**Phase 3 :**

**Day 1**

**Create scalable and dynamic web site**

Node JS

What is Node JS

Difference between client side and server side scripting language.

Creating basic example using node js

REPL tool

Node JS modules

Core modules

External module

User-defined modules

Fs module (file handling program)

url modules

http module (creating web application using http modules)

express module (external module)(creating web application using express module)

package.json file

web service

SOAP Service

**Rest Full Web Service (REST API)**

Database : no SQL (Mongo DB)

All type of query using mongo db ie basic and adv query.

Connecting mongo db database using mongo db as well as mongoose modules

Creating Web application using MVC style.

CRUD Operation front end Angular and Backed Express JS with Mongo DB database with mongoose module.

Socket IO programming

**Authentication and Authorization.**

**Html, css, JavaScript**

**Html : display the content**

**Css : it is use to display the content in proper format or presentation logic**

**Bootstrap**

**JS : programming on web application or web page or action on web page.**

**DOM**

**jQuery : it is library which provide lot of pre-defined function which help to read, write and update dom properly.**

**Ext JS**

**Coffee JS**

**React JS**

**Angular JS**

**Angular Framework**

**Vue JS**

**D3 JS**

**Backbone js**

**Etc**

**Library or Framework**

**Library is light weighted. Library doesn’t follow standard.**

**Framework is heavy. Framework follow standard rules and regulation.**

**Design pattern : best practise or solution for repeating problem.**

**The implementation of design pattern is taken care by framework.**

**Node JS : Node js is not a library or not a framework. Node js is run time environment for JavaScript program or library or framework.**

**Before Node JS JavaScript only use on client side. Ie Client side scripting language.**

**Front end side**

**Html, css, bootstrap, js and jquery or library or framework.**

**Backend end side**

**Java (JEE ) or Spring boot**

**Asp net**

**Python**

**Php**

**Cgi**

**Node JS : Node JS provided lot of pre-defined modules it may be core module or external module which help to create server side programming language.**

**Using node js (JavaScript program) we can do file handling programing, using js we can create dynamic web page, using js we can create rest api or we can do networking programming or we can connect database.**

**Etc**

**REPL Terminal : Read Eval Print loop**

In node js program we can’t use window as well as document object.

Mean node js doesn’t provide BOM and DOM hierarchy.

Node js provide one of the global object ie

console.

Node JS Modules

Node JS Modules

Module is node js is a simple or complex functionality organized in single or multiple JavaScript files which can re-used through out the application.

3 types of modules

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

Core Modules

Fs (file system)

FS is a pre-defined core modules which provided by node js which help to do file handling synchronously as well as asynchronously.

Syntax to load the modules

let/var referenceName = require(“moduleName”);

JSON is a pre-defined object

Which contains two function which help to convert string to json as well as json to string.

In JavaScript we can create object in three style

1. Function style
2. Literal style : ES5 style
3. Class style : ES6 style

JSON.parse() : it is use to convert string to json.

JSON.stringify(): it is use to convert json or object to string.

Java English Asp.net

Day 2

13-02-2022

Taking the value through keyboards.

readline : readling is a core module which help to take the value through keyboards asynchronously.

process is a pre-defined global object.

Which help to provide processor details.

Node js provided external module it

readline-sync. This module help us to read the value synchronously.

Syntax to install the module

npm install moduleName –g (globally)

npm install moduleName (locally)

npm install readline-sync

http module : node js provide http pre-defined core module which help to create web application using JavaScript Programs.

JEE or spring boot : Java

Asp.net with C#

Php

Python etc

Above technologies provides modules or classes which help to create the web application.

To run those application we need server.

Tomcat

Jboss

Web logic

Apache

IIS

Nginx etc

Non Node JS Server are thread based server.

Program : set of instruction to perform specific task.

Processor : Processor is responsible to execute the task.

Process : time taken to execute the code.

Thread : small execution of code within a process.

Thread also known as light weighted process.

Multi tasking :

1. Process based
2. Thread based

Single processor

Booking Ticket reservation

class Booking {

avl = 1;

}

Booking b = new Booking(); 1st thread

2nd thread

3rd thread

1st client send the request

2nd client send the request

3rd client send the request

Node JS Server found the limitation in thread base server.

Tomcat server

IIS Server

Apache

This sever can handle 100 client request concurrently.

This server can create 100 thread.

