IMGD 1001:
Game Development Timeline

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Outline
- Game Timeline (next)
- Team Sizes
Game Development Timeline (1 of 5)

- **Inspiration**
  - getting the global idea of the game
  - duration: 1 month (for a professional game)
  - people: lead designer, team discussion
  - result: treatment document, decision to continue

- **Conceptualization**
  - preparing the "complete" design of the game
  - duration: 3 months
  - people: designer + prototype programmers/artists
  - result: complete design document
  - (continued next slide)

Concept

- Define game concept
- Define core game features
- Find/Assign developer
- Estimate budget & Due date

- **Van Helsing**
  - 3rd person shooter for the PS2 and Xbox
  - Released 2004
  - Developer: Saffire
  - Publisher: Vivendi
- **Key:**
  - Guns and ammo as upgrades
  - Finishing move: 5 kills then single kill after 1 hit
Concept: Van Helsing (1 of 4)

Based on notes from Neal Robison, ATI

Concept: Van Helsing (2 of 4)

Based on notes from Neal Robison, ATI
Concept: Van Helsing (3 of 4)

Van Helsing
Pre-Production Video

Concept: Van Helsing (4 of 4)

Van Helsing
Finished Concept Video
Game Development Timeline (2 of 5)

- Prototypes
  - Build prototypes as proof of concept
    - Can take 2-3 months (or more)
    - Typically done a few months after project start
  - In particular, used to test game play
  - Throw prototype away afterwards
    - Don't expect it to evolve into game!
    - The Pancake Principle (Fred Brooks)
      - “Plan to throw one away, you will anyway.”
  - Pitch to Publisher

(Continued next slide)

Prototype or 1st Playable

- Game Design Document & Technical Design Document = "The Bibles"
- Production budget & detailed schedule
- Working prototype, with game mechanics
- Focus test
- Submit concept to Sony, etc.
  - Part of "pitch process", next)
  - You'll do this at the end of this course!
The Pitch Process: Presentation

- Key pitch presentation content:
  - Concept overview & genre profile
  - Unique selling points
    - What makes it stand out from its competitors
  - Proposed technology & target platform/s
  - Team biographies & heritage
  - Outline marketing information, including potential licensing opportunities

The Pitch Process: Prototype

- Key game prototype features:
  - Core gameplay mechanic
  - Game engine / technological proficiency
  - Artistic / styling guide
  - Demonstration of control / camera system
  - Example gameplay goals
The Pitch Process: Project Schedule & Budget

- Schedule & budget must:
  - Be detailed and transparent
  - Allow for contingency scenarios
  - Have several sets of outcomes for different size publishers
  - Be realistic

The Deal: Choosing a Publisher Research

- Publishers screen Developers
- But Developers should also research prospective Publishers:
  - Are they financially stable?
  - Do they have appropriate reach for target?
  - Do they market / PR their games well?
  - Is there a history of non-payment of milestones or royalties?
  - Have they produced many titles?

- Sometimes you take what you can get!
The Deal: IP Rights

- Intellectual Property Rights include:
  - Game name
  - Logos
  - Unique game mechanics & storyline
  - Unique characters, objects & settings
  - Game Source Code including artwork & associated assets
  - Unique sounds and music

- Developers may not have much power
  - And it probably doesn’t matter as many games don’t succeed, anyway

The Deal: Payment Negotiation (1 of 2)

- Current approximate development costs:
  - $4-5 million for AAA multi-platform
  - $2-3 million for AAA PlayStation 2 only
  - $1 million for A-quality single platform

- Royalties
  - Percentage payments of profits made after recoup of development costs
  - Developer royalties range 0% ("work for hire") to 40%

- Other considerations:
  - Rising-rate royalty: more units sold = higher percentage
  - Clear royalty definition of 'wholesale price' (i.e., including cost of goods etc.)
  - Right to audit publishers books
  - Currency/exchange rate/VAT figures
Moving Projects Forward

- Most Publishers have a "Green-Light Process"
  - Used to determine which projects go forward

- Developers submit to committee at five, mostly independent stages:
  - Concept
  - Assessment
  - Prototype
  - First Playable
  - Alpha

- At each stage, committee:
  - Decides whether or not to continue funding
    - Developers then get next "lump" of money
  - Evaluates market potential
  - Adjusts unit forecasts accordingly

- Then, additional stages:
  - Beta
  - Gold Master

Prototype: Red Ninja (1 of 3)

Red Ninja, PS2, released 2005
Publisher: Vivendi
Developer: Tranji
3rd person fighting
Fluid movement
Prototype: Red Ninja (2 of 3)

Red Ninja
Pre-Production Video

Prototype: Red Ninja (3 of 3)

Red Ninja
Final Production Video
Game Development Timeline (3 of 5)

- **Blueprint**
  - separate the project into different tiers
  - duration: 2 months
  - people: lead designer, software planner
  - result: several mini-specifications

- **Architecture**
  - creating a technical design that specifies tools and technology used
  - duration: 2 months
  - people: project leader, software planner, lead architect
  - result: full technical specification

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Game Development Timeline (4 of 5)

