Mobile Application Programming

Game Concepts
Model View Controller
Games!
Game MVC
Game MVC

Call every 1/60th of a second

Call at least every frame, probably more

User Action

Notify

View

Model

Controller

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

Display Loop
Renders current location of game objects

Game Loop
Updates locations of objects, detects collisions

Controller

User Action

Notify

Update

View

Model
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
Punch Through
Punch Through
Punch Through
Punch Through

Collision!
Punch Through
Punch Through
Punch Through

No collision!
Punch Through