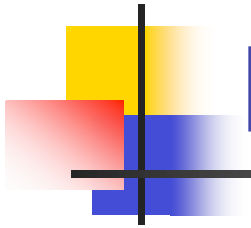
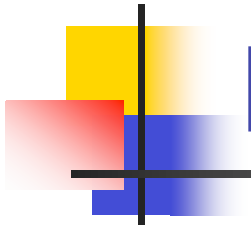


Lecture 6

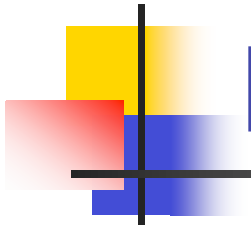
- Project Management
- Methodologies
- Planning
- Prototyping
- Managing and Documenting
- Suggested Reading



Managing Your Project

What is involved?

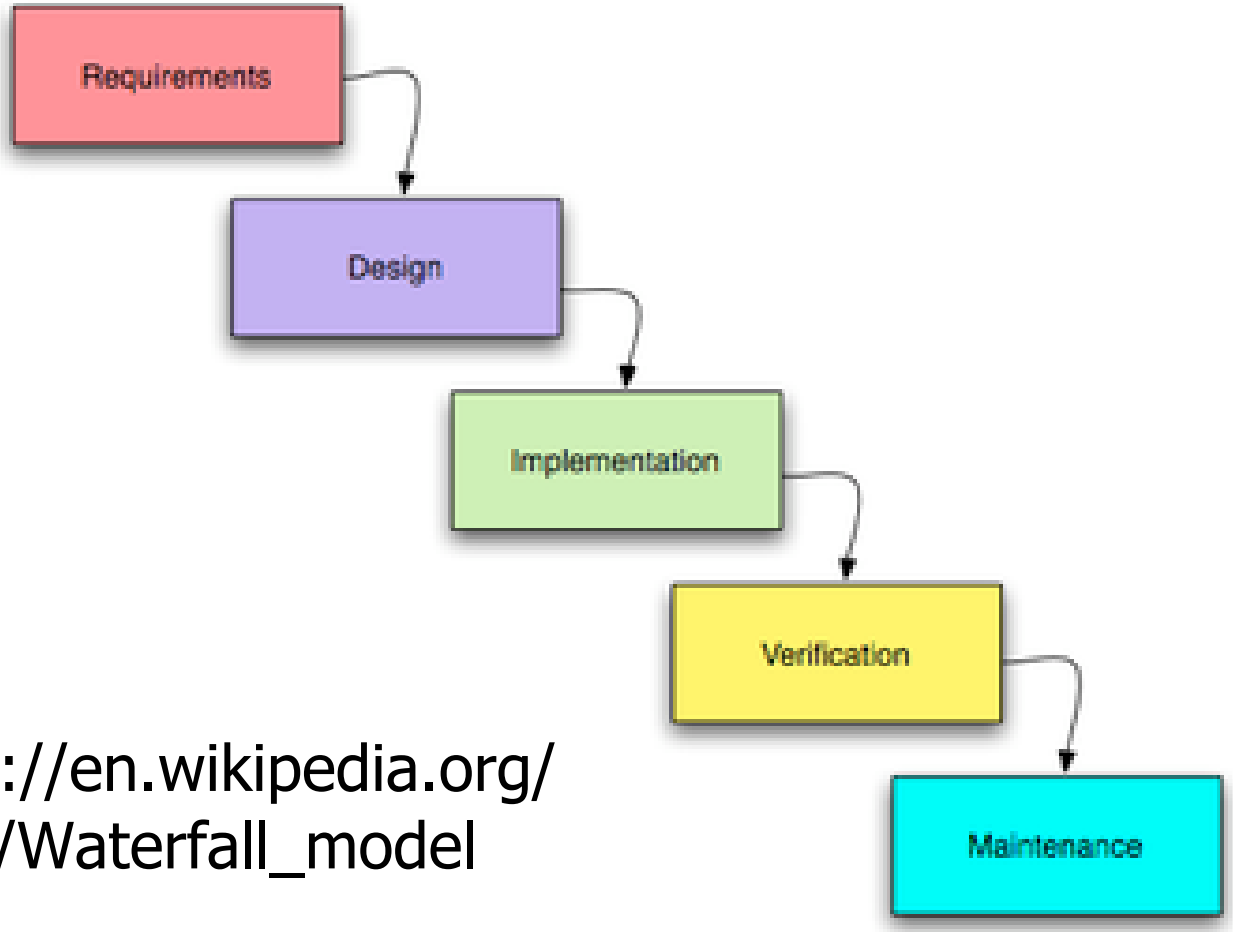
- The Team
- Team Tutor
- Methodology
- Plan + Milestones
- Management
- Documentation



