

MicroChaos

- ❖ A booming startup business
 - SW Product: *MicroButterfly*
 - when small, everyone does a little of everything
 - ◆ answering the phone
 - ◆ processing orders
 - ◆ customer service & support
 - ◆ writing the software
- ❖ Now its big! How to organize the business?

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Business Processes

<i>Business Analogy</i>	<i>Object-oriented Analysis & Design</i>	<i>Associated Documents</i>
What are the business processes?	Requirements Analysis	Use Cases

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Use Cases

- ❖ Developed by Ivar Jacobsen (OOSE)
 - not a part of the O-O paradigm
- ❖ Describes an interaction between system and user.
 - Usually involves a detailed narrative (textual description)
- ❖ Graphically depicted as Actors and Entities
 - stick figures & ovals

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Use Case Diagram

- ❖ Use Case: Place An Order
- ❖ Description:
 - This use case begins when the customer calls a sales representative to purchase MicroButterfly. The sales representative records the customer and product information in a new order.




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O-O Domain Analysis

- ❖ What roles do the actors play in the organization?
 - Customer, Sales Rep., SW Eng'r, etc.
- ❖ A “Conceptual Model” emerges
 - contains actors and other objects in the domain
 - illustrates the interaction between objects
 - usually detailed in *design class diagrams* and *collaboration diagrams*

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How do things work together?



- ❖ Decide *who* is responsible for *what*
 - *Responsibility Assignment*
- ❖ How will the entities work together?
 - *Collaboration diagrams*
- ❖ How will entities be represented?
 - *Design Class diagrams*


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OOA Diagrams

Business Analogy	Object-oriented Analysis & Design	Associated Documents
What are the business processes?	Requirements Analysis	Use Cases
What are the employee roles?	Domain Analysis	Conceptual Model
Who is responsible for what?	Responsibility Assignment	Design Class & Collaboration diagrams

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Example of OOA/D



- ❖ “Roll Seven” dice game
 - Player rolls two dice. If total is 7 they win. Otherwise, they lose !
- ❖ Steps:

Define use cases

Define conceptual model

Define collaboration diagrams

Define design class diagrams

Interaction diagrams

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Use Cases

❖ *Play a Game* use case:

Define use cases

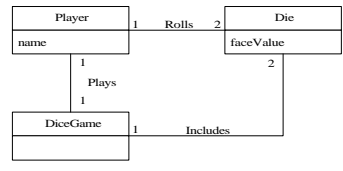
Define conceptual model

Define collaboration diagrams

Define design class diagrams

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Use Cases Conceptual Model



Define use cases

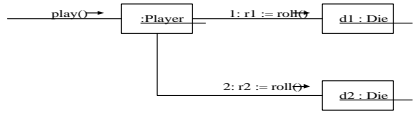
Define conceptual model

Define collaboration diagrams

Define design class diagrams

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Use Cases Conceptual Model Interaction Diagrams



Define use cases

Define conceptual model

Define collaboration diagrams

Define design class diagrams

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Use Cases Conceptual Model Interaction Diagrams



Define use cases

Define conceptual model

Define collaboration diagrams

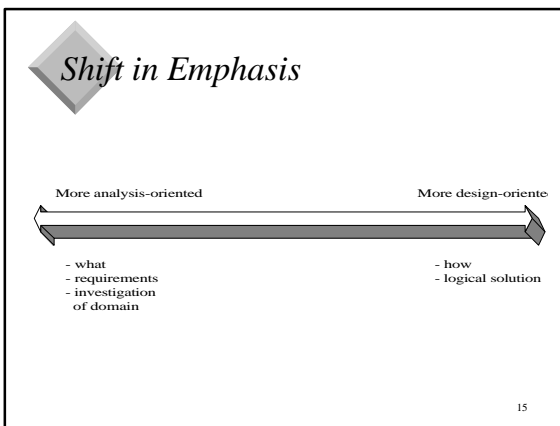
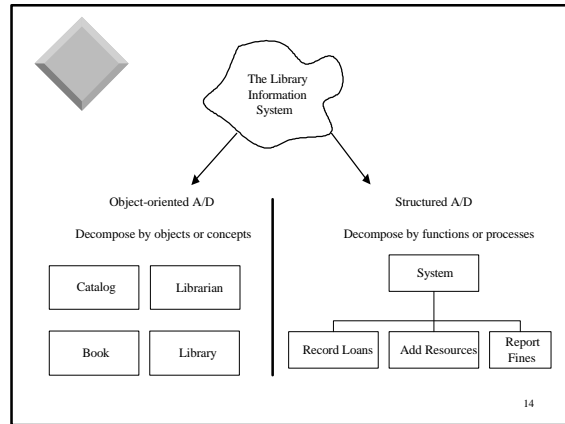
Define design class diagrams

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Object-oriented vs. Structured

- ❖ Structured Programming
- ❖ Structured Design
- ❖ Structured Analysis
- ❖ Object-oriented Programming
- ❖ Object-oriented Design
- ❖ Object-oriented Analysis

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Unified Modeling Language

- ❖ Merges several competing languages
 - Booch notation (Grady Booch)
 - OMT (Jim Rumbaugh)
 - OOSE (Ivar Jacobsen)
- ❖ Standardized by the OMG in 1997
- ❖ Standardization means general acceptance
 - and a fairly long lifetime

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