**Technology Requirements and Learning Plan**

**Online Quiz Application**

James Tory

Arghawan Siddiq

Joyce Borla

Emanuel Ko

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# Learning Plan

|  |  |  |
| --- | --- | --- |
| **Team Member** | **Responsibility** | **Skill Level (%)** |
| Joyce Borla | Node.js | 50 |
| Arghawan Siddiq | ReactJS | 60 |
| Emanuel Ko | MongoDB | 40 |
| James Tory | NGINX | 60 |

**Learning Node.js Plan for Joyce Borla**

1. Review on basics of JavaScript
2. Learn global variables needed
3. Learn about libraries needed
4. Learn the Express framework

**Learning ReactJS Plan for Arghawan Siddiq**

1. Review on Basics of HTML, CSS, and JavaScript
2. Learn ES6 features
3. Learn how to use npm package manager

**Learning MongoDB Plan for Emanuel Ko**

1. Review on basics of MongoDB
2. Learn how to create/update databases
3. Learn how to use admin functions such as, managing users and roles
4. Learn how to use queries

**Learning NGINX Plan for James Tory**

1. Review on basics for NGINX (need to know JavaScript or PHP)
2. Be familiar with Linux and UNIX
3. Learn how to create a basic web server by working with configuration files
4. Learn how to use dynamic routing

# Technology Requirements

The team has planned to use the following Technology Requirements for the development of (Company Name) Online Quiz Application:

|  |  |  |
| --- | --- | --- |
| **Technology** |  | **Description** |
| Programming Language | JavaScript (JS) | JavaScript (JS) is a high level, dynamic, and interpreted Programming Language.  We use JavaScript (JS) as it makes web pages interactive and is commonly used for web-based software like the Online Quiz application we are developing. A  Using JavaScript-based frameworks for both the front and back-end will make it easier for the team to contribute to both aspects of the implementation. |
| Front-end (Client-side) | ReactJS | Front-end refers to everything users see on their screens.  ReactJS is one of the most popular JavaScript Front-end libraries which has a strong foundation and large community. ReactJS makes building dynamic web applications easy, which is necessary for displaying a quiz where the questions change without the page refreshing. |
| Back-end (Server-side) | Node.js/Express.js | Node.js is a server-side platform and is an open-source server environment and can run on Windows, Linux, Unix, and MacOS. It has a rich library of various JavaScript modules which simplifies the development of web applications.  Node.js is free and open-source so there is no licensing cost associated with out |
| Database | MongoDB (Non-Relational) | MongoDB is a free and open-source, and most popular NoSQL (non-relational) database used commonly in modern web applications. It is a cross-platform, document-oriented database that provides, high performance, high availability, and easy scalability. MongoDB can be subdivided into several categories, a mechanism for storage and retrieval of data. |
| Web Server | Nginx | Nginx is a web server that can also be used as a reverse proxy, load balancer, mail proxy and HTTP cache. This web server is used to handle requests from client’s computers.  Nginx can work on PH-UX, IBM AIX, Linux, macOS, Solaris, Microsoft Windows, and other available operating systems. |
| Hardware | AWS | The Online Quiz Application will be hosted in the cloud using AWS. AWS offers scalable resources and pricing to accommodate for |

## Pros and Cons

Below are the Pros and Cons for each technology being used in the development of (Company Name) Online Quiz Application:

|  |  |  |
| --- | --- | --- |
| **Technology** | **Pros** | **Cons** |
| JavaScript (JS) | * One of Most commonly used Programming languages * Web pages can become interactive/personalized based on user demand * Simplicity – JavaScript is easy to understand and learn. It has easy and simple structure for both the users and developers. * Popularity – Famous companies such as Google, Amazon, and PayPal, etc. use JavaScript. * Interoperability – JavaScript works with other programming languages perfectly. It can be embedded into any webpage or inside the scrip of another programming language * Independently driven | Like every other programming language, JavaScript (JS) also has its own Cons (disadvantages), and some key JS Cons are as follows:   * Not many clean code practices * Very rapid development which often makes tools and frameworks obsolete fast * Client-side Security – JavaScript code is viewable to the user, and this can lead to using the source code without authentication. * Browser Support – The browser interprets JavaScript differently in different browsers, so the code must be run on various platforms prior having it published. * Rendering Stopped – A single code error can stop the rendering of the entire JavaScript code on the website. |
| ReactJS | * ReactJS is one of the most popular JavaScript frameworks. * High pace of development – meaning that these on-going changes and improvements make their jobs easier. * A faster and easier tool for web development. * Easy to learn and use * Performance enhancement | * High pace of development – meaning that ReactJS is constantly evolving and changing. Developers need to constantly relearn all new developments to work with ReactJS. * Poor or lack of documentation |
| Node.js | * Node.js is the most common web development technology * Offers an easy scalability because of its asynchronous and event-driven nature * Easy to learn * Popular for offering high performance * Is cost-efficient with full-stack JavaScript | * Unstable API – One of the most significant disadvantages of node.js is that its APIs are not stable. * Lacks strong library support system – meaning that developers are to rely on third-party libraries to help them with the tasks that are not included in the node.js core library * Asynchronous Programming Model – makes it difficult to maintain code in comparison to the synchronous programming model. |
| MongoDB (Non-Relational) | * MongoDB is one of the most common Databases for web development * The ability to be subdivided into several categories * Offers high speed and high performance * Supports ad-hoc queries and is flexible | * Duplicate date – is a common problem with MangoDB making it hard to manage data efficiently * High memory usage |
| Nginx | * More lightweight i.e., requires fewer resources/memory * handles a high volume of connections with a low memory footprint * Better at handling static content * Better scalability | * Less community support * Less extensive list of modules |

https://www.figma.com/file/PdOrx7yXEqmUpyM6BrxnLL/Quiz-App?node-id=53%3A694&t=T6Zxvf5k7i2NdXyX-1