the gamedesigninitiative at cornell university

Lecture 1:

Course Overview; Development Process

CS/INFO 3152: Game Design

- Single semester long game project
  - Interdisciplinary teams of 8 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

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**
  - Like BOOM, open to the public
  - Public reaction is part of your grade
  - Submissions posted on the GDIAC website

Course Structure

- **Lectures**: Mondays, Wednesdays, Fridays
  - Of general design and development interest
  - Will include group activities to use the new room
  - Lecture notes posted on website (but incomplete!)
- **Communication Labs**: Tuesdays (usually)
  - Create documents and presentations
  - Satisfies the technical writing requirement
  - See schedule for exact dates

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

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

- Time working on game
- Time writing documents
- Time meeting with group

Does Not Include

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

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  - Once the project "starts" in four weeks
  - Typically bare minimum to finish game
  - But if you do this, guaranteed at least a B

If this is a problem, let us know immediately

- Time working on game
- Time writing documents
- Time meeting with group
- 5 days/week in class
- Time spent on readings

Project Groups

- This is a **group-oriented** course
  - **7-8 person** teams of diverse talents
  - At least one ≥ 3110 programmer
  - At least two character designers/artists
  - One user interface specialist
- Groups have been assigned by the staff
  - Taking your preferences into account
  - Groups **must** be in the same section

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

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

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%)
  - Technical writing (20%)
  - Class presentations (5%)
- Individual grades distinguish group members
  - Individual game grade (20%)
  - Game Labs (20%)
  - Attendance (at demos) (10%)

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

ENGRC Grading

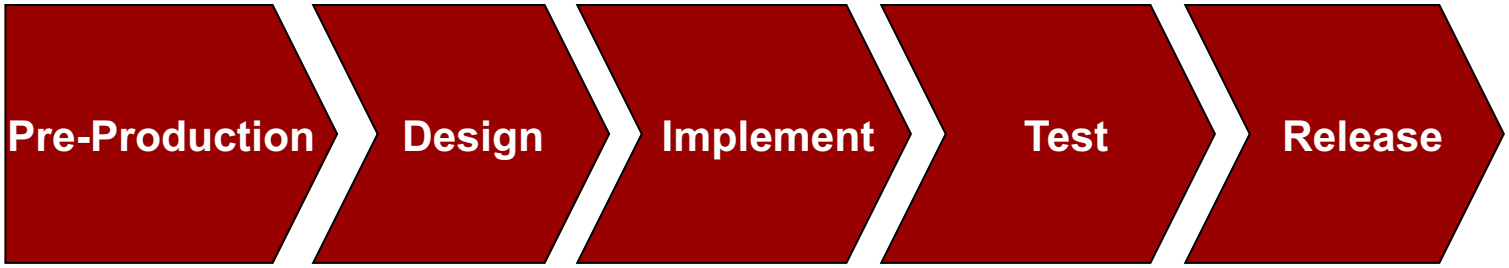
- You **must** enroll in ENGRC 3152 as well
  - No extra work; just what you do in discussion
  - Requirement by school of engineering
- All CS/INFO grades except the game and labs
  - Workflow & Group Reports (15%)
  - Course Documents (75%)
  - Attendance & Presentations (10%)
- Typically higher than course grade

