Project Management

SWEBOK – Software Engineering Book of Knowledge

PMBOK – Project Management Book of Knowledge

Five phases of project management

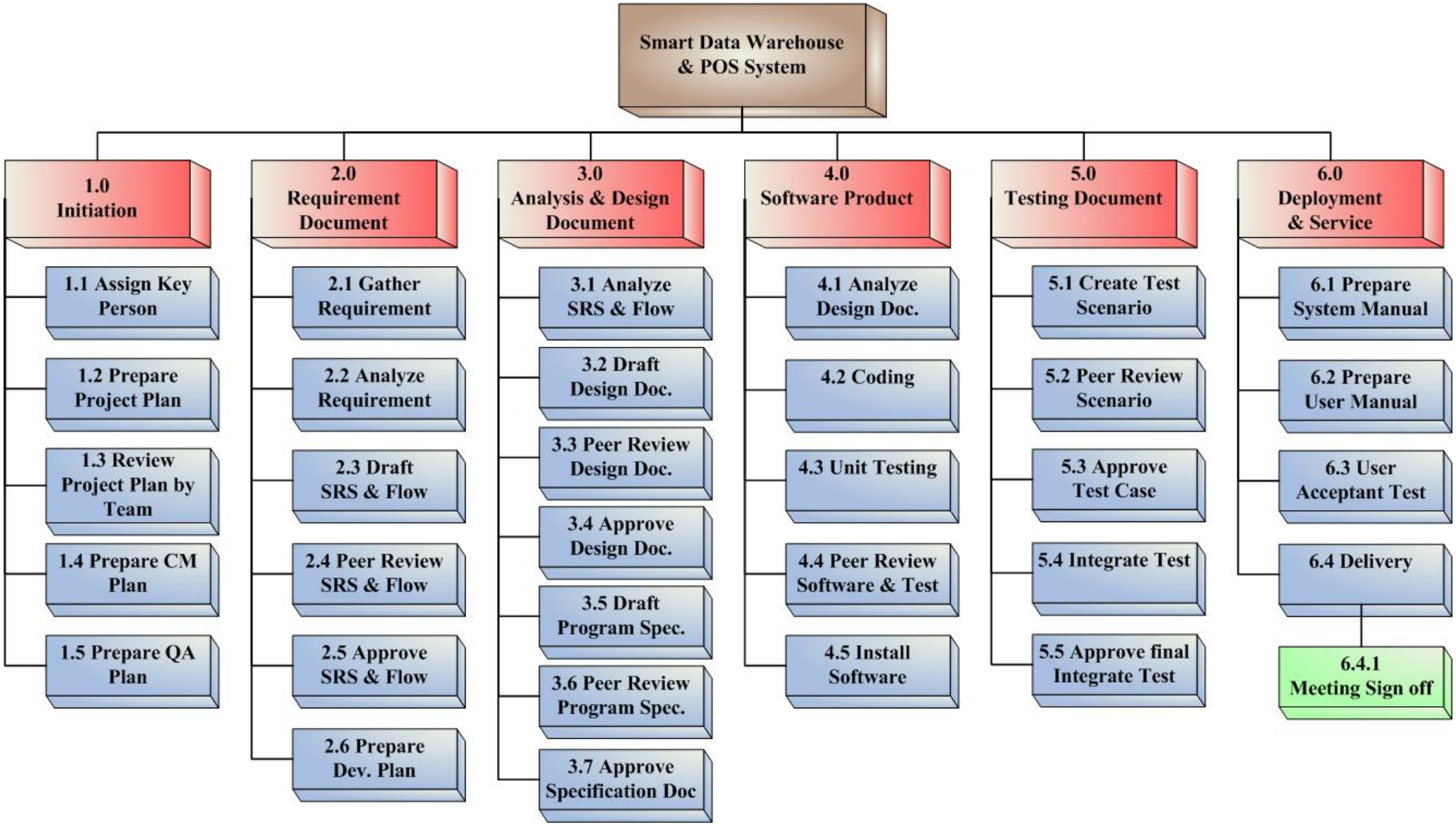
1. Initiation (feasibility, go/no-go, reqs/analysis)
2. Planning
3. Execution
4. Monitoring
5. Termination

