Software Development Life Cycle Models
Waterfall

CS 2720

Lecture 1.3

What is a life cycle model?

A software development life cycle model (or software process model, software development process, etc.) is "... a set of related activities that leads to the production of a software system." (Sommerville, Chapter 2).

Two Process Families

We will separate processes into two loosely-defined categories: *plan-driven* and *change-driven*.

The Waterfall Model (Royce, 1970)

A mainly-sequential model which emphasizes planning before implementation. The "original" version from Royce includes the stages:

1. System requirements
2. Software requirements
3. Analysis
4. Program design
5. Coding
6. Testing
7. Operations

Documentation in Waterfall

Each waterfall stage takes documents as input and produces new documents as output. Common inputs and outputs can be seen in MIL-STD-498. A few examples from this are ...

Inputs and Outputs in Waterfall

1. System requirements: system/subsystem specification (SSS), interface requirements specification (IRS)
2. Software requirements: software requirement specification (SRS)
3. Analysis: System/subsystem design description (SSDD), interface design description (IDD)
4. Program design: software design description (SDD)
5. Coding: software product specification (SPS), software version description (SVD)
6. Testing: software test plan (STP), software test report (STR)
7. Operations: software installation plan (SIP), software user manual (SUM)

Pros and Cons with Waterfall

What good and bad aspects can you think of for the waterfall process model?