

Project Management

Introduction to Project Management and the Software Development Lifecycle

Week 1 Winter quarter

1/7/02 SOS

Course

- 1 meeting times
- text
- assumptions - to assist in projects that you are currently working on
- 2 assignments - use of web crossings post assignments
- 3 final exam
- 4

Objectives

- You will be able to:
 - Define what is a project
 - Understand the software development life cycle
 - Define the phases of the software development lifecycle
 - Define project management
 - Explain the responsibilities of a project manager

Project

- What is a project?

Project

A project is:

- a sequence of unique, complex and connected activities
- having one goal
- that must be completed by a specific time,
- within a specific budget, and
- according to a specification.

Project

Project Constraints:

- Schedule
- Cost
- Quality

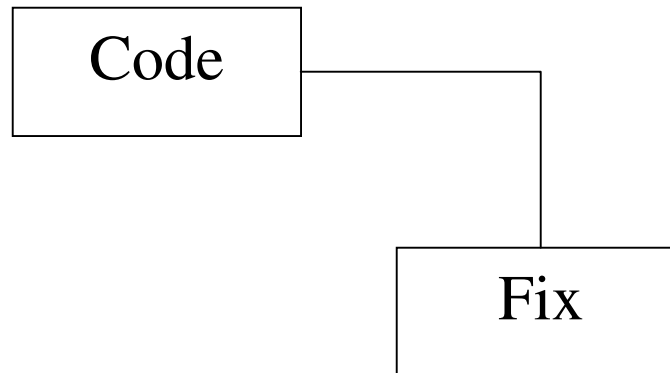
Software Development Lifecycle

The lifecycle of project proceeds through time from beginning to end.

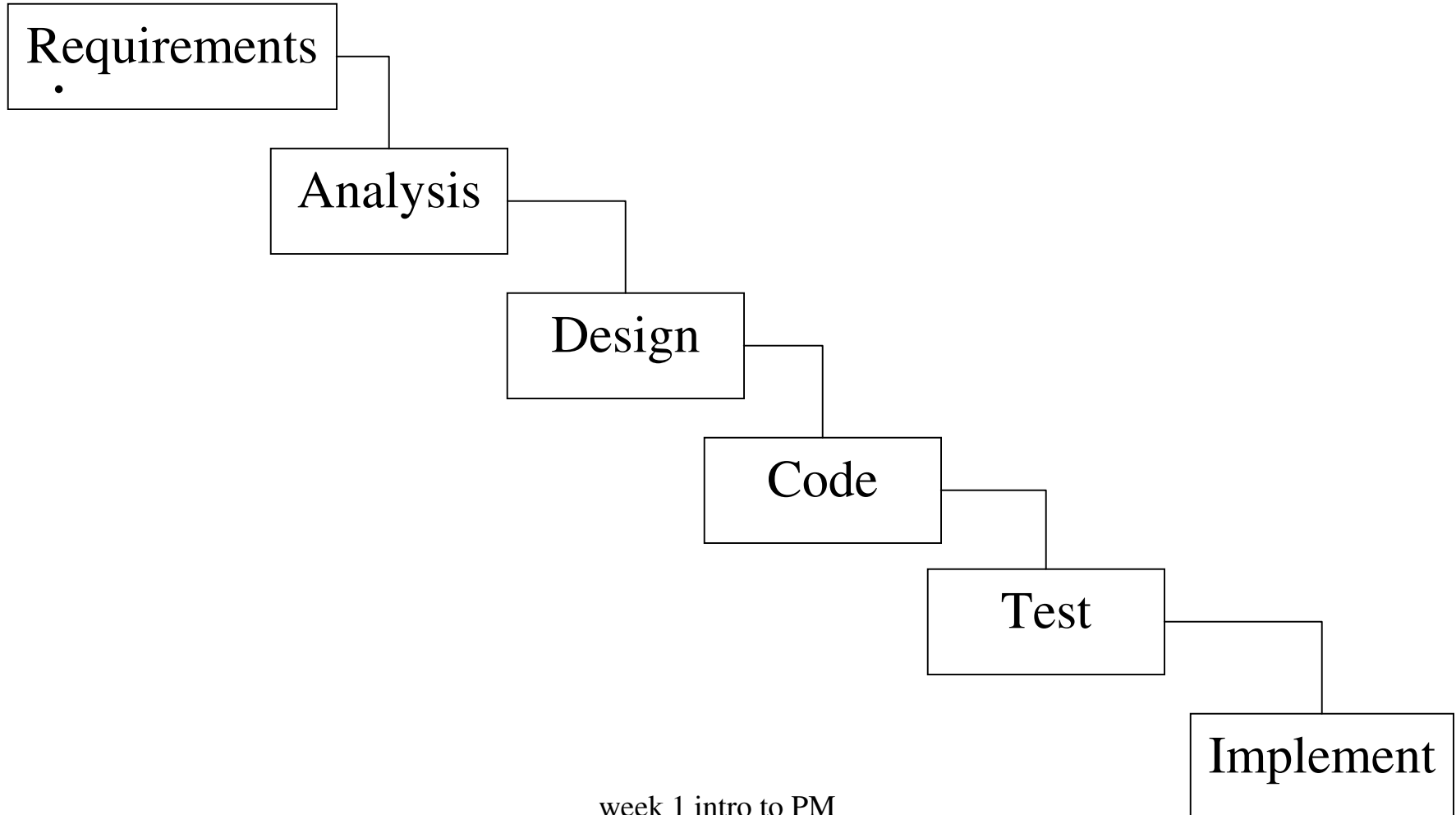
- Starts with an idea for a project
- Ends with a delivery or termination
- It is a specific set of phases and steps used to complete a project.

