Mobile Application Programming
Design
The Iterative Design Process
The Iterative Design Process
Idea
Refined Idea
Refined Idea
Wire Frames
Mockups
Mockups
let quoteListJson: NSData? = NSData(
if (quoteListJson == nil)
    return
)

let quoteListJsonString: NSString = NSString(
printn(quoteListJsonString)

let quoteAttributions: NSArray? = NS[
allZeros, error: nil] as NSArray?
if (quoteAttributions == nil)
    return

for quoteDictionary in quoteAttributions
{
    let quoteID: String? = quoteDicti
    let quoteAttribution: String? = q
    if (quoteID != nil && quoteAttribut
    {
        _quoteIDs.append(quoteID)
func refreshQuoteList()
{
    // TODO: Async!

    let quoteListUrl: NSURL = NSURL(string: "http://localhost:8888/quotes")!
    let quoteListJson: NSData? = NSData(contentsOfURL: quoteListUrl)
    if (quoteListJson == nil)
    {
        return
    }

    let quoteListJsonString: NSString = NSString(data: quoteListJson!, encoding: NSUTF8StringEncoding)!
    println(quoteListJsonString)

    let quoteAttributions: NSArray? = NSJSONSerialization.JSONObjectWithData(quoteListJson!, options: .allZeros, error: nil) as NSArray?
    if (quoteAttributions == nil)
    {
        return
    }

    for quoteDictionary in quoteAttributions!
    {
        let quoteID: String? = quoteDictionary["ID"] as String?
        let quoteAttribution: String? = quoteDictionary["Attribution"] as String?
        if (quoteID != nil && quoteAttribution != nil)
        {
            _quoteIds.append(quoteID!)
            _quotes[quoteID!] = Quote(attribution: quoteAttribution!, text: nil)
        }
    }

    // let quoteText: String? = quoteDictionary["Text"]
Testing
Testing
Quality Assurance
Quality Assurance
The Beginning
Product Life Cycle

Construction

Maintenance

Marketing
"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away."

- Antoine de Saint-Exuper
Satalaunch
Get Gemtopia on the App Store Build a city with jewels!

ASTRO CRASHED!

PLAY AGAIN

Available on the App Store
ACHIEVEMENTS

SPACE CADET
COMPLETE ALL LEVELS IN THE BASICS REALM

GALACTIC GRADUATE
COLLECT ALL THE YELLOW STARS IN THE BASICS REALM

SOLAR SEEKER
COMPLETE ALL LEVELS IN THE SOLAR SYSTEM REALM

COSMIC CONQUEROR
COLLECT ALL THE YELLOW STARS IN THE SOLAR SYSTEM REALM

ARDENT ADVENTURER
COMPLETE ALL LEVELS IN THE FREESTYLE REALM
Final Projects

- A Final Project is:
  - **Large** (~? Hrs / Person)
  - **Real** (Meets Actual Need)
  - **Complete** (Feature-wise)
  - **Polished** (Store Quality)
  - **Valuable** (Someone Would Like to Buy It)

- 1 Programmer Examples
  - Photo App with Filters
  - Networked Social App
  - Asteroids with Pickups
  - Battleship (2 iDevices)
  - Simple OpenGL Game
Final Projects
The Iterative Design Process
Abstract
An implementation of the paper & pencil game Tic-Tac-Toe with support for in-progress and completed games.

Game List Screen
- Tapping `+` opens a new game
- Tapping a row opens that game
- Games can be deleted by right-swipe

<table>
<thead>
<tr>
<th>Tic Tac Toe</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>X's Turn</td>
<td>3 mins</td>
</tr>
<tr>
<td>O's Turn</td>
<td>3 mins</td>
</tr>
<tr>
<td>O Won</td>
<td>6 mins</td>
</tr>
<tr>
<td>Tie</td>
<td>9 mins</td>
</tr>
</tbody>
</table>

Game Screen
- Tapping a cell selects the location for a move
- The title updates to reflect who's turn it is
- Tapping `Back` returns to the game list screen
- Tapping `Delete` deletes this game
- When a player wins, tapping a cell informs the user that the game has ended.
let quoteListJson: NSData? = NSData-nil
if (quoteListJson == nil)
{
    return
}
let quoteListJsonString: NSString = 
    print((quoteListJsonString)
let quoteAttributes: NSArray? = NS
    allZeros, errors: nil as NSArray
if (quoteAttributes == nil)
{
    return
}
for quoteDictionary in quoteAttributes
{
    let quoteID: String? = quoteDict
    let quoteAttributes: String?
    if (quoteID == nil) & quoteAttri
        _quoteIDs.append(quoteID)