a Verdhaa Enterprise

Full Stack Web Development Program

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COURSE OUTLINE

MODULE 1

1. **Introduction to Web Development**
2. Overview to HTML
3. Exploring fundamental HTML tags - 1
4. Exploring fundamental HTML tags - 2
5. HTML containers tags

Titles

- Introduction to Web
- Elements of the Web
- Introduction to Web Development
- Components of Web Development
- Exploring Frontend, Backend, and Database
- Exploring various Tech Stacks and their Importance
- Introduction to MERN and it's Components

Learning Objectives

By the end of this module, you will be able to:

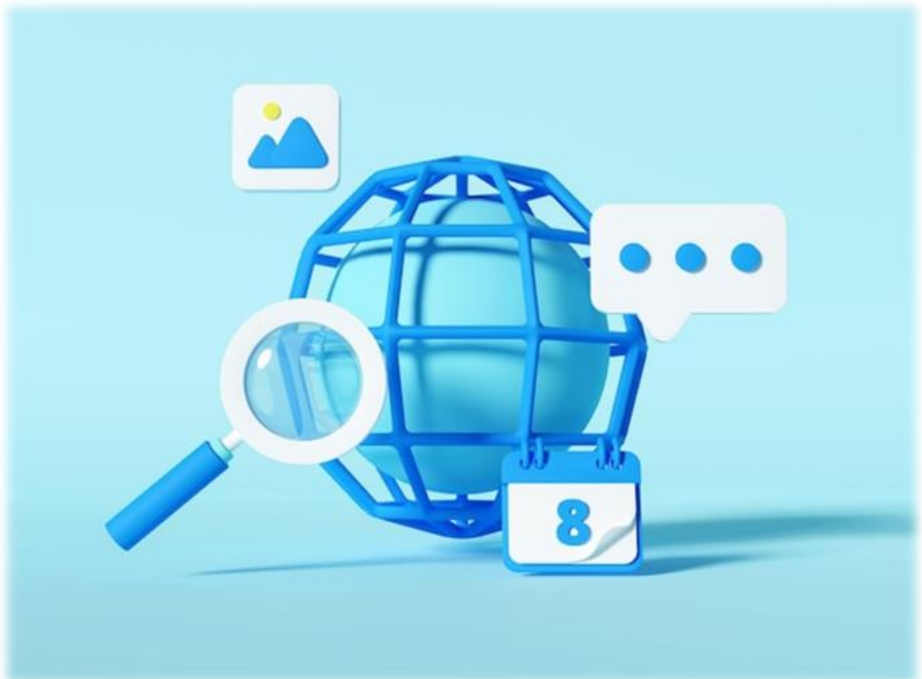
- Develop a solid understanding of the core concepts and components of web development
- Familiar with the fundamental technologies used in frontend and backend development
- Gain insights into the roles of databases and tech stacks

Introduction to the Web

Demystifying the term *Web*

- In its most basic sense, the **`Web`** refers to the World Wide Web, an extensive and complex network of connected information, multimedia, and resources available worldwide.

- It's a global network of computers and smartphones that have eliminated physical distance and language barriers to unite people worldwide.



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Demystifying the term *Web* (contd.)

Origins and Evolution:

- A visionary computer scientist named **Sir Tim Berners-Lee** in the late 20th century had the idea for a system that would allow researchers to share remotely and access information, and thus the Web was born.

- This resulted in the development of the **World Wide Web**, a groundbreaking idea that paved the way for the modern Internet.

Timothy John Berners-Lee

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Elements of the Web

The Web is made up of several different parts that work together to provide us with the amazing experience we have today:

- **Webpages:** Pages on the World Wide Web are the basic units of the Internet; they can contain everything from text and photos to movies and interactive media. The markup languages HTML and CSS are used to create the structure and presentation of websites.

- **Hyperlinks:** Hyperlinks, or "*links*," facilitate movement around the Web. Users can quickly navigate between different pieces of material on the web by clicking on relevant hyperlinks.

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Elements of the Web (contd.)

- **Web browsers:** Programs let you access the World Wide Web and view pages from it. Chrome, Firefox, Safari, and Edge are just a few of the most well-known browsers.

- **Web servers:** Computers that keep copies of websites and provide them to users when they request them. Web addresses (URLs) are a browser's requests to a server, which subsequently responds with the requested data.