Software Development

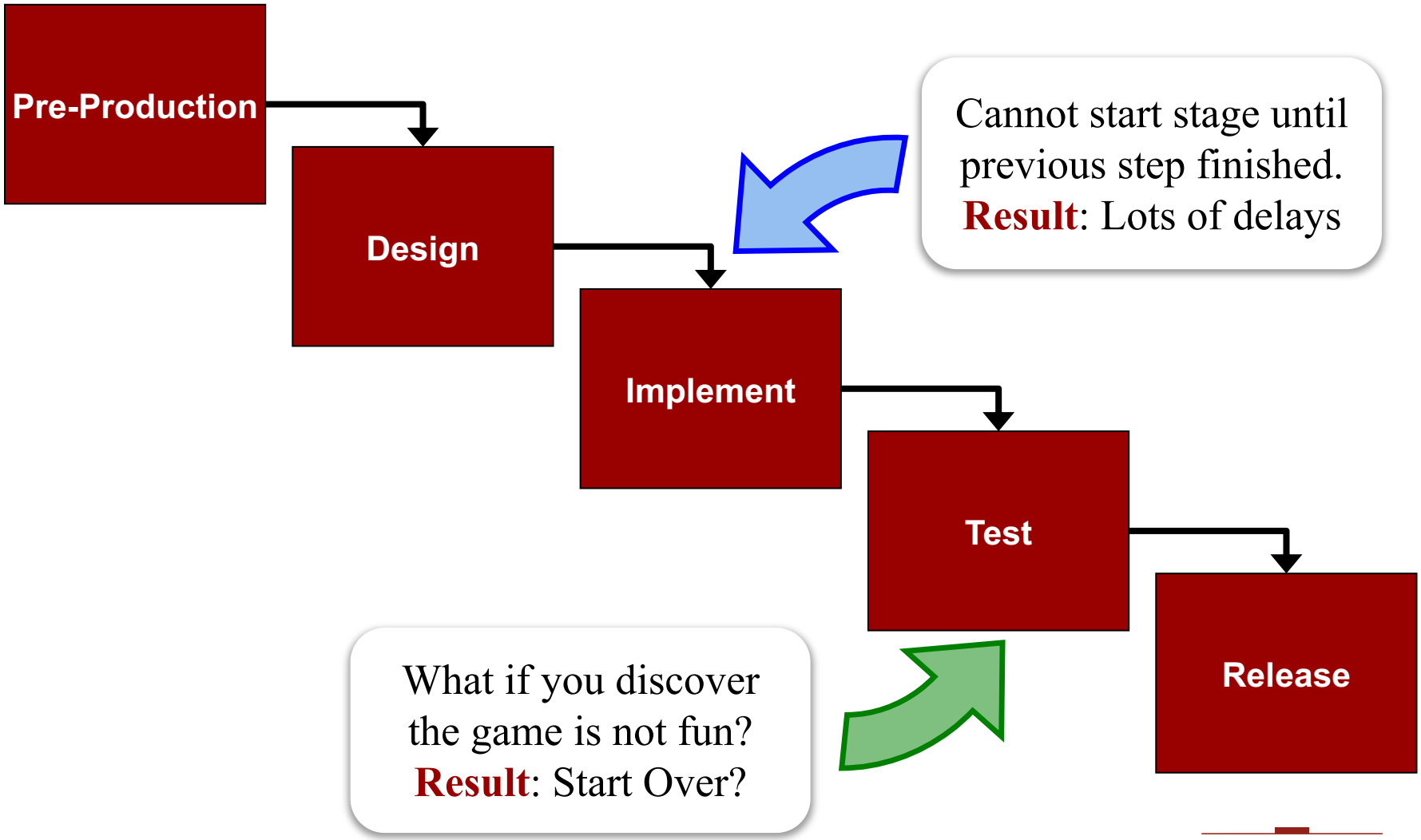
- **Design** process
  - Decide what game you want to make
  - Create a *specification* of your design
- **Development** process
  - Implement your specification
  - Test result to make sure it works
- **Release** (yeah!)

