CS/INFO 4154:
Analytics-driven Game Design

Class #1:

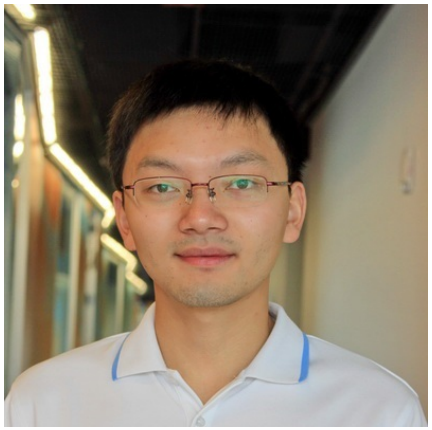
Overview

Class is completely full

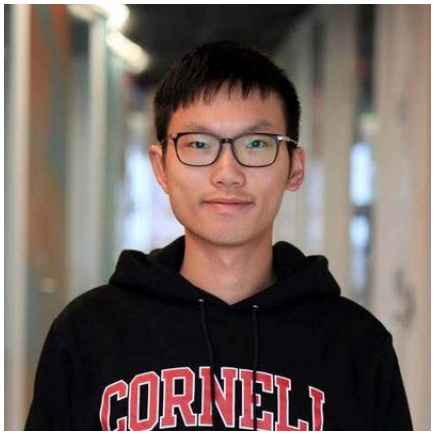
- Programmers: ***very*** long waitlist
- Designers: shorter waitlist

Course Staff

Instructor:
Erik Andersen



Primary TA:
Rundong Wu



TA:
Zikai Wen

Today

- Why should you take this class?
- How is this class structured?
- How will you be evaluated?
- What are the first assignments?

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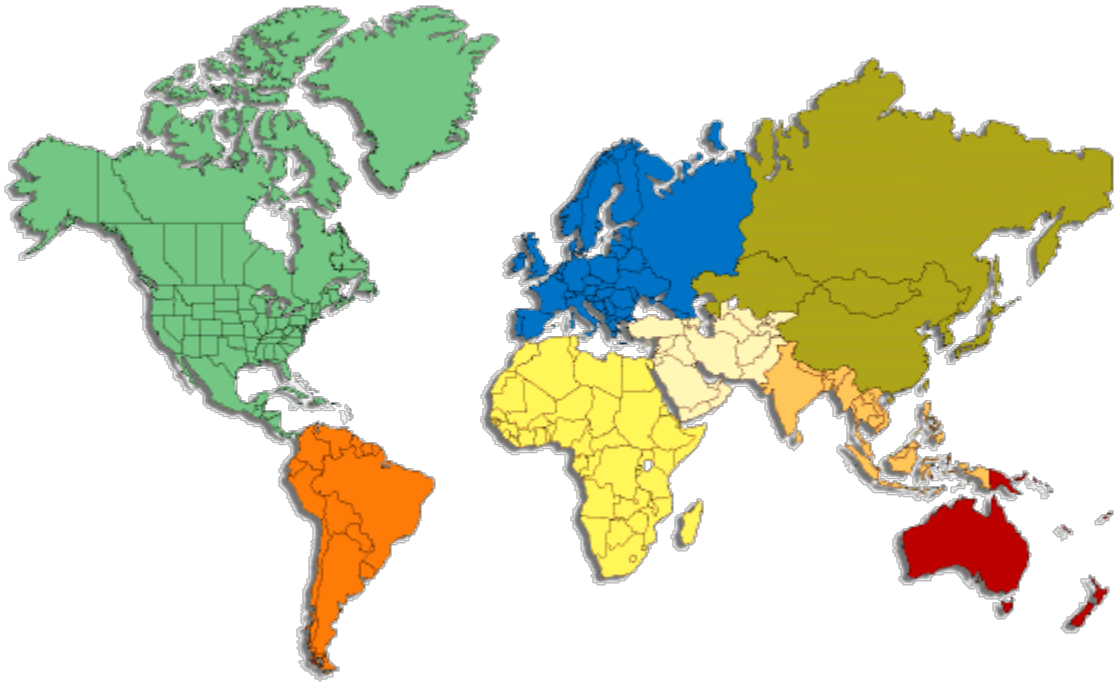
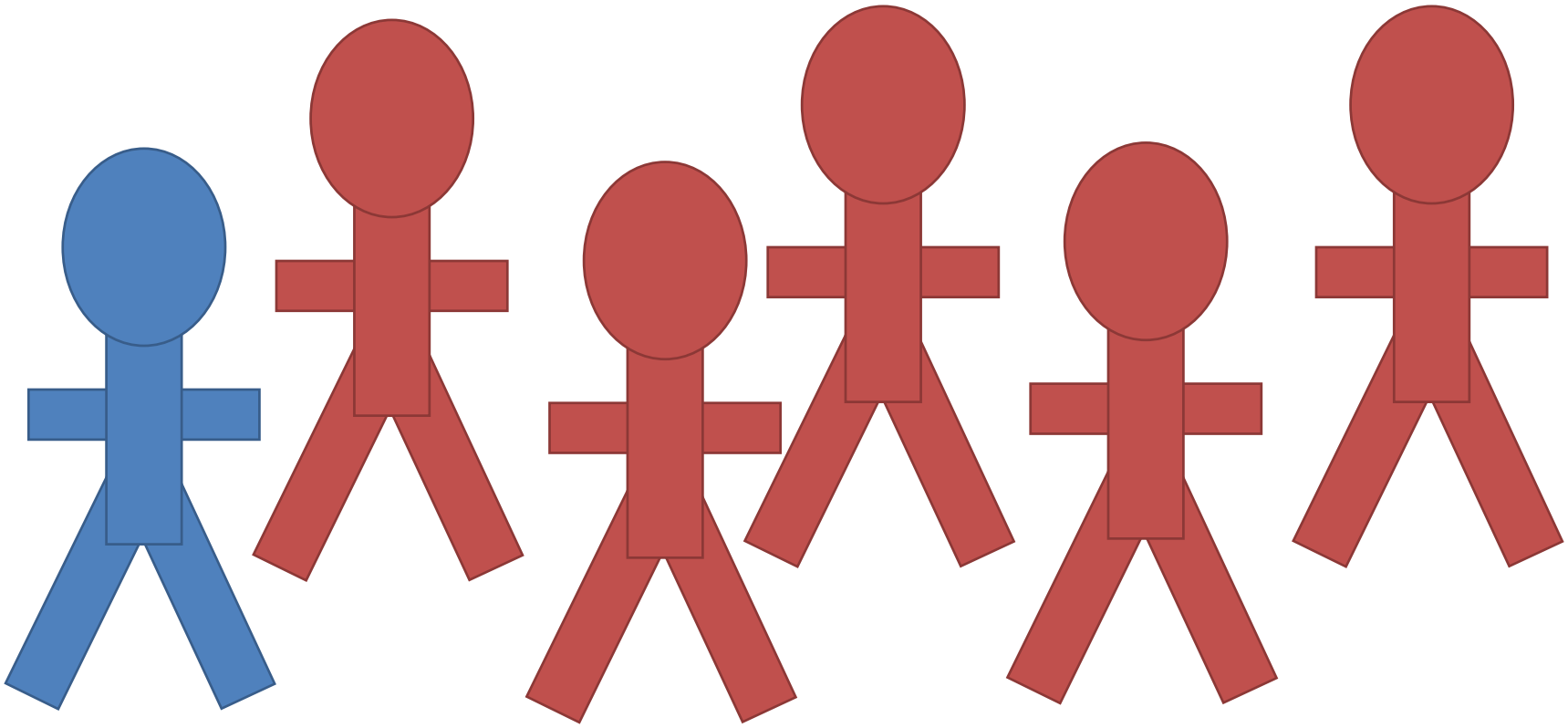
Why should you take this class?

real-world impact, ***this semester***

CS/INFO 4154




You
Your teammates

That's How we Roll, 2014

Releases

facebook

KONGREGATE

61,540 ONLINE PLAYING 92,230 FREE GAMES!

KONGREGATE

GAMES ▾ ACHIEVEMENTS ▾ MY KONG ▾ Search games & more

FEATURED GAMES

TRENDING (see all)

The Soul Driver

CAR POLICE

BADGE OF THE DAY

Earn **Double** the points »

LEVEL UP!

jflat06 is now level 3!

Say congrats »

Incursion 2: The Artif...

TOWER DEFENSE

Cedgta 16

First Defense

HOT NEW GAMES (see all)

Thermo

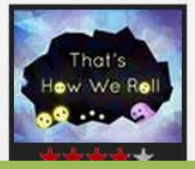
PUZZLE PLATFORM

A unique water-based puzzle platformer where you must use...

BOX!

PUZZLE BOX BLOCK

Build, break, and twist your way to victory in this mind-...



That's How We Roll

ACTION CUTE GRAVITY

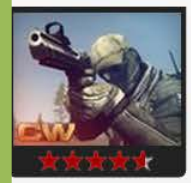
That's How We Roll is a fast-paced adventure-platformer g...

RECOMMENDED GAMES (see all)

Game of Thrones Ascent

MMO MULTIPLAYER FANTASY

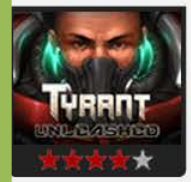
Because you rated Free Traders highly.



Contract Wars

UNITY MULTIPLAYER

Because you rated Time Decay highly.



Tyrant Unleashed

CARD MMO MULTIPLAYER

Because you rated Free Traders highly.

Free lifetime printer service.

Available on all desktop printers with Xerox eConcierge®.

get one now

xerox

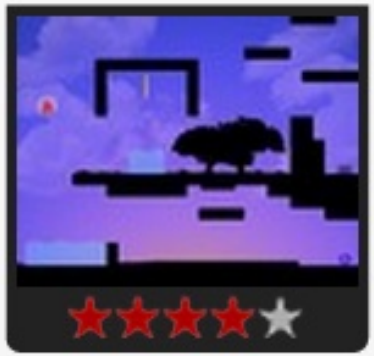
SPONSORED LISTING

Fuel up for Battle

Make Your Codes Count!

get the goods »

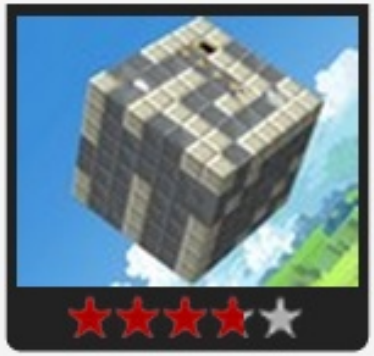
HOT NEW GAMES (see all)



Thermo

PUZZLE PLATFORM

A unique water-based puzzle platformer where you must use...



BOX!

PUZZLE BOX BLOCK

Build, break, and twist your way to victory in this mind-...

That's How We Roll

ACTION CUTE GRAVITY

That's How We Roll is a fast-paced adventure-platformer g...

External Reviews!

Review

Box!

