

Which architecture pattern is best for systems with heavy data sharing?

Correct answer:

Repository architecture

Client-server architecture

, Not Selected

Layered architecture

, Not Selected

MVC architecture

, Not Selected

Results for question 2.

2

1 / 1 point

What is a common criticism of informal block diagrams in architectural representations?

They only work for large-scale systems

, Not Selected

They require expensive tools to create

, Not Selected

Correct answer:

They lack semantics and do not show relationship types or component properties

They are too detailed for early design

, Not Selected

Results for question 3.

3

1 / 1 point

What is the primary goal of architectural design in software engineering?

To write source code for each module

, Not Selected

Correct answer:

To identify sub-systems and establish a framework for their control and communication

To define the GUI layout

, Not Selected

To test software for defects

, Not Selected

Results for question 4.

4

0 / 1 point

Which architecture is NOT ideal for interactive systems?

Incorrect answer:

Repository

MVC

, Not Selected

Pipe and Filter

, Not Selected

Client-Server

, Not Selected

Results for question 5.

5

1 / 1 point

What is a key feature of layered architecture?

Correct answer:

Only adjacent layers are affected when an interface changes

All layers must be updated simultaneously

, Not Selected

Layered architecture cannot be reused

, Not Selected

Lack of interface between layers

, Not Selected

Results for question 6.

6

0 / 1 point

Which component in a compiler converts source tokens to an internal form?

Syntax analyzer

, Not Selected

Incorrect answer:

Code generator

Lexical analyzer

, Not Selected

Semantic analyzer

, Not Selected

Results for question 7.

7

0 / 1 point

In the 4+1 view model, which view shows system abstractions as objects?

Development view

, Not Selected

Process view

, Not Selected

Incorrect answer:

Physical view

Logical view

, Not Selected

Results for question 8.

8

1 / 1 point

Which system type involves asynchronous user requests processed by a transaction manager?

Language processing system

, Not Selected

Event processing system

, Not Selected

Data processing system

, Not Selected

Correct answer:

Transaction processing system

Results for question 9.

9

0 / 1 point

Which of the following is NOT typically part of an architectural design decision?

What architectural styles are appropriate

, Not Selected

What programming language to use for implementation

, Not Selected

Incorrect answer:

How the system will be decomposed into modules

How the system will be distributed

, Not Selected

Results for question 10.

10

1 / 1 point

Which of the following best describes 'architecture in the large'?

Architecture of individual programs and components

, Not Selected

Correct answer:

Architecture of complex enterprise systems composed of multiple distributed systems

Testing the overall software architecture

, Not Selected

The process of writing detailed specifications

, Not Selected

Results for question 11.

11

0 / 1 point

Which design approach is particularly useful for large systems developed by different groups?

Incorrect answer:

Ad-hoc design

Structured object-oriented design

, Not Selected

Monolithic design

, Not Selected

Procedural design

, Not Selected

Results for question 12.

12

1 / 1 point

Which UML diagram shows the order of interactions among objects?

Correct answer:

Sequence diagram

State diagram

, Not Selected

Class diagram

, Not Selected

Component diagram

, Not Selected

Results for question 13.

13

1 / 1 point

Which license requires derivative software to also be open source?

Correct answer:

GNU General Public License (GPL)

GNU Lesser GPL

, Not Selected

MIT License

, Not Selected

BSD License

, Not Selected

Results for question 14.

14

1 / 1 point

Which design pattern provides a standard way to access collection elements?

Correct answer:

Iterator

Facade

, Not Selected

Observer

, Not Selected

Decorator

, Not Selected

Results for question 15.

15

1 / 1 point

Which level of reuse involves using entire application systems?

Abstraction level

, Not Selected

Correct answer:

System level

Component level

, Not Selected

Object level

, Not Selected

Results for question 16.

16

1 / 1 point

What is the primary focus of implementation issues discussed?

Object modeling

, Not Selected

Unit testing tools

, Not Selected

GUI design

, Not Selected

Correct answer:

Reuse, configuration management, and host-target development

Results for question 17.

17

1 / 1 point

What does a state diagram depict?

