Let x and y be `int` variables. Write a `switch` statement that tests the value of `direction`, incrementing x if `direction` is EAST, decrementing x if `direction` is WEST, incrementing y if `direction` is SOUTH, and decrementing y if `direction` is NORTH.

21. What are the integer values of the enumeration constants in each of the following declarations?

```
(a) enum {NUL, SOH, STX, ETX};
(b) enum {VT = 11, FF, CR};
(c) enum {SO = 14, SI, DLE, CAN = 24, EM};
(d) enum {ENQ = 45, ACK, BEL, LF = 37, ETB, ESC};
```

22. Let `chess_pieces` be the following enumeration:

```
enum chess_pieces {KING, QUEEN, ROOK, BISHOP, KNIGHT, PAWN};
```

(a) Write a declaration (including an initializer) for a constant array of integers named `piece_value` that stores the numbers 200, 9, 5, 3, 3, and 1, representing the value of each chess piece, from king to pawn. (The king's value is actually infinite, since "capturing" the king (checkmate) ends the game, but some chess-playing software assigns the king a large value such as 200.)

(b) (C99) Repeat part (a), but use a designated initializer to initialize the array. Use the enumeration constants in `chess_pieces` as subscripts in the designators. (*Hint:* See the last question in Q&A for an example.)

Programming Projects

W 1. Write a program that asks the user to enter an international dialing code and then looks it up in the `country_codes` array (see Section 16.3). If it finds the code, the program should display the name of the corresponding country; if not, the program should print an error message.

2. Modify the `inventory.c` program of Section 16.3 so that the `p` (print) operation displays the parts sorted by part number.

W 3. Modify the `inventory.c` program of Section 16.3 by making `inventory` and `num_parts` local to the `main` function.

4. Modify the `inventory.c` program of Section 16.3 by adding a `price` member to the `part` structure. The `insert` function should ask the user for the price of a new item. The `search` and `print` functions should display the price. Add a new command that allows the user to change the price of a part.

5. Modify Programming Project 8 from Chapter 5 so that the times are stored in a single array. The elements of the array will be structures, each containing a departure time and the corresponding arrival time. (Each time will be an integer, representing the number of minutes since midnight.) The program will use a loop to search the array for the departure time closest to the time entered by the user.

6. Modify Programming Project 9 from Chapter 5 so that each date entered by the user is stored in a `date` structure (see Exercise 5). Incorporate the `compare_dates` function of Exercise 5 into your program.