CSCI 341 : HANDS ON

UNIT: More Ifs

Activities

- Practice with conditionals and branching
- Play around with else if statements
- Explore switch statements
- Read and complete the assignment
- Check your work!

Activity One

What if the world doesn't fit into two groups? Let's say you were writing a Grade Calculation Program... just two grades (A or F) wouldn't be acceptable -- you need situations for A, B, C, D and F. You can add more branches with the Else If construct. (if... else if... else if... else if... else if... else) Note that once a conditional is met, any remaining conditionals are skipped. If no preceding conditional is matched, the else clause executes automatically. But there's more!

To make multiple coding curtains easier to easier for programmers, modern programming languages add in an additional branching construct: a case statement. In JavaScript, the case statement uses the key word "switch", and it works something like this:

```
switch (strGrade) {
  case "A":
    alert("Grade of A!");
    break;
  case "B":
    alert("Grade of B!");
    break;
  case "C":
    alert("Grade of C!");
    break;
  case "D":
    alert("Grade of D!");
    break;
  case "F":
    alert("Grade of F!");
    break;
  default:
    alert("You have no grade");
} // end the switch statement
```

The break causes the switch code to exit as soon as a match is made, while the default provides a match in case no other matches exist. Because JavaScript is loosely typed, you can compare different variable types in the expression.

Activity Two

Let's practice using conditionals! In this exercise, you will produce an HTML page that uses **prompt()** to collect input from the user. Next, you will process the user's information using **if** statements. Then (without asking the user to repeat the information), you will process the same user input with **switch**. The output for both the **if** statements and the **switch** construct will appear on the same page.

1. The else if's
   - Create 4 variables to hold, in degrees, the latitude and longitude of the user, and the latitude and longitude of their destination

     ```
     var intCurrentLatitude = 0;
     var intCurrentLongitude = 0;
     var intDestinationLatitude = 0;
     var intDestinationLongitude = 0;
     ```

   - Prompt the user to enter the numbers of degrees, provide a integer example to discourage entries of "one", "two", etc.
   - Remember that **prompt()** returns a string and that you will need to convert it to an integer using **parseInt()**. Please review your Conversions

lab for a review of **parseInt()**.
- After converting the string input to integers, process the entries with else if statements to determine heading
- - if intCurrentLatitude <= intDestinationLatitude && intCurrentLongitude <= intDestinationLongitude, output "Head North East"
- - else if intCurrentLatitude <= intDestinationLatitude && intCurrentLongitude >= intDestinationLongitude, output "Head North West"
- - else if intCurrentLatitude >= intDestinationLatitude && intCurrentLongitude >= intDestinationLongitude, output "Head South West"
- - else if intCurrentLatitude >= intDestinationLatitude && intCurrentLongitude <= intDestinationLongitude, output "Head South East"
- else (if none of the above apply) output "Land Ho!"

2. The Switch
   - Rewrite the else-if with a switch statement
   - Hint:

```
switch (true) {   // allows conditions to be processed
  case (first condition) :
    // do stuff for first condition
    break;
  case (second condition) :
    // do stuff for second condition
    break;
    // You get the idea...
  default :
    // Land Ho!
    break;
} // end switch statement
```

For more else if and switch examples, see pages 162 - 165 of the textbook.

Assignment

1. Prompt user for their current latitude and longitude, and their destination latitude and longitude
2. Echo the user's input to the page, and label each value.
3. Use nested if/else statements to process answers to determine heading (north east, north west, south east, south west, or Land Ho!)
4. Send output to a page element labelled "ifElse".
5. Repeat the process with Case/Switch construct using the same values that the user entered the first time. Do not ask the user to re-enter the values.
6. Send output to a page element labelled "caseSwitch". For example,

```
<body>
  <div id="echo" >*** Echo user input here ***</div>
  <div id="ifElse" >If/Else Construct</div>
  <div id="caseSwitch" >Case/Switch Construct</div>
</body>
```

7. While it is not important to test for due north, south, east, or west, please be sure to test your data with real values to ensure that your conditions give accurate results. Remember that longitude can have negative values (-180 to +180).
8. Post the assignment as a link from your class index page.
9. Check the rubric and submit a link in Canvas for grading.

Important Procedures for All Labs

Here are some general notes for perfection that you should follow for every assignment:

1. Please produce all web content to HTML5 standards.
2. Please **validate** all your files.
3. Be sure to update the header block comments for each file.
4. Be sure to check your browser's console / developer tools for error free code.
5. Test your code in Chrome and Edge at a minimum.
6. Use only your own original code for all labs.
7. Be sure to put your CSS and JavaScript in a separate files from your html.
8. Be sure to read through the lab rubric in Canvas.
9. Submit your lab in Canvas for grading.

Holler if you have any questions!

Mission Accomplished!

Now you have your JavaScript legs! Time to take to the sea and blow the assignments down, me matey!