Object Oriented Analysis & Design (OOAD)

Case Studies, Inception Phase & Evolutionary Requirements

Chapter 3

Case Studies

Point of Sale (POS)

- records sales, handles payments and returns, etc
- input devices: computers, barcode reader, fancy client terminals (Home Depot), PDA (Personal Digital Assitant)?
- external interfaces: tax calculator
- susceptible to communication failure like not access to credit card database
- individualized client logic (if you want to sell to many businesses)

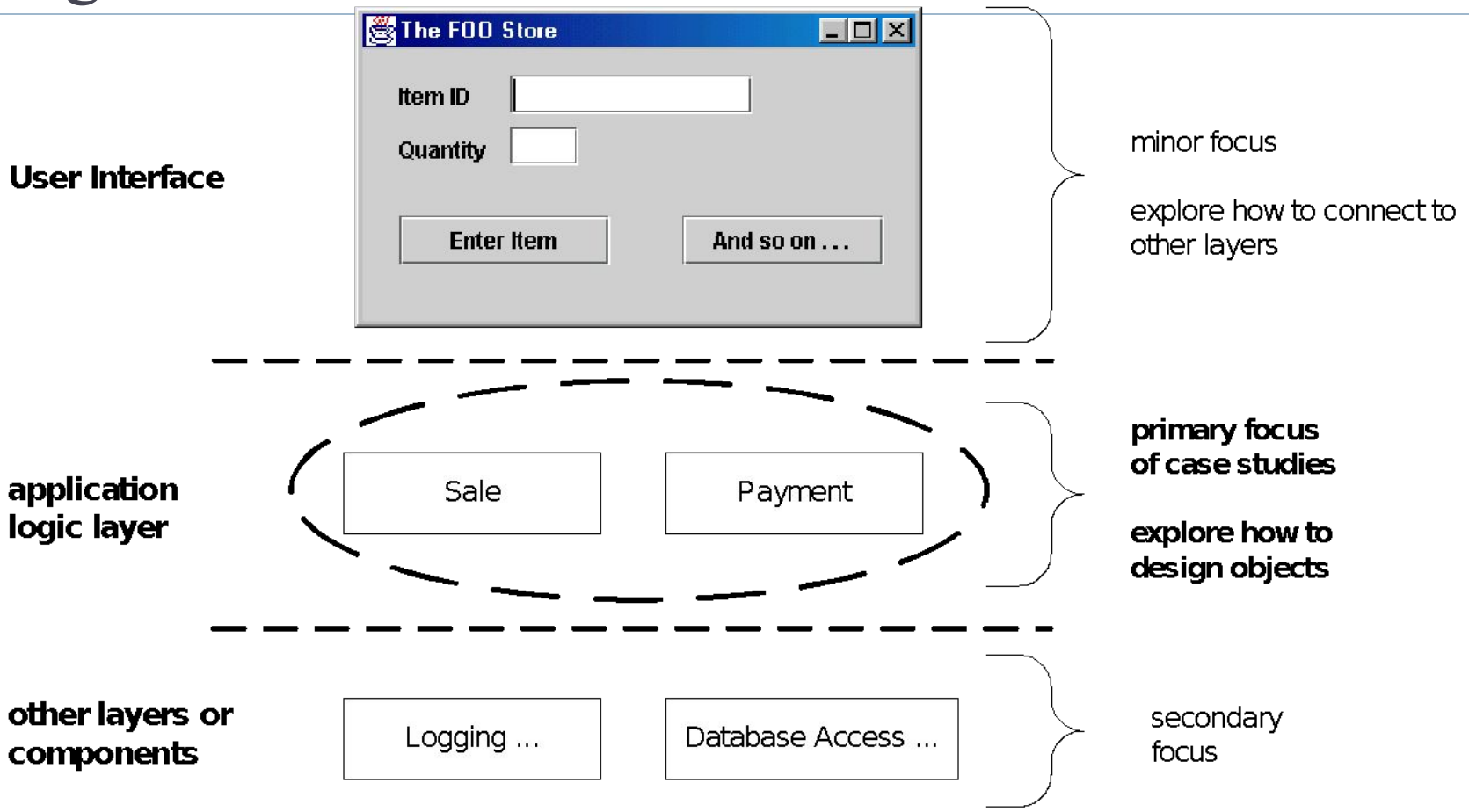
Monopoly

- domain modeling, object design and patterns
- run as a simulation; very little “player” interaction

Example 1: Point of Sale (POS)

- Focus on core logic, not GUI.
  - other layers are technology dependent
  - core is similar across technologies
  - skills learned are applicable everywhere
  - design patterns of other layers not constant

Fig. 3.1


The FOO Store
Item ID
Quantity
Enter Item
And so on . . .
User Interface
minor focus
explore how to connect to other layers
application logic layer
Sale
Payment
primary focus of case studies
explore how to design objects
other layers or components
Logging ...
Database Access ...
secondary focus

Iteration as a tool and environment

- In Iteration 1 only certain techniques used so only these are introduced at this time
- In Iteration 2, we look at more UML tools, etc