Methodology

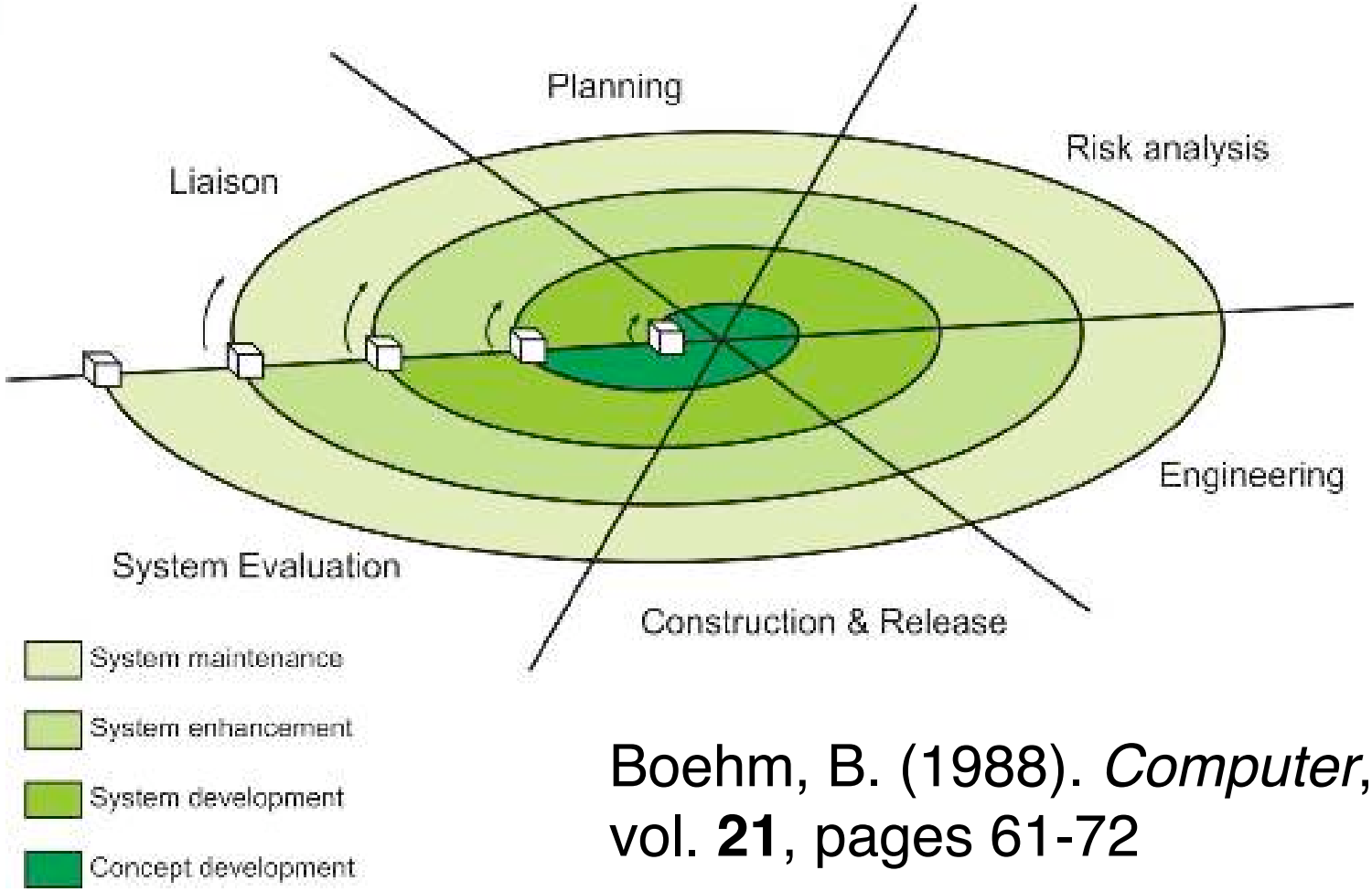
- How will you approach the project?
- What methodologies exist?
  - For the project, and the components
- Commonly used methodologies
  - Waterfall, Spiral, Incremental, Evolutionary, Extreme
- Select an approach rationally and describe it in your report

Waterfall Model



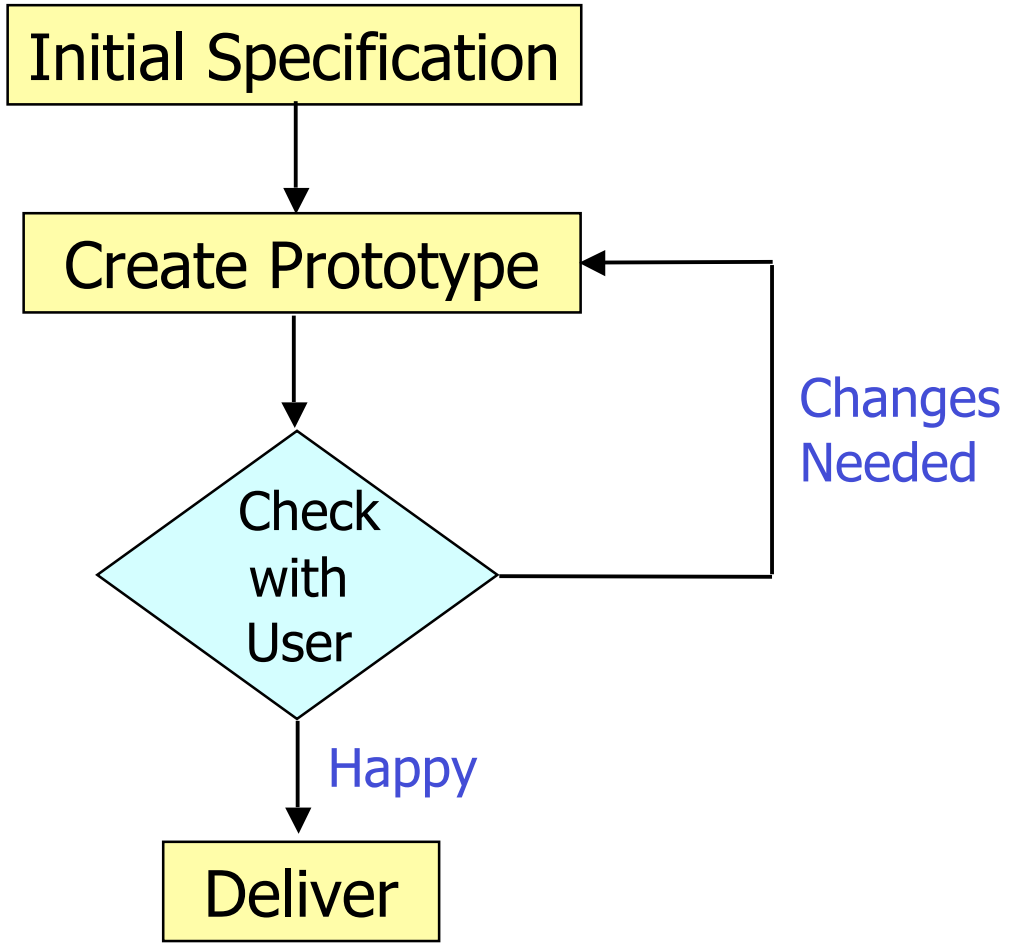
http://en.wikipedia.org/wiki/Waterfall_model

