Chapter 7: Design and implementation

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Answer all questions. 1 mark per question

1. What are the 5 key activities in an object-oriented design process?

- Define the context and modes of use of the system;
- Design the system architecture;
- Identify the principal system objects;
- Develop design models;
- Specify object interfaces.

2. What do you understand by the system context and interaction model?

- A system context model is a structural model that demonstrates the other systems in the environment of the system being developed.
- An interaction model is a dynamic model that shows how the system interacts with its environment as it is used.

3. Briefly describe 3 approaches that may be used to identify object classes?

- Use a grammatical approach based on a natural language description of the system.
- Use a behavioural approach and identify objects based on what participates in what behaviour.

- Use a scenario-based analysis. The objects, attributes and methods in each scenario are identified.

4. Why is it important to specify the interfaces of components that are being developed by a software engineering team?

- Object interfaces have to be specified so that the objects and other components can be designed in parallel.

5. What do Gamma et al. suggest are the four essential elements of a design pattern?

- Name
- Problem
- Solution
- Consequences

6. How do design patterns contribute to reuse?

- Design patterns support high level concept reuse.
- Reuse the ideas and adapt the implementation

7. What are the 4 levels at which software reuse is possible?

- The abstraction level
- The object level
- The component level
- The system level

8. What are the principal aims of software configuration management?

- The aim of configuration management is to support the system integration process so that all developers can access the project code and documents in a controlled way, find out what changes have been made, and compile and link components to create a system.

9. What are essential tools in a software development platform?

- Integrated compiler
- Language debugging system.
- Graphical editing tools
- Testing tools

10. Briefly describe the idea of open-source development.

- Open source development is an approach to software development in which the source code of a software system is published and volunteers are invited to participate in the development process