

# Fundamentals of Web *for* UI (Frontend) Development

## Hands-on Foundation Bootcamp Workshop (Internal)

### Introduction

Web technology (HTML, CSS, and Javascript) is a must-have skill for software development today. In fact, currently, this technology is used not just for the web alone but used for building all modern software solutions. Without a strong foundation in web technology, engineers are unable to meet product quality and delivery time. This Bootcamp provides a strong foundation to learn any of the front-end frameworks like Ojet, React, or Angular.

Though there are numerous courses available online, that are not effective as those training are long hours, non-interactive and outdated. The external instructor-led training are not effective as well, as those training are packed with too many concepts in a day over a period (2/3/5 Full day). This leaves the engineers with no time to practice their learning after the training as they are pressured with project deliverables and other priorities. Also, the external trainers (without real-time product/project development experience) are not aware of the internal project requirements and are unable to relate to real-world problems as they use the decade old material which they just repeat. Those training are feel-good, but no knowledge retention after the trainings.

Hence, we need customized interactive internal hands-on workshops for our engineers.

### Objectives

1. To provide a strong foundation on web technology – HTML, CSS, and Javascript (which they work on day and night, and sometimes over the weekends too)
2. Explain the importance of software craftsmanship principles, disciplines, best coding principles and practices, DOs and DON'Ts, code reviews, and code optimization by creating re-usable code/functions/utility libraries or frameworks with live examples.

### Schedule

3 days/week, 3 Hrs/day of hands-on workshops.

09:30 AM – 1:30 PM IST – Mon-Wed-Fri

– So, the participants get time to practice and address personal/professional priorities.

### Rules, Terms and Conditions

- **On Time & Attention:** Join on time and avoid Mobile & Mail & IM (Official/Personal) during the workshop.
- **No excuses:** Mandate to complete assignments.
- Course Content is subject to change during the workshop based on participants' skill/knowledge/interest/participation.

### Requirements

- Laptop
- Chrome Browser, VS Code (Setup Guide will be shared before the Bootcamp)
- Basic Programming knowledge/experience

# Workshop Outline

## Session-1: Dev Tools/Environment + HTML & CSS Basics

- Web Overview – Client/Server Apps – Clients: Browser, Desktop, Mobile – Servers: Apache, Node, ...
- Environment (Tools + Extensions) Overview – VS Code, Chrome | Firefox | Edge
- VS Code (Shortcuts, Extensions, Configurations)
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- HTML (Structure, Tags, Attributes, Properties, Events)
- CSS Basics – External Frameworks (Bootstrap, Foundation, Material UI, Semantic UI)
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- Assignment:
  - o Personal Profile Page – One Page with sections

## Session-2: Javascript Basics

- Assignment Review Feedback / Recap
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- Javascript – `<script>` Inline vs External (+CDN)
- Programming – Fundamentals (IPO, REPL)
- Introduction to Javascript – with the context of Compiler & Interpreter
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- Comments – Single, Multi
- Output: alert, console
- Input: prompt, confirm
- Data Types (Number, String, Boolean, Array, Object, Function, undefined, null)
- Variables – var, let, const
- Statements
  - o assignment
  - o Computation
  - o Condition: if ... else, switch
  - o Loop: for
  - o try ... catch
- 
- Assignment:
  - o Enhance Personal Profile Page

## Session-3: Function

- Assignment Review Feedback / Recap
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- Function – arguments, return
- Assignment: function sum
- Function – named, anonymous, expression, IIFE, calling (call, apply, bind)
- Variable scope (global, function, block)
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- Assignment:
  - o sum()

## Session-4: Object

- Assignment Review Feedback / Recap
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- Object Construction – with/without function
- Properties, Methods
- this
- Prototypes / \_\_proto\_\_
- Built-in Object Functions – String, Array, Object Methods (for full list refer online MDN doc)
  - o trim, forEach, map, filter, ...
- JSON: stringify, parse
- Assignment:
  - o MDN – String, Array, Object Methods

## Session-5: DOM

- Assignment Review Feedback / Recap
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- DOM Structure
- DOM Selectors (native vs jQuery vs querySelector)
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- DOM Manipulation (native vs jQuery)
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- Assignment:
  - o Profile Page – Show/Hide Sections

## Session-6: Event

- Assignment Review Feedback / Recap
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- DOM Events
  - o Event Handler vs Event Listener
  - o event.preventDefault, event.stopPropagation, event.stopImmediatePropagation
- Native vs jQuery
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- Assignment:
  - o Menu click, Table Row Click

## Session-7: Async

- Assignment Review Feedback / Recap
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- async (with setTimeout)
- ajax (native vs jQuery vs fetch)
- Promise, async-await
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- Assignment:
  - o Make a call to remote API (AJAX) and Update DOM

### Session-8: ES6+

- Assignment Review Feedback / Recap
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- dataset, sessionStorage, localStorage
- ES6, ES7, ..., ES-next features overview
  - o let, const, arrow-function, for-of, class, Promise, fetch
  - o \*\* default+rest+spread, destructuring, async/await,

### Session-8: Template

- Assignment Review Feedback / Recap
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- Templates: Built-in (ES6), Handlebars, Knockout
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- Assignment:
  - o Make a call to remote API (AJAX) and Update DOM using Template

### Session-9: Module / Library

- Assignment Review Feedback / Recap
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- AMD: RequireJS, import
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- Introduction to Utilities / Libraries (jQuery, Lo-dash, DataTable)
- Introduction to creating custom utility library
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- Assignment:
  - o Custom DOM Manipulation Lib – A lighter version of jQuery

### Session-9: SPA – Single Page Application

- Assignment Review Feedback / Recap
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- Introduction to Single Page Application libraries / Frameworks\*
- Building Rapid low-code Prototypes with mock data/APIs
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- Assignment:
  - o User Management SPA – List, View, Add, Edit, Delete

### Session-10: Security, Performance

- Assignment Review Feedback / Recap
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- Security consideration
- Performance consideration
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- Full Recap, Summary, Future Reference, Conclusion, Feedback

## About Bootcamp Lead



Kumar has 26+ years of industry experience and is the author of a Single Page Application framework ([SPA.js](#)). He joined Oracle as Consulting Member Technical Staff in Jan 2022, focusing on building/enabling teams in the area of Frontend (UI) development. In the past he has conducted numerous bootcamps and shared his knowledge in open-source forums/conferences.

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