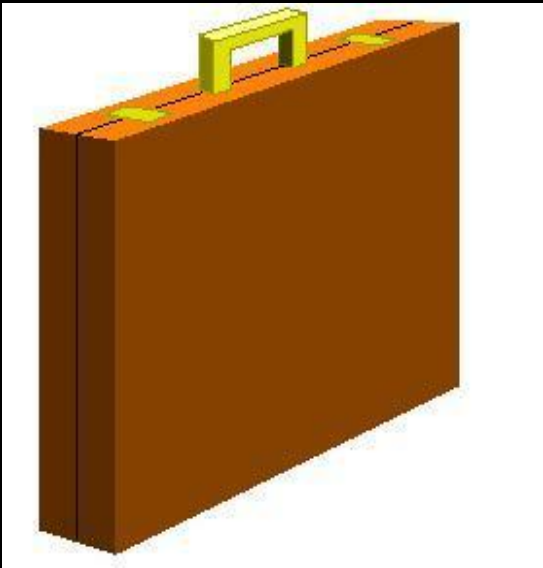# LECTURE-4

1.2 Introduction to UML

- **What is modeling?**
- **What is visual modeling ?**
- **What is the UML?**

What is modeling?

What is modeling?

❑ A model is a simplification of reality.

What is this Thing?

Abstracting →

Modeling a Briefcase

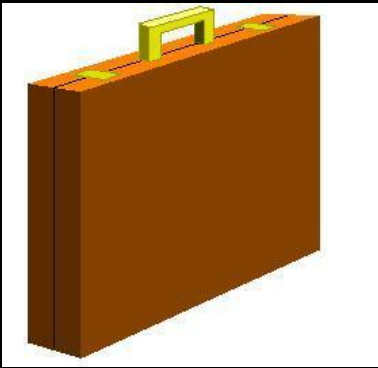| BriefCase |
| --- |
| - Capacity
- Weight |
| + open()
+ close() |

What is modeling?

❑ **A model is an abstraction of things.**

❖ Emphasizes relevant characteristics.

❖ Suppresses other characteristics.

What is this Thing?

A new Use for a Briefcase

Abstracting

BriefCase
- Capacity
- Weight
+ open()
+ close()
+ sitOnIt()

Questions:

Why did we model the thing as "Briefcase"?

Why did we not model it as a "chair"?

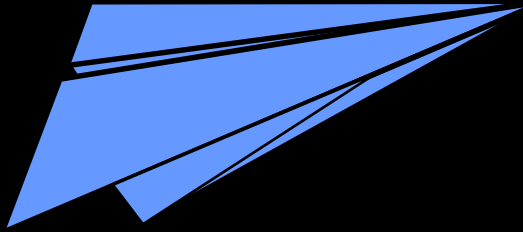What do we do if the **sitOnIt()** operation is the most frequently used operation?

The briefcase is only used for sitting on it. It is never opened nor closed.

Is it a "Chair"or a "Briefcase"?

The Importance of Modeling

Less Important

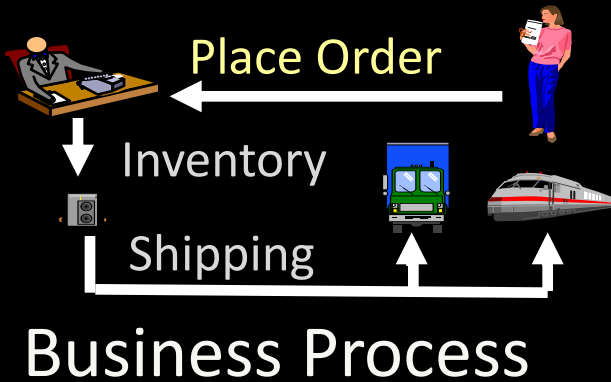More Important

Paper Airplane

F-16 Fighter Jet

Why Do We Model?

- We build models to better understand the system we are developing.

