

Curriculum:

Fundamentals of Web Programming

Week-1 and Week-2

HTML5

Introduction to HTML
HTML Tags
HTML Attributes
HTML Editors
HTML Document Structure
HTML Headings
HTML Paragraphs
HTML Styles
HTML Comments
HTML Blocks, Classes, Ids
HTML Tables
HTML Lists
HTML Images
HTML Forms
HTML File Paths
WebStorage
Application Cache
GeoLocation
Drag and Drop
WebWorkers
Canvas
SVG
GoogleMaps API

Week-3

CSS

Introduction to CSS

CSS Selectors

Inserting CSS into HTML(Inline, Internal,External)

Colors, Borders, Background, margins, padding.

Working with core concepts of CSS

Box/Model,Outline,Fonts,Links,Lists,Tables,Combinations

Working with CSS3

Pseudo Classes and Elements

@Rules

Media Types

Media Queries

Rounded Corner

Border Images

Multi Background

Gradients

Shadow

2d transform

3d transform

Animation

Multi columns

User Interface

Box Sizing

Layout

Week 4 , Week 5 and Week 6

JAVASCRIPT

Introduction to Javascript

Scripting Languages and their usage

Getting Started with JavaScript.

History of JavaScript

Variables

Data types

Real time examples

Operators and control statements.

Types of Operators and their usage.

If statement

If else statement
If else if statement
Real time examples
while loop
do-while loop
for loop
keywords used in control statements like return,break.
Real time examples

Working with Functions

Basics of Functions
Anonymous Functions
Function Expressions
First class functions
IIFE's
Call, Apply and Bind
Closures
Call by Value
Call by Reference

Working with Arrays

Creating an Array.
Accessing,Looping Over,removing elements.
Array methods in detail.
Real time examples

Working with Numbers and Dates

Numbers and its methods.
Date and its methods.
Real time examples

Working with Strings

Strings and its methods.
Real time examples

Working with Objects

Objects and properties.

Creating new objects.

Creating objects using the create function.

this keyword.

Real time examples

Working with Scopes and Events

Types of Scopes in detail.

Different types of events with real time examples.

Working with Validations

Basic Validations

Advanced Validations

Real time examples

Working with Error Handling and Debugging

Intro to Error Handling

try,catch,finally, throw, Error Object.

Different types of Errors

Importance of Debugging and its usage.

Understanding Garbage Collection and Best coding practices.

Working with DOM

Intro to DOM

Methods,Documents, Elements

Events

Event Listener

Working with DOM

Navigation

Nodes

Collections

Node Lists

Advanced JavaScript

Prototypes and Inheritance

Error Handling

Promises, Async and await
Modules
Debugging

ECMAScript 6

Intro to ES6.
Arrow Functions
Default parameter values
Rest parameter
Spread Operator
String Interpolation
Custom Interpolation
Modules(Importing and Exporting)
Intro to Classes.
Working with Classes and Generators.
Class Inheritance.
Static members
Setters and Getters.
Generators
Working with Promises and Internationalization/Localization.

Week -7 **Bootstrap**

Working with Bootstrap

Intro to Bootstrap 4.
Grid System
Typography
Colors
Tables
Images
Jumbotron
Alerts
Buttons
Button Groups
Badges, ProgressBars
Pagination

Dropdowns
Navs,Navbar
Forms, Input
Carousel
Modal
Tooltip
Popover

Week-8 and Week -9

ReactJS

Environment Setup
Introducing JSX
Rendering Elements
Components and Props
State and Lifecycle
Handling Events
Conditional Rendering
Lists and Keys
Forms
Composition vs Inheritance
Thinking In React
Web Services
Accessibility
Code-Splitting
Context
Error Boundaries
Forwarding Refs
Fragments
Higher-Order Components
Integrating with Other Libraries
Youtube Clone Application

Week-10 and Week -11

Redux

Introduction to Redux
Actions
Reducers
Store

Data flow
Usage with React
Async Actions
Async Flow
Middleware
Usage with React Router
WeatherApp

