MSWD:

18-12-2024:
M-MongoDB
E-ExpressJS
R-ReactJS
N-NodeJS (Runtime Environment like JRE)

Full stack-Design Develop Test Deploy using a single language or technology is called full stack.
MSWD is a full stack which is a web application using JavaScript

TASK(DONE):
Create a webpage with HTML and CSS which display a heading, a logo image with three pictures scrolling from left to
s and also one video embedded in the web page and footer should display today's date.

OUTCOME-It should be like a news channel, KL University page.

Examples of Mernstack: Instagram, Netflix, Facebook
Examples of PFSD: LinkedIn

Tizag
W3schools
Coffee cup html

19-12-2024:
JavaScript runs on the browser and not on the machine
JavaScript is object based and java is object oriented
We use node because it is an environment to run node as we can't run JavaScript normally
If it doesn't have inheritance it is called object-based

Language learning curve:
1. Character set (ASCII,UTF-Unicode Text Format(8 bits, 32 bits, 64 bits))
2. Tokens: -Identifiers
    -Keywords
3. Statements: -Iterative
    -Conditional
    -Sequential

Q. What are the different types of programming languages?
A. There are 4 types: -Structural
    -Procedural
    -Object-oriented
    -Event-driven(.NET,VB)

Scripts are easily clubbable.
ES(ECMAScript) is a standard to define JavaScript
JavaScript supports ES72020
JavaScript can be used as a plugin across different applications.(Eg: web applications, mobile applications, desktop ap

Variables Creation:
let var const (let is mutable-add or modify or change, var is immutable-cannot modify, const is constant-cannot be d

JavaScript is a static type declaration. It can also work like dynamic type description using typescripts.

TASK(DONE):
Create a html which consists the following fields
1. Student Id
2. Student Name
3. Degree -> dropdown
4. Email

5. Mobile Number
6. Password
7. CGPA
and having two buttons clear and submit
after submit button click it should display one alert message with all details except password
Hint : use html5 tags , use w3 schools , use java script for on-click events , any css

23-12-2024:
REACT:
React is a library to create frontend client-side user services.
It is a pure JavaScript-based library
JavaScript is and interpreter based language
Other UI libraries: VUE, AngularJS(Framework)

Components:
In REACT any visual appearing things of UI are termed as components.
The first letter of a component is always in uppercase.
Parent of all components in react is App.
All the remaining child components like Button, TextField, Menu, Image, Grid, Card etc are child components.

In React we can create components using JavaScript in two ways:
1. Functional Components
2. Class-based Components

2 Projects:
1. Class Project
2. SDP Project

Steps to create Frontend or Client Side React Application:
1. Create a folder called clswrk in any other location rather than desktop. (The folder name should always be in lowe
2. Open VSCode and open the folder clswrk.
3. Select Terminal menu in VSCode and select new Terminal.

NOTE- Do not run inside PowerShell, only in VSCode terminal.

4. We can create projects and manage libraries using either node package manager (npm) or node package executor

NOTE- npx is powerful, compared to npm because it will delete temporary files after working with libraries.

5. We can install or create our first project in the terminal using:
   npm create-react-app frontend OR npx create-react-app frontend (It will create a react application with basic depe
6. We must navigate to the project folder in Terminal by using cd frontend.
7. We can run the app using npm start.
8. It will automatically display a default page in browser with localhost:3000
9. Internet must be in proper condition.

TASK: (in App.js)
In the app component use a paragraph, a table and a image of KL logo and display them accordingly. The paragraph
ame, category, price, availability.
Mention atleast 5 products.
Use KL logo and store it inside the public folder and display it in top right corner.

React component names must always start with a capital letter, while HTML tags must be lowercase.

Use font-awesome css file display home delete update

Installation of plugin or extensions.
To install plugins :
1) ctrl+shift+x.

2) ES7 React/Redux/GraphQL/React-Native snippets

Types of components used in react: 1) function based components 2) Class Based components
In real time we will use "Function based components only". Component is a visual interactive element. React is a Sing
Working of SPA:
index.html
App.js (Components should be of Uppercase)
Sub components or child components
Components also works like tags. Ex: Component like Button, Table, Grid, NavBar, Cards, all are components

React Components for DoorStep: 1) Home.js 2) NavBar.js 3) Search.js 4) Login.js 5) Register.js 6) Products.js 7) Cart.js
rack.js 13) Logout.js

Create a folder under src with a name components (All lower case)
Create all child components inside components folder with the extension called js
NOTE: We can create function based components using react snippet as "rafce" React Arrow Function Component Ex

Difference between class and function: class is best for making actions and storing. function does only actions but n

one function return only one value. It should be written within the div

```
import React from 'react'

const Home = () => {
  return (
    <div>

    </div>
  )
}

export default Home
```

React returns an element of HTML. To declare any variables it should be declared above the return statement and in

import Home from './components/Home.js' Use the component in App return as a tag
<Home/>

01-01-2025
Components with State(Values):
State is a value or variable or collection or object which stores data.
The data can be shared across different components.
In react data can be transferred or shared using following ways:
1) Through arguments
2) Through props**
3) Through collections

Every function component in react is a function
We can pass the data using arguments

TASK:
Use passing data concept to the Product component, Orders component, Purchase component with atleast 5 argum
Eg: Products-> pid, pname, pcategory, pquantity, price
    Orders-> oid, oDate, cName, address, dDate, paymentType
    Track-> purchaseId, cName, eDDate, status
    Delivery Person-> dId, contact

Props is a keyword to store multiple variables or values as a single value
Props works like a collection
Props and their values can be accessed using "props.attributeName"

Whenever the parent component pass the data, props stores them as a collection of objects

Collection: Collection is used to hold multiple items or objects
Array is a collection of objects.
Important:
1) Map
2) Filter
3) Sorted

06-01-2025:
1. Display the products in a tabular format using 5 products with 6 attributes must be displayed in a tabular format
2. Install the package of MUI
3. Display your picture in a material UI card component
4. Display the login component from MUI.
5. Fix one navbar according to our class project from MUI.

