Lecture 10:

Logging
Logging

- Painful bits are mostly taken care of for you
- Server communications managed through an ActionScript library
Logging.as

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
Logging.as

Four commands:

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

- **recordLevelStart**
  - use when the player starts a level (or quest)

- **recordLevelEnd**
  - use when the player ends a level (or quest)

- **recordAction**
  - use when the player performs an action
recordPageLoad

Arguments: none
recordLevelStart

Arguments:

• questId (integer)
  • Unique level identifier

• questDetail (string)
  • Any details about the level you want to record
Arguments: none
recordAction

Arguments:

- actionId (integer)
  - Unique action identifier

- actionDetail (string)
  - Any details about the action you want to record
Pulling Data

- Definitely
  - Large JSON object of everything
  - CSV file of key metrics

- Possibly
  - Direct database access
  - Ability to grab a subset of players
<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 catastrophically wrong
- Only one chance for each release!
Space Is An Issue

- Your group has ~ 10 GB
- Each event is ~ 4 KB
- ~2.5 million events per group
- With 10,000 players, this is ~250 events per person
- With 10 minutes per player, ~25 events per minute
- Aim for one event every two seconds
How to think about logging

- Consider *decision-significant* information
- Consider your analysis questions
Decision-significant information

- Consider your state transitions from Tuesday’s activity
- Imagine a walkthrough to your game
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(1, 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 90%
- Player health dropped to 80%
- Player health dropped to 60%
- Player health dropped to 40%
- Player health dropped to 20%
- Player health dropped to 10%
- Player health dropped to 5%
How to think about logging

- Consider *decision-significant* information

- Consider your analysis questions
Consider your analysis questions

• What state am I in?
  • Group 5
    • I consist of 1, 2, or 3 blobs
    • I am dead or not dead
    • I have reached some checkpoints

• Do I really need to record every single move?
Key events

Logging
Key events
How to think about logging

- Consider *decision-significant* information
- Consider your analysis questions
Group Activity

• Come up with a logging plan (~15 minutes)
  • What events are you going to record?
  • What information is associated with each event?
  • How will you test your setup?

• Try it out! (~10 minutes)
  • Donate a person to another group
  • That person plays a level
  • Someone scribes