

Fundamentals Visualised

Sanjay Vyas' Visualisation Workshop
10 hours duration

Course Outline

Process Maps

Heap-stack visualisation

Data types system

Expression vs Statements

Control flows

Functions and stack-frames

Declaration vs Definition

Formal vs Actual parameters

Pass by Value vs. Pass by Reference

Programming Paradigms

Original vs Modern OOP principles

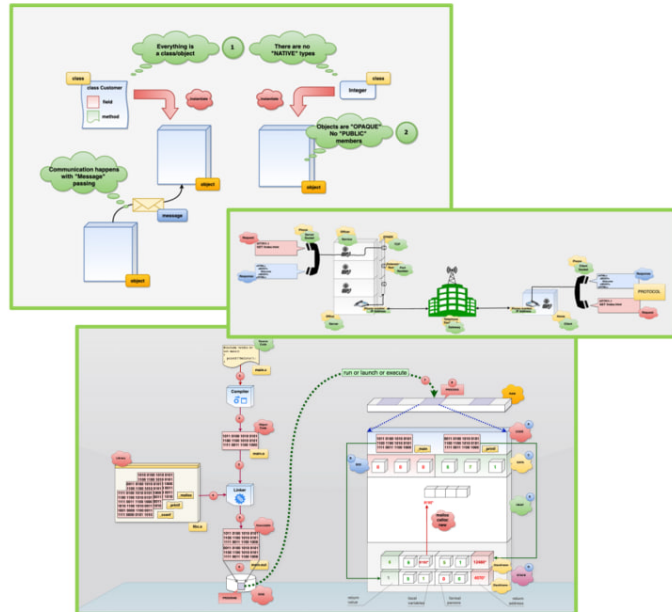
Functional programming

Recursion

Networking fundamental

Network sockets

How Web works



JavaScript Internals Visualised

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20 hours duration

Course Outline

JavaScript Process map

7 Native data types

Dynamic nature

JavaScript Object internals

6 ways of creating objects

Function internals

__proto__ and prototype

Prototype chaining

Function and lambda

Property Descriptors

Functions and classes internals

Functional programming

Internals of array

Closures

Higher order functions

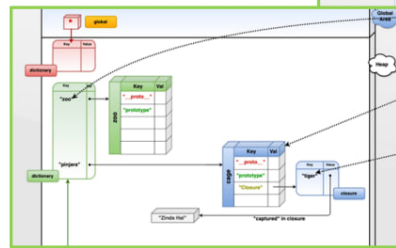
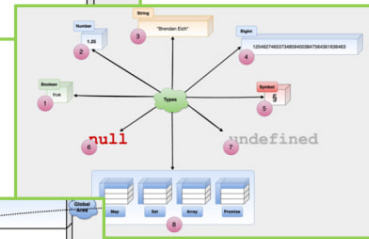
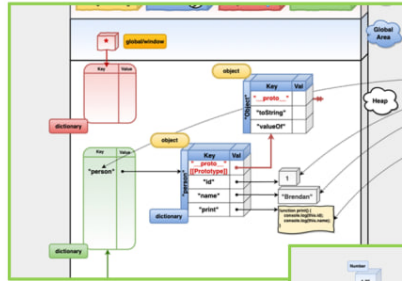
Writing callbacks

setTimeout/setInterval

Promise internals

async-await

Web Worker multithreading



JavaScript Frontend Visualised

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Course Outline

Browser Architecture

HTML Elements

Block vs Inline

div, p, span

nav, header, section, aside, footer

HTML Form Controls

BOM and DOM

Internal and external scripts

getElementsByXXXX

querySelector/All

DOM Event Handlers

CSS inline, internal, externals

CSS Selectors

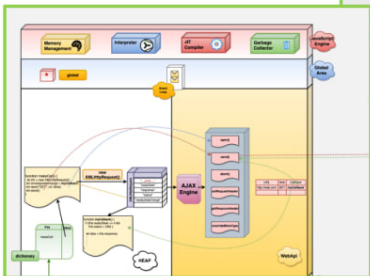
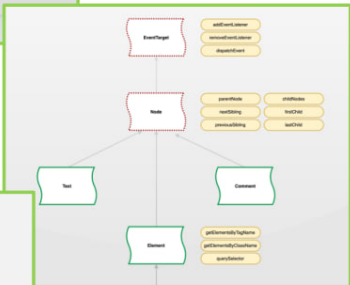
CSS Combinator