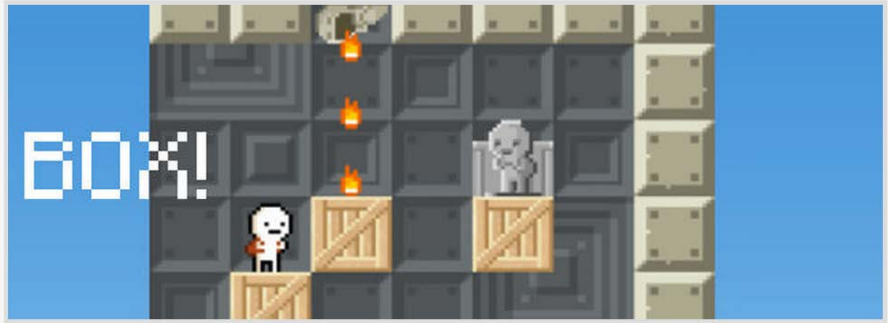
By Kimberly | December 30, 2014 | Add to Favorites

Rating: 4.1/5 (41 votes)

Platform: Flash

Categories: bchoi, browser, flash, free, game, jsytryn, kma, ndiebold, platform, puzzle, rating-y, rsong, schen, wpeck

Like 0 Tweet 0 | Comments (6) | Views (4,505)



It's the classic story. Boy goes adventuring, boy gets trapped in a cube (nevermind how), boy faces danger and must use his wits and never-ending supply of crates to escape. Though really it's your cleverness that is needed to get the boy out in **Box!** an interesting and engaging **puzzle platform** game created by Jeremy Cytryn, Renchu Song, Sam Chen and Will Peck, with art by Kevin Ma and Natalie Diebold, and music from Brigid Choi. Use the [arrow] keys to walk and jump. Press [space bar] to deploy a box in the direction you are facing, and again to destroy a box you are looking at, including ones above and below you. Use [WASD] to look around the corners of the cube to see what's ahead, or to make sure you won't die a fiery death if you drop down.

Review

Thermo

By Satori | December 17, 2014 | Add to Favorites

Rating: 4/5 (35 votes)

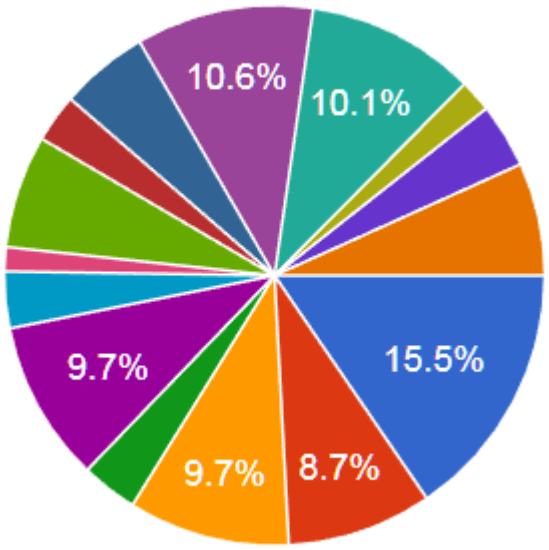
Platform: Flash

Categories: awolfers, browser, dcarpenter, flash, free, game, gren, jgross, kjin, platform, puzzle, rating-y, rnason

Like 0 Tweet 0 | Comments (13) | Views (4,863)

In water, heat rises and cold sinks. That's the premise behind **Thermo**, the temperate and mercurial new **platformer** by **Andrew Wolfers**, **Daniel Carpenter**, **Grace Ren**, **Joel Gross**, **Kelvin Jin**, and **Robyn Nason**. (Did I leave anybody out?) In each of the 30 levels you need to first open the exit portal and then get to it... somehow! The activator and portals aren't necessarily where you can get to them, and that's where water comes in. Floating masses of water are strategically-placed throughout the levels allowing you to use your special abilities, if you have them. Passing between red contacts heats you up, enabling you to rise if you start out in water. You'll continue to rise until you hit an overhead surface at which point you'll fall just as you ordinarily would, though you can steer your descent. Blue contacts let you create an ice platform under you while in water. Yellow contacts enhance either ability... you can create up to three ice platforms in water if you're cold, and walk on the ceiling if you're hot! Dull grey contacts return your temperature to normal, but leave any platforms or ceiling-walking abilities if they're active.

2014 and 2015: Application Survey

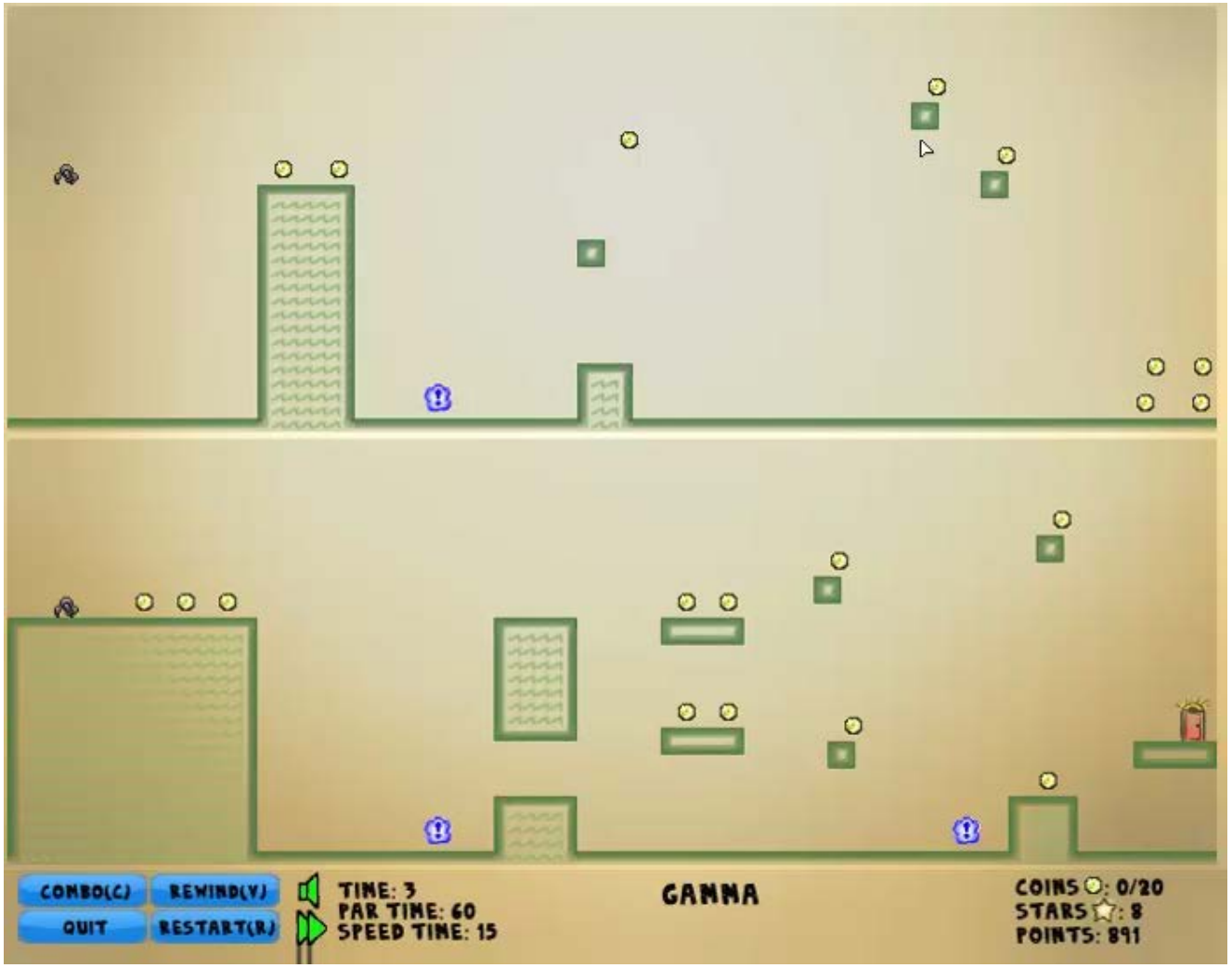


- Box! (http://www.kongregate.com/g…
- The Butterfly Effect (http://www.kon…
- Clone Combat (http://www.kongreg…
- Epic's Epic Epic (http://www.kongre…
- Gravity (http://www.kongregate.com…
- Lightmare (http://www.kongregate.c…
- Nameless Tactics (http://www.kongr…
- Pew Pew Spooky Tower (http://ww…
- Pyrokid (http://www.kongregate.com/games/pyrokid_inc/pyrokid)
- Sleep Fighter (http://www.kongregat…
- That's How We Roll (http://www.kon…
- Thermo (http://www.kongregate.co…
- The Triplicates (http://www.kongreg…
- Unbalanced (http://www.kongregate…
- Zombify (http://www.kongregate.co…

2014 and 2015 totaled:

350,000 people

Hello Worlds!



Hello Worlds!

1.5 million people

The internet is cruel…

“Fez rip off”

“graphics are ugly and too pixelated”

“stupid controls make the game stupid”

“shitty dev should know better”

“I have to say, this is an incredibly amateurish mistake”

… but occasionally rewarding

“i hope you’re happy…. you made a game soo good i ignored my important english paper all day just to play it… I hope you’re proud of yourself =p 5/5”

Why should you take this class?

