

Drive south on University Avenue to 50th Street.
 Turn right (west) on 50th.
 Drive west on 50th to Slide Road.
 Turn left (south) on Slide Road.
 Drive south on Slide Road until you see the mall entrance on the right.

FIGURE 2 - 1 4
 This algorithm leads you to a shopping mall.

Some algorithms involve decisions that change the course of action or cause parts of the algorithm to be repeated. Consider the algorithm for parking the car once you reach the mall. A more complicated algorithm is best illustrated with symbols in a *flowchart* as shown in Figure 2-15.

Programming a computer requires that you create an algorithm. The instructions the program gives the computer must tell the computer exactly what steps to do and in what order to do them. The computer executes each instruction sequentially, except when an instruction causes the flow of logic to jump to another part of the program.

When first developing an algorithm, you should avoid the temptation of initially writing in a programming language. A better method is to use pseudocode. *Pseudocode* expresses an algorithm in everyday English, rather than in a programming language. Pseudocode makes it possible for you to describe the instructions to be executed by the program. The precise choice of words and punctuation, however, is less important. Figure 2-16 is an example of pseudocode for a mathematical program that prompts the user for an integer (a whole number without any decimal places) and squares it.

Depending on the complexity of your program, developing algorithms can be a quick process or the most time consuming part of developing your program.

Flowchart Symbols

Each shape used in a flowchart has a special meaning. The shapes are connected with arrows that show the direction of the flow of the algorithm. The symbols below are the most common flowchart symbols.

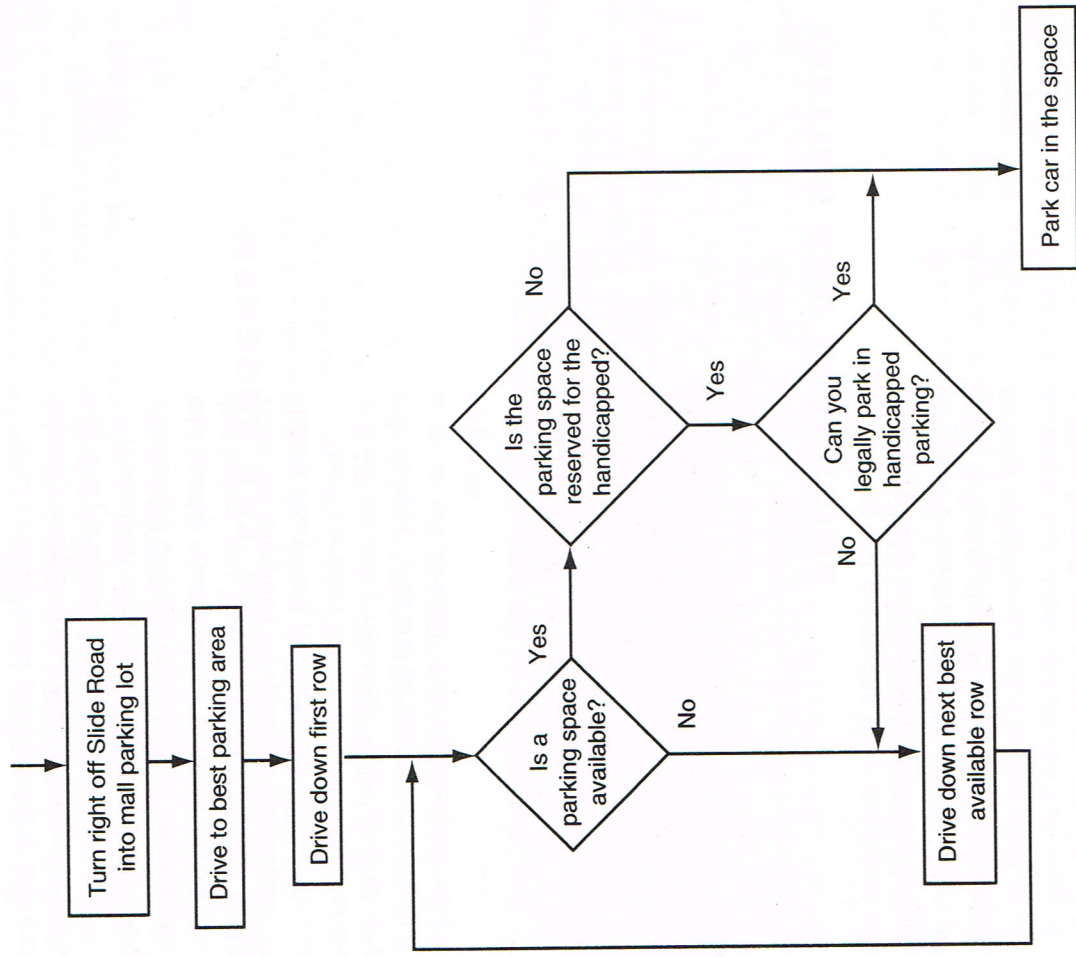
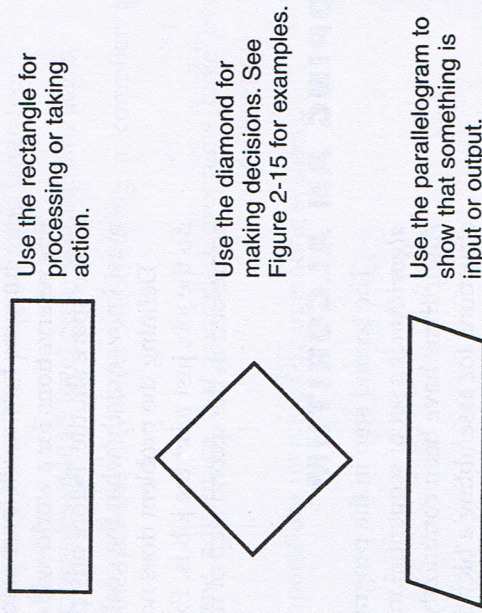


FIGURE 2 - 1 5
 Some steps in an algorithm may be repeated many times.

Later in the book you will learn methods programmers use to break down complex problems into manageable parts.

```

declare i and j as integers
prompt user for i
j = i * i
print j
  
```

FIGURE 2 - 1 6
 Pseudocode allows you to develop an algorithm without being concerned about the commands and punctuation of a programming language.

CODING THE PROGRAM

An algorithm's pseudocode is next translated into program code. Most of the rest of this book teaches you the commands and structures you need to translate algorithms into actual programs. In the next chapter you will enter and compile your first program.