Lifecycle -

Used to work like this:



Waterfall Model



Problems with the Waterfall Model

- Practice found code integrated late in the lifecycle
- High percentages of time devoted to testing and bug fixing (upwards to 40%, p. 13 “Software Project Management” Walker Royce)
- Late Risk Resolution
- Requirements driven - I.e. exact and non ambiguous requirements - made it difficult to deal with change
- Process - oriented with heavy emphasis on documents versus end product itself.

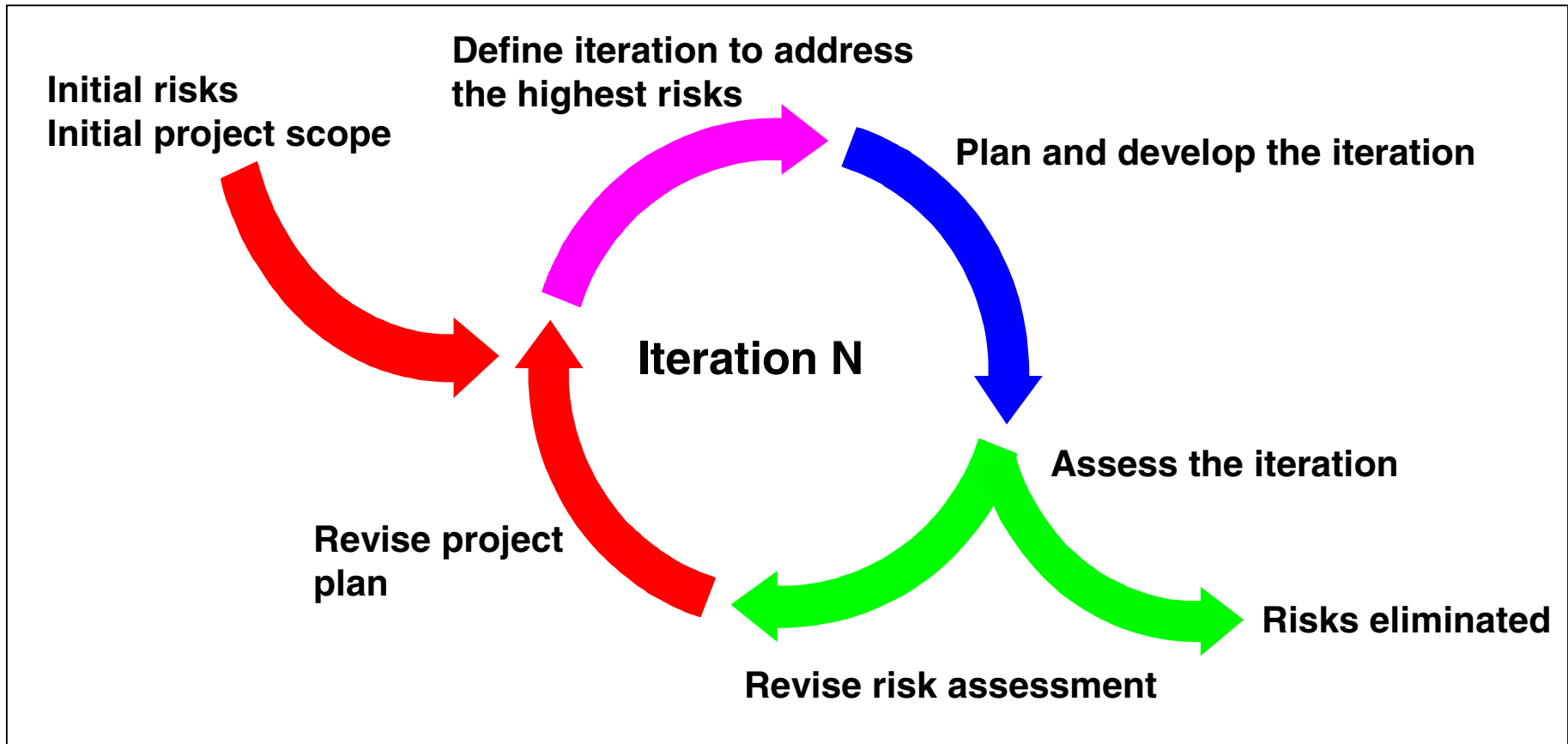
Industrial Software Metrics Top 10 List [Boehm, 1987]