- real-world impact
- data-driven design

The designer's dilemma

no fame $5

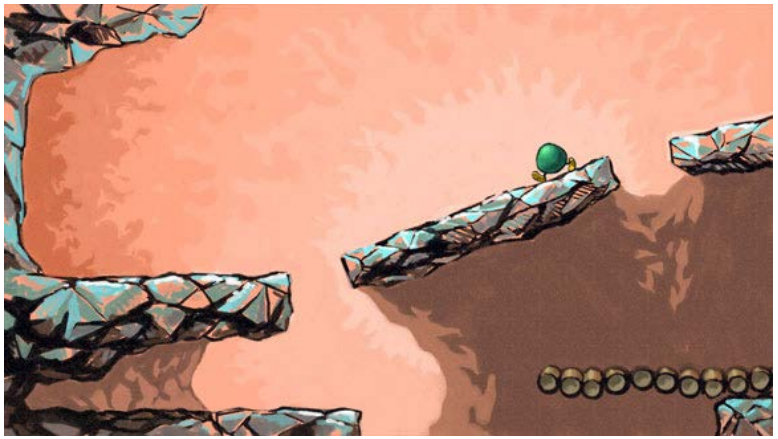
1 hour

some fame $100

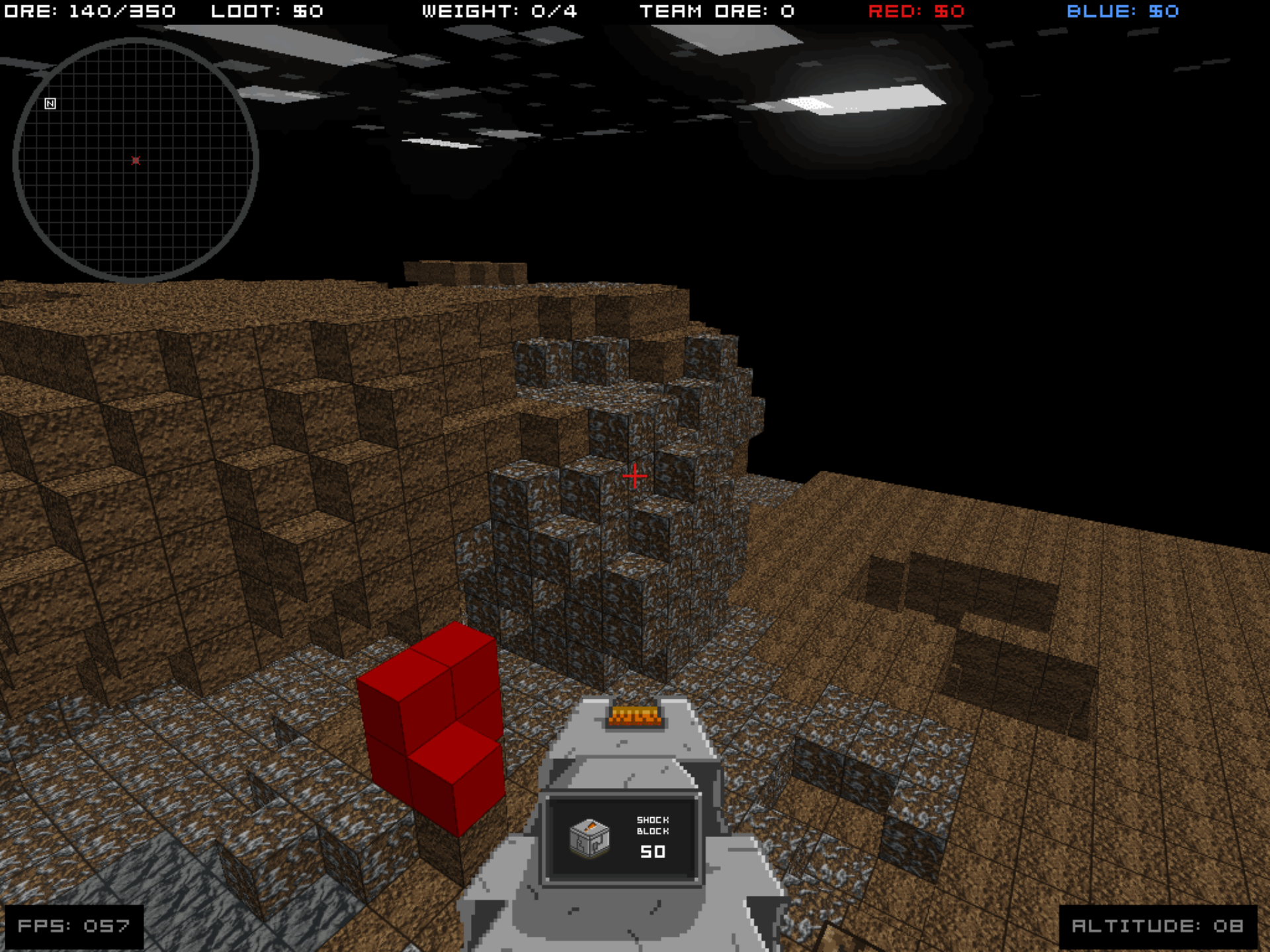
10 hours

lots of fame $500

100 hours



Source: *Braid*


ORE: 140/350
LOOT: $0
WEIGHT: 0/4
TEAM ORE: 0
RED: $0
BLUE: $0
N
SHOCK
BLOCK
50
FPS: 057
ALTITUDE: 08

Minecraft

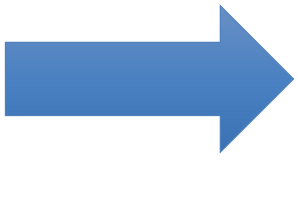
The $2.5 billion design iteration

Infiniminer

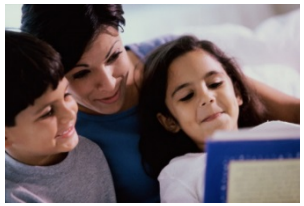
Minecraft

Game Design Workflow

game designers

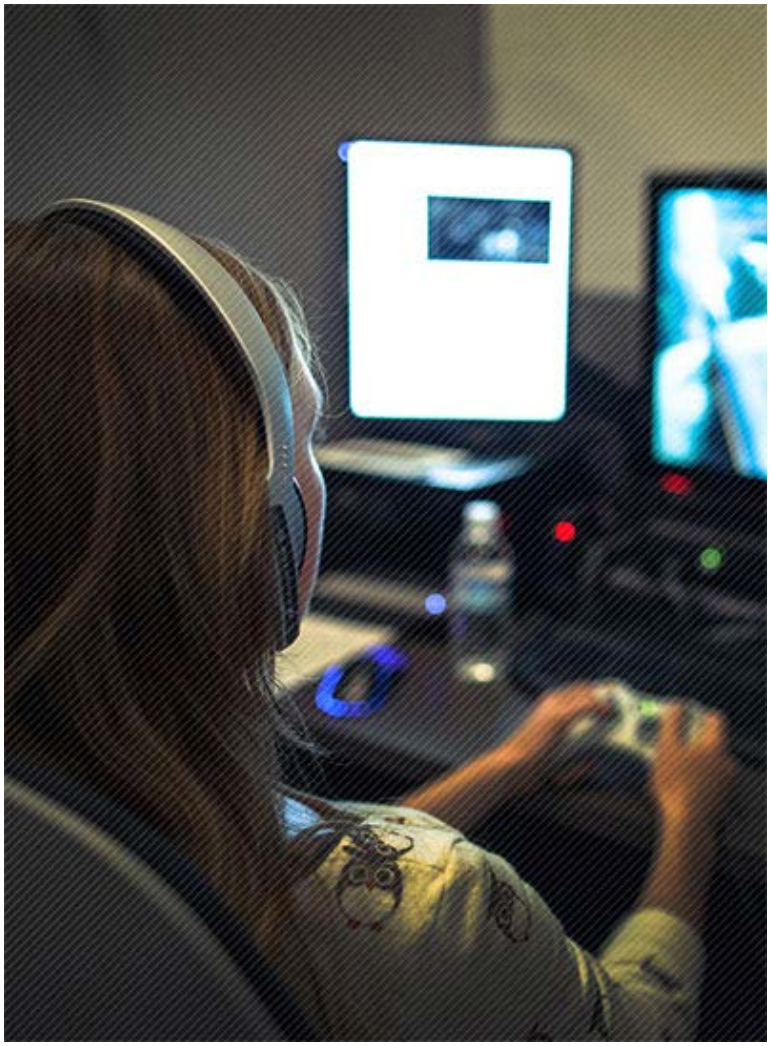


game



playtesters

Microsoft In-house Playtesting



