Revised Plan

- Due *tonight* at 11:59pm
- Plan for the Beta deadline (10/20)
- Instructions are on website
- *Just the plan* from the game design document
Schedule

Oct. 1    Oct. 20    Nov. 3    Nov. 17    Dec. 3
Alpha     Beta      Friends Release     Newgrounds Release     Kongregate Release
Alpha Prototype

- Minimum to accept/reject the idea
- Answer key questions (is it fun?)
- Requirements
  - three levels: easy, medium, hard
  - core game mechanics for these levels
  - minimal art/UX integrations
NOT needed for Alpha Prototype

- More than three levels
- Game mechanics not needed for these levels
- Tutorials
- Music
- Sound effects
- Full art integration
- Full user interface
- Logging
Schedule

- Alpha
  - Learnability
  - Progression

- Beta
  - Content
  - Logging

- Friends Release

Oct. 1

Oct. 20

Nov. 3
Beta Prototype: Learnability

- **Goal:** users can play *without any help from you*
- **Requirements**
  - Fixes discussed during team meetings
  - *Smooth progression* of eight\(^1,2\) levels
  - Reinforcement and recombination
  - Tutorial messages

\(^1\) negotiable
\(^2\) equivalent to:
  - ten levels in *Box!* or *Thermo* or *Zombify*
  - six levels in *That’s How We Roll* or *Nameless Tactics*
  - two levels in *Epic’s Epic Epic*
NOT needed for Beta Prototype

- More than eight levels
- Game mechanics not needed for these levels
- Music
- Sound effects
- Logging
Beta Level Progression

- Easy
- Medium
- Hard

Challenge vs. Time
Beta Level Progression

- Easy
- Medium
- Hard

Challenge vs Time
Beta Level Progression

Challenge

Time

Easy

Medium

Hard
Examples of Betas
Schedule

- Oct. 1: Alpha
  - Learnability
  - Progression

- Oct. 20: Beta
  - Content
  - Logging

- Nov. 3: Friends Release
Friends Release: Too Much Death

![Bar chart showing average deaths per player across levels](chart.png)
Kongregate: Use of Shake

- **Shakes Per Player**

  - Kongregate

- **shakes per player**

  - Newgrounds
What are the challenges in logging?
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am</td>
<td>Starts game</td>
</tr>
<tr>
<td>9:01am</td>
<td>Starts level 1</td>
</tr>
<tr>
<td>9:01-9:10am</td>
<td>Completing level 2</td>
</tr>
<tr>
<td>9:11am</td>
<td>Starts level 2</td>
</tr>
<tr>
<td>9:11-9:17am</td>
<td>Completing level 2</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>9:00am</td>
<td>Starts game</td>
</tr>
<tr>
<td><strong>9:45am</strong></td>
<td>Starts level 1</td>
</tr>
<tr>
<td>9:45-9:55am</td>
<td>Random actions in level 1</td>
</tr>
<tr>
<td>9:55am</td>
<td>Restarts level 1</td>
</tr>
<tr>
<td>9:56am</td>
<td>Restarts level 1</td>
</tr>
<tr>
<td>9:57-10:04am</td>
<td>More actions in level 1</td>
</tr>
<tr>
<td>10:04am</td>
<td>Boss walks in. Minimizes game and acts like he is working.</td>
</tr>
<tr>
<td><strong>2:55pm</strong></td>
<td>Maximize game, resume level 1</td>
</tr>
</tbody>
</table>
What are the challenges in logging?

- Sporadic and unexpected player behavior
- Events can get dropped
- Limited space
- Spikes in demand
Principle 1: Record what you need

- Consider *decision-significant* information
- Consider your analysis questions
The Ground Beneath Her Feet

Move the platform across the pit and then go back in time so the goomba will land on the platform and walk across. He will get the key from the tiny space for you. Grab the first puzzle piece and move on.
The Ground Beneath Her Feet

Move the platform across the pit and then go back in time so the goomba will land on the platform and walk across. He will get the key from the tiny space for you. Grab the first puzzle piece and move on.
Recording Movement
Ways to do this

- `walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right walk_right`  
  - `walk_right (3 seconds)`

- `player_at(1, 1) player_at(1, 1) player_at(1, 1) player_at(1, 1) player_at(2, 1) player_at(2, 1) player_at(3, 1)`

- `player_at(1, 1) player_at(2, 1) player_at(3, 1)`
Discretizing Space
Discretizing Space
Recording Health

- Player health dropped to 99%
- Player health dropped to 98%
- Player health dropped to 97%
- Player health dropped to 96%
- Player health dropped to 80%
- Player health dropped to 60%
- Player health dropped to 40%
- Player health dropped to 20%
Key events
Key events
Principle 2: Failsafes

- Events sometimes get lost
  - Server load spikes
  - Black holes in the internet

- Mistakes get made
  - You forgot to record something important

- Need some redundancy
  - Record absolute information, not changes since last event
  - Periodically report the entire game state
GDIAC logging framework

