Overview of Software Engineering

Prof. Eunseok Lee

Department of Computer Engineering,
Sungkyunkwan Univ.
leees@skku.edu
Contents

> Getting Started
> System Development Life Cycle
> Software Development Processes
  - waterfall model
  - evolutionary model
  - incremental model
  - agile model
    - XP(eXtreme Programming)
    - SCRUM
Some Facts or Myths Related with SW Project

- SW project success is rare
- SW system will be stable with time
- 90-90 rule
- Four crucial factors
Architectural Engineering

Getting Started (2/2)

- Supervision
- Construction
- Requirement Analysis
- Maintenance
- Design

Images of a building construction timeline:
- NOV 2006
- MAY 2007
- MARCH 2008
Generic System Development Life Cycle

System Development Life Cycle (1/2)

- Requirements definition
- System design
- Sub-system development
- System integration
- System installation
- System evolution
- System decommissioning

SOFTWARE ENGINEERING LABORATORY

SUNGKYO Kwan UNIVERSITY
System Design Process

Partition Requirements

Identify Sub-systems

Assign requirements to sub-systems

Specify sub-system Functionality

Define sub-system Interfaces
Waterfall Model

Software Development Processes (1/4)
Incremental Model

Software Development Processes (3/4)

1. Define Outline Requirements
2. Assign Requirements to Increments
3. Design System Architecture
4. Develop System Increment
5. Validate Increment
6. Integrate Increment
7. Validate System
8. Final System
- Incremental development is supported through small, frequent system releases.
- Process through pair programming, collective ownership and a process that avoids long working hours.
- Change supported through regular system releases.
- Maintaining simplicity through constant refactoring of code.
Agile Model - eXtreme Programming (2/2)

Task 1: Implement principal workflow

First, identify the tasks and then analyze whether they can be the story cards.

Afterwards, place them onto the task board.

You can also tell the development schedule.

If there is no specific schedule, so it will be delayed.
Agile Model - SCRUM

Software Development Processes (4/4)
Agile Model - SCRUM

Software Development Processes (4/4)
Cloud Computing from Grid Computing

A New Trend in Software Development

Cloud Environment

Virtualization

1980

Grid Computing

- 대용량의 컴퓨팅 리소스 필요로 하는 서비스를 위해 지원
- 인터넷 상의 모든 PC형 컴퓨팅 리소스 사용

1990

Cloud Computing

- 언제 어디서나, IT 자원을 서비스 형태로 제공
- SW뿐만 아니라, 모든 IT 자원을 서비스 형태로 제공
- 기술적으로는 클라이언트를 이용한 분산 컴퓨팅을, 파급 형태로는 유탈리 컴퓨팅을 채택
Q & A