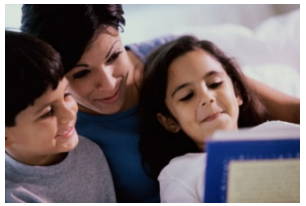
Game Design Workflow

the world

data

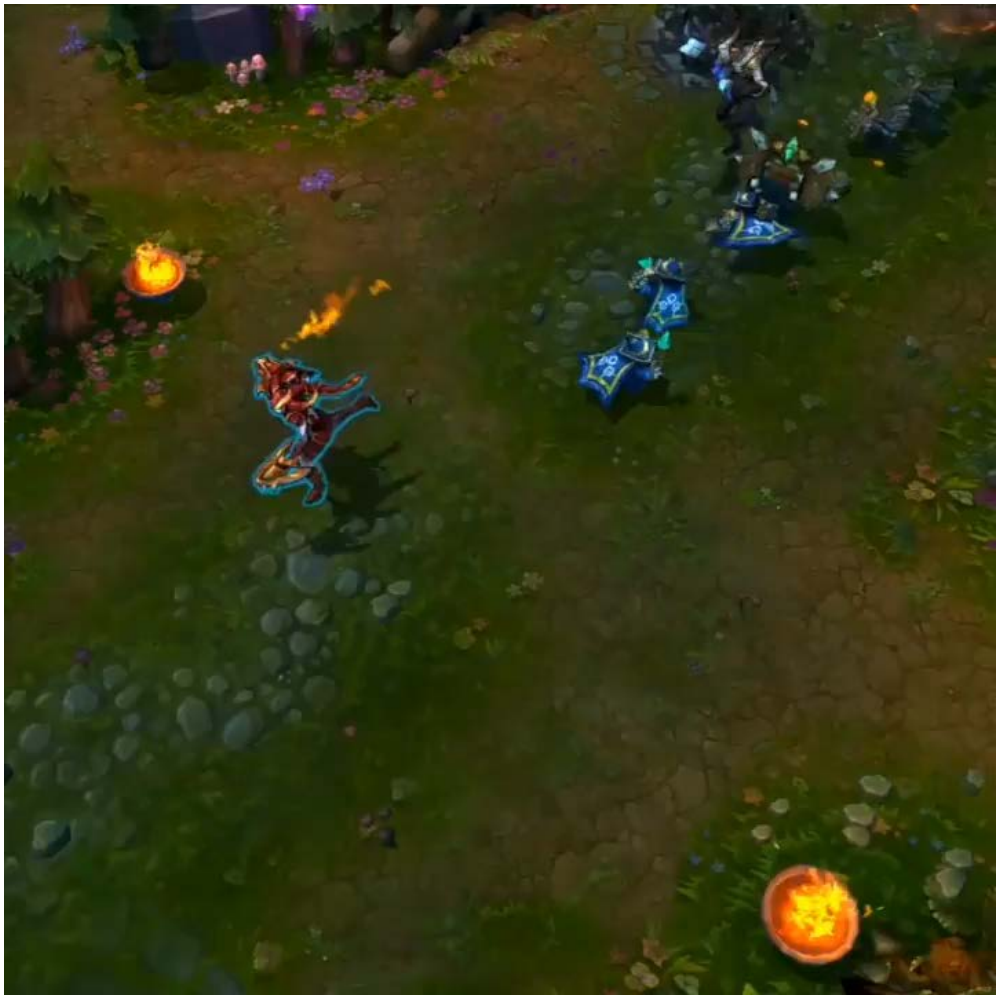
game designers

game



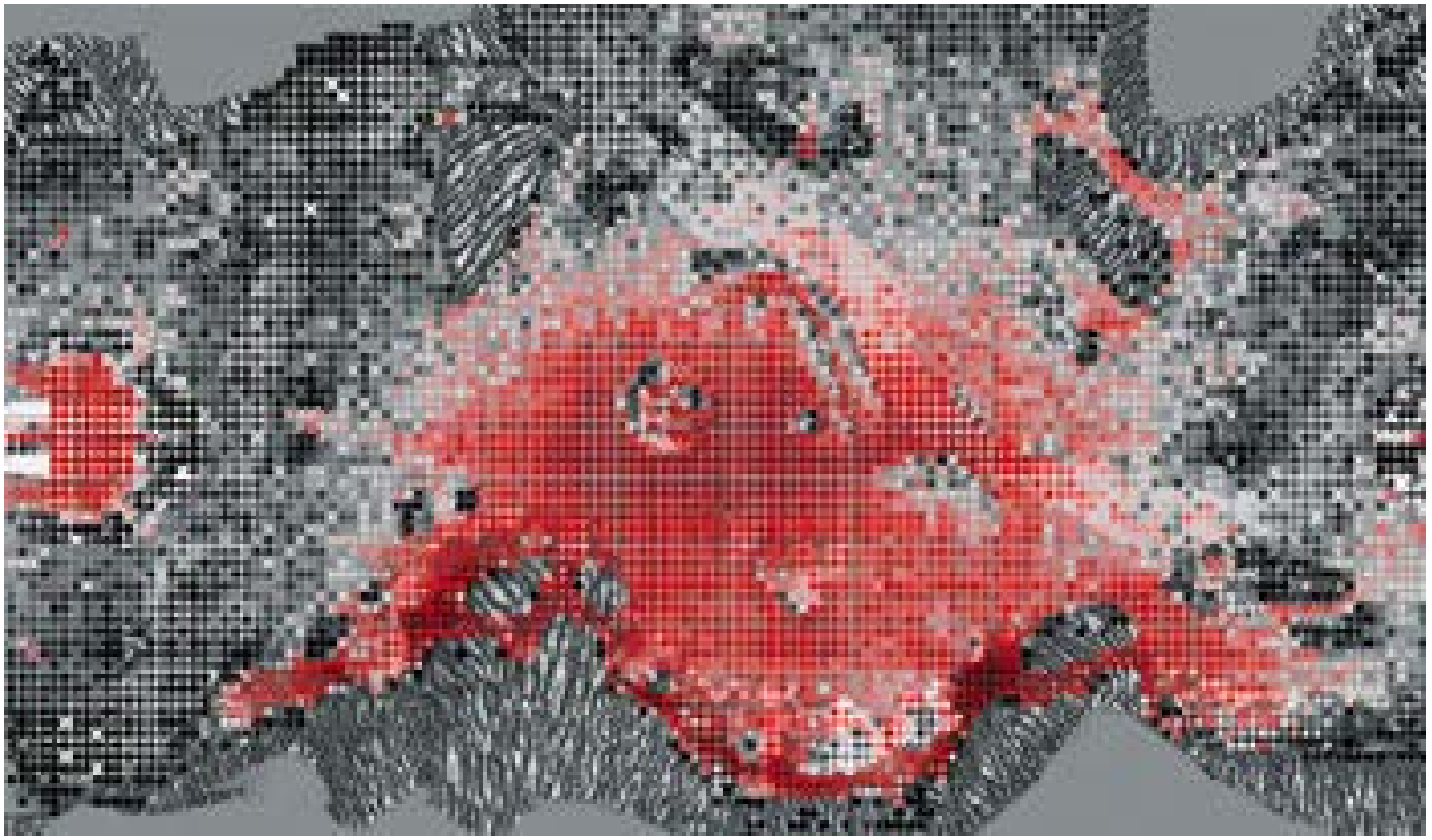
playtesters

10,000 *League of Legends* Players



Source: New York Times, Tom Giratikanon, Jon Huang, Jeremy White

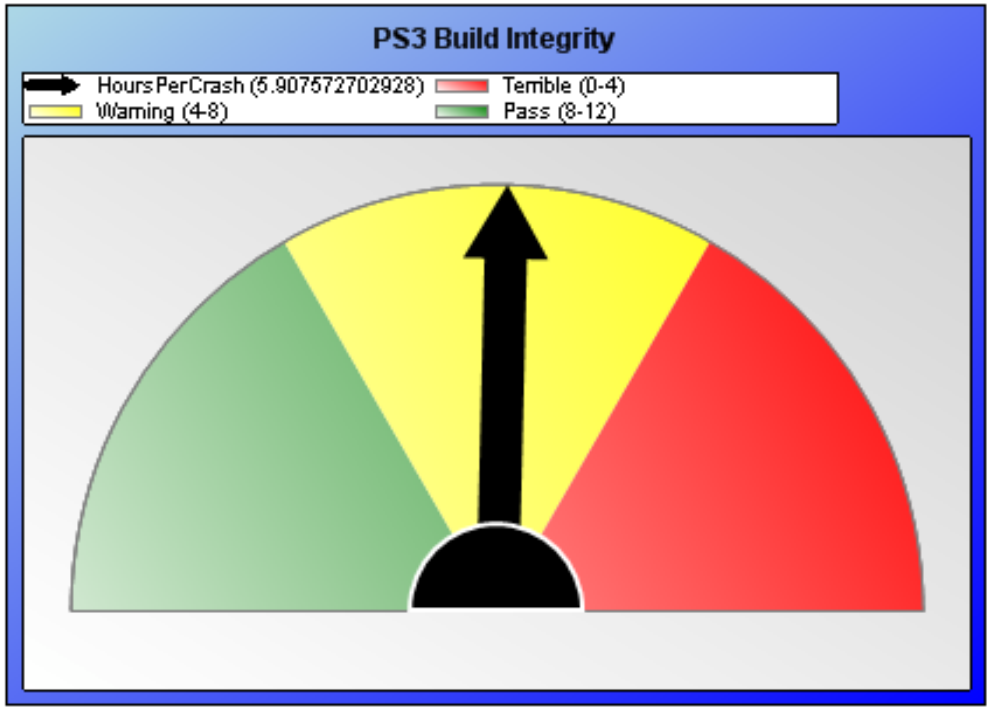
Heatmap of Deaths



Heatmap of Crashes

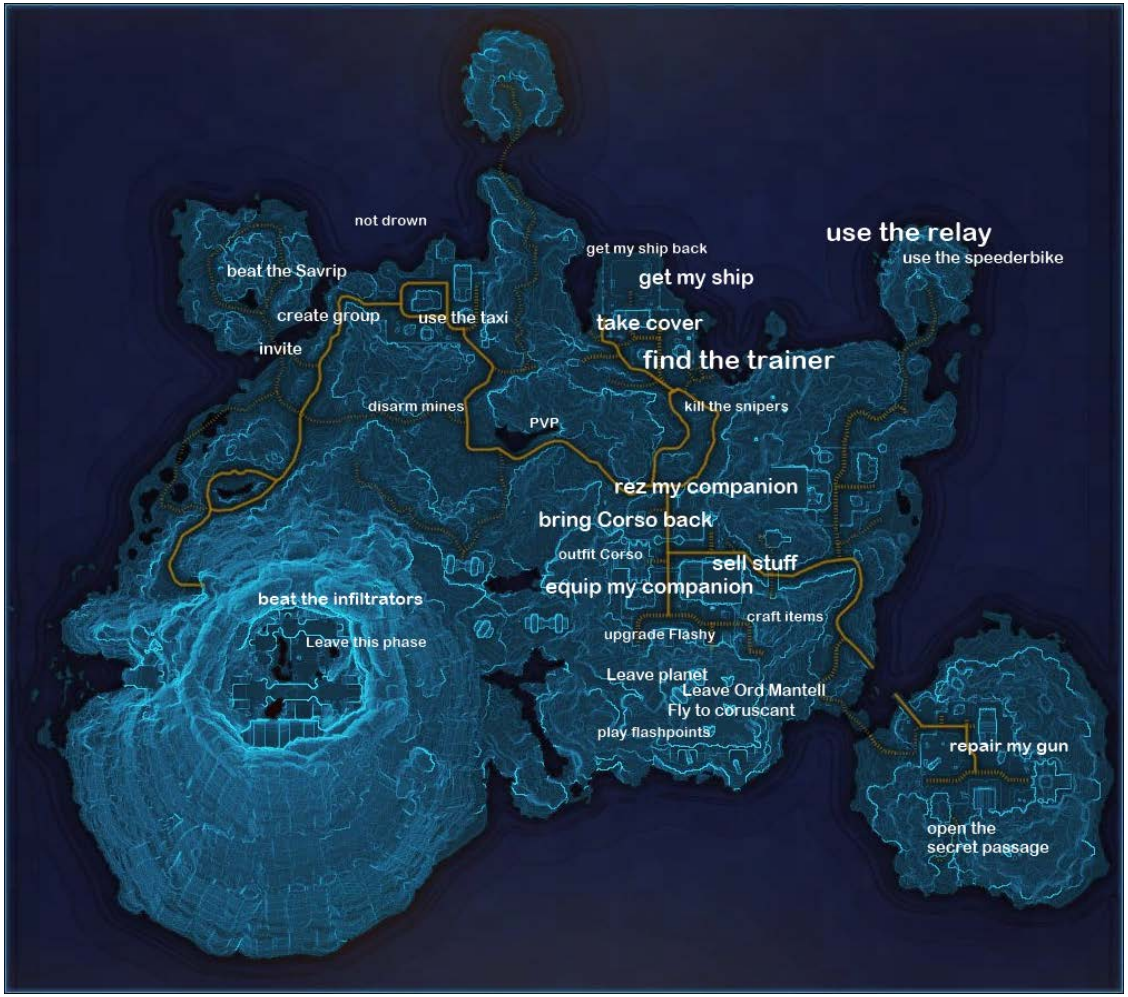
Source: Georg Zoeller, “Game Development Telemetry” GDC 2010

Crash Meter



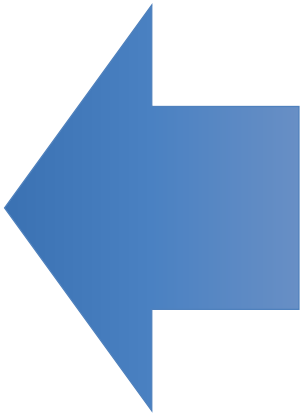
Source: Georg Zoeller, “Game Development Telemetry” GDC 2010x

