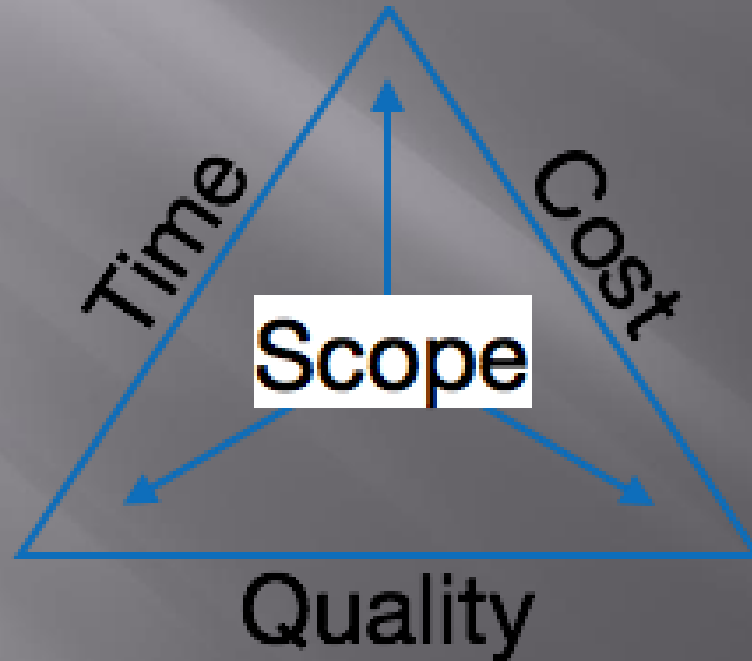# SOFTWARE PROJECT MANAGEMENT

Prepared by

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Need of software project management

- Software is said to be an intangible product. Software development is a kind of all new stream in world business and there's very little experience in building software products. Most software products are tailor made to fit client's requirements. The most important is that the underlying technology changes and advances so frequently and rapidly that experience of one product may not be applied to the other one. All such business and environmental constraints bring risk in software development hence it is essential to manage software projects efficiently.

Figure

Software Project Manager

- A software project manager is a person who undertakes the responsibility of executing the software project. Software project manager is thoroughly aware of all the phases of SDLC that the software would go through. Project manager may never directly involve in producing the end product but he controls and manages the activities involved in production.

- A project manager closely monitors the development process, prepares and executes various plans, arranges necessary and adequate resources, maintains communication among all team members in order to address issues of cost, budget, resources, time, quality and customer satisfaction.

(cont.)

Let us see few responsibilities that a project manager shoulders -

▣ Managing People

1. Act as project leader
2. Liaison with stakeholders
3. Managing human resources
4. Setting up reporting hierarchy etc.

(cont.)

- Managing Project
  1. Defining and setting up project scope
  2. Managing project management activities
  3. Monitoring progress and performance
  4. Risk analysis at every phase
  5. Take necessary step to avoid or come out of problems
  6. Act as project spokesperson

Software Management Activities

Software project management comprises of a number of activities, which contains planning of project, deciding scope of software product, estimation of cost in various terms, scheduling of tasks and events, and resource management. Project management activities may include:

- **Project Planning**
- **Scope Management**
- **Project Estimation**

Project Planning

- Software project planning is task, which is performed before the production of software actually starts. It is there for the software production but involves no concrete activity that has any direction connection with software production; rather it is a set of multiple processes, which facilitates software production. Project planning may include the following :

Scope Management

- It defines the scope of project; this includes all the activities, process need to be done in order to make a deliverable software product. Scope management is essential because it creates boundaries of the project by clearly defining what would be done in the project and what would not be done. This makes project to contain limited and quantifiable tasks, which can easily be documented and in turn avoids cost and time overrun.

