

4.16 Wrap-Up

This chapter presented basic problem solving for building classes and developing methods for these classes. We demonstrated how to construct an algorithm (i.e., an approach to solving a problem), then how to refine the algorithm through several phases of pseudocode development, resulting in Java code that can be executed as part of a method. The chapter showed how to use top-down, stepwise refinement to plan out the specific actions that a method must perform and the order in which the method must perform these actions.

Only three types of control structures—sequence, selection and iteration—are needed to develop any problem-solving algorithm. Specifically, this chapter demonstrated the `if` single-selection statement, the `if...else` double-selection statement and the `while` iteration statement. These are some of the building blocks used to construct solutions to many problems. We used control-statement stacking to total and compute the average of a set of student grades with counter- and sentinel-controlled iteration, and we used control-statement nesting to analyze and make decisions based on a set of exam results. We introduced Java’s compound assignment operators and its increment and decrement operators. Finally, we discussed Java’s primitive types. In [Chapter 5](#), we continue our discussion of control statements, introducing the `for`, `do...while` and `switch` statements.