- Located on gdiac.cs.cornell.edu
You will soon have gdiac accounts

- You will need to set your SFAM password
Four entities

- Users: "players"
- Sessions: "pageloads"
- Tasks: "quests"
- Actions: "actions"
The original idea

User 1
  Session 1
    Task 1  Action 1
    Task 2  Action 1
    Task 3  Action 1
  Session 2
    Task 4  Action 1
    Task 5  Action 2

User 2
  Session 1
    Task 1  Action 1
Four tables

- Users: users
- Sessions: player_pageload_log
- Tasks: player_quest_log
- Actions: player_action_log
Logging

- Painful bits are mostly taken care of for you
- Server communications managed through an Actionscript/Javascript library
Logging.swc

Constructor arguments:

- **DEBUG_MODE**
  - Turns off logging while you are debugging

- **GAME_ID**
  - Unique identifier for your game (given to you by me)

- **VERSION_ID**
  - Game version number
Recording

Users

Sessions

Tasks

Actions

recordPageLoad
recordLevelStart
recordLevelEnd

recordAction
Logging.swc

Four commands:

- **recordPageLoad**
  - use once when the player loads the game

- **recordLevelStart**
  - use when the player starts a level (or quest)
  - must follow `recordPageLoad`

- **recordLevelEnd**
  - use when the player ends a level (or quest)
  - must follow `recordPageLoad` and `recordLevelStart`

- **recordAction**
  - use when the player performs an action
  - must follow `recordPageLoad` and `recordLevelStart`
Users and Sessions: recordPageLoad

High level idea:

- register new player or existing player
- make a new user (if unknown)
Users and Sessions: recordPageLoad

Arguments: none
**Quests**: recordLevelStart

High level idea:

- signal start of a task
- associate task with a user and session
**Quests:** recordLevelStart

**Arguments:**

- **questId** (integer)
  - Unique level identifier

- **questDetail** (string)
  - Any details about the level you want to record
**Quests**: recordLevelEnd

High level idea:
- signal end of a task
**Quests**: recordLevelEnd

**Arguments**: none
**Actions**: recordAction

High level idea:

- record an action
- associate it with user, session, and quest
**Actions**: recordAction

**Arguments:**
- `actionId` (integer)
  - Unique action identifier
- `actionDetail` (string)
  - Any details about the action you want to record
Pulling Data

- Large JSON object of everything
- CSV file of key metrics
- Direct database access
## CSV data

<table>
<thead>
<tr>
<th>Player ID</th>
<th>Levels Completed</th>
<th>Time Played</th>
<th>Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>120</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>30</td>
<td>1</td>
</tr>
</tbody>
</table>
Test thoroughly!

- Very easy to get something wrong
- Only one chance for each release!
Data collection is everywhere...
...but so are ethical challenges

**The Washington Post**

Cornell ethics board did not pre-approve Facebook mood manipulation study

**The Guardian**

Facebook fiasco: was Cornell's study of 'emotional contagion' an ethics breach?

**PCWorld**

Privacy group files FTC complaint over Facebook's 'emotional contagion' study
Milgram Experiment
Institutional Review Board
IRB Approval

Institutional Review Board for Human Participants

Notice of Course Activity Approval

To: Erik Andersen
Date: September 05, 2014
Protocol ID#: 1408004901
Protocol Title: CS-4154

The above referenced Course Activity Project was reviewed by Cornell’s Human Research Protection Program (IRB) and approved for the inclusion of human participants in class assignments. This approval does NOT cover students doing research for theses, dissertations, journal articles, public presentations, or any other special projects. Students should be guided by their advisor to ensure that they require the individual student to complete his or her own Initial Approval Request form before beginning recruitment and data collection.

You or your students must ensure that the welfare of the research participants is protected and that methods used and information provided to gain subject consent are appropriate to the activity. You and your students should familiarize yourself with and conduct the research in accordance with the ethical standards of the Belmont Report: http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html

Please give a photocopy of this approval notice to each student in your class who will be conducting a human participant research project. Acceptance of these terms by students constitutes an understanding that data collection (and allusions to conclusions drawn from these data) from the project(s) covered solely by this approval may never be used for theses, dissertations, articles, or public presentations.

If you have any questions, please contact the IRB office at irbhp@cornell.edu or 254-5162.
An Unbalanced Study of Unbalanced Players versus Unbalanced

An honors thesis submitted in partial fulfillment of the requirements for the degree of Bachelor of Science.
IRB Approval

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No identifiable data

Please enter your name:
IRB Approval

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What this means for you

• Protect the welfare of your players

• Do not
  • record identifiable information
  • give data to anyone outside the class
  • discuss your data or analysis in
    • public presentations
    • theses
    • journal articles
    • conference papers
Group Activity

• Come up with a logging plan
  • What events are you going to record?
  • What information is associated with each event?
  • How will you test your setup?