**LMS Project Diary: Day 1 - Initial Development and Enhancements**

**Date:** December 19, 2024

**Project Overview**

The objective of this LMS project is to create a fully functional learning management system with SCORM support, user management, and role-based dashboards. Today’s focus was on setting up the user management system, including registration and login functionality, as a foundation for the project.

**Tasks Completed Today**

**1. Initial Project Setup**

* Created a Django project named LMS\_Project.
* Set up a custom user model (CustomUser) to support roles like Admin, Instructor, and Student.
* Configured AUTH\_USER\_MODEL in settings.py to use users.CustomUser.

**2. User Registration Functionality**

* Created a users/forms.py file to handle user registration using CustomUserCreationForm.
* Added a register view in users/views.py to process user registration.
* Defined the URL for registration in users/urls.py:
* path('register/', views.register, name='register')
* Created a register.html template to display the registration form.

**3. Login Functionality**

* Integrated Django’s built-in LoginView to handle user login.
* Updated users/urls.py to include the login URL:
* path('login/', auth\_views.LoginView.as\_view(template\_name='users/login.html'), name='login')
* Created a login.html template for the login form.

**4. Redirect After Login**

* Added LOGIN\_REDIRECT\_URL to settings.py to temporarily redirect users to /admin/ after login:
* LOGIN\_REDIRECT\_URL = '/admin/'

**5. Resolved Migration Issues**

* Fixed inconsistencies in migrations by resetting the database and reapplying migrations:
  + Deleted db.sqlite3 and migration files.
  + Recreated migrations for all apps.

**6. Tested Functionality**

* Verified user registration and login.
* Confirmed that the admin panel is functional for CustomUser management.

**Challenges Faced and Resolutions**

**1. Redirect to /accounts/profile/ After Login**

* **Issue:** Users were redirected to /accounts/profile/ after login.
* **Resolution:** Added LOGIN\_REDIRECT\_URL to settings.py to redirect users to /admin/ temporarily.

**2. Super Admin Authorization Issue**

* **Issue:** Admins were not authorized to access the /admin/ page after login.
* **Resolution Plan:** Create role-based dashboards and properly configure admin access.

**Next Steps**

**1. Implement Role-Based Dashboards**

* Create dashboards for Admin, Instructor, and Student roles.
* Redirect users to their respective dashboards after login based on their roles.

**2. Complete User Management Features**

* Add user profile update functionality.
* Implement password reset functionality.

**3. Set Up Course Management**

* Create a new courses app.
* Define models for courses and modules.
* Develop views and templates for course creation and listing.

**4. SCORM Integration Research**

* Investigate open-source SCORM players and libraries for integration.

**Files Created or Updated Today**

**New Files**

1. users/forms.py
2. users/urls.py
3. users/templates/users/register.html
4. users/templates/users/login.html

**Modified Files**

1. users/views.py: Added register view.
2. LMS\_Project/settings.py: Configured AUTH\_USER\_MODEL and LOGIN\_REDIRECT\_URL.
3. LMS\_Project/urls.py: Included users/urls.py.
4. users/admin.py: Registered the CustomUser model.

**Pending Tasks**

1. Define a strategy for role-based redirection after login.
2. Start developing the courses app.
3. Research SCORM integration for future implementation.

This document captures the progress made today and outlines the roadmap for subsequent days. Save this document to track future developments and provide context for subsequent discussions.

Updated 19/12/2024: 13:33

**Immediate Action Plan (Week 1–2)**

**1. Role-Based Redirection and Dashboards**

* **Task**: Implement logic for user redirection after login.
  + **SuperAdmin**: System-wide dashboard with global metrics.
  + **Admin**: Branch-specific metrics and tools.
  + **Instructor**: Assigned learners and courses overview.
  + **Learner**: Personalized dashboard with enrolled courses and progress tracking.
* **Outcome**: Ensure all roles land on their appropriate dashboards upon login.

**2. User Profile Management Enhancements**

* **Task**: Expand user profile features.
  + Add fields for timezone and language.
  + Enable group and branch assignments.
* **Outcome**: Enhance user management flexibility and personalization.

**3. Course Structure Refinements**

* **Task**: Extend the course model to include:
  + Unit sequencing (sequential or unordered).
  + Prerequisite learning paths.
  + Placeholder for SCORM content integration.
* **Outcome**: A foundational structure for advanced course management.

**4. Reporting Foundation**

* **Task**: Begin implementing basic reports.
  + User activity (e.g., logins, progress).
  + Course-level metrics (completion rates, assigned users).
* **Outcome**: Functional reporting system to track key metrics.

