

## Review Test Submission: Quiz 1

User	Girish Mohan Madnani
Course	CS473 and CS673 Introduction to Software Engineering (Summer 1 2023)
Test	Quiz 1
Started	6/8/23 3:32 AM
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Time Elapsed	51 minutes out of 1 hour
Results Displayed	All Answers, Submitted Answers, Correct Answers, Feedback, Incorrectly Answered Questions

## Question 1

3 out of 3 points



Consider the context of a business case for using the cloud. Which of the following is true between "expandability" and "elasticity" as these attributes described in the course relate to cloud computing.

Selected  
Answers:



Expandability enables a user to expand resources as per their request



Elasticity enables a user to return resources back, if these resources are no longer needed

Answers:



Expandability enables a user to expand resources as per their request

Expandability enables a user to return resources back, if these resources are no longer needed



Elasticity enables a user to return resources back, if these resources are no longer needed

Response  
Feedback:

EC2 is the Amazon's Elastic Compute Cloud ... allows to provision resources and then release these resources when they are no longer required. You only pay for what you use and as you use it.

## Question 2

3 out of 3 points



While making a decision about a type of a cloud you need to migrate to. With the underlying goal to support a seamless architecture across all platforms. Select from given choices those that are true

Selected



Answers:

An organization that is using both, AWS and Azure – is not using a hybrid cloud



The combination of public cloud with private cloud – constitute a hybrid cloud

Answers:



An organization that is using both, AWS and Azure – is not using a hybrid cloud

An organization that is using both, AWS and Azure – is not using a multi cloud

According to 2019 data on competitive analysis, IBM Cloud and Google Cloud have a far greater adoption than Amazon and Microsoft clouds



The combination of public cloud with private cloud – constitute a hybrid cloud

Response

Feedback:

Refer to section of first module, 'Distributed Software Development', specifically the four components of Globalization,

- **Cloud**
- **Mobile**
- **Social**
- **Big Data**

### Question 3

3 out of 3 points



Following the paper 'Software Eating the World' by Marc Andreessen, which is referenced in course notes and attached to Discussions tab. Suppose you have been inspired by the stories of UBER and AIRBNB and are ready building a similar company but in a different area.

There are many carpenters in the world who are tirelessly looking for work. And there are many homeowners who are unable to find an appropriate carpenter. As you want to offer homeowners an increasingly sophisticated range of various carpentry, whom do you need to hire?

Selected



Answers:

Software engineers who would create a global site linking everyone together

Answers:

Carpenters of a higher grade who would exceed customers' expectations

Carpenters of low grade who would compete for a good price



Software engineers who would create a global site linking everyone together

#### Question 4

3 out of 3 points



Burden rate is commonly used as one of the criteria for the off shoring decision. Which of the following fits better for the definition of a burden rate?

Selected Answers: ☒ Amount of money paid in a given time

Answers: Amount of work to complete within a given time

Amount of time to do a given work

☒ Amount of money paid in a given time

#### Question 5

3 out of 3 points



Which of the following are true of the relationship between the burden rate and time to break-even point? (Select all that are true.)

Selected ☒

Answers: Multicultural differences, for example, teams' orientation toward concepts of "authority" and "commitment," could result in an additional delay of a break-even point.



Suppose the Burden Rate of US Engineers increased from \$7K to \$10K; and the Burden Rate of remote team increased from \$4K to \$6K. This results in a speed up of a break even point.



Extensive national holidays that are common for several offshoring countries result in an additional delay of a break-even point.



Step-by-step introduction of a full-scale Offshoring into a large organization as well as planned piloting (as opposed to a big-bang introduction) is bound to speed-up the break-even point.



Increasing the Burdened Rate of a remote team will result in an additional delay of a break-even point.

Answers:



Multicultural differences, for example, teams' orientation toward concepts of "authority" and "commitment," could result in an additional delay of a break-even point.



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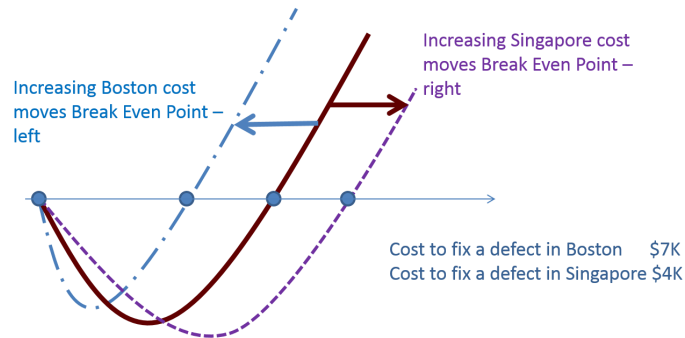
Increasing the Burdened Rate of a remote team will result in an additional delay of a break-even point.

Answer Feedback: The difference in burden rate has widened. Break-even point moved left.

Answer Feedback: The topic of this graduate course is to learn various prudent evolutionary methodologies. Big-bang introductions are very risky. We learn to use the step-by-step introductions and piloting as an investment with a single purpose of making the process more effective.

Answer Feedback: the difference between both burden rates - is what drives the shape of the curve; this is the biggest driver for the break-even point.

### Cost Difference – Drives Position of Break Even Point



## Question 6

3 out of 3 points



There are many drivers influencing the offshoring decision. Selecting a dominant driver is the key to a success of an offshoring venture. Supposed your Boston company is planning to develop, manufacture and market a line of luxurious clocks. Several offshoring options are being evaluated. Here is the list of offshoring and internal candidates along with their corresponding engineering hourly burden rates:

- Shanghai (\$20)
- St. Petersburg (\$45)
- Dallas (\$85)
- Honolulu (\$120)
- Berlin (\$200)
- Zurich (\$300)

After the first round of various considerations and responding to RFPs (Request for Proposals), China, Russia, Texas and Hawaii dropped out. An extensive second round resulted in Swiss winning the contract. Of the following four key drivers, which one is the most probable dominant factor at the top of the list of the decision making?

