ABES ENGINEERING COLLEGE, GHAZIABAD

Advance MERN STACK [Table of Content] | Duration:120

Duration	Topic	SubTopic	
10 Hours	**Recap**	HTML5 CSS3 Basic JS Advance JS(ES6,ES7,ES8,ES9) Git and Git Hub	**Covered by Programming Pathshala in 40 Hours**
2 Hours	**Web Architecture**	Rest API Introduction REST VS SOAP TYPES OF ARCHITECTURES MONOLITHIC VS MICROSERVICE ARCHITECTURE	
		Part 1: React (Front end)	

24 Hours	**Understanding and Working with React JS**	**Introduction to React**
		  Introduction of React JS Library
		  why React JS
		Downloading and Installing React
		  Installing Node JS
		  Project Structure
		  Starting Development Server
			React Portion woukd be covered in next 12-14 Hours

	React Component, using JSX and Hooks	**React Components:**
		  Understanding the basics of React component structure
		  How to create reusable UI components.
		JSX:
		  Exploring JSX syntax and how it combines HTML-like syntax with
		State and Props:
		Understanding the concepts of state and props in React, and how they are used to manage data and pass information between components.,List,key, Diffing Algorithm
		React Hooks:
		
		  Learning about React's hooks API, including useState, useEffect,Props Drilling problem, useContext, Pure, Impure functions., useReducer hook	

	React Router and Forms	**React Router:**
		  Exploring how to set up routing in a React application using React
		React Forms:
		  Understanding different approaches to handling forms in React,	

Part 2: Backend (Node JS)			

16 Hours	**Node Part: (Backend)**	**Introduction to Node.js:**
		  Node.js Core Modules / Built-in packages:
		  Callbacks
		  Blocking, Non-blocking
		  Event Emitters and Event loops
		  Async And Await
			Will be covered in Breaks for next semester

	Working with events module	**Introduction to Event Driven Programming**
		  Typical Web Architecture
		  Node.js Architecture
		  Event Loop
		  Event Driven Programming in Node
		  Events
		  Events in the DOM
		  Events in Node.js
		  Event Emitters and Event Handlers
		  Creating Custom Event Emitters	

	Working with fs (File System) module	**Introduction to File System:**
		  Introduction to the fs module:
		  Explanation of the fs module and its role in the Node.js runtime
		  Overview of the functions provided by the fs module
		Reading and Writing Files:
		  fs.readFile()
		  fs.writeFile()
		  fs.appendFile()
		  Reading and writing binary data
		Working with Directories:
		  fs.mkdir()
		  fs.rmdir()
		  fs.readdir()
		File and Directory Information:
		  fs.stat()
		  fs.lstat()
		  fs.fstat()
		File System Watchers:
		  fs.watch()
		  fs.watchFile()
		  fs.unwatchFile()
		File System Streams:
		  fs.createReadStream()
		  fs.createWriteStream()
		File System Operations:
		  fs.rename()
		  fs.truncate()
		  fs.unlink()
		  fs.link()
		  fs.symlink()	

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Part 3 (Middleware)			
	Creating REST API's	**Working with http module**	
20 Hours		Introduction to the http module:	
		Explanation of the http module and its role in the Node.js runtime	
		Overview of the functions provided by the http module	
		Creating an HTTP Server:	
		Using the http.createServer() function	
		Handling HTTP Requests and Responses	
		Accessing request data (headers, query string, etc.)	
		Routing:	
		Implementing routing in a Node.js HTTP server	
		Handling different HTTP methods (GET, POST, etc.)	
		Sending different types of responses (HTML, JSON, etc.)	
		Serving Static Files:	
		Using the fs module to serve static files	
		Installing and working with Express framework	
		working with Express JS framework	
		creating various routes	
Part 4: (MongoDB)			
14 Hours	**Understanding and Working with MongoDB**	**Introduction to MongoDB**	
		Setting up MongoDB	
		MongoDB data modeling	
		CRUD (Create, Read, Update, Delete) operations in MongoDB	
		Inserting Documents in MongoDB	
		Retrieving Documents from MongoDB	
		Updating Documents in MongoDB	
		Deleting Documents from MongoDB	
		MongoDB update operators (e.g. $set, $inc, $push, etc.)	
		Finding and Modifying Documents Atomically	
		Batch Write Operations in MongoDB	
		MongoDB Upserts (Update or Insert)	
		Sorting, Skip, and Limit in MongoDB Queries	
		Query Selectors in MongoDB (e.g. equality, comparison, etc.)	
		MongoDB and Express.js integration	
		Basic CRUD operation and creating APIs in Nodejs using mongo and	
		using POSTMAN tool to test the API's created.	
10 Hours	**Deployment using Cloud services**	DevOps tools lik GITHUB, Docker (intergration with App) using AWS	
Part 5: Project			
24 Hours	**M+ E+ R+ N: (All in one place)**	Dynamic Shopping App(Parallel with sessions)	**Final Project After all Unit Testing and regruss testing**