Planning

- work breakdown (WBS), thinking through work dependencies,
- time and cost estimation,
- resource identification, scheduling,
- risk management

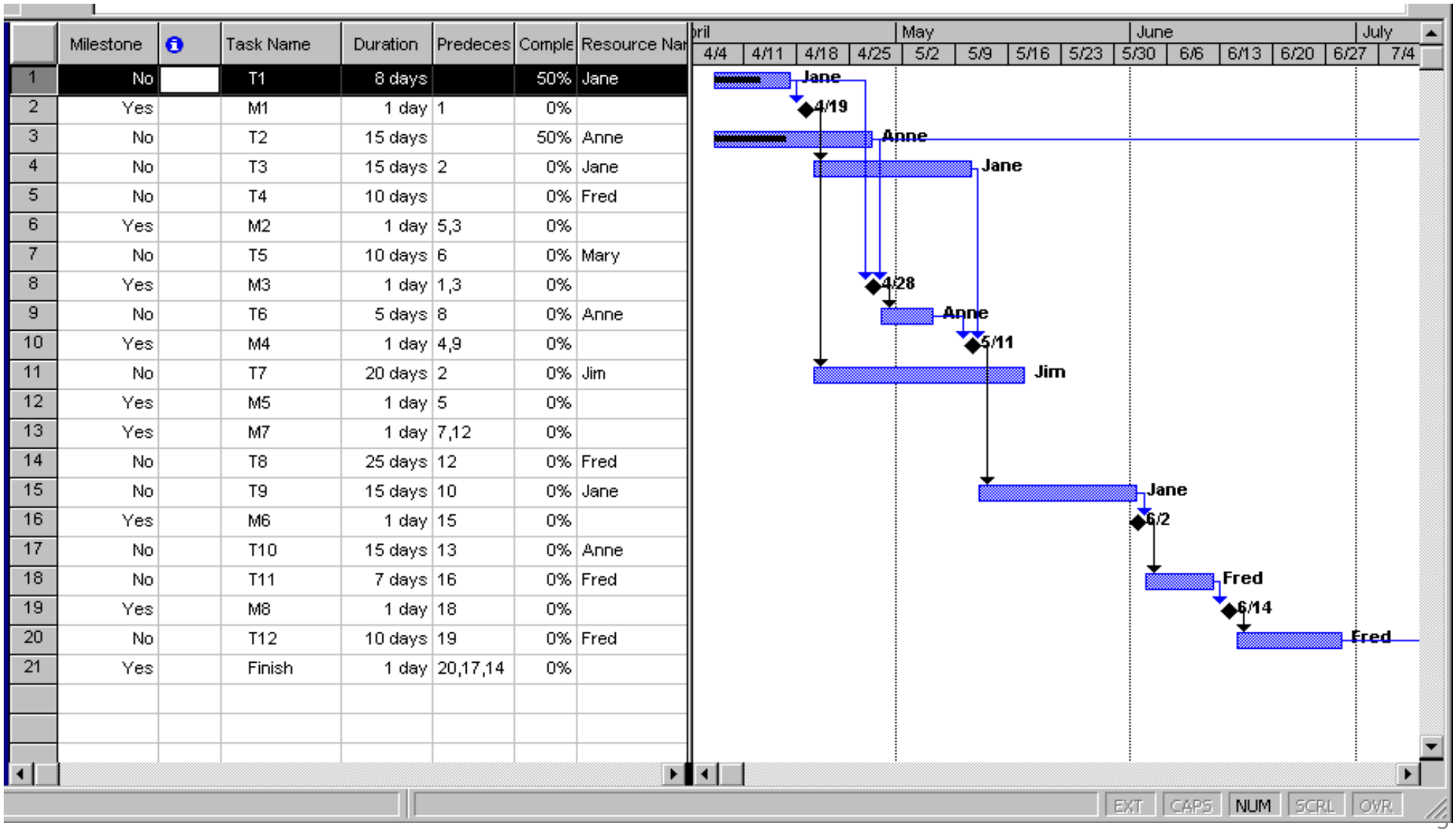
- creating a SDP (software development plan)
- quality plan, configuration management plan, maintenance plan, documentation plan etc also can be a part of the SDP.

