System Development Process

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Outlines

- Introduction
- Iterative process VS waterfall
- UML
- System analysis
- System design

Introduction

- **Why do we need a system development process?**
  - **Dog house VS high-rise building**
  - **Development time and cost**
  - **Maintenance**

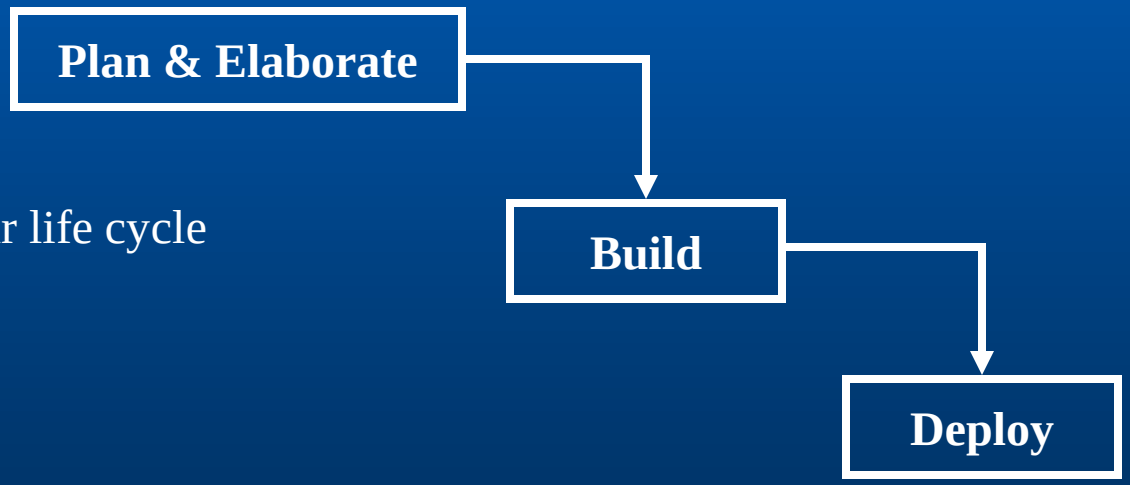
How do you program?

Introduction

- **What process do we need?**
  - **Unified process, recommended process and models**
  - **Incremental and iterative process**
  - **UML**