CSS Attribute selectors

CSS Pseudo Selectors

Build SPA using JavaScript

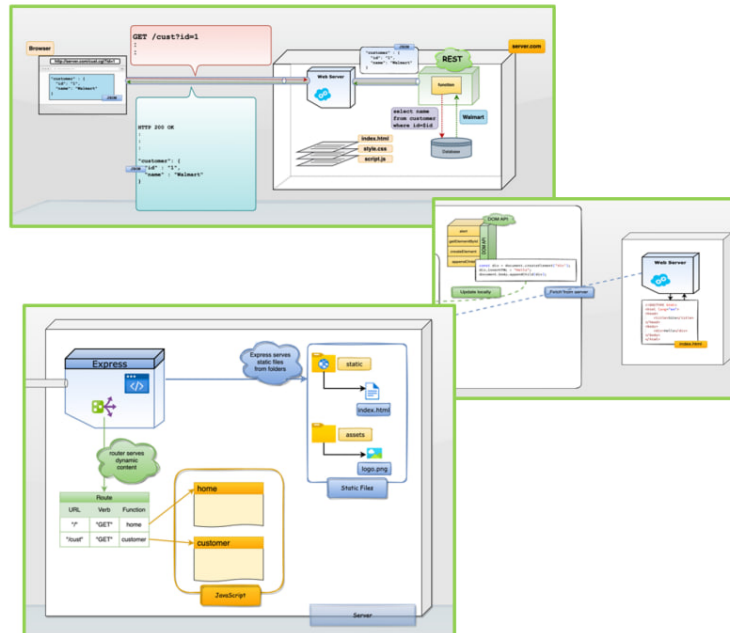
AJAX and fetch () for REST API



JavaScript Backend Visualised

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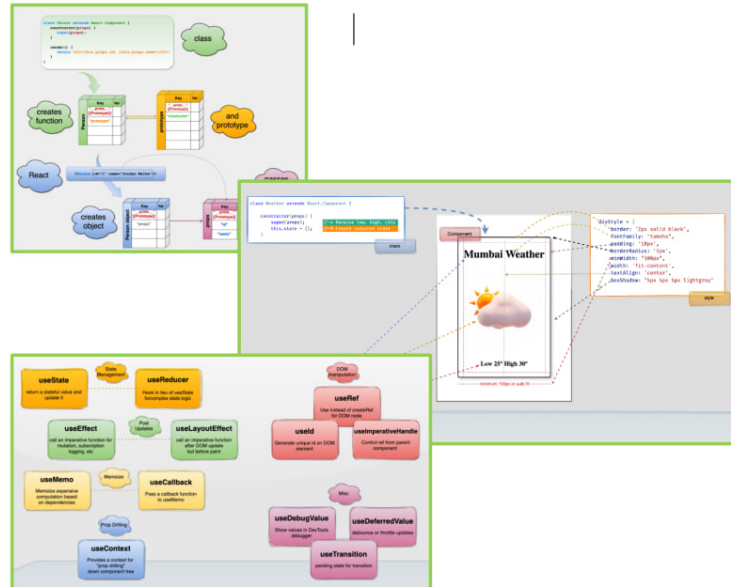
Course Outline
WWW protocols - port/verbs
HTTP Request and Response
Making HTTP calls
Frontend AJAX/fetch API
Basic WebAPI in plain JavaScript
Using ExpressJS for backend
Routers, routes, paths, handlers
Parameter and body handling
Returning data - JSON/XML
Authentication at route level
Express middleware
Body-parser, compression, cors
Using Postman for testing
Writing Frontend fetch app for testing
Connecting to database - MySQL/Mongo
DB queries - callback, Promise, async based
Writing DAL interface for switchable DB
Authentication using DB/3rd party
Authorization using DB/3rd party
Converting to TypeScript



React Visualised

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Web Internals - HTTP, Request, Response
Single Page Applications
Building simple plain JS App
Hand-rolling react app using Webpack
React Architecture
JSX, Babel and rendering
Writing Class Component
Component and props
React Events and Handlers
State management in class components
React class component Life Cycle
Function components
Diff. between class and functionals
State management in function component
Props drilling and useContext
React hooks (useState/Effect/Memo etc)
Creating and using Custom hooks
React Forms
Making webapi calls from React



Angular Visualised

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Web Internals - HTTP, Request, Response
Angular framework as SPA
Angular architecture
Modules, Components, Selectors
Template and the View
Data binding – one way/two way
@Input/@Output and inputs[]/outputs[]
Attribute and Structural @directive
Template variable reference for DOM
@ViewChild of element reference
LifeCycle methods of an Angular Component
Change Detection in Angular
@ViewChild vs @ViewChildren
@Input vs ng-content vs @ViewChild
@ContentChild and @ContentChildren
ng-content selectors and CSS
ng-container vs ng-template
Structural directive ngIf, ngFor
Writing @injectable services
Angular Router
Template Form vs Reactive Forms