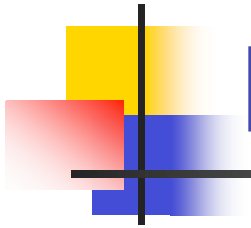
Spiral Model



Boehm, B. (1988). *Computer*, vol. **21**, pages 61-72

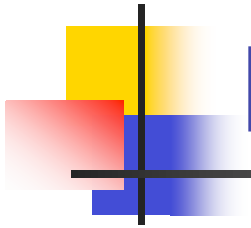
Evolutionary Prototyping





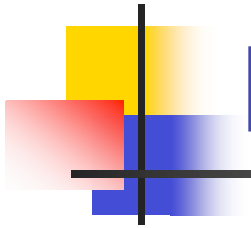
Project Planning

- Define activities
- Review tasks and dependencies
- Estimate timescales
- Schedule activities
- Describe plan
- Produce Gantt Chart
- Execute plan



Define Activities

- What tasks are needed?
- When will they be done?
- Allocate resources
  - Who will do them?
  - What will they need?
- What will be delivered?
- How will you know it is complete?

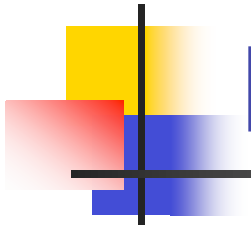


Review the Tasks

- Are they realistic?
- Do they form a complete set?
- Which are essential and which luxuries?
- Which depend on which?
- How long will they take?
- Is there always a feasible *Plan B ?*
- …..

Don’t Forget the Need For:

- Research
- Learning
- Documentation
- Project monitoring
- Producing deliverables
- Testing
- Evaluation & reflection
- Modification and extension
- Contingency plans
- …..

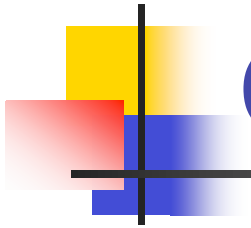


Research to Support Planning

- Identify the best tools
- How much time is needed to learn the tools and techniques?
- How much time is needed for experimentation and exploration?
- Find out what other people have done in the past
- …..

Describing Your Plan

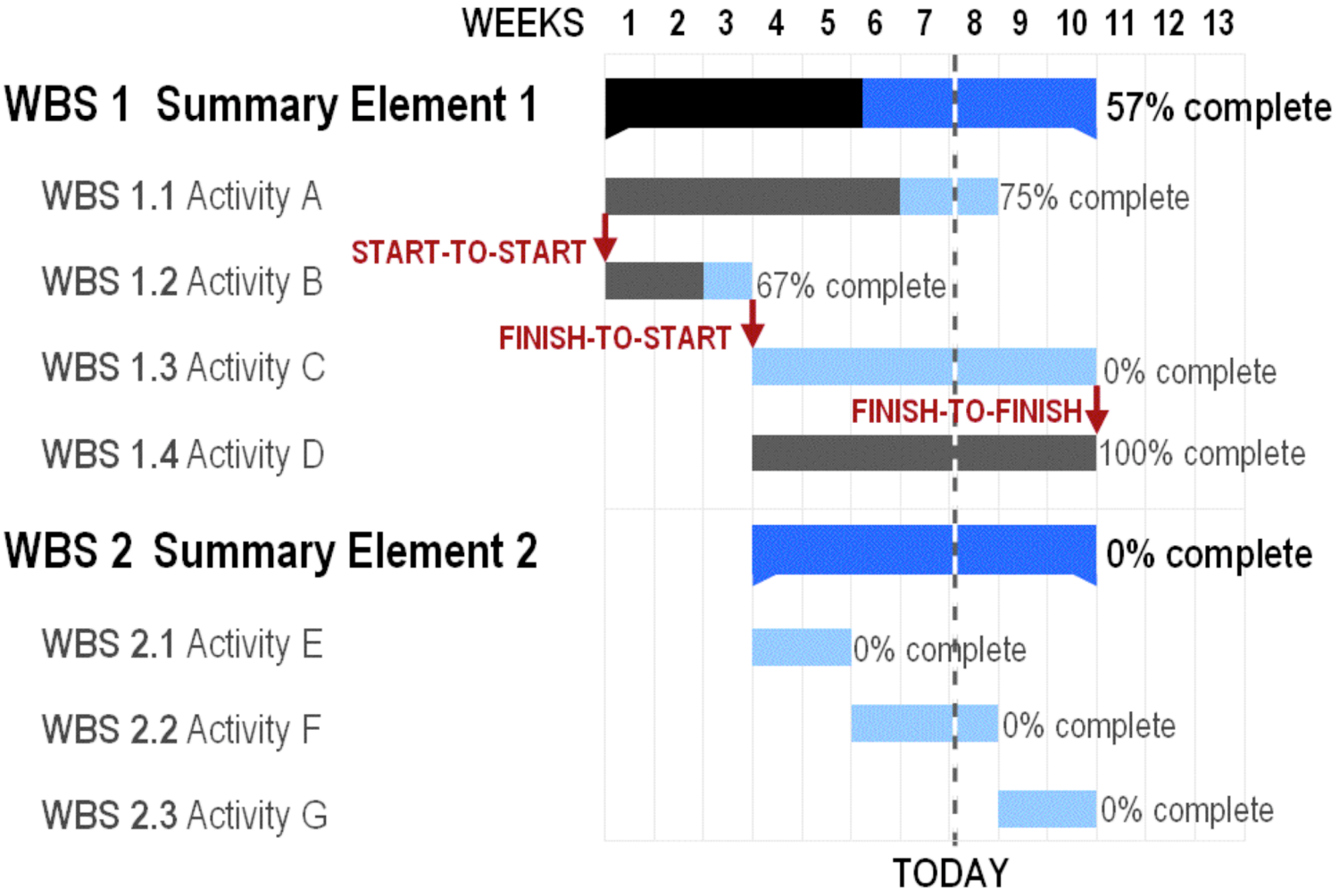
- List task details
  - What
  - When
  - Who
  - Deliverables
  - Backup plans
  - Etc.
- Describe plan
  - Deliverables
  - Dependencies
  - Schedule of task
  - Gantt chart
  - PERT analysis?
  - Etc.

