

C++ PRIMER PLUS, 5th EDITION
PROGRAMMING EXERCISES
CHAPTER X

1. Modify the `Tv` and `Remote` classes as follows:
 - a. Make them mutual friends. Add a state variable member to the `Remote` class that describes whether the remote control is in normal or interactive mode. Add a `Remote` method that displays the mode.
 - Provide the `Tv` class with a method for toggling the new `Remote` member. This method should work only if the TV is in the on state.

Write a short program that tests these new features.

2. Modify Listing 15.11 so that the two exception types are classes derived from the `logic_error` class provided in the `<stdexcept>` header file. Have each `what()` method report the function name and the nature of the problem. The exception object need not hold the bad values; they should just support the `what()` method.
3. This exercise is the same as Programming Exercise 2, except that the exceptions should be derived from a base class (itself derived from `logic_error`) that stores the two argument values, the exceptions should have a method that reports these values as well as the function name, and a single `catch` block that catches the base-class exemption should be used for both exceptions, with either exception causing the loop to terminate.
4. Listing 15.16 uses two `catch` blocks after each `try` block so that the `nbad_index` exception leads to the `label_val()` method being invoked. Modify the program so that it uses a single `catch` block after each `try` block and uses RTTI to handle invoking `label_val()` only when appropriate.