

Structured Design Document: CMS Architecture

This document outlines the architectural design, system components, and data flow of the CakePHP CMS application.

1. System Architecture

The application uses an N-Tier architecture with a clear separation between the presentation, business logic, and data access layers.

Presentation Layer

Component Layer

Application Layer

User

Web Server / XAMPP

CakePHP Application

Middleware Pipeline

Router

Controllers

Components: Authentication, Flash

Model Tables: ORM

MySQL Database

Templates/ .php

Cells/Elements

2. Request Handling & Authentication Flow

Data flow for a typical request, illustrating the authentication and prefix-based routing.

Database

Controller (Admin Prefix)

Router

AuthMiddleware

User

Database

Controller (Admin Prefix)

Router

AuthMiddleware

User

alt

[Not Authenticated]

[Authenticated]

Request /admin/pages

Check Prefix == 'Admin'

Validate Identity

Redirect to /admin/users/login

Forward to Router

Invoke PagesController::index()

Fetch Pages Data

Data Result

Render Admin Layout + View

3. Data Design Patterns

MVC (Model-View-Controller): The core pattern ensuring separate concerns for logic, data, and UI.

Repository Pattern (via ORM): Each database table (e.g.,
Menus

,
Pages

) is represented by a

Table

class that encapsulates data access logic.

Middleware Pattern: A chain of responsibility where each layer (Security, Auth, Visitor Counter) processes the request sequentially before it reaches the controller.

Identity Pattern: The

Authentication

component identifies the current user and makes it available system-wide.

4. Class Relationship Diagram

uses

associates

1

n

AppController

+beforeRender()

+initialize()

AdminAppController

+initialize()

UsersController

+login()

+logout()

MenusController

+mainIndex()

+updateOrder()

MenusTable

+belongsTo MenuCategories

+hasMany Pages

PagesTable

+belongsTo Menus

+hasMany Galleries

5. Directory Mapping

Directory Role Key Files

src/Middleware Interceptors AuthMiddleware.php, VisitorCounterMiddleware.php

src/Controller Logic AppController.php (Public), Admin/UsersController.php (Private)

src/Model/Table Data MenusTable.php, PagesTable.php

templates UI layout/layout.php (Admin), layout/default.php (Frontend)

TIP

Converting to PDF:

Open this file in VS Code.

Press Ctrl+Shift+P and type Markdown: Open Preview.

Use an extension like Markdown PDF to export directly.

Alternatively, you can copy the markdown content into a tool like Dillinger.io and export as PDF.