Game Design

Syllabus and Slides available at:
https://github.com/carmineguida/CS553

Welcome to CS-GY 6553 / CS-UY 4553

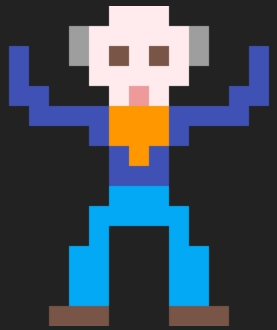
Game Design

Spring 2020 - 17299 / 16050

Wednesday - 12:25 - 2:55 - 2MTC 811

Instructor: Carmine T. Guida
Email: cguida@nyu.edu

Prof. Carmine T. Guida



All Games > Free to Play Games > Quintet

Quintet

Community Hub

A cooperative, cross-platform, multiplayer scifi game where players control the same ship through 5 roles — Captain, Helm, Tactical, Engineering & Science. Battle with other player crews over the Internet.

ALL REVIEWS: Mostly Positive (365)

RELEASE DATE: Feb 1, 2013

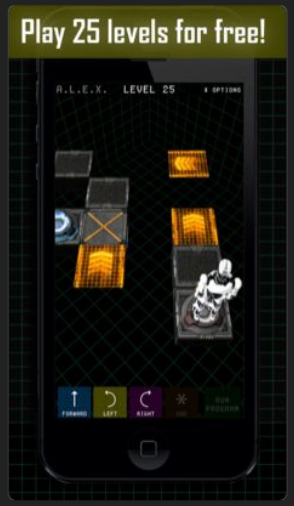
DEVELOPER: Carmine T. Guida

PUBLISHER: Carmine T. Guida

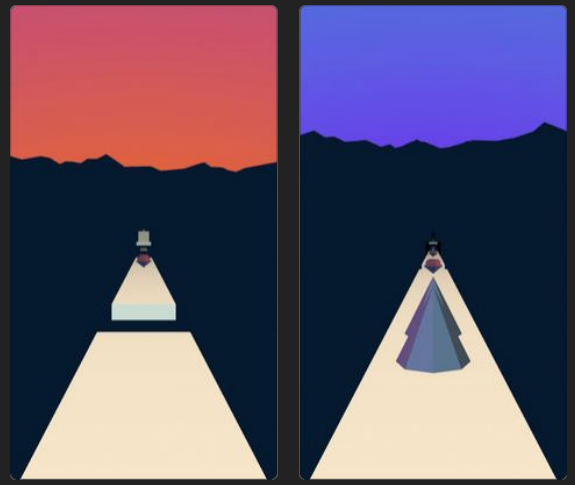
Popular user-defined tags for this product:

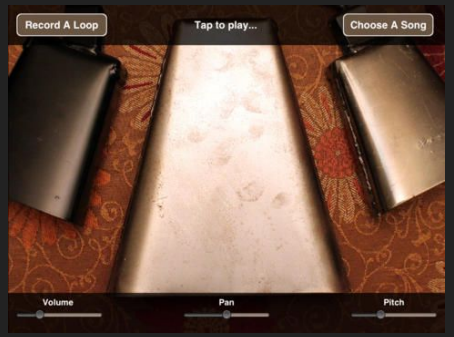
Free to Play | Indie | Action | Space | Multiplayer | +

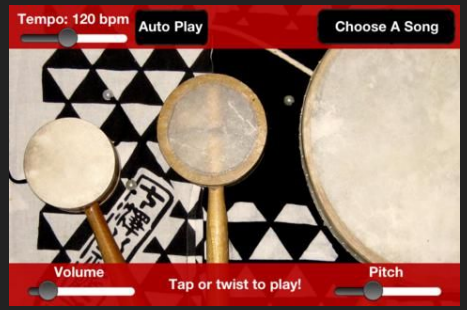

Help A.L.E.X. Escape!
A.L.E.X. LEVEL 03
RUN PROGRAM


Play 25 levels for free!
A.L.E.X. LEVEL 25


Create your own levels!
A.L.E.X. YOUR LEVEL 1




Record A Loop
Tap to play...
Choose A Song
Volume
Pan
Pitch


Tempo: 120 bpm
Auto Play
Choose A Song
Volume
Tap or twist to play!
Pitch


2.01

CARMINE T. GUIDA

dreamlo.com - Free Instant Leaderboards and Promocode System

FREE

Add to My Assets

★★★★☆ 40 user reviews

Add a leaderboard and promocode system to your game right now!

Uses simple HTTP GET (WWW) requests.
Works on several platforms.
No php required.
No SQL required.

The system stores name, high score, time in seconds and an extra string.

You can also create a simple promo code system for giving people codes to upgrade your games.

Package contents 17.8 KB

Releases current ver. 2.0

The Class

Prerequisites

CS-GY 6553
CS-GY 6533 or OART-UT 1600 and OART-UT 1605

CS-UY 4553
CS-UY 3113 , CS-UY 4533; OART-UT 1600 and OART-UT 1605

You must have instructor permission otherwise!

Syllabus

Not a Programming Course!

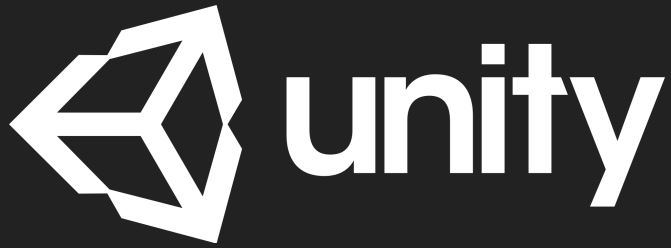
You should know how to program.

You can whatever game engine / tools / programming language you are most comfortable with.

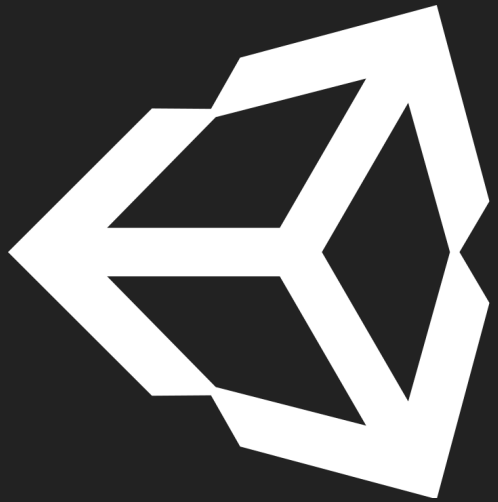
If you are not familiar with a game engine, this week and next week we will be working with Unity.