Selected 

Answers: to get a shot at even a small chance on a global market, hire the best possible people, the strongest talent... and forget about any other considerations you might ever had

Answers: cheap labor drives the bottom line of a modern enterprise  
language barrier is the biggest hindrance to a successful business  
you must collocate your people to simplify their communication



to get a shot at even a small chance on a global market, hire the best possible people, the strongest talent... and forget about any other considerations you might ever had

Response Feedback: The learning objective of this quiz is to become aware of the fact that burden rate, in many cases, is not the key driver. The main goal of creating distributed teams is to engage untapped talent. Its not always about the money. This quiz should remind the Dan Pink's principle discussed in the class ... "taking money off the table".

## Question 7

3 out of 3 points



In this class, we do not treat terminology lightly. We define our terms and we use terms according to their definition. Given three terms, that you can see in industry, select one term that is the best fit, for being most 'consistent and explicit'

Selected 

Answers: Regression Test. As product propagates along a life cycle, there are various levels of regression apply. In a continuous delivery, an extensive and growing regression is executed without interruption 24 X 7. Various sub-processes use the same repository of regression tests, while selecting and naming them with a specific prefix, e.g. 'iteration regression', 'cross-feature regression', etc.

Answers:

Smoke Test. The name came from observing a smoke coming out of a machine after putting it ON for the first time. In other words, if a product withstands a Smoke Test, a product is good enough to proceed.



Regression Test. As product propagates along a life cycle, there are various levels of regression apply. In a continuous delivery, an extensive and growing regression is executed without interruption 24 X 7. Various sub-processes use the same repository of regression tests, while selecting and naming them with a specific prefix, e.g. 'iteration regression', 'cross-feature regression', etc.

Sanity Test. The very first test that is executed, when transferring a product from Development to Test. In other words, if Sanity Test does not pass, it is 'insane' to proceed. The product has to go back to Development. There is no reason to waste time on detailed verification, if the most basic test does not go through.

Response  
Feedback:

Regression Test encompasses other test types, Sanity Test and Smoke Test.

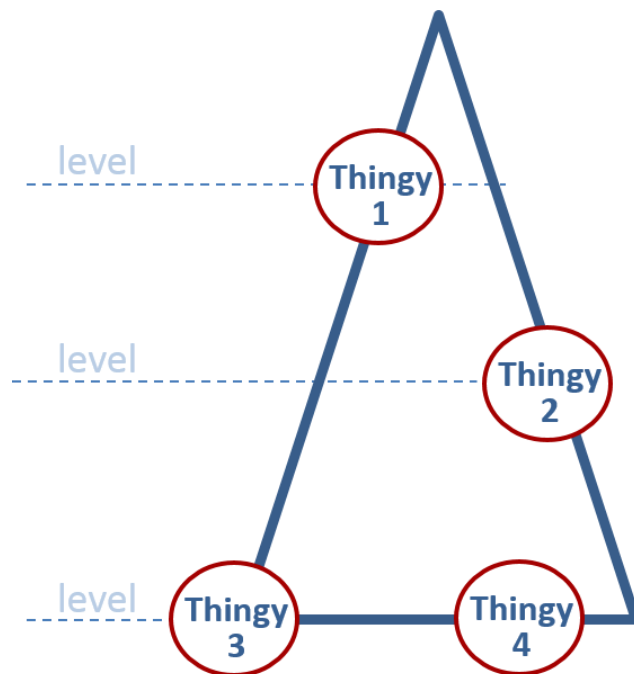
Regression Test could be easily tailored to a multi-stage evolution of a product. The name of a test reflects the stage this test is used for. At the same time it preserves the consistency throughout all stages.

## Question 8

3 out of 3 points



Examine the blank Tree of Thingies shown below. As we have to hang actual terms on the tree. Which arrangement is more appropriate? In other words, which position of terms corresponds to their inherent hierarchy?



Selected Answers:

- Thingy 1. organizational policy
- Thingy 2. program goal
- Thingy 3. iteration objective



- Thingy 1. software engineering
- Thingy 2. configuration management
- Thingy 3. versioning standard



Answers:

- Thingy 1. canonical form
- Thingy 2. requirements
- Thingy 3. software engineering

- Thingy 1. organizational policy
- Thingy 2. program goal
- Thingy 3. iteration objective



- Thingy 1. software engineering
- Thingy 2. template of a test case
- Thingy 3. software verification

- Thingy 1. software engineering
- Thingy 2. configuration management
- Thingy 3. versioning standard



- Thingy 1. iteration objective
- Thingy 2. organizational policy
- Thingy 3. program goal

Response  
Feedback:

The purpose of this quiz is to introduce a notion of a meaningful structure for project taxonomy. Since it is a responsibility of a project

manager to document relevant taxonomy at the beginning of a project. Some terms could be more encompassing than others and hence could be positioned higher on a hierarchy. Project taxonomy does not need to be flat! In this quiz, an 'organizational policy' encompasses all programs and is positioned higher than a 'goal for a specific program'.

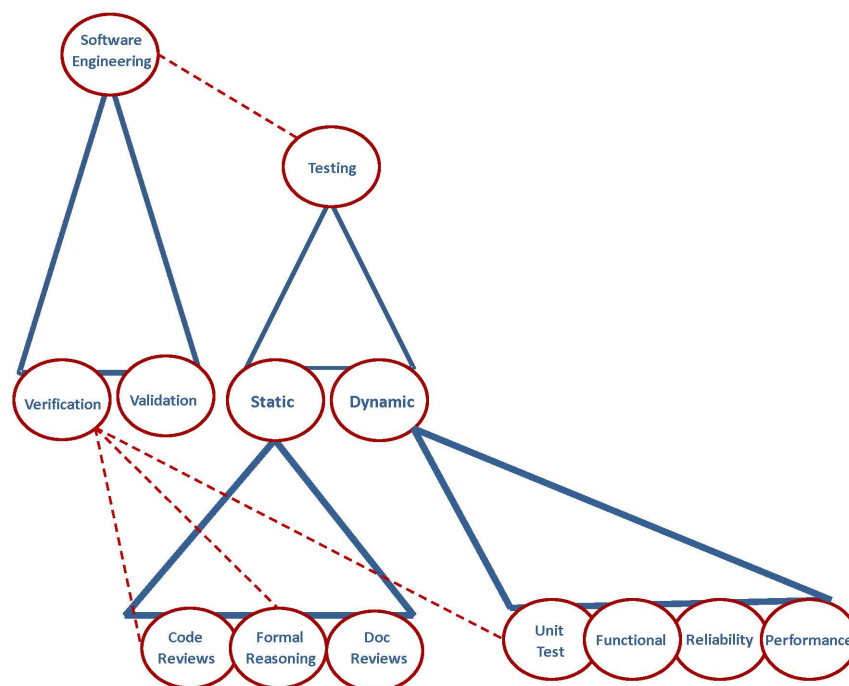
Refer to section of first module, 'Introduction to Distributed Software Development and Management', specifically the part 'Terminology and Taxonomy'.

