**WEB RESEARCH ASSIGNMENT**

**16L-4217**

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**Q1.** MongoDB is a NoSQL database that stores data in form of documents and collections. Furthermore, MongoDB is a native driver used for performing operations with MongoDB database. However, mongoose is an OBM (Object Modelling Tool) that is there for modelling schemas and performing other database operations slightly easier. In order to use Mongoose, you have to include mongoose library. On the other hand, MongoDB doesn't require any library as it is already available to the whole native machine.

We have worked on node.js and express framework. Mongoose is a better option as it makes it easier to control and model schemas. Mongoose also uses function chaining making the code more flexible, maintainable and readable. We had to perform many validations to data and sometimes we also had to give default data using these functions. It made our code look much simpler.

MongoDB package makes code similar to the one used in Mongo Shell. For example, **Read** operation can be done in following manner:

//we have a collection named books.

Collection=Db.collection(‘books’); // shows all the documents in books.

Collection.find({\_id:123},function(err,book){

//all the callback operations will come here

});

**Update** can be done like this:

Collection=Db.collection(‘books’);

Collection.update({\_id:123},{name:”Outliers”,price:”2000”},function(err,bookFound){

//all the callback operations will come here

});

**Create** operation can be done like this:

Collection=Db.collection(‘books’);

Collection.create({name:”Sapiens”,price:”1000”},function(err,bookCreated){

//all the callback operations will come here

});

**Delete** operation can be done like this:

Collection=Db.collection(‘books’);

Collection.deleteOne({name:”Sapiens”},function(err,bookCreated){

//all the callback operations will come here

});

**Q2.** Traditionally, POST is used to make a new entity. Using POST method always a new entity will be made and changes to the existing ones cannot be made. However, PUT method is also used to create a new entity and it can also make changes into existing ones.

Whereas, in terms of HTTP both can be used in order to create and update data. But in AJAX POST method is used as it has an immediate effect on server. While if PUT is used effect may not be immediate and certain values changed might not get saved on server side. One of the most important drawback of PUT is that it is not supported by some browsers.

**Q3.** PUT method is used to create and update any entity. If an entity already there put will overwrite that entity. PATCH is used to make partial changes to an entity. PATCH can only change existing documents in database.

For updating name in university application PATCH should be used as changing name is a partial change in the database and not new document is being created. Only an existing one is being changed.

**Q4.** React is an JavaScript library that is used to cater with only views. Whereas, AngularJS is a complete framework that provides with Models, Views, Controllers.

**Advantages of AngularJS over react**

* AngularJS has a provision of bi-directional data binding while in React data can flow only in one direction. It means that during runtime AngularJS can change data variables from one state to another without refreshing the page.
* Angular provides feature of dependency injection where some objects dependency to other objects making it more flexible.
* AngularJS is a full fledge framework that comes with many useful libraries handy.
* AngularJS has a component-based architecture. Each component comprises of separate functionality making many functions reusable.

**Advantages of React**

* React is simple and written in HTML tags making it easier for understanding and designing projects. No deep knowledge of typescript is required.
* React is light weight with comparison to AngularJS.

**Q5.** Vue.js is a JavaScript framework used to make interfaces and single page applications. Unlike AngularJS it simpler and lightweight. Also the app can be made with simpler structure. Vue.js comes in between AngularJS and react where it is a framework but has less features than AngularJS and many more features than react.

**Q7.** Linting is the process of applying some rules and checking for violation of these rules in whole source code. Term Linting also include all the software that are being used for the process. These rules include code representation rules, structure of code etc. Linting process may include flagging of the violations in rules code. Certain tools are there for linting process such as ESLint, JSLint, JSHint etc.

**JSLint**

JSLint is a analysis tool for source code analysing. It checks for errors and rule violations without actually executing the program. It is primarily made for the analysis of JavaScript code. JSLint comes with predefined rules that cannot be changed. It was introduced in 2002.

**ESLint**

ESLint is also a linting tool similar to JSLint but it comes with utility of defining you our own rules and features. Rules in ESLint can be attached in the form of plugin libraries. ESLint was inspired by JSLint and was released in 2013.

**Q8.** Angular is a whole framework while ajax is a method that is implemented using JavaScript to interact with web servers. If there is signup form with simple data validations ajax will be used. Whereas if the data is to be stored in multiple databases and some complex validations are required along with assistance of complex tools then AngularJS would be good.