If you do not have Unity installed, get started now!

Game Engines and Tools



Unity



unity3d.com
Language: C#

Processing

processing.org
Language: Java (simplified)

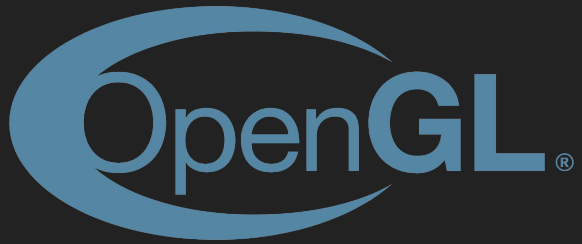
p5.js and p5play

p5js.org
molleindustria.github.io/p5.play
Language: Javascript

Phaser

phaser.io
Language: Javascript

SDL2 and OpenGL



libsdl.org
Language: C++

Other Game Engines Welcome

Check with me today if you want to use something else!

3 Minute Meet & Greet

Unity, Processing, p5, Phaser, SDL + OpenGL

Find someone you do not know who uses the same Game Engine as you.
Talk about a project you are proud of.

The second half of the semester is a team project, it may be helpful to find someone with complimentary skills.

What is Game Design?

Let’s look at “The Door Problem”

http://www.lizengland.com/blog/2014/04/the-door-problem/

Class Roadmap

Class Roadmap

Intro, Tools and Game Prototyping
Systems, Rules and Mechanics
Characteristics of Games
Balance, Difficulty and Fairness
Game Feel
Board/Level Design
Procedural Generation
Narrative Mechanics
From Prototype to Finished Game

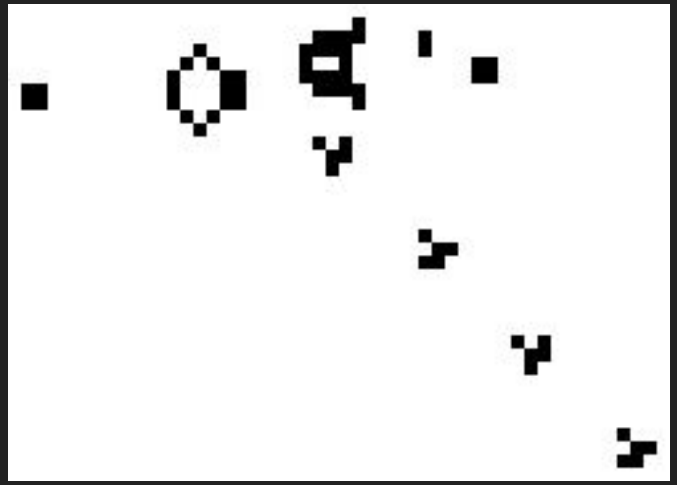
Systems, Rules and Mechanics

Elements, Relationships, Behaviors

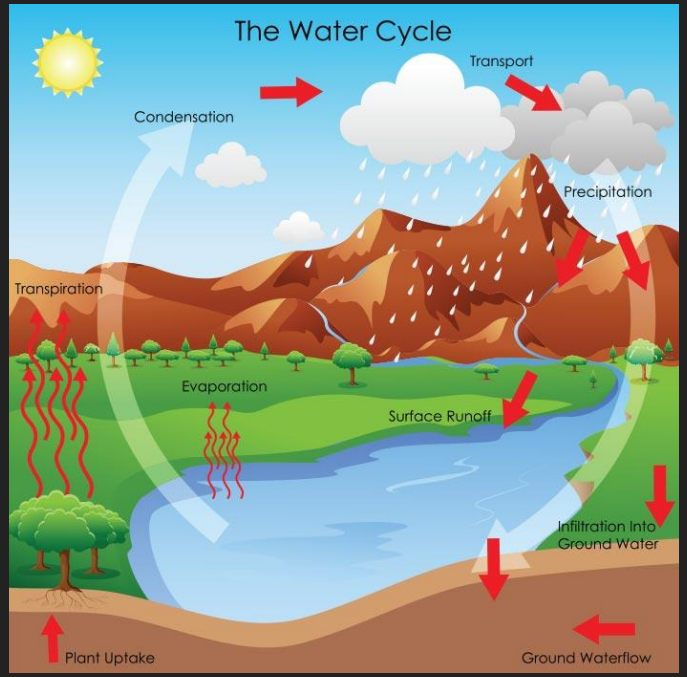
Systems, Rules and Mechanics

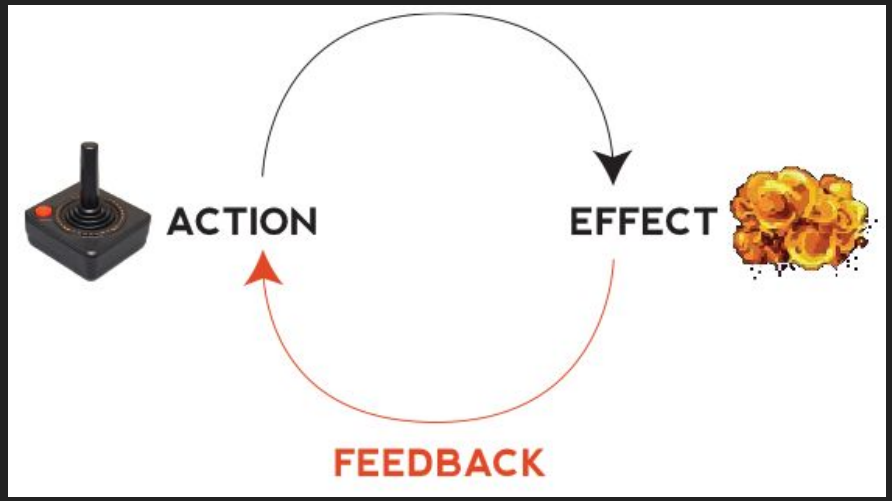
“A system is a set of things people, cells, molecules, or whatever—interconnected in such a way that they produce their own pattern of behavior over time.”