Deployment architecture

, Not Selected

UML interfaces

, Not Selected

Code logic flow

, Not Selected

Correct answer:

How objects respond to service requests and change states

Results for question 18.

18

0 / 1 point

What is host-target development?

Running all code on cloud systems

, Not Selected

Testing on live systems only

, Not Selected

Incorrect answer:

Switching between mobile and desktop environments

Developing on one machine and running the system on another

, Not Selected

Results for question 19.

19

1 / 1 point

What is the main function of an IDE?

To deploy software to cloud platforms

, Not Selected

Correct answer:

To support various aspects of software development in one tool

To compile third-party libraries

, Not Selected

To host web applications

, Not Selected

Results for question 20.

20

1 / 1 point

What is a key reason companies use open-source development?

Correct answer:

To reduce development costs and time via community contributions

To sell their software as proprietary products

, Not Selected

To increase the complexity of software

, Not Selected

To avoid licensing issues

, Not Selected

Results for question 21.

21

0 / 1 point

Which type of maintenance is for adapting software to new environments?

Improving performance

, Not Selected

Incorrect answer:

Correcting design

Fixing bugs

, Not Selected

Adapting to a new OS

, Not Selected

Adding features

, Not Selected

Results for question 22.

22

0 / 1 point

What is Test-driven development (TDD)?

Tests run manually

, Not Selected

Tests only run once

, Not Selected

Tests written after coding

, Not Selected

Incorrect answer:

Write test before coding

Code written before tests

, Not Selected

Results for question 23.

23

0 / 1 point

What is a key advantage of automated testing?

Reduces bugs automatically

, Not Selected

Focuses on user input

, Not Selected

Manual rechecking of code

, Not Selected

Allows performance testing

, Not Selected

Incorrect answer:

Run tests without manual intervention

Results for question 24.

24

0 / 1 point

Alpha testing is conducted where?

Incorrect answer:

At beta user group

At the customer site

, Not Selected

At developer's site

, Not Selected

At a neutral site

, Not Selected

Online only

, Not Selected

Results for question 25.

25

0 / 1 point

Which process is defined by users/customers testing to decide readiness for deployment?

Unit testing

, Not Selected

Validation testing

, Not Selected

Incorrect answer:

None of the above

Acceptance testing

, Not Selected

Regression testing

, Not Selected

Results for question 26.

26

0 / 1 point

System re-engineering typically avoids changing what?

Database

, Not Selected

Platform

, Not Selected

User interface

, Not Selected

Architecture

, Not Selected

Incorrect answer:

Functionality

Results for question 27.

27

1 / 1 point

Legacy systems with high business value and low quality should be what?

Scrapped

, Not Selected

Continued operation

, Not Selected

Maintained as is

, Not Selected

Upgraded

, Not Selected

Correct answer:

Re-engineered

Results for question 28.

28

0 / 1 point

What is the main difference between verification and validation?

Validating user needs

, Not Selected

Confirm code passes tests

, Not Selected

Incorrect answer:

Checking code correctness against specs

Ensuring rapid delivery

, Not Selected

Checking if built right

, Not Selected

Results for question 29.

29

0 / 1 point

According to Lehman's laws, what is inevitable in software systems?

Gradual decline

, Not Selected

Rapid growth

, Not Selected

Incorrect answer:

Continuous change

No change

, Not Selected

Stasis

, Not Selected

Results for question 30.

30

0 / 1 point

Which testing stage involves users testing the system in their environment?

Incorrect answer:

Release testing

Acceptance testing

, Not Selected

User testing

, Not Selected

Unit testing

, Not Selected

Development testing

, Not Selected

Results for question 31.

31

0 / 1 point

Which of these is a general guideline for testing sequences?

Skip every second element

, Not Selected

Repeat same input

, Not Selected

Access first, middle, and last items

, Not Selected

Incorrect answer:

Use maximum possible sequence length

Test sequences of zero length

, Not Selected

Results for question 32.

32

0 / 1 point

Which testing is considered part of defect testing?

Defect testing

, Not Selected

Release testing

, Not Selected

Incorrect answer:

Component testing

Validation testing

, Not Selected

User testing

, Not Selected

Results for question 33.

33

0 / 1 point

Which of the following is considered a 'bad smell' in code?

