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Lecture 1:

Course Overview; Development Process

Welcome to CS/INFO 3152

- Course is **tentatively full**
  - Had 196 applications for 96 (8x12) spots
  - Had to reject 1 out of every 2 students
  - A few groups went to 9 to round out better

- Will give all groups the 9-person *option*
  - Each group should decide if they need more
  - You can stay at 8! Managing more is hard.
  - If want more, specify need (code, art, music)

- If you are on waitlist, talk to me after class

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CS/INFO 3152: Game Design

- Single semester long game project
  - Interdisciplinary teams of 8 (MAYBE 9) people
  - Design is entirely up to you

- First 3-4 weeks are spent preparing
  - **Labs** to develop basic game concepts
  - **Design** activities to solidify your ideas
  - **Group** activities to help you collaborate

- Remainder of class spent on project

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CS/INFO 3152: Game Design

- We provide a basic **milestone** schedule
  - **Today's focus**: the development process
  - Deliverables every two weeks (after week 4)
  - Details on course website:
    http://www.cs.cornell.edu/courses/cs3152

- Games demonstrated at **Showcase**
  - We **WILL** be in person (even if under a tent)
  - We **WILL** open it up to the public
  - Public reaction is part of your grade
  - Submissions posted on the GDIAC website

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Course Structure

- **Lectures**: Mondays, Wednesdays, Fridays
  - Of general design and development interest
  - Will include group activities to use Upson 142
  - Lecture notes posted on website (but incomplete!)

- **ENGRC Labs**: Tuesdays (usually)
  - Create documents and presentations
  - Satisfies the technical writing requirement
  - See schedule for exact dates

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Course Structure

- **Game Labs**: First four Thursdays
  - Special labs for programming or design
  - Complete according to your project role
  - Only INFO has a choice; CS is programming only

- **Playtesting**: Thursdays for major milestones
  - Submit a **playable** prototype every two weeks
  - Others will playtest your prototype in class
  - We will critique each other's games

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This course is a lot of work!

- Expect at least **10 hours/week** outside of class
  - Once the project "starts" in four weeks
  - Typically bare minimum to finish game
  - But if you do this, guaranteed at least a B

Includes	**Does Not Include**
Time working on game	5 days/week in class
Time writing documents	Time spent on readings
Time meeting with group	

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In... ...ade

- ...g on game
- Time writing documents
- Time meeting with group

- 5 days/week in class
- Time spent on readings

If this is a problem, let us know immediately

Project Groups

- This is a **group-oriented** course
  - **8 person** teams of diverse talents
  - Most programmers have 3110 or 2112
  - At least two character designers/artists
  - One user interface specialist

- Groups have been assigned by the staff
  - We had to balance by talents, not by friends
  - Groups **must** be in the same section

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Game Requirements

- Must be unique with innovative **gameplay**
  - Avoid standard point & click adventures
  - But can take elements from other games
    - **Example**: platformer + something new

- Must be feasible in a semester
  - Avoid full-blown RPGs or real-time-strategy games
  - But can have basic elements of these games

- Must have a single player mode

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Game Requirements

- Must develop in the game in **LibGDX**
  - Java-based cross platform engine
  - Has become very advanced, surpassing XNA
  - Can use any IDE, but only IntelliJ is supported

- Must develop a game for a **desktop PC/Mac**
  - Designing gameplay for mobile input is hard!
  - Subject of the advanced class, 4152

- See website for help and resources

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Intellectual Property

- Your **group** retains all ownership
  - You can commercialize it later
  - You can make derivative works
  - Individual ownership is your responsibility

- But Cornell gets a non-exclusive license
  - Non-commercial use of final version submitted
  - We can post this version on our website
  - We claim no other rights to your game

Grading Policy

- Mixture of **group** and **individual** grades

- Group grades are same for all group members
  - Group game grade (25%)
  - Document grades (20%)
  - Class presentations (5%)

- Individual grades distinguish group members
  - Individual game grade (20%)
  - Game Labs (20%)
  - Attendance (at demos) (10%)

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Game Grade

- Group grade reflects the game quality

Grade	Criteria
A	Bug-free, Fun-to-play
B	Complete and playable
C	Complete but unplayable
D/F	Serious delinquencies

