Lloyds React upskill proposal

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## Delegate Needs

Lloyd’s stockbroking team are looking to upskill team members in React with the goal of replacing legacy .NET code and creating visualisation with React Components. The preference is for TypeScript to be used as the foundation language across the training, which reflects a wider company initiative. There is also a requirement to focus on the use of Node and Express for API communication.

## Suggested Pre-learning sessions

For junior developers, a handful of introductory videos on the QA platform would benefit the crossover to TypeScript from JavaScript. The recommendations below represent around 45 minutes.

[An Introduction to Typescript Lesson (qa.com)](https://app.qa.com/course/an-introduction-to-typescript/typescript-an-introduction/?context_id=1631&context_resource=lp) – 11 Minutes

[TypeScript -Simple Types Lesson (qa.com)](https://app.qa.com/course/simple-types/simple-types-an-introduction/?context_id=1631&context_resource=lp) – 19 Minutes

[TypeScript -Interfaces Lesson (qa.com)](https://app.qa.com/course/interfaces/an-introduction-to-interfaces/?context_id=1631&context_resource=lp) – 9 Minutes

[TypeScript - Modules Lesson (qa.com)](https://app.qa.com/course/modules/an-introduction-to-modules/?context_id=1631&context_resource=lp) – 5 Minutes

## Blended Learning Options

During and after the course, we recommend that delegates use QA Platform to access short learning videos that will support preparation for ILT or support learning after face to face activities have finished.

Express Level 1

[Introduction to Express - Express Setup Lesson](https://app.qa.com/course/introduction-express-express-setup-3221/introduction-to-express-express-setup/?context_id=10355&context_resource=lp) – 5 Minutes

[Introduction to Express - Express Routing Lesson](https://app.qa.com/course/introduction-express-express-routing-3222/introduction-to-express-express-routing/?context_id=10355&context_resource=lp) – 12 Minutes

[Introduction to Express - Response Object Methods Lesson](https://app.qa.com/course/introduction-express-response-object-methods-3387/introduction-to-express-response-object-methods/?context_id=10355&context_resource=lp) - 4 Minutes

[Introduction to Express - Request Object Methods Lesson](https://app.qa.com/course/introduction-express-request-object-methods-3663/introduction-to-express-request-object-methods/?context_id=10355&context_resource=lp) – 5 Minutes

[Introduction to Express - Nodemon and Node Watch Lesson](https://app.qa.com/course/introduction-express-nodemon-node-watch-3751/introduction-to-express-nodemon-and-node-watch/?context_id=10355&context_resource=lp) - 8 Minutes

Express Level 2

[Introduction to Express - Route Parameters Lesson](https://app.qa.com/course/introduction-express-route-parameters-3386/introduction-to-express-route-parameters/?context_id=10356&context_resource=lp) – 6 Minutes

[Introduction to Express - Query Parameters Lesson](https://app.qa.com/course/introduction-express-query-parameters-3662/introduction-to-express-query-parameters/?context_id=10356&context_resource=lp) – 7 Minutes

[Introduction to Express - Express Static Lesson](https://app.qa.com/course/introduction-express-express-static-3702/introduction-to-express-express-static/?context_id=10356&context_resource=lp) – 6 Minutes

[Introduction to Express - Custom Middleware Lesson](https://app.qa.com/course/introduction-express-custom-middleware-3824/introduction-to-express-custom-middleware/?context_id=10356&context_resource=lp) - 5 Minutes

## End-to-End Learning Pathway

The table below covers the proposed end-to-end learning pathway

|  |  |  |
| --- | --- | --- |
| Day | Content | Learning points |
| 1 | NodeJS and Express | **Key learning points:**   * Understand how Express acts as a server to supply content to the front end * Create RESTful APIs within Express to serve up to react * Efficiently use and create common and custom middleware in Express |
| 2 | React Concepts | **Key learning points:**   * Create React components with the safeguards offered by the addition of TypeScript * Think in React * Add state and props to an application * Add inverse data flow to an application * Use some common React hooks * Use context to manage the flow of data * Understand Error boundaries and handling errors gracefully |
| 3 | State Management | **Key learning points:**   * Master techniques for passing and sharing data between components * Understand the pros and cons of useContext and Redux and when to use them * Use useReducer and useMemo Hooks efficiently   Dive into ReactQuery to master fetching and efficient caching |
| 4 | Component Patterns | **Key learning points:**   * Investigate higher order components * Reuse component logic to reduce re-renders and code overheads * Use of Props as functions to facilitate inverse dataflow   Identify pros and cons of using compound components in react |
| 5 | Build a Project | **Key learning points:**   * Work to a brief to build a project that combines a React front end with an Express back end to simulate how the 2 will communicate and share data |

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