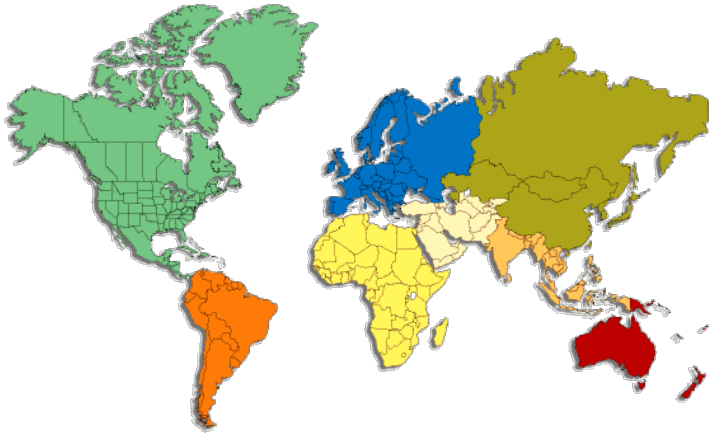
How do I…



Source: Georg Zoeller, “MMO Rapid Content Iteration” GDC Online 2011x

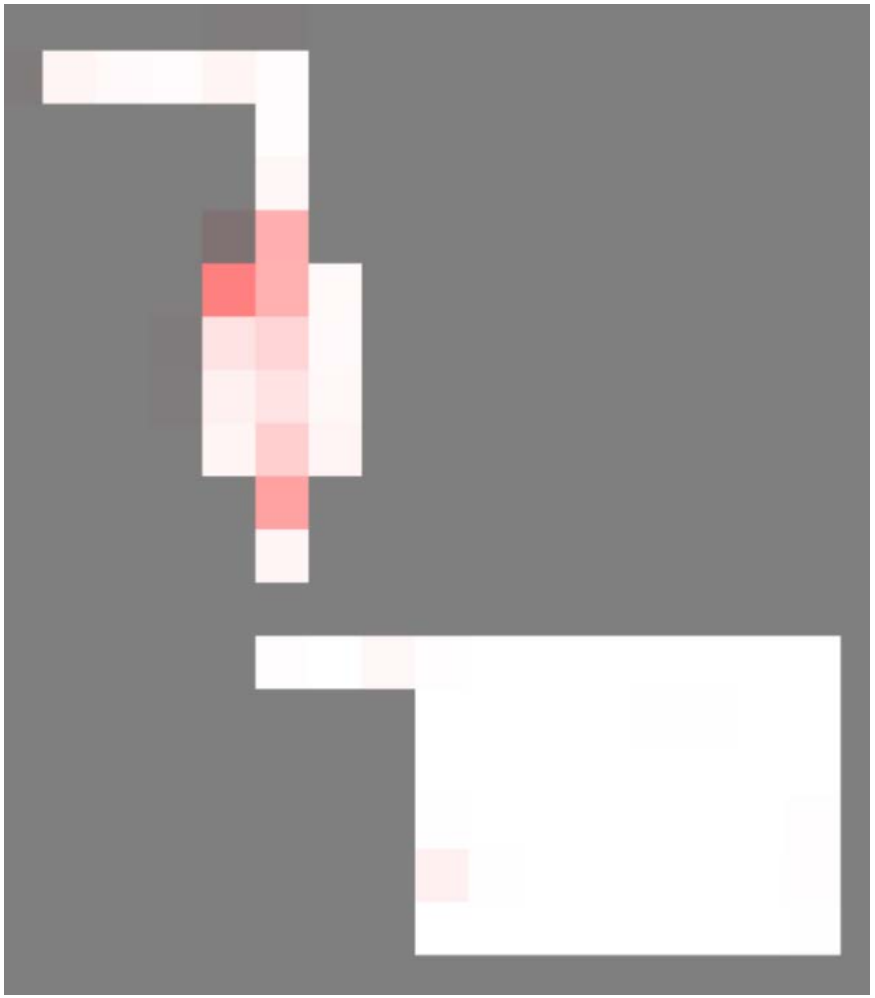
Analytics in this class





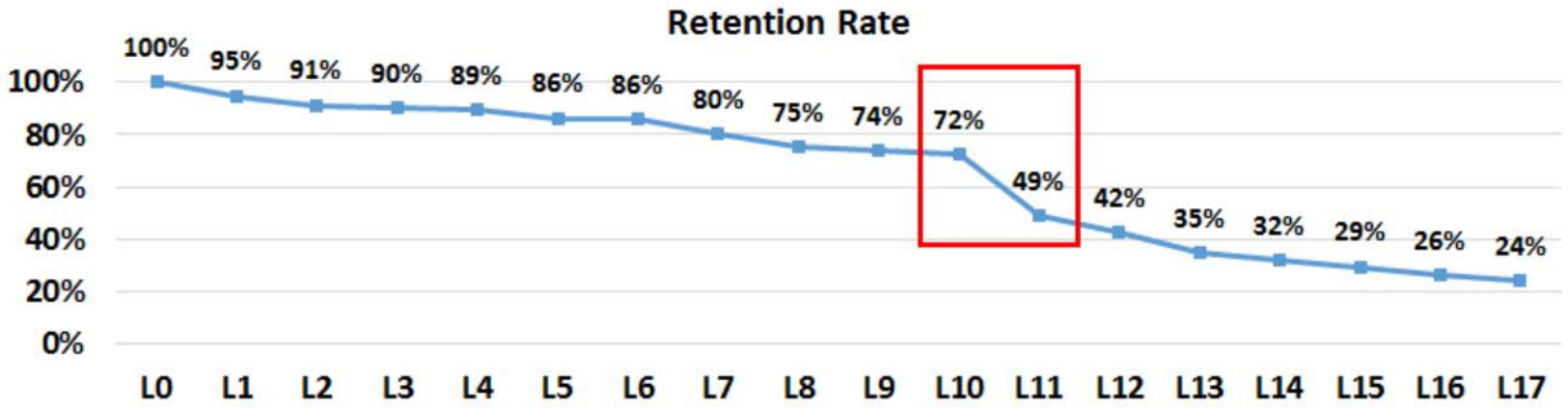
gdiac.cs.cornell.edu

Friction points



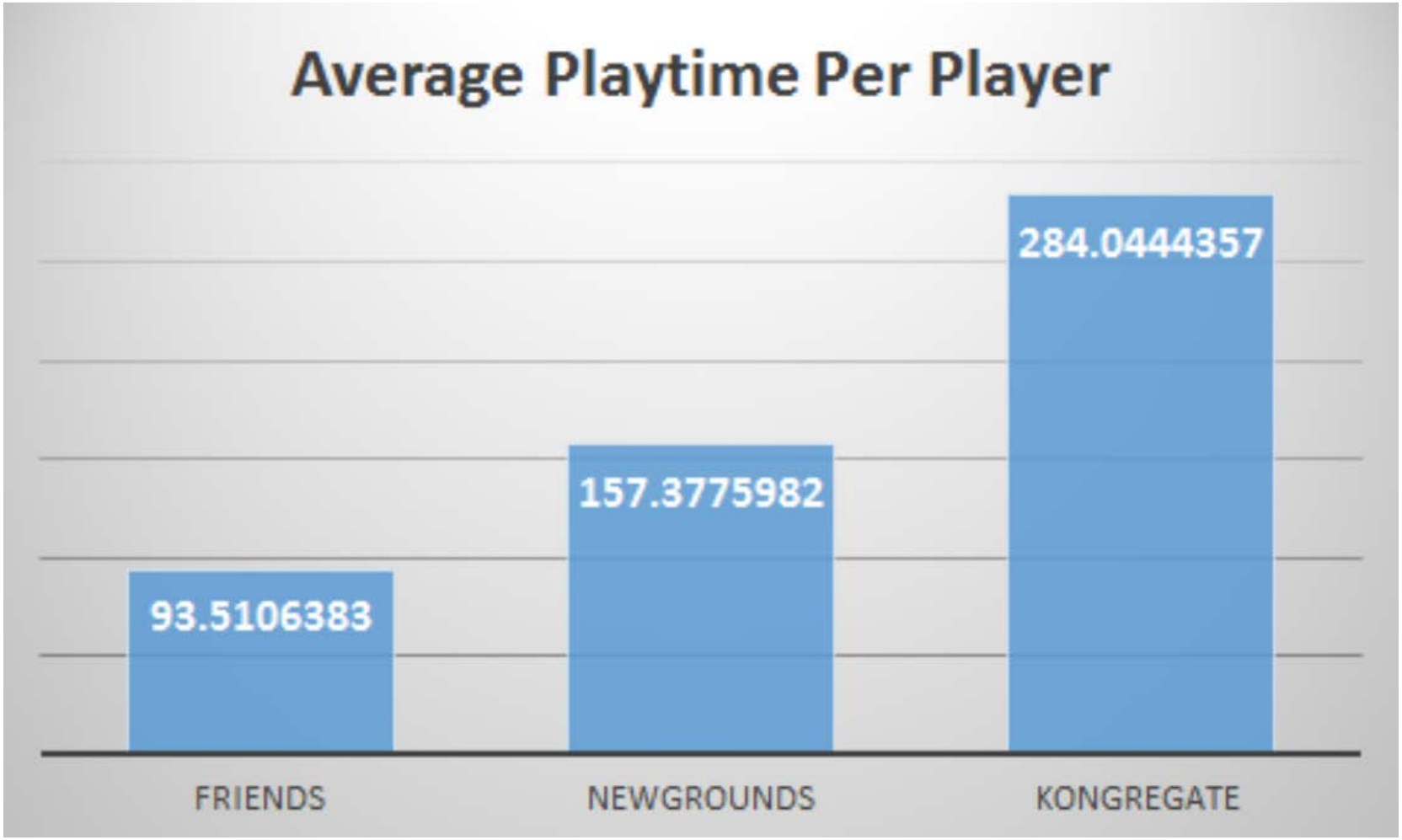
Source: *Zombify*, 2014

Friction points



Source: *Sleep Fighter*, 2014

Improvement across releases



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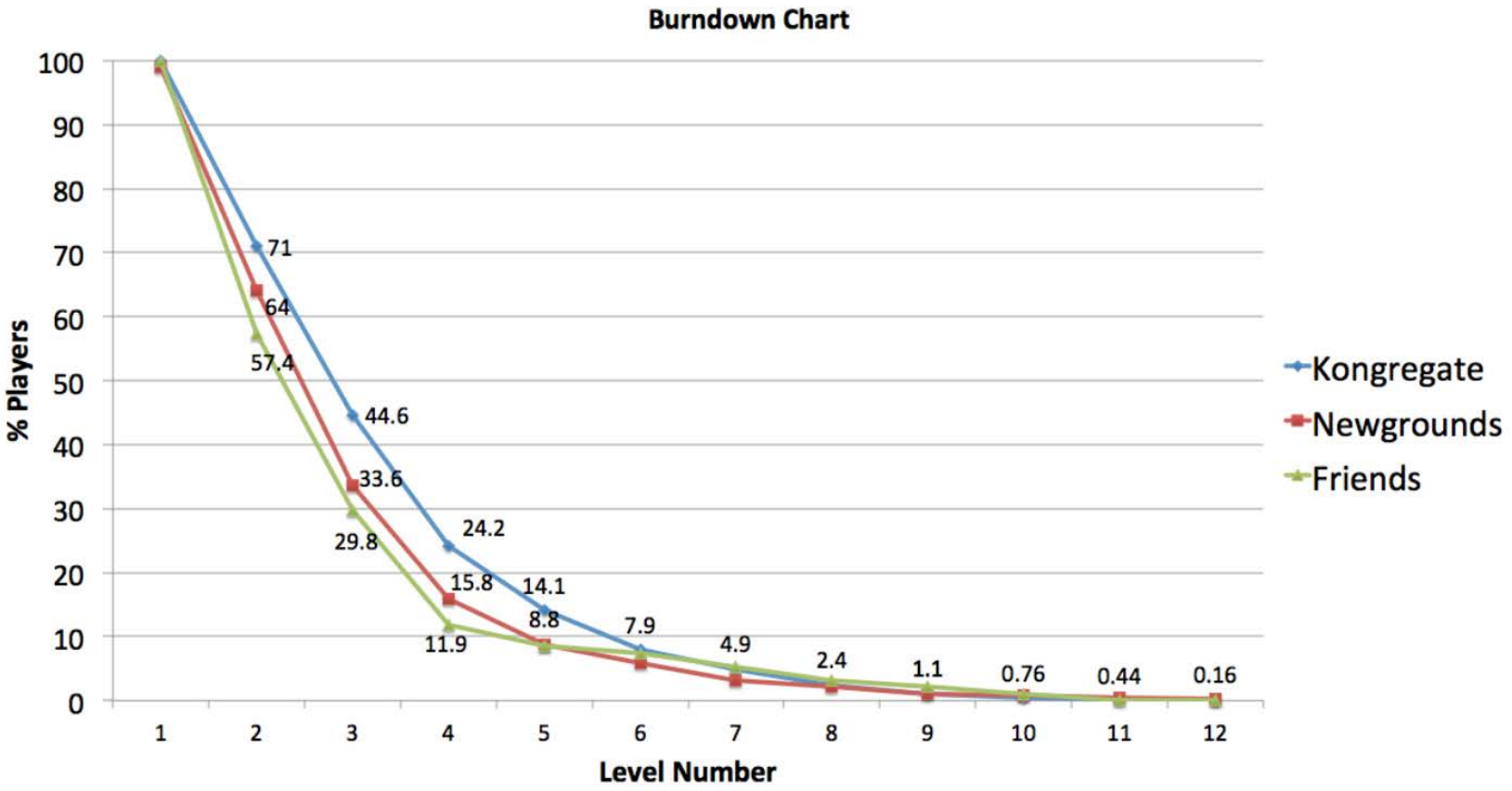
Improvement across releases



