



CSCI 1106 Lecture 18



High Level Game Design



Announcements

- Today's Topics
 - The Game Design Project
 - High-level game design
 - Game Mechanics
 - The Game Story
 - The Unifying Theme

Your Mission: Write a Computer Game

AG

- Come up with an idea for a game
- Design the game
- Implement the game in Flash
 - You should use the provided game template
 - You do have the option of not using the template
 - Be sure to clear it with the instructor first!
- Test and polish your game
- Create a user manual for the game
- Create a technical manual for the game

Provided Game Template

AG

- `aidRunner.fla` - This is the main file for the game, containing all graphical objects.
- `Main.as` - This is the code to run the game. It is linked to `aidRunner.fla`.
- `Level1.as` - This is the code to run the first level of the game.

- Can be downloaded from course website

Example of the Template

AG



Design Considerations

AG

- What is the theme and objective of the game?
- How will the player move?
- How will the player win and lose?
- How will the player know how well they are doing?
- How will additional levels differ?
- How will you communicate the purpose, rules, and controls of the game?



Project Evaluation

F	No changes made to the game.
D	Some modifications were made to the original project files but the game is still not playable.
C-	Player movement is successfully added to the game.
C	The game tracks collisions between the player and game objects and responds to them.
C+	The game has a clear objective (including the use of positive and/or negative game objects).
B-	The player is able to easily track their progress through the game (in the form of points or some other measure / approach).
B	Winning and losing the game are both possible and the game rules, purpose and how to play are clearly communicated to the player.
B+	The game includes multiple levels that increase in difficulty.
A-	The game has some polish (looks OK) and includes audio effects.
A	The game is polished (looks good) and has some interesting special effects.
A+	The game is highly polished (looks really good) and is compelling.

To achieve a certain grade you must also have all of the features of the lower grades.



Deliverables

- The game: .swf file
- The user manual (3 pages)
- The technical manual (7 pages)
- Presentation of your game during the presentation period

- The .swf file must be submitted via the course website by 8:35am of your presentation period
 - Section B01: December 4, 2012
 - Section B02: November 30, 2012
- All deliverables are due
 - on 8:35am, December 5, 2012
 - In electronic copy (via course website)
 - In hard copy (at the instructor's office [CS 208])

The User and Technical Manuals

User Manual

- Contents:
 - Title page with screenshot
 - Game overview
 - Rules
 - How to play
- 3 pages, 11pt font
- Worth 20% of the written component
- Templates are available on course website
- Rubric is in the project specification

Technical Manual

- Contents
 - Title and Authors
 - Introduction
 - Description of `aidRunner.fla`
 - Description of `Main.as`
 - Description of `Level1.as`
 - Additional sections describing additional AS files
 - Future Work
- 7 pages, 11pt font
- 80% of the written component

High-Level Game Design

- Game Elements
 - Mechanics
 - Story
 - Technology and Aesthetics
- Idea: The elements work together to create a *unifying theme* in the game



Unifying Theme

- What experience do you want to convey?
 - e.g., pirate life, civilization simulation, a wild west adventure
- Structure your story and mechanics to reinforce your theme
- Examples:
 - Wild west
 - Lots of primitive actions
 - Lots of chance
 - A simple backstory
 - Civilization
 - Mostly strategic actions
 - Some chance, with medium small affects
 - An epic story



The Game Story

- There's nothing like a good story to pull you in...
- A story is composed of:
 - A "world"
 - A place with consistent properties
 - e.g. physics, magic, culture, etc.
 - Characters
 - Individuals with likes/dislikes, personalities, and goals
 - Stock Characters: e.g. soldiers, clerics, plumbers
 - A quest
 - Why are we/they here?
- The story immerses the player
 - Transports them into the "world"
 - Whets the interest of the player (first 100 pages)
- Separates great games from ok games



Story Considerations

- Depth
 - How detailed or grand is the story to be?
 - Epic? (Star Wars)
 - Simple backstory? (Angry Birds)
- Delivery
 - How is the story communicated to the player?
 - Prologue? Snippets? Chapters?
 - Does the player choose the direction of the story?
- Pacing
 - Rate of story telling corresponds to speed of the game



Game Mechanics

- Idea: Use game mechanics to
 - Implement the game story
 - Support the unifying theme of the game
- Game mechanics comprise
 - Rules
 - Environment
 - Actions
 - Chance (Randomness)
 - Skills



Game Mechanics: Rules

- Written rules of play (what happens when I...)
 - User manual
 - Game code
- Unwritten rules
 - Etiquette
 - Sportsmanship
- Object of the game (how do I win the game)
 - Clear
 - Achievable
 - Rewarding/Fun



Game Mechanics: Environment

- Spaces
 - Discrete or continuous?
 - Boundaries?
 - Nested Spaces?
- Number of players
 - Computer
 - Human
- Physics
 - Interaction of objects

Game Mechanics: Actions

AG

- Primitive Actions (private's view)
 - Moving the player
 - Shooting
- Strategic Actions (general's view)
 - Protecting a zone
 - Ambushing
- Most games require combination of both types of actions

Game Mechanics: Chance

AG

- Adds a surprising or unexpected elements
 - The so called "secret of fun"
- Consider how probabilities will factor into the play over the duration of the game
 - Power-ups
 - Density of projectiles
- Some predictability is useful! Why?
- The "chance trade-off"
 - A lot of randomness: game is about tactics, short term
 - A little randomness: game is about strategy, long term
 - Good games have the right mix



Game Mechanics: Skills

- Idea: The right amount of challenge will keep the player interested
- Three types of skills:
 - Physical Skills
 - Strength, dexterity, coordination, and endurance
 - E.g. How fast can I hit that button?
 - Mental Skills
 - Memory, observation, and problem solving
 - E.g., The answer is ...
 - Social Skills
 - Reading and fooling opponents
 - Coordinating with teammates
- Many successful games combine skills from multiple categories



Modeling Game Mechanics

- How do we depict what happens in our game?
- Need to model
 - Actions : human and computer
 - States of the characters and objects
 - Rules as a result of actions
- Idea: Use state transition diagrams
 - E.g., Mario eats a mushroom
 - E.g., Mario gets hit



Game Genres

- Idea: A set of stock (standard) mechanics that are used by similar games is called *genre*
- Examples:
 - Card games
 - Take turns playing cards
 - Rules govern what the cards mean and who wins
 - Racing games
 - Drive a vehicle on a race course
 - Get across
 - First-person shoot-em up
- Right choice of genre supports the unifying theme