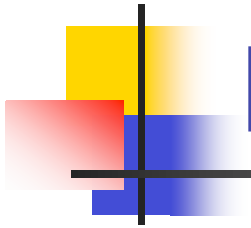


Gantt Charts

- Bar charts to illustrate project schedule
- Standard elements
  - Work breakdown structure
  - Start and end dates
  - Dependencies
  - Current schedule status
- Use software to create them - e.g. see http://en.wikipedia.org/wiki/Gantt_chart

Gantt Example from Wikipedia



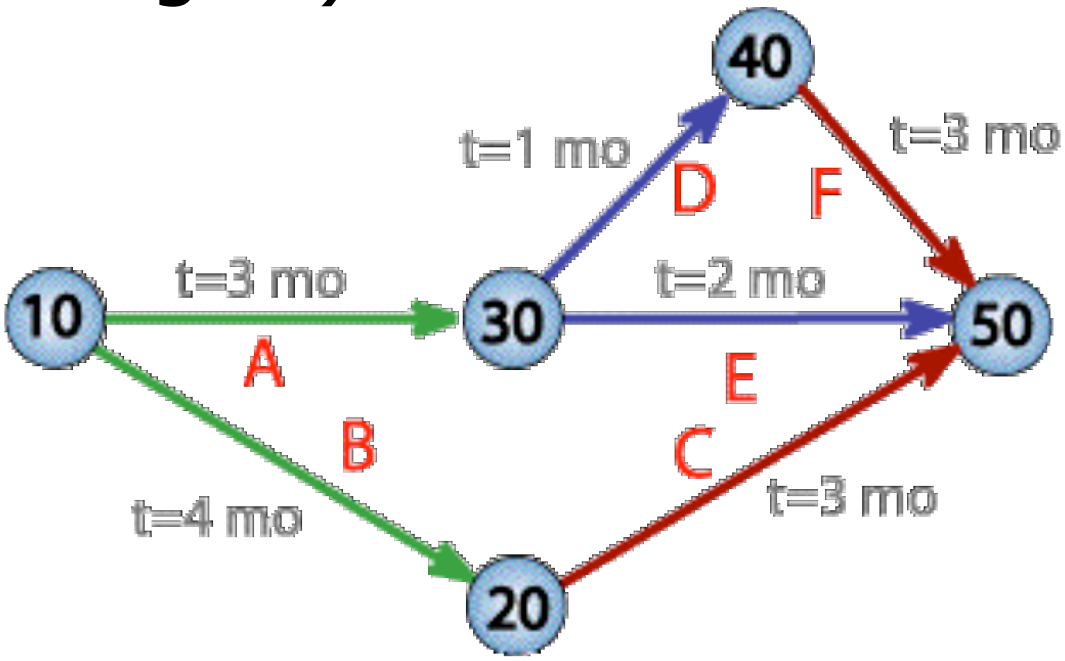


PERT Analysis

- Program/Project Evaluation and Review Technique (PERT)
- Standard analysis elements
  - Tasks involved in completing the project
  - Time needed to complete each task
  - Minimum time needed to complete whole project
- Many more details and useful links at http://en.wikipedia.org/wiki/PERT