**Next Steps**

1. **Start Development**:
   * Begin with role-based redirection and dashboards.
   * Simultaneously extend user and course models.
2. **Track Progress**:
   * Provide updates at key milestones (e.g., dashboard completion, enhanced models).
3. **Prepare for Review**:
   * Deliver a functional demo of the implemented features for review.

Updated 19/12/2024: 15:07

**What’s Working:**

1. **Role-Based Redirection:**
   * Users are being routed to the correct dashboard based on their assigned role.
   * SuperAdmin: /users/dashboard/superadmin/
   * Admin: /users/dashboard/admin/
   * Instructor: /users/dashboard/instructor/
   * Learner: /users/dashboard/learner/
2. **Admin Panel:**
   * Roles are editable through the Django admin interface, allowing for seamless role assignment.

**Updated 19/12/2024: 18:00**

### LMS Project Diary: Day 1 - Initial Development and Enhancements

**Date:** December 19, 2024

#### ****Project Overview****

The objective of this LMS project is to create a fully functional learning management system with SCORM support, user management, and role-based dashboards. Today’s focus was on setting up the user management system, implementing role-based redirection, and creating initial dashboards for each role as a foundation for the project.

#### ****Tasks Completed Today****

1. **Role-Based Redirection Implementation**
   * Added logic to redirect users to their respective dashboards based on roles.
   * Roles implemented: SuperAdmin, Admin, Instructor, Learner.
   * Tested and confirmed the following redirections:
     + **SuperAdmin**: /users/dashboard/superadmin/
     + **Admin**: /users/dashboard/admin/
     + **Instructor**: /users/dashboard/instructor/
     + **Learner**: /users/dashboard/learner/
2. **Enhanced CustomUser Model**
   * Updated CustomUser model to include:
     + role field with options: SuperAdmin, Admin, Instructor, Learner.
     + Default role set to Learner for new users.
   * Configured users/admin.py to allow role editing directly through the Django Admin Panel.
3. **SuperAdmin Dashboard Development**
   * Created a basic dashboard for the SuperAdmin role:
     + Displays total users and active courses.
     + Template located at users/templates/users/superadmin/dashboard.html.
   * Updated views.py to fetch system-wide data for the SuperAdmin dashboard.
4. **Database Initialization and Testing**
   * Verified SQLite database creation.
   * Initialized test data for all roles and confirmed functionality:
     + Created users for SuperAdmin, Admin, Instructor, and Learner roles.
   * Queried database to verify user roles and assignments.
5. **Settings and URL Configuration**
   * Updated settings.py to include:
     + LOGIN\_REDIRECT\_URL = '/redirect/' to enable role-based redirection.
     + Custom user model (AUTH\_USER\_MODEL = 'users.CustomUser').
   * Updated users/urls.py to include dashboard routes for all roles.
   * Updated LMS\_Project/urls.py to correctly map /redirect/ and root paths.

#### ****Challenges Faced and Resolutions****

1. **Default Role Issue**
   * **Issue:** Users created through the admin panel defaulted to the Learner role.
   * **Resolution:** Updated users/admin.py to allow role editing during user creation and modification.
2. **404 Error for /redirect/**
   * **Issue:** Role-based redirection route was not recognized.
   * **Resolution:** Added /redirect/ route in LMS\_Project/urls.py and verified functionality.
3. **Initial Dashboard Testing**
   * **Issue:** SuperAdmin dashboard displayed placeholder content.
   * **Resolution:** Updated the views.py to fetch real data (total users and active courses).

#### ****Files Created or Updated Today****

**New Files:**

* users/templates/users/superadmin/dashboard.html: SuperAdmin dashboard template.

**Modified Files:**

* users/models.py: Updated CustomUser model with role field.
* users/admin.py: Configured role editing in the admin panel.
* users/views.py: Added SuperAdmin dashboard and role-based redirection logic.
* users/urls.py: Added routes for role-based dashboards and redirection.
* LMS\_Project/settings.py: Updated LOGIN\_REDIRECT\_URL.
* LMS\_Project/urls.py: Included /redirect/ and root path routing.

#### ****Immediate Action Plan (Week 1–2)****

1. **Enhance Dashboards**
   * Replace plain HTTP responses for Admin, Instructor, and Learner dashboards with templates.
   * Populate dashboards with relevant data:
     + **Admin**: Branch-specific stats for users and courses.
     + **Instructor**: Assigned courses and learner progress.
     + **Learner**: Enrolled courses and progress tracking.
2. **User Profile Management Enhancements**
   * Add fields for timezone and language.
   * Enable group and branch assignments.
3. **Course Structure Refinements**
   * Extend the Course model to include:
     + Prerequisite learning paths.
     + Placeholder for SCORM content integration.
4. **Reporting Foundation**
   * Begin implementing basic reports:
     + User activity (e.g., logins, progress).
     + Course-level metrics (e.g., completion rates).

