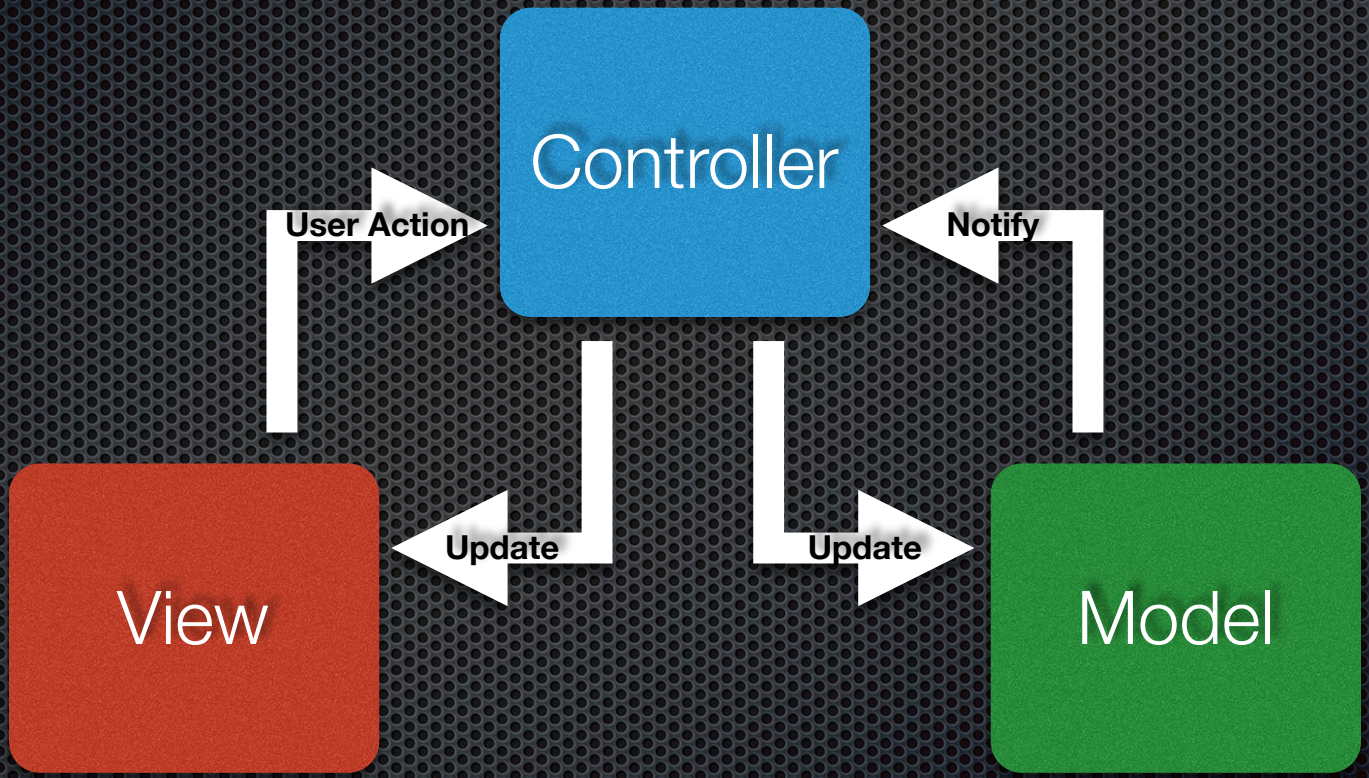
Mobile Application Programming

Game Concepts

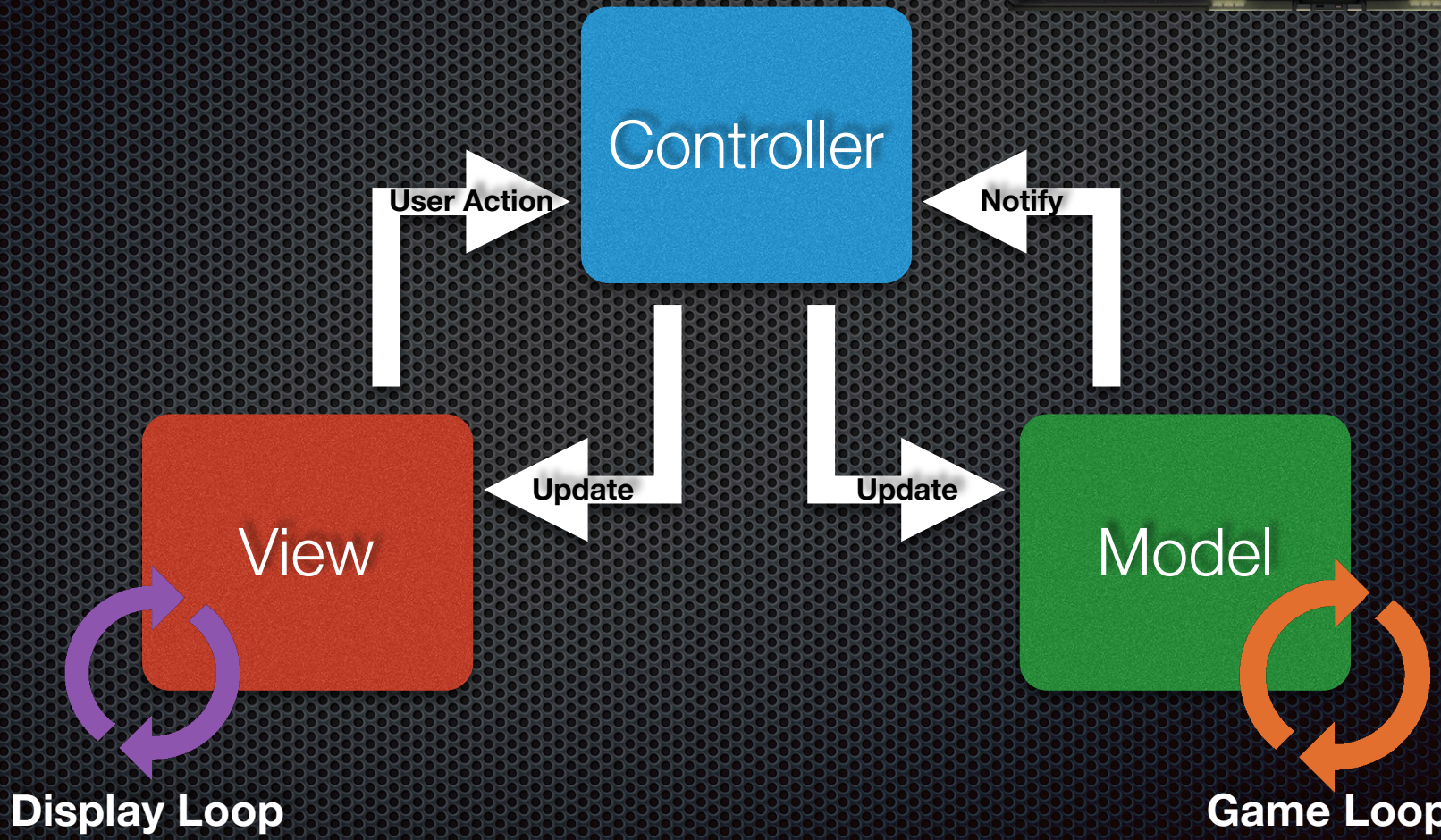
Model View Controller



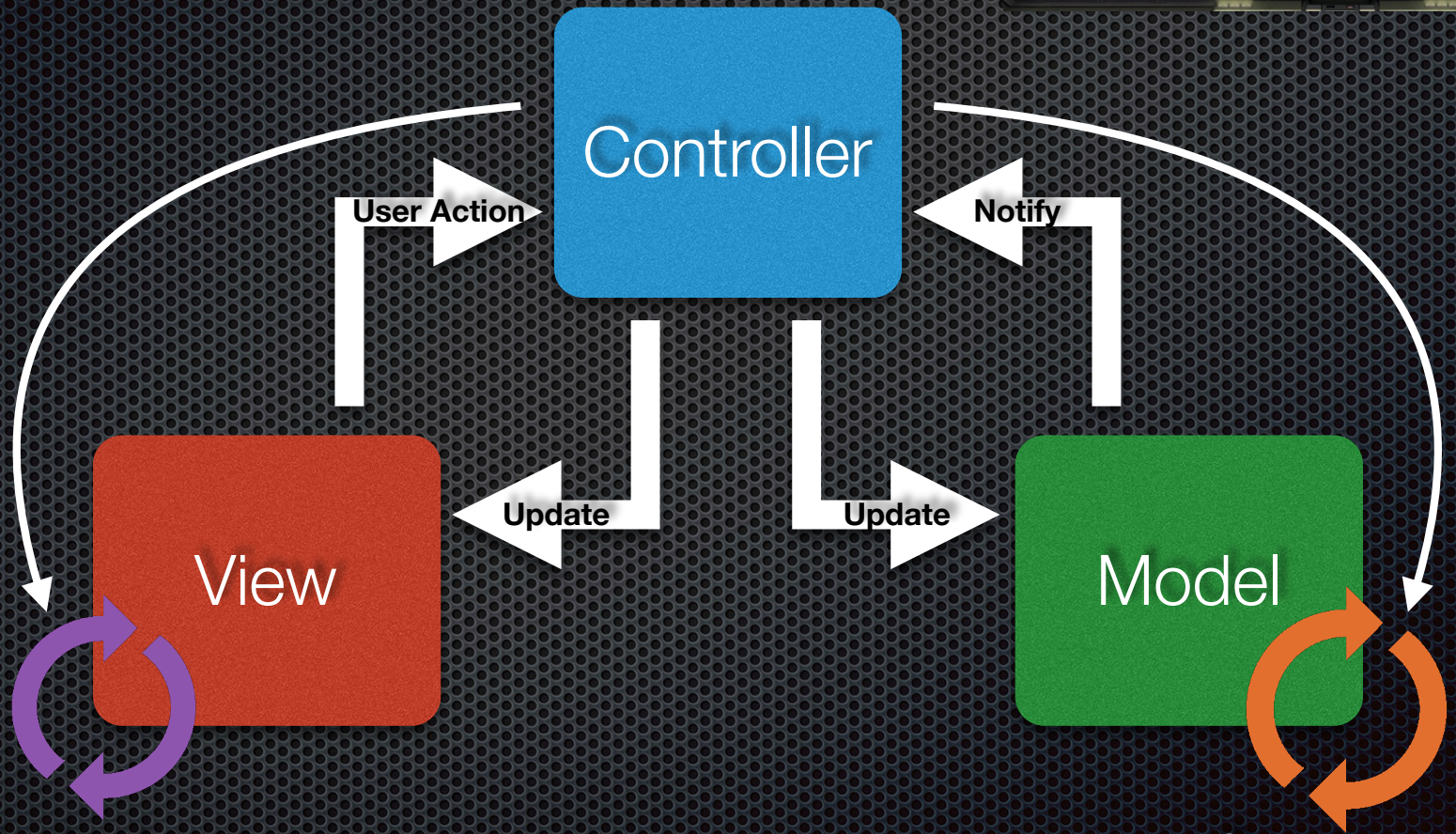
Games!

Game MVC


SHIELD
XP 43
$0900695


Controller
User Action
Notify
