Computational Expression

Loops

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16 October, 2019
Three Groups of Control Structures

1. **Sequential Structure**
   - It is just built into the language itself.
Repetition Statements

Loops

- A portion of a program that repeats a statement or a group of statements is called a loop.
- The statement or group of statements to be repeated is called the body of the loop.
- There must be a means of exiting the loop.
Common loop bugs:

- Unintended infinite loops
- Off-by-one errors
- Testing equality of floating-point numbers
- The loop may terminate for some input values, but not for others.
Break Statement

- A `break` statement can be used to end a loop immediately.
- The `break` statement ends only the innermost loop or if statement that contains the break statement.
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`break` statements make loops more difficult to understand.

Use `break` statements sparingly (if ever).
while (itemNumber <= MAX_ITEMS)
{
    
    if (itemCost <= leftToSpend)
    {
        
        if (leftToSpend > 0)
            itemNumber++;
        else
        {
            System.out.println("You are out of money.\n");
            break;
        }
    }
    else
    
    System.out.println( . . . );
}
Continue in Loops

A `continue` statement:
- Ends current loop iteration
- Begins the next one
- Do not use unless necessary
  - Introduce unneeded complications