#### ****Pending Tasks****

1. **Dashboard Enhancements:**
   * Design templates for Admin, Instructor, and Learner dashboards.
   * Integrate dynamic data into templates.
2. **Course Management Features:**
   * Create views and templates for course creation and listing.
3. **SCORM Integration Research:**
   * Investigate open-source SCORM players and libraries.
4. **Reports:**
   * Draft user and course-level reports.

#### ****What’s Working****

1. **Role-Based Redirection:**
   * Users are redirected to the correct dashboard based on their role.
2. **SuperAdmin Dashboard:**
   * Displays total users and active courses.
3. **Admin Panel:**
   * Roles are editable through the Django admin interface, ensuring flexibility in user management.

Updated 19/12/2024: 22:34

### ****Summary of Today's Activities****

#### ****1. Branch Management****

* Implemented the Branch model with fields and relationships.
* Integrated the Branch model into the CustomUser and Course models.
* Populated branches (Branch A, Branch B) and assigned them to users and courses in the admin panel.

#### ****2. Admin Dashboard****

* Fixed the **Admin Dashboard** to display branch-specific data.
* Created a working template for the Admin Dashboard.

#### ****3. Manage Courses Link****

* Created courses/urls.py and linked it to the main urls.py.
* Added a course\_list view to list all courses with their branches.
* Created a template (course\_list.html) to display courses, which is now fully functional.

#### ****4. Manage Users Link****

* Added a user\_list view in users/views.py to display all users.
* Created a users/urls.py to route the Manage Users link.
* Designed a functional template (user\_list.html) to display users with roles and branches.

#### ****5. General Fixes and Enhancements****

* Fixed template errors by adapting Django’s template syntax (if-else logic).
* Verified that all links (Admin Panel, Manage Courses, Manage Users) are operational.

**Updated 20/12/2024: 11:11**

**Summary of Work Completed Today**

1. **Instructor and Learner Dashboards:**
   * Implemented and tested the Instructor and Learner dashboards.
   * Instructor Dashboard:
     + Displays courses assigned to the instructor.
     + Lists enrolled learners for the assigned courses.
   * Learner Dashboard:
     + Displays courses in which the learner is enrolled.
2. **Logout Functionality:**
   * Added a **Logout** link to all dashboards (SuperAdmin, Admin, Instructor, Learner).
   * Verified logout redirects users to the login page.
3. **Role-Based Access:**
   * Ensured role-based access works correctly for all dashboards.
   * Tested with various users (SuperAdmin, Admin, Instructor, Learner) and verified they land on the appropriate dashboards.
4. **Testing and Debugging:**
   * Debugged role-related and logout-related issues.
   * Verified correct functionality through terminal logs.
5. **Preparation for Next Steps:**
   * Agreed to focus on adding multiple content types to courses, including SCORM, in the next session.

**Updated 20/12/2024: 13:21**

### ****LMS Project Update: December 20, 2024****

#### ****Summary of Work Completed****

1. **Course Content Management:**
   * Enhanced the Course model to support multiple content types (SCORM, Video, Document) and file uploads.
   * Added fields:
     + content\_type (choices: SCORM, Video, Document).
     + content\_file for storing uploaded content.
2. **Frontend Functionality:**
   * Created a form (CourseForm) for uploading course content.
   * Developed an upload page (/courses/upload/) with a user-friendly form for content submission.
   * Added a course listing page (/courses/) to display all courses.
3. **Backend Integration:**
   * Updated courses/views.py:
     + upload\_content view to handle file uploads and form submissions.
     + course\_list view to fetch and display courses.
   * Updated courses/urls.py to include routes for upload\_content and course\_list.
4. **Admin Panel Enhancements:**
   * Updated courses/admin.py to support content management via the admin interface:
     + Display content type and file fields.
     + Added filters for easy navigation.

#### ****Testing and Validation****

1. Verified the following:
   * Courses are listed correctly on /courses/.
   * Content is uploaded successfully at /courses/upload/ and linked to the corresponding course.
   * Admin panel reflects all course updates.
2. Tested with various content types:
   * SCORM ZIP package.
   * Video file (MP4).
   * Document file (PDF).
3. Confirmed all functionalities via terminal logs and browser testing.

#### ****Next Steps****

1. **SCORM Integration:**
   * Research open-source SCORM players for rendering and tracking SCORM content in the LMS.
   * Design a viewer interface for SCORM playback.
2. **Dashboard Enhancements:**
   * Display uploaded content on Instructor and Learner dashboards.
   * Provide options for interacting with uploaded content.
3. **File Validation:**
   * Add validation to ensure SCORM uploads are valid ZIP packages.

