

# PHP

## 1 PHP Basics

- PHP Introduction
- PHP Installation (XAMPP, MAMP, LAMP)
- PHP Syntax
- PHP Comments
- PHP Variables
- PHP Data Types
- PHP Constants
- PHP Strings
- PHP Numbers
- PHP Operators (Arithmetic, Assignment, Comparison, Logical)
- PHP Echo / Print
- PHP Include / Require
- PHP Variable Scope

## 2 PHP Control Structures

- PHP If, Else, Elseif
- PHP Switch
- PHP Loops:
  - While
  - Do...While
  - For
  - Foreach
  - Break, Continue

## 3 PHP Functions

- Built-in Functions
- User-defined Functions

- Function Parameters (Default, Optional)
- Returning Values
- Variable Functions
- Recursive Functions
- Anonymous Functions (Closures)

## 4 PHP Arrays

- Indexed Arrays
- Associative Arrays
- Multidimensional Arrays
- Array Functions:
  - array\_push, array\_pop, array\_merge, array\_slice, array\_map, array\_filter, etc.

## 5 Forms & User Input

- Form Handling
- GET vs POST
- Form Validation
- Superglobals:
  - \$\_GET, \$\_POST, \$\_REQUEST, \$\_SERVER, \$\_FILES

## 6 PHP File Handling

- Opening, Reading, Writing Files (fopen, fread, fwrite, fclose)
- File Uploads
- File Deletion
- Directory Handling

## 7 PHP Cookies & Sessions

- Cookies (setcookie, \$\_COOKIE)
- Sessions (session\_start, \$\_SESSION, session\_destroy)

## 8 PHP Error Handling

- Types of Errors (Notices, Warnings, Fatal)
- Error Reporting
- Exception Handling (try-catch)
- Custom Error Handling

## 9 PHP Filters

- Data Filtering (filter\_var, filter\_input)
- Validation & Sanitization

## 10 PHP Advanced Topics

### *a. Object-Oriented PHP (OOP)*

- Classes & Objects
- Properties & Methods
- Constructors & Destructors
- Inheritance
- Polymorphism
- Abstraction & Interfaces
- Encapsulation
- Traits
- Magic Methods (\_\_construct, \_\_get, etc.)

## ***b. PHP and MySQL Database***

- Database Connection
- Create, Read, Update, Delete (CRUD)
- MySQLi (Procedural & OOP)
- PDO
- Prepared Statements
- SQL Injection Prevention

## ***c. PHP and AJAX***

- AJAX Introduction
- Fetching data using AJAX in PHP

## ***d. PHP Security***

- SQL Injection Prevention
- XSS & CSRF Protection
- Data Sanitization & Validation
- Password Hashing (password\_hash, password\_verify)
- HTTPS Usage

## ***e. PHP with JSON***

- JSON Encode/Decode (json\_encode, json\_decode)

## ***f. PHP Regular Expressions***

- Pattern Matching (preg\_match, preg\_replace)

### ***g. PHP Date & Time***

- Date Functions
- Timezones

### ***h. PHP Mail***

- Sending Emails using mail()

### ***i. PHP File System Functions***

- Reading directories
- File system management

### ***j. PHP Sessions Advanced***

- Session security
- Custom session handling

## **11 Advanced PHP Topics**

- PHP CLI Scripts
- RESTful API Development with PHP
- JWT Authentication in PHP APIs
- Working with cURL
- Composer (Dependency Management)
- Autoloading (PSR-4)
- Advanced OOP:
  - Namespaces
  - Reflection API
  - Anonymous Classes

- Generators (yield)
- Design Patterns (Singleton, Factory, MVC)
- Laravel / Symfony (Introduction)
- Caching with Memcached/Redis
- Using OPcache
- Debugging with Xdebug
- Deployment with Docker
- CI/CD Basics
- PHP 8.x New Features:
  - Named Arguments
  - Match Expressions
  - Attributes
  - Constructor Property Promotion
  - Nullsafe Operator
  - Fibers

# MySql

## 1 MySQL Basics

- What is MySQL
- Installing MySQL
- Connecting to MySQL (CLI, PHPMyAdmin)
- MySQL Data Types
- MySQL Database Creation
- MySQL Table Creation
- Show Databases and Tables
- Basic SQL Syntax

## 2 CRUD Operationss

- CREATE Database and Tables
- INSERT Records
- SELECT Data
- UPDATE Records
- DELETE Records

### 3 MySQL Constraints

- Primary Key
- Foreign Key
- Unique Key
- Auto Increment
- Default Values
- Not Null Constraint

### 4 MySQL Clauses

- WHERE
- ORDER BY
- GROUP BY
- HAVING
- LIMIT
- DISTINCT

### 5 MySQL Operators

- Arithmetic Operators
- Comparison Operators
- Logical Operators (AND, OR, NOT)
- LIKE Operator
- IN Operator
- BETWEEN Operator



## 6 MySQL Functions

- String Functions (CONCAT, SUBSTRING, LENGTH, etc.)
- Numeric Functions (ROUND, CEIL, FLOOR, etc.)
- Date Functions (NOW, CURDATE, DATE\_ADD, etc.)
- Aggregate Functions (COUNT, SUM, AVG, MAX, MIN)

## 7 MySQL Joins

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN
- SELF JOIN
- CROSS JOIN

## 8 MySQL Aliases

- Column Alias
- Table Alias

## **9 MySQL Indexes**

- Creating Indexes
- Dropping Indexes
- Unique Index
- Composite Index

## **10 MySQL Views**

- Creating Views
- Updating Views
- Dropping Views

## **11 MySQL Transactions**

- START TRANSACTION
- COMMIT
- ROLLBACK
- Savepoints

## **12 MySQL Stored Procedures**

- Creating Stored Procedures
- Calling Stored Procedures
- Dropping Stored Procedures
- Using IN, OUT, INOUT Parameters

