**Unit Testing of the logout Function**

The objective of the logout function is to determine whether a user can log out based on the state of their cart and their confirmation input. If the cart is not empty, the function informs the user of the items in the cart and requests confirmation before logging out. It returns True if the user logs out, and False otherwise.

The logout(cart) function takes a single input:

* cart: An object that provides two methods:
  + is\_empty(): Returns True if the cart is empty, False otherwise.
  + retrieve\_items(): Returns a list of items in the cart.

The cart parameter must be an object supporting is\_empty() and retrieve\_items(). Invalid inputs include integers, floats, strings, and lists. For valid inputs, the input domain can be divided into the following equivalence classes (EC):

1. **EC1**: The cart is empty (cart.is\_empty() == True).
2. **EC2**: The cart is not empty (cart.is\_empty() == False) with user confirmation to log out.
3. **EC3**: The cart is not empty (cart.is\_empty() == False) with user declining to log out.

The coverage criteria we will use are: For each equivalence class, we need to test at least one input.

* **R1**: If cart is invalid, the function should raise an appropriate exception or error.
* **R2**: If cart.is\_empty() == True, the function should skip showing cart items and return True if the user confirms logging out.
* **R3**: If cart.is\_empty() == False and the user confirms logging out, the function should display cart items and return True.
* **R4**: If cart.is\_empty() == False and the user declines logging out, the function should return False.

**Test Cases**

Valid Inputs

* **TC1**: Empty cart (cart.is\_empty() == True), user confirms logout (EC1).
* **TC2**: Non-empty cart (cart.is\_empty() == False), user confirms logout (EC2).
* **TC3**: Non-empty cart (cart.is\_empty() == False), user declines logout (EC3).

Invalid Inputs

* **TC4**: cart is an integer (12345).
* **TC5**: cart is a string ("invalid\_cart").
* **TC6**: cart is a list (["item1", "item2"]).