5-Day Workshop Plan

Full Stack Web Development

Day 1: Introduction to Full Stack Development and Front-End Basics

Session Overview: Day 1 will introduce the concept of full stack development, focusing on front-end development with HTML, CSS, and basic JavaScript.

Schedule:

- 10:00 AM - 10:15 AM: Welcome & Introduction
- Overview of full stack development and technologies to be covered in the workshop.
- 10:15 AM - 11:15 AM: HTML Fundamentals
- Learn HTML structure, tags, elements, attributes, and creating a basic webpage.
- 11:15 AM - 11:30 AM: Break
- 11:30 AM - 1:00 PM: CSS Fundamentals
- Introduction to styling web pages using CSS: colors, fonts, layout, and positioning.
- 2:00 PM - 2:15 PM: Recap and Q&A
- Review key points from HTML and CSS.
- 2:15 PM - 3:15 PM: Introduction to JavaScript
- Learn basic JavaScript concepts: variables, data types, operators, and control flow.
- 3:15 PM - 3:30 PM: Break
- 3:30 PM - 5:00 PM: Hands-on: Building a Simple Static Webpage
- Practical session: Participants build a basic static webpage using HTML, CSS, and JavaScript.

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Day 2: Advanced JavaScript and Introduction to Front-End Frameworks

Session Overview: Day 2 will cover more advanced JavaScript concepts and introduce front-end frameworks like React.js.

Schedule:

- **10:00 AM - 10:15 AM: Recap of Day 1**
- Quick review of HTML, CSS, and JavaScript basics.
- **10:15 AM - 11:15 AM: Advanced JavaScript Concepts**
- Introduction to functions, objects, arrays, and event handling in JavaScript.
- **11:15 AM - 11:30 AM: Break**
- **11:30 AM - 1:00 PM: Introduction to React.js**
- Overview of React.js, JSX, components, props, and state.
- **2:00 PM - 2:15 PM: Recap and Q&A**
- Clarify doubts about advanced JavaScript and React.js.
- **2:15 PM - 3:15 PM: Building a React Application**
- Practical session: Participants create a simple React app and learn about React component lifecycle.
- **3:15 PM - 3:30 PM: Break**
- **3:30 PM - 5:00 PM: Hands-on: Working with React**
- Build a dynamic web page with React, managing state and props.

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Day 3: Back-End Development with Node.js and Express

Session Overview: Day 3 will focus on back-end development with Node.js and Express, and how to set up server-side logic for a web application.

Schedule:

- 10:00 AM - 10:15 AM: Recap of Day 2
- Review front-end concepts learned and React.js basics.
- 10:15 AM - 11:15 AM: Introduction to Node.js
- Learn the basics of Node.js, setting up a server, and handling HTTP requests.
- 11:15 AM - 11:30 AM: Break
- 11:30 AM - 1:00 PM: Introduction to Express.js
- Overview of Express.js, setting up routes, middleware, and building a basic server.
- 2:00 PM - 2:15 PM: Recap and Q&A
- Clarify doubts regarding Node.js and Express.js.
- 2:15 PM - 3:15 PM: Working with APIs
- Learn how to handle APIs in Express.js, send and receive data.
- 3:15 PM - 3:30 PM: Break
- 3:30 PM - 5:00 PM: Hands-on: Creating a Simple REST API
- Practical session: Build a RESTful API using Node.js and Express.

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Day 4: Databases and Authentication

Session Overview: Day 4 will introduce databases (MongoDB) and user authentication methods in web applications.

Schedule:

- 10:00 AM - 10:15 AM: Recap of Day 3
- Review Node.js, Express, and API concepts.
- 10:15 AM - 11:15 AM: Introduction to MongoDB
- Learn how to set up and interact with MongoDB, a NoSQL database.
- 11:15 AM - 11:30 AM: Break
- 11:30 AM - 1:00 PM: CRUD Operations with MongoDB
- Learn how to create, read, update, and delete data in MongoDB using Mongoose.
- 2:00 PM - 2:15 PM: Recap and Q&A
- Clarify doubts about MongoDB and CRUD operations.
- 2:15 PM - 3:15 PM: User Authentication
- Introduction to user authentication: handling login, registration, and password security.
- 3:15 PM - 3:30 PM: Break
- 3:30 PM - 5:00 PM: Hands-on: Implementing Authentication
- Practical session: Implement user authentication and CRUD operations in a web application.

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Day 5: Final Project and Deployment

Session Overview: Day 5 will focus on combining all the learned concepts into a full-stack application and deploying it to a cloud platform.

Schedule:

- 10:00 AM - 10:15 AM: Recap of Day 4
- Quick review of MongoDB, CRUD operations, and authentication.
- 10:15 AM - 11:15 AM: Final Project Introduction
- Discuss the requirements for the final project: a full-stack web application using the technologies learned.
- 11:15 AM - 11:30 AM: Break
- 11:30 AM - 1:00 PM: Build a Full-Stack Web Application
- Participants start building their final project: setting up the front-end with React, back-end with Node.js/Express, and database with MongoDB.
- 2:00 PM - 2:15 PM: Recap and Q&A
- Answer any questions regarding the final project.
- 2:15 PM - 3:15 PM: Deployment Overview
- Introduction to deploying applications on cloud platforms like Heroku or AWS.
- 3:15 PM - 3:30 PM: Break
- 3:30 PM - 5:00 PM: Hands-on: Deploying the Full-Stack Application
- Practical session on deploying the final project on a cloud platform and final project review.

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