Source: *That's How We Roll*, 2014

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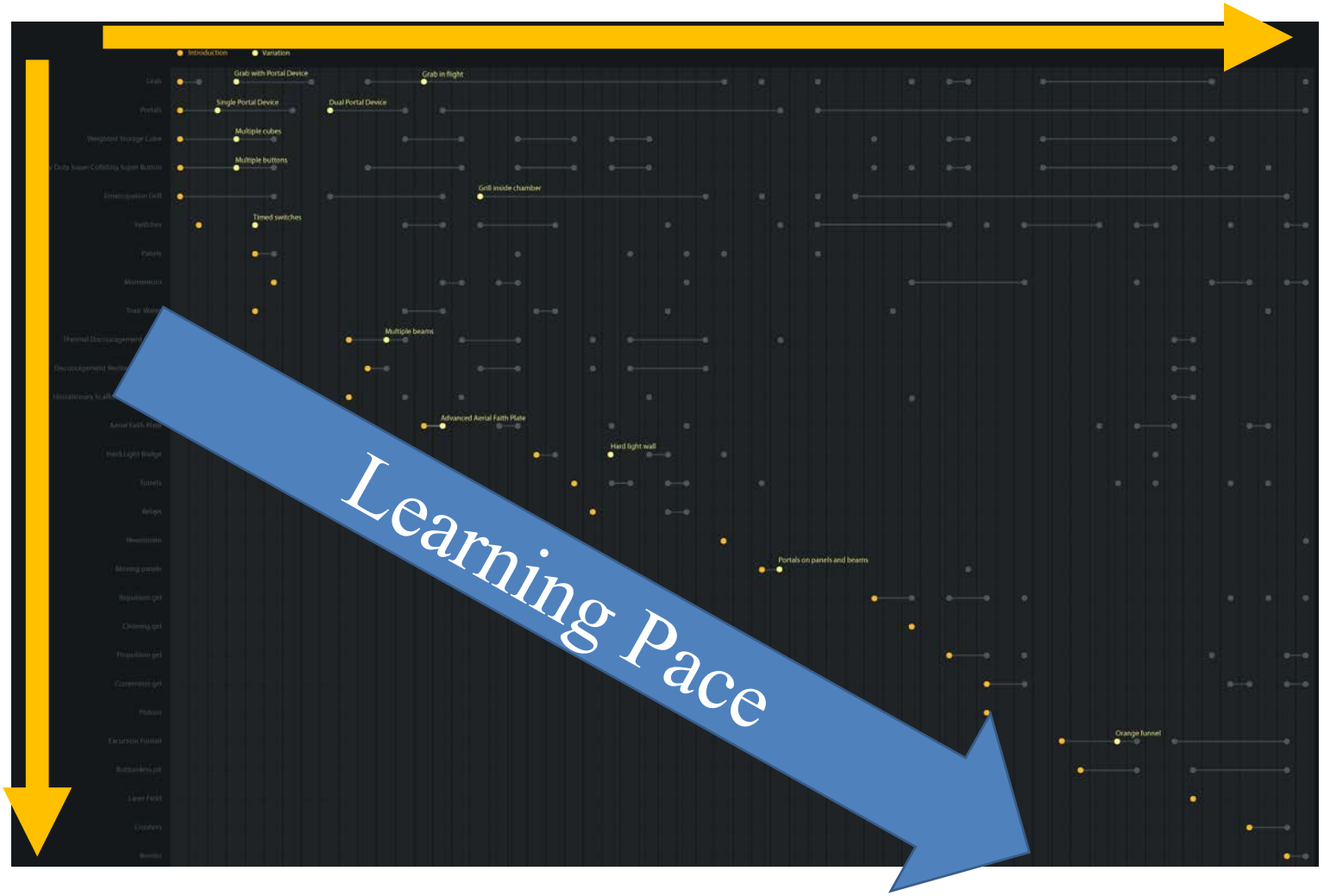
Course Website

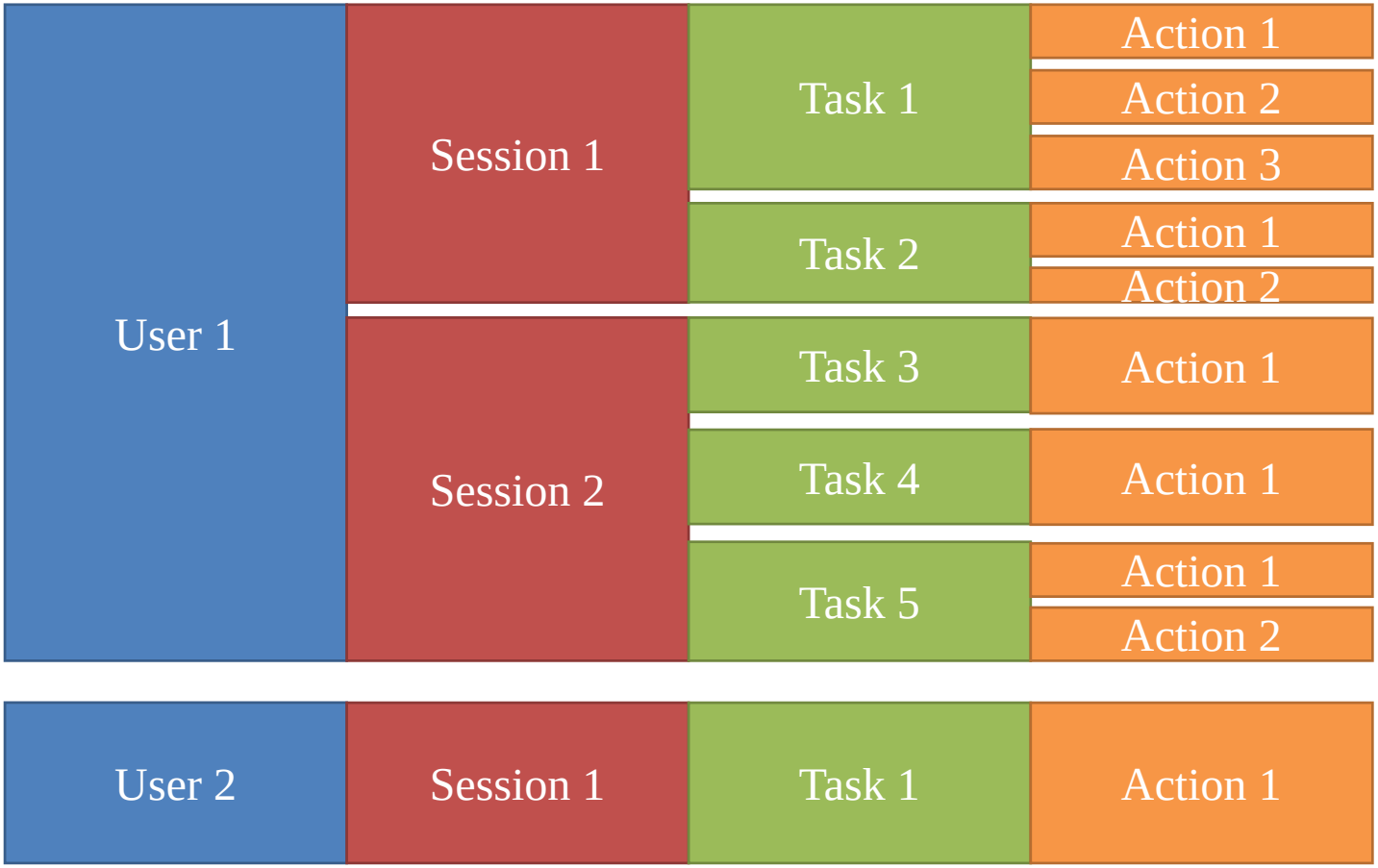
- http://www.cs.cornell.edu/courses/CS4154/2017fa/
- Syllabus information is here
- Should be up-to-date within a 2-week horizon
- Check with me about dates further in the future

Topic: Learner-centered Design

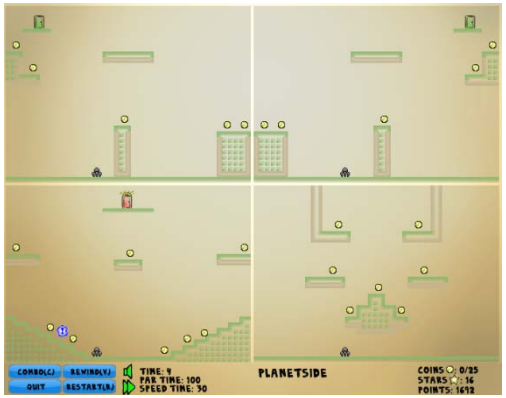


Source: Piotr Bugno https://www.behance.net/gallery/4434779/Portal-2-timelines

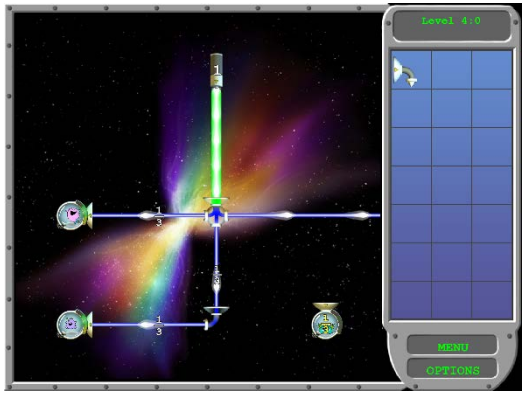
Topic: Internet Telemetry



Topic: Online Experimentation



Hello Worlds



Refraction

With audio, engagement...

A) increased
B) decreased
C) increased AND decreased
D) didn’t change

With audio, engagement...