Planning WBS



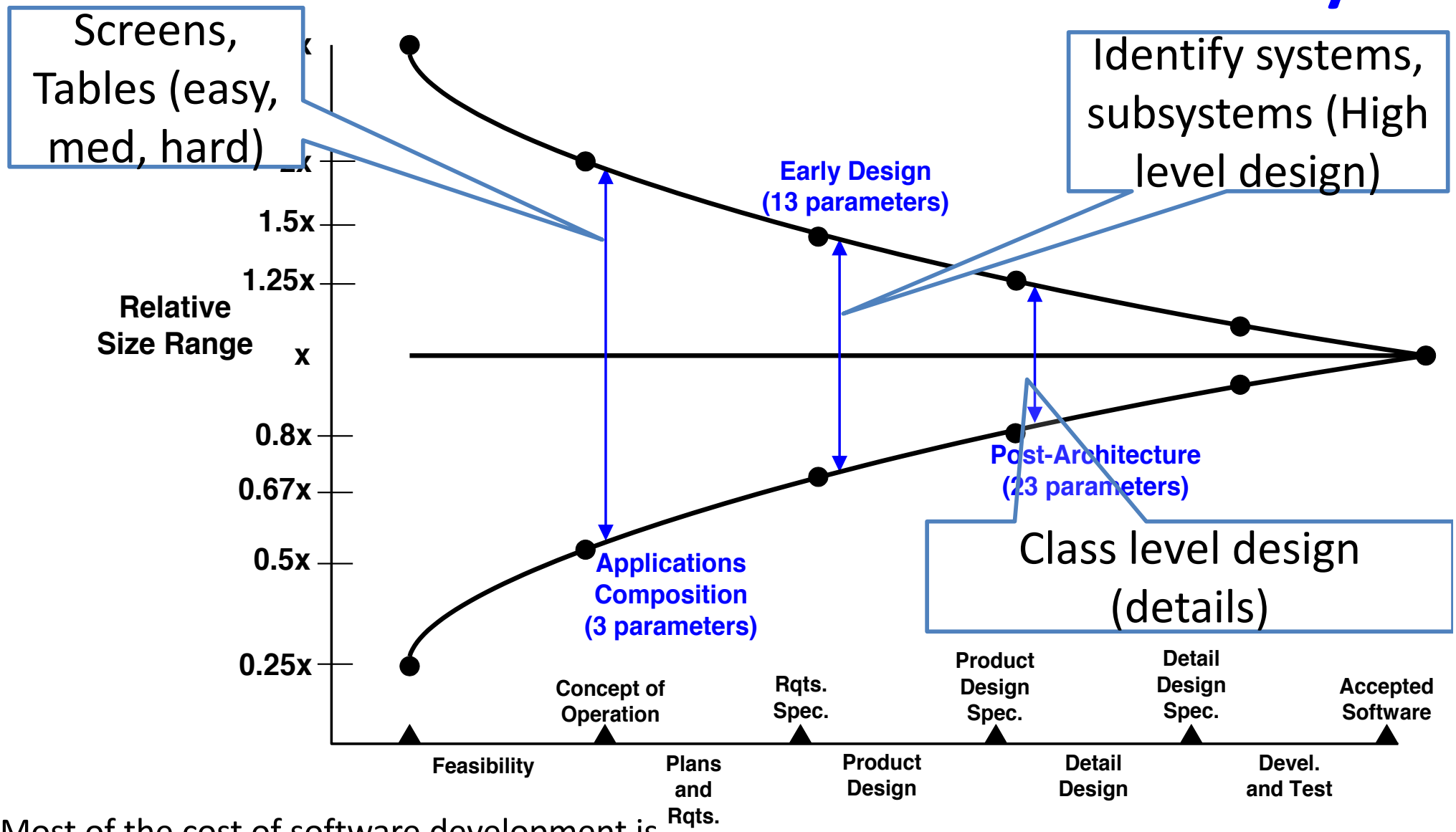
credits: Web

Planning Gantt Chart



	Milestone		Task Name	Duration	Predeces	Comple	Resource Nar
1	No		T1	8 days		50%	Jane
2	Yes		M1	1 day	1	0%	
3	No		T2	15 days		50%	Anne
4	No		T3	15 days	2	0%	Jane
5	No		T4	10 days		0%	Fred
6	Yes		M2	1 day	5,3	0%	
7	No		T5	10 days	6	0%	Mary
8	Yes		M3	1 day	1,3	0%	
9	No		T6	5 days	8	0%	Anne
10	Yes		M4	1 day	4,9	0%	
11	No		T7	20 days	2	0%	Jim
12	Yes		M5	1 day	5	0%	
13	Yes		M7	1 day	7,12	0%	
14	No		T8	25 days	12	0%	Fred
15	No		T9	15 days	10	0%	Jane
16	Yes		M6	1 day	15	0%	
17	No		T10	15 days	13	0%	Anne
18	No		T11	7 days	16	0%	Fred
19	Yes		M8	1 day	18	0%	
20	No		T12	10 days	19	0%	Fred
21	Yes		Finish	1 day	20,17,14	0%	

Boehm's Cone of uncertainty



Most of the cost of software development is the salaries of developers and not the equipment cost.

Typical Risks

- Personnel shortfalls -staffing, training, availability
  - people risks: Make sure team issues are resolved ASAP.
- unrealistic schedules, budget
  - schedule risks: Start Early
  - schedule risks: update plan status every week
- developing wrong product - faulty requirements
  - wrong user interface - faulty requirements
  - Prototype – and de-risk your requirements
- gold-plating - feature creep
- stream of changes
  - technical risks: Define incremental builds – avoid late stage integration and interfacing issues.
  - technology risks: Use Source Control tools – avoid losing work. Be able to share work.