**Updated 20/12/2024:16:00**

### ****LMS Project Update: December 20, 2024****

#### ****Summary of Work Completed Today****

1. **Laravel Project Setup:**
   * Created a new Laravel project (scorm-lms) using the Laravel installer.
   * Configured the application for SQLite with the database located at /Users/harikrishnan/LMS\_Project/Scorm/scorm-lms/database/db.sqlite3.
   * Installed necessary dependencies using Composer and built frontend assets using npm.
2. **Integration of EscolaLMS SCORM Package:**
   * Installed the escolalms/scorm package via Composer with all dependencies.
   * Verified and manually copied SCORM migration files from vendor/escolalms/scorm/database/migrations to database/migrations.
3. **Database Migrations:**
   * Ran Laravel migrations for core application tables, OAuth, and SCORM-related tables.
   * Addressed issues with pending migrations by debugging and ensuring all SCORM-related migration files were included.
4. **Handling Deprecation Warnings:**
   * Encountered deprecation warnings for nesbot/carbon but confirmed these don’t affect functionality for now.

#### ****Next Steps****

1. Confirm migration completion and verify that SCORM-related tables (scorm, scorm\_sco, etc.) exist in the database.
2. Seed the database with sample SCORM data using:

bash

Copy code

php artisan db:seed --class="EscolaLms\Scorm\Database\Seeders\DatabseSeeder"

php artisan db:seed --class="EscolaLms\Scorm\Database\Seeders\PermissionTableSeeder"

1. Start the Laravel development server and test SCORM functionality:
   * **Upload SCORM packages** via /api/admin/scorm/upload.
   * **Play SCORM content** via /api/scorm/play/{uuid}.
2. Integrate SCORM functionality into the LMS project (e.g., dashboards for uploading and interacting with SCORM content).

Updated 20/12/2024 : 22:42

### ****Summary of Work Completed****

#### ****1. Laravel Project Setup****

* A new Laravel project (scorm-lms) has been created.
* SQLite has been configured as the database, and required dependencies installed using Composer.
* SCORM functionality integrated with the EscolaLMS\Scorm package.

#### ****2. Database Migrations****

* The majority of migration issues have been resolved:
  + scorm and related tables such as scorm\_sco\_models have been created.
  + users, categories, and OAuth tables (oauth\_access\_tokens, oauth\_auth\_codes, and oauth\_clients) have been created successfully.
  + Duplicate table conflicts have been resolved by adding Schema::hasTable() checks to migrations.

#### ****3. SCORM Functionality****

* SCORM metadata is seeded in the database (scorm table) with sample data.
* SCORM play endpoint (/api/scorm/play/{id}) is implemented and functional for retrieving SCORM metadata.

#### ****4. Deprecation Warnings****

* Carbon library deprecation warnings have been addressed:
  + error\_reporting in php.ini updated to suppress deprecated warnings.
  + Alternatively, the Carbon library was updated via Composer.

### ****Pending Work / Next Steps****

1. **Fix Remaining Migration Issues**:
   * Resolve the oauth\_refresh\_tokens migration conflict using Schema::hasTable() or mark the migration as completed.
2. **SCORM Playback Testing**:
   * Test the SCORM launch URLs for valid packages via the /api/scorm/play/{id} endpoint.
   * Ensure SCORM content renders in an iframe.
3. **SCORM Integration in Dashboards**:
   * Extend the admin dashboard to allow SCORM package uploads and management.
   * Add a SCORM playback feature to the learner interface.
4. **Role-Specific Dashboards**:
   * Finalize data display for SuperAdmin, Admin, Instructor, and Learner dashboards.
5. **Reporting and Progress Tracking**:
   * Implement progress tracking for SCORM runtime data (e.g., user scores, completion status).
   * Build reporting tools for Admins and SuperAdmins.

**Updated 20/12/2024: 23:38**

### ****Latest Project Update for Diary****

#### ****Summary of Work Completed****

1. **Migration Conflicts Resolved**:
   * Successfully resolved migration conflicts for key OAuth-related tables (oauth\_clients, oauth\_personal\_access\_clients, oauth\_access\_tokens, and others).
   * Verified that all migrations are applied, and the database schema matches expectations.
2. **Database Integrity Confirmed**:
   * Validated table structures for oauth\_clients, oauth\_personal\_access\_clients, and oauth\_access\_tokens.
   * All tables exist with the correct schema and are ready for use.
3. **SCORM Integration Preparation**:
   * Confirmed readiness to test /api/scorm/play/{id} endpoint.
   * Validated SCORM-related tables and sample data availability in the database.

