2/26/2021

Summary of core topics

LESSON 2 Data Types

6 primitive data types (number, string, boolean, … undefined … *BigInt, Symbol*)

null and undefined

Programmers assign null; the compiler assigns undefined

User input always comes as string, even when user may have entered a number.

Before arithmetic operation can be performed, string should be converted to numeric type.

Using unary (+) operator

parseInt parseFloat vs Number vs +

Boolean Conversion

- Values that are intuitively "empty", like 0, an empty string, null, undefined, and NaN, become false. Other values become true.

Arithmetic Operations

% / * **

Comparing different types

- When comparing values of different types, JavaScript converts the values to numbers.
- Always use === instead of ==
- Generally, comparison of different types is a mistake or poor design

Logical operators (&&, ||, !), usually used with Boolean (logical) values.

- Although called "logical", can be applied to any type
- "**falsy**" values: 0, 0.0, NaN, "", null, and undefined
- "**truthy**" values: anything else

LESSON 3 Selection

If statement: *wrap your code with curly braces {…}, even if there is only one statement to execute*

Else and else if clauses, nested if

Switch value is checked for strict equality to value of first case then second …

- if equal execute code from corresponding case, until nearest break (or until end of switch).
- If no case matched then default code is executed (if it exists).

When const or let keywords are used, scope is within the block

Defining table

LESSON 4 Repetition

While and do while,

sentinel and counter controlled

pretest and post test

for

nested loops

break, continue

LESSON 5 Functions

Function declaration

Function call

Arguments versus parameters

return: "undefined" if not given explicitly

local variables: scope is within block

outer variables visible inside a block, inner variables are not visible outside block (reference error)

variable shadowing (avoid)

Practice programming exercises

Write a defining table and JavaScript program that asks user to guess a number between 1 and 10 until the user enters 5. Program also keeps track of number of attempts user made before guessing the correct number that is 5. Program should output following results based on the attempts made:

1. If user guessed 5 in first attempt, program should print "Awesome!"
2. If user guessed 5 in second attempt, program should print "Great!"
3. If user guessed 5 in third attempt, program should print "Not bad!"
4. Otherwise, program should print "It took you n attempts!", where n is the number of attempts user made before guessing the correct answer.

Write a defining table and JavaScript function named `secondSmallest` that accepts three integer numbers as parameters and return the second-smallest value among them.

For e.g. `secondSmallest(-1,9,7)` → `7`

Write a defining table and JavaScript program that asks user to input gross salary and shows the federal tax he/she need to pay for the year. Federal tax brackets are as follows.

1. Salary up to 20K, do not have to pay any federal tax.
2. Salary above 20K and up to 50K, 5% of the salary above 20K.
3. Salary above 50K needs to pay, 1500 plus 10% of the salary above 50K.

For e.g., if the gross salary is 70K that person will pay 1500+ 10% of 20K = $3500 in federal tax.