Introduction to Web Development

Web Development: Crafting the Digital World

- The process of designing, constructing, and managing the websites and applications that occupy the enormous space of the internet is known as ***web development***.

- It's the dynamic process that turns digital concepts and designs into interactive online experiences that people can access worldwide.

- Web development, at its core, is the creative synthesis of design, technology, and functionality, which produces a wide variety of websites and applications that define our interactions online.

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Key Elements of Web Development

Fundamental components of web development

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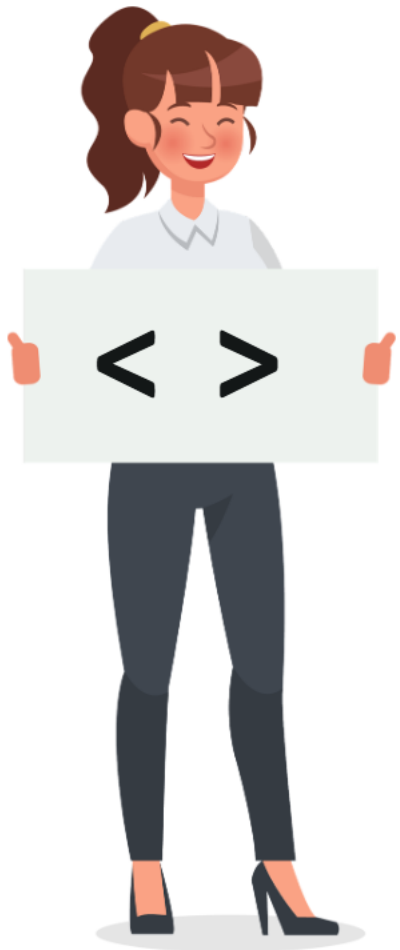
Overview of Front-End, Back-End and Databases

Front-End Development



- The part of the website that the user sees and interacts with.
- An attractive User Interface (UI) to provide a better User Experience (UX).
- Built with the following technologies:
  - HTML
  - CSS
  - JavaScript
  - JavaScript frameworks (Angular, React JS and Vue)

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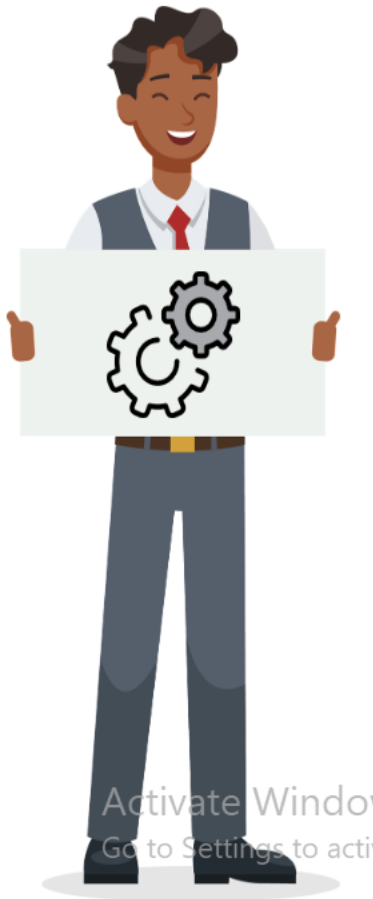
Backend-End Development

- Runs on the server.
- Has no direct interaction with the user.
- Creates a connection between the web and a database.
- Built with the following technologies:
  - Java
  - NET
  - PHP
  - Ruby
  - NodeJS



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Database

- An organized set of data/information.
- A storage system to make data accessible and manageable.
- Built with the following technologies:
  - MongoDB
  - PostgreSQL
  - Cassandra

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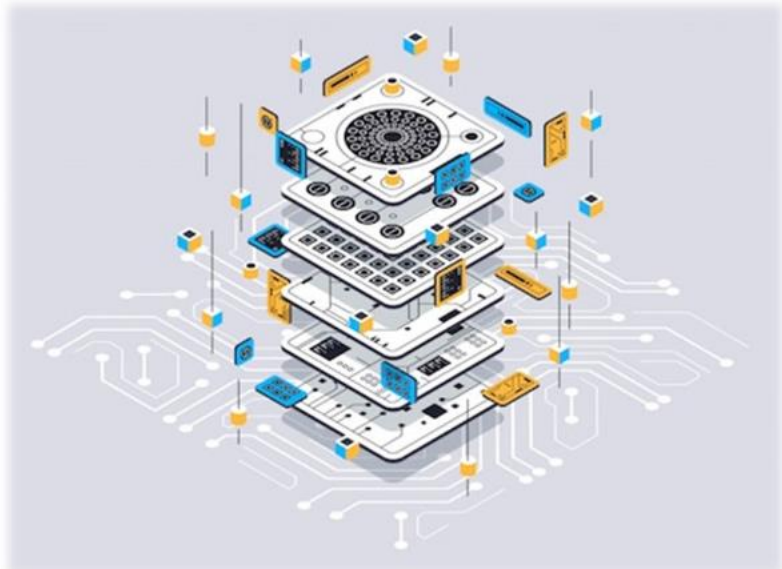
Tech Stacks
and
It’s Importance

