Web Development Track JS/TS and React

Learning Outcomes

August 2024

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| Course | Learning points |
| Web Fundamentals - JavaScript | **Key learning points:**   * Set up a development environment for programming in modern JavaScript * Manage and use JavaScript types and data structures effectively * Control the flow of programs using loops and conditional code * Use JavaScript alongside HTML, manipulating and changing the DOM * React to events to make web pages respond to user interaction, including form handling * Produce and use basic Object Oriented JavaScript * Work with asynchronous data using JavaScript   **Modules:**  Types  Operators  Flow Control  Error Handling  Arrays  Functions  Collections  Objects  JavaScript and the DOM  Manipulating Styles  Events  Forms  Modules  Asynchronous JavaScript |
| React Fundamentals | **Key learning points:**   * Set up a development environment for programming in modern React * Build webapps using components * Manage and use React Components and data structures effectively * Control the flow of programs using props and State * Use effective Routing to manage correct flow of information * Use hooks to call in external data * Work with API technology and JSON * Create projects and interactive elements as part of learning   **Modules:**  Installing  React Components  Embedded Dynamic Content  Props  Conditional Rendering and External Data  Routing  Handling Events  State  Inverse Dataflow  Basic Hooks – useEffect()  Collecting external data  Editing Data stores (JSON)  React Context |
| Advanced React | **Key learning points:**   * Use advanced routing techniques to create protected routes and parameterised routes * Create an IT Helpdesk App * Understand component lifecycles, forms and libraries to ensure best practices * Hooks deep dive including custom hooks * Work with State and state management technologies such as useContext and Redux * Understand complex design patterns and also anti-patterns * Use Jest to properly test react apps * Understand caching options available in React, such as React-Query   **Modules:**  Advanced Routing  Layouts and Protected Routes  Loaders  Route Parameters  Context Wrappers  Hooks Deepdive – useState(), useEffect(), useContext(), useReducer(), useRef(), useCallback(), useMemo()  Custom hooks  State Management  Redux  Caching Options – React Query  Design Patterns and best practice  Testing with Jest |
| TypeScript | Key learning points:   * Master type guards, aliases and unions * Create typed parameters * Create interfaces to structure objects * Extend knowledge of classes and inheritance * Use access modifiers * Understand use of generics |