- Modeling achieves four aims. Modeling
  - Helps us to visualize a system as we want it to be.
  - Permits us to specify the structure or behavior of a system.
  - Gives us a template that guides us in constructing a system.
  - Documents the decisions we have made.

- We build models of complex systems because we cannot comprehend such a system in its entirety.
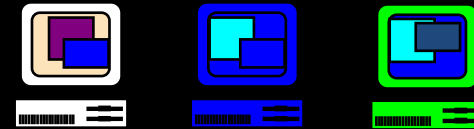
What is visual modeling?

What Is Visual Modeling?

Place Order

Inventory

Shipping

Business Process

"Modeling captures essential parts of the system."
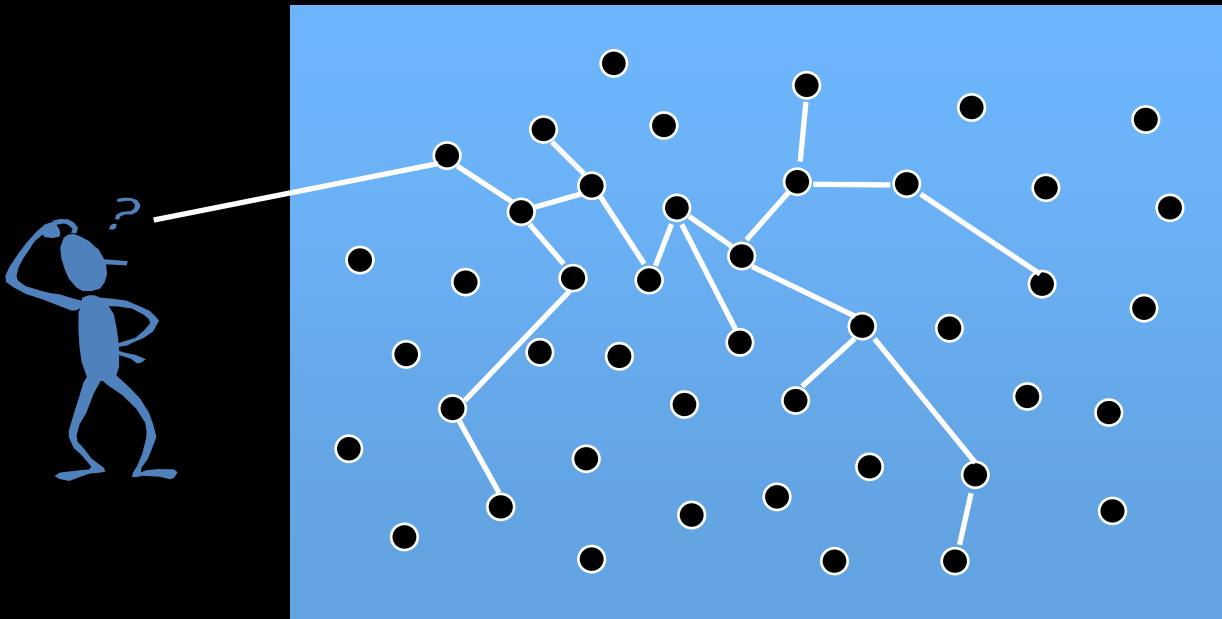Dr. James Rumbaugh