Spotlight on Tech Stacks

- A technological stack, sometimes called a tech stack, is a collection of resources such as programming languages, frameworks, libraries, and other programs that create and launch a website, program, or system's software or application.

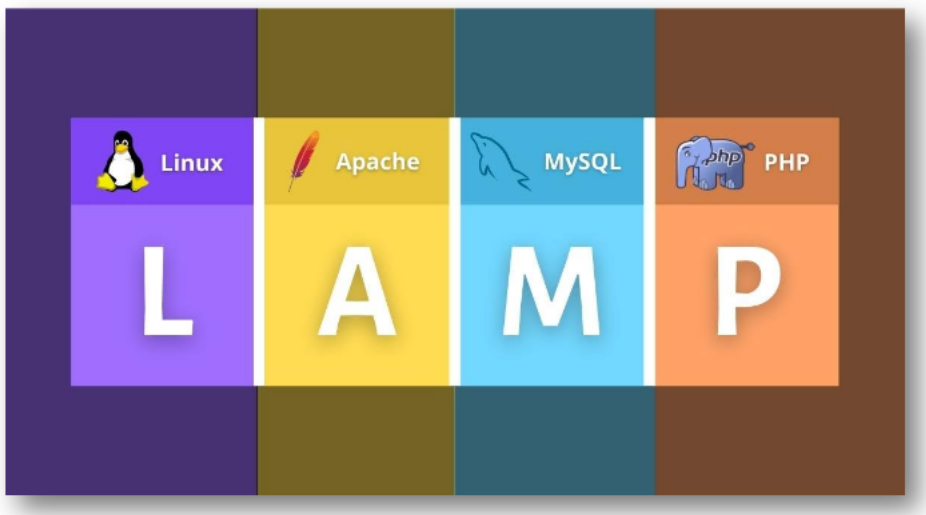
- Each technology stack has been meticulously crafted to cater to specific development requirements, optimize performance, and streamline communication and cooperation amongst developers.

- Different tech stacks are **LAMP**, **MEAN**, **MERN**, **MEVN**, **RoR**, **Python Django Stack**, **Java Spring Stack,** and more.



Spotlight on Tech Stacks – LAMP

- **Linux:** The operating system that serves as the foundation.
- **Apache:** The web server software that handles HTTP requests.
- **MySQL**: The relational database management system for storing and managing data.
- **PHP:** The programming language used for server-side scripting.



Spotlight on Tech Stacks – MEAN

- **MongoDB:** The NoSQL database for storing flexible, document-oriented data.
- **Express.js:** A web application framework for building server-side applications.
- **Angular:** A front-end framework for building dynamic and interactive user interfaces.
- **Node.js:** A server-side runtime environment for executing JavaScript code.