Short methods

, Not Selected

Short variable names

, Not Selected

Incorrect answer:

Speculative generality

Data clumping

, Not Selected

Duplicate code

, Not Selected

Results for question 34.

34

0 / 1 point

Which benefit is specific to test-driven development?

Faster delivery

, Not Selected

Regression testing

, Not Selected

System documentation

, Not Selected

Code coverage

, Not Selected

Incorrect answer:

Simplified debugging

Results for question 35.

35

0 / 1 point

Which metric can indicate declining maintainability?

More outstanding change requests

, Not Selected

Incorrect answer:

Fewer new features

Decreasing bug counts

, Not Selected

Longer impact analysis time

, Not Selected

More users

, Not Selected

Results for question 36.

36

1 / 1 point

In COCOMO 2, which model is used after requirements are known but before design starts?

Reuse model

, Not Selected

Post-architecture model

, Not Selected

Composition model

, Not Selected

Correct answer:

Early design model

Results for question 37.

37

0 / 1 point

Which term refers to the sequence of tasks that affects the overall project duration?

Slack

, Not Selected

Critical path

, Not Selected

Incorrect answer:

Milestone

Dependency

, Not Selected

Results for question 38.

38

1 / 1 point

Which risk type is related to lack of required staff training?

Technology

, Not Selected

Tool

, Not Selected

Organizational

, Not Selected

Correct answer:

People

Results for question 39.

39

1 / 1 point

Which of the following is NOT one of the 4 Ps of project management?

Correct answer:

Planning

People

, Not Selected

Process

, Not Selected

Product

, Not Selected

Results for question 40.

40

0 / 1 point

Which chart is used in earned value management to assess project progress?

Critical path chart

, Not Selected

Incorrect answer:

Sprint chart

Planned vs. Earned Value chart

, Not Selected

Resource leveling chart

, Not Selected

Results for question 41.

41

1 / 1 point

What is the purpose of risk monitoring?

Correct answer:

Track change in risk probability and impact

Hire testers

, Not Selected

Update budget

, Not Selected

Avoid milestones

, Not Selected

Results for question 42.

42

1 / 1 point

Which term refers to the sequence of tasks forming the longest path to project completion?

Correct answer:

Critical Path

Float

, Not Selected

Milestone

, Not Selected

Slack

, Not Selected

Results for question 43.

43

1 / 1 point

What does the SPI metric in Earned Value Management indicate?

Correct answer:

Schedule performance

Task complexity

, Not Selected

Quality index

, Not Selected

Budget efficiency

, Not Selected

Results for question 44.

44

1 / 1 point

What does 'slack' in scheduling refer to?

Extra time in planning

, Not Selected

Project delay

, Not Selected

Correct answer:

Time a task can be delayed without affecting completion

Idle resource time

, Not Selected

Results for question 45.

45

0 / 1 point

Which of the following is an intrinsic reward?

Incorrect answer:

Promotion

Responsibility

, Not Selected

Money

, Not Selected

Bonus

, Not Selected

Results for question 46.

46

0 / 1 point

A burn down chart's vertical axis can represent:

Risks

, Not Selected

Incorrect answer:

Team hours
Story points
, Not Selected
Money
, Not Selected

Results for question 47.

47

1 / 1 point

What is one principle of the common-sense approach to projects?

Correct answer:

Track progress through work products

Assign without planning

, Not Selected

Avoid decomposition

, Not Selected

Ignore team morale

, Not Selected

Results for question 48.

48

1 / 1 point

In a Gantt chart, time is shown along which axis?

Curved

, Not Selected

Diagonal

, Not Selected

Correct answer:

Horizontal

Vertical

, Not Selected

Results for question 49.

49

1 / 1 point

Which plan describes the skills development of the project team?

Risk plan

, Not Selected

Correct answer:

Staff development plan

Quality plan

, Not Selected

Validation plan

, Not Selected

Results for question 50.

50

1 / 1 point

Which indicator may signal people-related risks?

Budget surplus

, Not Selected

Correct answer:

High staff turnover

Late delivery

, Not Selected

Tool incompatibility

, Not Selected

Results for question 51.

51

1 / 1 point

What is the most important element of a successful project?

