INT303 : Advanced Javascript Programming

Code : INT303 **Duration :** 2 days **Category :** Internet

Audience :

This course is designed for experienced Web developers who want to use advanced aspects of JavaScript in Web Applications.

Prerequisites :

Basic knowledge of JavaScript and HTML is required. Prior knowledge of Object Oriented Programming is beneficial for a good understanding.

Realization :

The course has a hands-on nature. The theory is treated by means of presentation slides and is interspersed with practical exercises. Demos are used to clarify the concepts. A modern JavaScript development environment with debugging capabilities is used. The most common browsers are available for the execution of the code.

Advanced JavaScript Programming

Contents :

This course Advanced JavaScript starts with discussing how object oriented programming can be implemented in JavaScript using classes and objects. The various forms of inheritance like prototypal, classical and parasitic inheritance are compared with each other. Also, the relationship between functions and objects is explained, prototypes and namespaces are discussed and the various built-in JavaScript objects are part of the course program. There is also focus on the concepts of closures and lambda and how and where these are used. An important part of the subject matter is how XML data can be accessed in JavaScript. In this respect the XML DOM API is discussed and attention is paid to the link between the XML data and the elements of the page. Next attention is paid to the Ajax technology where parts of the page can be changed through interaction with the server without requiring a full page reload cycle. The central role that JavaScript plays here is discussed. Separate attention is then paid to JSON, JavaScript Object Notation, a format that is used increasingly in data communications as an alternative to XML. And finally the debugging of JavaScript code, taking browser dependencies into account and optimizing JavaScript code to achieve performance gains, are on the course schedule

Module 1 : JavaScript Objects

What are Objects?
object literals
default & guard operators
Updating properties
Property attributes
eval/firebug gotcha
prototype
property enumeration
delete operator
inheritance
pseudoclassical
prototypal
functional
overriding & super()
Implement singleton

Module 2 : Accessing XML DOM

Building a DOM tree
DOM level
DOM Representation
Node Object
DOM Node Types
Properties of Node Types
Node properties
Node methods
DOM data structures
NamedNodeMap interface
Example Document and Tree

Module 3 : Advanced Functions

Optional Function Arguments
Truthy and Falsy
Default Operator
Default Operator Gotcha!
Functions Passed as Arguments
Anonymous Functions
Inner Functions
Observing and Capturing Events
The eval() Function
Variable Scope
Error Handling
Runtime Errors
Lexical scope
closure
module pattern

Module 4 : Ajax and JavaScript

How Ajax Works
Create XMLHttpRequest
XMLHttpRequest Methods
XMLHttpRequest Properties
Sending the Request
Simple Ajax Request
readyState Property
Dynamic HTML
HTML DOM Access
Read responseText
Submit Data with GET
Submit Data with POST
Events to Start Ajax
Ajax Sequence Diagram

Module 5 : JSON

What is JSON?
JavaScript Object Notation
JSON Data Structures
JSON Object Representation
JSON Array Representation
Why JSON over XML?
JSON text
JSON and Java Technology
Send and receive JSON data
Both client and server sides

Module 6 : JavaScript Regular Expressions

Regular Expressions
Getting Started
JavaScript's Regular Expression Methods
Flags
String Methods
Regular Expression Syntax
Start and End (^ $)
Number of Occurrences
Grouping ([])
Negation (^)
Subpatterns (())
Alternatives (|)
Escape Character (\ )
Backreferences
Form Validation with Regular Expressions
Cleaning Up Form Entries