Visual Modeling is modeling using standard graphical notations
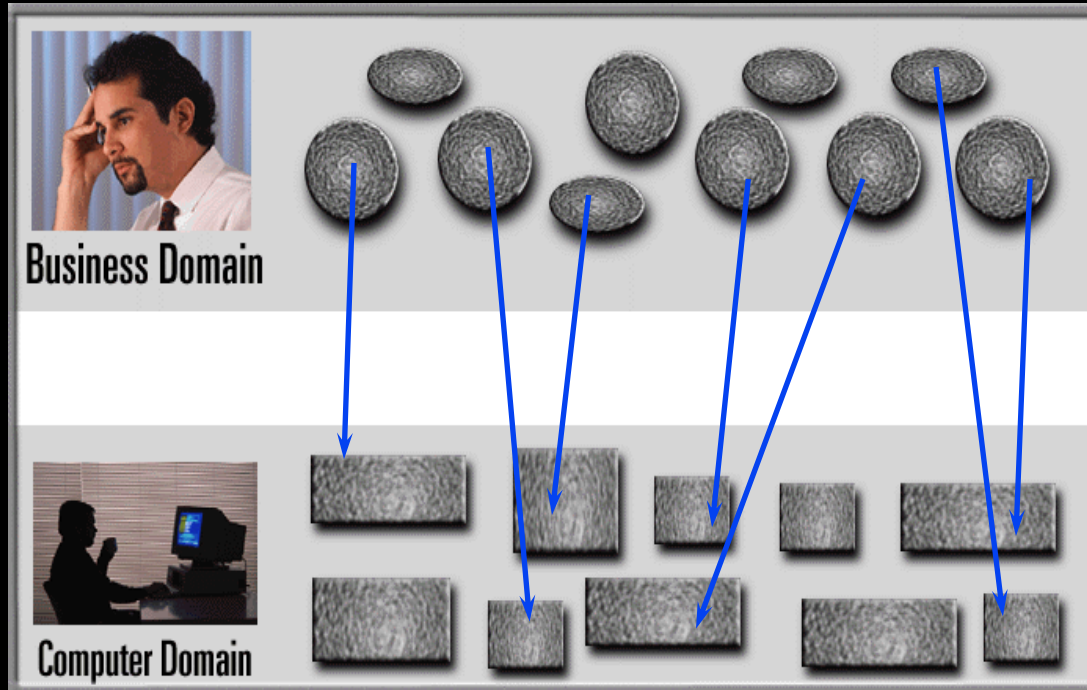
Computer System

