The University of British Columbia

> Date & Time: 2025-07-17 15:04:44
> Location: [Insert Location]
> Course Name: [Enter Course Name]

Keywords

`JavaScript` `Functions as First-Class Objects` `Variable Scope`

Key Learnings

1. Embedding JavaScript in HTML: Different methods to include JavaScript code in HTML documents, their pros and cons, and best practices for script placement.
2. Loading JavaScript from Local Files vs. Server: Understanding the difference between loading JavaScript from local files and from a server, and the implications for development and real-world deployment.
3. JavaScript Variables and Duck Typing: JavaScript uses dynamic typing (duck typing), allowing variables to change types at runtime based on assigned values.
4. JavaScript Comments: JavaScript uses C/Java-style comments for code documentation.
5. The Window Object in JavaScript: The window object is a global object in browsers, providing access to browser features and global variables.
6. Strict Mode in JavaScript: Strict mode enforces stricter parsing and error handling in JavaScript, requiring variable declarations.
7. JavaScript Data Types: JavaScript has primitive types and objects. Functions are also objects, and arrays are dynamic and untyped.
8. Arrays in JavaScript: Arrays in JavaScript are dynamic and can store other arrays, allowing for easy creation of n-dimensional arrays. Unlike C, C++, or Java, there is no need to re-allocate or use special types for dynamic arrays.
9. Parameter Passing and References: In JavaScript, when passing objects or arrays to functions, what is actually passed is a reference to the heap object, not a copy of the object itself.
10. Hash Tables (Key-Value Stores) and Objects: Hash tables, also known as key-value stores or dictionaries, are a core data structure in JavaScript. Objects in JavaScript are essentially hash tables, and there is little distinction between objects and hash tables.

11. Adding and Deleting Object Properties: Properties can be added to or deleted from objects at any time. Deleting a property removes it from the object, and JavaScript handles memory management automatically through garbage collection.
12. Functions as Objects and Anonymous Functions: Functions in JavaScript are first-class objects. They can be assigned to variables, passed as arguments, and stored in objects. Functions can be declared with or without names (anonymous functions).
13. Garbage Collection in JavaScript: JavaScript uses automatic garbage collection. When objects or functions are no longer referenced, they are automatically cleaned up by the runtime.
14. JavaScript Functions as Objects: In JavaScript, functions are first-class objects, meaning you can attach fields to them, pass them as arguments, and return them from other functions. This is a powerful feature that distinguishes JavaScript from some other languages.
15. JavaScript Null and Undefined: JavaScript has two special values for absence: null and undefined. They are distinct and behave differently, which can be confusing even for experienced programmers.
16. Variable Declaration and Scope in JavaScript: JavaScript variables can be declared with or without the ‘var’ keyword. Variables declared without ‘var’ become global variables, while those declared with ‘var’ are scoped to the function.
17. Assignment and Type Checking in JavaScript: Covers the use of the assignment operator ‘=’, the role of ‘use strict’ in JavaScript, and differences in type checking and coercion compared to other languages like Java and C.
18. Operators in JavaScript: Overview of standard operators in JavaScript, including arithmetic, bitwise, and logical operators, with a focus on the difference between ‘==’ (double equals) and ‘===’ (triple equals).
19. Equality Checking in JavaScript: Explains the two notions of equality in JavaScript: loose equality (==) and strict equality (===), including their behavior with primitives and objects.
20. Functions as First-Class Objects in JavaScript: Functions in JavaScript can be passed as parameters, assigned to variables, and treated as first-class objects. There are multiple ways to declare functions.
21. Variable Scope and Hoisting in JavaScript: Explains how variable scope works in JavaScript, especially with ‘var’, and how variable hoisting affects visibility within functions and blocks.
22. Control Flow Statements in JavaScript: Overview of control flow statements in JavaScript, including if-then-else, else-if, switch-case, for loops, for-in loops, and try-catch.
23. Class Activity and Assignment Grouping: Instructions for class activity, assignment submission, and group formation, including use of Slack and Git repositories.

Explanations

1. Embedding JavaScript in HTML

- **Key Points**
  - JavaScript can be embedded directly in the HTML document using in the .
- **Explanation**
  The class discussed various ways to embed JavaScript in HTML. Initially, code can be written directly inside