- Individual grade represents contribution

Grade	Criteria
> Group	Visionary, group MVP
= Group	Good attitude, hard worker
< Group	Produce negative work
D/F	Abandon the group

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ENGRC Grading

- You **must** enroll in ENGRC 3152 as well
  - No extra work; just what you do in discussion
  - Requirement by school of engineering

- All CS/INFO grades except the game and labs
  - Workflow & Group Reports   (15%)
  - Course Documents   (75%)
  - Attendance & Presentations   (10%)

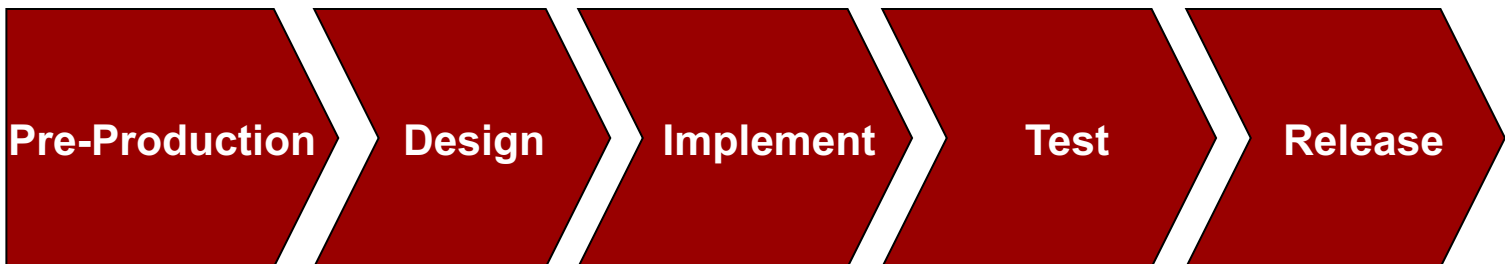- Typically higher than course grade

Software Development

- **Design** process
  - Decide what game you want to make
  - Create a *specification* of your design

- **Development** process
  - Implement your specification
  - Test result to make sure it works
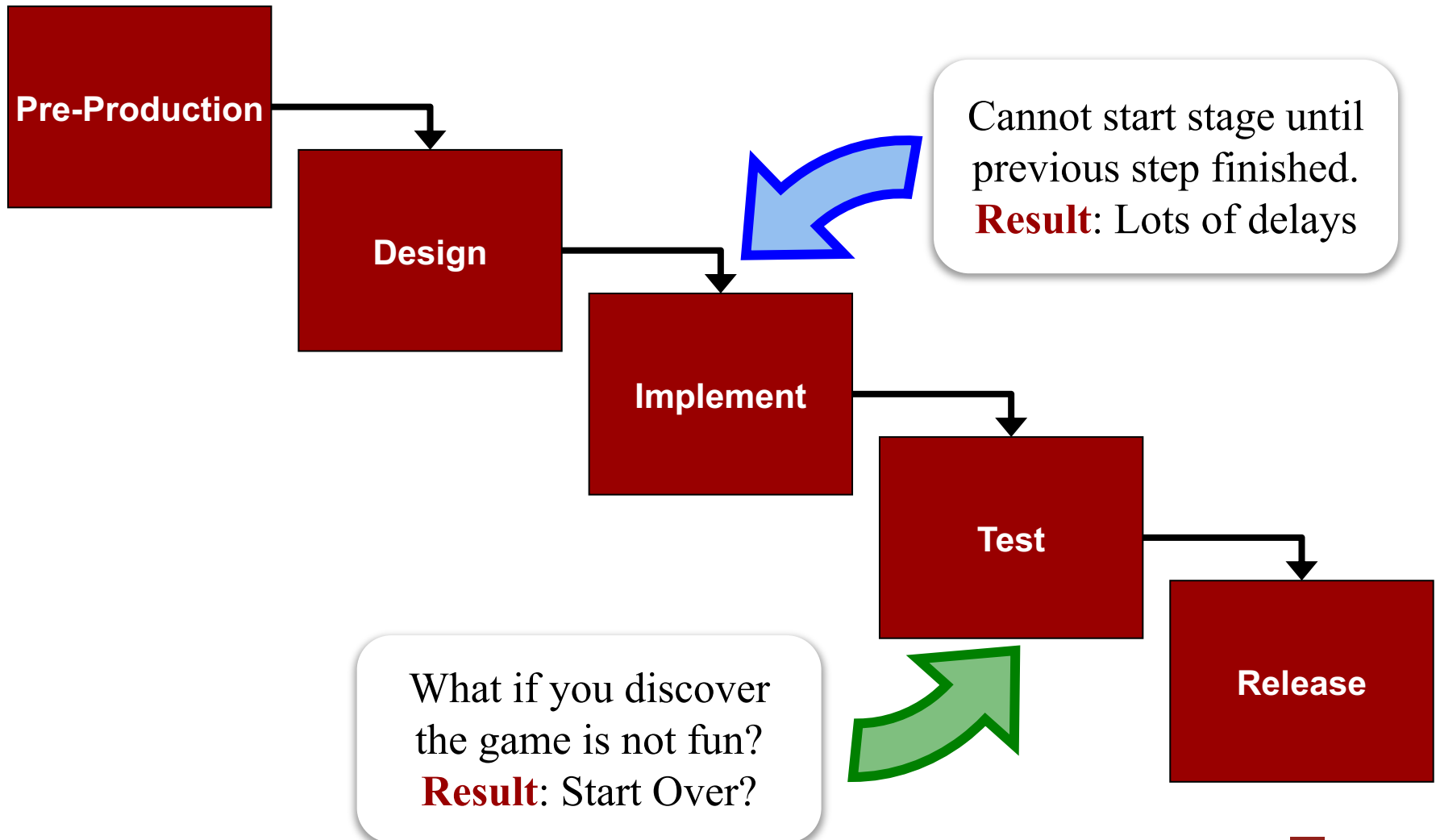
- **Release** (yeah!)

