Chapter 9

EXERCISE ANSWERS

Exam Preparation Exercises

1. Switch expression The expression in a Switch statement whose value determines which switch label is selected
Pretest loop A loop in which the loop test occurs before the body of the loop
Posttest loop A loop in which the loop test occurs after the body of the loop

3. True

5. switch (n)
   {
     case 3 : alpha++;
       break;
     case 7 : beta++;
       break;
     case 10: gamma++;
       break; // Optional
   }

7. False. The loop condition in both cases is delta <= alpha.

8. True

10. Nothing is printed. While and For are pretest loops. Here, the loop condition is immediately false and the body is skipped.

11. 4 3 2 1 4
    3 2 1 3
    2 1 2
    1 1

12. In the following output, note that there will be a blank line printed following the last line of stars.

```
********** **********
********** **********
********** **********
********** **********
***** *****
*** ***
** **
* *
```

Programming Warm-up Exercises

3. int Day( /* in */ int month,        // Month number, 1 - 12
            /* in */ int dayOfMonth, // Day of month, 1 - 31
            /* in */ int year      ) // Year. For example, 2002
   {
       
       // Correct for different length months
       switch (month)
       {
         case 3 : correction = correction - 1;
           break;
         case 2 :
         case 6 :
         case 7 : correction = correction + 1;
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break;
case 8 :  correction = correction + 2;
    break;
case 9 :
case 10 : correction = correction + 3;
    break;
case 11 :
case 12 : correction = correction + 4;
}
return (month - 1) * 30 + correction + dayOfMonth;
\}

4. count = 0;
   sum = 0;
do
{  
count ++ ;
    cin >> dataValue;
    if (dataValue >= 0)
       sum = sum + dataValue;
} while (dataValue >= 0 && count < 10);

7. sum = 0;
   for (count = 1; count <= 1000; count++)
   sum = sum + count;

8. m = 93;
   while (m >= 5)
   {  
cout << m << ' ' << m * m << endl;
     m--;
   }

9. k = 9;
do
{  
cout << k << ' ' << 3 * k << endl;
k++;
} while (k <= 21);

11. sum = 0;
    count = 1;
do
{  
cin >> int1;
    if ( !cin || int1 <= 0)
    {  
cout << "Invalid first integer.";
       break;
    }
    cin >> int2;
    if ( !cin || int2 > int1)
    {  
cout << "Invalid second integer.";
       break;
    }
    cin >> int3;
    if ( !cin || int3 == 0)
    {  
cout << "Invalid third integer.";
       break;
    }
    sum = sum + (int1 + int2) / int3;
    count ++ ;
} while (count <= 100);
Case Study Follow-Up

2. `count = 1;`  
   do  
   {  
       cout << "Enter rainfall amount " << count << ": ";  
       GetOneAmount(amount);  
       sum = sum + amount;  
       count++;  
   } while (count <= 12);  

3. `count = 1;`  
   while (count <= 12)  
   {  
       cout << "Enter rainfall amount " << count << ": ";  
       GetOneAmount(amount);  
       sum = sum + amount;  
       count++;  
   }

4. Yes, it's possible to replace the If statement with the following:

   ```cpp
   switch (response)  
   {  
       case 'y': break;  
       case 'n': break;  
       default: cout << "Please type y or n: ";  
   }
   ```

   but the code is awkward and not as straightforward as the If.

5. No, a Switch statement cannot be used here. The variable being tested, amount, is of type float, and the switch expression cannot be a floating-point or string expression.

   Even if amount were of type int, using a Switch statement to test whether amount < 0 would require perhaps millions of case labels (case -1:, case -2:, case -3:, etc.!)