Unit-5
Software Project Plan & Planning Process

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- Project plan
- Planning process

Software Project Plan

Project Plan Definition

- Software project plan defines the software engineering work by describing the technical tasks to be conducted, the risks that are likely, the resources that will be required, the work products to be produced, and a work schedule.

- Project plan must be flexible and iterative.
- It meets the needs of stakeholders and reviewed by stakeholders.
- Project plan should include :
  1. Estimation - Size, resource, defect (the number of defects projected for the work) and test plan (some cases) estimation.
  2. Schedule - Depends on the development tasks item Risk - Occurance in project.
  3. Quality
  4. Change management

Project Plan Granularity

- A high-granularity plan provides significant work task detail that is planned over relatively short time increments
- A low-granularity plan provides broader work tasks that are planned over longer time periods.

- A project plan is produced as management activities commence. The plan defines the process and tasks to be conducted, the people who will do the work, and the mechanisms for assessing risks, controlling change, and evaluating quality.
- It encompasses five major activities − estimation, scheduling, risk analysis, quality management planning, and change management planning.

Software Planning Process

1. Establish project scope.
2. Determine feasibility.
3. Analyze risks
4. Define required resources.
   1. Determine required human resources
   2. Define reusable software resources.
   3. Identify environmental resources
5. Estimate cost and effort
   1. Decompose the problem
   2. Develop two or more estimates using size, function points, process tasks, or use cases.
   3. Reconcile the estimates.
6. Develop a project schedule.
   1. Establish a meaningful task set. 6b. Define a task network.
   2. Use scheduling tools to develop a time-line chart.
   3. Define schedule tracking mechanisms

Project Scope

- The functions and features that are to be delivered to end users
- The data that are input and output
- The content that is presented to users as a consequence of using the software
- The performance, constraints, interfaces, and reliability that bound the system.

Project Feasibility

- Can we build software to meet this scope?
- Is the project technically feasible ?
- Is the project financially feasible ?
- Will the projects time-to-market beat the competition ?
- Does the organization have the resources needed to succeed?

Software Planning Process (Contd..)

Project Resources

- Catagories — People, reusable software components, development environment
- Reusable components — Off-the-shelf components, Full-experience components, Partial-experience components, New components
- Development environment - hardware and software
- Characteristics — resource description, a statement of availability, time when the resource will be required, and duration of time that the resource will be applied.
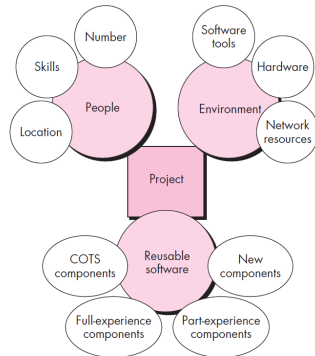
- Project plan definition
- Plan granularity
- Major activities in plan
- Steps in planning process
- Project scope, feasibility and resources

Assessment

- Prepare the scope and feasibility study of a technical project.
- List out the major activites in planning.
- Identify the hardware requirements for a software project.
- Which of the following estimation is carried out first by a project manager during project planning? (choose one)
    1. estimation of cost
    2. estimation of the duration of the project
    3. project size estimation
    4. estimation of development effort
- Sliding Window Planning involves (choose one)
    1. planning a project before development starts
    2. planning progressively as development proceeds
    3. planning a project after development starts
    4. none of the above

Assessment- true or false

- Size of a project, as used in COCOMO is the size of the final executable code in bytes.
- According to the COCOMO model, cost is the fundamental attribute of a software product, based on which size and effort are estimated.
- If we increase the size of a software product by two times then the time required to develop that software product would be double.
- The number of development personnel required for any software development project can be obtained by dividing the total (estimated) effort by the total (estimated) duration of the project.
- For the development of the same product, the larger is the size of a software development team, the faster is the product development. (for simplicity, assume that all engineers are equally proficient and have exactly similar experience).
- As a project manager it would be worthwhile on your part to reduce the project duration by half provided the customer agrees to pay for the increased manpower requirements.
- PERT charts are a sophisticated form of activity chart.

References I

[1] RogerS. Pressman.
   "Software Engineering a Practitiner's Approach"".
   Seventh Edition, McGraw Hill Higher Education, 2010.