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Development Methodologies

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SCOPE

Break Even

You are in charge of developing a software product for an Internet provider that will handle all aspects of billling and of ensuring that the product will be delivered on time and within budget.

Your development budget is 290'000

Approximately how much money should you devote to each phase of the software life cycle?

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Requirement 17'500

Specification 44'000

Design   52'750

Module coding & testing   105'500

Integration 70'250

Fault cost

Fifteen months after delivery, a fault is detected in a mechanical engineering product that determines the optimal viscosity of oil in internal combustion engines.

The cost of fixing the fault is 18'250.

The cause of the fault is an ambigous sentence in the specification document.

Approximately how much would it have cost to have corrected the fault during the specification phase?

Fault cost

Approximately 100 (184:1)

THE SOFTWARE PROCESS

Describe a situation in which the client, developer, and user are one and the same.

Consider the requirements phase and the specification phase. Would it make more sense to combine these two activities into one phase rather than treating them separately?

You have just purchased Medieval Software Developers, an organization that is on the verge of bankruptcy becase the company is at maturity level 1. What is the first step that you will take to restore the organization to rofitability?

An instructor builds a database for students.
The owner of a small business writes his/her own inventory and accounts payable.

The objectives and activities are so different that it makes no sense at all:
requirement phase = informal process of determining clients needs;
specification phase = precise statements, drawings, ...

Provide training for all employees, incl. Managers to get to Level 2.

SOFTWARE LIFE-CYCLE MODELS

Software Life-Cycle Models

Suppose that you have to build a product to determine the cube root of 40'293.8473 to four decimal places. Once the product has been implemented and tested, it will be thrown away. Which life-cycle model would you use? Give reasons for your answer.

Build and fix:

there is nothing to be gained by using a more sophisticated model

You are a software engineering consultant and have been called in by the vice-president for finance of Chocolate x3, a corporation that manufactures and sells triple-chocolate cake to restaurants. She wants your organization to build a product that will monitor the company's product, starting with the purchasing of the various ingredients and keeping track of the cakes as they are manufactured and distributed to the various restaurants. What criteria would you use in selecting a life-cycle model for the project?

You have the freedom to choose virtually any life-cycle model.

TEAMS AND THE TOOLS OF THE TRADE

1   How would you organize a team to develop a payroll project?

2   How would you organize a team for developing state-of-the-art military avionics software?

Explain your answers.

1   Payroll: chief programmer team could work; XP did as well!

2   Hierarchical chief programmer team based organization.

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You have just started a new software company. All your employees are recent college graduates; this is the first programming job.

It is possible to implement democratic teams in your organization, and if so, how?

A democratic team works only, if all members have a common goal. The democratic team approach may therefore not be appropriate.

REUSABILITY, PORTABILITY, AND INTEROPERABILITY

A code module is reused, unchanged, in a new product. In what ways does this reuse reduce the overall cost of the product?
In what ways is the cost unchanged?

Design, Coding, Testing, Documentation is already done. Integration costs remain

Suppose that a code is reused with one change; an addition operation is changed to a subtraction.
What impact does this minor change have on the savings?

Testing and Documentation are reduced. Integration cost is comparable with the above situation.

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