Week-12

NodeJS

Introduction to NodeJS
History of NodeJS
Features of NodeJS
Architecture of NodeJS
Environment Setup
Running First Application
REPL Terminal
NPM
Callbacks
Event-driven programming
Working with FileSystem
Understanding Global Objects
Streams
Buffers
Intro to Modules
OS Module
Path Module
Crypto Module
Debugger
Timer options
Understanding HTTP Module
Creating a server
Handling requests.
URL Module
Net Module

Week 13 and Week 14

Express

Basics of ExpressJS

Getting started with Express

Features of Express

Installation of express

First Application using Express JS

Understanding Express JS Request

Request object

Request object properties

Request object methods

Real time example

Understanding Express JS Response

Response object

Response object properties

Response object methods

Understanding Get and Post operations

Intro to Get Request

Developing code to handle Get Request

Intro to Post Request

Developing code to handle Post Request

Routing in Express

Intro to Routing

Route methods

Route Paths

Route Params

Route Handlers

Response methods

Working with Middleware.

Getting started with middleware

Writing middleware

Configuring middleware

Using middleware

Application level middleware

Router-Level Middleware
Error-handling middleware
Built-in Middleware
Third-party Middleware

Template Engines

Introduction to Template Engines
Different Template Engine
Intro to Pug
Using pug with express
Working with EJS
Working with handlebars

Advanced Express JS

Error Handling
File Uploading Real Time Modules
Nodemailer
Multer

MongoDB

Introduction to MongoDB Database
Getting started with MongoDB
Features of MongoDB
Environment Setup

Week 14 and Week 15

MongoDB

Basics of MongoDB

Creating First Database
Creating Document and Saving it to Collection
Dropping a Database

Creating a Collection Using `db.createCollection(name,options)`
Dropping a Collection

CRUD Operations

Creating/Inserting a document in collection using javascript file
Inserting Array of Documents
Reading a Document - Querying
Reading a Document with `$lt`, `$gt` operator
Updating Documents
Deleting documents

Indexes and ObjectIds

Introduction to Indexes
Understanding Impact of Indexes
Creating Index
Finding Indexes
Understanding ObjectIds
Creating ObjectIds
Advantages of ObjectIds created by MongoDB
Disadvantages of ObjectIds created by MongoDB

Aggregation and Data Modelling in MongoDB

Using `aggregate()` method
Using `distinct()` and `count()`
Sorting documents
Introduction to Data Modelling in MongoDB
Data Modeling using References
Data Modeling using Embedded documents

Relationships in MongoDB

One-To-One Relationship
One-To-Many Relationship
Many-To-Many Relationship

MongoDB with Nodejs

Introduction

Using MongoClient

Using Mongoose

Creating database using MongoClient and Mongoose

CRUD operations on MongoDB with Nodejs

Insert

Update

Delete

Retrieve

Week-16

Git- Version Control System

Introduction to Version Control System

Centralized Version Control System

Distributed Version Control System

Introduction to Git

Git Workflow

Branching

Git Ignore

Stashing Changes

Detached Head

Undoing changes

Source Code Repositories

Github Remote

Tagging

Jenkins- Continuous Integration and Delivery

Introduction to Continuous Integration & Delivery

Overview of Jenkins

Jenkins Setup

Plugins and its uses

Setting up your Build Jobs

Jenkins security

Automated Builds using webhooks

Code Quality Integration

Integrating Nexus

Distributed Builds / Master-Slave Configuration

Performing Continuous Delivery

Implementing Pipelines

Docker- Containerization

Introduction to Containerization

Monolithic vs Microservices Architecture

Virtualization vs Containerization

Docker Architecture

Docker Setup

Docker Registry, Image & Container

Managing Containers Life Cycle

Data Persistency & Docker Volumes

Networking with docker

Working with Docker images

Setting up three tier Application using docker

Building Custom Images