Visual Modeling Captures Business Processes

Use-case analysis is a technique to capture business processes from a user's perspective.
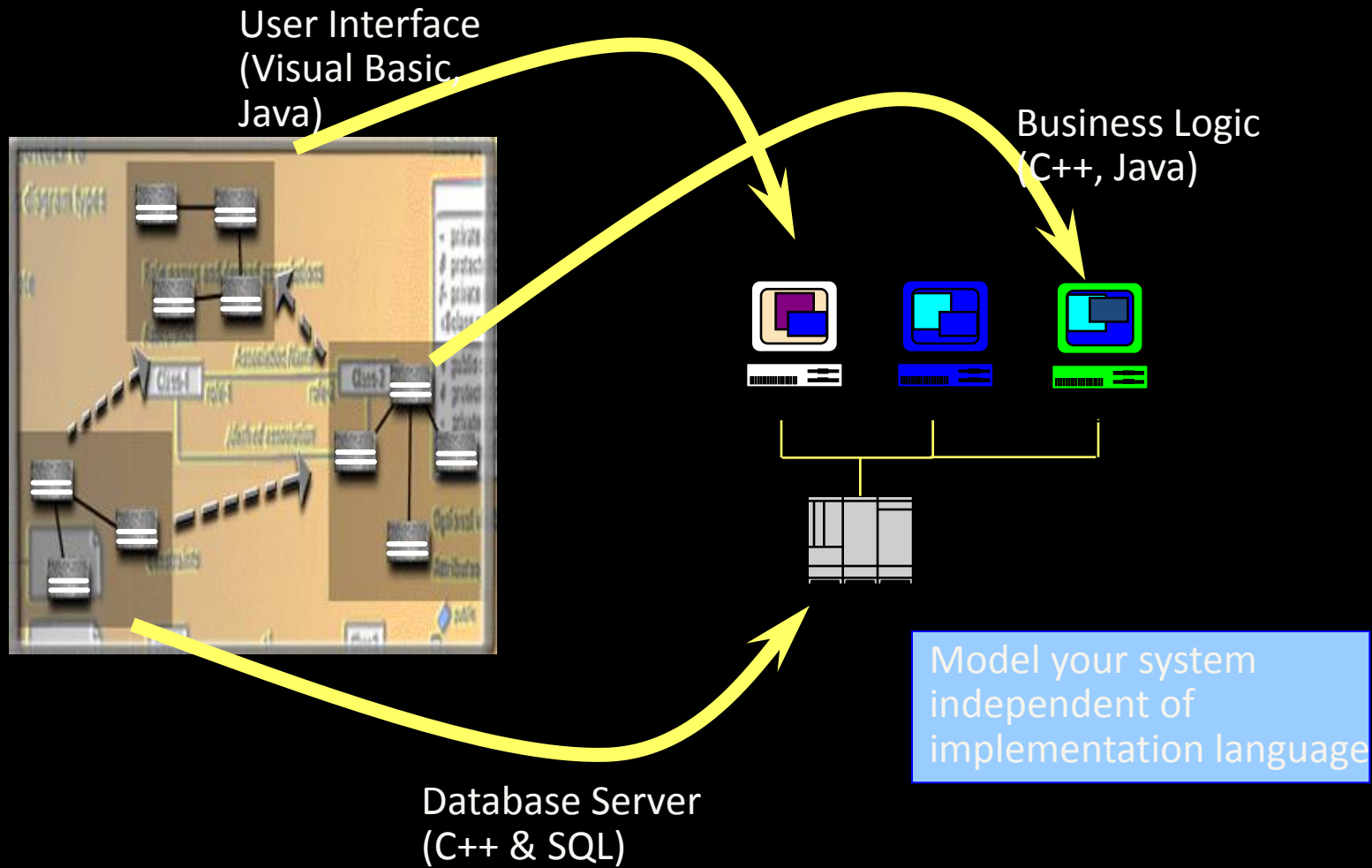
Visual Modeling is a Communication Tool

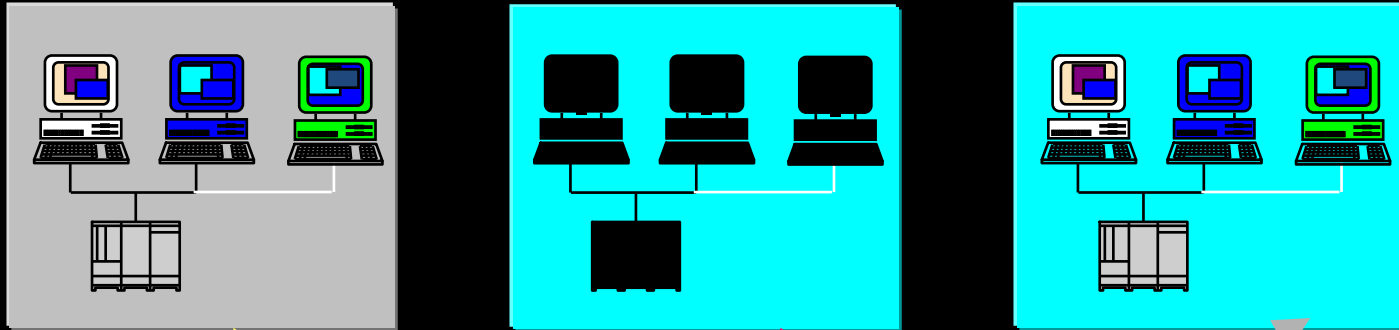Use visual modeling to capture business objects and logic.

Use visual modeling to analyze and design your application.

Visual Modeling Manages Complexity

Visual Modeling and Software Architecture

User Interface
(Visual Basic,
Java)

Business Logic
(C++, Java)

Model your system
independent of
implementation language

Database Server
(C++ & SQL)

Visual Modeling Promotes Reuse

Multiple Systems

Reusable
Components