Update
Update
View
Model
Display Loop
Game Loop

Game MVC



Display Loop

Renders current location of game objects

Game Loop

Updates locations of objects, detects collisions

Game MVC

Call every **1/60th** of a second

Call **at least every frame**, probably more

Controller

User Action

Notify

View

Update

Update

Model

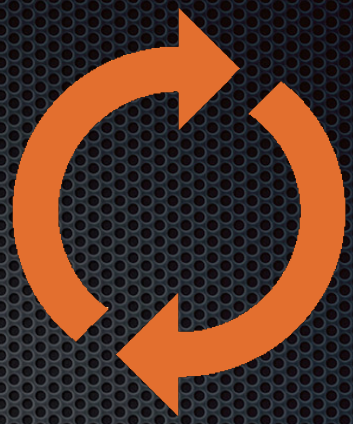
Display Loop

Renders current location of game objects

Game Loop

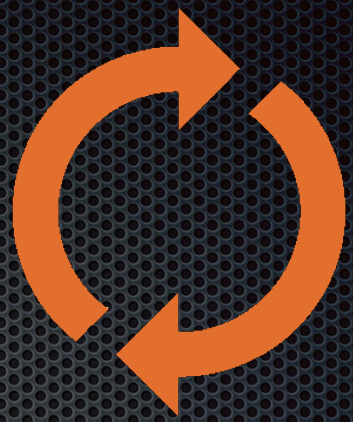
Updates locations of objects, detects collisions