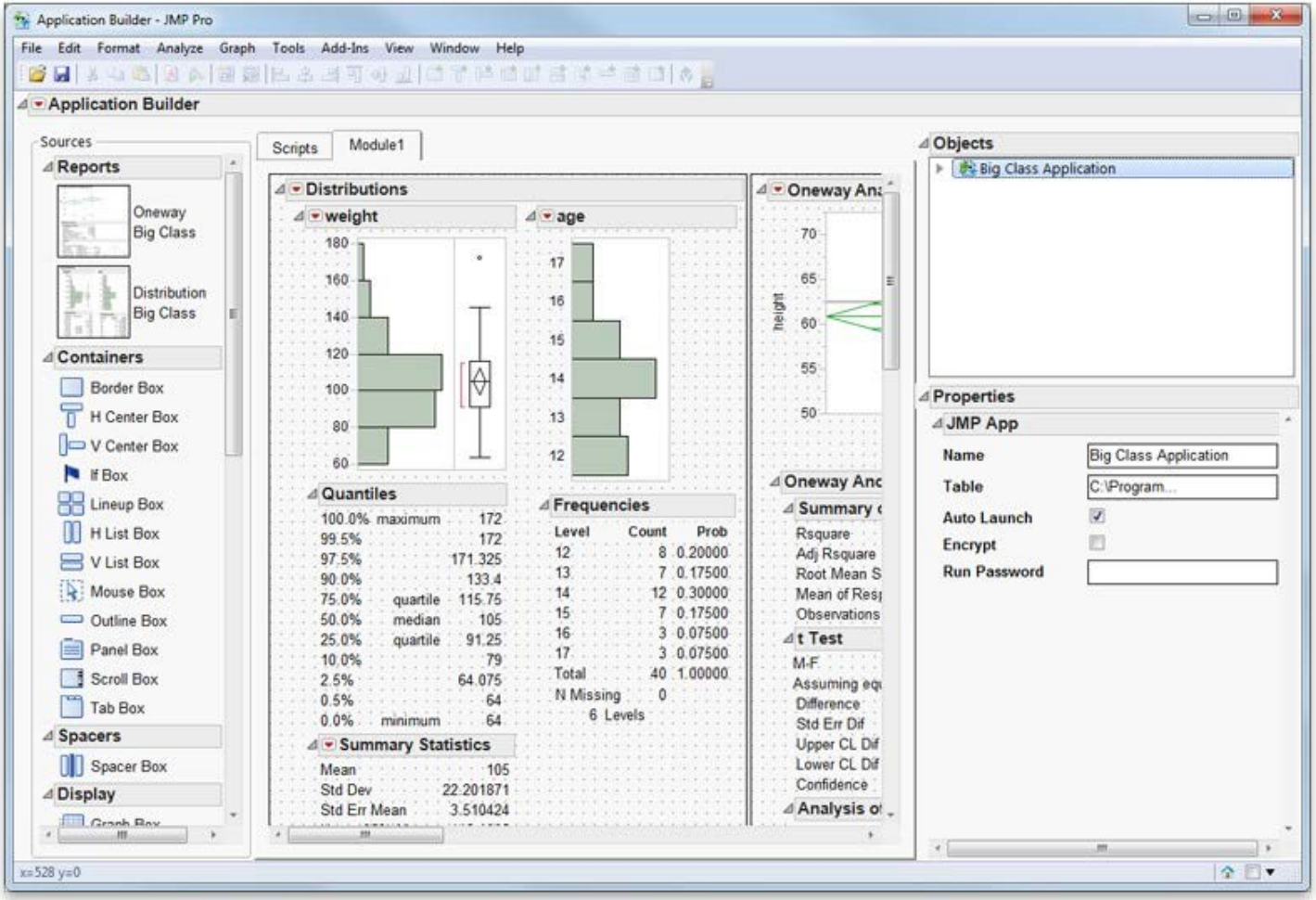
A) increased

B) decreased

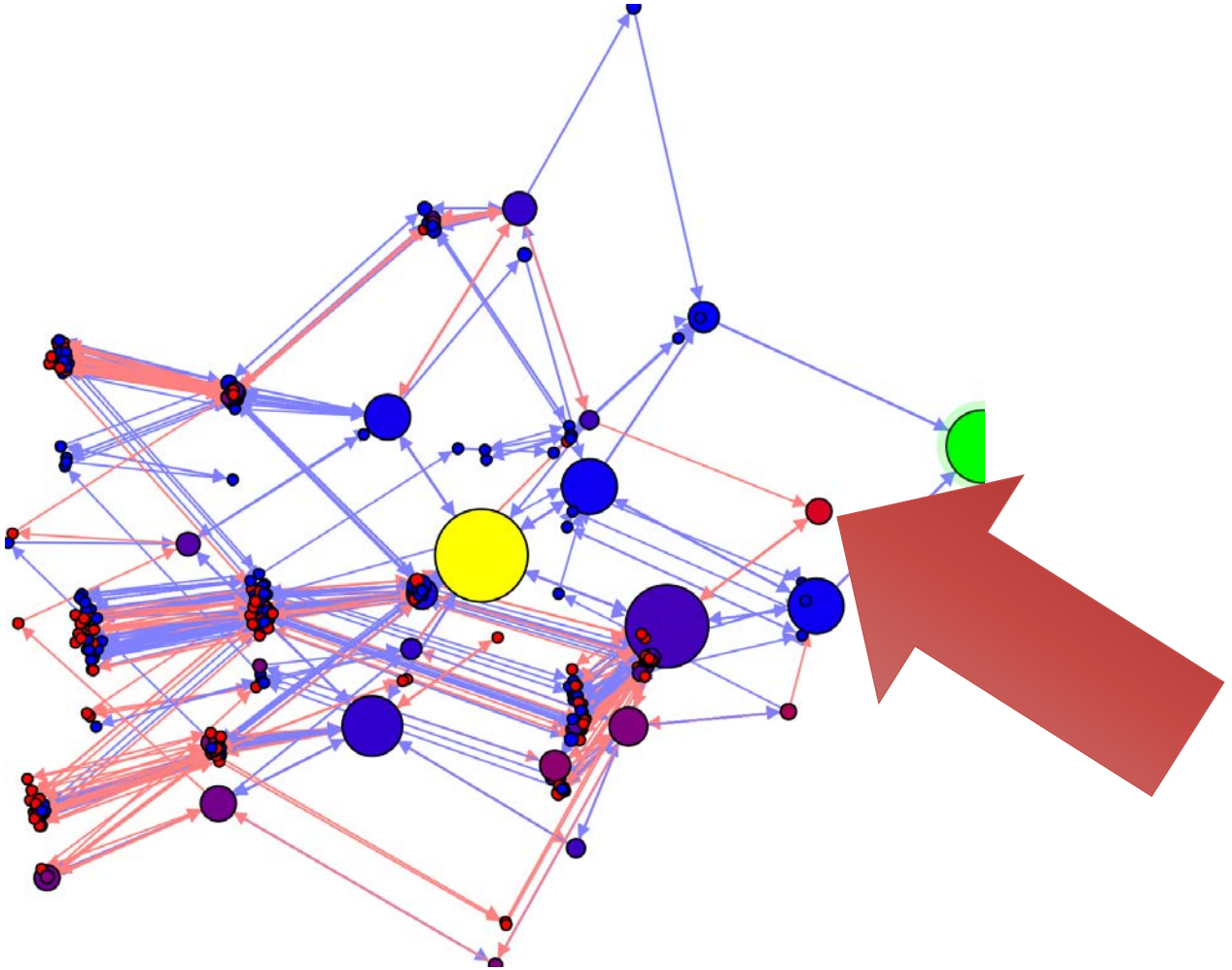
C) increased AND decreased

D) didn’t change

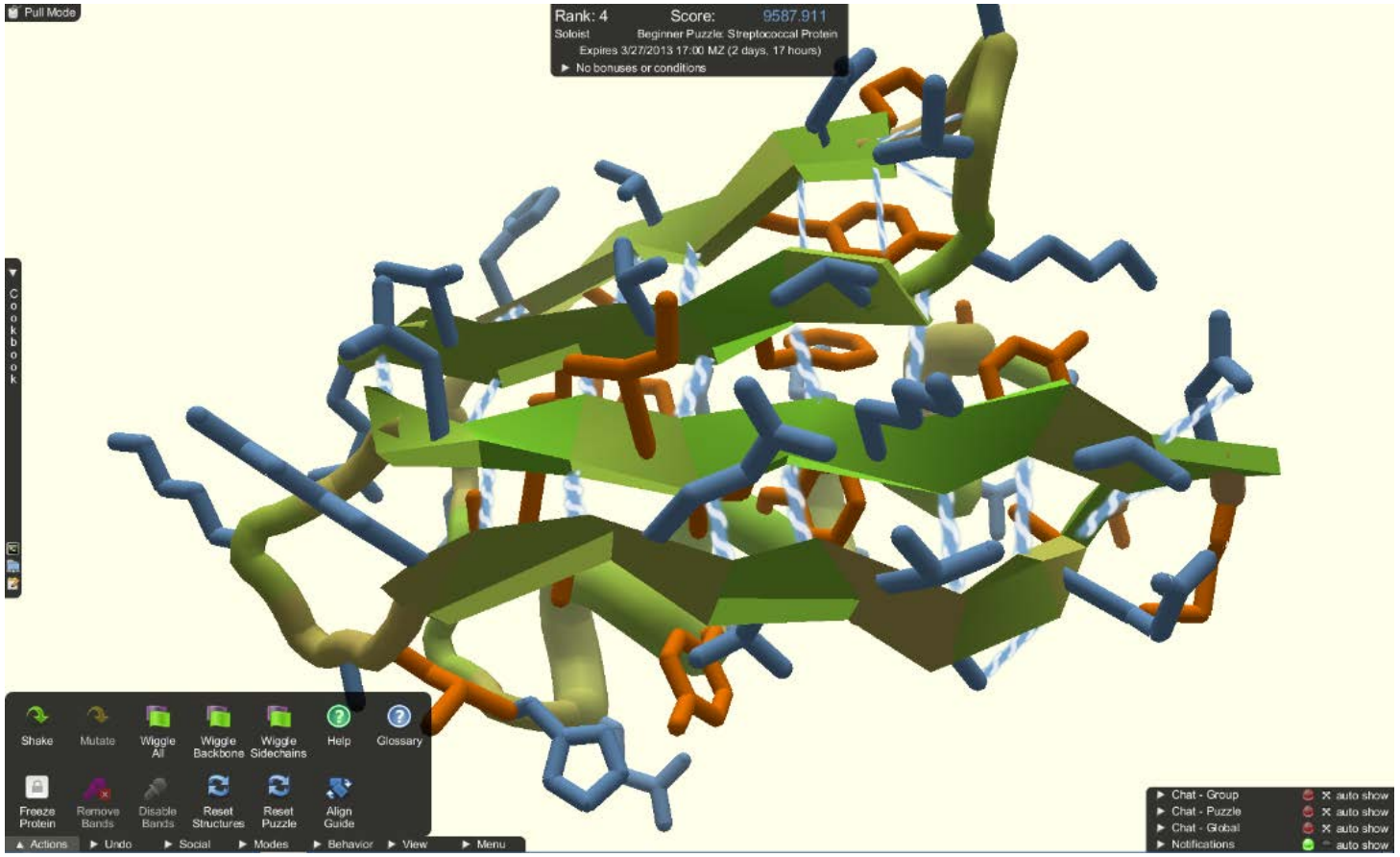
Topic: Statistical Analysis



Topic: Visual Data Mining



Topic: Games with a Purpose



Game Requirements

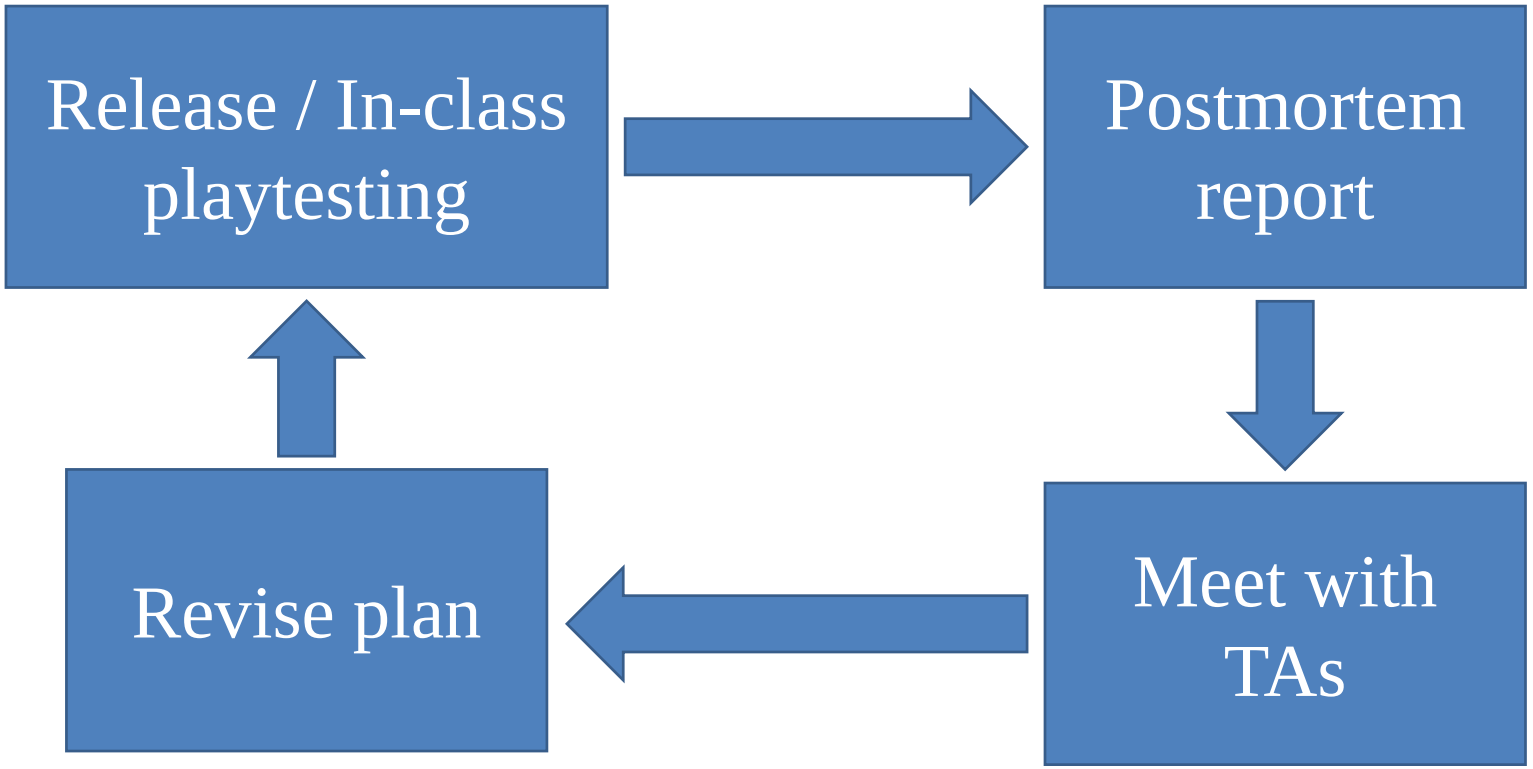
- Web game
- Fun
- Novel
- Feasible
- Single-player

Adobe Flash, 1996 - 2020

Game Requirements

- **Deploy to Newgrounds and Kongregate**
- In Haxe, HTML5, or Unity
- HaxeDevelop is a great free IDE for Haxe
- See website for help and resources

2-week Development Cycles



Semester Schedule

Week 1	Form Groups	8/21
Week 2	**Paper Prototyping**	8/28
Week 3	**Design Document**	9/4
Week 4	**Throwaway Prototype**	9/11
Week 5	Development	9/18
Week 6	**Alpha Prototype**	9/25
Week 7	Development	10/2
Week 8	**Beta Prototype**	10/9
Week 9	Development	10/16
Week 10	**Friends Release**	10/23

Pre-production

Development

Semester Schedule

Week 10	**Friends Release**	10/23
Week 11	**Friends Postmortem Report**	10/30
Week 12	**Newgrounds Release**	11/6
Week 13	**Newgrounds Postmortem Report**	11/13
Week 14	Thanksgiving	11/20
Week 15	**Kongregate Release**	11/27
Week 16	**Final Postmortem Report**	**12/9**

Release!