- Donella Meadows



Systems, Rules and Mechanics





Characteristics of Games

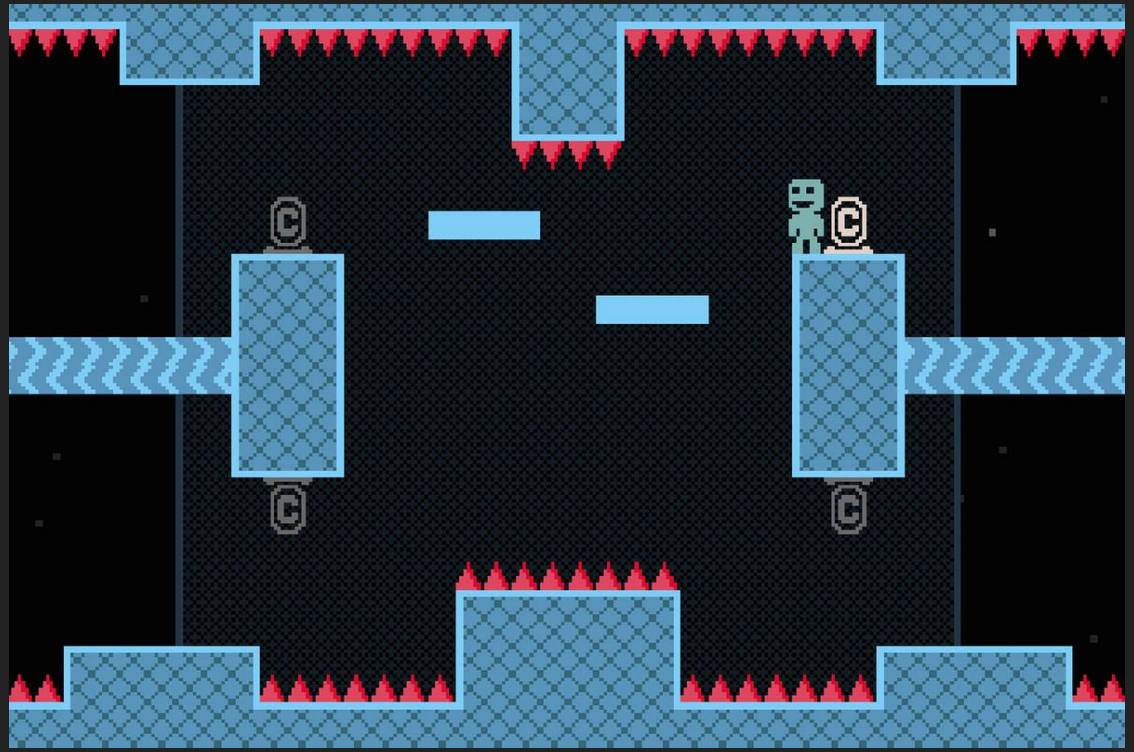
Playtime, Players, Heuristics

Characteristics of Games

Length of Playtime
Number of Players
Heuristics
Interactivity
Politics
Depth
Standards
Ending/Victory Conditions

Difficulty

Difficulty



Difficulty


How tough are you?
Can I play, Daddy?
Don't hurt me.
Bring 'em on!
I am Death incarnate!

Difficulty

Game Feel

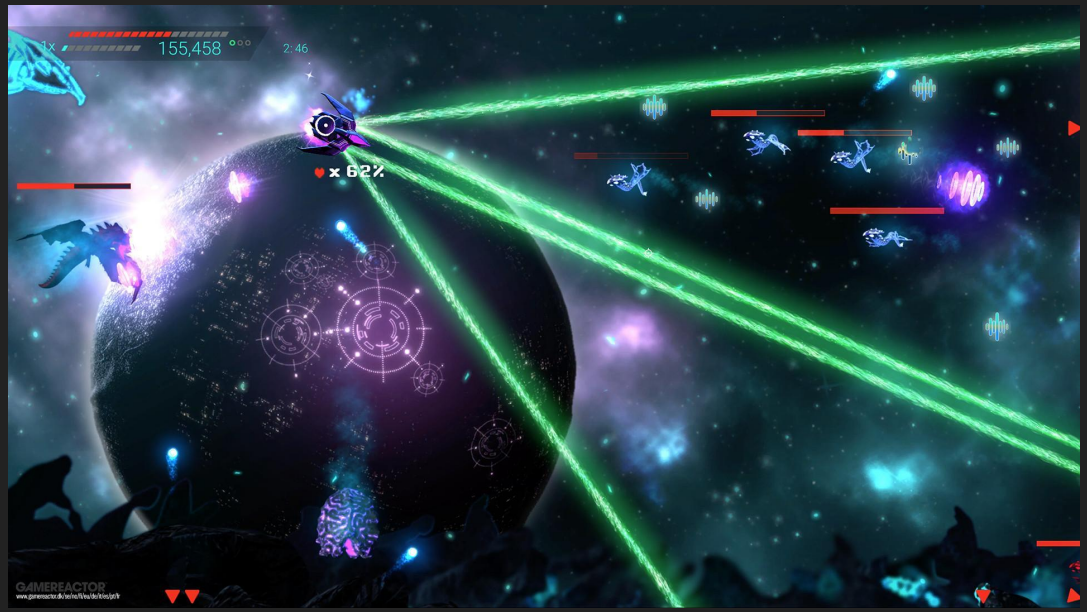
Game Feel

Virtual Sensation
Input / Response
Spatial Context
Signaling Information
Visual Feedback
Audio Feedback
Polish