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The Traditional Model

- Document extensively; design to specification
  - Design and documents done before coding starts
  - Development follows a specified project timeline

- A general software engineering model
 - Often called the *waterfall* model

Pre-Production → Design → Implement → Test → Release

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Waterfall Model

Pre-Production

Design

Implement

Test

Release

Cannot start stage until previous step finished.
Result: Lots of delays

What if you discover the game is not fun?
Result: Start Over?

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The Iterative Model

- Cannot evaluate game without playing it first
  - **Iterate**: Rethink design from intermediate results

- Should be playing 20% into development!
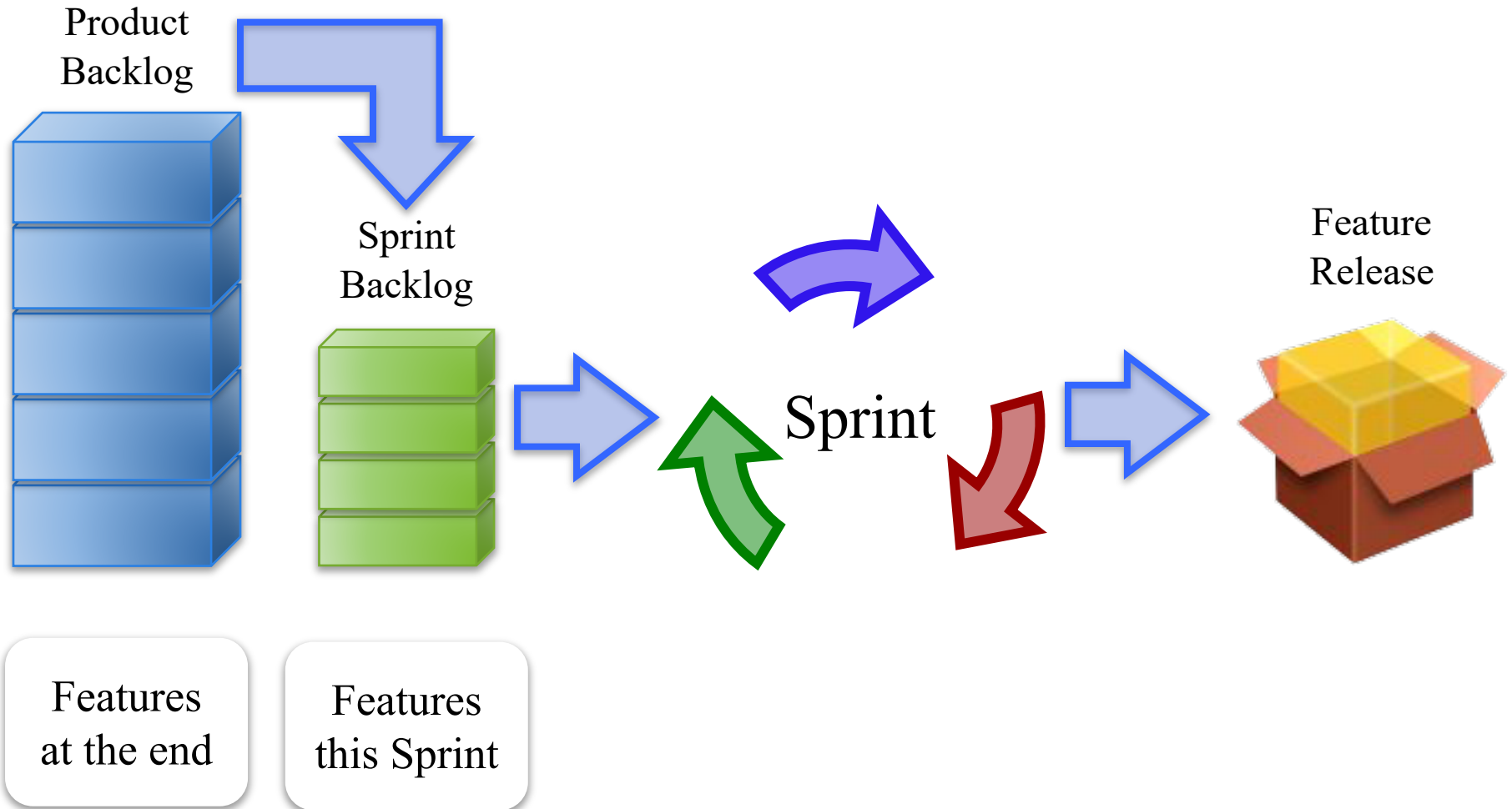 - This requires *prototypes* (may be nondigital)