Project

, Not Selected

Correct answer:

People

Process

, Not Selected

Product

, Not Selected

Results for question 52.

52

1 / 1 point

Which Agile tool shows how many story points remain during a sprint?

Gantt Chart

, Not Selected

Velocity Graph

, Not Selected

Correct answer:

Sprint Burndown Chart

PERT Chart

, Not Selected

Results for question 53.

53

1 / 1 point

Which of the following is a risk avoidance strategy?

Correct answer:

Reducing the probability of risk

Creating backup

, Not Selected

Contingency plan

, Not Selected

Ignoring the risk

, Not Selected

Results for question 54.

54

1 / 1 point

What is the first step in the risk management process?

Risk monitoring

, Not Selected

Correct answer:

Risk identification

Risk analysis

, Not Selected

Risk planning

, Not Selected

Results for question 55.

55

1 / 1 point

Which factor affects software pricing due to changes in requirements?

Financial health

, Not Selected

Correct answer:

Requirements volatility

Contractual terms

, Not Selected

Market opportunity

, Not Selected

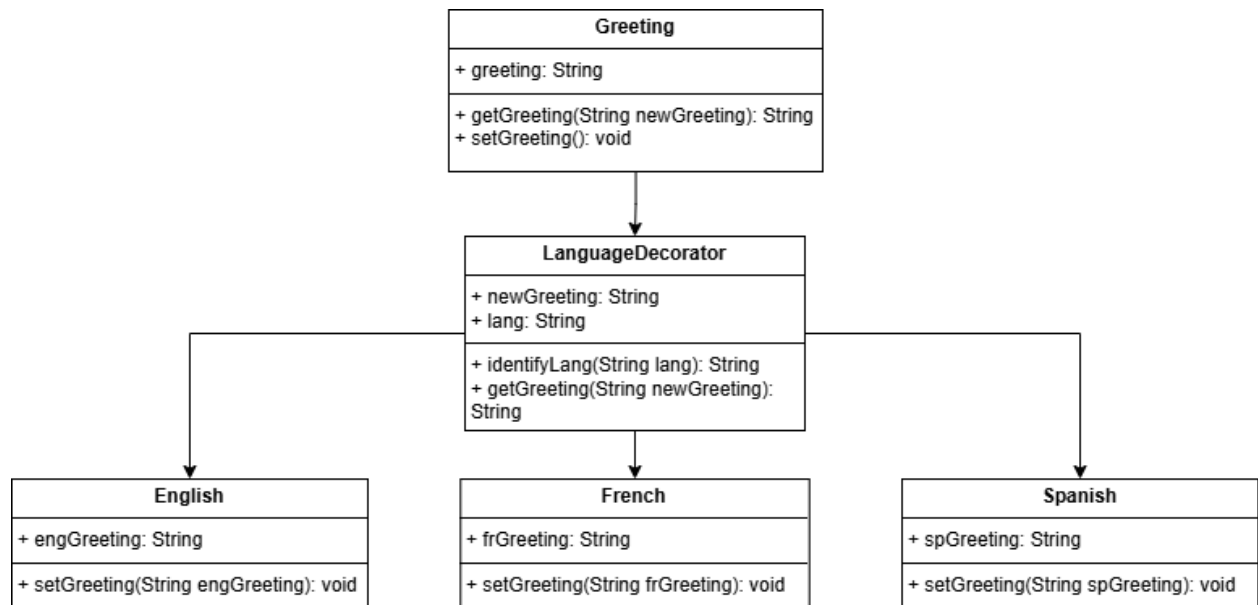
Results for question 56.

56

15 points possible

[Practical Analysis] Design a system that outputs greetings in different languages (e.g., English, French, Spanish). Apply a **design pattern** to make it easy to extend greetings for new languages. Use **Class Diagram** to model your design.

Waiting for grade



[Maravillas_designpattern.drawio.png](#)

36Kb

Waiting for grade

Results for question 57.

