

# 2024

# Frontend Development Roadmap and checklist

## FUNDAMENTALS

### HTML

- !DOCTYPE
- Block & Inline elements
- Tags & Attributes
- Head & Title
- Imports (script, style...)
- Headings
- Tables
- Anchors & navigation
- Lists (unordered + ordered)
- Forms & Input types
- Events basics
- Images
- Semantic HTML
- Local & Session storage

## FUNDAMENTALS

### CSS

- Selectors
  - basic
  - combinational
- Psuedo
  - selectors
  - elements
- Specificity
- Inheritance
- Box model
- Fonts & Typography
- Colors
- Positioning
- Units (absolute + relative)
- Overflow
- Float
- Display & Flex

## FUNDAMENTALS

### JavaScript

- Primitives
- Scopes & Hoisting
- Closures
- Execution context
- Variables (var, let, const)
- Operators & Type Conversions
- Try Catch & Error handling
- Arrays + methods
- Objects + methods
- Functions + Arrow functions
- Strict mode
- Timeout & Interval
- Classes
- Promise

# Web Fundamentals

- Client Server architecture
- HTTP
- RESTful web services
- Communication
  - Polling
  - Web sockets
- XML & JSON
- HTTPs & SSL
- Authentications
- Cookies & Sessions
- Security
  - XSS
  - CORS
  - CSP
- Caching & compression
- HTTP 2.0

# BOM & DOM

- DOM Tree
- Accessing DOM
- Node creation & deletion
- Element selectors
- Events handling
- Events listeners
- Event bubbling & delegation
- Iterating Nodelist
- Attribute manipulation
- AJAX & Fetch
- Event Loop
- Shadow DOM
- CSSOM
- Critical Rendering Path
- Browser APIs
- Browser Internals

# Version Control

- Git and Github
- Clone
- Pull & Fetch
- Commit
- Log
- Push
- Reset
- Restore
- Switch & Checkout
- Branching
  - Merge
  - Rebase
  - Workflow
- Cherry pick
- Stash
- Squash
- Revert
- Tags

# React /

- Components & JSX
- State & Props
- Class components & life cycle
- Functional components
- Hooks
  - useState
  - useEffect
  - useRef
- Render props
- Forward refs
- Event handling
- Forms
- React.lazy
- Context API
- Higher order components
- Advanced & Custom hooks
- Portals
- Error boundaries
- Reconciliation
- React internals

# React Ecosystem

- Redux Toolkit / Zustand
- React Router
- StyleXjs / Styled Components
- Material React
- React Hook Form
- Axios
- Tanstack Query
- Framer Motion
- React-i18next
- Jest
- React Testing Library
- GraphQL
- Apollo client
- NextJS

# HTML

- Meta tags
- Search Engine Optimization
- Responsive images
- Multimedia
  - Audio
  - Video
- SVG animations
- Web Components
- IndexedDB
- iFrame
- Canvas
- WebGL
- Workers
  - web worker
  - service worker
  - shared worker

# CSS



- Shadows
- Gradients
- Background images
- Masking & blending
- CSS functions
- Media Queries
- Transforms
- Transitions
- Animations
- Flex advanced
- CSS Grids
- CSS sprites
- CSS variables & counters
- Container queries
- Subgrid
- BEM standards
- Responsive web design

# JavaScript



- "this" keyword
- Template strings
- De-structuring
- Rest & Spread
- Callbacks
- Promises in depth
- Async Await
- Prototypes
- Modules
- Sets & Weaksets
- Maps & Weakmaps
- Regular expressions
- Symbols
- Proxy & Reflect
- Iterators + Generators
- Dates & Intl
- Typed Arrays
- ES Next features

# Frontend Concepts

- Progressive Web App
- Object Oriented Programming
- Functional Programming
- Reactive Programming
- Test Driven Development
- Accessibility & Usability
- Web Performance
- CSR, SSR, SSG, ISR
- Web Security
- Design patterns
- JAM Stack
- Micro frontend
- User Experience
- CI/CD
- Web Assembly
- Web 3.0