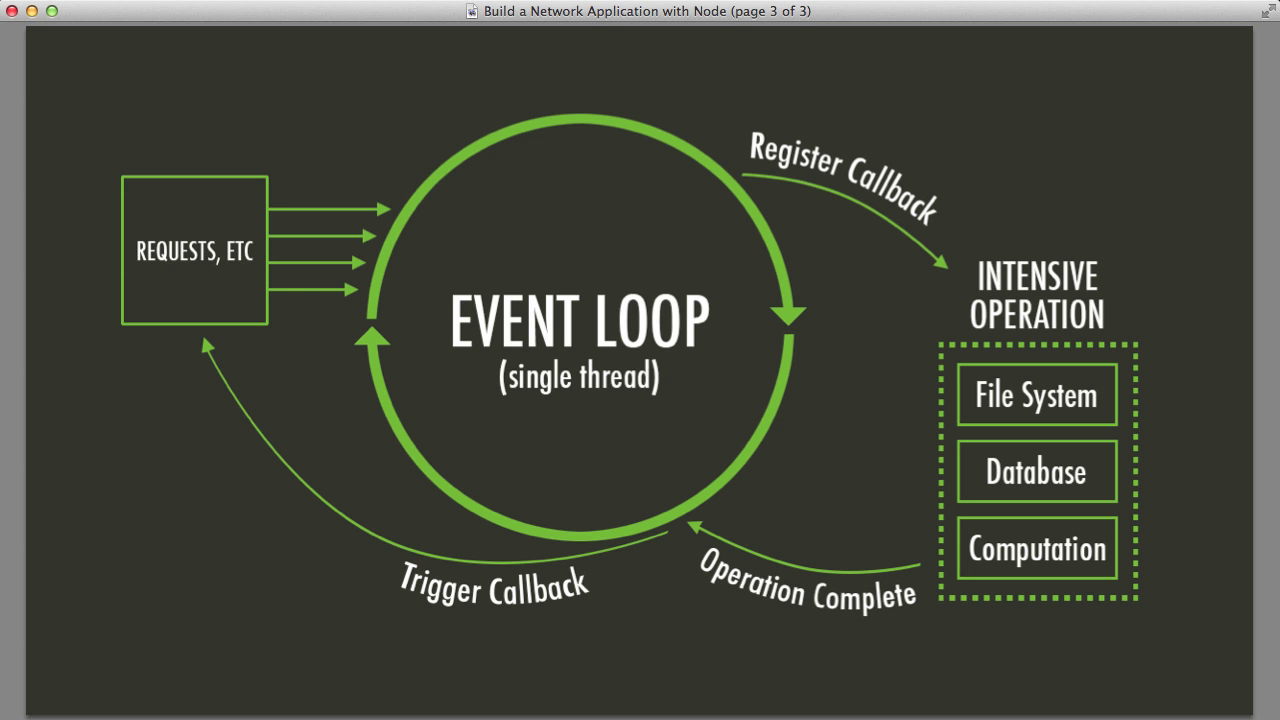
Tomcat Server can handle 100 request concurrently.

101 client send request to server. Thread can be block or lock.

Node JS provide event loop concept.

JavaScript provide great features ie asynchronous and callback.

JavaScript is single thread not multi threading.



Non node JS Server Vs Node JS Server

http module

create http module program folder

node js provide pre-defined it url. This module help use to extract url details.

Node JS provided lot of pre-defined external web framework which help to do develop web application very easily.

Express JS : Express JS is a type of open source web application which help to create web application using node js program.

Express JS internally use http module to take the request from a client.

Express JS support all http protocol method like get, post, put and delete.

Express wrap http module.

Create the folder express module

npm install express locally

or

npm install express –g globally

package.json : This file contains all dependencies or modules configuration details.

npm init : which command is use to create the package.json file

we have to install express module

npm install express

npm install : it check in package.json file what are dependencies required to develop the application and those dependencies install locally.

npm uninstall modulename

npm uninstall mongodb

if method is get data send through url using query param concept using key=value pairs

url?key=value&key=value&key=value

if method is post data send through body part.

By default in Express data is not enable.

To enable this data we have to take the help to external module ie body-parser.

Express JS 3.x version we have to download body-parser module separately.

But from Express 4.x version onwards body-parser module part express JS.

In Express js we can take the help of use function.

To add other middleware modules.

Middleware means between client and server module

app.use(middlewaremodulename);

**Phase 3 :**

**Day 2**

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