



Waterfall Models
Incremental Models
Iterative Models
Applying traditional software development models

Video: Phase Gates / Stage Gates
8 min

Video: Applying Software Development Models
13 min

Quiz: Traditional Software Development Models
11 questions

Peer-graded Assignment: Project Scenario 1
Grading in progress

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Project Scenario 1

Peer-graded Assignment: Project Scenario 1

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Case Study 1 - Zenith Healthcare

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PROMPT

What software development methodology would you suggest for this situation and why?

- Step 1: Start analyzing the scenario by **identifying the characteristics** of this situation and **specify the logic** behind the selection of characteristics. For example, you may identify "User Needs Unknown" as a characteristic based on statement X, Y and Z in the scenario.
- Step 2: **Select a model** that best fits the characteristics you identified in step 1. **Justify your choice** by providing by the logic behind your selection. For example, you may say that since the scenario has characteristics X and Y, models A and B are potential candidates. Additionally, since the scenario has characteristic Z, model A is the best option.

The requirements and the solution are both well known based on the statements that "the requirements from the client perspective are very well known" and "the system to support the growing demand is also well understood." Therefore, it does not seem that either the requirements or the solution to the problem need any change. The challenges for the Zenith Healthcare project are to scale up the system so it can continue to provide the same functionality enjoyed by its customers, as well as, update the 4 components of its system.

In my viewpoint, any of the predictive models such as the Waterfall, Sashimi or V-models would provide adequate framework for an effective solution for Zenith Healthcare because the problem and the solution are both well known and understood, for which any of these models is well suited. Also, since one of the four independent components of the Zenith Healthcare system is in need of update sooner than later, I believed that Zenith would benefit from a phased delivery of its updated system to enable the project teams to learn from an earlier delivery, as well as, allow for tweaks to the system as the project progresses.

My recommended model that ought to be followed would be the Sashimi model over increments for each of the four components of the Zenith system. The Sashimi model is well suited for this project because the requirements and solution are well known and understood. This model is uniquely well suited for this project because since the requirements and design solutions are well known, the risk in truncating the plans for all of the software development processes should be minimized.

RUBRIC

Did the learner identify "**Known User Needs**" or "**Known Requirements**" (or something similar) as one of the characteristics and specified the correct logic?

- 0 pts Didn't identify this characteristic
- 1 pt Identified the characteristic but the logic / reference statement used to support the characteristic was incorrect. The correct logic / reference statement to support this characteristic is "...with the exact same functionality. Thus, the requirements from client perspective are very well known and do not need to change"
- 2 pts Identified the characteristic and specified the correct logic

Did the learner identify "**Known Solution**" (or something similar) as one of the characteristics?

- 0 pts Didn't identify this characteristic
- 1 pt Identified the characteristic but the logic / reference statement to support this characteristic was incorrect. The correct logic / reference statement to support this characteristic is "What needs to be changed in the system to support the growing demand is also well understood"
- 2 pts Identified the characteristic and specified the correct logic

Did the learner identify "**Benefit in deploying part of the product**" (or something similar) as one of the characteristics?

- 0 pts Didn't identify this characteristic
- 1 pt Identified the characteristic but the logic / reference statement to support this characteristic was incorrect. The correct logic / reference statement to support this characteristic is "Out of the 4, one of them has caused the most pain and organization could benefit greatly if that component could be replaced first with a new, highly scalable architecture."
- 2 pts Identified the characteristic and specified the correct logic

Did the learner select the right model for the scenario and provide the correct logic?

- 0 pts Learner selected a model that is ill-suited to this situation like the Spiral Model, the V-Model, Sashimi, or the Waterfall method
- 1 pt Learner selected a model that will work but is not the preferred model (e.g. "Unified Process")
- 2 pts Learner selected the right model: the Incremental Model
- 3 pts Learner selected the right model and the right variation of it: the most basic incremental model -- all phases are completed in each increment. This allows us to replace the most pain-inducing component as fast as we can.
- 4 pts Learner selects the right model and specifies the right logic behind the selection: "Out of the 4, one of them has caused the most pain and the organization could benefit greatly if that component could be replaced first with a new, highly scalable architecture."

What is the overall quality and detail of the response and the facts supporting the response.