#### ****Next Steps****

1. **Test SCORM Functionality**:
   * Test /api/scorm/play/{id} to retrieve SCORM metadata.
   * Validate SCORM playback using the launch\_url returned by the API.
2. **SCORM Dashboard Integration**:
   * Add SCORM package management functionality to the admin dashboard.
   * Enable learners to access SCORM content directly via their dashboards.
3. **Reporting Implementation**:
   * Begin implementing progress tracking and runtime reporting for SCORM packages.

**Updated 21/12/2024: 01:49**

### ****Detailed Update on Progress and Issues****

#### ****Summary****

1. **Objective**: Resolve migration and database schema issues in the LMS project, specifically for the courses app and SCORM model.
2. **Issue**: The courses\_scorm table is not being created in the database due to inconsistencies between Django’s migration history and the actual database schema.
3. **Current Status**:
   * Despite multiple strategies, the database remains inconsistent.
   * Migrations for the courses app are marked as applied, but the corresponding tables do not exist in SQLite.

### ****Steps Taken****

1. **Fake-Reset Migrations**:
   * Marked all migrations for the courses app as applied using the --fake flag.
   * Reapplied migrations, but the tables were not created.
2. **Manual Database Updates**:
   * Dropped courses\_course and courses\_scorm tables manually in SQLite.
   * Attempted to reapply migrations, but migrations were skipped because they were marked as applied (FAKED).
3. **Full Database Reset**:
   * Deleted the SQLite database file.
   * Recreated the database and reapplied migrations.
   * Despite successful migration commands, the tables were still not created.
4. **SCORM Data Attempts**:
   * Successfully added SCORM data in the Django shell, but it could not persist because the courses\_scorm table was missing.

### ****Proposed Plan****

1. **Rebuild Migrations**:
   * Delete all migration files for the courses app and recreate them to ensure they reflect the current state of the models.
   * Apply migrations from scratch.
2. **Verify Schema**:
   * Confirm that the courses\_course and courses\_scorm tables exist in the database after migrations.
3. **Add Data and Test Endpoint**:
   * Add SCORM data via the Django shell and verify persistence in the database.
   * Test the /courses/scorm/play/1 endpoint to confirm functionality.
4. **Fallback Plan**:
   * Use a fresh database if migration inconsistencies persist.

### ****Key Learnings****

* Migrations and database schema synchronization require a structured reset when inconsistencies arise.
* Fake-applied migrations (--fake) can cause further issues if tables are not manually managed.

**Update 21/12/2024:14:01 – Details of issues and lesson learned with SCORM Player implementation.**

### ****SCORM Player Implementation Audit****

#### ****Progress Analysis****

1. **SCORM Metadata Integration**:
   * SCORM table (scorm) and related database setup were completed.
   * Metadata seeding: Sample SCORM data inserted, and /api/scorm/play/{id} endpoint implemented for metadata retrieval.
   * SCORM package details, including launch\_url, verified in the database.
2. **SCORM Play Endpoint**:
   * The /api/scorm/play/{id} endpoint is functional and returns SCORM metadata in JSON format.
   * SCORM metadata includes title, description, launch\_url, and other details necessary for playback.
3. **SCORM Playback**:
   * Attempted to integrate SCORM playback via the launch\_url in an iframe.
   * Encountered SQL errors during testing (e.g., missing or conflicting tables like scorm\_sco\_models).
4. **Database Challenges**:
   * Multiple redundant migrations for SCORM and OAuth-related tables caused confusion and conflicts.
   * Schema::hasTable() checks added to prevent table recreation, but the process was fragmented due to overlapping files.
5. **Testing and Validation**:
   * While /api/scorm/play/{id} was tested for metadata retrieval, SCORM package playback in a browser via iframe remains incomplete.

#### ****Gaps Identified****

1. **Fragmented Database Setup**:
   * Redundant migration files led to inconsistencies in the database schema.
   * Overlapping migrations for OAuth-related tables complicated the migration process.
2. **SCORM Playback Logic**:
   * The launch\_url was returned correctly, but the actual playback implementation was not validated in a browser.
   * Dependencies for SCORM runtime tracking (e.g., SCORM.js or LMS APIs) were not fully integrated.
3. **Testing**:
   * Limited end-to-end testing of SCORM playback, especially in handling SCORM runtime APIs (e.g., completion status, scores).
4. **Error Management**:
   * SQL errors (e.g., "no such table: scorm\_sco\_models") indicated missing or incomplete table creation during migration.

#### ****Lessons Learned****

1. **Migration Planning**:
   * Plan and consolidate migrations to avoid duplication and redundancy.
   * Use descriptive and consistent naming conventions for migration files.
2. **Integration Dependencies**:
   * Ensure all SCORM player dependencies (e.g., SCORM.js, runtime APIs) are installed and configured before testing.
   * Validate SCORM playback functionality early in development.
3. **Testing and Validation**:
   * Implement a checklist for database setup, endpoint validation, and SCORM playback testing.
   * Use sample SCORM packages to test runtime tracking and reporting (e.g., progress, scores).
4. **Error Handling**:
   * Implement logging for SQL errors and SCORM runtime failures to diagnose issues faster.
   * Verify all tables referenced in the application exist in the database.

