# CIS 422/522

Standup Progress Report

Project Planning

Client Meetings


1

# Stand-up Meeting

- Technique used in Agile developments
  - Team meets daily
  - Meet standing up to promote efficiency
  - Provides frequent, high-bandwidth feedback
- Report on
  - What have you done?
  - What will you do next?
  - Are there any impediments to progress?
- Answer for each team (2 minutes)

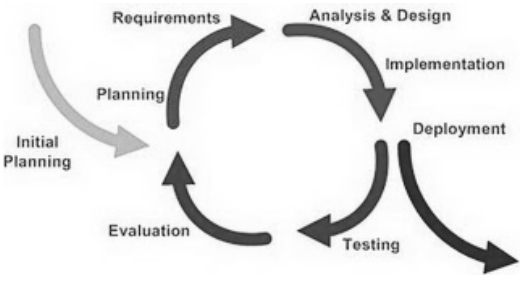
# Review: Need to Organize the Work

- Nature of a software project
  - Software development produces a set of interlocking, interdependent work products
    - E.g. Requirements -> Design -> Code -> Test
  - Implies dependencies between tasks
  - Implies dependencies between people
- Must organize the work such that:
  - Every task gets done
  - Tasks get done in the right order
  - Tasks are done by the right people
  - The product has the desired qualities
  - The end product is produced on time



# Use Iterative Process Model

- Process viewed as a sequence of iterations
- Addresses key risks
  - Have something to deliver
  - Feedback loop built in
- Each team will implement the abstract model differently



## From Process to Plan

- Process manifests itself in the project plan
  - Process definition is an abstraction
  - Many possible ways of implementing the same process
- *Project plan makes process concrete*, it assigns
  - People to roles
  - Artifacts to deliverables and milestones
  - Activities to tasks over time
- *Project plan* is itself a product of the process
  - Activity: project planning
  - Artifact: the Project Plan
  - Roles: Project Manager (owner), team members
- Evolves as the project proceeds



## Project Plan

- Purpose: specifies how project resources will be organized to:
  - Create each deliverable
  - Meet quality goals
  - Address developmental goals (e.g., mitigate risk)
- Audience: answers specific kinds of questions for specific types of users, e.g.:
  - Customers: When will the product be delivered?
  - Stakeholders: What is the development approach? How does it address project risks?
  - Managers: When will tasks be completed? What is the current progress against the plan?
  - Developers: What should I be working on and when?

# Plan Outline

- Plan contents (template)
  - Purpose and audience (who will use the document?)
  - Project background
  - Team roles and responsibilities
  - Risks and risk mitigation
    - What are the key risks? (Team should brainstorm this)
    - Which mitigation strategies will the project deploy
  - Process: development process, how its tailored, rationale
  - Mechanisms, methods, and techniques
    - What kinds of methods and tools will be used?
    - E.g., planning tools, design methods, IDEs, etc.
  - Detailed schedule and milestones
  - Resources and references



# Detailed Schedule and Milestones

- Maps people to tasks over time such that
  - Delivery meets schedule
  - Personnel are fully engaged (time is not wasted)
- Answers: “Who is working on which tasks, what is their progress, and when will they be finished?”
- Inputs
  - Set of artifacts to be created (superset of deliverables)
  - Dependencies/precedence between tasks
  - People filling roles that perform tasks
  - Time budget for each task
- Output
  - Current project schedule
  - Deadline for each task
  - Sequencing among tasks
  - Allocation of people to tasks

## Project Plan Template

- Use the template provided in your Assembla team workspace
- This should be a *living document*
  - Changed as the project progresses
  - Ideally, always gives a current view of the *progress against the plan*
    - Shows planned activities
    - Gives snapshot of the current project state
    - This is what I am looking for (or any manager)



## Project Planning Tools

Work Breakdown Structure (WBS)

