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UNIVERSITY OF TECHNOLOGY

INTERNET PROGRAMMING 2
...class of 2K24, PK Ramdeyal

JavaScript Review

Slide Deck 1

22 – 26 April 2K24

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PK Ramdeyal, 23 April 2024

JavaScript Review-Section One

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NOTES:

This slide deck is merely provided as a record of the aspects you must engage with and know from the section on JavaScript

While the attempt to generate these “Notes” required some effort, it is only a summary of the main items you must know. Always refer to the “Text-Book” which is the w3schools site

At the end of this deck, you will find a few coding questions which you should explore.

Good Luck.

JS Introduction

- JavaScript is a scripting language for creating dynamic content on web pages.
- It can interact with HTML/CSS, control browsers, modify content, and asynchronously communicate with servers.
- It's a fundamental part of web applications, enabling user interactions and dynamic behavior.

JS Where To

- JavaScript code can be placed in the HTML page within `<script>` tags or in an external file referenced with the `src` attribute.
- It's typically placed in the `<head>` for functions or global code, or at the bottom of the `<body>` to ensure HTML is loaded first.

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JS Output

- Outputs can be done in various ways: `alert()`, `document.write()`, `innerHTML`, and `console.log()`.

- `document.write()` is typically used for testing, `alert()` for quick messages, `innerHTML` to change webpage content, and `console.log()` for debugging.

JS Statements

- JavaScript statements are composed of values, operators, expressions, keywords, and comments.
- They are executed by the browser sequentially and can include commands like `var x = 5;` which declares and assigns variables.

JS Syntax

- Encompasses rules for writing valid JavaScript code.
- Includes proper use of brackets, braces, semicolons, case sensitivity, and literal values.

JS Comments

- Used to explain code, and make it more readable.
- Single-line comments are initiated with `//`, while multi-line comments start with `/*` and end with `*/`.

JavaScript Review

JS Variables

- Variables are containers for storing data values.

- Declared using `var`, `let`, or `const`, and the name can contain letters, digits, underscores, and dollar signs (but must not begin with a digit).

JS Let

- Introduced in ES6 for block-level scope.

- It's similar to `var` but with some differences, particularly in scope behavior within loops and conditional statements.

JS Const

- Also introduced in ES6 to define a constant reference to a value.

- Cannot be re-assigned or re-declared and must be initialized at the time of declaration.

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JS Operators

- Include arithmetic (+, -, *, /), comparison (==, !=, ===, !==), logical (&&, ||, !), and more.
- Used to perform operations on variables and values.

JS Arithmetic

- Involves basic operations like addition, subtraction, multiplication, and division.
- Also includes modulus (%), increment (++), and decrement (--).

JS Assignment

- Used to assign values to variables with the assignment operator (`=`).
- Also includes compound assignments like `+=`, `-=`, `*=`, and `/=`.

JavaScript Review

JS Data Types

- Primitive types include undefined, null, boolean, number, string, symbol (ES6), and BigInt (ES2020).

- Complex types are objects and functions.

JS Functions

- Blocks of code designed to perform a particular task, invoked when "called".

- Declared with the `function` keyword, can receive parameters, and may return a value.

JS Objects

- Collections of properties, with a key-value pair structure.

- Can contain multiple data types, and are declared with `{}` braces.

JS Events

- JavaScript can respond to user actions through events, like clicks, form submissions, mouse movements, etc.

- Event handlers can be assigned to HTML elements to execute functions when an event occurs.

JavaScript Review – Questions – AI Generated

These questions are intended to encourage you to think critically about how JavaScript is used in various scenarios, hopefully reinforcing your understanding of the language in practical applications. They cover a range of foundational topics and encourage you to consider the rationale behind choosing certain features of JavaScript for specific tasks. However, please note that these questions are intended to make you think about JS from a problem-solving context and have not been de-bugged in any way. They are provided for your own engagement.

1. JS Introduction and Variables

   - Scenario: A user needs to enter their details on a web form. Write a JavaScript function that declares variables to store a user's `firstName`, `lastName`, `email`, and `dateOfBirth`. Then, output these details to the web page.

2. JS Where To and Output

   - Scenario: You're tasked with displaying a welcome message on a webpage only after a user has successfully logged in. Write the JavaScript code that should be placed within the HTML file to update the content of a `<div>` with an id of `"welcome-message"`.

JavaScript Review – Questions – AI Generated

3. JS Statements and Syntax

- Scenario: Describe the process of creating a JavaScript function that will take two numbers as arguments, add them, and return the result. Include proper syntax for creating the function and returning the value.

4. JS Comments and Variables

- Scenario: A payment gateway requires comments for documentation purposes. Write a JavaScript snippet that defines variables for `transactionId`, `amount`, and `currency`, including descriptive comments explaining the purpose of each variable.

5. JS Let and Const

- Scenario: You are creating a configuration for a game where certain settings should not change once set, such as `maxPlayers` and `minPlayers`. Write JavaScript constants for these settings and explain why you used `const` instead of `let`.

JavaScript Review – Questions – AI Generated

6. JS Operators and Arithmetic

- Scenario: A shopping website calculates the total price and applies a discount. Write a JavaScript function that takes the `amount` and `discountPercentage` as parameters, calculates the final price after the discount, and returns it.

7. JS Assignment and Data Types

- Scenario: You are working with a weather application that stores temperature in Celsius and converts it to Fahrenheit. Write a JavaScript function that takes the Celsius temperature as an input, converts it to Fahrenheit, and assigns the result to a new variable.

8. JS Functions

- Scenario: An email client needs a function to extract the domain from a given email address. Write a function that takes an email string as an argument, extracts the domain after the "@" symbol, and returns it.

JavaScript Review – Questions – AI Generated

9. JS Objects

- Scenario: A car rental service requires an object to store vehicle information. Define a JavaScript object named `vehicle` with properties for `make`, `model`, `year`, and a method to `displayDetails` of the vehicle.

10. JS Strings and Events

- Scenario: On a user profile page, a user's full name is displayed in a single string, but you need to have the first and last name separated for an edit form. Write a JavaScript event handler that splits a `fullName` string into `firstName` and `lastName` when the user clicks an "Edit" button.