## **Class Plan ( JS - Comparison, Logical & Bitwise Operators)**

### **Digital Excellence Program – Sample Class Plan**

**Topic: JS - Comparison, Logical & Bitwise Operators.**

| **Time Slot** | **Activity** | **Description** |
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| **First 5 minutes** | **Warm-up & Reflection** | * Reflection on arithmetic and assignment operators introduced in the last class.   + How are unary operators different from binary operators?   + What will be the output of console.log(3 \* 4 + 5)?   + What is the difference between a+=b and a=+b?   + An activity with 4 questions on pre and post increment. |
| **30 minutes** | **Core Concept Explanation** | **Comparison Operators**  * **Operators**: ==, ===, !=, !==, >, <, >=, <= * Used to **compare two values** and return a boolean. * Show **loose vs strict equality** with type coercion. Explain why we prefer ===. * **Highlight Gotchas:**   + **"5" < 6 is true because of coercion**   + **x < "hello" is false due to NaN behind the scenes** * Introduction to NaN   **Logical Operators**  * **Operators**: &&, ||, ! * Use when combining conditions * Explain **truthy/falsy** values * Introduce short-ciruiting   **Bitwise Operators**   * **Operators**: &, |, ^, ~, <<, >> * Bitwise operators operate on the **binary representations** of integers. |
| **30 minutes** | **Activity** | Guess the Output activity for comparison operators along with introduction to lexicographical comparison when both operands are strings. Guess the Output activity for logical operators with truthy and falsy values and bitwise operators. |
| **10 minutes** | **Class Wrap-up** | Recap of key concepts. Questions to check their understanding:   1. What is the difference between 5 & 3 and 5 && 3? 2. Explain the result of 7 ^ 3. 3. Why does console.log(NaN === NaN) return false? |

### **References & Notes for JS - Comparison, Logical and Bitwise Operators**

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#### **Core Concept Explanation**

**References:**

* [Comparison and Logical Operators](https://www.w3schools.com/js/js_comparisons.asp)
* [Bitwise Operators](https://www.w3schools.com/programming/prog_operators_bitwise.php)
* [Lexicographical comparison](https://dev.to/bezerralucas/lexicographical-string-comparison-in-js-and-why-you-should-care-4cek)