### Question 9

3 out of 3 points



Regarding the diagram below that was discussed in the class, reflecting on the taxonomy of Software Engineering. Mark the following statements as True or False.



Selected  
Answers:  
Answers:

- ✓ Functional Test is one of the Dynamic test types
- Testing is an example of a more general process called Validation
- Unit Test belongs to Static Analysis
- The scope of Formal Reasoning is identical to the scope of Verification
- Doc Review is one of the Dynamic test types
- Reliability Test is a part of the Static Analysis
- ✓ Functional Test is one of the Dynamic test types

### Question 10

3 out of 3 points





Suppose you are involved in a requirements elicitation for the next version of your application. Which two of the following four questions are appropriate for a context-free interviewing of an end-user?

Selected  
Answers:

☒ What two things annoy you most about the current system?



What is the most delightful feature of the system you are using?

Answers:

☒ What two things annoy you most about the current system?

Will you support our test organization moving from Quality Center to Jira?

Would you agree that the system should be redesigned using Python instead of PHP?



What is the most delightful feature of the system you are using?

## Question 11

3 out of 3 points



The first logical step of any project is to document personas (users, actors, roles) of the future system. In the context of this course's term project, mark the following statements as True or False.

Selected  
Answers:



An archetype (a representative of a certain type of users, who covers the carefully selected segment among all possible user scenarios) – should be included



Both “humans” and “non-humans” should be included

Answers:



An archetype (a representative of a certain type of users, who covers the carefully selected segment among all possible user scenarios) – should be included

Several specific individuals with their age, social security numbers, ethnicity, customs – should be included

Software developers, members of the project team, who build the target application - should be included.

Only “humans” should be included



Both “humans” and “non-humans” should be included

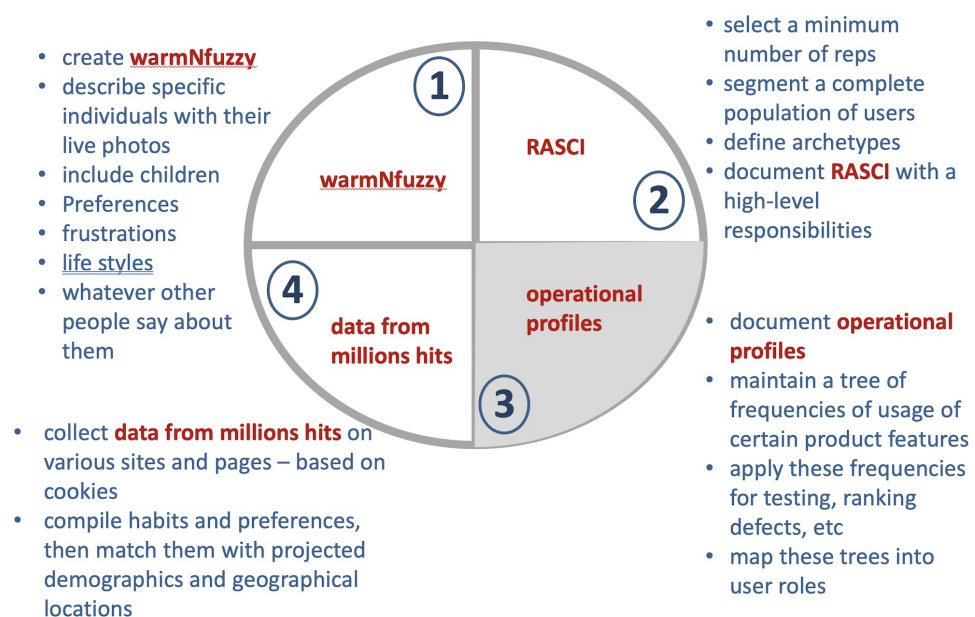
Response Feedback: In the book 'The Inmates Are Running the Asylum' Alan Cooper suggests including so-called negative personas, namely those ones who will not be using the product. We interpret such suggestion for a border-line scenarios, when it is unclear otherwise whether a certain persona is in or out. Note that persona is an archetype. It represents a certain type of users not a single user. This is the way to segment the whole universe of possible usage into a well-defined cases.

## Question 12

3 out of 3 points



Consider four ways to define personas, in the context of the whole industry, that are reflected at the pictorial below. Respond to the stated questions with True or False.



Selected Answers: ☒ Definition # 3 facilitates automated testing  
☒ Definition # 1 is commonly used during Ux design  
☒ Definition # 2 is suggested in this class for a term project  
☒ Definition # 4 is used by social networks

Answers: ☒ Definition # 3 facilitates automated testing  
☒ Definition # 1 is commonly used during Ux design  
☒ Definition # 2 is suggested in this class for a term project  
☒ Definition # 4 is used by social networks

## Question 13

3 out of 3 points



Definition of personas is the initial part of any project. The task here is to distill few real personas from a great variety of instances. To map which instances correspond to which archetypes. To reduce the sea of instances to a selected personas, which you can use as a foundation to build the product. Mark the following statements as True or False.

- Selected ☒
- Answers: When ascertaining the size of a system – we use the number of Personas – we do not use the number of Instances
- ☒
- Pictures with puppies are for Instances. Product features are for Archetypes.
- ☒
- When designing test cases – we use Archetypes – we do not use Instances
- Answers: ☒
- When ascertaining the size of a system – we use the number of Personas – we do not use the number of Instances
- Design of a system is done against Instances and not against Archetypes
- ☒
- Pictures with puppies are for Instances. Product features are for Archetypes.
- ☒
- When designing test cases – we use Archetypes – we do not use Instances

## Question 14

3 out of 3 points



Canonical Form is a common industry standard for writing requirements. Tool vendors, e.g. Pivotal Tracker and Jira - use Canonical Form in their on-line training videos.