### ****Next Steps for SCORM Player Implementation****

If a redo is necessary, here's how to proceed:

1. **Audit Database Schema**:
   * Use php artisan migrate:status and SQLite shell to confirm the existence and structure of required tables (e.g., scorm, scorm\_sco\_models).
   * Remove redundant migration files and fix incomplete migrations.
2. **Revisit SCORM Dependencies**:
   * Confirm SCORM.js or any other runtime dependency is correctly integrated.
   * Validate SCORM package structure and compatibility with the player.
3. **End-to-End SCORM Testing**:
   * Test /api/scorm/play/{id} for metadata retrieval.
   * Use the launch\_url to load SCORM packages in an iframe and validate playback.
4. **Implement Runtime Tracking**:
   * Integrate SCORM runtime APIs to track learner progress, scores, and completion status.
   * Store runtime data in the database for reporting.
5. **Documentation and Lessons Learned**:
   * Document the issues faced and their resolution to avoid similar pitfalls in the future.
   * Use this documentation to streamline future SCORM integrations.

**Updated : Solution discussion 21/12/2024:14:12**

### ****Strategic Options to Move Forward****

#### ****Option 1: Review and Refine Current Architecture and Database Schema****

**Objective**: Establish a robust foundation for SCORM player integration by auditing and refining the current architecture and database schema.

**Key Actions**:

1. **Audit the Current Architecture**:
   * Review all implemented features and dependencies.
   * Confirm alignment with SCORM runtime requirements (e.g., SCORM 1.2/2004 compatibility).
   * Evaluate if the current architecture supports modularity and scalability.
2. **Database Schema Validation**:
   * Ensure all required SCORM tables (e.g., scorm, scorm\_sco\_models) are correctly defined.
   * Consolidate redundant migrations and resolve conflicts.
   * Normalize the schema for better performance and maintainability.
3. **Set Up Clear Migration Processes**:
   * Consolidate overlapping migration files into a single logical migration per table.
   * Use descriptive naming conventions to identify future migrations easily.
4. **Integrate SCORM Dependencies**:
   * Confirm the EscolaLMS SCORM package is the right fit.
   * If SCORM.js or other runtime players offer better compatibility or features, consider integrating them instead.

**Benefits**:

* Establishes a strong foundation for SCORM functionality.
* Minimizes risks of future migration or dependency conflicts.
* Streamlines further development with a clean database structure.

**Risks**:

* Additional time investment in auditing and consolidating the schema.
* Possible delays in SCORM playback testing.

#### ****Option 2: Reattempt EscolaLMS SCORM Package Integration****

**Objective**: Mitigate risks and gaps identified earlier to ensure smooth SCORM player integration with the existing package.

**Key Actions**:

1. **Address Identified Gaps**:
   * Ensure all required tables are correctly created and populated (e.g., scorm\_sco\_models).
   * Test /api/scorm/play/{id} thoroughly for metadata and playback.
2. **Configure SCORM Runtime Environment**:
   * Verify if EscolaLMS SCORM package runtime APIs are functioning correctly.
   * Validate SCORM package compatibility with the EscolaLMS runtime.
3. **Conduct End-to-End Testing**:
   * Test SCORM playback in a controlled environment using sample SCORM packages.
   * Validate runtime tracking (e.g., progress, scores, and completion status).
4. **Iterate Based on Feedback**:
   * Document issues faced during integration.
   * Provide patches or enhancements to resolve identified problems.

**Benefits**:

* Leverages an existing solution without switching dependencies.
* Provides faster results if risks are mitigated effectively.

**Risks**:

* If EscolaLMS SCORM package has compatibility limitations, this approach might fail again.
* Time investment in fixing package-specific issues without guaranteed success.

#### ****Option 3: Explore Alternative SCORM Player Solutions****

**Objective**: Evaluate and integrate alternative SCORM player solutions that may better fit the project’s requirements.

**Alternative SCORM Players**:

1. **SCORM Cloud API**:
   * Cloud-based SCORM player offering tracking and reporting.
   * Offloads SCORM runtime handling to an external service.

**Pros**:

* + Reliable and scalable.
  + Minimal implementation effort.

**Cons**:

* + Recurring costs for API usage.
  + Dependency on external services.

1. **SCORM.js**:
   * Lightweight JavaScript-based SCORM runtime.

**Pros**:

* + Fully self-hosted, no external dependencies.
  + Compatible with SCORM 1.2 and 2004.

**Cons**:

* + Requires custom integration for backend tracking.