## **13 MySQL Stored Functions**

- Creating Functions
- Using Functions in Queries
- Dropping Functions

## **14 MySQL Triggers**

- Creating Triggers (BEFORE, AFTER INSERT/UPDATE/DELETE)
- Dropping Triggers

## **15 MySQL User Management & Security**

- Creating Users
- Granting Privileges
- Revoking Privileges
- Dropping Users
- Backup and Restore (mysqldump)

## 16 Advanced MySQL Topics

- Subqueries (Single Row, Multi Row, Correlated)
- MySQL Optimization Techniques:
  - Query Optimization
  - Index Optimization
  - EXPLAIN Usage
- MySQL Data Import and Export (LOAD DATA INFILE, SELECT INTO OUTFILE)
- Handling Large Datasets
- Partitioning Tables
- Replication (Basic Understanding)
- MySQL Performance Tuning
- MySQL with PHP (PDO and MySQLi)
- Using Transactions for Data Integrity
- Handling Deadlocks

# Laravel

## 1 Laravel Basics

- What is Laravel?
- Installing Laravel (Composer, Laravel Installer)
- Directory Structure
- Request Lifecycle
- Configuration & Environment Files (.env)
- Artisan CLI Basics
- Serving Laravel App (php artisan serve)

## 2 Routing

- Basic Routing (GET, POST, etc.)
- Route Parameters (Required, Optional)
- Named Routes
- Route Groups (Middleware, Prefix, Namespace)
- Route Model Binding (Implicit, Explicit)
- Fallback Routes

## 3 Controllers

- Creating Controllers (php artisan make:controller)
- Resource Controllers
- Invokable Controllers
- Dependency Injection in Controllers
- Controller Middleware

## 4 Middleware

- What is Middleware?
- Creating Middleware
- Registering Middleware
- Using Middleware in Routes/Controllers

## 5 Requests & Responsess

- Handling HTTP Requests
- Retrieving Input Data (request(), \$request->input())
- Request Validation
- Form Requests (php artisan make:request)
- Responses (JSON, Views, Redirects)
- Flash Messages (Session Flashing)

## 6 Blade Templating

- Blade Syntax ({{ }}, @if, @foreach, etc.)
- Template Inheritance (@extends, @section, @yield)
- Components and Slots
- Blade Includes (@include)
- Conditional Rendering
- Loops and Data Display

## 7 Database

- Database Configuration
- Running Migrations
- Creating Migrations (php artisan make:migration)
- Database Seeding (php artisan db:seed)
- Database Factories
- Query Builder
- Raw SQL Queries

## 8 Eloquent ORM

- What is Eloquent?
- Defining Models (php artisan make:model)
- Retrieving Data (all, find, where)
- Inserting & Updating Data
- Soft Deletes
- Relationships:
  - One to One
  - One to Many
  - Many to Many
  - Has Many Through
  - Polymorphic Relations
- Eager Loading
- Accessors & Mutators
- Casting Attributes

## 9 Authentication

- Laravel Breeze / Laravel UI
- Authentication Scaffolding
- Login, Registration, Password Reset
- Authentication Middleware
- Authorization:

- Gates
- Policies

## 10 Validation

- Request Validation
- Form Request Validation
- Custom Validation Rules
- Error Messages Customization

## 11 File Storage

- File Uploads
- Storage Facade & Disk Configuration
- Accessing & Downloading Files
- Deleting Files

## 12 API Development

- RESTful Controllers
- API Routes (routes/api.php)
- API Resource Responses
- API Authentication (Sanctum, Passport)
- Rate Limiting

## 13 Testing

- Feature Testing
- Unit Testing
- HTTP Tests (get, post, assertSee)
- Database Testing (In-memory SQLite)



## **14 Error Handling & Debugging**

- Handling Errors
- Custom Error Pages
- Logging (Log Levels, Channels)
- Debugging with Laravel Debugbar

## **15 Events & Listeners**

- Creating Events & Listeners
- Dispatching Events
- Event Queues
- Broadcasting Events

## **16 Queues & Jobs**

- Queue Configuration
- Creating Jobs
- Dispatching Jobs
- Queue Workers
- Failed Jobs Management

## 17 Notifications & Mail

- Sending Notifications (Mail, SMS, Slack)
- Mailables (php artisan make:mail)
- Markdown Emails
- Queueing Emails

## 18 Task Scheduling

- Setting Up Scheduler (schedule Method)
- Running Scheduler via Cron
- Scheduling Commands, Closures

## 19 Security

- CSRF Protection
- XSS Protection
- Hashing Passwords
- HTTPS & Secure Headers

## 20 Advanced Topics

- Service Providers
- Facades
- Dependency Injection
- Service Container
- Macros
- Package Development
- Localization & Translations
- Caching (File, Database, Redis, Memcached)
- API Rate Limiting
- Broadcasting with Pusher
- Laravel Mix (Asset Compilation)

- Using WebSockets
- Policies vs Gates in Authorization
- Advanced Eloquent (Scopes, Subqueries, Observers)

## **21 Deployment**

- Preparing for Deployment (php artisan config:cache, route:cache, view:cache)
- Environment Configuration
- Using Forge / Envoyer
- Deployment on Shared Hosting / VPS
- Database Migrations in Production