**7.7 Summary**

**9:00 – Introduction to JavaScript**

* JavaScript has no connection to Java, despite the similar name.
* ECMAScript is another name for JavaScript. It was more commonly used in the past.
* JavaScript is the most popular language today, especially for web development.
* Stack Overflow has become less popular due to the rise of AI tools.
* JavaScript is popular because it is the only language natively understood by web browsers.
* Node.js transformed JavaScript from a browser-only scripting language into a general-purpose programming language.
* The alert() function works only in browser environments.
* We can run JavaScript in the terminal using:
* node <file-name>
* The Event Loop exists in browsers but works differently (or is absent) in Node.js.
* TypeScript is a superset of JavaScript that adds static typing and additional features.

**10:00 – Variables and Types**

* JavaScript data types include: number, string, boolean, and undefined.
* JavaScript is loosely typed (a.k.a. dynamically typed), meaning:
* let x; // x can be reassigned to any type later
* var (from ES3) vs. let/const (from ES6):
  + var has function scope, while let and const have block scope.
  + var declarations are hoisted to the top of their scope, but let/const are not initialized until their definition.
  + Example:
  + console.log(a); // undefined
  + var a = 5;
  + console.log(b); // ReferenceError
  + let b = 5;
* Recommendation: Use only let or const. Avoid var.
* null is considered an object, but it represents no value.

**11:00 – Objects and Miscellaneous**

* Object declaration example:
* let obj = {
* key1: value1,
* key2: value2,
* key3: value3
* };
* Object values can be: primitives, arrays, functions, or other objects.
* Variable names (identifiers) must start with a letter, underscore \_, or dollar sign $.
* Keep in mind memory efficiency when creating large objects or arrays.

**Review Questions**

* What are identifiers?  
  Variable/function names used to identify values in the code.
* What happens when you concatenate a number and a string?  
  The number is converted to a string:
* console.log(1 + "2"); // "12"
* console.log(1 == "1")  
  → true (loose equality allows type coercion)
* console.log(1 === "1")  
  → false (strict equality compares both value and type)
* What is NaN and when does it occur?  
  NaN (Not-a-Number) occurs when a numeric operation fails:
* console.log("abc" / 2); // NaN
* What is a falsy expression?  
  Values that are treated as false in a boolean context:
  + false, 0, "", null, undefined, NaN
* What is the purpose of startPosition || 0?  
  Ensures a fallback to 0 if startPosition is undefined, null, or falsy.
* What does employees.push(...candidates) do?  
  Adds all elements of the candidates array to the employees array using the spread operator.

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| **Method** | **Action** |
| --- | --- |
| push(x) | Adds x to the **end** |
| pop() | Removes the **last** element |
| unshift(x) | Adds x to the **beginning** |
| shift() | Removes the **first** element |