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

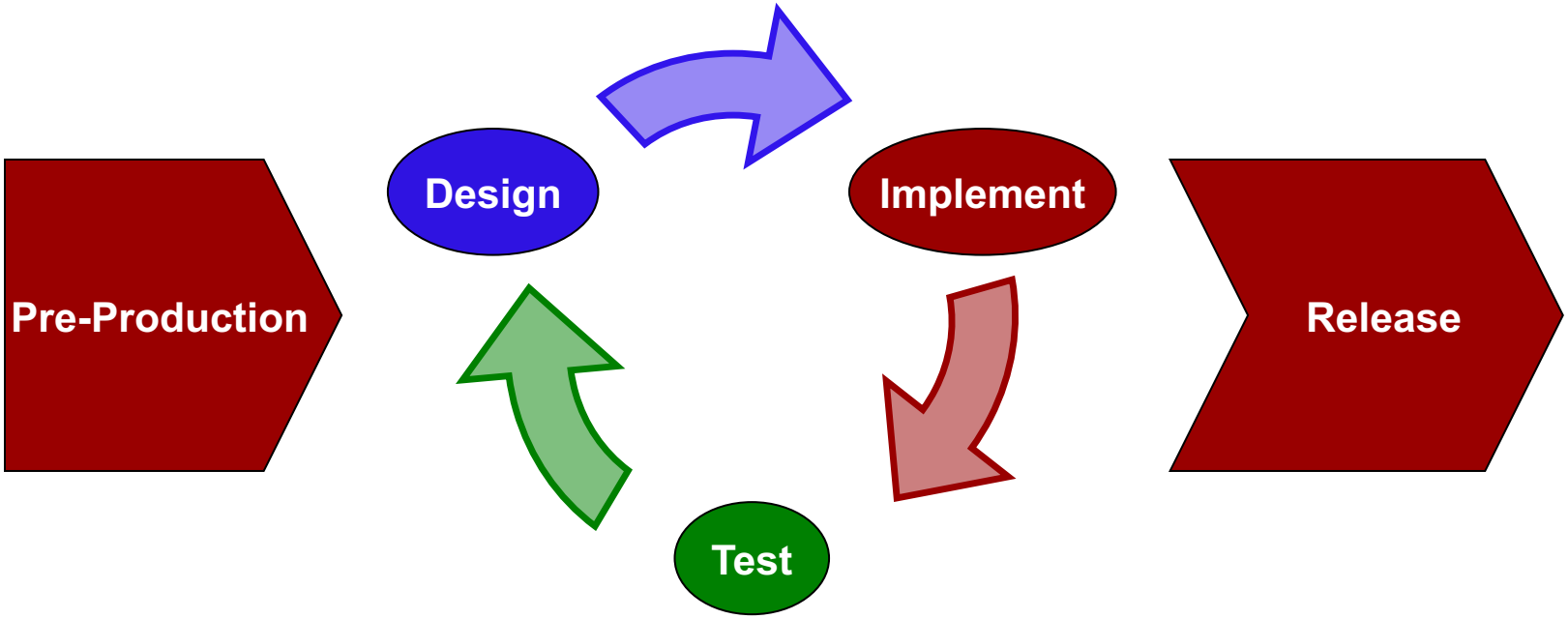


Waterfall Model



The Iterative Model

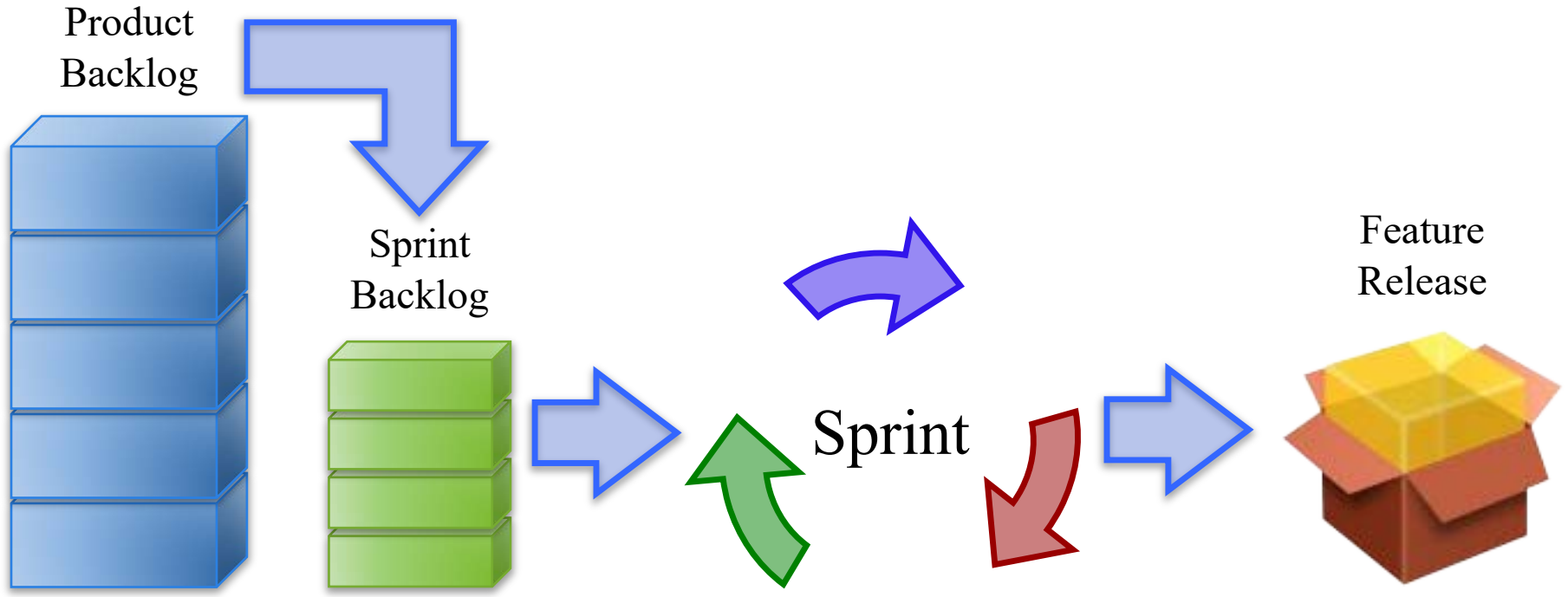
- Cannot evaluate game without playing it first
  - **Iterate**: Rethink design from intermediate results
- Should be playing 20% into development!
  - This requires *prototypes* (may be nondigital)



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

SCRUM Sprint



Milestones

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

Week 5	**Nondigital Prototype**	2/17
Week 7	**Gameplay Prototype**	3/2
Week 9	**Technical Prototype**	3/17
Week 11	**Alpha (Code Complete)**	4/6
Week 13	**Beta (Feature Complete)**	4/20
Week 15	**Release (Balanced and Tested)**	5/4
Week 16	GDIAC Showcase	5/15