Suppose you are working as a Software Engineer building a BTM (Background Task Manager). You received the following requirement for implementation, "The Background Task Manager shall provide status messages at regular intervals".

Mark those statement/actions that are most likely TRUE / are a good fit.

- Selected ☒
- Answers: An Engineer should supplement the given requirement with several child stories to clarify the implementation and send these stories to PM for review and approval.
- ☒
- The following child story is a good example, of what an Engineer might send to PO for review, "As a Background Task Manager (BTM), I need to display status messages in the designated area of UI, see sketch attached, so to inform users."
- ☒
- The following story is a good example, of what an Engineer might send to PO for review, "As a Message and Email Dispatch System, I need to format and forward status messages to the correct SMTP relay, so that users receive the properly formatted email versions of the system notifications".
- ☒
- The following story is a good example, of what an Engineer might send to PO for review, "As a Status Message Rate Limiting system, I need to collapse, summarize or truncate status messages when they occur more frequently than once per second, so that other systems and end users are not overwhelmed by these messages".
- Answers: An Engineer should return the original requirement back to PO (Product Owner) with the note, "This requirement cannot be implemented because it does not follow the canonical form and it is not my job to wordsmith it".



An Engineer should supplement the given requirement with several child stories to clarify the implementation and send these stories to PM for review and approval.



The following child story is a good example, of what an Engineer might send to PO for review, “As a Background Task Manager (BTM), I need to display status messages in the designated area of UI, see sketch attached, so to inform users.”

The following story is a good example of what an Engineer might send to PM for review, because it is written in Canonical Form, “As members of a large organization, we must keep documenting requirements, to help developers implementing them”.



The following story is a good example, of what an Engineer might send to PO for review, “As a Message and Email Dispatch System, I need to format and forward status messages to the correct SMTP relay, so that users receive the properly formatted email versions of the system notifications”.



The following story is a good example, of what an Engineer might send to PO for review, “As a Status Message Rate Limiting system, I need to collapse, summarize or truncate status messages when they occur more frequently than once per second, so that other systems and end users are not overwhelmed by these messages”.

## Question 15

3 out of 3 points



Consider the cost of documenting, reviewing and approving requirements. The goal of the following checklist is to carefully select only those requirements that are worthy of organizational attention.

Mark those statement/actions that are most likely TRUE / are a good fit.

Selected

Answers:



A requirement that is too small to talk about and to spend time on its specific definition – should not be documented



A requirement that is ‘an unrealistic fantasy’, ‘a pie-in-a-sky’ – should not be documented



A requirement written in Canonical Form, using an Anti-Persona, someone who will never buy the product – such requirement should not be documented



A requirement that was just implemented in previous release – does not need to be re-reviewed



A requirement which will be agreed upon, moved to the backlog and eventually done-done-done – such requirement should be documented



A requirement which will be done anyway, as a result of implementing other system components – should not be documented



A requirement that is too big and needs to be split – should not be documented with its current scope

Answers:



A requirement that is too small to talk about and to spend time on its specific definition – should not be documented



A requirement that is 'an unrealistic fantasy', 'a pie-in-a-sky' – should not be documented



A requirement written in Canonical Form, using an Anti-Persona, someone who will never buy the product – such requirement should not be documented



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## Question 16

3 out of 3 points



With reference to the book by Karl Wieggers "More About Software Requirements", Microsoft Press. Consider two statements.

Cosmic truth # 1 is '*If you don't get the requirements right, it does not matter how well you execute the project.*'.

Cosmic truth # 10 is '*You're never going to have perfect requirements*'.

It seems, cosmic truth # 1 motivates us developing good requirements. Which is **contrary** to cosmic truth # 10 that seems to **de**-motivate us writing requirements.

How do you reconcile both cosmic truths? Select from the list below all that apply.

Selected



Answers:

It is prudent to time box the requirements management activities



Requirements should be maintained and kept consistent with other work products throughout a project



Developing requirements is an iterative process

Answers:



It is prudent to time box the requirements management activities



Requirements should be maintained and kept consistent with other work products throughout a project

✓ Developing requirements is an iterative process

Answer

Feedback:

Response  
Feedback:

Regarding consistency between requirements and all other artifacts, CMM is using the concept of 'bi-directional traceability' maintained throughout the length of a project.

### Question 17

3 out of 3 points



Regarding the 'Backlog Grooming and Scoping' discussed in the class, select one of the following scenarios with given estimation accuracy, that is most likely to be true,

Selected  
Answers:



- T-Shirt Sizing ... estimation accuracy is equal to (-100%)
- Exploratory Scoping ... estimation accuracy is equal to (-30%)

Answers:

- T-Shirt Sizing ... estimation accuracy is equal to (-30%)
- Exploratory Scoping ... estimation accuracy is equal to (-100%)



- T-Shirt Sizing ... estimation accuracy is equal to (-100%)
- Exploratory Scoping ... estimation accuracy is equal to (-30%)

Response  
Feedback:

According to the swim lanes offered in the class, 'T-Shirt Sizing' precedes 'Exploratory Scoping'.

Estimation accuracy usually improves along the life cycle.

Exploratory Scoping is usually more precise than T-Shirt Sizing.

### Question 18

3 out of 3 points



Which of the following are true regarding a logical order of activities in Backlog Grooming and Scoping? (Select all that are true.)

Selected  
Answers:



In order to provide a meaningful agenda for a Grooming meeting, features should be ranked beforehand.



When assumptions change, an estimate needs to be revised



One could start documenting assumptions concurrently with defining a feature. Although assumptions should be finalized after a feature has been defined.

Answers:



In order to provide a meaningful agenda for a Grooming meeting, features should be ranked beforehand.

Considering a simplified implementation of a feature, that consists of three parts, (a) Requirements, (b) Design, and (c) Test. Then 'Backlog Grooming and Scoping' process does cover all three parts (a) , (b) and (c) .



When assumptions change, an estimate needs to be revised



One could start documenting assumptions concurrently with defining a feature. Although assumptions should be finalized after a feature has been defined.

