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Question:

1)Describe a use-case following the format discussed in class?

A use case analysis is used to construct and produce a use case diagram in the UML (Unified Modelling Language). It stands for the approach taken in system analysis to find, make clear, and arrange system requirements. In UML, use case diagrams are used to illustrate the functioning of the system by including users, actors, and their objectives. These illustrations show: the limits of the programme or system. The border establishes how the system of interest relates to the environment. the system's participants, or actors. A person, an organization, or another system that interacts with the system you are modeling can all be considered actors in a UML diagram.

2) Describe the rationale behind using the State Design Pattern?

In object-oriented programming, the State Design Pattern is used to capture different behavior for the same object depending on its internal state. When compared to utilizing a sequence of conditional statements, this can be a cleaner and more effective method. The State Pattern can help your code become clearer and simpler to maintain if an object's behavior should change depending on its state and there are too many states to effectively address using conditional statements. State Pattern allows you to divide the state-specific code into its own classes. Encapsulate State-Specific Logic. Each state is represented by a class, and methods specified in these classes are used to execute state transitions. Adding new states using conventional conditional logic might cause your software system's complexity to explode as it develops. The state explosion problem is what this is called. By enabling you to regard states as discrete entities that may be added, changed, or removed independently, the State Pattern helps to alleviate this issue.Maintaining the Open/Closed ideal: The Open/Closed Principle, one of the SOLID principles of object-oriented design, states that entities should be open for expansion but closed for alteration. The State Pattern upholds this ideal.