

# Engenharia de Software

<b>Ínicio</b>	Segunda, 20 de Janeiro de 2020 às 09:01
<b>Estado</b>	Prova submetida
<b>Data de submissão:</b>	Segunda, 20 de Janeiro de 2020 às 10:16
<b>Tempo gasto</b>	1 hora 15 minutos
<b>Nota</b>	17,0 de um máximo de 20,0 (85%)

## Pergunta 1

Respondida Pontuou 2.000 de 2.000 Retirar destaque

**When compared to other engineering disciplines, with many, many years, software engineering is really young. Although the term 'software engineering' is commonly known today, the very first time it was used with relevance was less than one century.**

**When and why?**

- a) in the late 30's, to improve the development of computer software
- b) in the late 60's, to address the growing importance of software
- c) in the 90's, to compile the history of software and its practices, languages, and tools
- d) in the 90's, to make a distinction between the science and the engineering of software

**b)**

The term "software engineering" was first defined and used with meaning at the 1968 Nato conference. The Nato conference was a response for the growing present of computers and software in professional and everyday life. It aimed to discuss detailed technical problems as well as questions of interests to a much wider audience.

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## Pergunta 2

Respondida Pontuou 2.000 de 2.000 Destacar pergunta

**Which of these projects could require more elements from a waterfall process?**

- a) Small website for restaurant
- b) System for an university to manage information about its students, teachers, classes and timetables
- c) Auto-pilot control unit for a passenger aircraft
- d) Android application for knowing which movies are currently in movie theaters in your city

**c)**

Waterfall process is used for projects that need a high element of reliability (critical software) or large projects with several teams. Agile methods are no good in case the system is critical because this systems can't have bugs because the consequences are critical. The auto-pilot control unit for a passenger aircraft is a critical system because if there is any bug, lives could be lost. So a waterfall process should be used in its development.

## Pergunta 3

Respondida Pontuou 1.000 de 2.000 Destacar pergunta

**RUP breaks from traditional methodologies like waterfall by introducing iterative software development. In your opinion, what is the main advantage of iterative development? Briefly justify your answer.**

- a) Waterfall-like development can accumulate decision errors along the development process, resulting in the delivery of invalid software;
- b) Iterative development increases the velocity at which development teams can produce software;
- c) Waterfall-like development requires too much documentation;
- d) Iterative development requires a smaller team.

**b)**

In an iterative development, development and validation are interleaved. It is easier to adapt to changing requirements and the delivered can be staggered, so it is much faster to deploy the system.

## Pergunta 4

Respondida Pontuou 1.000 de 2.000 Destacar pergunta

**XP actively prevent software regressions by motivating a test first approach. Who should participate in this process? Justify your choice.**

- a) The client should provide the development team with tests for his requirements;
- b) The client and the project manager should write tests before tackling new features;
- c) The development team, with input from the client, should write tests before tackling new features;
- d) The development team, with input from the project manager, should write tests before tackling new features;

**d)**

XP has a test-driven approach: the development team should write the tests before adding a feature (or fixing a bug). This makes sure that the development team doesn't write unnecessary code. This should be done by the development team with the input of the project manager to make sure the tests cover every aspect of the feature. The client doesn't come up with this tests: the client comes up with a list of desired features that are organized into user stories by the team and then implemented.

## Pergunta 5

Respondida Pontuou 1.000 de 2.000 Destacar pergunta

**Missing project deadlines is possibly the most recurring failure in software development. How does Scrum try to address it? Justify your answer.**

- a) Scrum will only ensure that a product increment exists in the end of each sprint, but not the quantity of features that are part of it. Traditional methodologies are more strict, hence, more capable of meeting deadlines;
- b) The Scrum Master is responsible for ensuring that the team is efficient and delivers the software at the right time;
- c) Effort estimations and velocity can be used to forecast when the backlog will be complete;
- d) A well defined process will ensure development efficiency, which will guarantee the project deadline.

**c)**

It isn't possible to estimate the unknown. When there are unknowns, people are guessing not estimating. It is easier to estimate by features rather than activity. Through the sprint review the team can estimate the time each feature will take to be developed based on their experience in this project. That way the development team can make educated guesses on how much time the remaining features will take up.

## Pergunta 6

Respondida Pontuou 2.000 de 2.000 Destacar pergunta

**Requirements engineering comprises several activities, from elicitation to validation, being this last one a very important phase, in order to close the process in the most successful way.**

**Typical goals and practices of requirements validation are (justify your answer):**

- a) reducing implementation errors of the specified requirements
- b) validating that the system does what the customer needs
- c) avoiding requirements conflicts and incompleteness
- d) reviewing and prototyping the system to elicit new requirements

b)

Validation is a very important phase because it demonstrates that the requirements define the system that the customer really wants. Requirements error costs are high, so their validation is very important so that after delivery the system does what the customer needs.

## Pergunta 7

Respondida Pontuou 2.000 de 2.000 Destacar pergunta

**Regarding use case modelling, an extend relationship aims to (justify your answer):**

- a) Distinguish what is mandatory from what is optional, regarding use cases
- b) Show a mandatory relationship that always happens, regarding use cases
- c) Show a mandatory relationship that always happens, regarding actors
- d) Be represented as a straight solid line.

a)

Extensions to base cases indicate conditionally added behaviors. In other words, they allow to highlight option features and distinguish what is mandatory/essential from what is optional/exceptional. The actors interact with the base case, which should make sense alone.

## Pergunta 8

Respondida Pontuou 2.000 de 2.000 Destacar pergunta

**Model-view-controller is an architectural pattern which (justify your answer):**

- a) Implies that the user request is received by the model
- b) Implies that the user request is received by the view
- c) Implies that a software framework (like Flutter or Ruby on Rails) is used
- d) Implies that user requests are received by the controller of a software framework

d)

A model-view-controller is an architectural pattern that separates the presentation and iteration from the application data/state. So the user requests are received by the controller that will then update the application data, and the view will then give the response to the user with the updated data.

## Pergunta 9

Respondida Pontuou 2.000 de 2.000 Retirar destaque

**The Project Management Body of Knowledge states that the project management processes are divided into process groups.**

**How many process groups are there and what are their names and main objective:**

- a) 6
- b) 12
- c) 5
- d) 3

c)

The process groups are:

1. Initiating: gather information needed for developing the plan
2. Planning: planning for the work ahead.

## Pergunta 10

Respondida Pontuou 2.000 de 2.000 Destacar pergunta

**Regarding software Servicing, which one is correct ( justify your answer):**

- a) No new functionality is added.
- b) No new bug fixes are added.
- c) The software is not useful on this time.
- d) The software provides its services and new functionality is added as needed.

a)

At the servicing stage, the software remains useful but the only changes made are those required to keep it operational (ex: bug fixes and changes to reflect changes in the software's environment). No new functionality is added. So the software is still useful but new functionalities are not added.

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