June 5, 2024

JavaScript class

Cover Operator Precedence

Explain term “vanilla JavaScript”

Show how code is run in a web page – simple counter?

Expressions and Statements

1. A fragment of code that produces a value is called an expression
   1. Every value written literally (22 or “psychoanalisys”) is an expression
   2. Expression between parentheses
   3. Binary operator applied to two expressions
   4. Unary operator applied to one
   5. Expressions can contain other expressions
      1. Like subsentences containing other subsentences
2. Statement corresponds to a full sentence
   1. A program is a list of statements
   2. A statement is an expression with a semicolon after it
   3. If a statement doesn’t affect the world, it’s useless
   4. Sometimes can omit the semicolon at the end of a statement
      1. NEVER DO THIS
3. Environment – the collection of bindings and their values that exist at a given time
   1. Always contains bindings that are part of the language standard
   2. Most of the time contains bindings that provide ways to interact with the surrounding system
      1. Ex: in a browser, there are functions to interact with currently loaded website and to read mouse and keyboard input
4. Function – a piece of program wrapped in a value
   1. These values can be applied so to run the wrapped program
      1. Ex: the binding prompt holds a function
   2. Executing a function is called invoking, calling or applying it
      1. Call function by putting parentheses after an expression that produces a function value
      2. Usually directly use the name of the binding that holds the function
   3. The values between the parentheses are given to the program inside the function
      1. Ex: string in the parentheses of prompt function
      2. Values given to functions are called arguments
      3. Different functions might need a different number or different types of arguments
         1. Arguments in one function do not need to be the same type as each other
         2. In JavaScript don’t need to say what type the arguments are like other languages like Java
      4. Parameters are the placeholders for the arguments
5. console.log function
   1. show where in developer tools
   2. play around with a bit
6. Return values
   1. Functions producing values don’t need to have a side effect to be useful
   2. When a function produces a value, it is said to return a value
      1. Give example of function returning a value vs not returning a value
         1. Have function add numbers – not return then return
      2. Anything producing a value is an expression, meaning function calls can be used within larger expressions
         1. Ex: console.log(Math.min(2,4) + 100);
7. Control flow
   1. Executed top to bottom
   2. let theNumber = Number(prompt(“Pick a number”);  
      console.log(“Your number is the square root of “ + theNumber \* theNumber);
      1. flip it around and show it doesn’t work
      2. have student rewrite with backticks
8. Conditional execution