A feature should be completely scoped before it is defined.

Answer

Correct. As per the diagram provided in notes

Feedback:

Response

Feedback:

(1) Incorrect. A feature cannot be possibly scoped if it is undefined.

The question is posed in the context of the given diagram. Which consists of two steps, first Grooming and second Scoping. After the first step, a feature is advanced into the "defined" state. After the second step a feature is advanced into the "estimated" state. In that order.

There is a similar question in your notes, starting with...."Some participants expressed their interest to start scoping features that have not been defined yet...."

(3) Correct. Otherwise a Program Manager would not know how to start a grooming meeting.

## Question 19

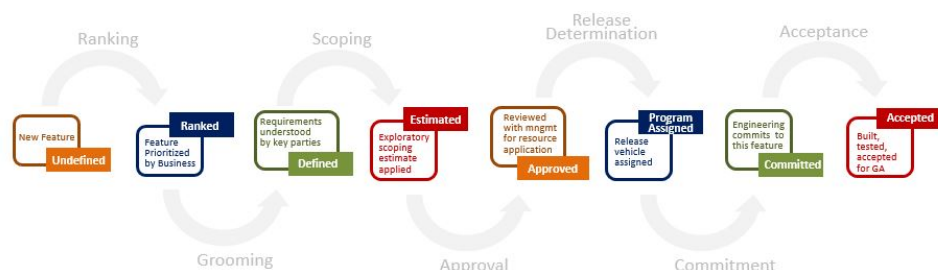
3 out of 3 points



Examine the following life cycle of a product feature.

It has eight distinct states along with their corresponding transitions from one state to the next.

Among these seven transitions, identify one transition that, under usual circumstances, requires the greatest effort.



Selected Answers: Acceptance

Answers:

Grooming

Approval

Ranking



Commitment

Scoping

✔ Acceptance

Release Determination

Response  
Feedback: Examine this deceptively-waterfallish life cycle. It hides all scrums within Acceptance phase. Dozens engineering teams and hundreds software engineers work tirelessly after a feature is committed and before it is accepted. This transition requires by far the greatest effort.

## Question 20

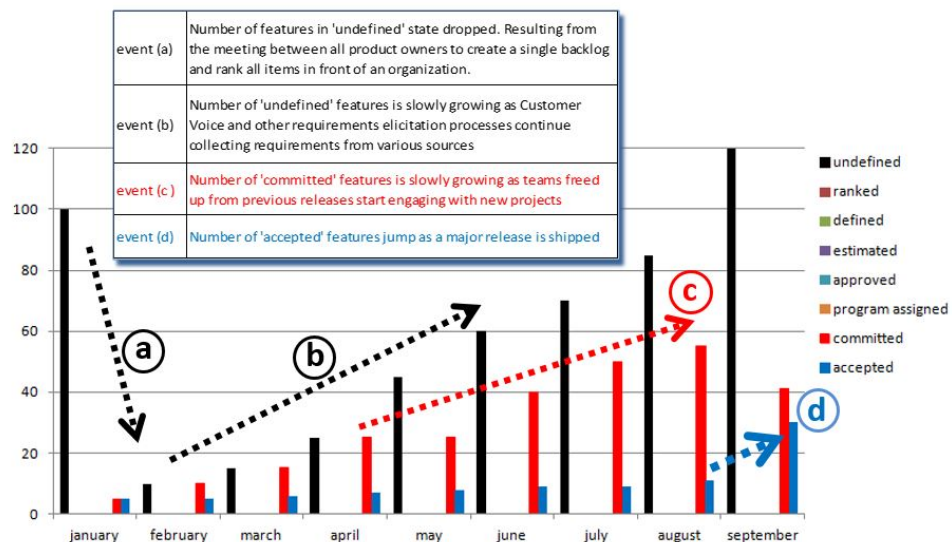
3 out of 3 points



Diagram below shows the number of features in each state.

Examine the following four events, see table below.

Looking at the flow of requirements coming at this organization. Is engineering capacity adequate to deal with incoming flow or should the engineering capacity be increased?



Selected Answers: ✔ Engineering capacity should be increased

Answers: ✔ Engineering capacity should be increased  
Engineering capacity is sufficient

Response  
Feedback: We are seeing a single release within eight months, which is the only opportunity to satisfy customer requirements. The red bar of Committed features has dropped at this release, however the drop is clearly insufficient. If we are to wait another eight month for the next release, then the red bar and the black bar of Undefined features will continue to grow through the roof.

Somehow, the frequency of releases should increase. As Engineering should be able to develop, test and accept a stream of features to match customer requests.

## Question 21

3 out of 3 points

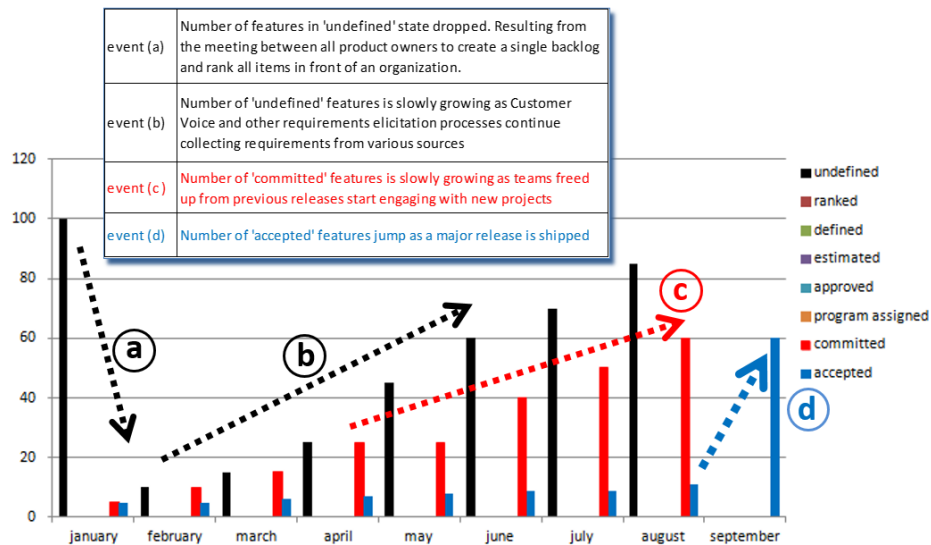




Diagram below shows the number of features in each state.

