CS/INFO 4154:
Analytics-driven Game Design

Class 30:
A/B Testing 1
Mon

11/6
A/B Testing Analysis 1

11/13
Newgrounds Release 1

11/20

Wed

11/8
A/B Testing Analysis 2

11/15
Newgrounds Release 2

Fri

11/3
A/B Testing: Logistics

11/10

11/17
Newgrounds Release 3

Newgrounds Release Report due 10:10am
New requirements:

- 12 levels
- A/B test with 2 conditions and 50/50 player split
- Privacy policy

Logistics:

- Upload to CMS *before class*
- Release *in class*
- *Strongly suggested*: upload to Newgrounds *test page* before class (but *do not actually release*)
Newgrounds

- Founded 1995
- Large content variety
  - games
  - movies
  - art
  - music
- 78,384 games

Tom Fulp
Famous memes

Badger Badger Badger

Numa Numa Dance
Newgrounds Game Life Cycle

1-24 hours: Under Judgment

1 day: New Games List

1-3 days: Hot New Games

3-7 days: Featured Games

Gathering Dust
1. TLoZ - The secret weapon
   by Dan-Dark
   Movie | Rated M | 345 Views

2. Subway Surfers Off the rails
   by TheCgbros2
   Movie | Rated E | 282 Views

3. Unbalanced
   by dpkgame
   Game | Rated E | 174 Views

4. Root's New Shoes - Root & Digby
   by Oobar
   Movie | Rated E | 116 Views

5. Clone Combat
   by maxxmcc
   Game | Rated T | 483 Views
A/B Testing

Revenue +12.3%
Logistics

Players

Condition 1

Condition 2
Logistics
A/B testing in this class

- New logging API posted to Piazza
- Two functions:
  - assignABTestingValue
  - recordABTestingValue
- Must call both for the system to work properly
assignABTestingValue

- Goals:
  - Set new condition for new players
  - Loads existing condition for returning players
- Single parameter: *proposed* condition (integer)

```javascript
logging.initialize(989, 2, false);
// Arbitrarily, we've assigned cat = 1, dog = 2, and fish = 3
var abTestValue = logging.assignABTestValue(random(1, 3)); // Assume random(low, high) gives a number between low and high inclusive
logging.recordABTestValue(); // Sends the A/B test value to the server

// Some function calls later

// Load sprite based on abTestValue
if (abTestValue == 1) {
  player.loadSprite("cat");
} else if (abTestValue == 2) {
  player.loadSprite("dog");
} else {
  player.loadSprite("fish");
}
```
recordABTestingValue

- Communicates A/B testing value to server
- *Should call once every play session*

```javascript
logging.initialize(989, 2, false);
// Arbitrarily, we've assigned cat = 1, dog = 2, and fish = 3
var abTestValue = logging.assignABTestValue(random(1, 3)); // Assume random(low, high) gives a number between low and high inclusive
logging.recordABTestValue(); // Sends the A/B test value to the server

// Some function calls later

// Load sprite based on abTestValue
if (abTestValue == 1) {
  player.loadSprite("cat");
} else if (abTestValue == 2) {
  player.loadSprite("dog");
} else {
  player.loadSprite("fish");
}
```
Assignment of players

• Should assign 50% of players to each condition
  • Maximizes chance of statistical significance
A/B Testing Analysis

- Suggested tool: SAS JMP (any version)
- 30-day free trial!
- We’ll use this in class on Monday
What makes a good A/B test?

- explores a fundamentally interesting decision
- result has real consequences for your design
- resolves creative disagreements in the group
A/B testing activity

• Brainstorm 5 possible A/B tests
  • Discuss for each test:
    • what are the two *conditions* (exactly)?
    • what is your *hypothesis*? which condition will do better?
    • what do you need to *measure*?
      • time played and progress, obviously, but anything else?
      • button presses? clicks? etc.

• Post to Piazza (like we did for brainstorming)
  • All five possible tests: *conditions*, *hypothesis*, *measurements*