Team Liza
Milestone 4

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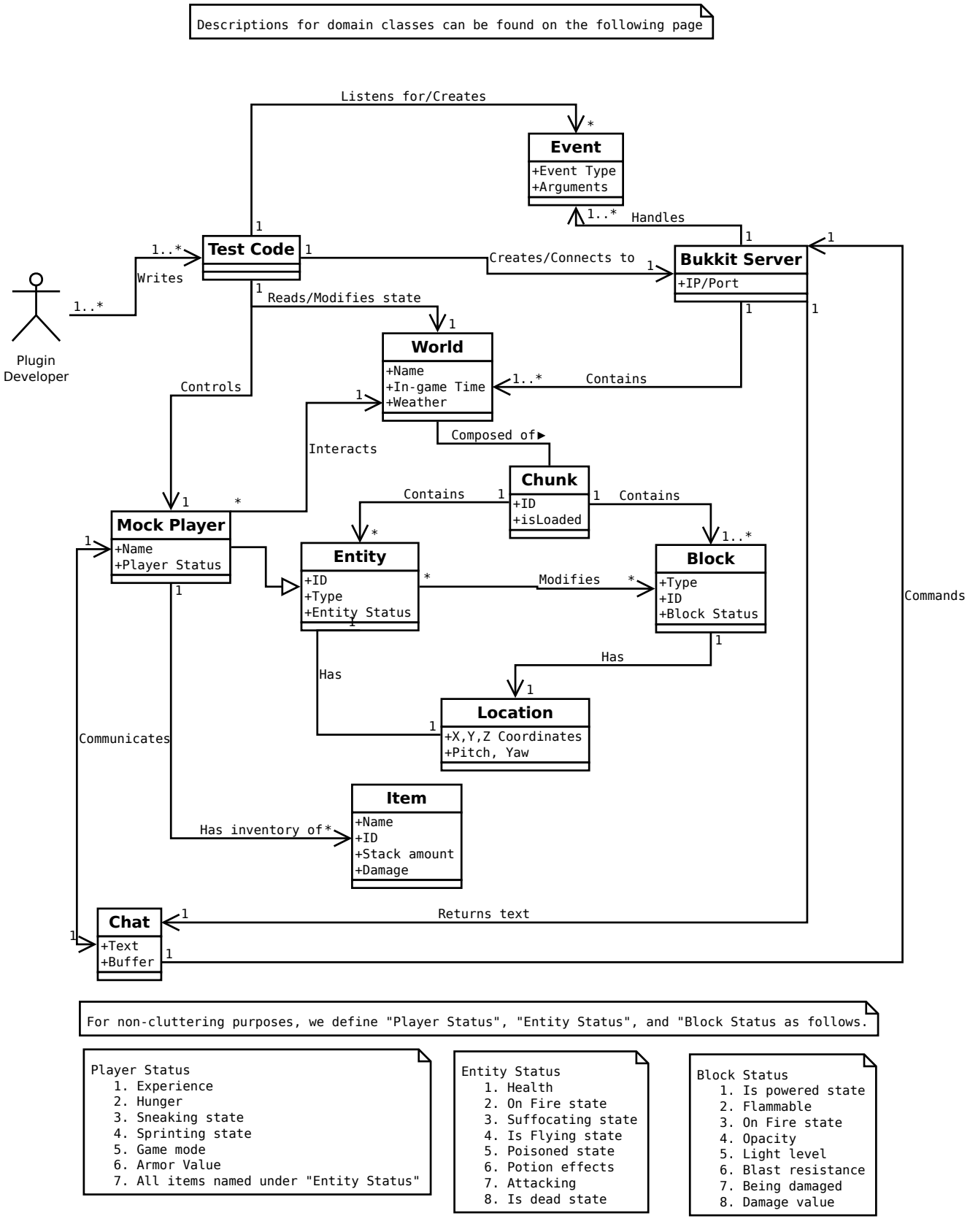
Contents

1 Domain Model

The domain model did not change due to the Grasp principles. Although some changes where made in the DCD, this did not require the Domain model to change. This is because the additional classes will be used in the testcode class in the Domain Model. The communication will continue to work as the diagram depicts below:

