Smart Voting Group LLC

Smart Voting

Technology Requirements

Version 1.0

2021 November 28

1 TECHNOLOGICAL REQUIREMENTS

1.1 FRONT-END

Software(s) Used	Pros	Cons
- React JS	- Open source. - Faster workflow. - Plentiful resources and libraries. - Updated frequently. - SEO friendly - Easy to test. - Easy to learn. - Widely used framework in industry.	- Environment constantly changes (Must relearn if changes occur). - Documentation can be poor at times. - Use of JSX.

1.2 BACK-END

Software(s) Used	Pros	Cons
- Node JS	- Open source. - Exceptional speed. - Plentiful resources and tools. - High efficiency. - Code sharing capabilities. - Scalable for microservices. - Event-based model. - JSON support.	- Poorer performance with more computation. - Is asynchronous (relies on callbacks) - Poor documentation at times.
- Express JS	- Open source. - Easy to learn. - High scalability. - Can be used for front-end and back-end if needed. - Supports caching. - Support for middleware and third-party apps and services. - Well documented. - Large number of packages.	- Is asynchronous (relies on callbacks). - Error messages can be unhelpful.

1.3 DATABASE AND STORAGE

Software(s) Used	Pros	Cons
- AWS RDS PostgreSQL	- Open source. - Highly expandable. - Easy to learn. - Low maintenance. - Includes logging for fault tolerance. - Can run dynamic websites. - Can process complex data types (ex. Geographical data). - Large language support. - JSON support.	- Slower than standard MySQL. - Some open source apps may not support PostgreSQL. - Requires more work for better speed compared to MySQL.
- AWS DynamoDB	- High performance. - Able to handle large datasets. - Highly scalable on demand. - Predictable pricing.	- Can only be deployed on AWS. - Limited support for advanced queries. - No support for triggers or joins.
- AWS QLDB	- Immutable and transparent. - Cryptographically verifiable. - Easy to learn and use. - High level of security. - Entries can not be modified or deleted once written to the ledger.	- Serverless, so it must run on the AWS cloud. It can not be run on site.
- AWS S3 Buckets	- Extensive documentation. - Supports many different languages. - High scalability. - Reliable (Not going to shut down). - High durability. - Easy integration with other AWS products. - Simple server-side encryption. - Multiple different types of storage. - Relatively cheap.	- Steep learning curve. - Complex to set up. - Bad online user interface. - Slow access.

2 LEARNING PLAN

2.1 RESPONSIBILITIES

Team Member	Responsibility	Skill Level (%)
Matthew Campbell	Front End Developer	75%
Stephen Davis	Team Lead & Full Stack Developer	75%
Satabdi Sangma	Back End Developer	70%
Michael Sirna	Back End Developer & Database Designer	70%

2.2 LEARNING PLAN

Team Member	Focus	Start Date	End Date	Resource(s)
Matthew Campbell	React Bootstrap	2021 September 7	2021 December 31	LinkedIn Learning Udemy Codecademy
Stephen Davis	React Node JS Express JS DevOps	2021 September 7	2021 December 31	Cornell University AWS Online Training LinkedIn Learning Udemy Codecademy
Satabdi Sangma	Node JS Express JS	2021 September 7	2021 December 31	LinkedIn Learning Udemy Codecademy
Michael SIrna	React Node JS Express JS PostgreSQL AWS QLDB	2021 September 7	2021 December 31	AWS Online Training LinkedIn Learning Udemy Codecademy