



Republic of the Philippines  
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Date: 12-17-2024

Yr/Section: BSICT 3A – 1

Subject: ITE – 315

# FINAL LAB EXERCISES COMPILATION

## MODELS AND DATABASE MIGRATIONS

### Database Configuration

*Objective: Set up database configurations in Laravel.*

```
DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=lrc_project
DB_USERNAME=root
DB_PASSWORD=
```

```
PS C:\Users\Kiteb\OneDrive\Desktop\lrc_project> php artisan migrate:fresh

Dropping all tables ..... 197.01ms DONE

INFO: Preparing database.

0001_01_01_000000_create_users_table ..... 147.90ms DONE
0001_01_01_000001_create_cache_table ..... 15.47ms DONE
0001_01_01_000002_create_jobs_table ..... 68.18ms DONE
2024_11_20_141927_create_admins_table ..... 35.12ms DONE
2024_11_20_142819_create_personal_access_tokens_table ..... 48.90ms DONE
2024_11_20_143859_create_students_table ..... 23.32ms DONE
2024_11_20_143922_create_attendances_table ..... 106.83ms DONE
2024_11_27_213337_create_rooms_table ..... 55.98ms DONE
2024_11_27_213344_create_room_bookings_table ..... 197.72ms DONE
```

This is our database configuration for the project. We ran `php artisan migrate` to migrate the project's tables into MySQL.

#### LRC Management System

##### Members:

Enario, Mharjade

Gales, Dy Mark

Eguna, Dimple Kay

Dela Cruz, Cyrille Kim

## Migration and Schema Builder

*Objective: Create and manage database tables using Laravel migrations.*

```
● mharjadeenorio@Mhars-MacBook-Air lrc_project % php artisan make:migration reports_table  
INFO Migration [database/migrations/2024_12_11_104800_reports_table.php] created successfully.  
○ mharjadeenorio@Mhars-MacBook-Air lrc_project %
```

```
use Illuminate\Database\Migrations\Migration;  
use Illuminate\Database\Schema\Blueprint;  
use Illuminate\Support\Facades\Schema;  
  
return new class extends Migration  
{  
    /**  
     * Run the migrations.  
     */  
    public function up(): void  
    {  
        Schema::create(table: 'users', callback: function (Blueprint $table): void {  
            $table->id();  
            $table->string(column: 'name');  
            $table->string(column: 'email')->unique();  
            $table->timestamp(column: 'email_verified_at')->nullable();  
            $table->string(column: 'password');  
            $table->rememberToken();  
            $table->timestamps();  
        });  
  
        Schema::create(table: 'password_reset_tokens', callback: function (Blueprint $table): void {  
            $table->string(column: 'email')->primary();  
            $table->string(column: 'token');  
            $table->timestamp(column: 'created_at')->nullable();  
        });  
  
        Schema::create(table: 'sessions', callback: function (Blueprint $table): void {  
            $table->string(column: 'id')->primary();  
            $table->foreignId(column: 'user_id')->nullable()->index();  
            $table->string(column: 'ip_address', length: 45)->nullable();  
            $table->text(column: 'user_agent')->nullable();  
            $table->longText(column: 'payload');  
            $table->integer(column: 'last_activity')->index();  
        });  
    }  
  
    /**  
     * Reverse the migrations.  
     */  
    public function down(): void  
    {  
        Schema::dropIfExists(table: 'users');  
        Schema::dropIfExists(table: 'password_reset_tokens');  
        Schema::dropIfExists(table: 'sessions');  
    }  
};
```

This is one of the tables from our project, provided as an example to illustrate the structure and organization of the data within our database. It highlights how we designed and implemented the table to align with the project's requirements.