Introduction
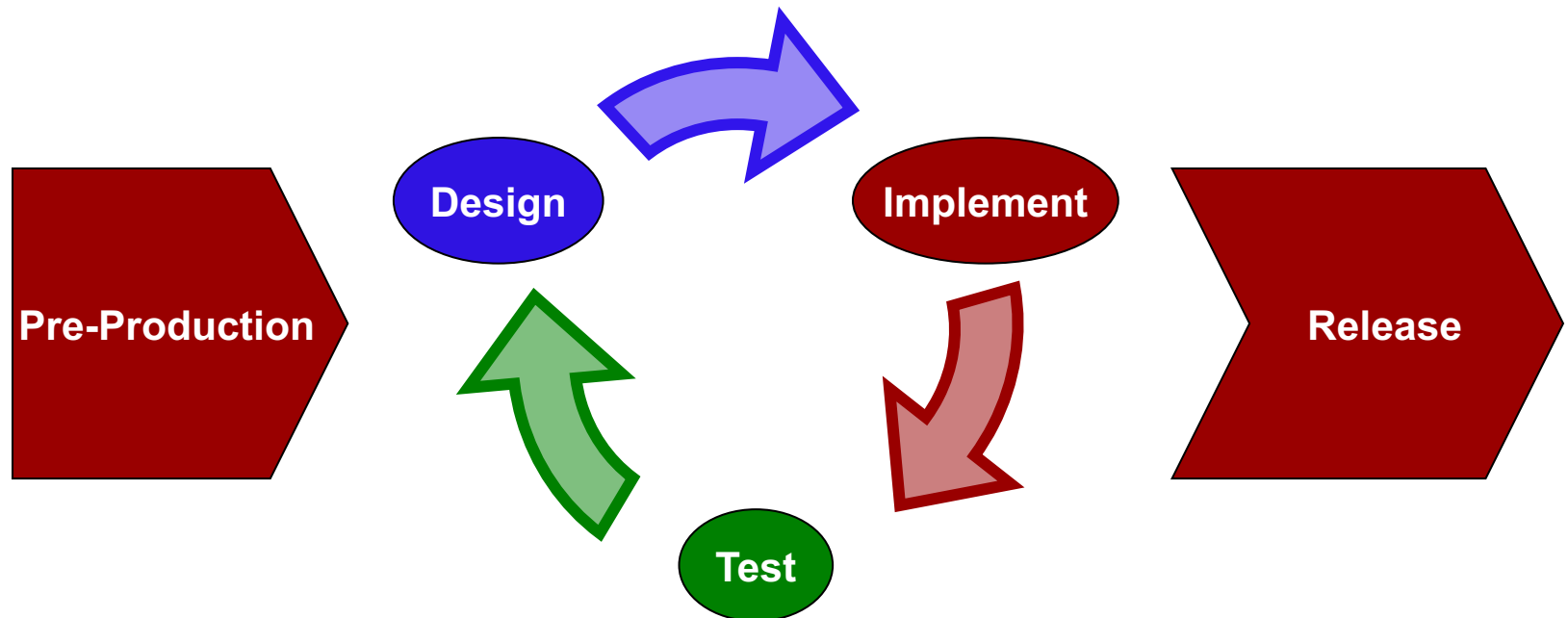
SCRUM & Agile Development

- Iterative model is called **agile development**
  - The most popular agile method is **SCRUM**

- Key (but not only) idea: **SCRUM sprint**
  - Focus on a small, but testable deliverable
  - 3-4 weeks in industry; 2 weeks in this class

- **Sprint Backlog**: features left to implement
  - Chosen to implement for this sprint
  - Re-evaluate features at end of every sprint

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SCRUM Sprint

Product
Backlog

Sprint
Backlog

Sprint

Feature
Release

Features
at the end

Features
this Sprint

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Milestones

- *Suggestions* for your sprint backlog
  - Flexible enough to handle set-backs
  - Can renegotiate if you get seriously behind

Week 5	**Nondigital Prototype**	2/21
Week 7	**Gameplay Prototype**	3/7
Week 9	**Technical Prototype**	3/21
Week 11	**Alpha (Code Complete)**	4/11
Week 13	**Beta (Feature Complete)**	4/25
Week 15	**Golden Master (Installable)**	5/6
Week 16	GDIAC Showcase	5/21

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Documentation

- Major part of the development process
  - Why course counts for technical writing
  - Ensures group is always on "same page"

- At every point of development
  - **Pre-production**: concept document, gameplay
  - **Sprints**: reports, architectural specification
  - **Release**: game manual, post-mortem

- Challenge is understanding your *audience*

Introduction

Pre-Production Documentation

- **Concept Document**
  - Describes the basic idea behind your game
