

448 Chapter 14 Exception Handling

- 14.9** What is the purpose of exception specifications? How do you declare a throw list? Can you declare multiple exceptions in a function declaration?

PROGRAMMING EXERCISES

- 14.1*** (*runtime_error*) Exercise 7.13 specifies the `parseHex(char *hexString)` function that converts a hex string into a decimal number. Implement the `parseHex` function to throw a `runtime_error` exception if the string is not a hex string. Write a test program that prompts the user to enter a hex number as a string and display the number in decimal format.
- 14.2*** (*runtime_error*) Exercise 7.14 specifies the `parseBinary(char *binaryString)` function that converts a binary string into a decimal number. Implement the `parseBinary` function to throw a `runtime_error` exception if the string is not a binary string. Write a test program that prompts the user to enter a binary number as a string and display the number in decimal format.
- 14.3*** (*Modify Rational class*) In §13.5, “Overloading the `[]` Operators,” introduced how to overload the `[]` array subscript operator in the `Rational` class. If the subscript is neither `0` nor `1`, the function terminates the program by invoking `exit(0)`, which obviously is not a good implementation. You should not let this operator terminate the program. To fix this problem, define a custom exception called `IllegalSubscriptException` and let the function operator throw an `IllegalSubscriptException` if the subscript is neither `0` nor `1`. Write a test program with a `try-catch` block to handle this type of exception.
- 14.4*** (*Modify StackOfIntegers class*) §10.11, “Case Study: The `StackOfIntegers` Class,” defined a stack class for integers. Define a custom exception class named `EmptyStackException` and let the `pop` function throw an `EmptyStackException` if the stack is empty. Write a test program with a `try-catch` block to handle this type of exception.
- 14.5*** (*BinaryFormatException*) Implement the `parseHex` function in Exercise 14.1 to throw a `HexFormatException` if the string is not a hex string. Define a custom exception class named `HexFormatException`. Write a test program that prompts the user to enter a hex number as a string and display the number in decimal.
- 14.6*** (*BinaryFormatException*) Implement the `parseBinary` function in Exercise 14.2 to throw a `BinaryFormatException` if the string is not a binary string. Define a custom exception class named `BinaryFormatException`. Write a test program that prompts the user to enter a binary number as a string and display the number in decimal.