Examine the following four events, see table below.

Looking at the flow of requirements coming at this organization. Is engineering capacity adequate to deal with incoming flow or should the engineering capacity be increased?



Selected Answers: ☒ Adequate

Answers: ☒ Adequate  
☐ Inadequate

## Question 22

3 out of 3 points



Which of the following are true for the cost of interruptions. (Select all that are true.)

Selected



Answers:

Excessive multitasking is reported as one of the ten classic sins of software development, see [Construx 10X Ceminar](http://www.construx.com/10x_Software_Development_Teams/#1). ([http://www.construx.com/10x\\_Software\\_Development\\_Teams/#1](http://www.construx.com/10x_Software_Development_Teams/#1))



There is a significant Cost of Interruptions associated with the same engineers developing new features and fixing defects in past versions. When offshoring the bugfixing, this cost is added back to the budget.



If the number of tasks is increasing, an engineer is unable to focus on any specific task and eventually spends all the time on switching between different tasks.

Answers:



Excessive multitasking is reported as one of the ten classic sins of software development, see [Construx 10X Ceminar](http://www.construx.com/10x_Software_Development_Teams/#1). ([http://www.construx.com/10x\\_Software\\_Development\\_Teams/#1](http://www.construx.com/10x_Software_Development_Teams/#1))



There is a significant Cost of Interruptions associated with the same engineers developing new features and fixing defects in past versions. When offshoring the bugfixing, this cost is added back to the budget.



If the number of tasks is increasing, an engineer is unable to focus on any specific task and eventually spends all the time on switching between different tasks.

Answer

Feedback:

Answer

Feedback:

Correct. As per the course notes. Engineers always complain about interruptions.

Response

Feedback:

The logical conclusion here for an individual belonging to an immature organization with never-ending flow of interruptions - is to train yourself to withstand the pressure and to focus on the task at hand no matter what.

Being 'in a flow' is a prerequisite for many software engineers to be able to accomplish anything. The most common image of a software engineer is an introvert with a diminished capacity for socializing. Which is opposite to the distinctive quality of a manager, who is able to accomplish several concurrent tasks in a social setting.

## Question 23

3 out of 3 points



Staying well-focused is considered the greatest virtue of a software team. Hence, the task of a manager is to focus the team toward the project goal. And the task of an individual practitioner is to focus on the activity at hand.

Consider a flow of unproductive discussions that are taking place in a regular daily life. Which discussions will you join (mark as TRUE) and which ones will you avoid?

Selected



Answers:

John. There is an unusual condition that is being reported from several customer sites affecting multiple components.

Cathy. We should brainstorm for fifteen minutes, as to who will assemble a configuration in the sandbox to simulate this manifestation.

John. I suggest we do it now together.

Answers:



John. There is an unusual condition that is being reported from several customer sites affecting multiple components.

Cathy. We should brainstorm for fifteen minutes, as to who will assemble a configuration in the sandbox to simulate this manifestation.

John. I suggest we do it now together.

John. It is important to know when to say 'Yes'. It is even more important to know when to say 'No'.

Alison. I disagree completely. What is most important is to know when to say 'No'. Saying 'Yes' is much less important.

John. How could you possibly disagree with me ...

John. We should discuss whether to limit our discussions to two hours per day or encourage them during a longer periods.

Peter. I vote for non-restricted discussions. Since they facilitate creativity.

John. I vote to limit discussion to at least three hours per day.

## Question 24

3 out of 3 points



Which of the following are true regarding the organizational cause and effect relationships? (Select all that are true.)

Selected

Answers:



Widening test coverage immediately results in an increase in number of recorded defects. Although after many product faults are corrected, the number of customer complaints is bound to drop.



Process rigor correlates positively with defect removal efficiency.



The number of people in an organization correlates positively with effort spent on communication.

Answers:



Widening test coverage immediately results in an increase in number of recorded defects. Although after many product faults are corrected, the number of customer complaints is bound to drop.

A product defect density correlates negatively with number of reported customer failures.



Process rigor correlates positively with defect removal efficiency.



The number of people in an organization correlates positively with effort spent on communication.

Answer

Feedback:

Correct. Mature organizations keep advancing their process. They are able to remove defects close to the point of defect origin. DRE (Defect Removal Efficiency) is the standard measure of this inherent organizational ability to ship clean code.

Answer

Feedback:

Correct. If the organization grows, the effort spent on communication quadruples, since the number of possible links expands exponentially.

Similarly, for a term project, if the number of folks on a team is greater than five, then the overall effectiveness dips, due to an excessive communication.

## Question 25

3 out of 3 points



On a year-long project, a month before planned completion, management decided to double the number of developers involved in the project. What will be the most likely outcome of this decision?

Selected

- ✔ productivity will sink and the project will be delayed

Answers:

Answers:

productivity will remain the same and the project will be delivered on time

- ✔ productivity will sink and the project will be delayed

productivity is bound to double and the project will be delivered earlier than planned

Response

Feedback:

The case is well described in a famous paper "No Silver Bullet" by Fred Brooks. New and late arrivals to a project team shall increase the number of communication paths and shall sink the productivity, at least temporarily.