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*

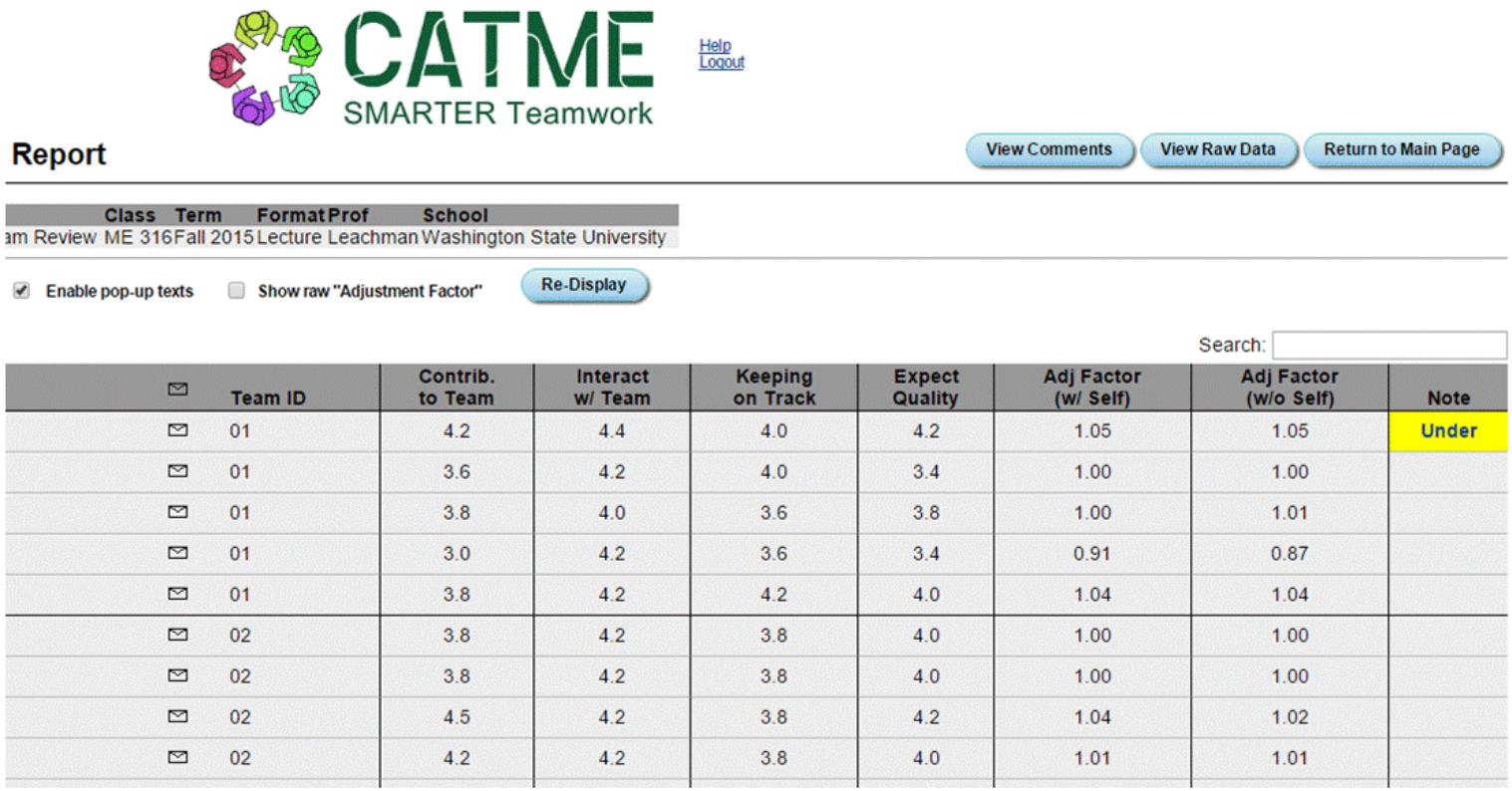
Pre-Production Documentation

- **Concept Document**
  - Describes the basic idea behind your game
  - Communicate core vision without too many details
  - Focus of Communication 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)

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



Team ID	Contrib. to Team	Interact w/ Team	Keeping on Track	Expect Quality	Adj Factor (w/ Self)	Adj Factor (w/o Self)	Note
01	4.2	4.4	4.0	4.2	1.05	1.05	Under
01	3.6	4.2	4.0	3.4	1.00	1.00	
01	3.8	4.0	3.6	3.8	1.00	1.01	
01	3.0	4.2	3.6	3.4	0.91	0.87	
01	3.8	4.2	4.2	4.0	1.04	1.04	
02	3.8	4.2	3.8	4.0	1.00	1.00	
02	3.8	4.2	3.8	4.0	1.00	1.00	
02	4.5	4.2	3.8	4.2	1.04	1.02	
02	4.2	4.2	3.8	4.0	1.01	1.01	

http://www.catme.org

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

Detailed Specifications

- **Architecture Specification**
  - Outline of your soft
  - Use
  - **Audience**: team programmers

