**Phase 3**

**Day 1**

**09-08-2021**

* **Database Management Using MongoDB and Connectivity with NodeJS**

**Node JS**

**Benefits of Node JS**

**Running Node JS program**

**Node JS modules**

**Types of Node JS modules**

**Core module**

**User-defined Module**

**FS Module**

**URL Module**

**Util Module**

**Http Module**

**Creating Web Application http Module**

**Express Third party module**

**Creating REST API using Express Module**

**Get, Post, put and delete methods.**

**Database : No SQL Database**

**Mongo DB Database**

**CRUD Operation Query**

**Mongo DB Relationship**

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**Aggregate function**

**Connecting Mongo DB database Using Node JS application with the help of**

**Mongodb module and Mongoose Module**

**Creating Express JS with Mongoose module with Mongo DB with Standard MVC.**

**MERN Stack :CRUD Operation**

**Front end -🡪 React JS ----------🡪Express JS -🡪 Mongoose --🡪 Mongo DB**

**Net and socket and web socket programming.**

**HTML/CSS/JavaScript**

**JavaScript library and Framework : using these library or framework we are reading, writing and update DOM properly.**

**JQuery**

**Coffee JS**

**Ext JS**

**React JS**

**Angular JS**

**Angular Framework**

**Vue JS**

**Node JS : Node JS is not a library not a framework. It is a run time environment for JavaScript**

**Library or Framework.**

**Before Node JS we were running JavaScript on browser.**

**Before Node JavaScript is known as Client Side Scripting language.**

**Before Node JS Front end technologies depends upon the back end technologies which develop in other language like Java(Spring boot), Asp.net, Php, Python etc.**

**HTML/CSS/JavaScript/Bootstrap Java**

**jQuery Asp.net**

**Php**

**Python**

**Node JS**

**Frontend backend**

After node JS we can use JavaScript for Client side as well as Server side scripting language.

Using JavaScript code we can do file handling, we can create web application, we can create REST API, we can connect database may be RDBMS (MySQL) and Mongo DB (no SQL Databases), security programming,

Node JS mainly use to do networking and scalable application.

By default JavaScript contains great features ie callack and asynchronous operation.

Non Node JS application if they want to send the data through networking environment.

Like Java, Python, C or C++. Data get block or lock.

Other programming language IO or networking operation data can block or lock.

But Node JS provide non block IO and networking operation with help of callback and asynchronous operation.

Open any terminal

Then write node

It enter in REPL terminal : Read Eval Print Loop

In REPL terminal or Node JS program we can’t use document and window object.

Because document and window object available in Client Side JavaScript programs.

In Node JS DOM and BOM hierarchy.

Server side JavaScript programs we can through command prompt or in REPL terminal.

To exit from REPL terminal cntr +C twice

console is a pre-defined or global object which help to display the output on terminal.

Node JS provided pre-defined object ie process which help to file the processor details about your machine.

Node JS Modules

Node JS modules is a simple or complex functionality organized in a single or multiple JavaScript files. Which can expose using module and we can do re-usability.

Module is like a package in java.

Node JS modules divided into 3 types

1. Core module
2. Local module or user-defined module
3. External module or third party module.

To use any module it may be core, local or external we have to take the help of require function. Which help load the module and we can use the functionality of those module in our application.

fs module (file system module): fs is node js pre-defined core module(by default already available with node JS software). This module help use to do file handling program synchronously as well as asynchronously.

Read and write synchronous operation.

Copy and paste from one file to another file.

Sample.txt targetSample.txt

Node JS

Synch and Asynch

Up to here we store simple data in text format.

We want to store the JSON Data in file .

If we store the data in json it is useful for use to store customer, order, employee, login details.

**Phase 3**

**Day 2**

**10-08-2021**

Fs module with array read, write and append the existing array values.

Node JS provided pre-define d core module is readline. This module is use to read the data from console as asynchronously.

Node js provide third party module ie readline-sync. This module help us to read the value synchronously.

Syntax to install external module

Window user

npm install -g moduleName

sudo npm install –g moduleName

npm install –g readline-sync globally

npm install readline-sync locally

URL Module

url a pre-defined core module. Which provide the client URL details.

<http://localhost:9090/MyWebApp?name=Ravi&age=21>;

<http://www.google.com/index?name=Ravi&age=21>;

in URL reference pare function. if we pass only URL no second parameter the query property consider as a string type.

let urlObj = url.parse(sampleUrl);

If we pass second parameter as Boolean value ie true then query property consider as reference. Which help to retrieve data using queryname.

let urlObj = url.parse(sampleUrl,true);

http module

http is a pre-defined core module which help to create server as well as web application using Java Script programs.

Java : Servlet, JSP and EJB or Spring boot : tomcat, web logic, jboss

Php php is use to create the web application Php we have to run in server : tomcat : apache or Xampp server or any other server.

Asp.net IIS Server

Python Django

Using Node JS with help of http module we can create our own server and run web application.

First we have to load the module using command as

let http = require(“http”);

after loaded the module with the help of reference we have to all createServer function. This function takes callback function as a parameter. So we can pass anonymous function or arrow function.

let server =  http.createServer(function(req,res){

            console.log("Client send the request");

})

The callback function takes two parameter as reference. 1st parameter is consider as request which is use to receive the request from a client and 2nd parameter is consider as response which is use to give the response back to the client.

If we want to make the connection between client to server application it require port number. Which must be free in your machine and it must be unique. Port number is a point where client and server will connect to each other and share the data.

After written the code please run the application using command as

node applicationname.js

Now server is running.

To send the request to server application we have to open the browser

<http://localhost:9090> : URL

res.writeHead(200,{"content-type":"text/html"});

This code is use to write the status code 200 series. It is consider as success.

The content type is html .