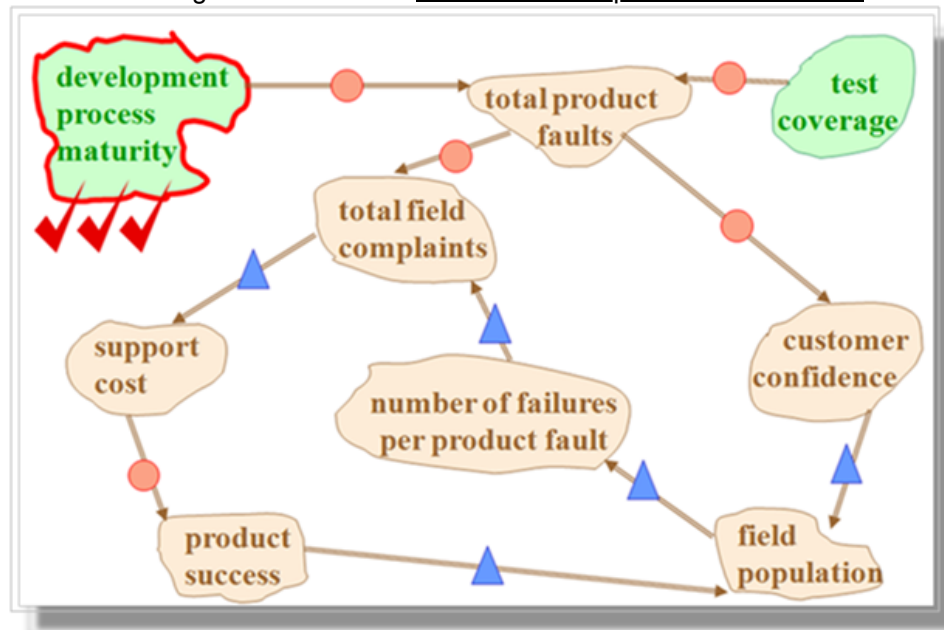
### Question 26

3 out of 3 points



- A blue triangle designates a positive correlation.
- Red circle denote a negative correlation.

You have the identical diagram in your course notes. One relationship on both diagrams (in this quiz and in course notes) is intentionally reversed. Please traverse the diagram to determine which relationship has been reversed.



Selected



Answers:

relationship between 'total product faults' and total field complaints' - has been intentionally reversed

Answers:

relationship between 'total field complaints' and 'support cost' - has been intentionally reversed

relationship between 'development process maturity' and 'total product faults' - has been intentionally reversed



relationship between 'total product faults' and total field complaints' - has been intentionally reversed

relationship between 'field population' and 'number of failures per product fault' - has been intentionally reversed

**Question 27**

3 out of 3 points



Regarding the relationship between Faults and Failures. Which of the following statements are most likely not true?

Selected  
Answers:

☒ There is a negative correlation between faults and failures

Answers:

A product with two faults could be more reliable than the product with one fault

Two different faults could potentially result in a similar failure type

There could be no failures without a fault

It is infrequent, but it is quite possible that a fault does not have a corresponding failure

☒ There is a negative correlation between faults and failures

Two different failures could potentially come from the same fault

One fault is likely to cause multiple failures

The correlation between faults and failures is not trivial and depends on many factors, e.g. number of customer sites

Response  
Feedback:

John Musa in his pioneering book “Software Reliability Engineering”, McGraw Hill spends many pages analyzing the correlation between faults and failures. The goal of the research is to improve the user perceived quality of a system

**Question 28**

4 out of 4 points



Refer to the list of twenty positions below, that are common in the industry,

1. Vice President of Engineering
2. Software Manager
3. Project Manager
4. Product Manager
5. Release Engineer
6. DevOps Engineer
7. CI/CD Evangelist
8. PAL Librarian
9. Organizational Estimator
10. Recorder
11. IT Support
12. Deputy Director of Operations
13. Test Engineer
14. Automation Engineer
15. Chaos Engineer
16. Quality Assurance Engineer
17. Agile Evangelist / Coach
18. Scrum Master
19. SRE - Site Reliability Engineer
20. Security Deployment Specialist
21. Data Science / Machine Learning
22. Business Intelligence Reporting Specialist

Please identify whether each of the following matches (of a "position" with its "responsibility") is, in fact, the best fit?

Selected

Answers:



arranging a purchase of LAPTOPs for engineering staff (Deputy Director of Operations)



removing impediments for a Scrum team .. (Scrum Master)



documenting audit plans and administering audits of software process ... (Quality Assurance Engineer)



administering a consistent training to multiple scrum teams ... (Agile Evangelist / Coach)



articulating user perspective, prioritizing and reducing to paper the customer requirements .. (Product Manager)



maintaining organizational memory ... (Organizational Estimator)



authorizing head counts, balancing budgets within product lines ... (Vice President of Engineering)



developing and executing test cases to find software defects ... (Test Engineer)

Answers:



arranging a purchase of LAPTOPs for engineering staff (Deputy Director of Operations)



removing impediments for a Scrum team .. (Scrum Master)



documenting audit plans and administering audits of software process ... (Quality Assurance Engineer)

creating a record from a peer review ... (Chaos Engineer)

motivating software developers ... (PAL Librarian)

manipulating project activities ... (Organizational Estimator)



administering a consistent training to multiple scrum teams ...  
(Agile Evangelist / Coach)



articulating user perspective, prioritizing and reducing to paper  
the customer requirements .. (Product Manager)



maintaining organizational memory ... (Organizational Estimator)



authorizing head counts, balancing budgets within product lines  
... (Vice President of Engineering)



developing and executing test cases to find software defects ...  
(Test Engineer)

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

## Question 29

3 out of 3 points



All textbooks on Software Engineering have a similar table of contents. With reference to Eric Braude (page 6), Roger Pressman (page 56) and Robert Futrell (page 12) books on Software Engineering, where all topics are tagged with the same letter "**P**" (**P**roduct, **P**roject and **P**rogram).

Which scenario is most common?

Selected



Answers:

- **P**roduct Manager is responsible for documenting customer requirements
- **P**rogram Manager is responsible for maintaining organizational list of projects
- **P**roject Manager is responsible for maintaining the specific project plan

Answers:



- Product Manager is responsible for documenting customer requirements
  - Program Manager is responsible for maintaining organizational list of projects
  - Project Manager is responsible for maintaining the specific project plan
- 
- Product Manager is responsible for maintaining organizational list of projects
  - Program Manager is responsible for maintaining the specific project plan
  - Project Manager is responsible for documenting customer requirements

**Question 30**

3 out of 3 points



Which of the following statements are most likely not true?

Selected



Answers:

A software architect who has never been writing code and does not participate in code reviews, still could perfectly play a role of a software architect.



A project manager who advocates the abolishment of a consistent software process, and promotes the reactive, short-term, seat of the pants approach, still could be a perfect project manager



A software engineer, who publicly resents participating in verification and test activities, still could be a perfect software engineer.

Answers:



A software architect who has never been writing code and does not participate in code reviews, still could perfectly play a role of a software architect.