## Database Seeding

### LRC Management System

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*Objective: Populate the database with sample data.*

```
mharjadeenorio@Mhars-MacBook-Air lrc_project % php artisan db:seed StudentSeeder
```

```
INFO Seeding database.
```

```
mharjadeenorio@Mhars-MacBook-Air lrc_project %
```

```
mharjadeenorio@Mhars-MacBook-Air lrc_project % php artisan make:seeder StudentSeeder
```

```
INFO Seeder [database/seeder/StudentSeeder.php] created successfully.
```

```
mharjadeenorio@Mhars-MacBook-Air lrc_project %
```

```
<?php

namespace Database\Seeders;

use App\Models\Student;
use Illuminate\Database\Seeder;

1 reference | 0 implementations
class StudentSeeder extends Seeder
{
    0 references | 0 overrides
    public function run(): void
    {
        $courses = [
            'BSIT' => 'Bachelor of Science in Information Technology',
            'BSCS' => 'Bachelor of Science in Computer Science',
            'BSIS' => 'Bachelor of Science in Information Systems',
            'BSCE' => 'Bachelor of Science in Civil Engineering',
            'BSA' => 'Bachelor of Science in Accountancy'
        ];

        $yearLevels = ['1st Year', '2nd Year', '3rd Year', '4th Year'];

        $students = [
            [
                'school_id' => '2024-0001',
                'first_name' => 'John',
                'last_name' => 'Smith',
                'middle_initial' => 'D',
                'course' => 'BSIT',
                'year_level' => '3rd Year',
                'contact_number' => '09123456789',
                'email' => 'john.smith@example.com'
            ],
            [
                'school_id' => '2024-0002',
                'first_name' => 'Maria',
                'last_name' => 'Santos',
                'middle_initial' => 'C',
                'course' => 'BSCS',
                'year_level' => '2nd Year',
                'contact_number' => '09234567890',
                'email' => 'maria.santos@example.com'
            ],
            [
                'school_id' => '2024-0003',
                'first_name' => 'Michael',
                'last_name' => 'Johnson',
                'middle_initial' => 'R',
                'course' => 'BSIS',
                'year_level' => '1st Year',
                'contact_number' => '09345678901',
                'email' => 'michael.johnson@example.com'
            ],
        ];

        foreach ($students as $student) {
            Student::create(attributes: $student);
        }
    }
}
```

To enhance the functionality of our project, we seeded the database with sample data that is relevant and closely aligned with the project's requirements. This data helps simulate real-world scenarios and ensures that the application behaves as expected during development and testing.

