

Requirements

Review

Process

- requirements
- design
- implementation
- testing

Types of Requirements: FURPS+

Functional: features, capabilities

Usability: human factors, help, documentation

Reliability: frequency of failure, recoverability, predictability

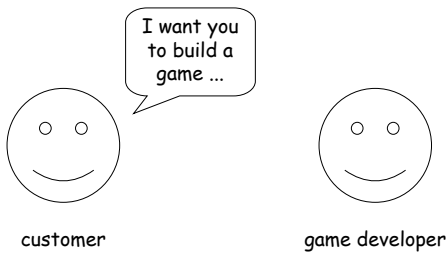
Performance: response times, throughput, accuracy, availability, resource usage

Supportability: adaptability, maintainability, configurability

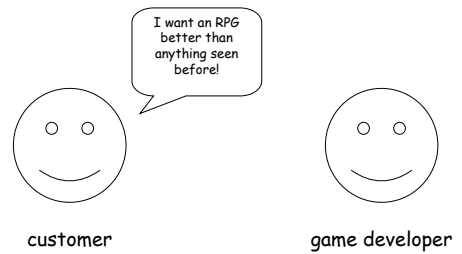
Requirements

- Elicitation: What does the customer want?

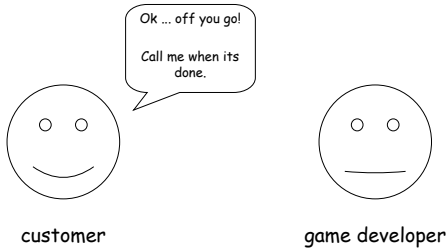
Requirements Elicitation



Requirements Elicitation



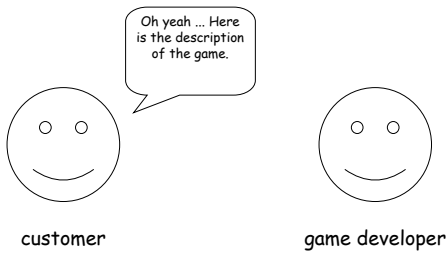
Requirements Elicitation



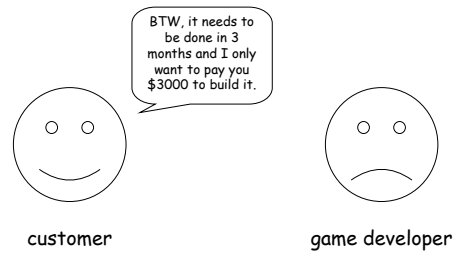
Requirements

- Elicitation: What does the customer say they want?
- Analysis: What does the customer really want?

Requirements Elicitation



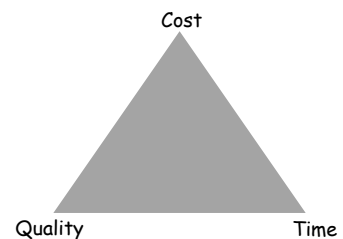
Requirements Elicitation



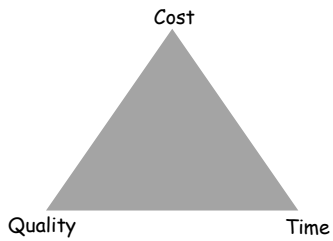
Requirements

- Elicitation: What does the customer say they want?
- Analysis: What does the customer really want? What can provide?

Constraint Triangle



Feasibility: Can we meet the constraints?



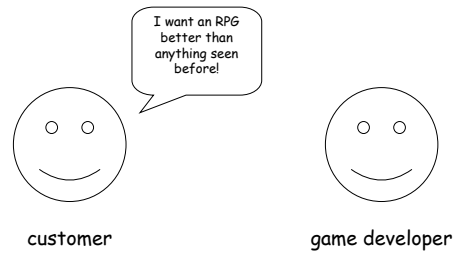
Just about everything we said about the difficulty of software development in general is magnified for feasibility testing.