Game Feel

Spatial Context

Game Feel



Visual and Audio

Game Feel

Game Polish

Board / Level Design

Board / Level Design

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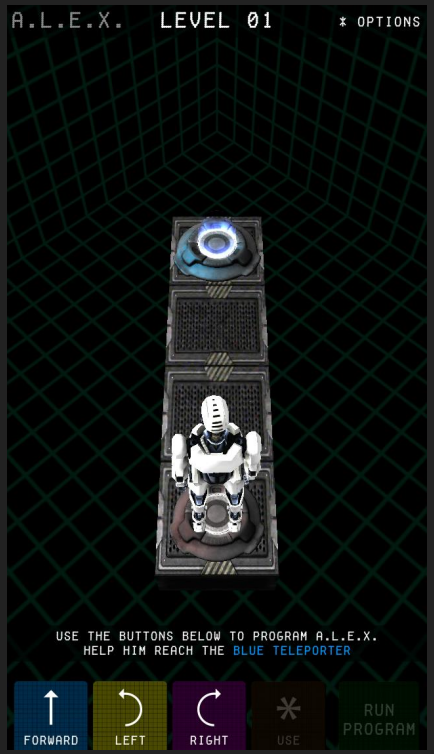
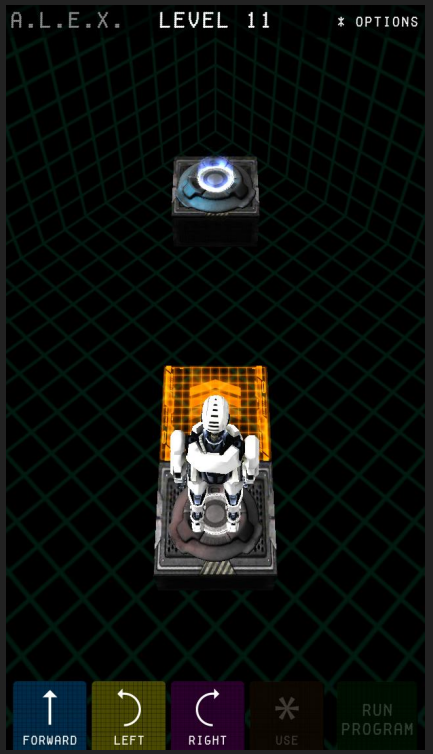
Board / Level Design



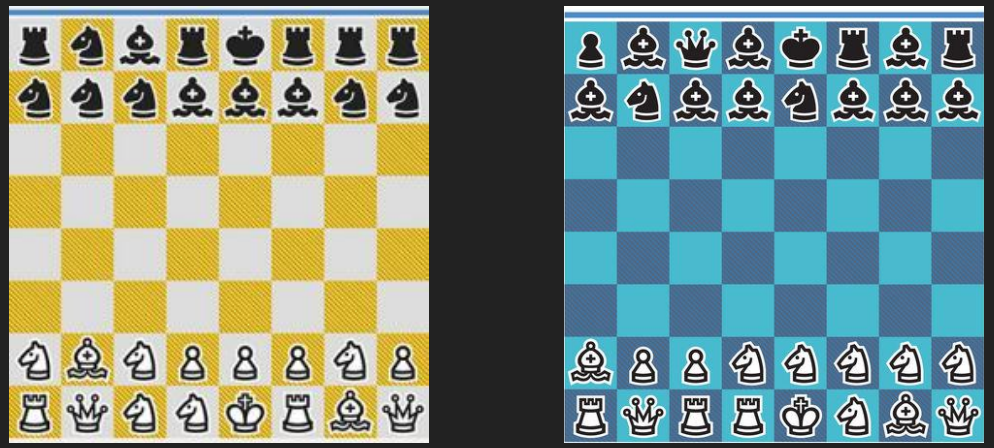


Procedural Generation

And Randomness

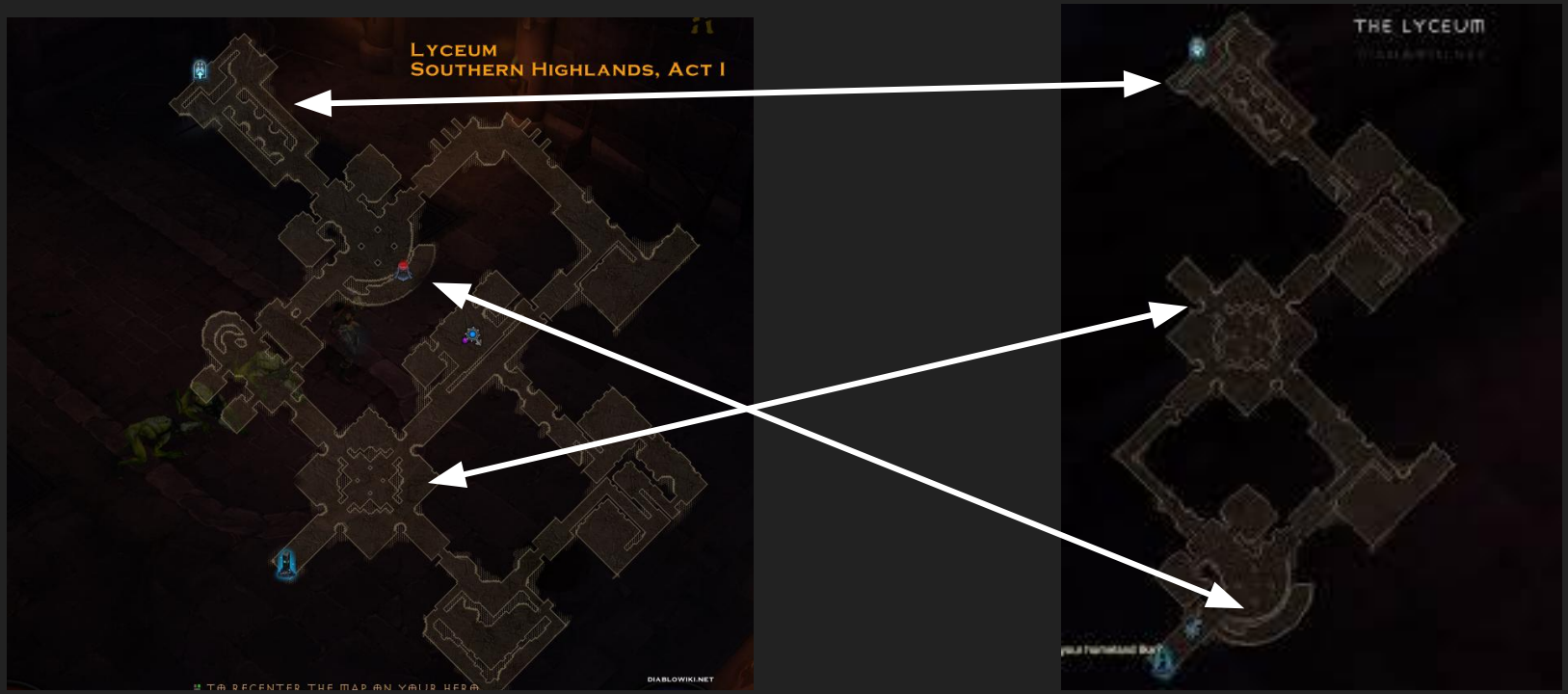
Procedural Generation

Procedural Generation



Really Bad Chess

Procedural Generation



Narrative Mechanics

Narrative Mechanics

Missile Command

No win state - There is no winning in a global nuclear war.