Iterative Process VS Waterfall

- **Waterfall**



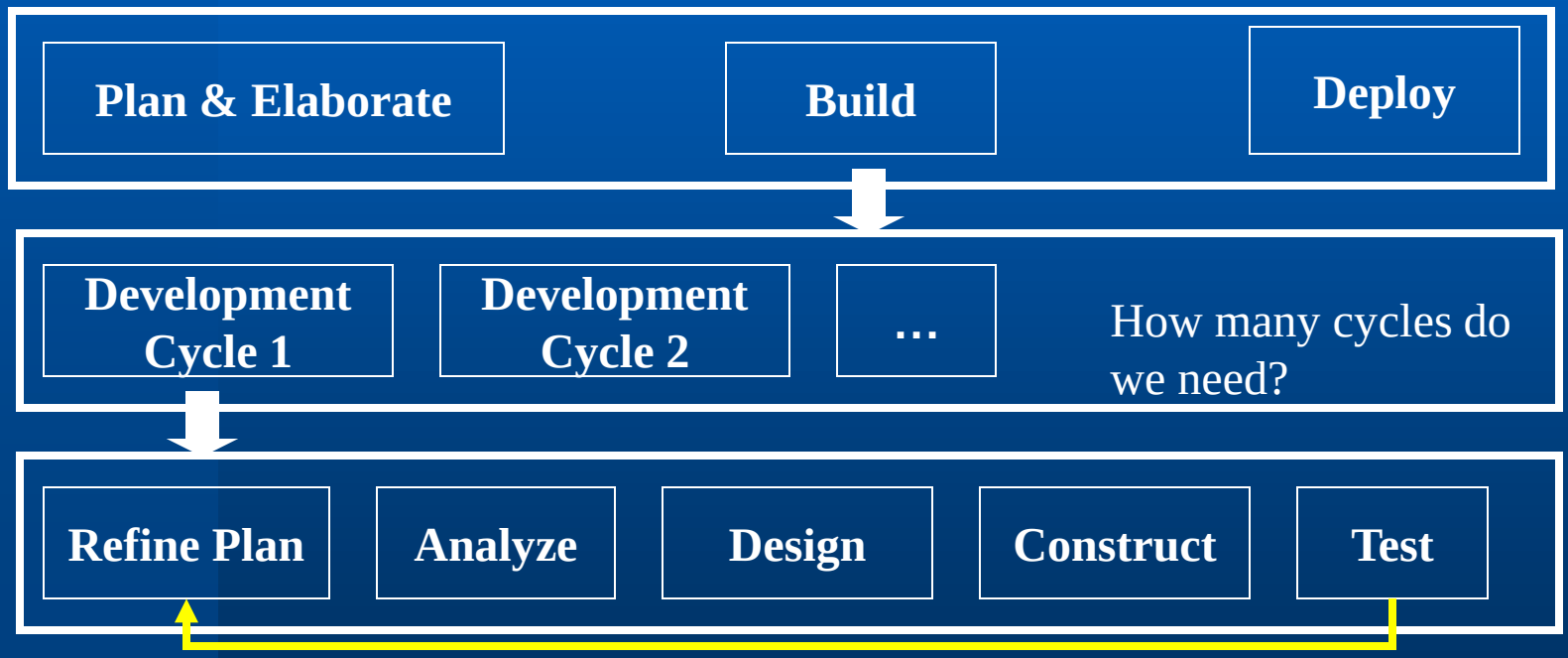
Sequential, linear life cycle

Iterative Process VS Waterfall

- **Problems in waterfall:**
  - **Delayed risk, tackling high risk/difficult problems late**
  - **Requirements and design speculation and inflexibility**
  - **High complexity**
  - **Low adaptability**

Iterative Process VS Waterfall

- **Recommended process and models**

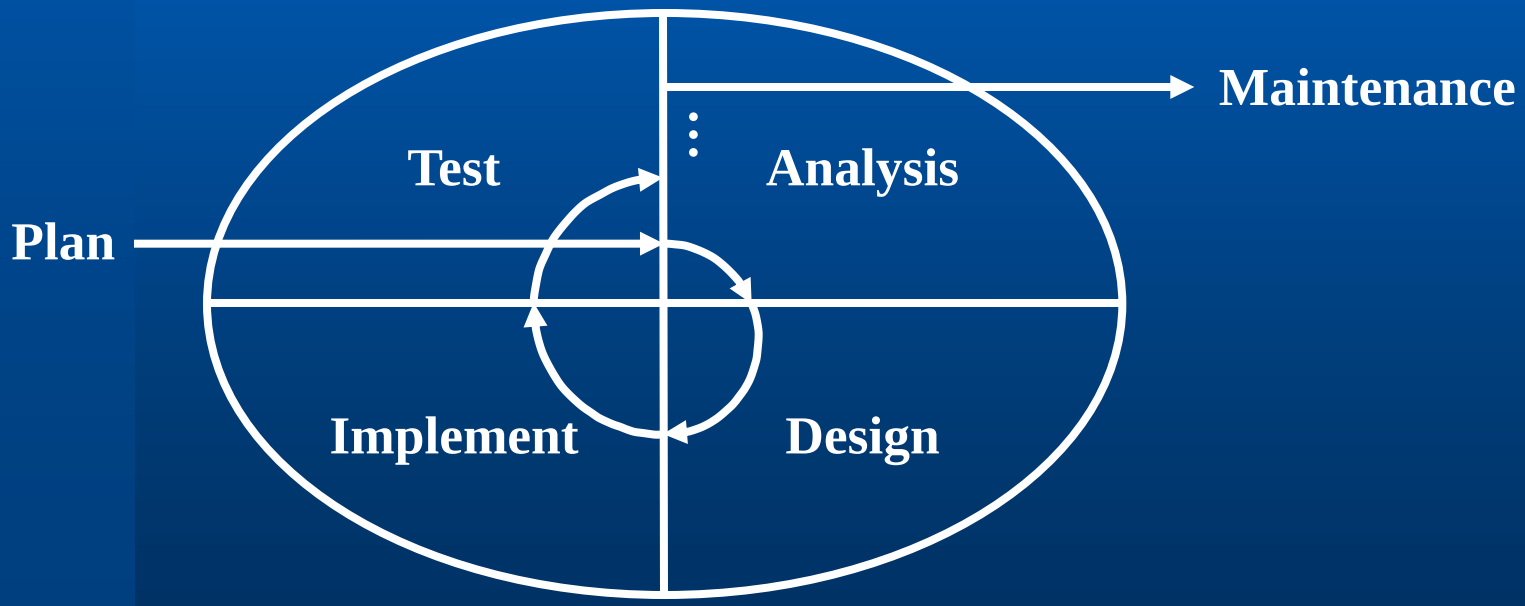


How long does it take?

When do we use this concept? EX: Thesis.