Spotlight on Tech Stacks – MERN

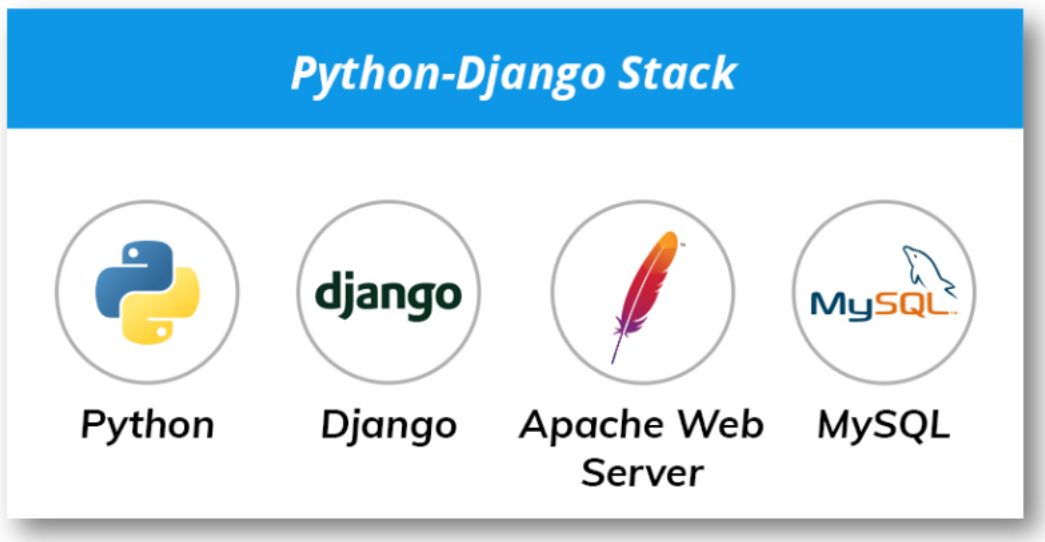
- **MongoDB:** The NoSQL database for storing flexible, document-oriented data.
- **Express.js:** A web application framework for building server-side applications.
- **React:** A JavaScript library for building user interfaces.
- **Node.js:** A server-side runtime environment for executing JavaScript code.

Spotlight on Tech Stacks – RoR (Ruby on Rails)

- **Ruby:** A dynamic, object-oriented programming language.
- **Ruby on Rails (Rails):** A web application framework written in Ruby.
- **SQLite/PostgreSQL/MongoDB:** Databases used for data storage.
- **HTML/CSS:** Front-end languages for UI presentation.

Spotlight on Tech Stacks – Python Django

- **Python:** A versatile, high-level programming language.
- **Django:** A high-level web application framework written in Python.
- **SQLite/MySQL:** Databases used for data storage.
- **HTML/CSS:** Front-end languages for UI presentation.



Introduction to the MERN Stack and its components

Exploring MERN Stack

- The MERN stack is a strong and comprehensive toolkit for modern web development, enabling developers to create dynamic and interactive online apps quickly.
- **MongoDB**, **Express.js**, **React**, and **Node.js** comprise the MERN stack, simplifying full-stack application development.
- Let's explore the MERN stack and discover its unique components.
  - MongoDB
  - Express.js
  - React
  - Node.js

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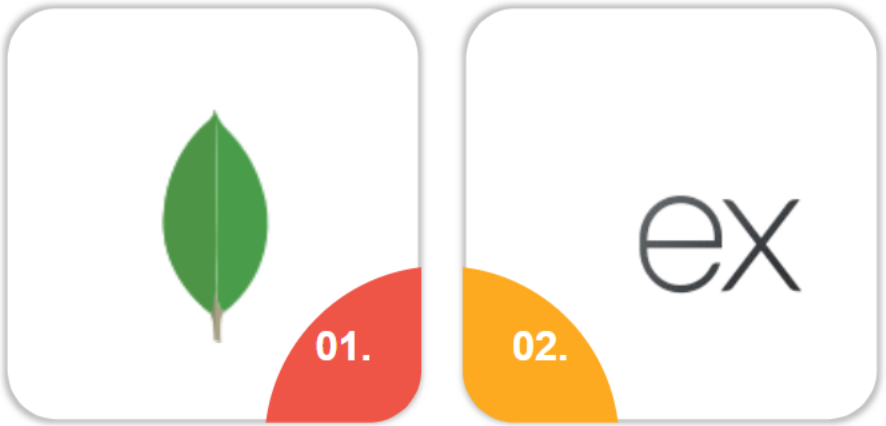
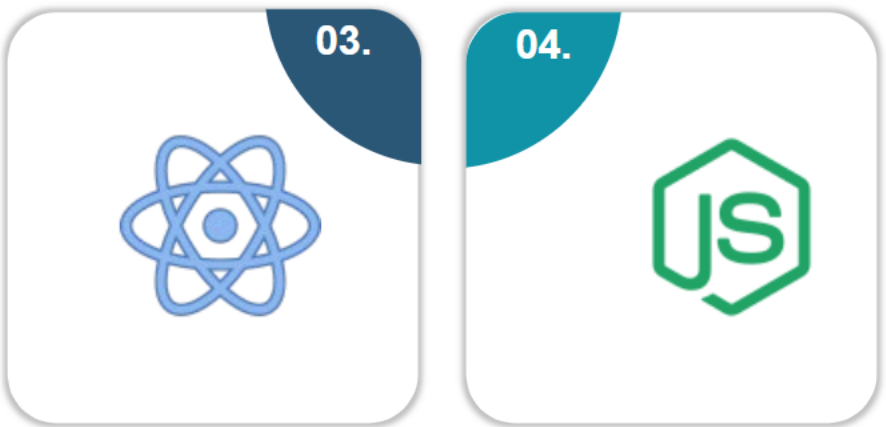
Exploring MERN Stack (contd.)