# Recommended Tools

Editor



VS Code

Browser



Chrome

Version Control



Git

Language



TypeScript

Task Runner



npm / yarn / pnpm

Commit Hook



Husky

Bundler



ViteJS / Webpack

Linters



ESLint

Linters



Stylelint

Formatter



Prettier

# Popular Tech & Tools

- SASS
- Tailwind CSS
- Bootstrap
- PostCSS
- AntD

- RxJS
- D3JS
- XState
- StencilJS
- Lit Element

- Storybook
- Cypress
- Vitest
- Playwright
- TestCafe



VueJS



Angular



Svelte



SolidJS



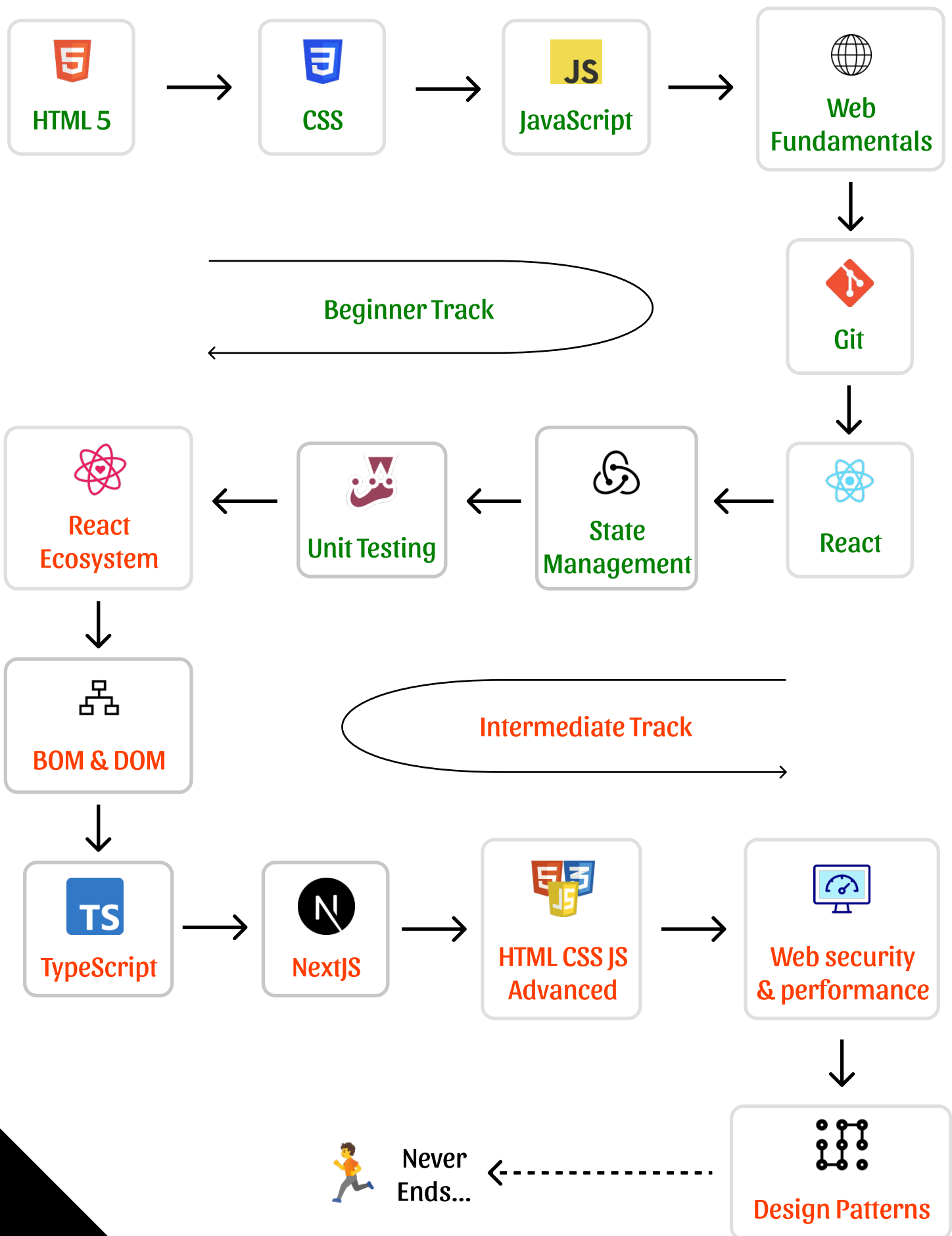
Preact

- ThreeJS
- Electron
- ESBUILD
- Babel
- SWC

- Remix
- Gatsby
- Astro
- NodeJS
- Deno

- Docker
- Nx
- Lerna
- Turbo Repo
- SingleSPA

## Recommended Frontend Roadmap



Never Ends...



Design Patterns

By  
Sadanand Pai



For Frontend Materials, [Click Here](#)

This document is a guideline based on personal knowledge & opinions