

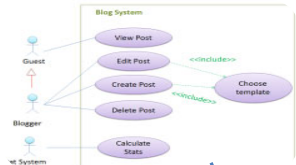
ANALYSIS



Establish requirements

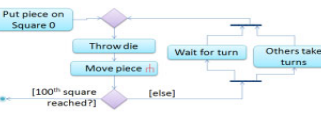
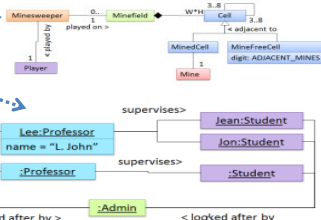
- brainstorming
- Focus groups
- User surveys
- Product surveys
- Observations
- Interviews
- Prototyping

We use OO to 'align the view'.
We use UML as the standard notation.



System: Square game. **Use case:** U02 - play a game
Actors: Player (multiple players)

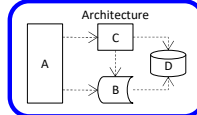
1. A Player starts the game.
2. SquareGame asks for player names.
3. Each Player enters own name.
4. SquareGame determines and shows the order of
5. SquareGame prompts for the current Player to
6. Current Player adjusts the throw speed.
7. Square Game throws the die.



Requirements Specification

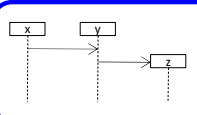
DESIGN

System Specification



Architecture styles such as n-tier, client-server, peer-to-peer, broker, pipes-and-filters, service-oriented, transaction-processing, and MVC

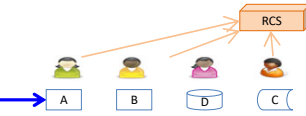
API (Application Programming interface)



Detailed design

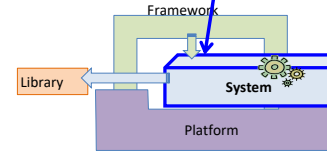
- Possible Improvements:**
- ↑ Cohesion, ↓ Coupling
 - Apply design patterns (Singleton, Command, Observer, Façade, MVC)
 - Apply design principles (SOLID, Law of Demeter, Separation of concerns, ...)
 - Use polymorphism (inheritance, interfaces, dynamic binding)
 - Good product design guidelines (e.g., usability, ...)

IMPLEMENTATION



Can be top-down, bottom-up, sandwich, big-bang

Can be late-one-time, or early-and-continuous



- Possible Improvements:**
- Refactor code
 - Coding standards and good coding practices
 - Protect code using assertions, exceptions, logging, and defensive coding.
 - Build automation

QUALITY ASSURANCE

= Validation & Verification

Unit testing

Integration testing

System testing

Acceptance testing

Alpha/beta testing

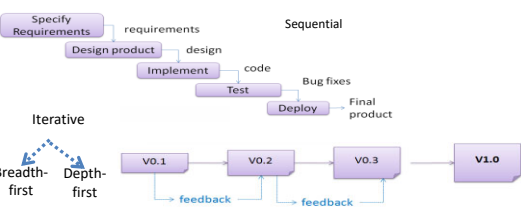
Test cases

- Made up as you go → Exploratory testing
- Predetermined → Scripted testing
- Can be created in these ways:
 - Black-box, Glass-box, Grey-box

- Other V&V techniques:**
- formal verification
 - static analyzers
 - code reviews
 - ...

After modifications...
Regression testing

PROJECT MANAGEMENT

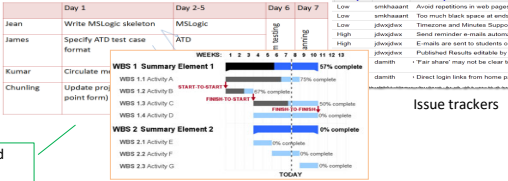


Unified process
Agile processes
XP
Scrum

CMMI

Work-breakdown structures
WBS1: Requirements
WBS2: Use cases
WBS3: ...
WBS4: ...
WBS5: ...
WBS6: ...
WBS7: ...
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WBS100: ...

Project plans



Issue trackers

Team structures

