```
{
  case 1:
    cout << "Jan";
    break;
  case 2:
    cout << "Feb";
    break;
  case 3:
    cout << "Mar";
    break;
  case 4:
    cout << "Apr";
    break;
  case 5:
    cout << "May";
    break;
  case 6:
    cout << "Jun";
    break;
  case 7:
    cout << "Jul";
    break;
  case 8:
    cout << "Aug";
    break;
  case 9:
    cout << "Sep";
    break;
  case 10:
    cout << "Oct";
    break;
  case 11:
    cout << "Nov";
    break;
  case 12:
    cout << "Dec";
    break;
  }
  cout << " " << year << ": ";
}
```

The final function required for the program is a simple function (shown below) that calculates the new principal amount. The variable **principal** is passed by reference because the new principal amount must be passed back to the main function. The interest rate is passed by value because there is no need to pass it back to the main function.

```
// Function that adds the interest earned and calculates the
// new principal amount.
void calculate_principal(float &principal, float interest_rate)
{
  principal = principal + (principal * (interest_rate / 12));
}
```


EXERCISE II-3 FINISHING THE CODING

1. Enter the **print_date** and **calculate_principal** functions.
2. Save the source code file and leave the source code file for the next exercise.

Testing and Debugging

Once the code for a program has been entered, the program must be tested and debugged before it can be used and distributed as a reliable program.

EXERCISE II-4 COMPILING THE PROGRAM

1. Issue the command to compile the program. If errors occur during the compilation, check your source code for syntax errors or other typographical errors.
2. When the program compiles and runs successfully, test it with the following input.
   Starting Principal: 1000.00
   Interest Rate: 0.08
   Year: 1996
   Month: 4 (April)
   Number of months: 12
3. Calculating by hand, we have determined that the input above should produce the output below. Compare the program's output to the values below to see if the program is working correctly. When the program is run, the values do not match the expected output below. Can you determine what is going wrong?

```
Apr 1996: $1000.00
May 1996: $1006.67
Jun 1996: $1013.38
Jul 1996: $1020.13
Aug 1996: $1026.93
Sep 1996: $1033.70
Oct 1996: $1040.67
Nov 1996: $1047.61
Dec 1996: $1054.59
Jan 1997: $1061.63
Feb 1997: $1068.70
Mar 1997: $1075.83
```

4. Your testing should have revealed that the output of the program is paying interest on the principal before a month has passed. The program should print the first month with the initial principal amount and add interest to the months that follow. The problem can be fixed by moving one line of the program to a different location in the program. Do you know what line to move and where to move it?