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Grading

- Game (60%)
  - Newgrounds Release (20%)
  - Kongregate Release (40%)
- Analytics (30%)
  - Friends Postmortem Report (5%)
  - Newgrounds Postmortem Report (10%)
  - Final Postmortem Report (15%)
- Participation (10%)
  - Attendance, other submissions (10%)

Game grades

- Opinion of the course staff
  - does it meet the requirements?
  - is it fun? groundbreaking?
- Evidence of real-world impact
  - rating
  - number of players
  - average length of play
  - return rate
  - other impact (comments, walkthroughs, blog posts)

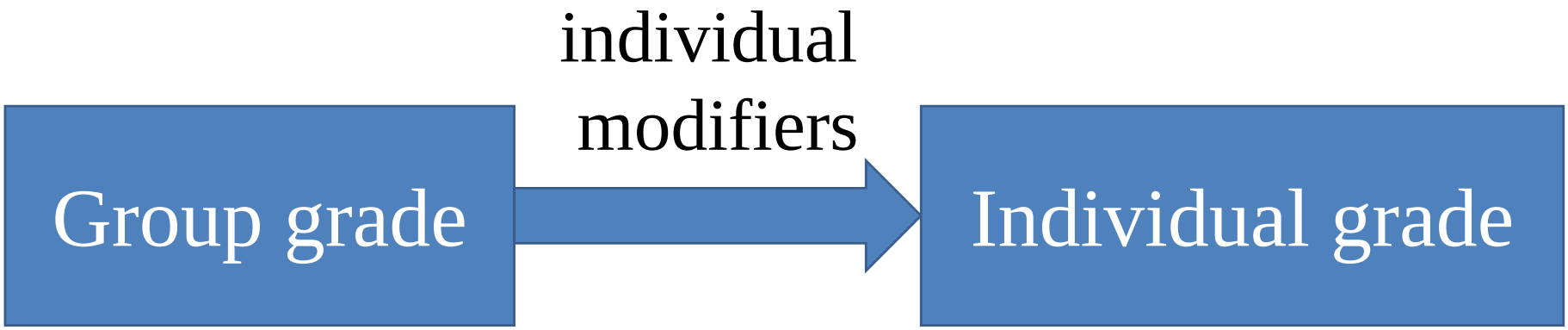
Grade	Characteristics	Impact
A+	experience of a lifetime	is featured, wins prizes, game of the week/month/year, hundreds of thousands of players
A-/A	very fun, addictive, imaginative, polished	gets to front page, attracts external attention, tens of thousands of players
B/B+	sometimes fun, but lacks polish, minor flaws	good but not a standout, thousands of players

Grade	Characteristics	Impact
C+/B-	complete and playable, but fun only occasionally, not original, clearly flawed, team ignored feedback	average, hundreds of players
C-/C	complete, but not playable, not fun, crashes	low, tens of players
F/D	incomplete	ones of players

Analytics grades (reports)

- Does it meet the requirements?
- Are claims well-justified?
- Are there ***awesome*** charts and graphs?

Grading Process



Individual modifiers

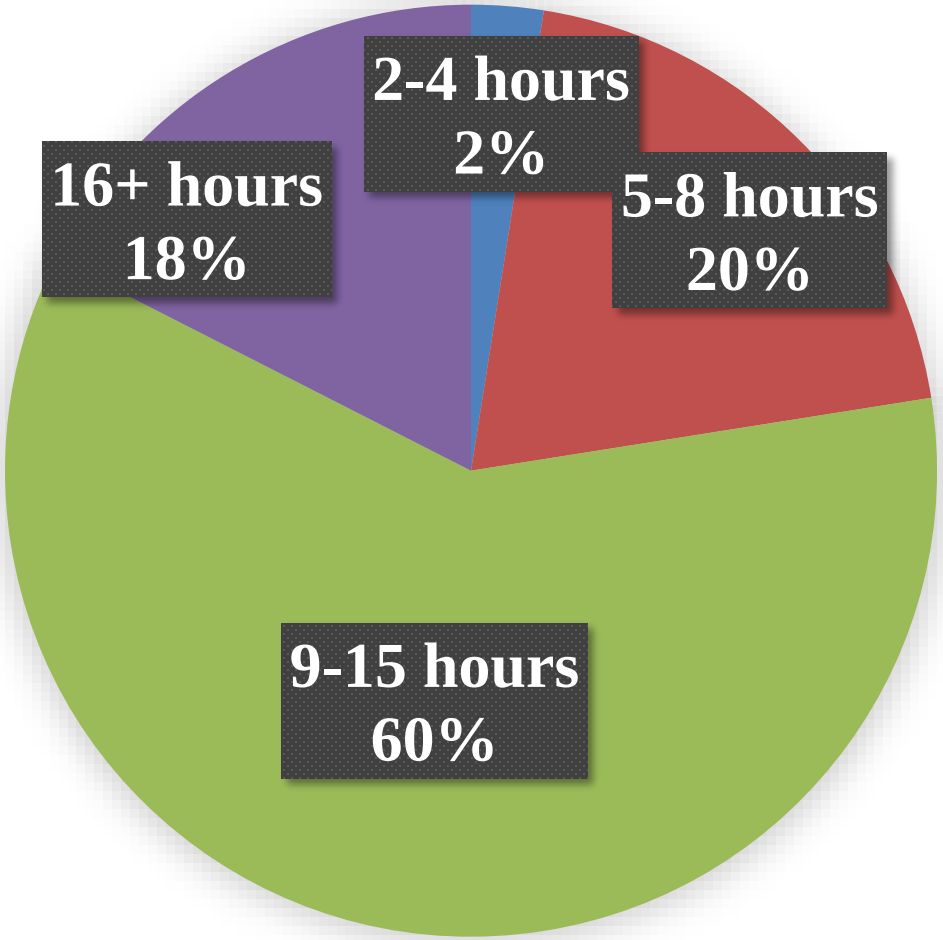
- Based on **peer evaluations** and **observations of course staff**
- Two peer evaluations: middle and end of course
  - Being MVP will increase grade
  - Slacking off will decrease grade
  - Abandoning team will result in C/D/F

Attendance

- Expected on ***all*** days
- Attendance taken on *playtesting* days:
  1. Paper
  2. Throwaway
  3. Alpha
  4. Beta
  5. Friends
  6. Newgrounds
  7. Kongregate

Please Drop Responsibly

Work *outside* of class, per week



Source: 2014 and 2015 course evaluations

Releases are particularly intense

- Players come in a burst
- If something goes wrong, *you must deal with it immediately*

Today

- Why should you take this class?
- How is this class structured?
- How will you be evaluated?
- What are the first assignments?

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- Why should you take this class?
- How is this class structured?
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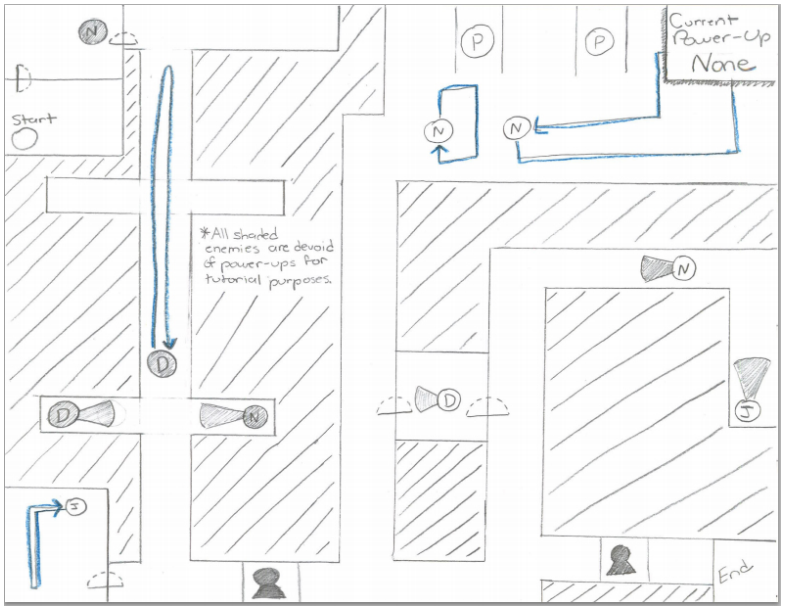
Assignment 1: Updated Preferences

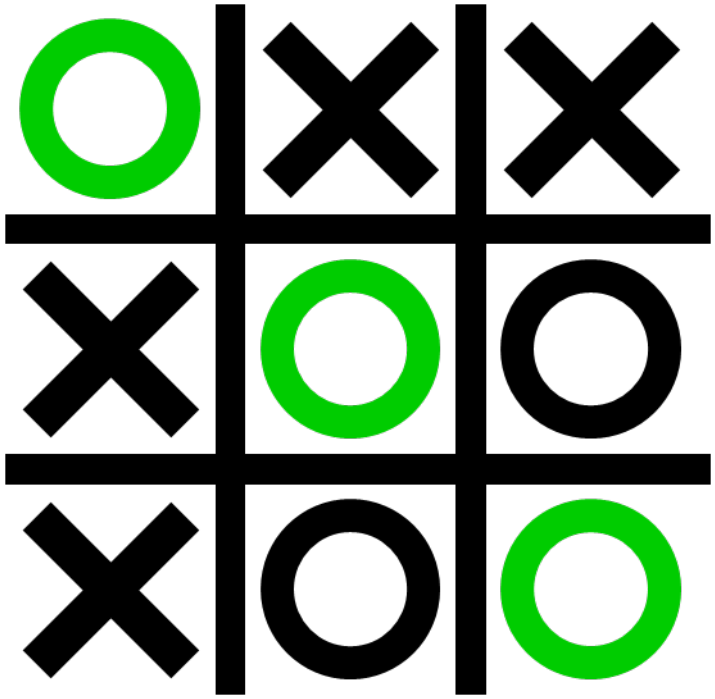
- Your name
- Updated list of people you wish to work with
- Programmers: preferred programming language
- Designers: preferred design contributions
- Any other information you would like us to consider
- Due: **TODAY**, Aug. 23rd, 11:59pm via CMS

Assignments 2 & 3: Paper Prototypes

- NOT GRADED!
- Will have Monday's class to work on this
- Prototype #1
  - due Wed 8/30 (11:00am)
  - (submit a picture)
- Prototype #2
  - due Fri 8/1 (11:00am)
  - (submit a picture)



Zombify, 2014

Mon	Wed	Fri
	8/23 Overview	8/25 Mechanics and Prototyping
8/28 In-class Brainstorming	8/30 Paper Prototyping 1	9/1 Paper Prototyping 2

Pair Activity