08-01-2025:
1. Generate date by using a format called JSON
2. Use the data as a component
3. Import the JSON data as a component
4. Render the data in a table.
5. Display the data in cards.

Important Notes:
Routes:
In React we can navigate from one component to other component using the package react-router-dom. We use 4 c
1. Browser Router
2. Router
3. Link

20-01-2025:
UseState is used to set or get values from user the values can be constant , let or var keywords
UseEffect will work whenever there are changes in the variables and their effect
UseContext
Use
Task
Create a separate json file with key and values as
keys: username, password, role

22-01-2025:
Axios: It is a package used to access APIs using URLs.
Axios use get(access or retrieval of data) methods, put(modify the data) methods, delete(deletes data) methods a

API: Application Programming Interface used to exchange the data across client to server and server to client and se

NOTE:
Read API documentation

APIs holds data in JSON format.
JSON data is in key-value pairs.
In order to access APIs we need URL and API keys (optional).

Steps:
1. Create a new component with name APIProducts.js.
2. Install a package called Axios
3. Axios.get method is used to fetch collection of data.
4. Axios use a hook called UseEffect to retrieve the data from API.
5. Use exception handling like try catch to handle API exceptions
6. If the data is not fetched it will return None (None is a datatype in JavaScript).

27-01-2025:
Steps to develop and SDP Project:
1. Existing websites must be found out and we should go through all features.
2. Conduct a survey (Review starts from this).
3. Prepare a questionnaire using DTI concepts. [5 features]
4. Questionnaire questions are of 2 types: open end and close end. Prepare with closed end.
5. Prepare atleast 20-25 questions.

05-02-2025:
Data, Database, Collection, Document, Records, Rows, Objects, Schema

Data:
Data has 2 qualities:
>Meaningful
>Countable
Eg: students, customers, users, products, books, people, employees.

Database: Organizing data for accessing fast and accurate

Collection: In Mongodb the data is stored in the format of collections. Collection is a combination of keys and values.
Eg: in RDBMS we store in tables

Document: In Mongodb we provide data in the format of document. Nothing but record.
Eg: in RDBMS we use records as rows

Records: Collection of keys and values are called records.

Rows: in RDBMS we call records as rows.

Objects: one record or collection of records can be called objects.

DBMS: It is a software to manage data.

Mongodb:
In Mongodb the data is stored as collection in JSON format.
In Mongodb we use ORM model (Object Relational Mapping)

Eg: Display student data in RDBMS: SELECT * FROM students
Display student data in Mongodb: students.objects.all()

We use methods instead of query statements.

Mongodb is a software which can be accessed in 3 ways:
>Shell: It is a command line interface to work with mongodb data.
>Compass: It is a user interface which works within the system.
>Atlas: It is a cloud-based connectivity with mongodb.***

Schema: It is definition of collection.

Task:

Create a collection called products in mongoDB shell.

12-02-2025:
Full Stack:
Four Pillars: 1)Design: React
2)Develop: MongoDB and Express
3)Testing: ESLint
4)Deploy

Server: It is a software which runs inside system to perform requests and responses for a given client. It is also called
Synchronized Applications". Server can be created in MERN stack using "npm init" (initialization)
Eg: Tomcat, Apache, WebSphere, Jboss

Client: Frontend user - who requests and gets responses.

Request: Request in the format of resource, files, data in the format of JSON.

Respone: It is the outcome from the server to the client in the format of JSON.

Types of Requests:
Four types of Requests: GET, PUT, PATCH, DELETE

Cors: Origin, Response or Resource Sharing. Install this package to avoid communication errors between client and s

Postman: https://www.postman.com/
Postman is a software to test backend in development stage before real time production.

Development(Design and Testing) and Production(Deployment)

Routing: It is nothing but URLs of server which needs to connect with client URLs.

MVC Architecture: Model View Controller
Model: MongoDB Database
View: Frontend
Controller: Business Logic

Use package.json of the client with a new key called proxy and value as the server. The value should be a URL.

Monolithic(Single server, Single client)
Eg: Laptops, Mobiles

Client-Server Architecture:
Eg: Desktop

Integration Testing:

Create a Simple Server:
1) Create a folder inside the doorstep project.
2) Name the Folder as Server.
3) Open the terminal and navigate to the server folder.
4) Type the command: npm init
5) Press Enter till you get package.json in server folder.
6) Inside server create a file called index.js or index.jsx.
7) Install the following packages: Express, Cors, Mongoose - to connect MongoDB, jsonwebtoken
8) Write the script of the server inside the index.js file.
9) In server file (index.js) use a port number other than client port number.
10) Run the index.js file using the command node index.js

Server
Client
Request
Response
Types of Requests
Cors
Postman
Routing
MVC
Integration Testing

17-02-2025:
At Server:
1) Create a folder namely "public"
2)Copy or store all static files like html,css,images,videos,documents,animations,etc,.
3)In index.js use a middleware(concept to connect with backend)
Some important middlewares: static,json,cors,bodyparser,etc,.
We can access the middleware using "use() method"
   which servers static files from the public folder

At Client side:
Create the components which will access the static files from the server.
document,picture,videos.
** Modify client side package.json by adding a new key "proxy:address of the server"
ex: proxy:http:localhost:5000

Run the server and then run the client

19-02-2025: