Full Stack Development with AI

Lab 5.3 – Conditional Control Flow with JavaScript

Lab Overview

In this lab, you will learn how to work with the conditional control flow statements `if` and `switch` in JavaScript through some basic programming exercises.

Exercise 1 – Find the Largest Number

Write a JavaScript that asks user to input 3 integers and print out the largest integer. If the largest integer is duplicated, simply print out the first occurrence.

Do not use the `Math.max()` method in your code.

Sample Input	Sample Output
1, 2, 3	3
2, 1, 2	2
3, 3, 3	3
2, -1, 3	3
-1, -2, -3	-1

Exercise 2 – Find the Smallest Number

Write a JavaScript that asks user to input 3 integers and print out the smallest integer. If the smallest integer is duplicated, simply print out the first occurrence.

Do not use the `Math.min()` method in your code.

Sample Input	Sample Output
1, 2, 3	1
2, 1, 2	1
3, 3, 3	3
2, -1, 3	-1
-1, -2, -3	-3

Exercise 3 – Enhanced Temperature Conversion

The two most commonly used temperature scales are the Celsius scale (°C) and the Fahrenheit scale (°F). On the Celsius scale, the freezing point of water is defined as 0°C and the boiling point of water is defined as 100°C. On the Fahrenheit scale, the freezing point of water is defined as 32°F and the boiling point of water is defined as 212°F.

Write a single JavaScript that asks the user for the type of temperature conversion that is required, either Celsius to Fahrenheit or Fahrenheit to Celsius. Next, the JavaScript should ask the user to input the temperature in the original scale. Finally, the JavaScript should

convert the input temperature to the required scale before printing out the converted temperature.

Depending on the type of temperature conversion selected by the user, check that the original temperature input by the user is within the boiling point of water and the freezing point of water for the original temperature scale.

If the input temperature is valid, continue to perform the temperature conversion and print out the converted temperature. Otherwise, print out an error message.

Round all converted temperature values to at most 2 fractional digits.

Sample Input	**Sample Output**
Celsius to Fahrenheit, 0	32
Celsius to Fahrenheit, 33.3	91.94
Celsius to Fahrenheit, 200	Error
Fahrenheit to Celsius, 20	Error
Fahrenheit to Celsius, 180.5	82.5
Fahrenheit to Celsius, 212	100

Exercise 4 – Grading System with If Statement

Write a JavaScript that takes a student's test score (an integer between 0 and 100) and returns the corresponding letter grade based on the following scale:

- A for scores 90 and above
- B for scores 80 to 89
- C for scores 70 to 79
- D for scores 60 to 69
- F for scores below 60

You should use the `if` statement for this exercise.

Exercise 5 – Grading System with Switch Statement

Repeat Exercise 4 using the `switch` statement.

The `switch` statement is not typically used for range checking but in JavaScript, `switch` statement can be very flexible as you will observe.

-- End of Lab --