Liza Domain Model

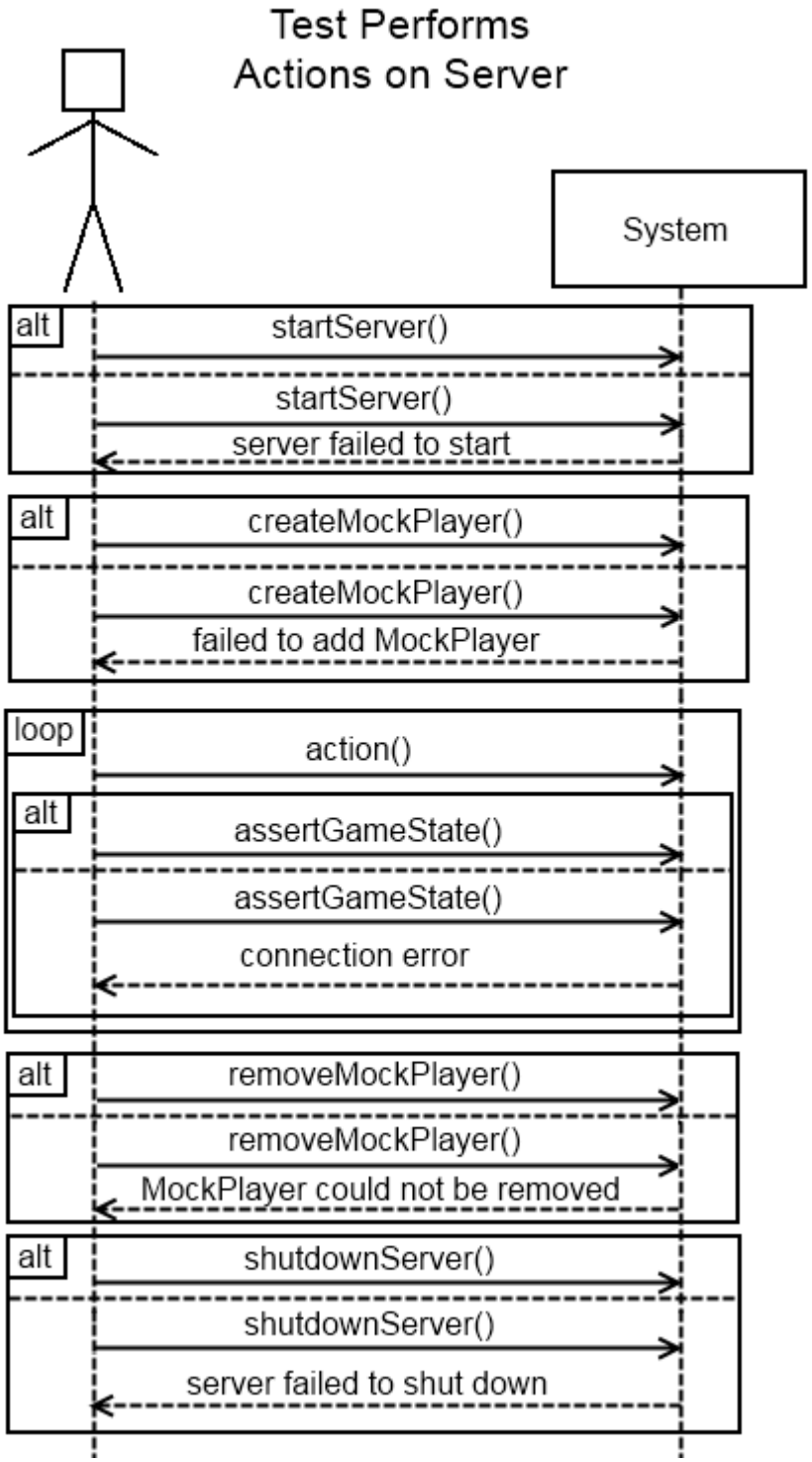


2 System Sequence Diagrams (SSD)

Description:

There are many SSDs that will apply to this project – one for each assertion. However, each of these will follow the exact same format. Instead, we produced a single SSD that details the flow of a test case that a developer may write. This includes general exception cases and alternate paths which could be produced.

Even though we have many SSD's in our design, most of the user interation revoles around the test code and the API that will be provided by the API. Due to this, our general case SSD did not change.