MongoDB is a flexible NoSQL database that uses a document-oriented approach.



Express.js is a web application framework for Node.js that simplifies server-side logic, routing, and middleware.

React is a JavaScript library that creates reusable UI elements with optimal performance and a responsive user experience.



Node.js enables server-side execution of JavaScript code with efficient handling of concurrent connections, fostering code reusability and expediting the development cycle.

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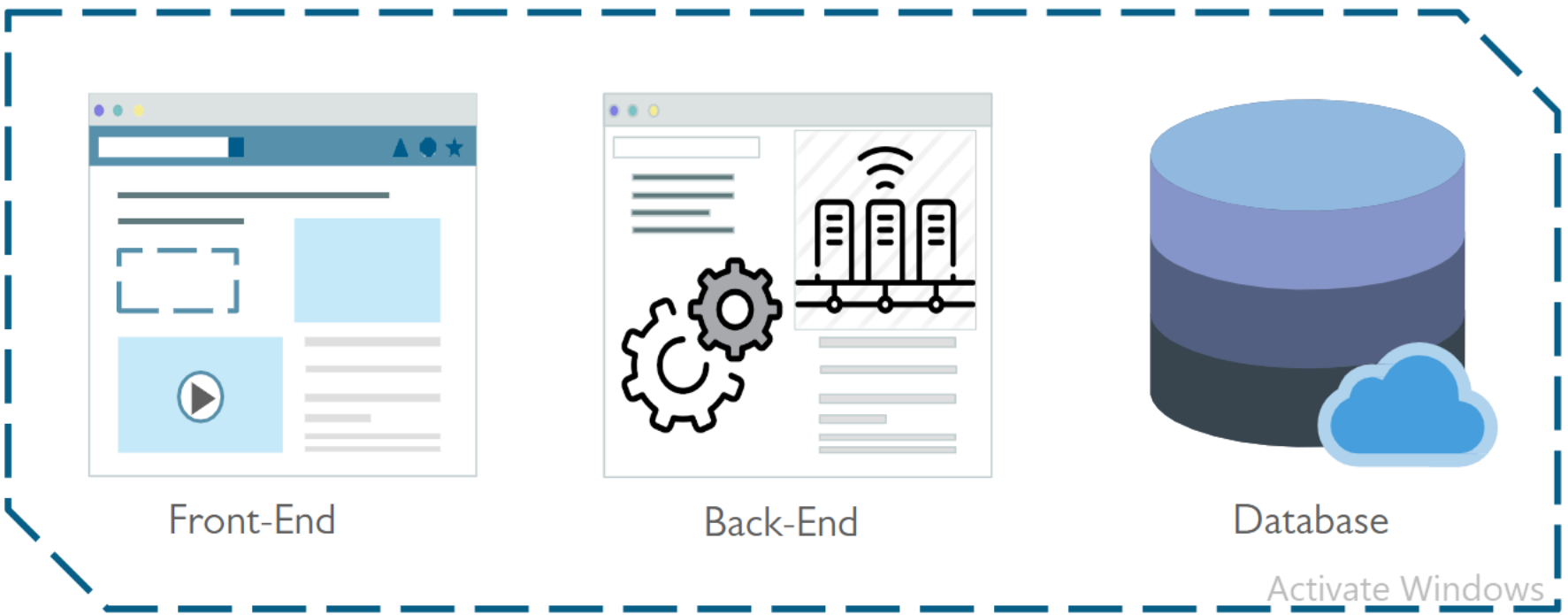
Full Stack Web Developer

Full Stack Web Developer

A full-stack developer can handle the work of databases, front-end, and back-end technologies.



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Summary

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mongoDB
express
node

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Exploring MERN Stack (contd.)

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Thank You