#### **LRC Management System**

*Members:*

*Enario, Mharjade*

*Gales, Dy Mark*

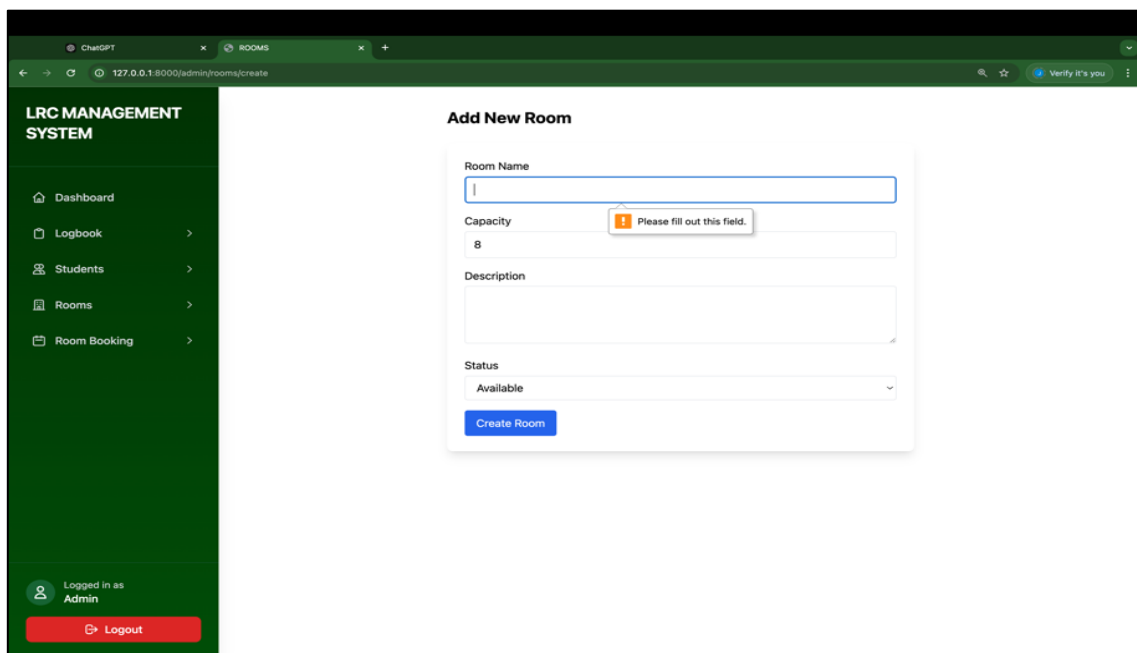
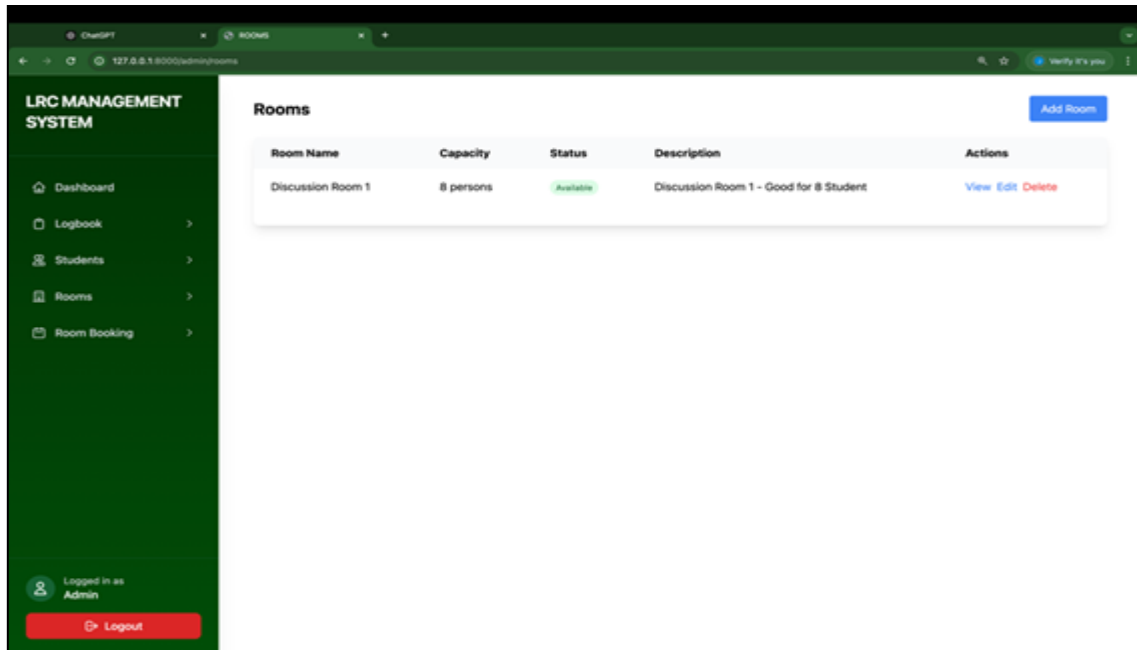
*Eguna, Dimple Kay*

*Dela Cruz, Cyrille Kim*

## MIDDLEWARE AND REQUEST HANDLING

### Handling and Validation

*Objective: Validate incoming requests for a form, ensuring proper data submission.*



We tested the forms by submitting both valid and invalid data. The validation rules worked as expected, successfully accepting valid inputs and displaying appropriate error messages for invalid inputs.