Limited counter missiles - Have to make difficult choices of who to save and who to sacrifice.

Small number of cities - personal connection with what you are defending (author based it on the California coastline)

Narrative Mechanics

Monopoly

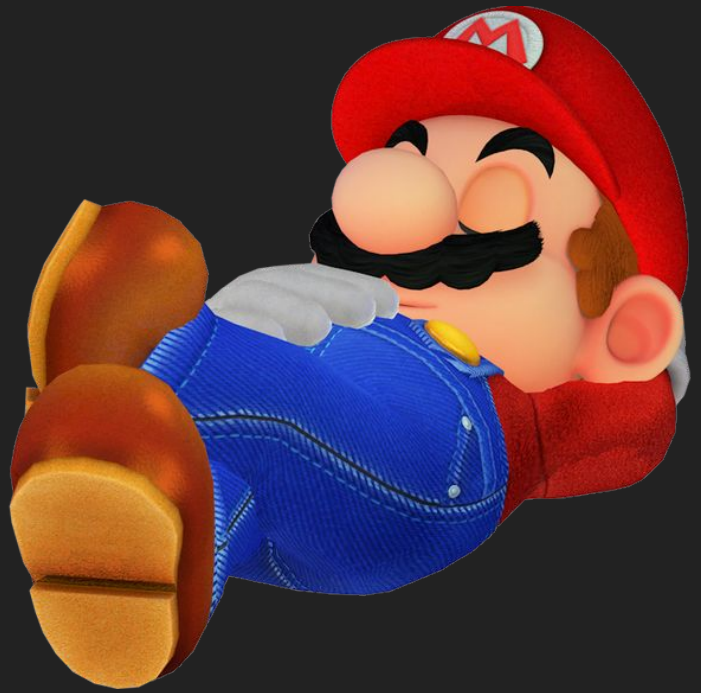
Lizzie Magie created the game in 1904 (originally called the “Landlord’s Game”) to teach the evils of wealth at the expense of others.

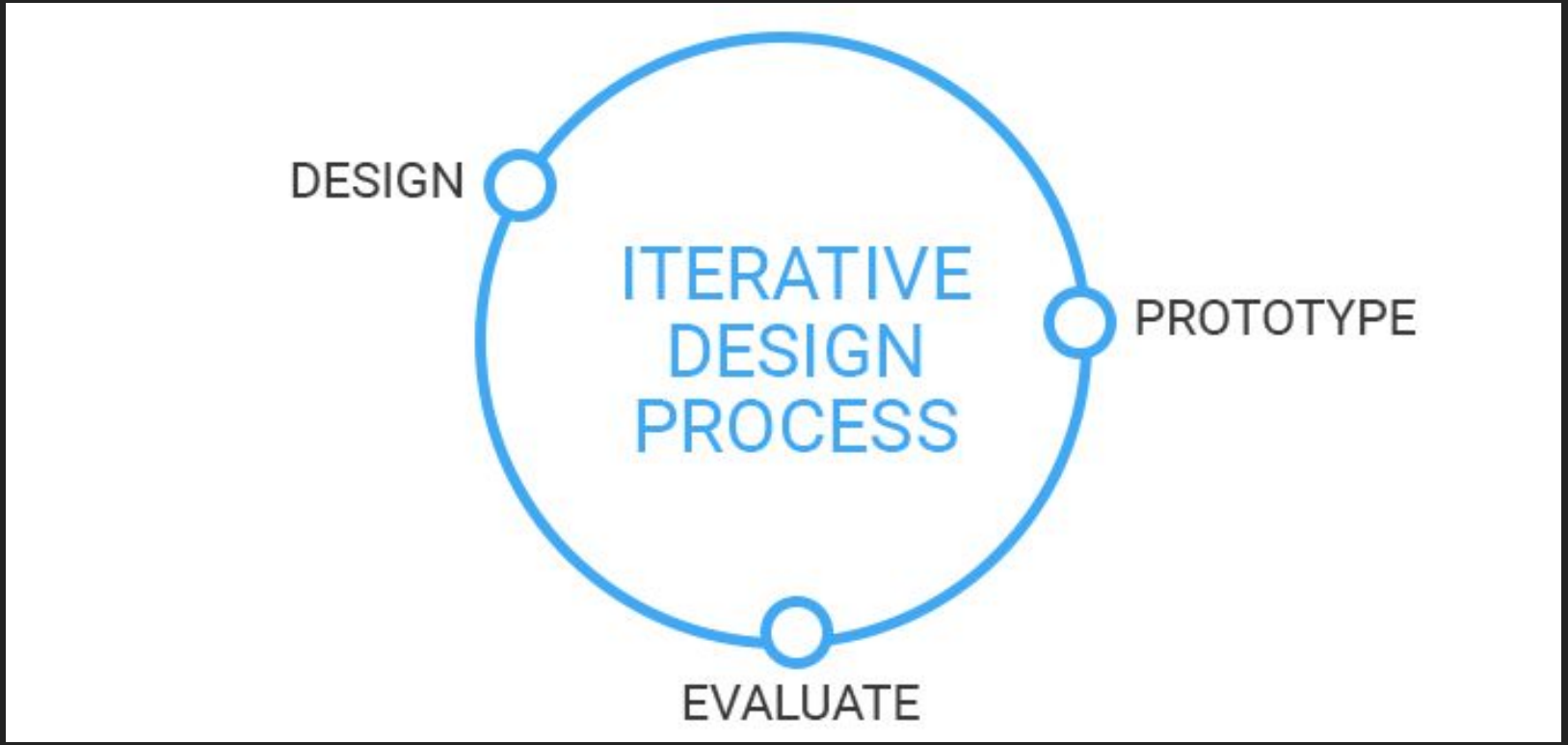
“In a short time, I hope a very short time, men and women will discover that they are poor because Carnegie and Rockefeller, maybe, have more than they know what to do with.”

