

CISC 226: GAME DESIGN

NICHOLAS GRAHAM

<http://www.cs.queensu.ca/~cisc226>
graham@cs.queensu.ca

Winter 2012

08-1

Administration

QUIZ 2

- Wednesday, in class, 20 minutes
- Format: very similar to quiz 1
- Topics: anything we've covered in lectures or readings so far, with more emphasis on new material since the last quiz
 - Covers up to and including Monday, Feb 27 lecture.
 - 2-minute game reviews: Know these games at the very high level at which they were presented in class.

PROJECT PROGRESS REPORT

- Due March 7, via Moodle
- One submission per group
- Approximately 10 pages of text
 - 11 point, 1" margin, single spaced
 - Not including any concept art/screenshots you wish to provide
- Suggested outline
 - Executive Summary
 - Game Design
 - Draws heavily from chapter 14 of Fullerton...
 - Development status
 - Milestones to completion

EXECUTIVE SUMMARY

- Quick overview of all other topics in outline
- E.g., $\frac{1}{2}$ - $\frac{3}{4}$ page

SUGGESTED OUTLINE: GAME DESIGN

- Vision statement
- Gameplay synopsis
 - Uniqueness, mechanics, setting, look and feel
- Target audience and platform
 - 3.1 and 3.2 only from Fullerton
- Gameplay
 - Overview
 - Gameplay Description
 - Controls
 - No need for wireframe visualizations
 - Rules – brief (your game should be simple!)
 - Scoring/winning conditions
 - 5.4-5.7 – likely not necessary
- Game characters
 - Character design
 - Character types
- Story
 - Customize to fit – probably very simple for your game
- Gameworld – as above, customize to fit
- Media list
 - Sprites, animations, sounds
 - Keep brief

SUGGESTED OUTLINE: GAME DESIGN

- Add section clearly delineating
 - Core design – must be complete to allow game to be playable and enjoyable – will be included in hand-in at end of term
 - Optional features – will be added if time permits
- Make sure that your development schedule guarantees that core design is implemented

SUGGESTED OUTLINE: DEVELOPMENT STATUS

- What features have been completed so far
- What features remain to be completed
- List of any significant barriers to completion and possible fallback positions
- Known problems in design revealed by testing with other players
 - If you haven't done any testing with other people yet, do so!
 - Take a light-weight approach
 - Grab a few other people (3 is probably plenty)
 - Select people as close to your target user group as possible
 - Have them play, and record what problems they may have
 - Use “think out loud” protocol – have them speak out loud as they are playing, explaining what they are trying to do – gives context to problems they may encounter
 - Look out for problems like
 - Controls confusing or too hard
 - Gameplay confusing – not clear what objective is, how to progress
 - Game too easy or too hard (most student games are too hard!)
 - Game not engaging

SUGGESTED OUTLINE: MILESTONES TO COMPLETION

- For each of remaining weeks of term, provide description of goals for that week
- Final week should include preparation for final show
- Each week from this point on should include some user testing
- E.g.:
 - Week of Feb 27-March 2:
 - Complete implementation of space ship control system
 - Test usability of control system with at least three players
 - Add animation for space centipede

PROJECT STATUS REPORT

- Over all...
- A lot of material to cover
- Be succinct, to the point, choose the most important information to relay
- Don't be afraid to use media (screenshots, concept art) – don't count in your 10 page suggested length

Games as Systems

SYSTEMS

- “A set of interacting or interdependent components forming an integrated whole”
 - Wikipedia
- Example: coffee machine
 - Components: water heater, reservoir, water delivery pipe, basket, coffee pot
 - Behaviour: heating water causes steam to rise through water delivery pipe, landing in basket, slowly dripping into coffee pot
- Games are systems as well
 - Interaction between players, NPCs, monsters, via weapons, terrain, auction house (etc.) combine to create entertaining experience

ELEMENTS OF GAME SYSTEMS

- Objects
 - Properties
 - Behaviours
 - Relationships
-
- ...bound together by system dynamics

OBJECTS

- Entities from which game is constructed
- In Chess
 - Game pieces
 - King, Queen, Rook, Pawn, ...
 - Squares making up game board



Source: <http://www.indiebloggers.org/chess-board.html>

OBJECTS

- Entities from which game is constructed
- In Limbo
 - Moving entities
 - Boy, boat, spiders, crate, enemy children, ...
 - Platforms, pulleys, water, ...



PROPERTIES

- **Attributes of objects**
 - Colour, position of chess piece
 - Hit points of World of Warcraft character
 - Available ammo for player in Call of Duty

PROPERTIES

- Attributes of character in Star Wars: Galaxies?
 - Name (“Ike Age”)
 - Hit points (health, action, mind)
 - Stance (crouching)
 - Combat status (firing)
 - Position in world
 - Orientation
 - ...and more



BEHAVIOURS

- What object can do
- Boy in “Limbo” can:
 - Run left/run right
 - Jump
 - Climb
 - “Use” an item



BEHAVIOURS

- What object can do
- Allied Engineer in Red Alert 3:
 - Run along set path
 - Enter/exit vehicle
 - Repair allied building
 - Capture enemy building
 - Heal allied troops
 - Jet ski across water



Source: http://cnc.wikia.com/wiki/Allied_Engineer

RELATIONSHIPS

- How objects are related
- Ordering of cards
 - (2 < 3 < 10 < Jack)
- Ordering of squares on Snakes and Ladders board
 - `next(3,2)`
 - `ladder(21,32)`
 - `snake(31,19)`



RELATIONSHIPS

- Call of Duty avatar
 - target
 - distance
 - line of sight
 - alliedTo
 - enemyOf
 - ...



SYSTEM DYNAMICS

How do all of these parts interact to create a game?

- EverQuest 2
 - Enemies spawn into world as they are killed by players
 - ...so other players don't run out of enemies to fight...



SYSTEM DYNAMICS

How do all of these parts interact to create a game?

■ Call of Duty

- Enemies spawn until player passes a checkpoint
- Requires player to keep moving



SYSTEM DYNAMICS

How do all of these parts interact to create a game?

■ World of Warcraft Auction House

- Players put items up for sale
- Other players buy them (or the auction expires)



SYSTEMS

- “A set of interacting or interdependent components forming an integrated whole”
 - Wikipedia
- Example: coffee machine
 - Components: water heater, reservoir, water delivery pipe, basket, coffee pot
 - Behaviour: heating water causes steam to rise through water delivery pipe, landing in basket, slowly dripping into coffee pot
- Games are systems as well
 - Interaction between players, NPCs, monsters, via weapons, terrain, auction house (etc.) combine to create entertaining experience