Game Loop



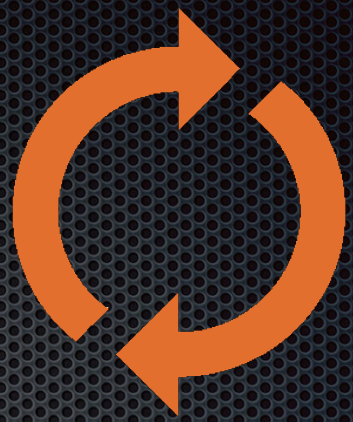
- Different for every game, but follows a few basic rules
  - Called at least once per frame
  - Updates game object locations based on a physics model of some kind ($p_f = p_i + vt$)
  - Generates game events based on game rules, typically in response to elements colliding
    - Circle collision: object1 collides with object2 if the distance between them is less than the sum of their radii. Be sure to account for punch through!

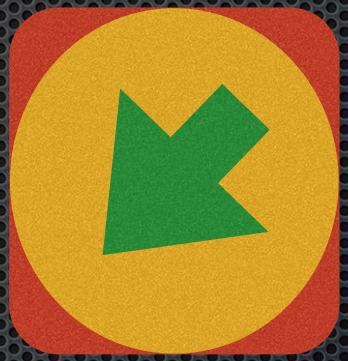
Game Events

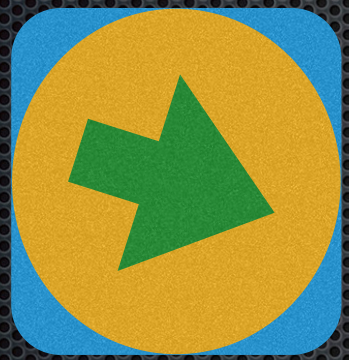


- Trigger player health reduction, removal of an enemy due to successful bullet strike, spawning of new enemies because a timer elapsed, etc
- Define a set of event methods in a protocol and call them to notify the game model's delegate
  - Delegate call gives a convenient place to perform non-model actions that don't happen every time a frame is drawn, like play sound effects, switch game scenes, initiate non-colliding animations

Punch Through

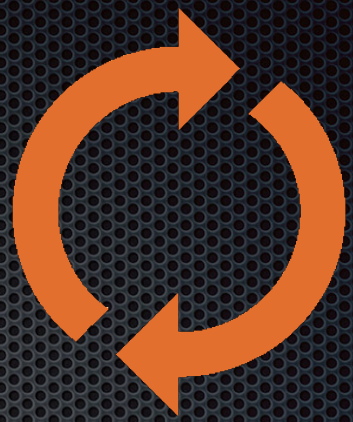






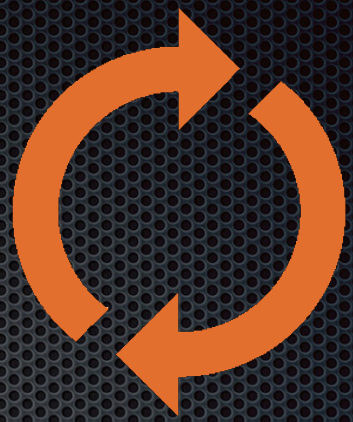
Velocity: 1 unit/sec

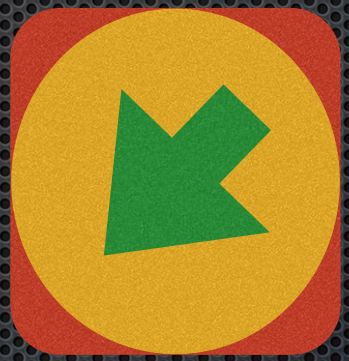
Punch Through



Velocity: 1 unit/sec

Punch Through





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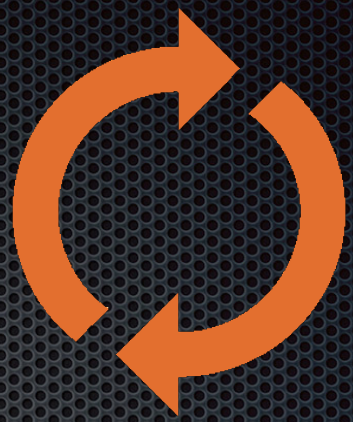
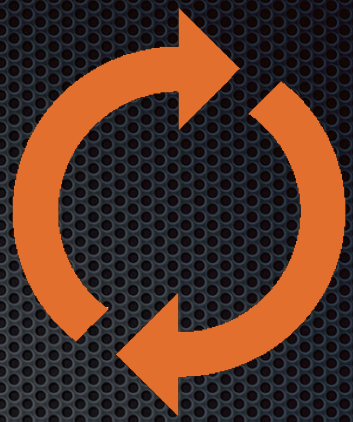
Punch Through