1. **Rustici Engine**:
   * Enterprise-grade SCORM runtime engine.

**Pros**:

* + Comprehensive feature set with robust tracking and reporting.
  + Supports xAPI and SCORM.

**Cons**:

* + Higher licensing costs.
  + Overhead in initial integration.

**Benefits**:

* Potentially more robust or compatible SCORM solutions.
* Opportunity to customize SCORM integration to meet specific needs.

**Risks**:

* Switching solutions could delay implementation.
* Higher costs or complexity in integrating new solutions.

### ****Recommended Approach****

Based on the lessons learned and gaps identified, the best approach would be a **hybrid of Option 1 and Option 2**:

1. **Step 1: Review and Refine Architecture**
   * Audit the database schema, consolidate migrations, and resolve conflicts.
   * Ensure a modular and scalable architecture that supports SCORM runtime tracking.
2. **Step 2: Reattempt EscolaLMS SCORM Integration**
   * Leverage the existing EscolaLMS SCORM package.
   * Conduct thorough testing and address gaps identified earlier.
   * Validate SCORM playback and runtime APIs in a sandbox environment.
3. **Step 3: Prepare for Alternative SCORM Solutions**
   * If EscolaLMS fails to meet expectations, have a contingency plan ready to integrate SCORM.js or SCORM Cloud API.

### ****Next Steps****

1. Conduct a database schema audit and consolidate migrations.
2. Reattempt EscolaLMS SCORM package integration with enhanced testing and validation.
3. Research and prepare for alternative SCORM player solutions if necessary.
4. Document all findings and issues for future reference.

Would you like to proceed with Step 1 (architecture and database audit), or focus on reattempting the SCORM integration directly?

**Updated 21/12/2024: 15:277**

Once the tables are properly created:

1. Update your project diary with findings and resolutions.
2. Proceed to EscolaLMS SCORM package integration testing (next step in the plan).

**Updated 21/12/2024: 19:15**

**Update Project Diary**

Now that the database and Django models are synchronized, and data can be successfully added:

1. Document the resolution and milestones achieved.
2. Highlight the steps taken to recreate the missing tables and resolve schema mismatches.

**Updated 21/12/2024: 19:17**

### ****Milestone Achieved: Database and Models Synchronized****

You have successfully:

1. Recreated the missing users\_customuser and users\_branch tables.
2. Resolved schema mismatches between Django models and the database.
3. Verified that data can be inserted and retrieved correctly in both Django and SQLite.

### ****Next Steps****

#### ****1. Update the Project Diary****

Document the milestone by including:

* Steps taken to recreate missing tables and resolve errors.
* Verification of successful data insertion and retrieval.

#### ****2. Test Additional Features****

1. Add more data using Django or SQLite to test the functionality further.
2. Test related models (e.g., users\_customuser) to ensure all features are functioning correctly.

#### ****3. Continue Development****

Proceed with implementing other features, such as:

* Testing courses\_scorm functionality.
* Building relationships between users\_customuser and courses\_course.

**Updated 21/12/2024: 19:40**

### ****Milestone Achieved: SCORM Metadata Inserted****

You have successfully:

1. Verified the courses\_scorm table schema.
2. Inserted SCORM metadata into the database.
3. Validated the data insertion with a SELECT query.

#### ****2. Document Progress****

1. Update the project diary to include:
   * Successful SCORM metadata insertion.
   * Verification steps and outcomes.

### ****Milestone Achieved: SCORM Metadata Integration Verified****

You have successfully:

1. Retrieved SCORM metadata using Django ORM.
2. Added a new SCORM package through Django.
3. Verified that SCORM records are stored and managed correctly.

### ****Next Steps****

#### ****1. Document Progress****

Update the project diary to include:

* Successful SCORM metadata integration.
* Steps taken to verify SCORM functionality using SQLite and Django.
* SCORM metadata records in the database.

#### ****2. Proceed to SCORM Playback Testing****

1. Validate the SCORM playback functionality by simulating the launch of SCORM packages using their launch\_url.
2. If you are using EscolaLMS tools, configure the SCORM player and test runtime functionality:
   * Launch SCORM packages.
   * Track progress, scores, and completion status.

### ****SCORM Playback Testing****

To test SCORM playback, we need to simulate the launch of SCORM packages and validate the following:

1. **SCORM Package Launch**:
   * Ensure the launch\_url works and the SCORM package can be opened in a browser or SCORM player.
2. **SCORM Runtime API**:
   * Test tracking functionalities like progress, scores, and completion status.
3. **Error Handling**:
   * Ensure appropriate error messages if the package fails to launch or load.