EXECUTION & MONITORING

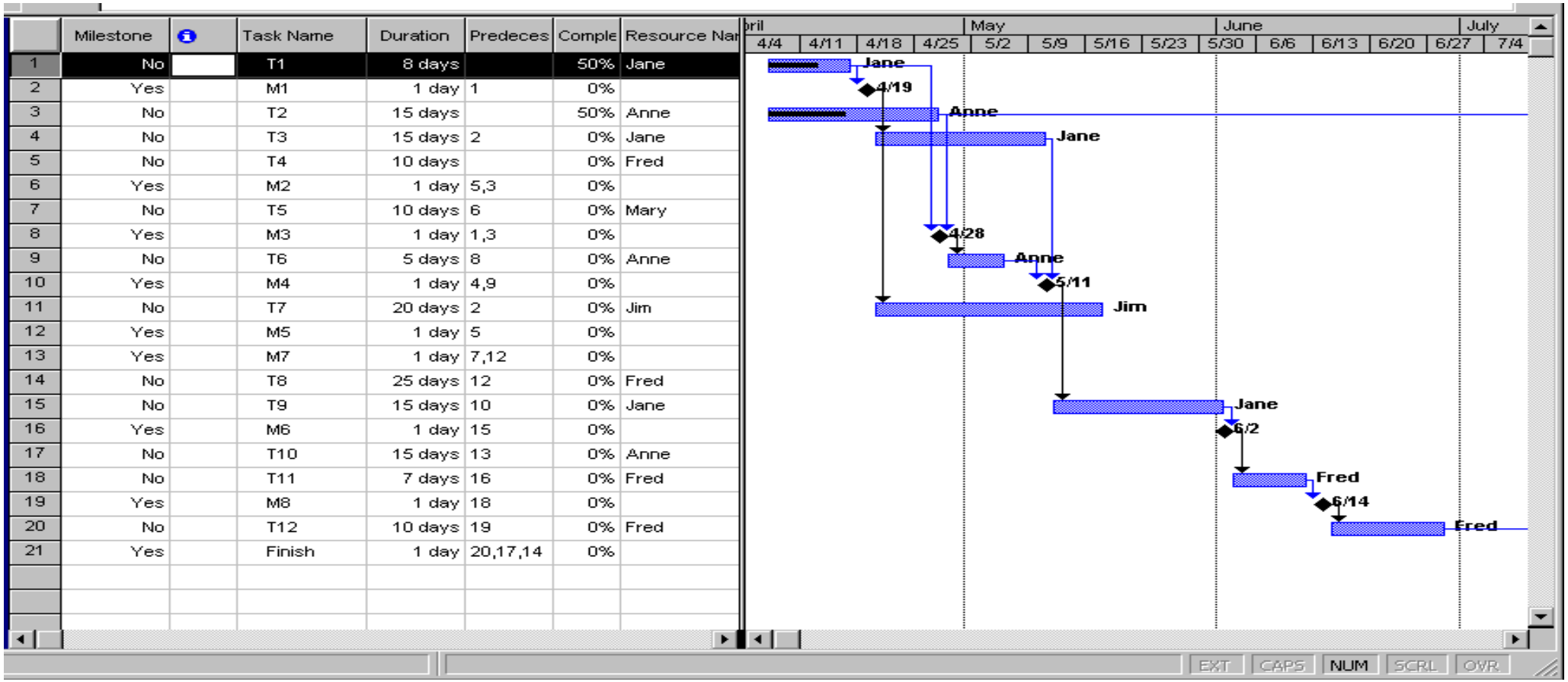
Execution

- here a manager assigns tasks to team members, makes decisions, and follows up (monitors) on the work done.

- The purpose is to make sure that the project is executed right and on time.

- The manager needs to be committed to the project and will have to spend a lot of time on communication with team members.

Tracking using Gantt Chart



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- Are planned milestones being reached?
- How much effort left to reach upcoming milestone?

Tracking using spreadsheet

	A	B	C	G	H	I	J	K	L	M	N	O
1	Dated 11/8/2008			RISK	46	22		Current			10-Nov	17-Nov
2	scrn	Description	Detailed	Leve	EFF DAYS	EFF REMA	VER2 11/20	Status	VER3 12/5	Owner	VK2	VK3
3												
4	1	County Selection										
5												
6		1	Multiple selection	High	7	7	no	NO	yes	R	x	x
7	2	Selection Tool										
8		1	selection - point	High	Research		no	NO		B		
9		2	selection - polygon	High	Research		no	NO		B		
10	3	bars showing crashes on map (stacking)										
11		1	Finding the total crashes at a single point	med	3	1	no	no	yes	R		
12		2	Aggregation using max # of crashes	high	7	7	no	no	yes	R	x	
13		3	Draw stacking	high	7	7	no	no	yes	R		x
14												
15	4	Selection Info Tool										
16		1	re-ordering rows	low	2		yes	no		R	x	
17		2	print-option	high	Research		NO	no	yes	B	x	
18		3	option for value/descrption	High	Research		NO	NO	maybe			
19	4	Reports										
20		1	Crash Detail Report	Med	1		yes	no		B		x
21												
22	6	Diagram Magic										
23		1	Exporting of data	low	1		yes	yes	yes	B	x	x
24		2	Make xml file	low	1		yes	yes	yes	B	x	x
25		3	integrating with DM	high	7		yes	yes	yes	B	x	x
26	7	Code Restructure (Refactoring)		low	2		partly	no	partly	R & B		
27												