Test Performs
Actions on Server
System
alt
startServer()
startServer()
server failed to start
alt
createMockPlayer()
createMockPlayer()
failed to add MockPlayer
loop
action()
alt
assertGameState()
assertGameState()
connection error
alt
removeMockPlayer()
removeMockPlayer()
MockPlayer could not be removed
alt
shutdownServer()
shutdownServer()
server failed to shut down

3 Operational Contracts (OC)

The will be a controller in Liza to startup and shutdown the server that it will control. Here is an operational contract which describes the startup process.:

Operation name: startServer()
Cross-References: SSD1
Preconditions: LizaCraftController has been created.
Postconditions: CraftBukkit has been started; CraftBukkit thread has been grabbed.

The shutdown operational contract is a simular process:

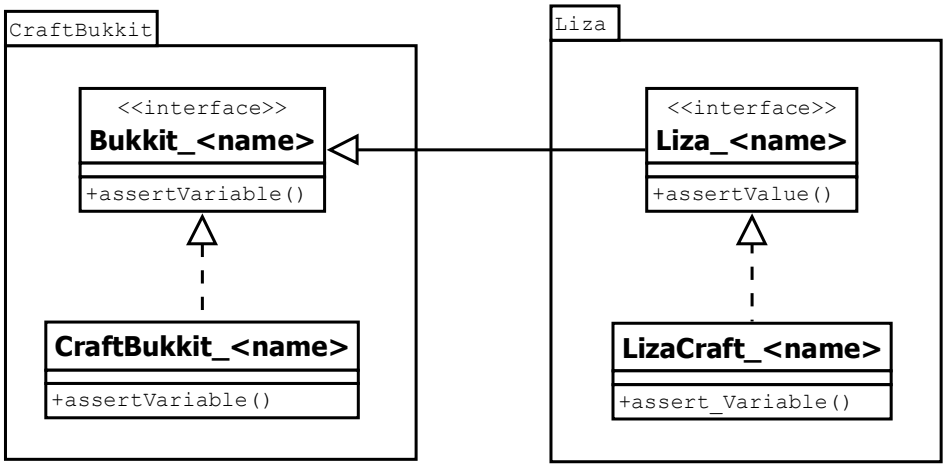
Operation name: ShutdownServer()
Cross-References: SSD1
Preconditions: LizaCraftController has been created; All the desired testing has occured.
Postconditions: CraftBukkit has been stopped; CraftBukkit thread has been stopped

4 Package Diagram

There exists a degree of separation between our system and Bukkit, in the sense that our system interacts with Bukkit, yet Bukkit is not aware of our system. However, all of the classes in our system will all belong to the same package, due to the high amount of interaction between classes. Because of this, a package diagram is not applicable. However, we have included a diagram which depicts the relationship between Liza and Bukkit in general. For each Bukkit class that is relavent, Liza will extend a new interface and create a new LizaCraft class that will implement it.

This relationship will not change due to the Grasp principles. However, it is important to note that these relationships follow the protected variation design pattern. This protects the Liza package from the Bukkit Server. This means that if the bukkit framework changes, that Liza will not be adversly affected. However, the draw back to this is that this design supports high coupling. This taken into account there is no way to have a separte testing framework without this effect.

Bukkit-Liza Relationship



5 Class Diagram

Description:

Bukkit has two main layers: Bukkit, which is a collection of interfaces that a plugin developer utilizes, and CraftBukkit, which is the implementation of those interfaces. Our system will mirror this design. There is Liza, which is a set of interfaces that inherit the Bukkit interfaces, and LizaCraft, which is the implementation of the Liza interfaces and extends the CraftBukkit classes. By extending the existing Bukkit and CraftBukkit, we present the API that the developers are accustomed to, along with any new methods that may be of use for testing, such as asserting properties.

There are a few new classes, however. LizaMockPlayer and its associated implementation represent the automated player that the developer commands. LizaMockPlayer and LizaPlayer are separated because the latter asserts properties of any player, while the former controls only the automated player.

LizaListener and LizaEventExecutor handle the listening and spoofing of events, respectively.