- **Tool building**
  - create a number of (preferably reusable) tools, like 3D graphics engine, level builder, or unit builder
  - duration: 4 months
  - people: project leader and 4 (tool) programmers
  - result: set of functional tools (maybe not yet feature complete)

- **Assembly**
  - create the game based on the design document using the tools; update design document and tools as required (consulting the lead designer)
  - duration: 12 months
  - people: project leader, 4 programmers, 4 artists
  - result: the complete game software and toolset
Other Milestones: 

*Alpha Definition*

- **At Alpha stage, a game should:**
  - Have all of the required features of the design implemented, but not necessarily working correctly
  - Be tested thoroughly by QA to eliminate any critical gameplay flaws
  - Still likely contains a certain amount of placeholder assets
  - (Continued next slide)

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Alpha Definition

- Feature complete
- "Localization" begins
- Focus test
- Play testing
- Marketing continues
Alpha: Crash Bandicoot (1 of 2)

Claypool and Lindeman, WPI, CS and IMGD

Based on notes from Neal Robison, ATI

Alpha: Crash Bandicoot (2 of 2)

Crash Bandicoot Video
Game Development Timeline (5 of 5)

- **Level design**
  - create the levels for the game
  - duration: 4 months
  - people: project leader, 3 level designers
  - result: finished game with all levels, in-game tutorials, manuals

- **Review**
  - testing the code, the gameplay, and the levels
  - duration: 3 months (partially overlapping level design)
  - people: 4 testers
  - result: the gold master

Other Milestones:
Beta Definition

- **At Beta stage, a game should:**
  - Have all content complete
  - Be tested thoroughly for bugs and gameplay tweaks
  - Be shown to press for preview features
  - (Continued next slide)
Stages of Development: Beta

- Polish, polish, polish
- Game balancing
- Localization continues
- Demo versions

Other Milestones:
Gold Master Definition

- At **Gold Master** stage, a game should:
  - Be sent to the platform holder/s (where applicable) for TRC (Technical Requirements Checklist) testing
  - Be sent to press for review
  - Be sent to duplication for production
  - Be backed up and stored
  - (Continued next slide)
Final/GMC/Gold

- The Game is "Done"
- Testing, testing, testing
- Intense pressure
- Submit to console developers
- Manufacturing timing

Post-Mortem

- Analysis of PR, marketing
- Analysis of production, source Code
- What went right
- What went wrong
- Archive all assets
- Kick-off the Sequel!
Outline

- Game Timeline
- Team Sizes (next)

Development Team Size

- As late as the mid-80's teams as small as one person
- Today, teams ranging from 10-60 people
- Programming now a proportionally smaller part of any project, artistic content creation proportionally larger
- See Gamasutra, (www.gamasutra.com)
  - Search for "post mortem"
  - Game data at bottom includes team size and composition
- But it depends a lot on the genre
Development Team 1988

- Sublogic’s JET (early flight sim)
  - Sublogic later made scenery files for Microsoft flight simulator

- 3 Programmers
- 1 Part-Time Artist
- 1 Tester

Total: 5

Development Team 1995

**Interplay's Descent**

- Used 3-D polygon engine, not 2-D sprites

- 6 Programmers
- 1 Artist
- 2 Level Designers
- 1 Sound Designer
- Off-site Musicians

Total: 11
### Development Team 2002

**THQ’s AlterEcho**
- 1 Executive Producer
- 1 Producer
- 4 Programmers
- 2 Game Designers
- 1 Writer
- 3 Level Designers
- 3 Character Modelers and Animators
- 1 2d and Texture Artist
- 1 Audio Designer
- 1 Cinematic Animator
- 1 QA Lead and Testers

Total: 19+

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**Development Team 2007**

**2K’s Bioshock**

- **Boston:**
  - Programmer: 1
  - Artists and Animators: 15, plus 2 borrowed from Firaxis
  - Designers: 6 in-house, 1 contract
  - Audio Developers: 2 in-house, 7 contract
  - Producers: 3 in-house, 2 contract
  - Testers: 13 contract, plus 8 on-site publisher testers

- **Australia:**
  - Programmers: 12
  - Artists And Animators: 10
  - Designers: 5
  - Audio Developer: 1
  - Producers: 2
  - Testers: 1 in-house, 7 contract

- **Shanghai:**
  - Artists And Animators: 12
  - Designers: 3

- **At peak:** ~90 developers, 30 contractors, 8 on-site publisher testers

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http://www.gamasutra.com/view/feature/3774/postmortem_3k_boston2k_.php
Development Teams for Online Games

- Star Wars online (~2003)
  - Development team: 44 people
    - 50% Artists
    - 25% Designers
    - 25% Programmers
  - 3 Producers
  - "Live" Team (starting at Beta, 6 months before done)
    - 8 Developers
    - 50-60 Customer support (for 200K users)
    - 1000 Volunteer staff (for 200K users)

A (Larger) Developer Company Today

- Designing and creating computer games is serious business
  - Large budgets ($10 million+)
  - Large number of people involved
  - Large risk

- Wisdom
  - Use modern software development techniques
    - And maybe not the ones we just talked about
  - Keep creativity where it belongs
    - In the design
    - Not during the programming