Assignment 1
Task 8

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Identify the most appropriate black box testing strategy for each piece of functionality, and justify your answer.

Write 2 paragraphs of justification per answer, and mention at least one alternate strategy and why it would not work as well as your chosen strategy.

Functionality 1: Whether an item is overdue.
Testing strategy: Boundary Value Analysis and Equivalence Partitioning

Justification: Boundary Value Analysis is effective for testing edge cases around crucial data boundaries, such as whether an item is due today, late by one day, or not due by one day. Testing the boundaries between categories provides accurate handling of transition points, such as "overdue" and "not overdue." Equivalence partitioning categorizes date inputs into equivalent groups (e.g., well past due, immediately before, and far before the due date) and tests sample dates for each category. This technique tests the function in several scenarios with minimal redundancy, including edge cases and usual inputs.
Another approach to consider is decision table testing, which involves laying out and evaluating various combinations of the current date and due date. While this may assist in enumerating every potential scenario, it may result in excessive complexity and test redundancy, especially because this functionality may be adequately handled by boundary value analysis and equivalence partitioning. The decision table technique may be overkill for a simple condition such as detecting if an item is overdue, as it focusses on decision-making principles that are not relevant to this situation.

Functionality 2: The calculation of fees owed.
Testing strategy: Decision Table Testing and Equivalence Partitioning

Justification: Age-based discounts can be handled via equivalence partitioning, which tests typical age values in each group. Furthermore, fee equivalence classes (for example, having outstanding fees or no outstanding fees) allow for more extensive testing with fewer test instances. Decision table testing Is important here because we're dealing with numerous circumstances (age, outstanding fees, and discount percentages) that provide varied results. Using decision table testing, we can explicitly

specify the combination of these factors and ensure that the system calculates the right discount and fees for each situation.
Boundary value analysis is an alternative strategy, but it is less effective in this case because the discount rules already clearly define the boundaries for age categories, and testing only the edges may not cover all necessary conditions, especially when considering the combination of outstanding fees and discounts. Because we're dealing with several, well-defined charge calculation rules, decision tables make it easier and more organized to test every possible case.

Functionality 3:
Testing strategy: Decision Table Testing and Equivalence Partitioning

Justification: The decision to allow someone to use the facilities is dependent on two important factors: their age and if they have undergone training. Decision table testing would assist in guaranteeing that all possible combinations of these two inputs (e.g., minor with training, adult without training, elderly without training, etc.) are evaluated. This method guarantees that the logic governing facility access is properly tested for all conceivable input combinations. Equivalence partitioning may be used to split input age into various categories (minor, adult, elderly) in order to decrease the number of test cases while maintaining coverage, ensuring that essential age-related divisions are evaluated while focusing on input combinations.
An alternate method, such as boundary value analysis, would not be as appropriate for this task. While it is useful for evaluating boundaries, the age thresholds presented here are more about category transitions than mathematical boundaries. Because the reasoning considers both age and training status, it would overlook numerous combinations of these inputs, making it less suited than the more complete decision table testing technique.