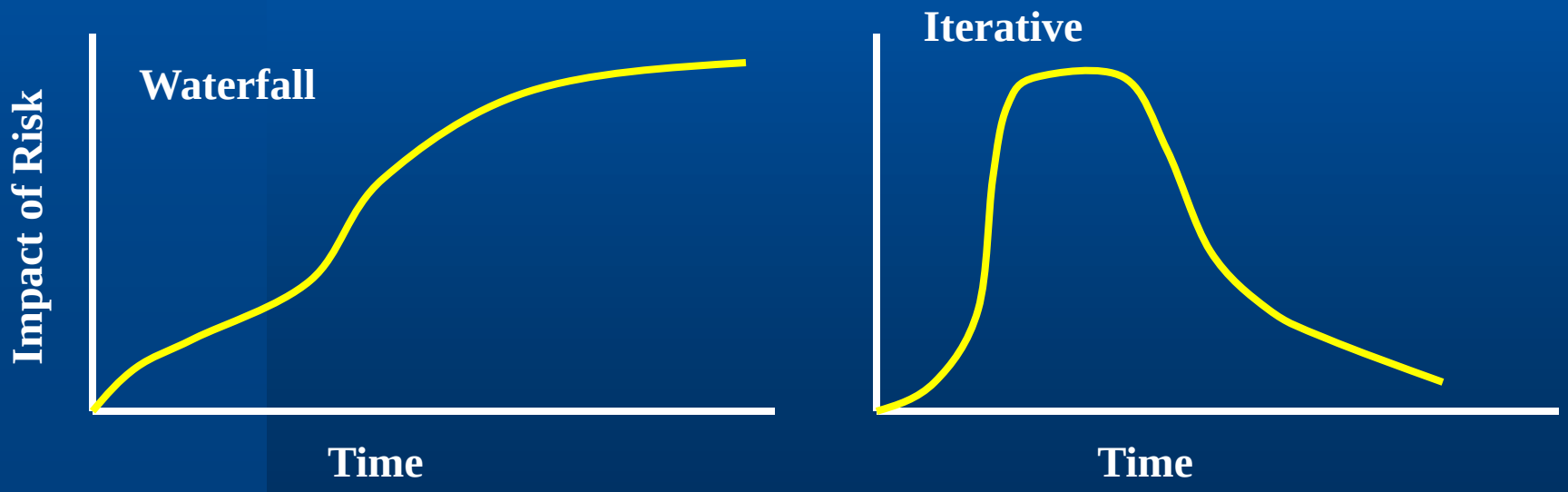
Iterative Process VS Waterfall

- **Iterative process**



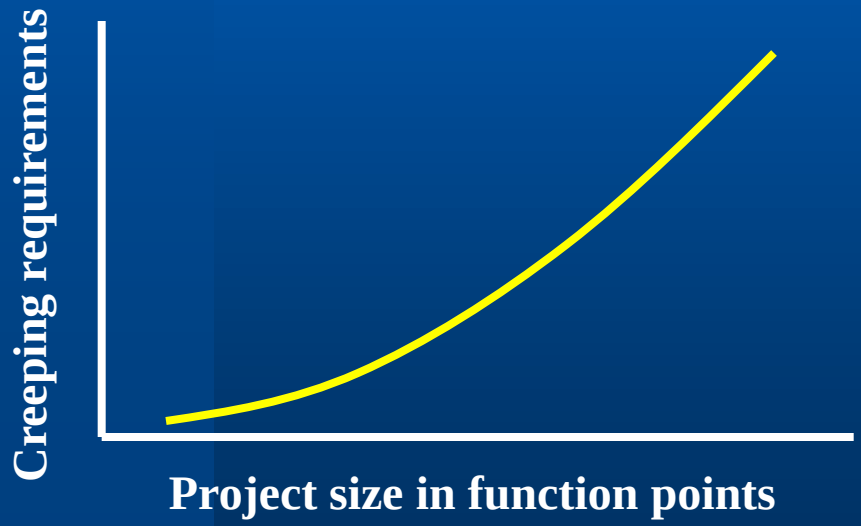
Iterative Process VS Waterfall

- **Mitigate problems in waterfall:**
  - **Delayed risk**



Iterative Process VS Waterfall

- **Risk problems in waterfall:**
  - **Speculation and inflexibility**



1.Cannot envision until seeing systems
2. Market changes
3. Correctly validate is a challenge

Unified Modeling Language

- **What is UML?**
  - **OMG: “The UML is a language for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modeling and other non-software systems”**
  - **1994: Grady Booch, Jim Rumbaugh, Ivar Jacobson**