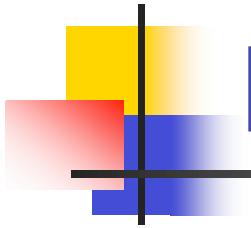
PERT Example from Wikipedia

- A seven month project with five mile-stones (10 through 50) and six activities (A through F)



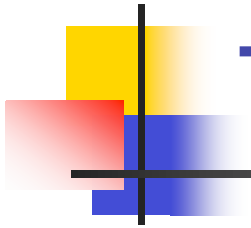
General Guidelines

- Keep it simple
- Minimise the dependencies
- Make sure it is clear:
  - What should be delivered
  - And when
  - And by whom
- Be realistic
- Break tasks down into sub-tasks
- Risks
  - Identify
  - Contingency
- Keep records of everything
- …..



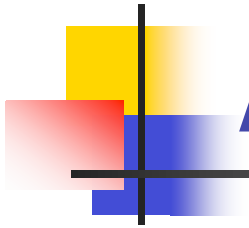
Risk Analysis

- Identify risks
  - Illness, incompetence, accidents …
  - Technology problems
  - Over-runs
  - Etc.
- Have plans to cope with risks
  - Reallocation of tasks
  - Re-plan project
  - Re-design the product
  - Etc.



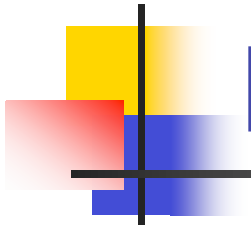
Time Management Tips

- Take control of the situation
  - Worry about project not about being busy
- Avoid procrastination
  - Recognize it happening and stop it!
- Activity logs
  - Track your progress
- To-Do lists
  - Set start dates, due dates, priorities, …



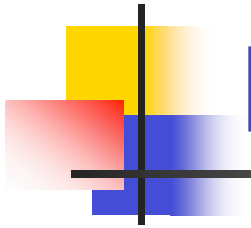
A Way Forward: Prototyping

- Throwaway Prototyping versus Evolutionary Prototyping
- Prototyping helps refine the project definition and specification
- It often informs the plan
- It usually confirms the choice of tools to be used
- It is hard to get things right first time!



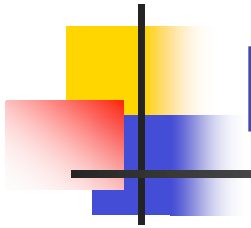
Prototypes

- Common initial throwaway forms:
  - Screen layout
  - Storyboard, Slide Show
  - Mock up, Rough version
- They Facilitate Experimentation
- They are Focussed
- They give you User Feedback
- They Get You Started!



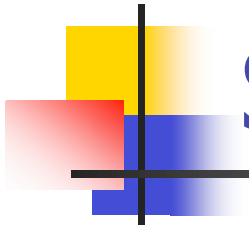
Managing the Project

- Monitor progress against the plan
- Identify any divergences, threats, and opportunities
- Consider and implement remedial actions and improvements
  - Modify plans
  - Modify goals of project
- Never forget the hard/soft deadlines!



Documenting Management

- Describe the methodology
- Describe all the tasks
- Give an overview of the plan
- Discuss the risks
- Include your Gantt Chart
- Discuss how well you kept to plan
- What needed changing along the way?



Suggested Reading

- Software Engineering
  - Ian Sommerville
  - Addison-Wesley, 2007
- Software Engineering - A Practitioner's Approach
  - Roger Pressman
  - McGraw-Hill, 2000
- Software Engineering for Students
  - Douglas Bell
  - Addison-Wesley, 2005