSystem, ComputerSystem, EntitiesVisitor, Fuel, Launchpad, Person, ResourceImpl, Spaceship, Team, and UpdateEvent). This gives:

* Na = 6
* Nc = 16
* Abstractness = A = Na / Nc = 6 / 16 = 0.375

Below is the plot of Instability vs. Abstractness:

Caption: The plot of Instability vs. Abstractness metrics for the Resource Management Service.

Customer

The afferent modules, Ca, for the Customer service are the Flight Management Service, and the GUI. The efferent modules, Ce, are the Resource Management Service, Ledger Service, Authentication Service, and IPFS.

* Ca = 2 modules
* Ce = 4 modules
* Instability = I = Ce / (Ce + Ca) = 4 / (4 + 2) = 0.67

The concrete and non-instantiable classes, Nc, for the Customer service include the interfaces and abstract classes (CustomerService, Document, and Medium), Na, plus the concrete classes (AudioRecording, Book, CustomerImpl, Discovery, ExperienceDocument, Flight, FlightBooking, Image, MissionReport, Movie, Music, Note, ObjectFactory, Passenger, PointOfInterest, TravelDocument, VideoRecording, and WelcomePackage). This gives:

* Na = 3
* Nc = 21

Abstractness = A = Na / Nc = 3 / 21 = 0.14

Below is the plot of Instability vs. Abstractness:

Caption: The plot of Instability vs. Abstractness metrics for the Customer service.

Flight Manager

The afferent modules, Ca, for the Flight Management service are the GUI. The efferent modules, Ce, are the Customer service, Resource Management service, and Authentication service. This gives:

* Ca = 1 module
* Ce = 3 modules
* Instability = I = Ce / (Ce + Ca) = 3 / (3 + 1) = 0.75

The concrete and non-instantiable classes, Nc, for the Flight Manager include the interfaces and abstract classes (Action, and FlightManagementService), Na, plus the concrete classes (Manager, LocationUpdateAction, StatusUpdateAction, EmergencyAction, ReachedDestinationAction, MessageAction, CompSystemAction, CommSystemAction, PassengerRegisterAction, MissionReportAction, DiscoveryAction, BoardPassengerAction, CustomerFeedbackAction, FuelLevelAction). This gives:

* Na = 2
* Nc = 16

Abstractness = A = Na / Nc = 2 / 16 = 0.125

Below is the plot of Instability vs. Abstractness:

Caption: The plot of Instability vs. Abstractness metrics for the Flight Management System.