Unified Modeling Language

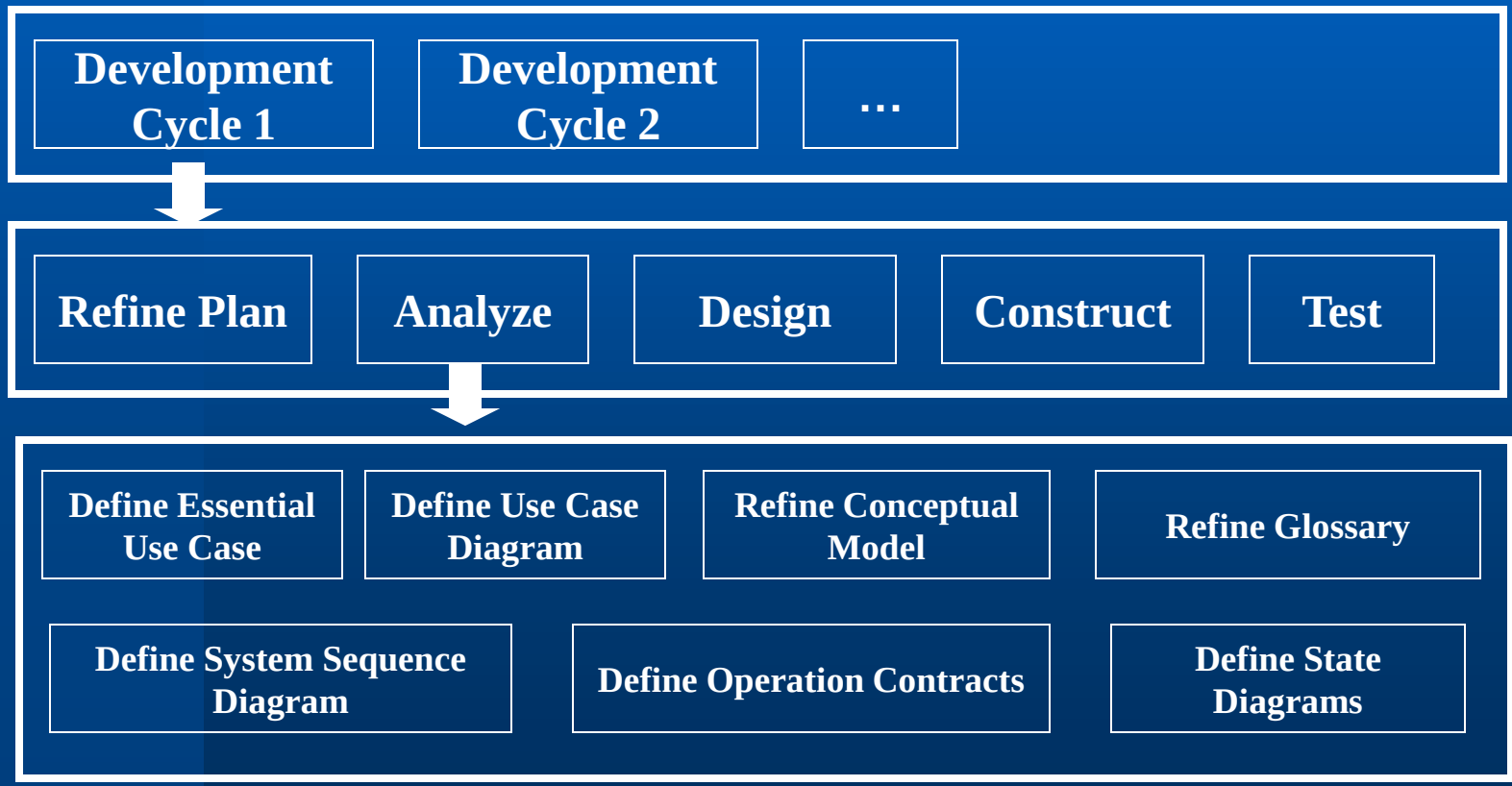
- **Why UML?**
  - **1997: adopted as a standard by OMG**
  - **Visualization**
  - **A set of Solutions**
    - **Class Diagram**
    - **Collaboration Diagram**
    - **Package Diagram**
    - **State Diagram**
    - **Activity Diagram**
    - **Deploy Diagram**
    - **Use Case Diagram**

System Analysis

- **What is analysis?**
  - **An investigation of a domain that results in models describing its static and dynamic characteristics. It emphasizes questions of "what," rather then "how."**
  - **It emphasizes an investigation of problem and requirements, rather then a solution.**
  - **Requirement Analysis!**

System Analysis

- **Activities in Analysis**



System Design

- **What is system design?**
  - **A process that uses the products of analysis to produce a specification for implementing a system.**
  - **A logical description of how a system works.**

System Design

- **System Design Activities**