

**FACULTY OF COMPUTER APPLICATIONS
BCA**

- **Sem.** : 6
- **Subject Code** : 05BC0612
- **Subject** : Web Application Development Using Laravel
- **Course Objectives** :

1. **Understand** the fundamentals of the Laravel framework, including its setup, directory structure, and core components.
2. **Develop** web applications using Laravel's MVC architecture, routing, controllers, and Blade templating engine.
3. **Implement** front-end components, user input handling, form validation, and security mechanisms in Laravel applications.
4. **Manage** databases using Laravel's Eloquent ORM, query builder, migrations, and authentication features.
5. **Analyze and evaluate** Laravel's security features and database interactions to ensure efficient and secure web applications.

- **Prerequisites** :

Unit No	Topics Covered	No of Hours required
1	<p>Introduction to Laravel:</p> <ul style="list-style-type: none"> - Why Use a Framework? A Short History of Web and PHP Frameworks, What's So Special About Laravel?, How It Works, Why Laravel? 1. Create a simple route that returns "Hello, Laravel!" when accessed. 2. Create a controller that returns a view with a welcome message. 3. Create a products table with fields (id, name, price). 4. Create a ProductController with CRUD operations. 5. Create a form to submit product data and store it in the database. 6. Implement authentication in Laravel. 7. Create a middleware that only allows access to a route if the user is an admin. 	10

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	<p>8. Create a RESTful API to return product data.</p> <p>9. Create a form to upload an image and store it in the storage folder.</p> <p>10. Dispatch a job that processes a task asynchronously.</p>	
2	<p>Laravel Routes and Controllers:</p> <ol style="list-style-type: none"> 1. Routes define how Laravel responds to different HTTP requests. 2. Grouping routes allows applying middleware, prefixes, or namespaces to multiple routes. 3. Routes can return Blade views. 4. Controllers handle logic for routes. 5. Automatically fetch a model instance for a given ID. 6. Improve performance by caching routes. 7. HTML forms only support GET and POST, but Laravel allows other HTTP verbs. 8. Laravel protects against Cross-Site Request Forgery (CSRF) attacks. 9. Redirect users to a different route. 10. Laravel provides abort() to stop execution and return an error response. 11. Laravel provides helper functions for responses. 	10
3	<p>Blade Template Integration:</p> <ol style="list-style-type: none"> 1. Blade uses double curly braces ({{ }}) to echo data safely (HTML-escaped). 2. Blade provides if-else, switch, and loops. 3. Laravel Blade supports @for, @foreach, @while, and @forelse. 4. Blade allows reusable layouts using @extends, @section, and @yield. 5. Use @include to insert reusable components. 6. You can pass data from the controller to the Blade template. 7. Implement template integration. 8. Customize the existing template. 	08



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4	Front End Components and User Data : <ol style="list-style-type: none">1. Laravel Mix (previously Elixir) is a wrapper for Webpack, making front-end asset compilation simple.2. Laravel provides an easy way to paginate database results.3. Message bags help store validation messages or flash messages.4. Laravel provides many string helper functions.5. Laravel supports pluralization using the trans_choice() function.6. You can inject the Request object into your controller.7. Routes can pass parameters to controllers.8. Laravel makes file uploads simple.9. Laravel provides powerful validation methods.10. Instead of validating in controllers, use Form Requests.11. Eloquent allows mass assignment when using create().12. {{{ }} vs {!! !!} in Blade	10
5	Database Eloquent and User Authentication and Authorization: <ol style="list-style-type: none">1. Laravel uses Eloquent ORM for interacting with databases.2. Migrations help manage database structure using code instead of manually creating tables.3. Laravel allows inserting test data using seeders.4. Query Builder lets you run SQL queries using Laravel.5. Eloquent allows object-oriented database interactions.6. Eloquent provides lifecycle events like creating, updating, and deleting.7. Laravel provides built-in authentication with auth() helper and Auth Facade.	10

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	<p>8. You can authenticate users manually using the auth() helper or Auth facade.</p> <p>9. Restrict access to authenticated users.</p> <p>10.Laravel provides Gates and Policies for authorization.</p>	
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Course Outcomes:

CO#	CO Statement	Bloom's Level
CO1	Implement the Laravel framework by setting up the development environment and using Artisan commands.	L3: Apply
CO2	Apply routing, controllers, and Blade templating to develop structured web applications.	L3: Apply
CO3	Use front-end components, user data handling, and validation techniques in Laravel applications.	L3: Apply
CO4	Analyze database operations, query building, migrations, and authentication mechanisms in Laravel.	L4: Analyze
CO5	Evaluate the security and efficiency of Laravel-based applications through authentication and database management.	L5: Evaluate

Course Outcomes – Program Outcomes Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	M	M	H	L		M		M	M	H	H
CO2	M	H	H	M	M	M		M	M	H	H

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CO3	M	M	H	M	M	M		M	M	H	H
CO4		H	H	M	M	H	M	M	H	H	H
CO5		H	H	M	M	H	M	H	H	H	H

Text Book:

1. "LARAVEL Up and Running, A framework for building modern PHP Apps", Matt Stauffer, O'REILLY (ISBN: 978-1-491-93608-5), 1st Edition

Reference Books:

1. "Laravel 5 Essentials", Martin Bean, Packet Publishing, ISBN 978-1-78528-301-7, Latest Edition
2. "Hands-On Full-Stack Web Development with Angular 6 and Laravel 5 ", Fernando Monteiro, Packt Publishing, ISBN 9781788833912, Latest Edition
3. Web Technologies: HTML, CSS3, JAVASCRIPT, jQuery, AJAX, PHP, XML, MVC and LARAVEL), Black Book, Dreamtech, 2018 Edition, ISBN 9789386052490

Web References:

1. Online Laravel 8 Documentation (<https://laravel.com/docs/8.x>)
2. <https://laravel-news.com/category/tutorials>
3. <https://www.tutorialspoint.com/laravel>

App References:

1. Learn Laravel Tutorial - Android App
2. Laravel Tutorial - Android App

Syllabus Coverage from text /reference book & web/app reference:

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Unit #	Chapter Numbers
1	1,2,7
2	3,4
3	5,6
4	8,9
5	10, 13