  - Communicate core vision without too many details
  - Focus of ENGRC Lab next week
  - **Audience**: a game publisher (to get funding)

- **Gameplay Specification**
  - Thorough overview of your gameplay
  - Include formal design elements shown in class
  - May change as part of your sprints!
  - **Audience**: new team members (hired later)

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Sprint Documentation

- **Reports (every 2 weeks)**
  - Outlines the upcoming sprint (who does what)
  - Reflects on previous sprint (did you meet goals?)
  - Written as a *group document*
  - **Audience**: your game producer

- **CATME Reports**
  - Online tool for reporting your progress
  - Completed as *individuals*
  - Allows us to look for problems in group

Using CATME for Reports

http://www.catme.org

Overview

Detailed Specifications

- **Architecture Specification**
  - Outline of your software organization
  - Used to distribute tasks to programmers
  - **Audience**: team programmers

- **Design Specification**
  - Outline of your design vision
  - Also includes technical details of asset handling
  - Used for to help designers work together
  - **Audience**: team designers

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Detailed Specifications

- **Architecture Specification**
  - Outline of your sof...
  - Use...   ...rogrammers
  - **Audience**: team programmers

  Directed by the Lead Programmer

- **Design Specification**
  - Outline of your design vision
  - Also inclu...   ...ndling
  - Use...   ...gners work together
  - **Audience**: team designers