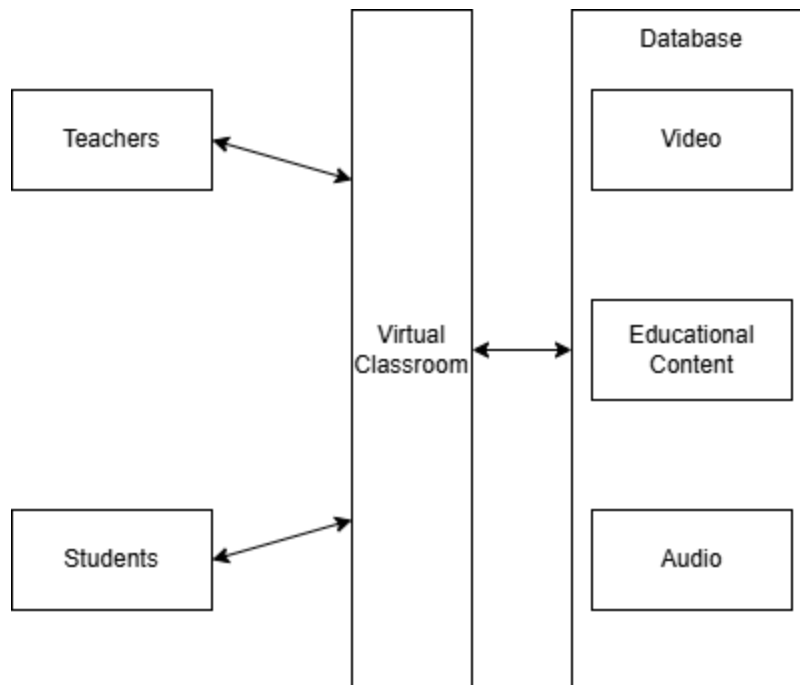
57

15 points possible

[Practical Analysis] A computer-controlled online learning platform where teachers and students interact via video, audio, and shared digital whiteboards or documents. The system allows real-time communication and group collaboration.

Draw your **system architecture diagram** by applying an appropriate **architectural pattern** for the given system: a collaborative virtual classroom that supports video, audio, and educational content sharing among multiple participants

Waiting for grade



[Maravillas_architecturalpattern.png](#)

20Kb

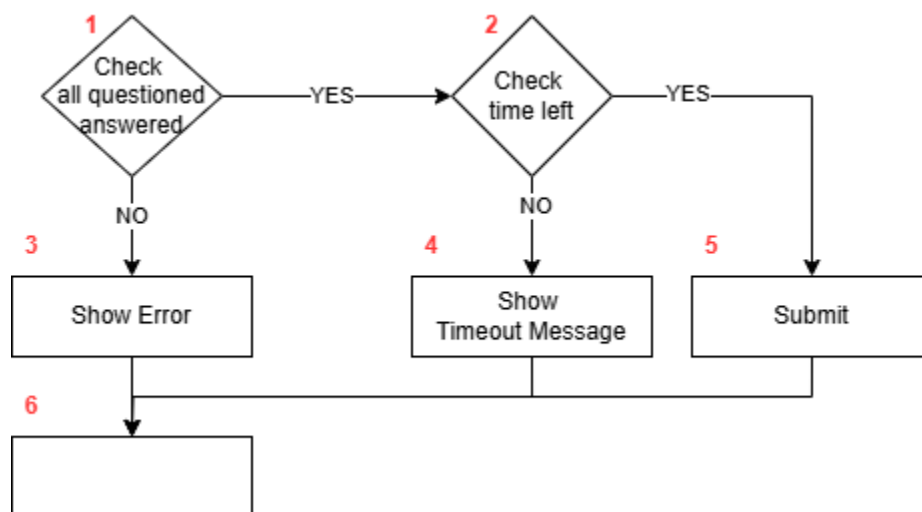
Waiting for grade

Results for question 58.

58

15 points possible

[Practical Analysis] Online Quiz Submission. User submits a quiz. If all answers are filled, it checks if time is up. If not up, quiz is submitted. If time is up or any answer is missing, submission fails.



Given the following tests:

- **Test Case #1:** All answered, time up
- **Test Case #2:** Not all answered

Questions:

1. What is the statement coverage achieved?
2. What is the decision coverage achieved?
3. What additional tests would be needed to achieve 100% statement coverage?
4. What additional tests would be needed to achieve 100% decision coverage?