A professional musician, who used to play violin in a restaurant for living, and then completed his master degree in computer science, could be a perfect software engineer.



A project manager who advocates the abolishment of a consistent software process, and promotes the reactive, short-term, seat of the pants approach, still could be a perfect project manager





A software engineer, who publicly resents participating in verification and test activities, still could be a perfect software engineer.

### Question 31

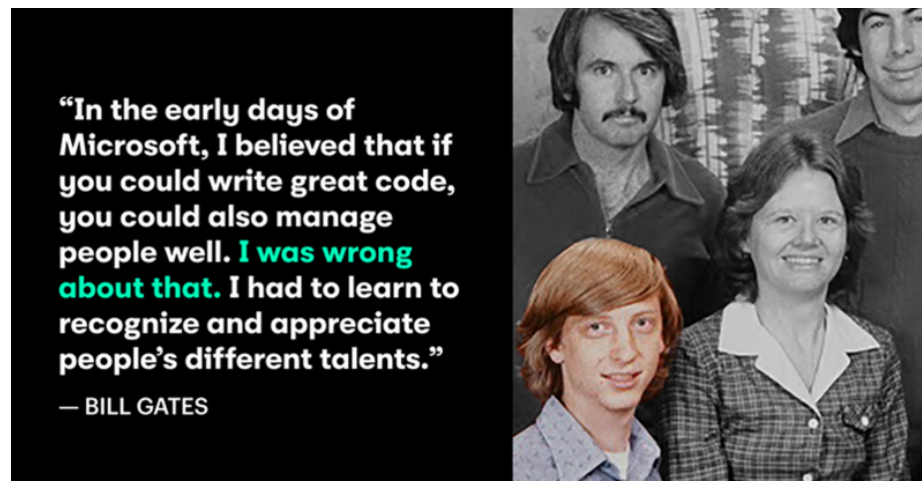
3 out of 3 points



Review these three scenarios and respond to questions posed below.

1) In an email sent just before Thanksgiving 2022, Musk told Twitter employees that "all managers are expected to write a meaningful amount of software themselves" and equated one's inability to code as an engineering manager to not being able to ride a horse as a cavalry captain. Musk's point is salient, and one that was made before: Managers need to be able to do the same work as those they are managing.

2) The image below shows Bill Gates with Microsoft staff in 1978, along with one of his famous quotes. Source: Mic, Wikimedia Commons



3) A job interview at Google usually involves a demonstration of a certain skill. It is a company-wide 70,000-employees policy to focus on this skill during an interview. Whether you are applying for a position of a Project Manager, PAL Librarian, Software Engineer or a Tester – you still have to go through the same demonstration to show that you have what it takes. Select that one bed-rock skill from three given choices.

Selected

Answers: Write a piece of code to resolve a math problem, showing your familiarity with a good coding style.

Answers: Demonstrate your presentation skill with a brief overview of your career showing that you feel comfortable in front of a group of interviewers.



Write a piece of code to resolve a math problem, showing your familiarity with a good coding style.

Document estimates for a given software effort, showing your knowledge of a prudent software process.

Response Feedback: Here is the link to interview tips from one of the hiring manager at Google.  
<https://www.fastcompany.com/3062713/i-hire-engineers-at-google-heres-what-i-look-for-and-why>

## Question 32

3 out of 3 points



Consider the responsibility of a leader to motivate the team. What would be the most fitting reaction of a manager to a confession from a software developer. Select one from three given choices.

Software developer:

the reason I write clean code because I am from Chicago

Selected



Answers:

Manager: thank you for making an extra effort to write a clean code

Answers:

Manager: that is a strange reason, since there is none else here from Chicago



Manager: thank you for making an extra effort to write a clean code

Manager: are you saying that if I am not from Chicago, then I am not a good coder ?

Response  
Feedback:

In many cases, a manager could not instantly wrap his/her head around a statement like that and needs some time to think it through. It reflects on a personal nature of motivation. As an individual statement it might be perfectly accepted. Although, it clearly does not fit into a team environment where folks are located in various continents. So what would be a good bumper sticker as to why we write clean code? Let me bring about several examples from teams I dealt with,

- Because that is what we do
- Because we are professionals
- We love clean code
- We write clean code for the sake of writing clean code.
- It is cheaper to fix defects early rather than let customers reveal defects. It is even cheaper to avoid defects all together.
- We constantly learn writing clean code

## Question 33

3 out of 3 points



Identify those statements that do fit into the 'mantra of a professional software engineer'.

Selected



Answers:

I am a software engineer and last week I modified 10 screens of legacy application



I am a software engineer and I do unit test



I am a software engineer and I am responsible for my team



I am a software engineer, and every day, I learn to do the perfect code

✓ I am a software engineer and I do peer reviews



I am a software engineer and every week I take an on-line classes on new technologies and standards

✓ I am a software engineer and today I wrote 100 lines of code

✓ I am a software engineer and I write clean code

✓ I am a software engineer and I do system test



I am a software engineer and I document requirements along with their estimates

Answers:

I am a software engineer and my code is better than the code of my peers



I am a software engineer and last week I modified 10 screens of legacy application

I am a software engineer and I do Agile

✓ I am a software engineer and I do unit test

✓ I am a software engineer and I am responsible for my team

I am a software engineer and I test everything as I have a 100% coverage



I am a software engineer, and every day, I learn to do the perfect code

I am a software engineer and, if something goes wrong within my team, the first thing I do is to report to the manager, since it is their job to fix it

✓ I am a software engineer and I do peer reviews



I am a software engineer and every week I take an on-line classes on new technologies and standards

✓ I am a software engineer and today I wrote 100 lines of code

I am a software engineer and I am just doing my work and not doing the work of other people

✓ I am a software engineer and I write clean code

I am a software engineer and I don't do testing; we have a special department that does testing

✓ I am a software engineer and I do system test

I am a software engineer and I find more defects than anyone on my team



I am a software engineer and I document requirements along with their estimates

I am a software engineer and last year I delivered to users 10,000 points

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

Feedback:

Answer simpleVTBEPlaceholder

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Feedback:

Tuesday, August 8, 2023 11:55:46 PM EDT

← OK