Directed by the Lead Programmer

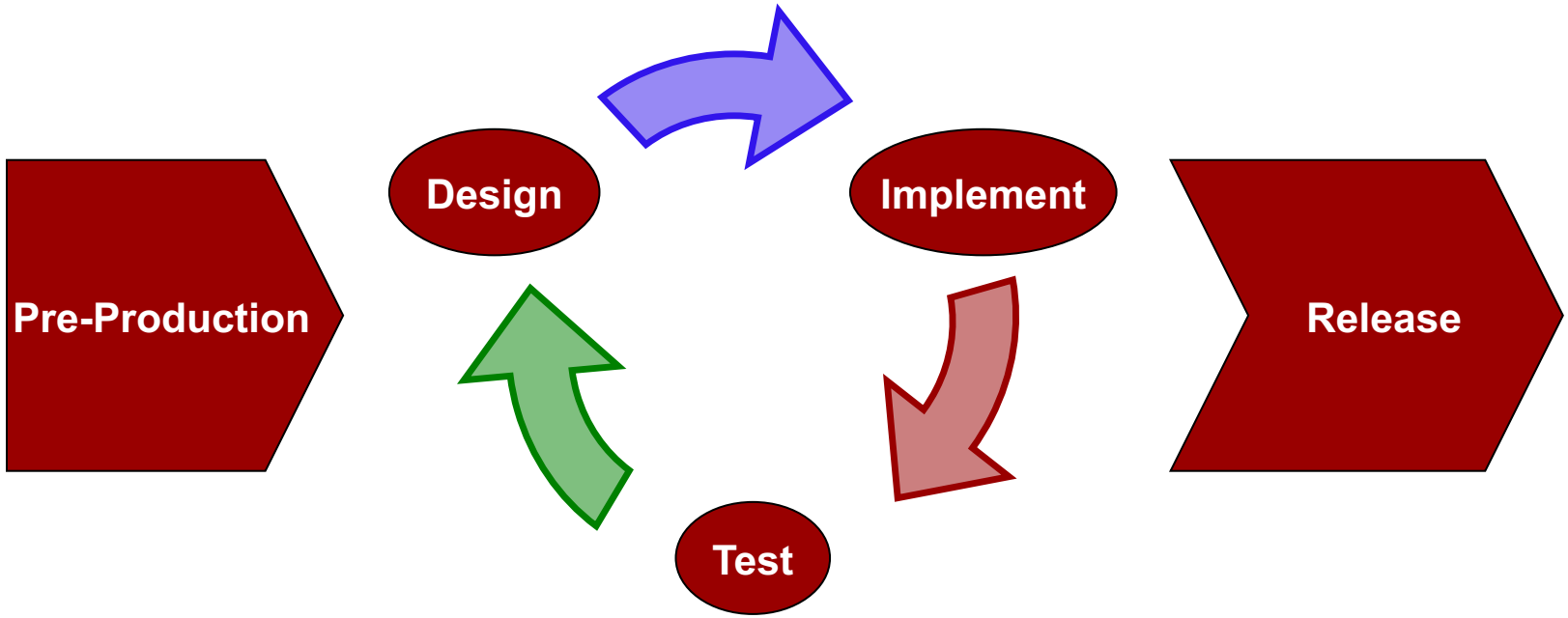
- **Design Specification**
  - Outline of your design vision
  - Also includ
  - Use
  - **Audience**: team designers

Directed by the Lead Designer

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…)

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**

Semester Schedule

Week 1	Team Workflow	1/25
Week 2	Initial Proposal	2/1
Week 3	Revised Proposal	2/8
Week 4	Concept Document (**Project Kickoff**)	2/15
Week 5	**Nondigital Prototype** Milestone Proposals	2/17 2/22
February Break		
Week 6	Gameplay Specification	2/29
Week 7	**Gameplay Prototype**	3/2
Week 8	Detailed Specifications	3/14
Week 9	**Technical Prototype**	3/17

Pre-Production

Development

Semester Schedule

Week 10	Document Revisions	3/28
Spring Break		
Week 11	**Alpha Release (Code Complete)**	4/6
Week 12	Game Manual (Draft based on Alpha)	4/18
Week 13	**Beta Release (Feature Complete)**	4/20
Week 14	Final Portfolio	5/2
Week 15	**Final Presentation (Balanced &Tested)**	5/4
Week 16	GDIAC Showcase	5/15

Development

Release