Velocity: 1 unit/sec

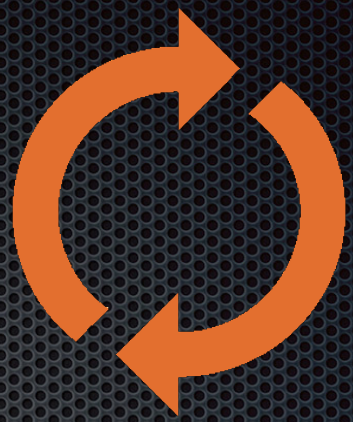
Punch Through



Collision!

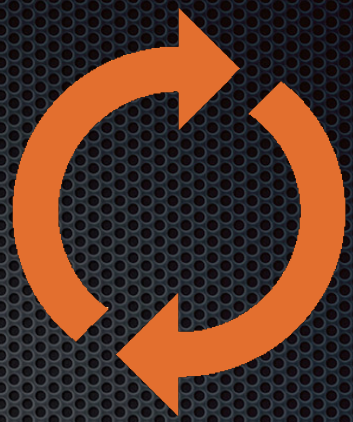
Velocity: 1 unit/sec

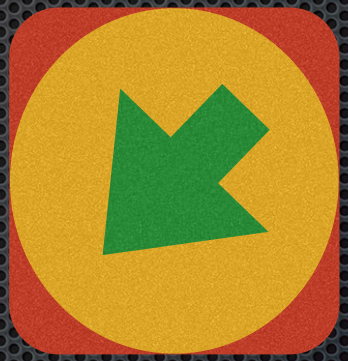
Punch Through

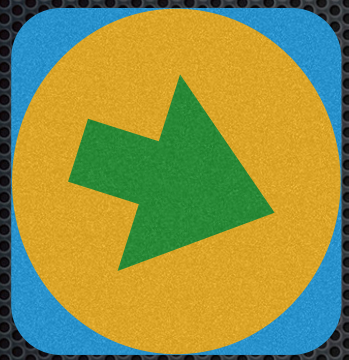


Velocity: 1 unit/sec

Punch Through

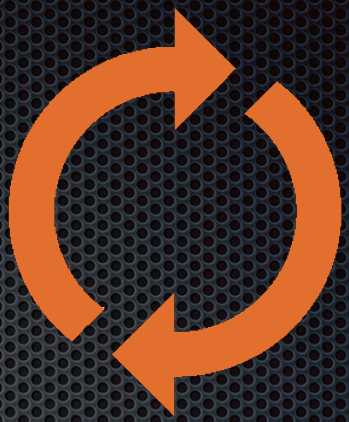






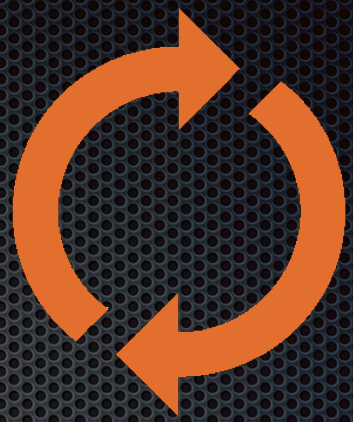
Velocity: 1 unit/sec

Punch Through



Velocity: 4 unit/sec

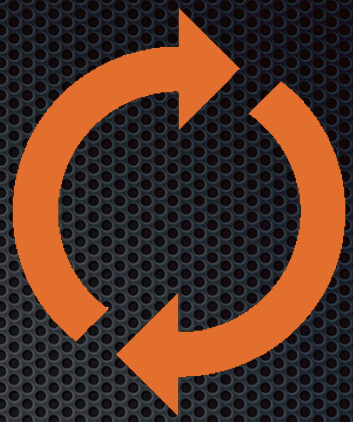
Punch Through



No collision!

Velocity: 4 unit/sec

Punch Through



Velocity: 4 unit/sec