PERT Chart

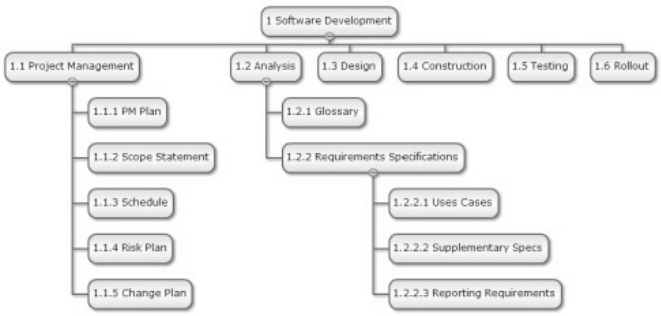
Gantt Chart

# Work Breakdown Structure

- Structured technique for decomposing work into individual tasks with the goals:
  - Identify the complete set of tasks in the project
  - Provide units of work (for individuals or teams)
  - Provide units of work for scheduling and costing
- Identify hierarchy of tasks and subtasks
  - Identify major tasks in project
  - Decomposing each element into component parts
  - Continuing to decompose until manageable work packages can be mapped to roles
- Works best when:
  - Tasks correspond to key deliverables
  - Sum of tasks is 100% of the work
  - Tasks do not overlap
  - Each leaf task takes about the same amount of time



# Work Breakdown Structure




1. Software Development
   1. Project Management
   2. Analysis
      1. Glossary
      2. Requirements Specification
         1. Use Cases
         2. Supplementary Specs…

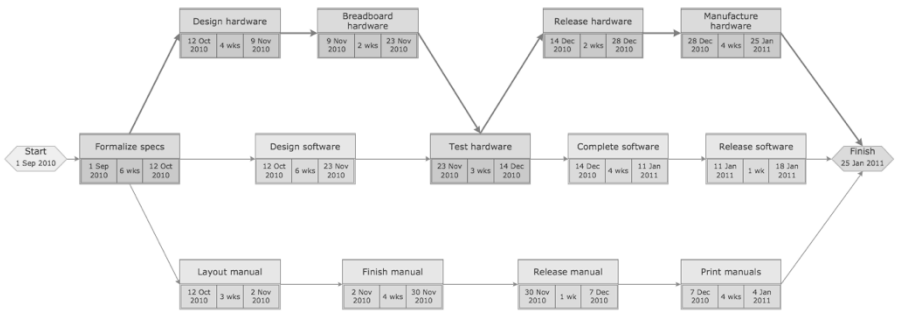
**Equivalent list format**

# Pert Chart

- Network analysis or PERT is used to identify dependencies between the tasks in the work breakdown structure
- Helps identify where ordering of tasks may cause problems because of precedence or resource constraints
  - Where task B cannot begin before task A ends
  - Where one person cannot do two tasks at the same time
  - Where adding a person can allow tasks to be done in parallel, shortening the project



## PERT Chart Example




- Which tasks can we start on?
- Which tasks can be done concurrently?
- Which tasks depend on which other tasks?
- *Critical Path*: which path has the longest duration?
  - Gives minimum length of project

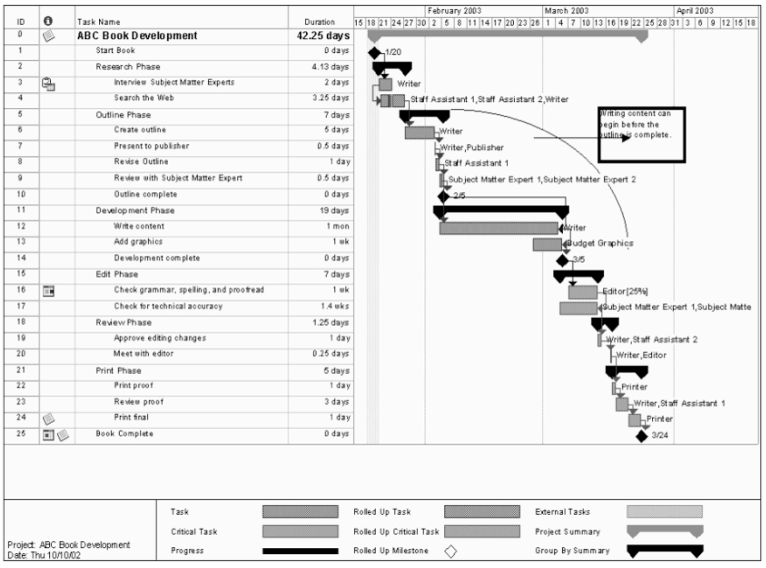
http://www.conceptdraw.com/samples/project-chart