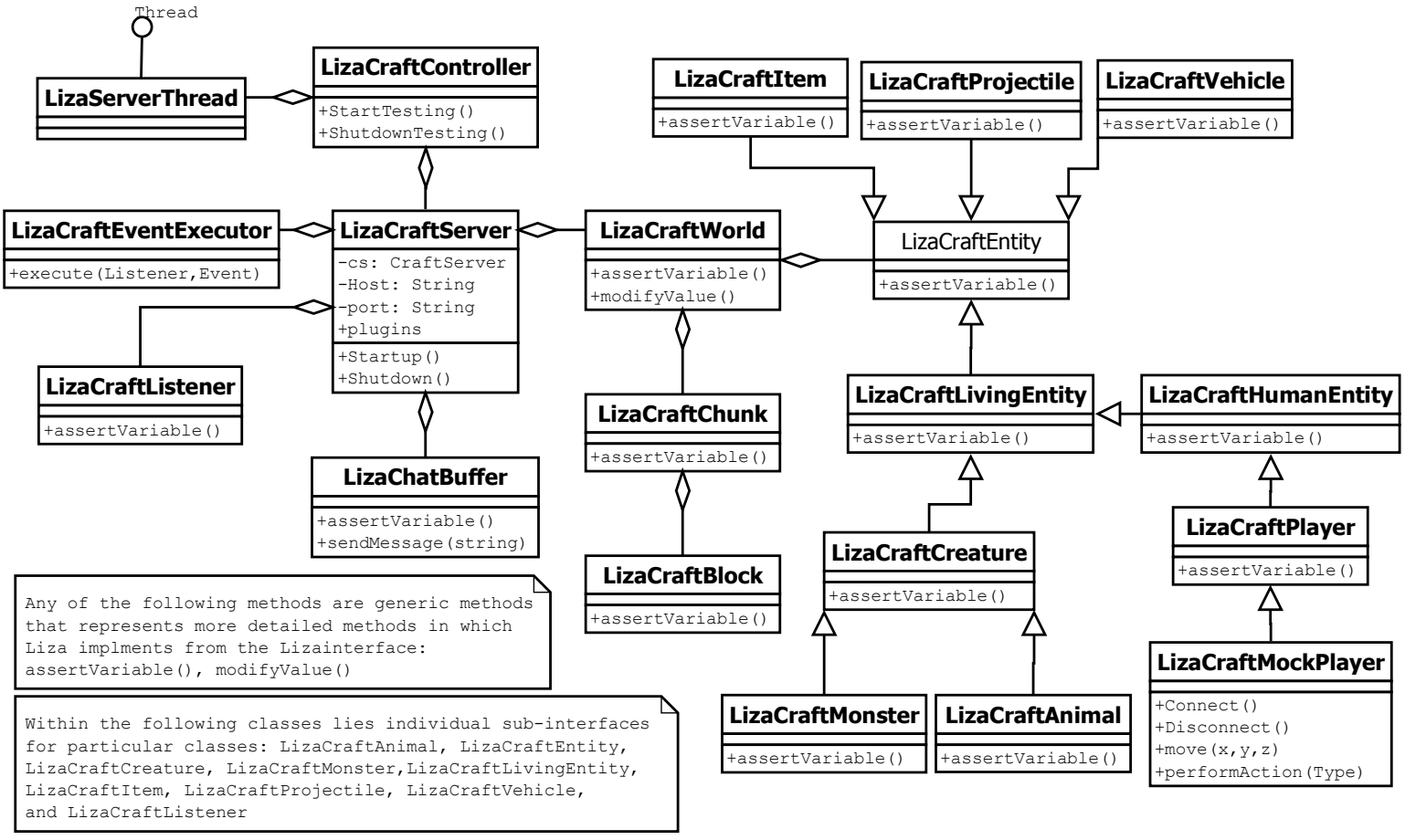
Grasp Principles:

The Liza Unit Testing Framework follows the protected variation design pattern as described as in the Package Diagram with the included drawback of a high cohesive system. Due to the nature of the relationship of our system with Bukkit and Minecraft our design is limited. With our design restriction, this limits the ability to communicate to classes without going through other classes. It would nice to create a more low cohesive system but we are restricted here.

