Technology Justification

ReactJs for the web application

ReactJs and Angular are some popular technologies that can be used for web application development, but we have selected React Js due to the given reasons.
Key benefits of ReactJs are as follows.
ReactJs is a Javascript library built and maintained by facebook.

- Reusable components
  It helps to develop and maintain our system easier. It saves the development time.

- Virtual DOM
  The abstract of real DOM helps to update changes performed by the users without affecting the other parts of the interface.
  This feature helps to run web applications faster.

- It is SEO friendly.

Why we use React Js

- It helps to build rich user interfaces and it is easy to learn.
- Its code stability ensures that any changes in the code does not affect the other parts because of the virtual DOM feature.
- It has reusable components which helps in faster development.
- These features help in improving developer's productivity.

Flutter for the mobile application

Flutter and react native are some popular technologies that can be used in mobile app development, but we have selected flutter due to the following reasons.
Flutter framework is based on widgets. So it helps us to create excellent apps. Flutter has many advantages. They are,

- Hot reload feature

  We can see the changes that we make in the code in the app itself due to this feature.

  It helps to write the codes faster and develop the app quickly.

  Because of that feature we can do experiments on the app and see results immediately.
- One code base is enough for both iOS and Android
- Flutter offers a quick and smooth app performance.

When comparing the development time to React Native, flutter takes less time than react because it uses high performance widgets to create mobile apps.

Therefore, we have selected flutter for the mobile application development process of our project.

Spring boot for the back end

We use spring boot for the server side. It offers tools to produce thrust-worthy applications without sacrificing speed, simplicity and productivity. Compared to other technologies like nodejs, spring framework offers to write more structured and maintainable code. Spring boot is a microservice based architecture. So we implement the system according to that.

Why we use Spring boot

- We can use its security feature for the authentication and authorization parts in our project.
- We use microservice based architecture, so if any module goes down, the entire system will not go down (eg: customers can buy products even though they cannot update their profiles.)

MongoDB

With the limited time frame it is better to use a NoSQL database which is less structured, less modified. It supports rapid development.

MongoDB provides us with a rich and powerful query language which allows us to filter and sort using any field no matter how nested the field is. It is useful in reports generation in this project.

It provides us with high scalability and high availability of data.
MongoDb is document based and therefore it is more flexible where each document can have varying fields which can not be done in relational databases.
It allows us to index any field in the document to improve search results.

Why we use MongoDB

- In our project GreenNest, we create various reports by filtering techniques. So Mongodb is better for filtering.
- We use lots of images in our project. So it is easy to store images.
- There are no joins like in relational databases. So it gives faster output by running the query.
- In our project we handle users' payment details. So MongDB provides more security.

We develop this system according to a client requirement. Even though we use frameworks, we can not directly use their functionalities through the frameworks. In our system there are some special features like payment gateway, notification system and filtering mechanisms in reports. We can not directly build these features. To develop these features we have to use a collection of components. Therefore there is an adequate scope. And also we implement this system according to microservice based architecture. It is a new concept for us. Not only that, all the technologies are new to us. Even though all are based on frameworks, we have to spend time in learning them in detail.