Narrative Mechanics

Narrative Mechanics

Time for a Break!




DESIGN
ITERATIVE
DESIGN
PROCESS
PROTOTYPE
EVALUATE

Prototyping

Prototyping Goals

Proving that your basic game mechanic is interesting.

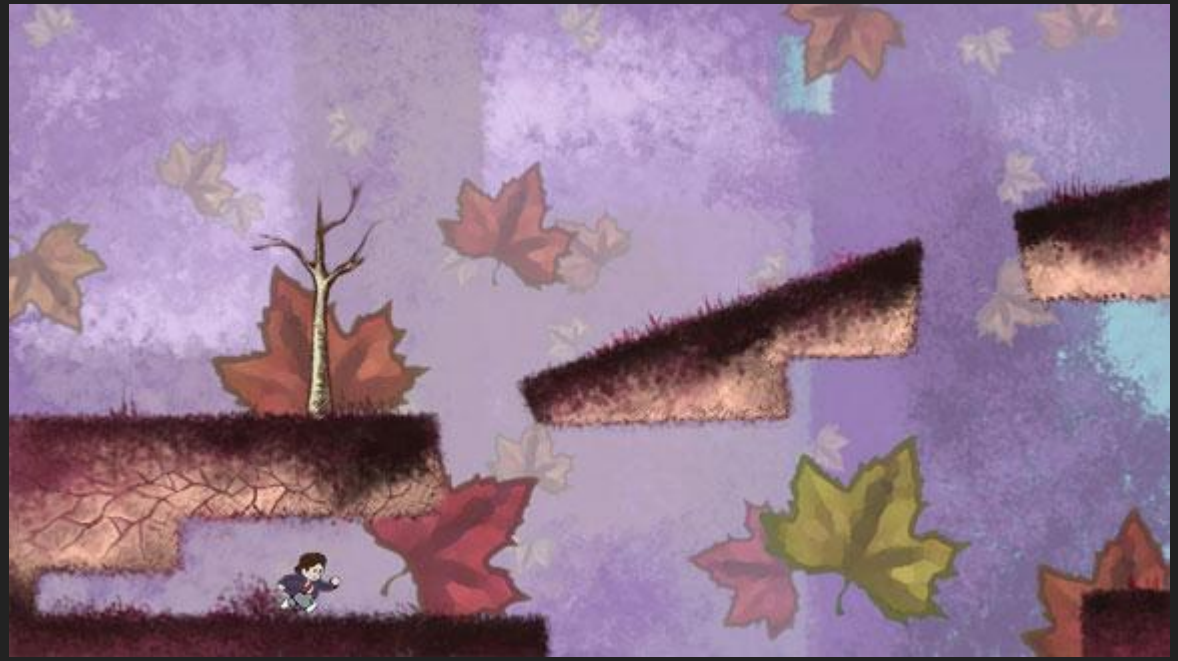
Changing the basic game mechanic if it isn't.

Finding new mechanics that emerge from your game's systems.

Exploring your concept from all possible sides.

From Prototype to Finished Game

From Prototype to Finished Game



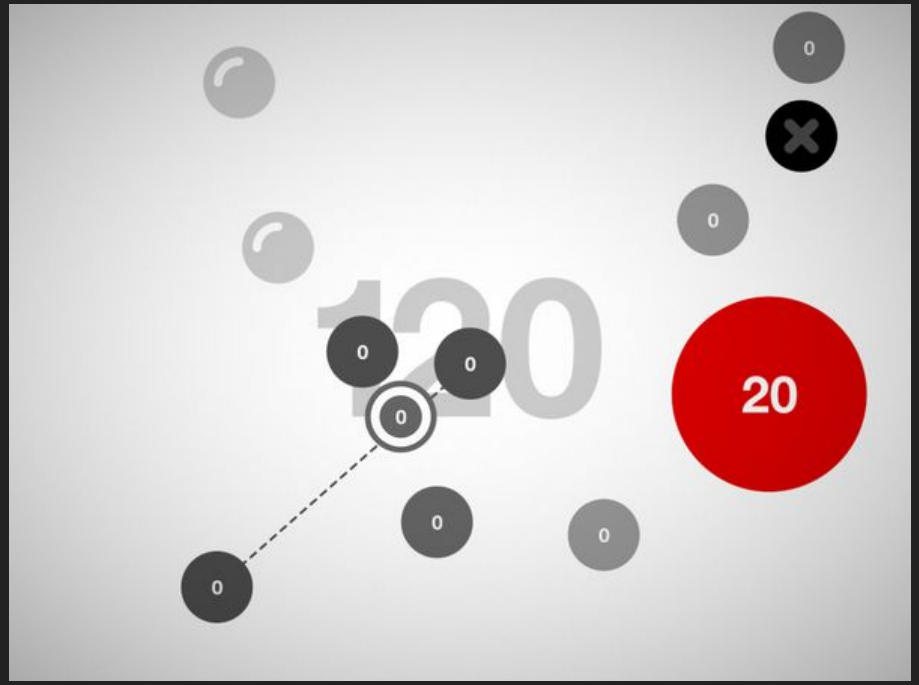
From Prototype to Finished Game

From Prototype to Finished Game

Overwatch was released May 2016

Final game does not always have to look much different than the prototype!

Final game does not always have to look much different than the prototype!



Getting Started with Prototyping a Game

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1. Start with a Theme.

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2. Pick a few core elements iconic to that theme. Don’t get complicated!

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3. Define their relationships as rules in the game space.

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5. What decisions does the player have to make at all times. Does this create a deep and compelling decision space for the game?

Getting Started With Prototyping a Game

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3. Define their relationships as rules in the game space.
4. Define the player's role in these relationships.
5. What decisions does the player have to make at all times. Does this create a deep and compelling decision space for the game?

You want to have the smallest possible space with the least amount of rules that creates a compelling experience for the player. Use time restrictions and rule coupling to make smaller rule sets more interesting.

Prototyping in This Class

Minimalist Game Design

Minimalist Games

Small Rulesets

Narrow decision spaces

Abstract Visual Representation

Abstract Audio Representation

...yet they do not compromise on depth of play or possibility space!

