Explain encapsulation with example.OR Discuss the concept of encapsulation with suitable example.OR What do you mean by encapsulation ? How does the object-oriented concept of message passing help to encapsulate the implementationof an object, including its data ?

Encapsulation in object-oriented programming is like wrapping up an object and keeping its internal details hidden from the outside world. It's a way of organizing code so that the implementation of an object is shielded, and only a well-defined interface is exposed to interact with it. Let's break down encapsulation with a simple example:

Imagine we have an object called 'Employee.' This object has a hidden attribute, let's say 'salary.' Now, we don't want other parts of the program directly messing with or knowing about the salary. We want a controlled way to access this information. That's where encapsulation comes in.

1. Separating External and Internal Aspects:
    - External aspects: These are the things other objects can interact with, like methods.
    - Internal implementation details: These are the hidden attributes and methods within the object.
2. Preventing Ripple Effects:
    - If we change how the salary is calculated or stored inside the 'Employee' object, we don't want it to affect every other part of the program. Encapsulation helps in minimizing these ripple effects.
3. Changing Implementation Without Impact:
    - If we need to improve performance, fix a bug, or make any changes to how 'Employee' works internally, we can do that without affecting other parts of the program.
4. Example with 'Employee' Object:
    - The 'salary' attribute is kept hidden inside the 'Employee' object.
    - Other objects can only access the salary through a specific method, let's call it 'getSalary().'

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- The method resides within the ‘Employee’ object, and it acts as a gatekeeper for accessing the salary.

1. Message Passing to Access Data:
    - In the diagram think of ‘getSalary()’ as a message. Other parts of the system can send this message to the ‘Employee’ object.
    - The object responds to the message by providing the salary.
    - This way, the internal details, like how the salary is stored or calculated, remain hidden.

Related posts:

1. Describe the features of object-oriented languages ? OR Explain the major features of Object-Oriented Programming.
2. Explain object-oriented approach with its benefits.
3. Describe the elements of object-oriented system.
4. Describe steps of object-oriented design.
5. Differentiate between structured approach and object oriented approach
6. Write short notes on : Compare procedural programming with object-oriented programming with examples.
7. What do you understand by object-oriented technology ?Discuss the pros and cons of object-oriented technology with suitable example.
8. What do you understand by object identity ? Explain with an example.
9. Write short note on information hiding.
10. What do you mean by polymorphism ? Explain it with an example. OR What do you mean by polymorphism ? Is this concept only applicable to object-oriented systems ? Explain. OR Define polymorphism. Is this concept only applicable to object oriented systems ? Explain.

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11. What do you mean by modeling ? Discuss several purposes served by models with suitable examples.
12. What are the different models used in object oriented languages ?OR Write short note on dynamic modeling and functional modeling.
13. Write short notes on : a. Data store b. Actors c. Control flow
14. What are the principles of modeling ? What is the importance of modeling ?, OR What are the basic principles of modeling ? Explain in detail.
15. Define object-oriented modeling (OOM). Describe variousstеps involved in OOM process. Explain.
16. Define link and association. Discuss the role of link and association in object modeling with suitable example.
17. What do you mean by object modeling technique ? Explain. Discuss the various stages of the object modeling techniques with some example.
18. Wire is used in the following applications. For each of the following applications, prepare a list of wire characteristics that are relevant and also explain why each characteristic is important for the application : (1) Designing the filament for a light bulb; (2) Designing the electrical system for an air plane.
19. What do you mean by UML ? Discuss the conceptual model of UML with the help of an appropriate example. give the conceptual model of UML. Use some example to illustrate the model in detail using diagram.
20. Describe the pros and cons of unified modeling language(UML).
21. Why UML required ? What are the basic architecture ofUML ?
22. What do you understand by architectural modeling ?Explain its various concepts and diagrams with suitable example. ORWrite short notes on architectural modeling with suitable exampleand diagrams.
23. What do you understand by classes in object oriented system design ?
24. Explain relationship with its different types.

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25. Describe generalization and specialization.OR What do you mean by generalization ? Explain. How is it related with inheritance ? OR Define aggregation and generalization. Explain.
26. Categorize the following relationship into generalization, aggregation, or association :
27. Explain class and object diagrams with examples.
28. Differentiate between a class and object with some example. Also prepare a list of objects that you would expect each of the following systems to handle : (1) a program for laying out a news paper, (2) a catalog store order entry system.
29. Prepare a portion of an object diagram for a library book checkout system that shows the date a book is due and the late charges for an over due book as derived objects.
30. What do you mean by a collaboration diagram ? Explain various terms and symbols used in a collaboration diagram. How polymorphism is described using a collaboration diagram ? Explain using an example. OR What is a collaboration diagram ? How polymorphism is represented in a collaboration diagram? Explain with an example.
31. Explain Polymorphism, Iterated Messages and use of self in message in collaboration diagram.
32. What do you mean by sequence diagram? Explain various terms and symbols used in a sequence diagram. Describe the following using sequence diagram : (i) asynchronous messages with/without priority. (ii) broadcast messages.explain sequence diagrams with example.
33. Discuss in brief basic behavioural modeling.
34. Write a short note on use case diagram and time diagram with suitable diagram and their utility in system design.
35. Define package. Explain the package diagram with suitable diagram. OR What are package diagrams and why are they used ?
36. Write short notes on use case diagram with suitable diagram and their utility in system design.

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37. What do you mean by activity diagram ? Explain indetail. OR What do you mean by activity diagram ? What are the two special states shown in an activity diagram ? Explain with an example.
38. What do you mean by event ? What are the types of event explain with example ?
39. Explain use case with example. How are the diagrams divided ?

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