- Finding and fixing a software problem after delivery costs 100 times more than in earlier design phases.
- You can compress software development schedules 25 % of nominal, but no more.
- For every \$1 you spend on development, you will spend \$ 2 on maintenance.
- Software development and maintenance costs are primarily a function of the # of lines of code.
- Variations among people account for the biggest differences in software productivity.

Industrial Software Metrics Top 10 List [Boehm, 1987]

- The overall ratio of software to hardware costs is still growing.
- Only about 15% of software development effort is devoted to programming..
- Unlike other commodities, the more software you build, the more expensive it is per source line.
- Walk-throughs catch 60% of errors..
- 80% of the contribution comes from 20 % of the contributors.

Other lifecycle models



Rapid Application Development

- Uses a prototype for analyzing and determining requirements.
- Often used for fast development cycles where time to market is a driving force and
- where product is a new concept.
- Downside is dealing with pressures to deploy the prototype.

Phases

Different approaches use different names for the same phases:

- Concept
- Requirements
- Design
- Implementation
- Integration and Test
- Maintenance

Lifecycle duration estimates - How much time in each phase?

- Requirements
- Analysis
- Coding
- Testing
- Deploying

Project Management

Is a method and a set of techniques used for planning, estimating, and controlling work activities to reach a desired end result on time, within budget and according to specifications.

Project Manager

- What does a project manager do?

Project Manager

- Initiates
 - Defines
- Plans
 - schedule, budget
- Organizes
- Controls
 - monitors, measures, communicates
- Executes

Phases

- Concept
- Requirements
- Design
- Implementation
- Integration and Test
- Maintenance

Concept

- What happens during this phase?
- What does a project manager do during this phase?

Define

- Goal
- Scope
- Criteria for Success
- Assumption
- Risk

Goal

goal \Goal\, n

- The final purpose or aim; the end to which a design tends, or which a person aims to reach or attain.
- the state of affairs that a plan is intended to achieve and that (when achieved) terminates behavior intended to achieve it.
- The purpose toward which an endeavor is directed; an objective

Scope

scope (sk p) n.

- The range of one's perceptions, thoughts, or actions.
- Breadth or opportunity to function.
- Defines boundaries of project

- * * * Scope does change – what causes scope to change?
- PM detects change and decides how to accommodate that change

Criteria for Success

cri·te·ri·a (-tîr -)

- A standard, rule, or test on which a judgment or decision can be based

suc·cess (s k-s s)n.

- The achievement of something desired, planned, or attempted

Assumption/Risk

as·sump·tion (-s mp sh n) n.

- Something taken for granted or accepted as true without proof; a supposition: a valid assumption.

risk (r sk) n.

- expose to a chance of loss or damage

Requirements

- What happens during this phase?
- What does a project manager do during this phase?

Design

- What happens during this phase?
- What does a project manager do during this phase?

Implementation

- What happens during this phase?
- What does a project manager do during this phase?

Test

- What happens during this phase?
- What does a project manager do during this phase?