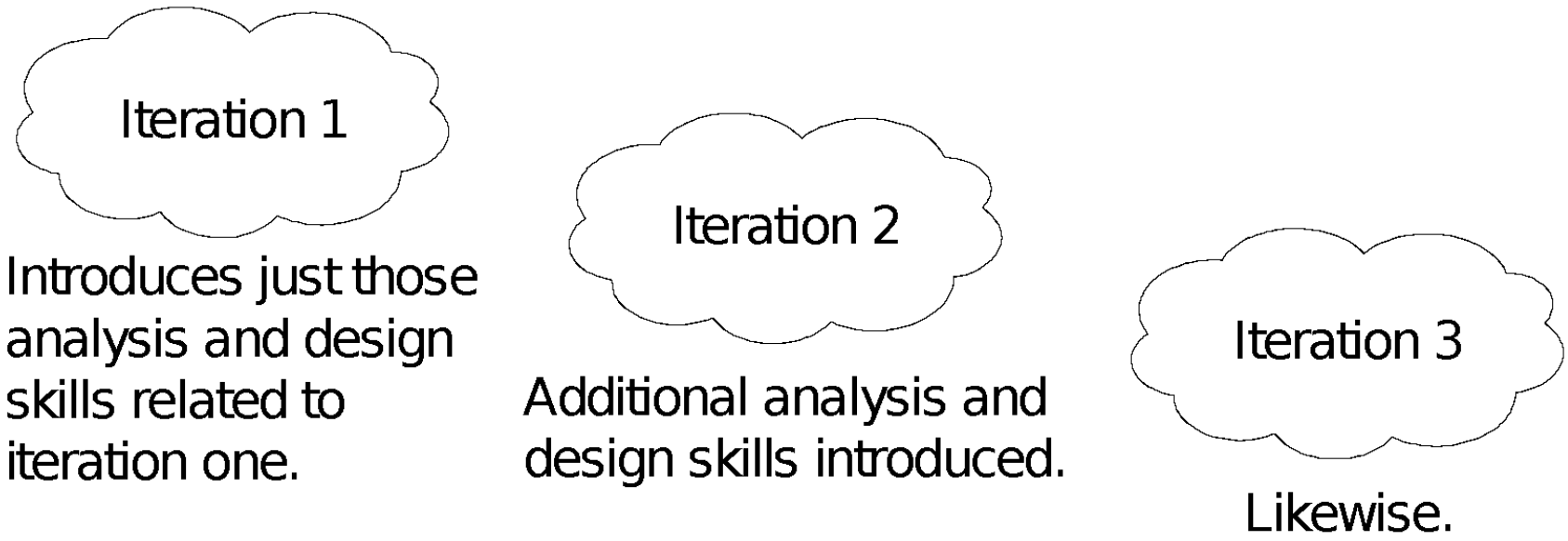


Fig. 3.2

Chapter 4

Inception Phase

Inception is NOT Requirements:

- Inception is a short, initial stage. Its purpose is a common vision and scope measurement.
- needed to do:
  - analyze 10% of use cases
  - analyze critical non-functional requirements
  - create a business case
  - prepare development environment

What is Inception?

- Time to explore:
  - Why are we doing this? Does it make business sense?
  - Is it feasible?
  - Should we build or buy?
  - O(cost)?
  - Should we go forward or stop now?

NOTE: UP is not "waterfall". This first stage is not intended to gather all requirements. We do most of our requirements analysis in the next phase – Elaboration.

- Keep it brief.

Inception Artifacts:

Artifact	Comment
Vision and Business Case	High-level goals, executive summary
Use-Case Model	Name all, detail 10%
Supplementary Spec	Other specs; non-functional
Glossary	Somewhere on the wiki
Risk List	What are the risks?
Prototypes	validation
Iteration Plan	Just the 1st elaboration iteration
Phase plan	O(elaboration phase duration)
Development Case	UP steps we'll follow

You Don't Understand When:

- it takes more than a few weeks
- becomes an attempt to define most requirements
- estimates are expected to be reliable
- you "define the architecture"
- you are thinking sequentially
- there is no business case or vision
- all use cases are written in detail
- none of the use cases are written in detail

Chapter 5-6

Evolutionary Requirements & Use Cases

Requirements

- These are the **capabilities** and **conditions** that the system or broadly the project and the product must provide and meet.
- Managing requirements is a best practice for project managers.
- Requirement issues are the leading cause of project failure. Even if you do a perfect job of building the wrong thing, its no good!

Managing Requirements

- Customer/User requirements are frequently unclear and change over time. Frequently new requirements are discovered as part of the development process.

- There must be a "systematic approach to finding, documenting, organizing, and tracking the changing requirements of a system." (RUP)

UP FURPS+ Requirement Model

- **F**unctional (features, capabilities, security)
- **U**sability (human factors, help, documents)
- **R**eliability (failures, recovery, predictable)
- **P**erformance (response, throughput, etc)
- **S**upportability (maintainability, configuration)
- **+** ancillary and sub-factors (next slide)

Ancillary and sub-factors

- Implementation (includes limitations e.g. resource, language, tools, hardware etc)
- Interface (Constraints for interfacing external systems)
- Operations (Configurations, System management)
- Packaging (e.g. a physical box)
- Legal Requirements (Licensing etc.)