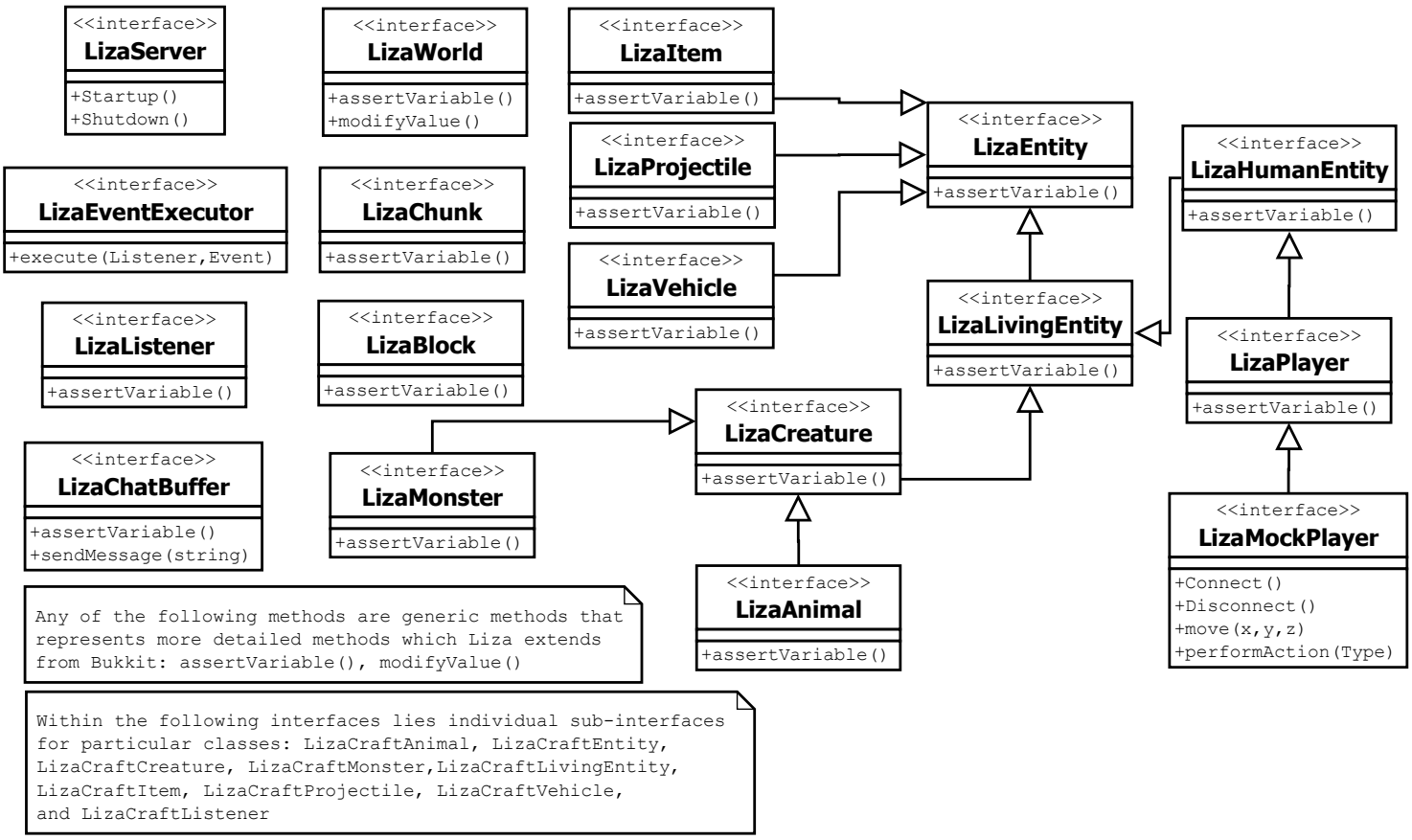
We have created a LizaCraftController following the Grasp controller principle. This will allow for the developer to create one class which will create the craftserver and grab the thread of it. At the same time the class will contain the craftsever so that the developer will know where to go to interface with Liza.

The diagram is found on the following pages.

LizaCraft Class Diagram



Interface Class Diagram



6 Prototype

The prototype for this milestone is currently availble on github online at https://github.com/geislekj/Liza