

Worksheet: The SDLC & Software Development Methodologies

Please submit your work using the link provided by your instructor. Please use:

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Worksheet Code: SDWPLM

Q1. For which of the following project(s) would you recommend using a **waterfall methodology**?

- a) A major overhaul of the country's air traffic control system.
- b) A new time management app for college students.
- c) New firmware for a bionic implant that gives superhuman strength and absolutely cannot fail.
- d) A new online stock-trading website funded by venture capital.
- e) A new machine vision program that allows a robotic arm to pick random parts from a bin.

Q2. Which of the following are benefits of an **iterative development methodology**?

- a) Increased customer confidence in development team.
- b) Lower developer workload.
- c) Lower cost.
- d) Faster response to changing requirements.
- e) More frequent inspection intervals to validate product.

Q3. The **iron triangle** represents...

- a) Value, benefit, expense
- b) Scope, schedule, quality
- c) Cost, scope, time
- d) Cost, value, time
- e) Scope, quality, cost

Q4. If **project scope** increases...

- a) Cost and quality must also increase.
- b) The project timeline must be increased for the same cost.
- c) The requirements must be reduced.
- d) Schedule and cost must also increase.

Q5. The **PMI** is...

- a) An iterative software development methodology.
- b) An industry-sponsored association that advocates for the profession.
- c) A consulting service that can assist with projects in trouble for a fee.
- d) A testing center to obtain industry certifications.

Q6. Which of these expressions is the closest match for **empirical**?

- a) Procedural
- b) Deterministic
- c) Trial and error
- d) Random

Q7. Which category of **software development methodology** is known for stringent change control processes?

- a) PMBOK
- b) Iterative
- c) Lifecycle
- d) Waterfall

Q8. What is the **key difference** between waterfall and iterative software development methodologies?

- a) Waterfall teams have a natural cadence
- b) Customers see the product take shape early with iterative
- c) The cost to remediate defects is lower with waterfall
- d) Scope is easier to define with lifecycle methodologies

Q9. A **product increment** is a...

- a) Partially functional product.
- b) Fully functional product.
- c) Requirement.
- d) Remediated defect.

Q10. **Lean waste** is...

- a) A way to recycle effort in a project.
- b) A mindset that minimizes work of marginal value to customers.
- c) A programming technique that focuses on defect reduction.
- d) A method for capturing requirements.

Q11. What's the difference between a **requirement** and a **constraint**?

- a) A requirement is a user need, but a constraint is a user want.
- b) A requirement is a documented need while a constraint is an implied need.
- c) A constraint is a user need but a requirement is an economic or political restriction.
- d) A constraint is a limiting factor but a requirement is a project objective.

Q12. The activities in the classical **SDLC** are ...

- a) Maintain, design, analyze, evaluate, plan, implement.
- b) Plan, analyze, design, constrain, evaluate, revise.
- c) Implement, research, prototype, design, market, analyze.
- d) Analyze, evaluate, implement, maintain, study, test.

Q13. Which of the following are not characteristics of **waterfall** projects?

- a) Stringent change controls.
- b) Big design up front.
- c) Signoffs and approvals.
- d) Zero risk.
- e) Early stakeholder feedback.

Q14. Which of the following are characteristics of **iterative** projects?

- a) Absolutely no documentation.
- b) Visibility into progress at regular intervals.
- c) Frequent wasteful prototypes.
- d) Tolerates change well.
- e) Requirements are provided externally.

A project to develop an urban transportation app has secured \$2,000,000 in funding. It is supposed to allow people to reserve a scooter, street bike, mountain bike, smart car, recreational vehicle, or kayak by snapping a photo of the registration code and then tracking the location and duration of each trip for billing. The plan is to release the app across the entire country after six months of development. Please use a separate text response block to answer each of the questions below.

Q15. What development methodology would you recommend, and why?

Q16. If the budget was reduced by half, what are some options?

Q17. Suggest three requirements for this app.

Q18. Suggest three features for this app you would develop in the **first** product increment.

Q19. If the investors suddenly insist you complete the app in three months, what are some options?

Q20. If the investors suddenly want to take the app worldwide, what are some options?