The greatest aid is experience!

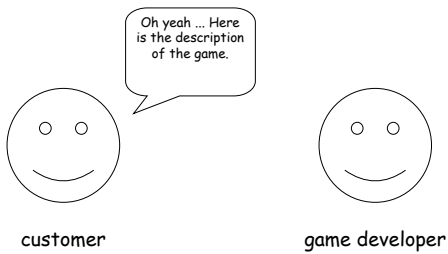
Feasibility

- Understand the proposed system
- Understand the capabilities of your team and tools
- Explore gaps (or risks)

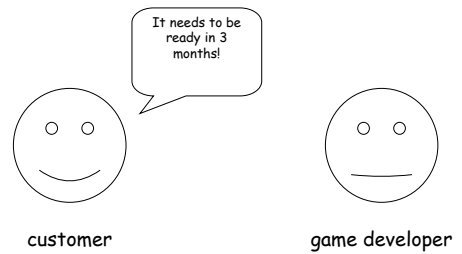
Requirements Elicitation

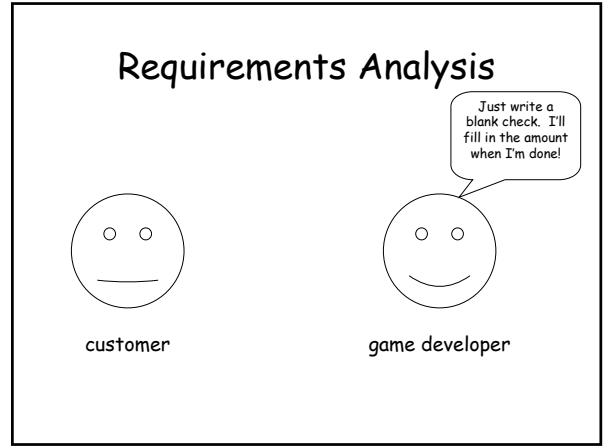
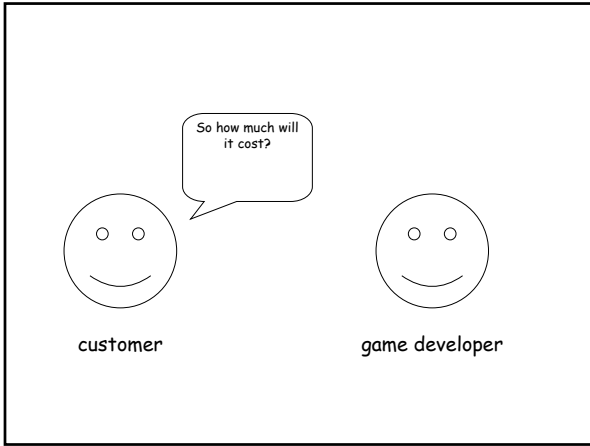