Game Design Vocabulary

State - The space, entities and variables of our game.

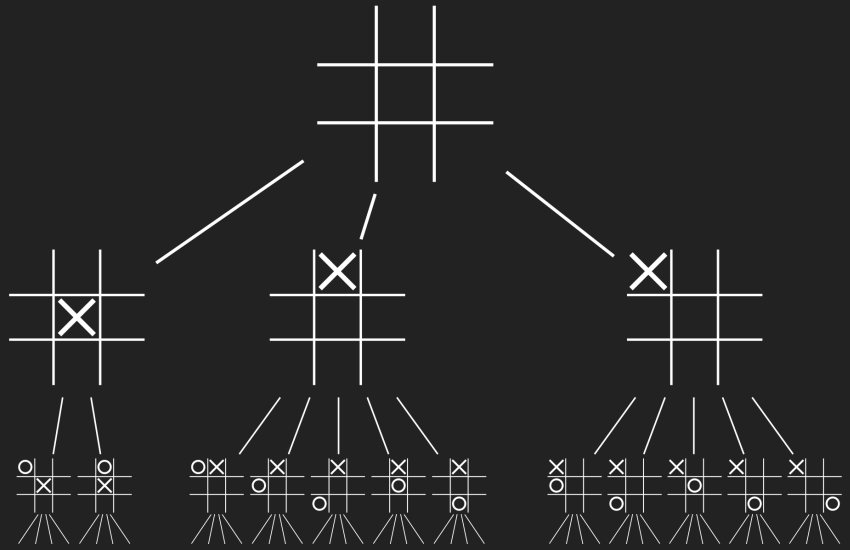
Rules - Define all changes of state in the game.

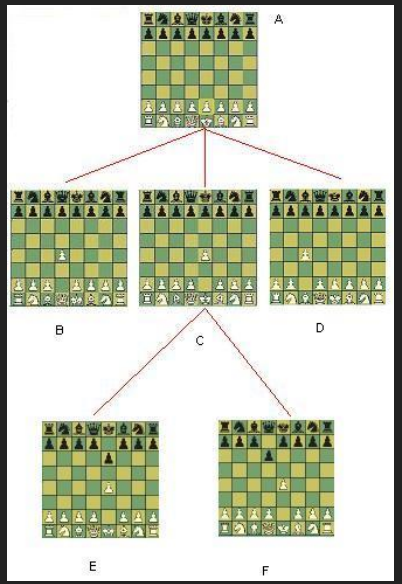
Mechanics - Rules that can be invoked by the player.

Controls - The way by which the player invokes the mechanics.

Interface - The full input/output of the game; Controls combined with audio-visual feedback.

Small Ruleset, Narrow Decisions, Abstract Visuals, Maintains Depth

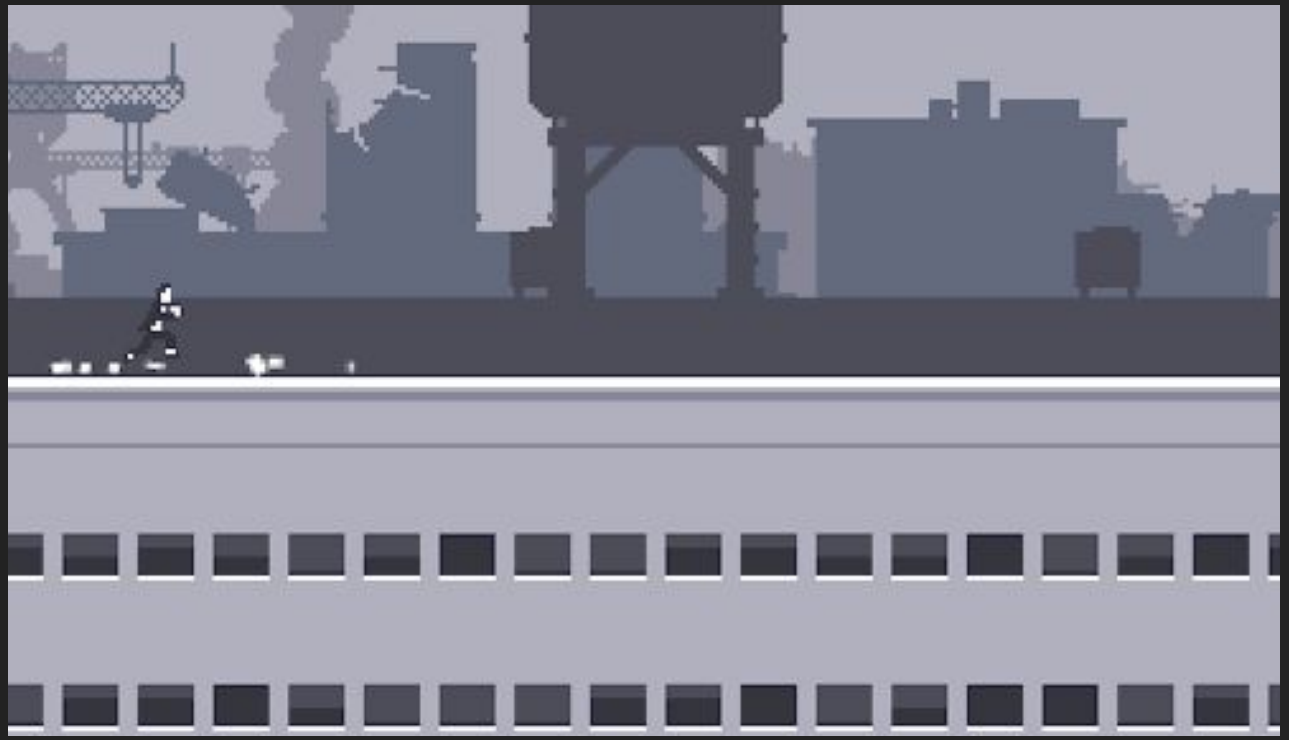




Time Constraints

Time constraints are one way to
make narrow decision spaces more interesting.