- 0 pts Little detail
- 1 pt Enough detail
- 2 pts -

	<p><input checked="" type="checkbox"/> 2 pts Enough detail with additional, out-of-the-box/creative thinking</p>
	<p>Any other open feedback for this question?</p> <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div>

<p>PROMPT</p> <p>Imagine that you were the lead or project manager for this project. For the selected model, take us through a simulated / fictitious journey on how this project will be completed all the way from defining requirements to deployment. You are free to make up characters as you feel appropriate to fit your story. Please watch the video on "Model Selection" to get an idea. The video stays at high level, but you can go in further details as you feel necessary. In your story, please make sure to talk about artifact and practices followed by the team on this project.</p> <p>The start of the project should focus on the requirements then design of the solution. The requirements and solutions for the project are well known. Therefore, this part of the project could be done to cover the whole system, that way, consistency throughout the system can be ensured. Beyond that, the issues from the more troublesome aspects of the system can be addressed sooner than later and solutions found sooner. I would also recommend a Requirements and Design phase gate to review the efforts document the requirements and plan out the design to ensure that the key stakeholder plans and the products are what were intended, does it still make sense to continue with the project and to make plans for building and developing each of the system increments.</p> <p>The delivery should be completed over four increments, to cover each of the four system components. The first delivery would be for the component that has given the company the most pain. After all of implementation, testing and deployment of the first increment are completed, the key stakeholders should take the time again for a quality check to ensure that the subsystem produced conforms to its specifications and satisfies what Zenith wants in their system as the team goes into the next phase, to evaluate to see does it continue to make sense to stay on the project and to make plans on how the next increment of the system will be produced. The stakeholders need to take time to learn from the increment just completed to identify what worked in the process and to make any adjustments to the process to address any areas of improvement. The list of deliverables can then be scheduled with a plan and timeline for the next increment.</p> <p>Each of the successive increments can then be completed accordingly, with the team learning what makes sense and to identify where pivots in the process make sense and adjust. Hopefully, the team can receive assessments from Zenith on how each increment of the system is received and how it behaves on a more real-time basis. These assessments can contribute to this learning process for the new system, prior to acceptance testing after the product is delivered.</p>	<p>RUBRIC</p> <p>Does the story supports the model selected by the learner?</p> <ul style="list-style-type: none"> <input type="radio"/> 0 pts The story does not supports the model selected by the learner <input type="radio"/> 1 pt The story supports the model selected but story was shallow with not much details <input type="radio"/> 2 pts The story was very detailed and complete (covers all artifacts and ceremonies of the model selected) <input type="radio"/> 4 pts The story was very creative and covers things that weren't taught in the course but applicable to this scenario.
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<p>PROMPT</p> <p>Assume that you are the quality lead or technical lead on this project. What kind of testing would you suggest the team to do? Be sure to justify your answer. To answer this question, first list down the key things from the use case above that are really important. For e.g. scalability, performance, usability, integration between components etc. After that, identify what type of testing would you want the team to do to make sure that upgraded product is high quality and deployed defect free. Please refer to the "Testing and Verification" section in module 2. Also, please watch following videos to learn about various types of testing methods: https://www.coursera.org/learn/software-processes/lecture/G30EZ/software-testing-perspectives</p> <p>The upgraded system needs to provide the same services (outputs) from the original version of the software. The test cases (depending on what level of testing is used) would have to incorporate an appropriate level of scalability, performance and usability to operate in a much larger area of service.</p> <p>Since the performance of the system has been well received by its customer clients, it sounds like we have a great control model with which to compare performance of any software that the team will eventually deploy. We have a great source of inputs into the system, and we also have the respective outputs that would be generated. We can use those inputs to test any unit test, module, subsystem or the eventual system that we deploy to the customer for acceptance testing. Then we can use the respective outputs as expected outputs to evaluate any output to see if the product is giving the correct result.</p> <p>Then, as the different aspects of the system are brought together at the different levels of testing, the team will learn what needs to be done to integrate the different components together.</p> <p>I would recommend a combination of black-box and white-box testing to ensure the quality of the program is high. Comparing the behavior of the upgraded system with the previous version and ensuring the inputs</p>	<p>RUBRIC</p> <p>Are the types of testing suggested by the submission appropriate for the example?</p> <ul style="list-style-type: none"> <input type="radio"/> 0 pts There are no suggested types of testing. <input type="radio"/> 5 pts Some types of testing are listed, but no attempt is made to justify them, right or wrong. <input type="radio"/> 6 pts Some types of testing are listed, some are right but most are wrong. The justification does not do a good job of explaining why these types of testing are needed. <input type="radio"/> 7 pts Types of testing listed make sense for the project (with at most one exception), but the justification does not do a good job of explaining why they are necessary. <input type="radio"/> 8 pts Types of testing listed make sense for the project (with at most one exception), but the justification only does a mediocre job of explaining why they are necessary. <input type="radio"/> 9 pts Types of testing listed make sense for the project (with at most one exception), and the justification provided makes sense (with at most one exception). <input type="radio"/> 10 pts The types of testing listed are perfectly applicable to the project, and these types of testing are fully justified.
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provide the same outputs as the previous version of the system would be the best way to ensure a high quality product.

