5 Exercises on Loops and Conditionals

1. Write code to input the lengths of the sides of a triangle and output a message classifying the triangle in terms of acute, right, obtuse, isosceles, and equilateral. Assume the user inputs the sides in nondecreasing order.

2. Write code that asks the user whether they want to convert between kilograms and pounds or the other way around, then prompts them for a value and prints out the converted value.

3. Write code that tests whether a user-supplied number is prime, using the elementary school algorithm of trying all divisors up to the square-root of the number.

4. Write code that, given a 9-digit integer, calculates the sum of its digits (without using an inbuilt function such as \texttt{sumOfDigits}!) For example, if the user inputs a value of 462831597, your code should print out 45.

5. Write code that uses a nested loop to print out an imitation 8 $\times$ 8 chess board using ‘w’ and ‘B’ for the squares.

6. Write code that prints out a left-pointing arrow, where the user supplies a value $n$, and the shaft consists of $3n$ characters and the vanes $n$ characters each. For example, if the user specifies $n = 3$ the output might be

```
  +
  +
  +
+++++++
  +
  +
  +
```