Computational Expression

Switch Statement

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25 November, 2019
Control Structures

- Java programs are built from only these seven control structures:
  - three selection (if, if/else, switch)
  - three repetition (while, do/while, for)
- You implement computer algorithms by stringing sequences of these seven control structures together.
Selection

- if statement is a single-selection structure.
- if/else statement is a double-selection structure.
Selection

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- if/else statement is a double-selection structure.
- What if you have a series of integral values you would like to test and you might possibly want to trigger multiple actions based on one value?

A switch statement can re-implement most if or if/else structures more compactly. You can execute more than just one action with a switch, as opposed to the way a nested if/else structure works.
Selection

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- **if/else** statement is a double-selection structure.
- What if you have a series of integral values you would like to test and you might possibly want to trigger multiple actions based on one value?
- A **switch** statement can re-implement most **if** or **if/else** structures more compactly.
- You can execute more than just one action with a switch, as opposed to the way a nested **if/else** structure works.
char character;
switch (character) {
    case 'a': // case labels
    case 'e': // separated by :
    case 'i': // character
    case 'o': // notice use of ‘ ’
    case 'u': // marks for char tests
        System.out.print (character+" is a lowercase vowel\n");
        break;
    default:
        System.out.print (character+" is not a lowercase vowel\n");
}
Switch Statement

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- The break statements are necessary because without them, statements in switch blocks fall through.
- All statements after the matching case label are executed in sequence, regardless of the expression of subsequent case labels, until a break statement is encountered.
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Switch Summary

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- **switch** statement can only make exact matches of values (==).
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- **switch** statement can only make exact matches of values (==).
- **switch** statement works with **int**, **char**, **byte**, **short**, **String** and some other special (**enum**) data types.
Switch Summary

- *if* and *if/else* can test ranges of numbers using relational (\(>\), \(<\), \(\geq\) and \(\leq\)) and inequality (\(!=\)) operators.
- *switch* statement can only make exact matches of values (\(==\)).
- *switch* statement works with *int*, *char*, *byte*, *short*, *String* and some other special (*enum*) data types.
- *if* and *if/else* can test other data types such as floating point numbers.
if and if/else can test ranges of numbers using relational ($>$, $<$, $\geq$ and $\leq$) and inequality ($!=$) operators.

switch statement can only make exact matches of values ($==$).

switch statement works with int, char, byte, short, String and some other special (enum) data types.

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if and if/else can find one condition to be true and execute an action.
• **if and if/else** can test ranges of numbers using relational (> , < , ≥ and ≤) and inequality (≠) operators.

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• **if and if/else** can test other data types such as floating point numbers.

• **if and if/else** can find one condition to be true and execute an action.

• **switch** statements find one match and continue executing code until a break is found.