

CISC 1115 - Java

Extra Credit Assignment

Recursion Method

Recursion is the technique of making a function call itself. This technique provides a way to break complicated problems down into simple problems which are easier to solve. The solution depends on solutions to smaller instances of the same problem. Most computer programming languages support recursion by allowing a function to call itself from within its own code.

Arrays

An array, in the context of Java, is a dynamically-created object that serves as a container to hold constant number of values of the same type. By declaring an array, memory space is allocated for values of a particular type.

To access an array element, the numerical index (a non-negative value) corresponding to the location of that element must be used. The first index value in the array is zero, thus, the index with value four is used to access the fifth element in the array. An array element that is also an array is known as a subarray. Arrays could have one or two dimensions.

Loops

Loops are used to repeat a block of code. For example, if you want to show a message 100 times, then rather than typing the same code 100 times, you can use a loop.

In Java, there are three types of loops.

- for loop
- while loop
- do...while loop

For Loop

The for loop in Java is an entry controlled loop that allows a user to execute a block of a statement(s) repeatedly with a fixed number of times on the basis of the test expression or test-condition. This is the easiest to understand Java loops.

While Loop

A while loop is a control flow statement that allows code to be executed repeatedly based on a given Boolean condition. The while loop can be thought of as a repeating if statement. While loop in Java comes into use when we need to repeatedly execute a block of statements.

Do...While Loop

The Java *do-while loop* is used to iterate a part of the program repeatedly, until the specified condition is true. If the number of iteration is not fixed and you must have to execute the loop at least once, it is recommended to use a do-while loop. Java do-while loop is called an exit control loop. Therefore, unlike while loop and for loop, the do-while check the condition at the end of loop body. The Java *do-while loop* is executed at least once because condition is checked after loop body.