The white-box testing would have to include regression testing to ensure high quality performance continues as functionality added (integrated) to the system.

Then regarding top-down vs bottom-up testing vs back-to-back testing is concerned, it seems to me that most of the integrating on this project would be best evaluated from a combination of bottom-up testing and back-to-back testing perspective because, from my viewpoint, we are starting with a system that operates wonderfully for Zenith and their clients. The project is then scaling up the operability. The testing would then be comparing the inputs used on the original version of the system, watching the behavior of the system, then evaluating the accuracy of the output of the system to the expected output from original system.

PROMPT

Continuing your role as a quality lead or technical lead for the project. Write a few example of test cases or a descriptive narrative for what you expect the testing team to use when testing this product. Please refer to the "Testing and Verification" section in module 2. Feel free to make assumptions about the functionality of the system to come up with a scenario.

Need to prioritize the testing to ensure the more critical operations of the system are enabled for proper function.

One example would be a client/patient comes into the clinic for a physical. The physical is completed by getting recording the findings of a list of vital statistics (i.e., height, weight, resting heart rate, blood pressure, etc.).

Getting into the specifics of the system, the resting heart rate should be enterable. This would be a numerical (integer) field. Then, after entering, the entered value should be verifiable on the screen, with "typical/acceptable" ranges (for the patient's age, gender, race, etc) provided as well as if the entered value falls in that range. The value to be green if it is in range, red if out of range and alternating colors if on the edge of the range.

Another feature that could be evaluated would be trending of those vital statistics. If there is a year's worth of data for a patient, the blood pressure could be analyzed over time. This trend could be found to be cyclic or something else.

Then a critical piece of information that should be recorded would be any health concerns (anything that the patient has questions or concerns about). Then, once the appointment is completed, the doctor can input the findings into the system to track the health readings of the client over time. There should be a free text field where the doctor can enter the questions or concerns that the patient/client brought up during the appointment. This function would be tested to ensure that what is entered is verifiable by the person who entered it against what was entered in an appointment checklist/questionnaire.

The team would need to work with Zenith to decide which items on the patient's chart are universal indicators of concern that would be highlighted for the doctor as a possible pattern of concern or what can be listed as a point of information for the physician.

RUBRIC

Do the test cases or narrative provided make sense relative to the project at hand?

- 0 pts
There are no test cases or narrative
- 5 pts
Test cases or a narrative exist, but is either not at all clear or completely misses the point of the assignment.
- 6 pts
Some test cases or a brief narrative appears, but only applies to the project in a tangential way (is mostly off-topic, hardly related, etc.)
- 7 pts
Test cases provided are not fully described (e.g. they are missing expected output): the narrative merely lists ways of testing which are generic or the definition of the type does not apply them to this specific project.
- 8 pts
Test cases exist but are not considered comprehensive: Narrative only applies to the project partially, or is incorrect in some major way
- 9 pts
Test cases exist and are nearly comprehensively descriptive: Narrative applies but has mistakes which affect applicability/understandability
- 10 pts
Test cases included are excellent: Narrative clearly explains the how the testing should be approached.

Submit Review

Comments

Comments left for the learner are visible only to that learner and the person who left the comment.



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