

# Assignment - 29 Oct

## 1. Basic Operators (Arithmetic, Assignment, Increment, Decrement, Comparison, Logical, Bitwise)

- a. Create two numbers `a = 10` and `b = 3`.  
Perform and log: `a + b`, `a - b`, `a * b`, `a / b`, `a % b`.
- b. Write: `let x = 5; x = x + 3;`  
Now rewrite the same using `+=`.  
Do the same for `-=`, `*=`, `/=`.
- c. `let count = 5;`  
Use `count++` and log value before and after.  
Repeat for `count--`.
- d. Compare two values: `5 == "5"` and `5 === "5"`.  
Observe difference.
- e. Check if 10 is greater than 5, less than 20, and equal to 10.
- f. Try logical AND and OR:  
`true && false`  
`true || false`  
`!(true)`
- g. Predict the result of:  
`(5 > 3 && 10 > 8)`,  
`(5 > 3 || 10 < 8)`
- h. Bitwise (light intro):  
Evaluate `5 & 1` and `5 | 1`.  
Write result and your observation (no deep explanation needed now).

## 2. Variable Hoisting in JavaScript

- a. Predict output of:  
`console.log(a);`  
`var a = 10`

- b. Predict output of:  
`console.log(b);`  
`let b = 10`
- c. Predict output of:  
`test()`  
`function test() { console.log("Hello") }`
- d. Try writing a function expression before initialization and call it:  
`hello()`  
`var hello = function() { console.log("Hi") }`  
Write what happened and why.
- e. Write one sentence:  
What gets hoisted?  
What does not get hoisted fully?

### 3. Conditional Operators (if, else, else-if, ternary, switch)

- a. Take input using prompt for age.  
If `age > 18` → log "Adult".  
Else → log "Minor".
- b. Write a program:  
If `marks >= 90` → "A grade"  
Else if `marks >= 75` → "B grade"  
Else if `marks >= 50` → "C grade"  
Else → "Fail"
- c. Create a variable `city = "Bhopal"`.  
If `city is "Bhopal"` → log "MP"  
Else if `city is "Delhi"` → log "Capital"  
Else → log "Unknown City"
- d. Use ternary operator:  
Let `score = 40`.  
If `score > 35` → "Pass" else "Fail" using a ternary.
- e. Convert this if-else into a ternary:  
`if (temperature > 30) { "Hot" } else { "Pleasant" }`

- f. Write a switch case:  
Take day number (1 to 7).  
Print the day name.  
Default case: "Invalid Day".
- g. Using logical operators in condition:  
If age > 18 and country == "India" → log "Eligible for Vote"  
Else → "Not Eligible"