Requirements Elicitation

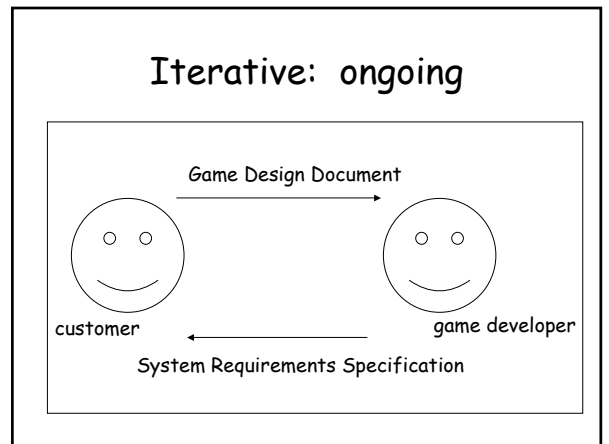
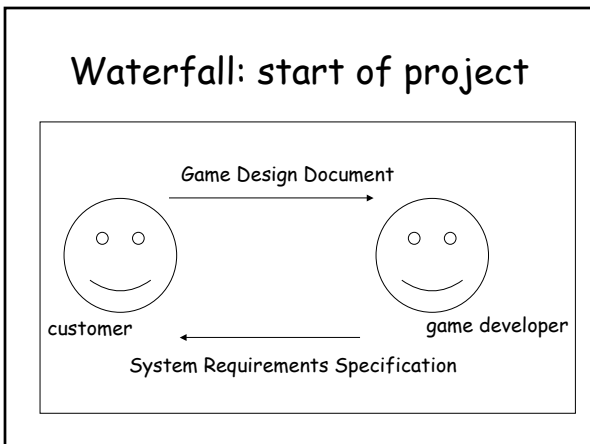
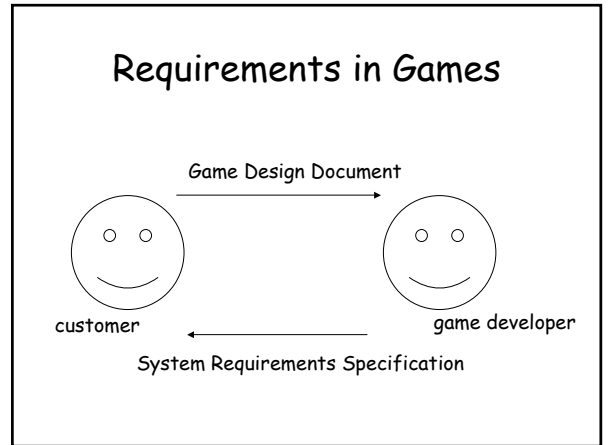


Requirements Elicitation





- ### Requirements
- Elicitation: What does the customer say they want?
 - Analysis: What does the customer really want? What can we provide? (Feasibility)
 - System Requirements Specification: What do we agree to provide?



Game Design Document: sample format

Overview

Game Structure

Game Play See CD with text for
Levels Game Design Doc: Ankh

Audio

Art

WHAT IS REALLY IMPORTANT:
The Design Doc should
communicate your game concept!!!!

Example

Grand Theft Golf Cart

Fall 2004

Sean Bouchard

John Fuetsch

Chris Wilson

Grand Theft Golf Cart

Overview

GTGC is a single player 2D action arcade game. You play as Guy DeSoto, a Pomona student low on cash, but with a bright business future. You've stolen a Campus Security Golf Cart so that you can run booze to various parties on campus, raking in the dough. You just have to make sure Camp Sec doesn't catch you!

The game is similar in concept to Pac-Man: you must navigate your character through a landscape while avoiding both obstacles and enemies, while simultaneously trying to reach strategic objectives on the map.

Grand Theft Golf Cart

Players & Entities

Guy DeSoto: The protagonist, and the character whose golf cart you control.

Camp Sec Officers: Enemy golf carts intent on bringing you in!

Partiers: The recipients of your deliveries.

Obstacles: The map is littered with buildings and other obstacles you must avoid crashing into and use to avoid being captured by pursuing golf carts.

Parties: Where partiers congregate. Satisfying these gatherings is a requirement to pass a stage.

Your room: Your base of operations where you stock up on "product"

Grand Theft Golf Cart

Look & Feel

GTGC is a static top-down stylized view of the campus. Scattered around campus are buildings, obstacles, camp-sec officers riding golf carts, stationary parties, and wandering partiers. All illustrations are somewhat cartoony, to lend the game a "fun" and "adventurous" feel. Sound effects are used to enhance the player's experience.

Should include sample art. Should explain about sound effects.

Grand Theft Golf Cart

Interface

The player controls a golf cart via the arrow keys on the keyboard. The movement attempts to emulate that of an actual vehicle, with up moving the cart in the direction it's currently facing, left and right angling the cart's trajectory, and down braking or reversing the motion.

Grand Theft Golf Cart

Start Up

Time permitting the game will start illustrating how Guy steals a gold cart from camp sec. Game play begins with camp-sec officers already hot on your tail.