#### LRC Management System

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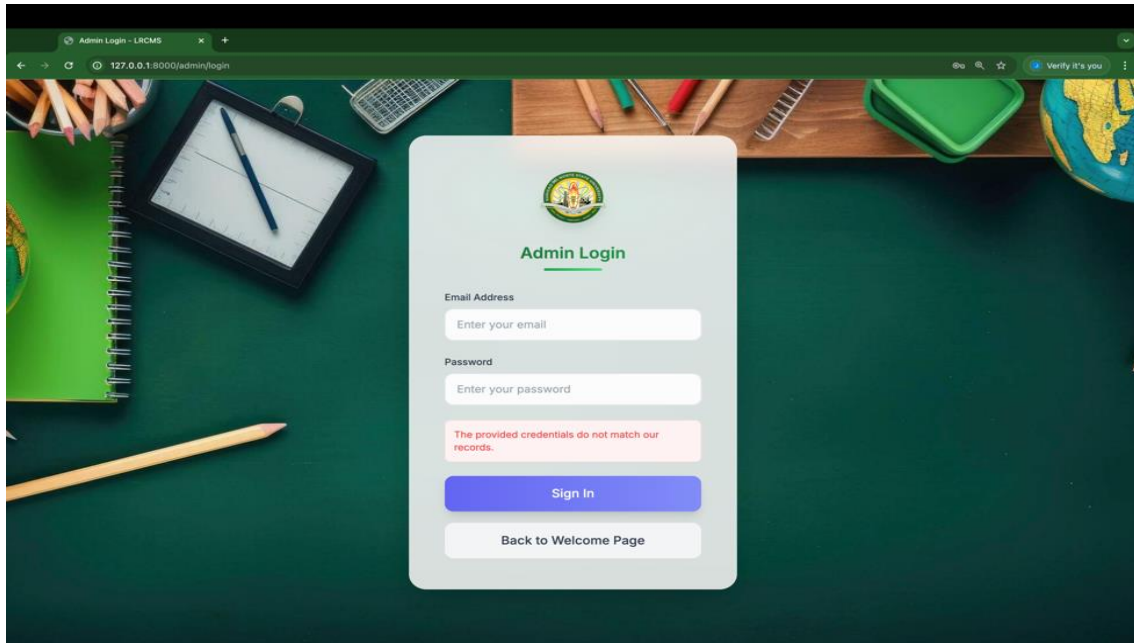
Eguna, Dimple Kay

Dela Cruz, Cyrille Kim

# AUTHENTICATION AND AUTHORIZATION IN LARAVEL

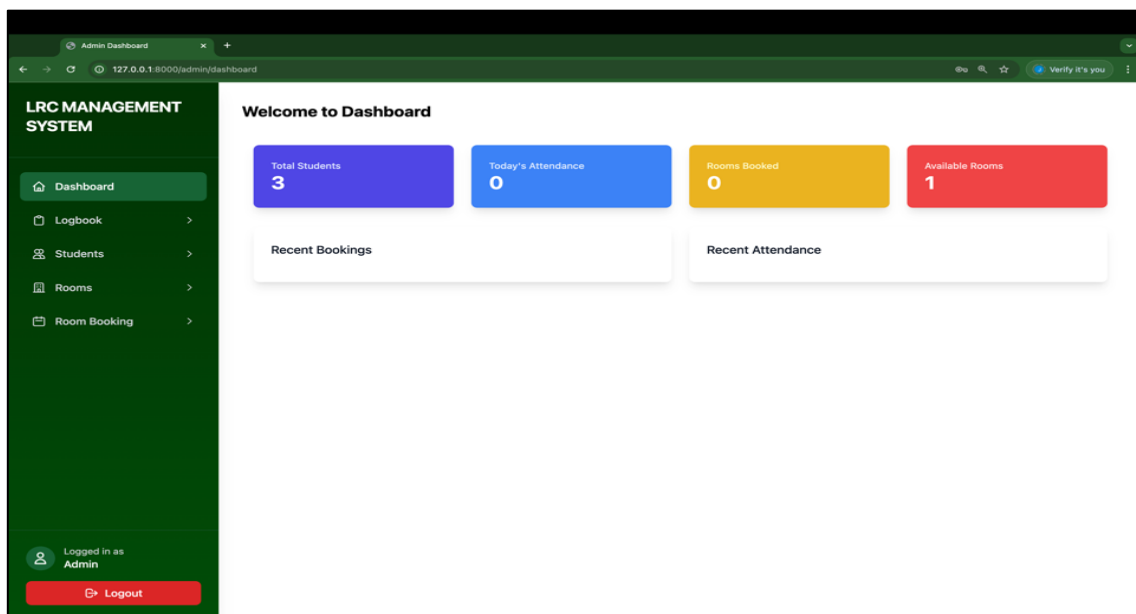
## Develop a Custom Authentication and Authorization System in Laravel

*Objective: Create a tailored authentication that meets the specific requirements of your system while implementing a robust role and permission framework for securing routes and resources.*



```
mharjadenario@Mhars-MacBook-Air lrc_project % php artisan db:seed AdminSeeder
```

**INFO** Seeding database.



We created a custom authentication system with roles and permissions to secure routes and resources effectively.

