

Why should you indent the statements in the body of a loop? By indenting the statements, you make them stand out from the surrounding code. This helps you to identify at a glance the statements that are conditionally executed by a loop.

Describe the difference between pretest loops and posttest loops. A Pretest loop tests its condition before each iteration. A posttest loop tests its condition after each iteration. A posttest loop will always execute at least once.

Why are the statements in the body of a loop called conditionally executed statements?

Because they are only executed when a condition is true.

What is the difference between the while loop and the do-while loop? The while loop is a pretest loop and the do-while loop is a posttest loop.

Which loop should you use in situations where you wish the loop to repeat until the test expression is false, and the loop should not execute if the test expression is false to begin with? The while loop.

Which loop should you use in situations where you wish the loop to repeat until the test expression is false, but the loop should execute at least one time? The do-while loop.

Which loop should you use when you know the number of required iterations? The for loop.

Why is it critical that counter variables be properly initialized? A counter is used to control or keep track of the number of times a loop iterates. In a loop, the counter is usually incremented or decremented. If the counter variable is not properly initialized, it will not hold the correct number.

Why is it critical that accumulator variables be properly initialized? An accumulator is used to keep a running total of numbers. In a loop, a value is usually added to the current value of the accumulator. If it is not properly initialized, it will not contain the correct total.

Why should you be careful not to place a statement in the body of a for loop that changes the value of the loop's counter variable? Because the for loop has an update expression that normally changes the content of a counter. If you have code inside that loop that also changes the counter, the loop will not be able to properly control the value of the counter.

What header file do you need to include in a program that performs file operations?

<fstream>

To _____ a value means to increase it by one, and to ____ a value means to decrease it by one. increment, decrement

What data type do you use when you want to create a file stream object that can write data to a file? ofstream

When the increment or decrement operator is placed before the operand (or to the operand's left), the operator is being used in _____ mode. prefix

What data type do you use when you want to create a file stream object that can read data from a file? ifstream

When the increment or decrement operator is placed after the operand (or to the operand's right), the operator is being used in _____ mode. postfix

Why should a program close a file when it's finished using it? Most operating systems temporarily store data in a file buffer before it is written to a file. A file buffer is a small "holding section" of memory to which file-bound data is first written. When the buffer is filled, all the data stored there is written to the file. This technique improves the system's performance. Closing a

file causes any unsaved data that may still be held in a buffer to be saved to its file. This means the data will be in the file if you need to read it later in the same program.

Some operating systems limit the number of files that may be open at one time. When a program closes files that are no longer being used, it will not deplete more of the operating system's resources than necessary

The statement or block that is repeated is known as the _____ of the loop. body

What is a file's read position? Where is the read position when a file is first opened for reading?

When a file has been opened for input, the file stream object internally maintains a special value known as a read position. A file's read position marks the location of the next byte that will be read from the file. When an input file is opened, its read position is initially set to the first byte in the file. So, the first read operation extracts data starting at the first byte. As data is read from the file, the read position moves forward, toward the end of the file.

Each repetition of a loop is known as a(n) _____ . iteration

A loop that evaluates its test expression before each repetition is a(n) _____ loop. pretest

A loop that evaluates its test expression after each repetition is a(n) _____ loop. posttest

The statement causes a loop to terminate immediately. break

A loop that does not have a way of stopping is a(n) -----loop. infinite

The statement causes a loop to skip the remaining statements in the current iteration.

continue

A(n)----- is a variable that "counts" the number of times a loop repeats. counter

T/F The operand of the increment and decrement operators can be any valid mathematical expression. false

A(n) -----is a sum of numbers that accumulates with each iteration of a loop. accumulator

T /F The cout statement in the following program segment will display 5:

```
int x = 5;
```

```
cout << x++; true
```

A(n)----- is a variable that is initialized to some starting value, usually zero, then has numbers added to it in each iteration of a loop. running total

T /F The while loop is a pretest loop. true

A(n) -----is a special value that marks the end of a series of values. sentinel

T/ F The do-while loop is a pretest loop. false

The ----- loop always iterates at least once. do-while

T /F The for loop is a posttest loop. false

The _____ loops will not iterate at all if their test expressions are false to start with. while and for

T/ F It is not necessary to initialize counter variables. false

The _____ loop is ideal for situations that require a counter. for

T/ F All three of the for loop's expressions may be omitted. true

Inside the for loop's parentheses, the first expression is the _____ , the second expression is the _____ , and the third expression is the _____ . initialization, test, update

T /F One limitation of the for loop is that only one variable may be initialized in the initialization expression. false

A loop that is inside another is called a(n) _____ loop. nested

T/F Variables may be defined inside the body of a loop. true

T /F A variable may be defined in the initialization expression of the for loop. true

T /F In a nested loop, the outer loop executes faster than the inner loop. false (Inner loops complete their iterations faster than outer loops.)

T /F In a nested loop, the inner loop goes through all of its iterations for every single iteration of the outer loop. true

T/ F To calculate the total number of iterations of a nested loop, add the number of iterations of all the loops. false (To get the total number of iterations of a nested loop, multiply the number of iterations of all the loops.)

T /F The cout statement in the following program segment will display 5:

```
int x = 5;
```

```
cout << ++x;    false (should be 6)
```

T/ F The break statement causes a loop to stop the current iteration and begin the next one. false

T/ F The continue statement causes a terminated loop to resume. false

T/ F When you call an ofstream object's open member function, the specified file will be erased if it already exists. true

T/ F In a nested loop, the break statement only interrupts the loop in which it is placed. true