Gameplay

At the beginning of each level, you start at a random place on the map. You must make your way to your room to stock up on supplies, controlling your golf cart using the arrow keys. Then, while avoiding camp-sec golf carts, you must visit each party marked on the map. If at any time you are caught by campus safety or you crash into a building, the game ends.

Grand Theft Golf Cart

Objectives

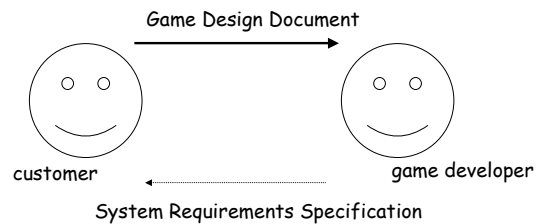
To complete a level, you must reach every party on the map without being caught by camp-sec. Each party will pay you \$50 for your services. For additional cash, you can catch wandering party-goers who will pay you \$5 each for some hard stuff.

Level Design

In each successive stage, the game gets harder. This is accomplished by increasing the number of camp-sec officers, increasing the number of parties you must visit. Other potential aspects of the game that could increase in difficulty with time include:
Adding a carrying capacity to your golf cart (so you'd need to stock up often)
Increasing the speed of the camp-sec carts
Giving camp-sec officers projectile weapons.

demo

Requirements in Games



Requirements: Analysis Tool

- 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.

RUP Casual Use-Case = XP User story

GTGC

Play Game: Player starts game. Player controls a golf cart sprite via the arrow keys. Player first much go home to get supplies. Player then must visit all the campus parties delivering beer. When all parties visited the game goes to the next level. Hitting a building or getting caught by Campus Security ends the game.

RUP Casual Use-Case = XP User story

GTGC

Play Game: Player starts game. Player controls a golf cart sprite via the arrow keys. Player first much go home to get supplies. Player then must visit all the campus parties delivering beer. When all parties visited the game goes to the next level. Hitting a building or getting caught by Campus Security ends the game.

RUP Casual Use-Case = XP User story

GTGC

Player Starts Game: Player launches game by clicking on game executable icon. Game starts with a splash screen explaining the backstory, objectives, and interface. Player hits space bar to begin.

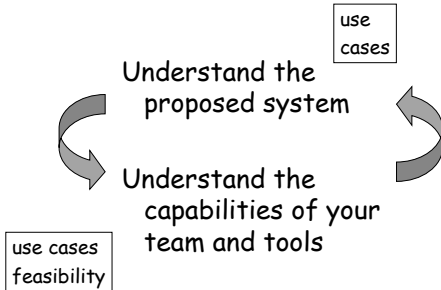
RUP Casual Use-Case = XP User story

GTGC

Play Game: Player starts game. **Player controls a golf cart sprite via the arrow keys.** Player first much go home to get supplies. Player then must visit all the campus parties delivering beer. When all parties visited the game goes to the next level. Hitting a building or getting caught by Campus Security ends the game.

etc.

Feasibility



Use Case Realization

Why do we expect that this use case can be realized within our constraints?

Use Case Feasibility

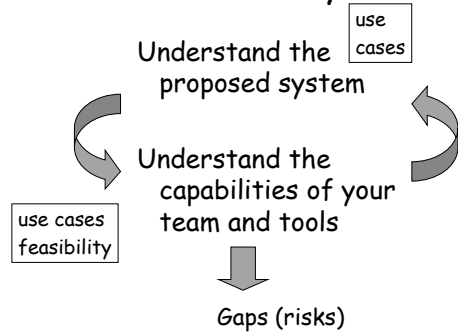
Use Case

Player moves: Player controls a sprite via the arrow keys. Up and down move the player forward and back. Left and right turn the player in those direction.

Feasibility Analysis

The same control is used in the POP space invaders game.

Feasibility



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:

Is it a good concept?

Criteria and evaluation

Is it feasible?

Use Cases

Use Case Feasibility

Risk analysis

Evaluation