KOENIG SOLUTIONS · COURSE OUTLINE

Certified Entry-Level JavaScript Programmer

Learn to write, debug and troubleshoot JavaScript programs, from variables and operators to functions and error handling.

6
MODULES

107
TOPICS

COURSE OVERVIEW

This course introduces JavaScript and programming fundamentals, covering how to set up development tools and run code. It then explains variables, data types, type casting and comments, followed by operators and ways to interact with users through dialog boxes. Control flow is covered through conditional statements and loops, before moving on to declaring, calling and working with functions, including recursion and callbacks. The course closes with handling errors and exceptions and debugging and troubleshooting code.

WHO THIS COURSE IS FOR

- **Aspiring Programmers**
- **Front-End Developers**
- **Web Developers**
- **Software Developers**
- **IT Students**

LEARNING OBJECTIVES

- Describe how JavaScript code is written and executed
- Explain variables, data types and type casting
- Apply operators to perform calculations and comparisons
- Interact with users through dialog boxes such as alert and prompt
- Implement conditional execution using if and switch statements
- Apply loops such as for, while and do-while
- Develop functions including recursion and arrow functions
- Identify and handle errors using try-catch and debugging tools

COURSE SYLLABUS

6 Modules, 107 Topics

01

Introduction to JavaScript and Computer Programming

TOPICS

- How to communicate with the computer?
- What is JS?
- JS - Advantages and Limitations
- Where is JS used today?
- Development tools
- Online development environment
- Local development environment (code editor, interpreter, debugger)
- How can you run your JavaScript code?
- Executing the code directly in the console

02

Variable, Data Types, Type Casting and Comments

TOPICS

- Naming, declaring and initializing variables
- Declarations and strict mode
- Changing variable values
- Constants
- Scope (blocks, shadowing, hoisting)
- Data types in JS
- Primitive data types - Boolean
- Primitive data types - Number
- Primitive data types - BigInt
- Primitive data types - String
- Primitive data types - undefined
- Primitive data types - Symbol
- Primitive data types - null
- Type casting - primitive construction functions - null
- Type casting - primitive conversions
- Conversion to String
- Conversion to Number
- Conversion to Boolean
- Conversion to BigInt
- Implicit Conversions
- Complex data types - Object
- Complex data types - Array
- Array - the length property
- Array - the indexOf method
- Array - the push method
- Array - the unshift method
- Array - the pop method
- Array - the reverse method
- Array - the slice method
- Array - the concat method
- Single-line comments
- Multi-line comments

03

Operators and User Interaction

TOPICS

- What are operators?
- Assignment operators
- Arithmetic operators
- Arithmetic operators - compound assignment operators
- Logical operators
- Logical operators - compound assignment operators
- **String operators:** concatenation and compound assignment
- Comparison operators
- Other JS operators (typeof, instanceof, delete, and ternary)
- Operator precedence
- How to interact with the user in JavaScript?
- Dialog boxes - alert
- Dialog boxes - confirm
- Dialog boxes - prompt

04

Control Flow - Conditional Execution and Loops

TOPICS

- What is conditional execution?
- The if statement
- The if-else statement
- The if-else-if statement
- The conditional operator
- The switch-case statement
- What are loops?
- The while loop
- The do-while loop
- The for loop
- The for-of loop
- The for-in loop
- The break and continue statements

05

Functions

TOPICS

- What are functions?
- Declaring functions
- Calling functions
- Local variables
- The return statement
- Function parameters
- Shadowing
- Parameter validation
- Recursion
- Functions as first-class members
- Function expressions
- Synchronous callbacks
- Asynchronous callbacks
- Arrow functions

06

Errors, Exception, Debugging and Troubleshooting

TOPICS

- Errors - the programmer's daily bread
- Natural languages and communication errors
- Errors vs exceptions
- Errors without exceptions
- Limited confidence
- Types of errors - SyntaxError
- Types of errors - ReferenceError
- Types of errors - TypeError
- Types of errors - RangeError
- The try-catch statement
- Conditional exception handling
- The finally statement
- The throw statement and custom errors
- What is debugging?
- Step-by-step execution
- Environment preparation
- The debugger statement
- The resume option
- Code debugging without the debugger statement
- The step over option
- The step into option
- The call stack option
- Viewing and modifying variables
- The step out option
- Measuring code execution time

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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