

1. What is a primary difference between Conventional and Object-Oriented (OO) design approaches?

- a) Conventional design focuses on procedural programming, while OO design emphasizes encapsulation, inheritance, and polymorphism.
- b) Conventional design emphasizes code reusability, while OO design prioritizes sequential execution.
- c) Conventional design relies on functional decomposition, while OO design emphasizes message passing between objects.
- d) Conventional design uses relational databases, while OO design favors NoSQL databases.

Answer: a) Conventional design focuses on procedural programming, while OO design emphasizes encapsulation, inheritance, and polymorphism.

Explanation: Conventional design typically involves breaking down a problem into smaller tasks and solving them sequentially, often through procedural programming techniques. Object-Oriented design, on the other hand, focuses on organizing software components into objects that encapsulate data and behavior, utilize inheritance for code reuse, and employ polymorphism for flexibility and abstraction.

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2. Which design technique involves creating CRC cards?

- a) Behavioral Modeling
- b) Interaction Diagram

- c) State Chart Diagram
- d) Class Responsibility Collaboration (CRC) Cards

Answer: d) Class Responsibility Collaboration (CRC) Cards

Explanation: CRC cards are a design technique used in the Object-Oriented paradigm to define classes, their responsibilities, and collaborations with other classes.

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3. Which diagram is primarily used to model the dynamic behavior of a system's components?

- a) Interaction Diagram
- b) State Chart Diagram
- c) Component Diagram
- d) Deployment Diagram

Answer: a) Interaction Diagram

Explanation: Interaction diagrams, such as sequence diagrams and communication diagrams, illustrate how objects interact with each other dynamically during the execution of a system.

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4. In Object-Oriented design, what does a State Chart Diagram represent?

- a) Static structure of classes and their relationships
- b) Sequential flow of processes
- c) Dynamic behavior of an individual object
- d) State transitions and behaviors of an object

Answer: d) State transitions and behaviors of an object

Explanation: State Chart Diagrams in Object-Oriented design illustrate the various states an object can be in and the transitions between those states based on events or conditions.

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5. Which diagram illustrates the physical deployment of software components across hardware nodes?

- a) Interaction Diagram
- b) State Chart Diagram
- c) Component Diagram
- d) Deployment Diagram

Answer: d) Deployment Diagram

Explanation: Deployment diagrams in UML represent the physical deployment of software components and their relationships on hardware nodes, such as servers or devices.

6. In the context of Object-Oriented Design, what does the term “Behavioral Modeling” primarily refer to?

- a) Modeling the static structure of a system
- b) Describing the interactions between objects during execution
- c) Representing the distribution of software components across hardware nodes
- d) Defining the states and transitions of an object

Answer: b) Describing the interactions between objects during execution

Explanation: Behavioral modeling focuses on modeling how objects interact with each other dynamically during the execution of a system, typically represented using interaction diagrams like sequence diagrams or communication diagrams.

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7. Which design technique is used to capture the responsibilities and collaborations of classes in Object-Oriented design?

- a) Sequence Diagram
- b) Component Diagram
- c) CRC Cards
- d) Deployment Diagram

Answer: c) CRC Cards

Explanation: Class Responsibility Collaboration (CRC) Cards are used in Object-Oriented design to capture the responsibilities of classes and their collaborations with other classes.

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8. What does a Component Diagram primarily depict?

- a) Static structure of classes and their relationships
- b) Dynamic behavior of objects
- c) Physical deployment of software components
- d) Sequence of method invocations

Answer: c) Physical deployment of software components

Explanation: Component diagrams illustrate the physical deployment of software components and their relationships on hardware nodes.

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9. Which UML diagram is most suitable for representing the flow of messages between objects in a system?

- a) Class Diagram
- b) Sequence Diagram

- c) State Chart Diagram
- d) Deployment Diagram

Answer: b) Sequence Diagram

Explanation: Sequence diagrams are used to represent the flow of messages between objects in a system over time, illustrating the sequence of interactions.

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10. Which design technique involves breaking down a system's behavior into states and transitions?

- a) Sequence Diagram
- b) State Chart Diagram
- c) Component Diagram
- d) Deployment Diagram

Answer: b) State Chart Diagram

Explanation: State Chart Diagrams are used to model the behavior of an object by depicting its various states and transitions between those states based on events or conditions.

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