# Gantt Charts

- Method for *visualizing a project schedule* in one chart showing
  - The set of tasks
  - Start and completion times
  - Task dependencies
  - Responsibilities
- PERT charts can be reformatted as Gantt charts
- Typically requires a tool, e.g., http://www.ganttproject.biz/, smartchart



# Example Gantt Chart



# Project Milestone Planning

- Milestone planning is used to show the major steps that are needed to reach the goal on time
- Milestones typically mark completion of key deliverables or establishment of baselines
  - Baseline: when a work product is put under configuration management and all changes are controlled
- Often associated with management review points
  - E.g., Requirements baseline, project plan complete, code ready to test
- Can use Gantt or PERT charts to show milestones



# A Simple Alternative

**Week 1:**

| Date Assigned | Due Date | Task | Person Responsible | Status | Date Completed |
|---|---|---|---|---|---|
| 2/3 | 2/5 | Brainstorm project ideas | Everyone | Complete | 2/5 |
| 2/3 | 2/4 | Set up meeting w/ instructor | Heidi | Complete | 2/3 |
| 2/3 | 2/6 | Decide on project | Everyone | Complete | 2/6 |
| 2/6 | 2/10 | Create Git repository | Heidi | Complete | 2/6 |

**Week 2:**

| Date Assigned | Due Date | Task | Person Responsible | Status | Date Completed |
|---|---|---|---|---|---|
| 2/10 | 2/10 | Decide on software requirements | Everyone | Complete | 2/10 |
| 2/10 | 2/15 | Plan and design 1st iteration | Everyone | Complete | 2/13 |
| 2/10 | 2/10 | Set up meeting w/ Kathleen Freeman-Hennessy | Heidi | Complete | 2/10 |
| 2/13 | 2/15 | Write ConOps | Nicole, Heidi | Complete | 3/2 |
| 2/13 | 2/19 | Write project plan | Nicole, Heidi | Complete | 2/19 |
| 2/13 | 2/22 | Write software requirements | Nicole, Heidi | Completed | 3/2 |
| 2/15 | 2/24 | Implement 1st iteration | Dex, Hans, Yakun | Complete | 2/24 |

## How much planning?

- Planning itself consumes resources; how much planning is enough?
- Enough that:
  - Everyone knows what they should be doing
  - Everyone knows what other people are supposed to be doing
  - Everyone knows when specific deliverables should be finished
    - Can track dependencies between their tasks and others
    - Know when task inputs will be available
  - It is easy to determine the current status of the project against plan
- In practice, detail decreases with distance



## Summary

- Project plan makes process concrete
  - People to roles
  - Artifacts to deliverables and milestones
  - Activities to tasks over time
- Plan is key to organizing the work but expect it to change
  - *The plan is nothing, the planning is everything* – D. Eisenhower
- Should understand the use of common planning tools (WBS, Pert, Gantt)

Questions?



## Assignments

- View at least half of video on requirements
- Read material on Use Cases
- In class
  - Hands on exercise with use cases
  - Short team meetings with instructor (complete Friday)

# Instructor Meetings

Will go over progress, plans, any issues

1. What is the plan for delivery?
2. What is the team's current status (progress against plan)?
3. Are you building what the customer wants?
    1. How do you know?
    2. What sorts of activities are planned to check?