Introduction to PHP

Prerequisite: Knowledge of Programming (Any Language)

Day 1: Introduction to PHP and Basic Syntax

- What is PHP?
- History and evolution
- PHP's role in web development
- Setting up a development environment (XAMPP/WAMP/MAMP)
- Basic syntax
- PHP tags
- Comments in PHP
- Variables and data types
- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Conditional statements (if, else, elseif, switch)
- Looping statements (for, while, do-while, foreach)

Lab 1: Basic PHP Scripts

- Writing simple PHP scripts
- Using variables, operators, and control structures
- Creating a basic calculator

Day 2: Functions, Arrays, and Strings

- Defining and calling functions
- Function parameters and return values
- Variable scope and global variables
- Indexed arrays
- Associative arrays
- Multidimensional arrays
- Array functions
- Creating and manipulating strings
- String functions (concatenation, length, substrings)
- Regular expressions
- Understanding superglobals ($_GET, $_POST, $_REQUEST, $_SESSION, $_COOKIE)
- Handling form data with $_GET and $_POST

Lab 2: Functions, Arrays, and Strings

- Creating functions and using arrays
- Manipulating strings
- Building a simple form and processing form data

Day 3: Working with Files and PHP Data Objects (PDO)

- Reading and writing files
- File functions (fopen, fclose, fread, fwrite)
- Uploading files
- Setting up a MySQL database
- Basic SQL commands (SELECT, INSERT, UPDATE, DELETE)
- Connecting to a database with PDO
- Executing SQL queries
- Prepared statements
- Error types (notices, warnings, errors)
- Using try-catch blocks
- Custom error handling

Lab 3: File Handling and Database Interaction

- Writing scripts to read and write files
- Connecting to a MySQL database using PDO
- Executing SQL queries and handling errors

Day 4: Object-Oriented Programming (OOP) in PHP

- Basic OOP concepts (classes, objects, methods, properties)
- Defining and instantiating classes
- Inheritance
- Access modifiers (public, private, protected)
- Static properties and methods
- Constructors and destructors
- Magic methods (__construct, __destruct, __get, __set, __call)
- Interfaces and abstract classes
- Understanding namespaces
- Using namespaces in projects
- Autoloading classes with PSR-4

Lab 4: Object-Oriented Programming

- Creating classes and objects
- Implementing inheritance and interfaces
- Using namespaces and autoloading

Day 5: Advanced Topics and Final Project

- Working with sessions
- Setting and retrieving cookies
- Data validation and sanitization
- Preventing SQL injection
- XSS and CSRF protection

- Introduction to AJAX
- Making asynchronous requests with PHP
- Handling JSON data
- Integrating all learned concepts into a final project
- Building a small web application (e.g., a simple blog or a task manager)
- Testing and debugging

Lab 5: Final Project

- Planning and designing the project
- Implementing the project features
- Testing and debugging the final project