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**ASSIGNMENT # 2**

**Name:** Ibraheem Ahmed

**Roll Number:** 16L-4013

**Submitted to:** Ms. Shamsa Abid

**Section:** CS-A

**Answer # 1**

**MongoDB vs Mongoose**

MongoDB package in Node.js is basically a driver to communicate with Mongo Database Instance (Mongo Database stores data in form of BSON and is a No-SQL database) whereas mongoose package is a tool used for object modeling in node.js, where we define schemas and make models for our data storage.

**Why we use mongoose instead of MongoDB package?**

As we know that mongoose is basically used for object modeling for MongoDB where we can model our data as we require. We can define schemas showing how we will be storing our data. Mongoose make it’s a lot easier to keep and manage data for us.

**CRUD Operations**

const m = require('mongodb').MongoClient;

var db

m.connect('mongodb://localhost:27017', (err, client) => {

if (err) return console.log(err)

db = client.db('hotels')

//Creating New Data

app.post('/addNewData, (req, res) => {

db.collection('newdata').save(req.body, (err, result) => {

if (err) return console.log(err)

console.log('saved to database')

res.redirect('/')

})

//Update

db.collection('trips').update({TripName: "Murree Trip"}, {Price: 123});

//Delete

db.collection('trips').deleteOne({TripName: "Murree Trip"}, function(err, obj) {

if (err) throw err;

console.log("1 document deleted");

});

//Reading

db.collection('trips').find().toArray(function(err, results) {

res.send(results);

})

})

**Answer # 2**

POST is basically used to create new document, it creates the child resource to a server defined URL, whereas PUT creates/replaces the resource at client defined URL.

POST was used in Employee Sample because we were sending Employee data using a form to the server to update it without putting the parameters in URI.

There is not much different if you replace POST with PUT. They can both be used for creating documents. In POST, the server decides the path or URL where it is placed and in PUT, you decide at what URL you want to place it. If you use PUT and the resource already exist at that URI, the enclosed entity is considered the new version of it and is replaced.

**Answer # 3**

PUT is used to go to requested-URI and if resource exists, the new data or enclosed entity will be considered the modified version of it, means it will be replaced with it. However, using PATCH, it applies the set of changes to the entity at the requested-URI which are given, rest of values are not changed or deleted.

PUT can be used for partial changes but in this situation, you will have to provide the complete entity with old values and the changed values as PUT replaces the entity completely. If you use PATCH, you only send the field you want to change in an entity and it will change it only without sending other data.

PATCH should be used for editing the name in the online university application form otherwise we will have to send the changed name and all old unchanged data of the form too if we use PUT.

**Answer # 4**

By comparing AngularJS and React, we see the following points:

* First of all, React is easy to learn as it is just a view library as compared to Angular which is a complete framework and takes a lot of time to learn.
* Angular is easy to scale due to its design and powerful CLI whereas React claims to be more testable.
* While performance is concerned, plain getters in Angular are simply out of question as they get called on each render whereas with React, it’s possible to use @computed from MobX, which achieves the same objective, with arguably a bit nicer API.
* If you talk about CLIs, both angular and react have great CLIs and can work with almost every web package.
* If you talk about popularity, both Angular and React are very popular. Angular has more search hits as compared to react but that does not mean one is better than other. That shows what people find more interesting. Both technologies are growing fast.
* React was released 3 years prior to Angular which means it has been gone through a lot of problems and has developed into a great flexible frontend library which a lot of people love whereas Angular has 6 times more issues than React but we must not forget that Angular is much larger framework and has fewer developers as compared to React.
* React is used by famous companies from which some are Facebook, Whatsapp, Instagram, Netflix, Uber etc.. where as Angular is used by Google Express, NBA, Delta etc.
* React uses Javascript which is known since 1995 whereas Angular uses Typescript released in 2012.

**Answer # 5**

Vue.js is a Javascript library for building web interfaces. Combined with some other tools, it also become a framework. Vue.js is one of the top Javascript framework and it is replacing Angular and React in many cases.

The greatest benefit of Vue is its absence of pedigree. It is fresh and has little baggage. It has been learning from the mistakes and successes of React & Angular. The way we see it, Vue is lightweight & easy to learn.

Vue.js is a more flexible, less opinionated solution (than Angular). That allows you to structure your app the way you want it to be, instead of being forced to do everything the Angular way. It’s only an interface layer so you can use it as a light feature in pages instead of a full-blown SPA

Now when React is compared with Vue.js, they have a few things in common like utilization of virtual DOM, providing reactive view components etc. But there are also a lot of differences like

Two-way binding in Vue.js is quite simple when you use v-model. In React, it’s a long way down. Also Vue.js is easy to learn and can be productive immediately.

Bottom line is that Vue.js is not popular as Angular or React but a lot of developers are switching to Vue now.

**Answer # 6**

AngularJS is different from AngularIO in following ways:

The architecture of AngularJS is MVC design where view generates an output based on the information in the model. The controller accepts input, converts it into commands and sends the commands to the model and the view whereas in Angular 2, controllers and $scope were replaced by components and directives. Components are directives with a template. They deal with a view of the application and logic on the page and in Angular 4, you can use if/else design syntax in your templates

AngularJS is written in Javascript whereas Angular is written in Microsoft’s Typescript language.

In AngularJS, you have to remember the right ng directive whereas in Angular, it focuses on () for event binding and [] for property binding.

AngularJS was not built with mobile support in mind but Angular has mobile support.

AngularJS uses $routeprovider.when() to configure routing while Angular uses @RouteConfig{()}.

AngularJS was basically made for designers, not the developers but Angular had improved performance which would work for developers too which mainly focuses on speed and dependency injection.

**Answer # 7**

Linting is the process of running a program that will analyse code for potential errors.

JSLint is basically a tool used in software development to check if Javascipt code has any errors or any violation of its coding rules. The tool is provided as a web application [www.jslint.com](http://www.jslint.com) where you paste your code and it does its job. JSLint is very useful in finding issues with the code which are difficult for anyone to understand. It is also known as Javascript syntax checker.

ESLint is another tool just like JSLint which is used for identifying and reporting on issues or patterns found in ECMAScript or JavaScript script, which aims to make the program or code more accurate and avoid bugs and issues. We can also say that ESLint is very much identical to JSLint /JSHint with a few differences:

* ESLint uses Espree for JavaScript parsing.
* ESLint uses an AST to evaluate patterns in code.
* ESLint is completely pluggable, every single rule is a plugin and you can add more at runtime.

**Answer # 8**

I would use Angular for making a website which I want to keep SPA (Single Page Application) where I can perform tasks staying on same page without navigating to other pages, using Angular framework, I can design my complete front-end and manipulate all my data on the website. However, I would use AJAX where I need to get data from server without refreshing page and get new data from server in the background and show it without refreshing page.