1. During Project Scope management, it is necessary to -
2. Define the scope
3. Decide its verification and control
4. Divide the project into various smaller parts for ease of management.
5. Verify the scope
6. Control the scope by incorporating changes to the scope
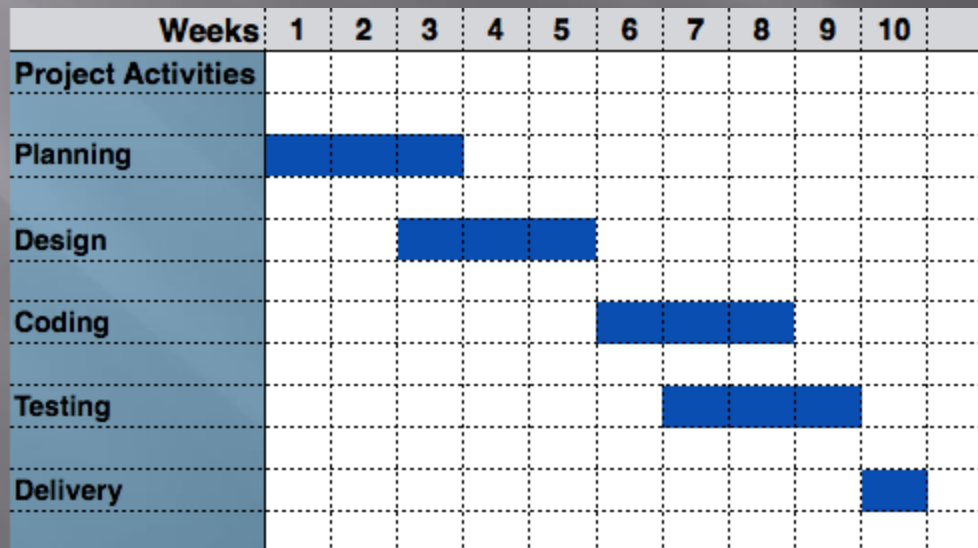
Project Communication Management

- Effective communication plays vital role in the success of a project. It bridges gaps between client and the organization, among the team members as well as other stake holders in the project such as hardware suppliers.

- Communication can be oral or written. Communication management process may have the following steps:

- **Planning** - This step includes the identifications of all the stakeholders in the project and the mode of communication among them. It also considers if any additional communication facilities are required.

- **Sharing** - After determining various aspects of planning, manager focuses on sharing correct information with the correct person on correct time. This keeps every one involved the project up to date with project progress and its status.

- **Feedback** - Project managers use various measures and feedback mechanism and create status and performance reports. This mechanism ensures that input from various stakeholders is coming to the project manager as their feedback.

- **Closure** - At the end of each major event, end of a phase of SDLC or end of the project itself, administrative closure is formally announced to update every stakeholder by sending email, by distributing a hardcopy of document or by other mean of effective communication.

Configuration Management

- Configuration management is a process of tracking and controlling the changes in software in terms of the requirements, design, functions and development of the product.

- IEEE defines it as "the process of identifying and defining the items in the system, controlling the change of these items throughout their life cycle, recording and reporting the status of items and change requests, and verifying the completeness and correctness of items".

- Generally, once the SRS is finalized there is less chance of requirement of changes from user. If they occur, the changes are addressed only with prior approval of higher management, as there is a possibility of cost and time overrun

Gantt Chart

- Gantt charts was devised by Henry Gantt (1917). It represents project schedule with respect to time periods. It is a horizontal bar chart with bars representing activities and time scheduled for the project activities.

Weeks	1	2	3	4	5	6	7	8	9	10
Project Activities										
Planning	■	■	■							
Design			■	■	■					
Coding						■	■	■		
Testing							■	■	■	
Delivery										■

PERT Chart

- PERT (Program Evaluation & Review Technique) chart is a tool that depicts project as network diagram. It is capable of graphically representing main events of project in both parallel and consecutive way. Events, which occur one after another, show dependency of the later event over the previous one:
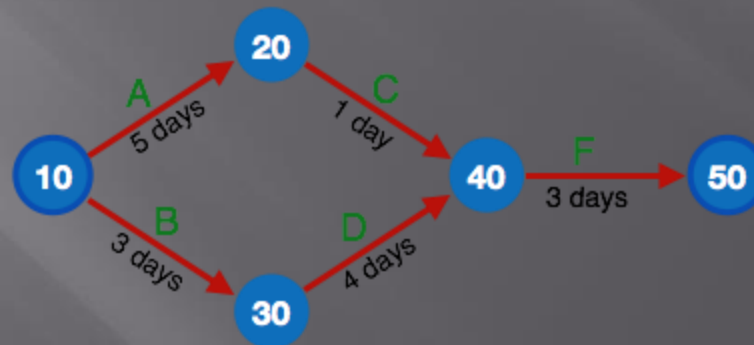
Resource Histogram

- This is a graphical tool that contains bar or chart representing number of resources (usually skilled staff) required over time for a project event (or phase). Resource Histogram is an effective tool for staff planning and coordination.

Staff	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Designer	4	4	3	3	2	2	1
Developer	0	0	1	2	4	4	3
Tester	0	0	0	0	2	2	2
Total	4	4	4	5	8	8	6