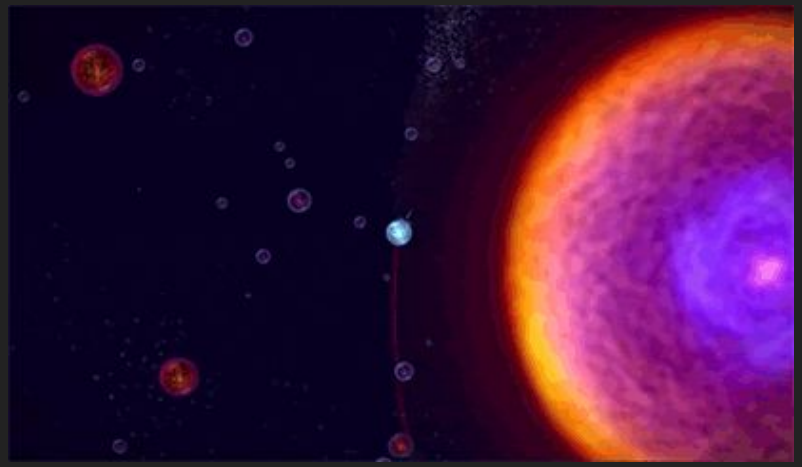
Time Constraints - Canabalt



Rule Coupling

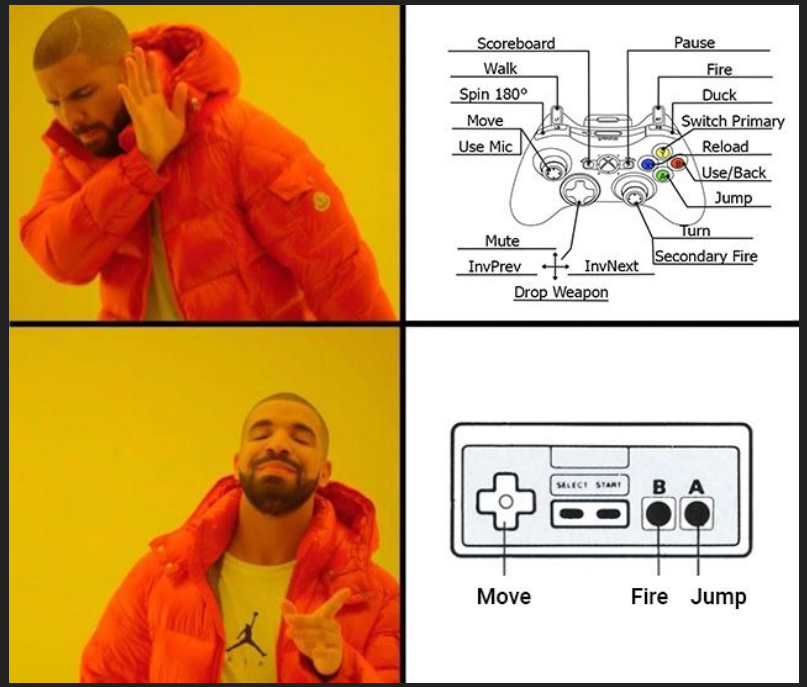
Combining rules is one way to
make small rule sets more interesting.

Rule Coupling - Osmos



Rule Coupling - Osmos

Minimalist Controls



Minimalist Visual Representation

Prototyping in This Class

Small set of rules and thus a small state.
Small set of mechanics or only one core mechanic.
A simple abstract audio-visual representation and simple controls.

Guida’s Guide

Guida's Guide

1. Make a list of all the features you want in your game.

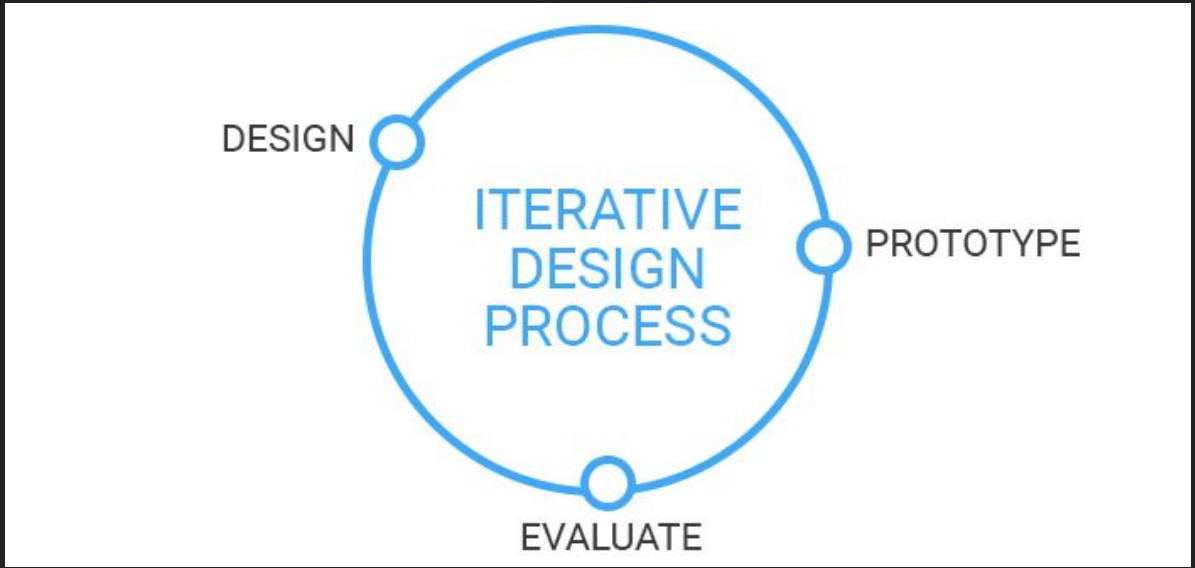
Guida's Guide

1. Make a list of all the features you want in your game.
2. Take half that list.

Guida's Guide

1. Make a list of all the features you want in your game.
2. Take half that list.
3. Throw that half away.

Playtesting



Playtesting

Open / Closed

Target Audience

Test the Test!

Testing the game not the player!

Take a Survey

https://gamecenter.nyu.edu/events/playtest-thursdays/

Remember Prototyping Goals

Proving that your basic game mechanic is interesting.

Changing the basic game mechanic if it isn't.

Finding new mechanics that emerge from your game's systems.

Exploring your concept from all possible sides.

Uno!

Let’s add some mechanics to Uno and playtest!