  Directed by the Lead Designer

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Release Documentation
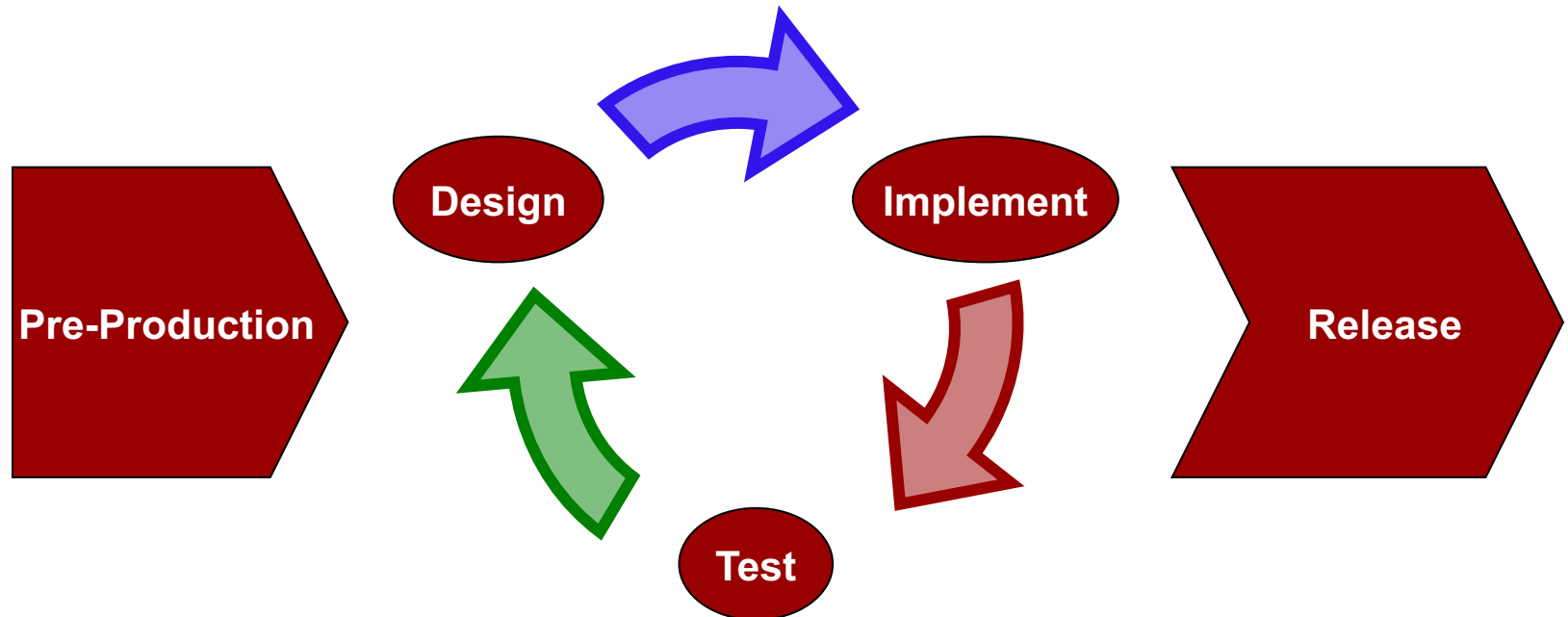
- **Game Manual**
  - Concise description of gameplay
  - Instructions on how to play the game
  - Story, other material to improve the setting
  - **Audience**: your players

- **Postmortem**
  - *Honest* reassessment of what happened
  - What went right; what went wrong
  - **Audience**: yourself (for next time…)

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Development Process Review

- **Pre-production**
  - Initial design
  - **Concept Document**
  - **Gameplay Spec**

- **Two-Week Sprints**
  - Playable prototypes
  - **Reports**
  - **Arch/Design Spec**

- **Release**
  - Public Showcase
  - **Game Manual**
  - **Postmortem**

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Semester Schedule

Week 1	Team Workflow	1/29
Week 2	Initial Proposal	2/5
Week 3	Concept Document	2/12
Week 4	Concept Revision (**Project Kickoff**)	2/19
Week 5	**Nondigital Prototype** Milestone Proposals	2/21 2/26
	February Break	
Week 6	Gameplay Specification	3/5
Week 7	**Gameplay Prototype**	3/7
Week 8	Detailed Specifications	3/19
Week 9	**Technical Prototype**	3/21

Pre-Production

Development

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Semester Schedule

Week 10	Document Revisions	4/2
	Spring Break	
Week 11	**Alpha Release (Code Complete)**	4/11
Week 12	Game Manual (Draft based on Alpha)	4/23
Week 13	**Beta Release (Feature Complete)**	4/25
Week 14	Final Portfolio	5/7
Week 15	**Golden Master (Installable)**	5/6*
Week 16	GDIAC Showcase	5/21

Development

Release

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