Time Sheets

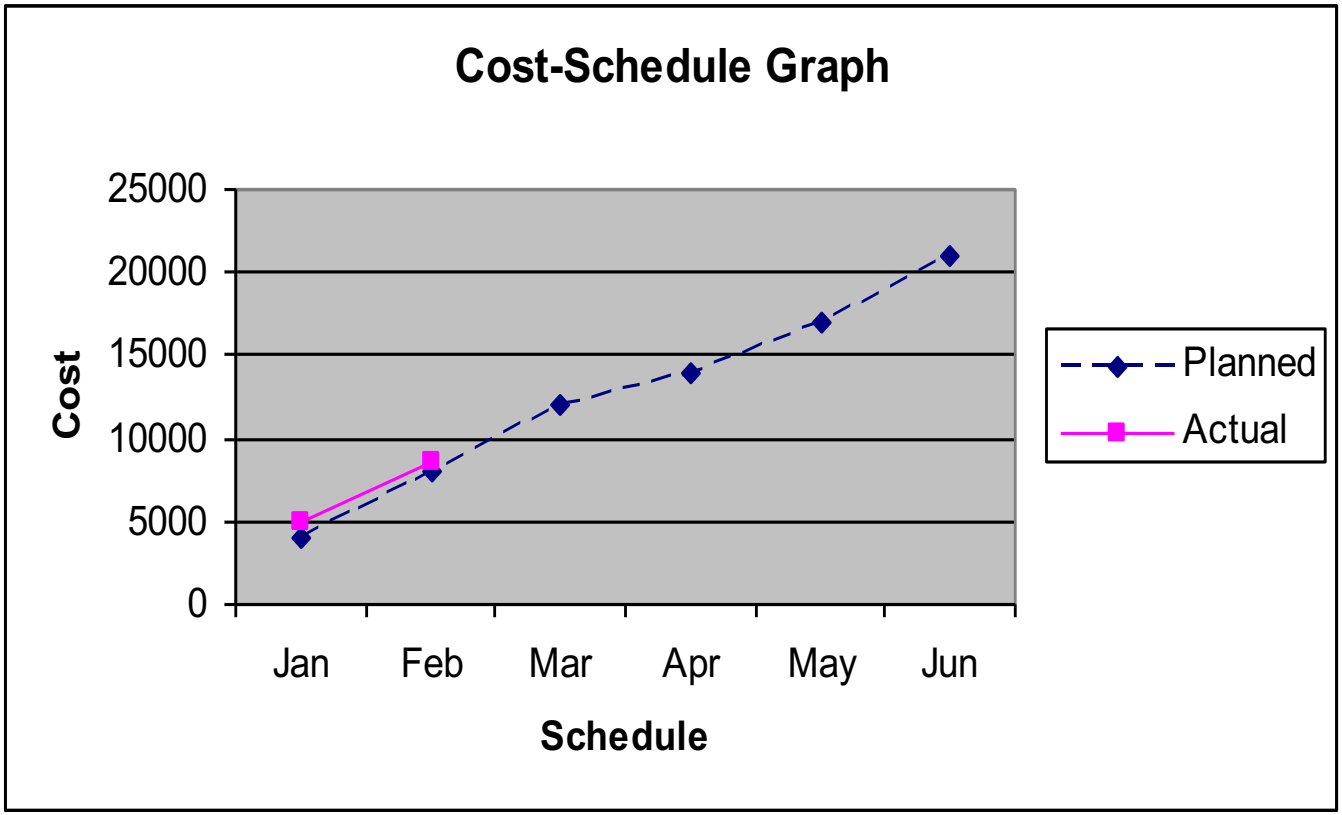
- Daily/Weekly (paper, software)
- How much time is each project member spending on the different project related activities?
- Tracks
  - project expenditure [salaries]
    - Which account needs to be charged?
  - Productivity [reasons for]
  - Effort [working 8 0 hrs/week?]
  - History data for future use

Reviews/Inspections

- useful milestones!
  - Forces members to finish deliverable for review purpose
  - review report provides excellent indication of project problems (quality, personnel, …)

- Use past history to understand metric values obtained
- Tracks
  - Same as milestone
  - Traps defects
  - Also, quality status and risks update

Cost-Schedule Graphs



Helps visualize progress against plan

x axis: time and milestone

y axis: cost

Termination

- Deliver!
- Recognition/Awards!

- A final part of project management is project termination analysis

- the purpose here is to
    - obtain information
    - record lessons learnt from the project

  so as to be able to use the Information for future projects.

SELF CHECK

- What are the five phases of project management?
- What is a WBS? What is a Gantt Chart?
- What are five typical risks in SoftwareDevelopment Projects?

- What does Boehm's Cone of Uncertainty show?

- What are three ways to gather project monitoring information?

- What is done during project close (or termination)?