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COMP 3111: Software Engineering

Lecture 5 Exercise: Software Development Process Case Study

Problem Statement

Build a budget control system, for internal use, for a small (~30 person), high-tech software consulting and development company to monitor the expenses against the budget of individual contract software projects so that corrective action can be taken if the actual budget of a project is not proceeding according to the planned budget (e.g., over or under spending on the project).

Background Information

In general, the budget control activity often needs to be customized to the particular activities of an organization. While budget control is related to other administrative activities, (e.g., payroll processing, income and expense monitoring, etc.), unlike these, budget control is based both on objective data, such as actual time and costs expended, and on subjective data, such as estimates of the value of the "work in progress". As staff may be involved in several projects concurrently, and no log is kept about their contribution to each project, it is hard to estimate "work in progress" costs for each project.

Some Initial Findings

- Some, but not all, data needed for budget control (e.g., salary paid to each employee) is available from the administrative system.
- Since employees work on many projects concurrently, allocation of salary to each project is not available (no data is kept).
- Estimating the amount of work completed/remaining on each project is currently not done.
- Both actual and estimated expenditures are needed to monitor expenses against budget.

Answer the following questions for the case study.

1. As project manager:
 - a. What is the first task you would perform and why?
 - b. How many people would you need for the first task and what skills should each have?
 - c. How long will this task take?
2. Which of the following software development processes, or combinations of processes, would you use to develop the Budget Control System? Place a ✓ beside all that you would use.
☐ Waterfall ☐ Code-and-Fix ☐ Prototyping ☐ Phased-release ☐ Agile
3. What are your reasons for the choice(s) you made in question 2?

1. As project manager:

a. What is the first task you would perform and why?

The first task as a project manager would be to define the scope. The goal is to determine what the project looks like and what the goals are.

b. How many people would you need for the first task and what skills should each have?

For defining the scope I would recommend having at least four people. One person should be a person within software development and the three other people should be project managers or people who have participated in multiple projects before.

c. How long will this task take?

Around 2-4 weeks.

2. Which of the following software development processes, or combinations of processes, would you use to develop the Budget Control System? Place a ✓ beside all that you would use.

☐ Waterfall ☐ Code-and-Fix ☒ Prototyping ☐ Phased-release ☐ Agile

Prototyping would be the best development process.

3. What are your reasons for the choice(s) you made in question 2?

The reason why prototyping would be the better development process is that in this kind of project where the requirements are vague it is more important to focus to get a prototype to the client as fast as possible to see if this is the kind of product that they are looking for.