### LRC Management System

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## ELQUENT ORM AND QUERY BUILDER

Implement and Explore Eloquent ORM and Query Builder in Laravel

*Objective: To understand and utilize Laravel's Eloquent ORM and Query Builder for efficient database interactions and model relationships in your system.*

(Model Relationships)

```
<?php

namespace App\Models;

use Illuminate\Database\Eloquent\Model;
use Illuminate\Database\Eloquent\Factories\HasFactory;

class Student extends Model
{
    use HasFactory;

    protected $fillable = [
        'school_id',
        'first_name',
        'last_name',
        'middle_initial',
        'course',
        'year_level',
        'contact_number',
        'email'
    ];

    public function getFullNameAttribute()
    {
        return "{$this->first_name} " .
            ($this->middle_initial ? "{$this->middle_initial}. " : "") .
            $this->last_name;
    }

    public function attendances()
    {
        return $this->hasMany(Attendance::class);
    }
}
```

```
<?php

namespace App\Models;

use Illuminate\Database\Eloquent\Model;

class RoomBooking extends Model
{
    protected $fillable = [
        'room_id', 'student_id', 'date', 'time_in', 'time_out',
        'num_occupants', 'status', 'purpose'
    ];

    protected $casts = [
        'date' => 'date',
        'time_in' => 'datetime',
        'time_out' => 'datetime'
    ];

    public function room()
    {
        return $this->belongsTo(Room::class);
    }

    public function student()
    {
        return $this->belongsTo(Student::class);
    }
}
```

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## (Controllers and Routes Eloquent Interactions)

```
<?php

namespace App\Http\Controllers;

use App\Models\Room;
use App\Models\Student;
use App\Models\RoomBooking;
use Illuminate\Http\Request;
use Illuminate\Support\Facades\Log;
use Carbon\Carbon;

class RoomBookingController extends Controller
{
    public function index(Request $request)
    {
        $query = RoomBooking::with(['room', 'student'])->latest();

        if ($request->date) {
            $query->whereDate('date', $request->date);
        }

        if ($request->status) {
            $query->where('status', $request->status);
        }

        $bookings = $query->paginate(10);
        return view('admin.room-bookings.index', compact('bookings'));
    }

    public function create()
    {
        $rooms = Room::where('status', 'available')->get();
        return view('admin.room-bookings.create', compact('rooms'));
    }

    public function show(RoomBooking $booking)
```

```
<?php

use Illuminate\Http\Request;
use Illuminate\Support\Facades\Route;
use App\Http\Controllers\AttendanceController;
use App\Http\Controllers\StudentController;
use App\Http\Controllers\RoomBookingController;

Route::middleware('auth:sanctum')->get('/user', function (Request $request) {
    return $request->user();
});

// Attendance Routes
Route::prefix('attendance')->group(function () {
    // Get all attendance records or filtered by date
    Route::get('/', [AttendanceController::class, 'index']);

    // Record new attendance
    Route::post('/record', [AttendanceController::class, 'store']);

    // Export attendance to Excel
    Route::get('/export/excel', [AttendanceController::class, 'exportExcel']);

    // Export attendance to PDF
    Route::get('/export/pdf', [AttendanceController::class, 'exportPDF']);

    // Get today's attendance
    Route::get('/today', [AttendanceController::class, 'getTodayAttendance']);
});

// Student Routes
Route::prefix('api/students')->group(function () {
    Route::get('/search', [StudentController::class, 'search']);
    Route::get('/by-school-id', [StudentController::class, 'getBySchoolId']);
    Route::get('/verify', [StudentController::class, 'verifyStudent']);
});
```

We defined models and relationships for all major entities, ensuring a clear structure for data management. We optimized database interactions by utilizing both Query Builder and Eloquent for efficient querying. Additionally, Eloquent relationships were implemented and thoroughly tested to ensure proper functionality and data integrity.

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