Software Development Methodology

- Software development methodology is a framework that is used to build software application or information system
- Examples of methodologies:

✓ Structured

✓ Object-oriented

Structured Methods

- System is viewed as a collection of processes
- Sequential process
- Divide and conquer approach
- Structured programming

Object-oriented methods

- System is viewed as a collection of *objects*
- Focuses on the objects of a problem throughout SDLC

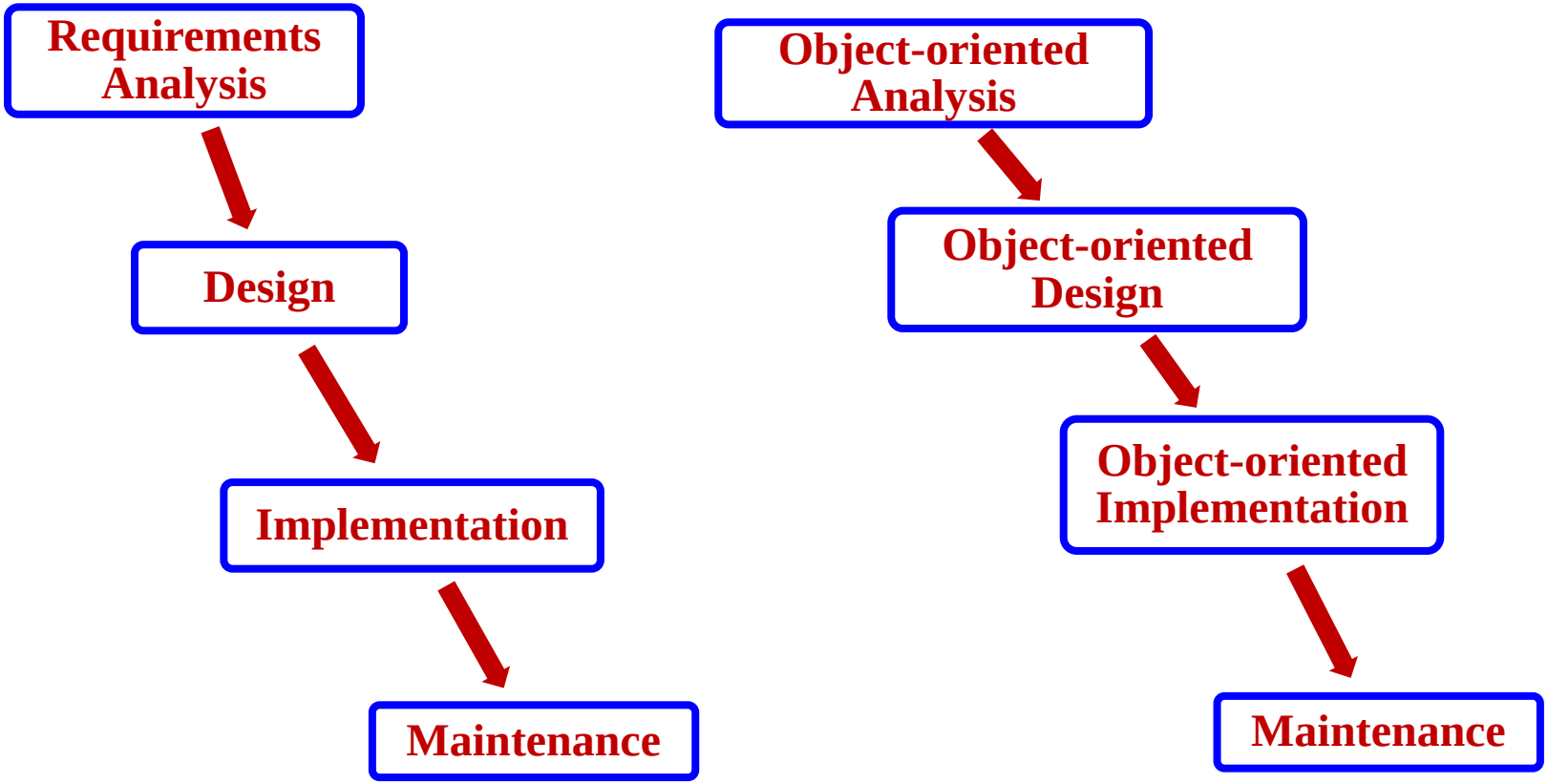
✓ Object-oriented analysis

✓ Object-oriented design

✓ Object-oriented programming

- Emphasize on reusable, extendible, robust ,reliable, understandable and modifiable

Object-oriented and Structured SDLC



Structured and Object-oriented Analysis Tools

- Data Flow Diagram
- Entity Relationship Diagram
- Decision Tree
- Data Dictionary
- Decision Table
- Pseudo code
- Class Diagram
- State Diagram
- Activity Diagram
- Use Case Diagram
- Sequence Diagram
- Collaboration Diagram

Structured Vs Object-oriented analysis

- Banking System
✓ Withdraw
✓ Deposit
✓ Fund transfer

- Library Management System
✓ Borrow book
✓ Return book

- Banking System
✓ Customer
✓ Account
✓ Cashier

- Library Management System
✓ Book
✓ Librarian
✓ User

Structured Vs Object-oriented approach

- The main focus is on process
- It is suitable for well-define stable requirements
- This approach is not preferred usually

- The main focus is on objects
- It is suitable for system with changing user requirements
- This approach is mostly preferred

Structured Vs Object-oriented approach (cont.)

- Top-down approach
- Non iterative
- Low reusability
- High risk

- Bottom-up approach
- Highly iterative
- High reusability
- Low risk

Why an OOAD over structured approach?

- Better model the problem domain than structured approach.
- Easier to adapt to changing requirements
- Easier to maintain
- More robust
- Promote greater design
- Code reusability