Deployment

- What happens during this phase?
- What does a project manager do during this phase?

Project Managers Rules of Success

- Gain consensus
- Create a plan and keep it up to date
- Build a realistic schedule
- Remember people count
- Be willing to change
- Keep others informed

Phases

Process Components

Requirements
Analysis

Design {
 Architecture
 Level
 Class Level

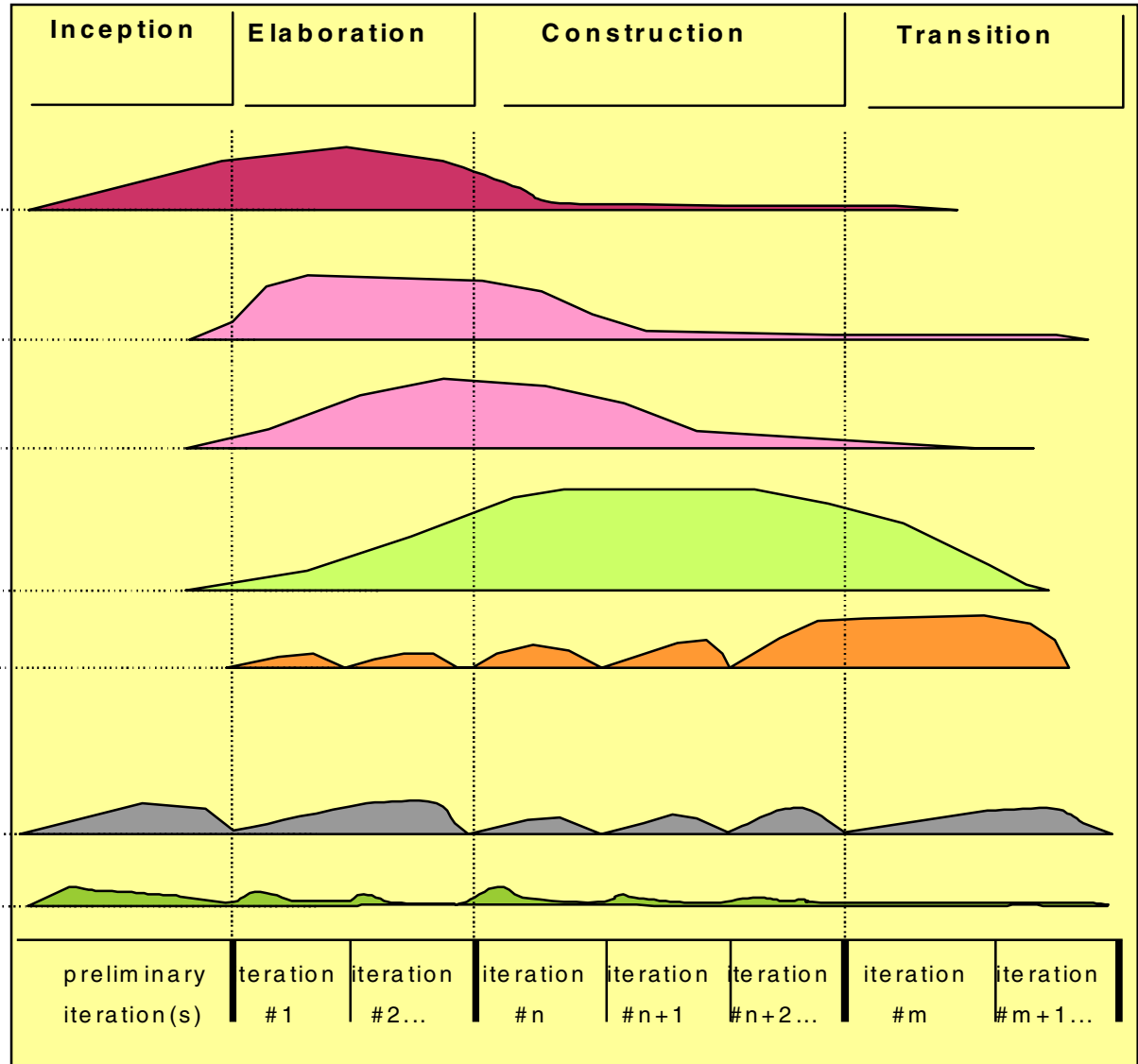
Implementation

Test

Supporting Activities

Project Management

Process Configuration



Iterations

week 1 intro to PM