Rethinking Game Architecture with Immutability – Milestone 5 (March 19th)

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Progress Matrix

Task	Completion
Create Poster	100%
Implement automatic synchronization error detection	100%
Continue work on Unity integration	100%
Begin work on XNA/MonoGame integration	100%
(from milestone 6) Begin work on sample game	50%

Task Summaries

Create Poster

The poster has been created and looks good to go. Unfortunately, benchmarking the multithreading logic actually showed a decrease in execution time, but this may change as the number of systems rises, as the test logic only has a few (5 or so) systems. To take full advantage of the multithreading logic, there will need to be a large number of systems with some of them executing for a long period of time. This is simply not the case with the current sample game.

Implement automatic synchronization error detection

In order to ensure the most robust method possible, the game state is serialized and then a hash is generated based on that string. These hashes can then be compared to determine if the games have gone out of synchronization.

Continue work on Unity integration

While writing the sample game, a number of bugs have been fixed within the Unity integration logic. Additional polish has been added to the integration bindings. An additional dependency component for non-multiplayer games has been added that removes all input delays (which are on by default for multiplayer to remove game update stuttering).

Begin work on XNA/MonoGame integration

Luckily, the XNA/MonoGame bindings do not need to be as complex as the Unity bindings. Work has begun on these; basic rendering is now working.

Begin work on sample game

The milestone goals for milestone 5 where achieved sooner than expected. Work has begun on one of the milestone goals for the next milestone, the creation of a sample game. Basic gameplay has been implemented, where a unit walks around a screen with a large number of asteroids and can shoot bullets to destroy these asteroids.

Next Milestone

Title	Summary
Work on XNA/MonoGame bindings	The XNA/MonoGame bindings need to be finished by the end of this milestone, as the game demo depends on them. There will not be an editor component attached to XNA/MonoGame, as that would require an entire GUI framework to be developed, which is simply out of scope for this project.
Demo a simple game running in both XNA and Unity	Work has already begun on the game sample, but more gameplay features can be added. Hopefully a networking demo will be doable with the Unity and MonoGame samples connected to each-other. Unity and MonoGame integration need to be completed, as well as potentially introducing more complex mechanics into the game.
Writer user manual and documentation	There can always be more documentation. A tutorial going through the game sample will be written, and perhaps there can also be auto generated documentation based on the extensive comments in the codebase.

Sponsor Feedback

Signature and Date: _____

Feedback:

Sponsor Evaluation – Rethinking Game Architecture with Immutability – Milestone 5

Jacob Dufault

Score (0-10):

Signature & Date: