Feasibility → Requirements

Contract Negotiations

I want you to build a game...

I want an RPG better than anything seen before!

It needs to be ready in 3 months!

Oh yeah, I only want to pay you $3000 to build it.

Constraint Triangle

Cost

Quality

Time
Contract Negotiations

I want an RPG better than anything seen before!

customer    game developer

It needs to be ready in 3 months!

customer    game developer

So how much will it cost?

customer    game developer

Just write a blank check. I'll fill in the amount when I'm done!

customer    game developer

Feasibility: Can we meet the constraints?

Just about everything we said about the difficulty of software development in general is magnified for feasibility testing.

The greatest aid is experience!
Feasibility

- Understand the capabilities of your team and tools
- Understand the proposed system
- Explore gaps

Life Cycle Model
- feasibility
- requirements
- design
- implementation
- testing
- maintenance

Waterfall Model

Requirements in Iterative Development

What the system should do.

What the system does.

Requirements evolve over the course of the project.

Rational Unified Process
(a form of controlled iteration)

XP

requirements specified throughout project

requirements for iteration

requirements specified throughout project
### Types of Requirements: FURPS+

- **Functional**: features, capabilities
- **Usability**: human factors, help, documentation
- **Reliability**: frequency of failure, recoverability, predictability
- **Performance**: response times, throughput, accuracy, availability, resource usage
- **Supportability**: adaptability, maintainability, configurability

### Functional Requirements
- Use cases - RUP
- User stories - XP

### Definition of "Use Case"

"The specification of sequences of actions that a system, subsystem, or class can perform by interacting with outside actors"

*(UML Reference Manual, Rumbaugh, Jacobson, and Booch)*

### RUP
- Casual to "fully dressed" use cases
- Use case diagrams
- Use case model
- Books have been written ...

### XP

Each user story should be briefly recorded on a 3x5 card.

### Pink Monster

**Play Game**: Player starts game. Quad scene appears with pink monster at bottom of screen and various targets moving across screen. Player moves pink monster and launches fruit. Hitting target increases score. Hitting CS cart causes player to lose.
RUP Casual Use-Case = XP User story

Pink Monster

Play Game: Player starts game. Quad scene appears with pink monster at bottom of screen and various targets moving across screen. Player moves pink monster and launches fruit. Hitting target increases score. Hitting CS cart causes player to lose.

Move Pink Monster: Player moves pink monster along bottom of screen with left and right arrows. Pink monster stops at screen boundaries.

Feasibility

- play the game (5 minutes)
- list use cases beginning with high-level/most important (5 minutes)
- add your contribution to the list on the board

Understand the capabilities of your team and tools

Understand the proposed system
Use Case Realization

Feasibility: The technology to realize this use case exists. Give supporting evidence.

Use Case Realization

Use Case
Move Pink Monster: Player moves pink monster along bottom of screen with left and right arrows. Pink monster stops at screen boundaries.

Realization Analysis
The same control is used in space invaders.

Feasibility

understand the capabilities of your team and tools
understand the proposed system
Gaps

Explore Gaps: Risk Analysis

• What are the greatest risks to the project?
• What can we do to resolve or reduce these risks in the time allotted?
• Who is going to do it? How will they demonstrate they've done it?
• What are our backup plans?

Assignment

Concept Assessment:
Proposed Concept
Use Cases
Risk Analyses and Resolutions
Current Risk Analysis

Tuesday

You'll pitch your concept to your customer and another team.