**Updated 21/12/2024: 20:39**

### ****What We’ve Achieved****

1. **SCORM Launch**:
   * The SCORM content is now accessible via the launch\_url.
   * The assets required for the SCORM package (e.g., images, fonts, JavaScript) are loading correctly.
2. **Working Environment**:
   * Your Django project is now configured to serve media files such as SCORM content in the development environment.

**Updated 21/12/2024: 23:26**

### ****Comprehensive Report: Work Carried Out, Obstacles Faced, and Lessons Learned****

#### ****Work Carried Out****

1. **SCORM Playback Integration**:
   * Successfully configured and tested SCORM playback.
   * SCORM content loads successfully via the launch\_url with all assets (CSS, JavaScript, fonts, and images) served correctly.
2. **Django Admin Access**:
   * Resolved OperationalError: no such table: django\_session.
   * Verified that the Django admin panel is fully functional.
   * Recreated the missing django\_session and auth\_permission tables.
3. **Database Schema Synchronization**:
   * Identified and fixed schema mismatches between Django models and the SQLite database.
   * Resolved migration conflicts for auth and sessions apps.
4. **Codebase Enhancements**:
   * Updated settings.py to handle missing static directories and enable session management.
   * Added migration modules to resolve redundancy issues for SCORM and user-related models.
5. **Testing**:
   * Verified SCORM playback functionality through browser-based testing.
   * Confirmed that user authentication, role-based dashboards, and SCORM content management are functioning as expected.

#### ****Obstacles Faced****

1. **Missing django\_session Table**:
   * This prevented user authentication, impacting admin panel login.
   * **Resolution**: Applied migrations for the sessions app and recreated the table.
2. **Missing auth\_permission Table**:
   * This led to database inconsistencies and prevented proper SCORM and admin functionality.
   * **Resolution**: Reset auth migrations and reapplied them to recreate missing tables.
3. **Static Directory Warning**:
   * The STATICFILES\_DIRS setting caused errors when the static directory was missing.
   * **Resolution**: Added checks in settings.py to handle cases where the static directory does not exist.
4. **Database Schema Conflicts**:
   * Migrations were marked as applied, but corresponding tables were missing.
   * **Resolution**: Unapplied fake migrations and reapplied them to align the schema with Django models.
5. **Superuser Credentials**:
   * Previous credentials (hari2987 / Reman!60) were invalid or missing.
   * **Resolution**: Created a new superuser to regain admin access.

#### ****Lessons Learned****

1. **Migration Planning**:
   * Ensure migrations are properly applied and aligned with the database schema.
   * Avoid using --fake unless necessary, as it can cause schema mismatches.
2. **Dependency Validation**:
   * SCORM playback requires all dependencies, assets, and runtime environments to be tested end-to-end early in the development process.
3. **Error Handling**:
   * Log errors and exceptions to streamline debugging processes.
   * Validate the database schema using tools like sqlite3 to identify missing tables or inconsistencies.
4. **Testing and Validation**:
   * Implement structured checklists for testing functionalities such as SCORM playback, database migrations, and role-based dashboards.
5. **Backup and Recovery**:
   * Regularly back up the database to avoid data loss during resets or migration issues.

### ****Next Steps****

1. **SCORM Enhancements**:
   * Test SCORM runtime tracking for progress, scores, and completion status.
   * Integrate SCORM playback into instructor and learner dashboards.
2. **Role-Based Dashboards**:
   * Expand dashboards with data visualization for metrics (e.g., SCORM content usage, learner progress).
3. **Reporting and Analytics**:
   * Begin work on user and course-level reports, including activity logs and completion rates.
4. **Error Management**:
   * Enhance logging mechanisms to capture database and runtime errors.
5. **Documentation**:
   * Update the project diary with steps taken, issues resolved, and outcomes.

**Updated 22/12/2024, 13:25**

### Work Diary Update

#### ****Project Name****: LMS Development

**Date**: December 22, 2024

#### ****Work Completed****:

1. **Role-Based Dashboards Implemented and Validated**:
   * **Admin Dashboard**:
     + Displays branch-specific metrics:
       - **Admin\_Care**: Data for the Care branch.
       - **Admin\_Tech**: Data for the Technology branch.
   * **Instructor Dashboard**:
     + Displays assigned courses and enrolled learners.
   * **Learner Dashboard**:
     + Displays enrolled courses with course-specific details.
2. **Dynamic Data**:
   * Dashboards dynamically filter and display data based on roles and branches.
   * All user types verified to access dashboards specific to their permissions:
     + **Admins** can view users and courses for their branch.
     + **Instructors** can view assigned courses and learners.
     + **Learners** can view only their enrolled courses.
3. **Functional Testing**:
   * Role-based redirection confirmed.
   * No unauthorized access or data visibility across roles or branches.
   * Logout functionality verified.

#### ****Next Steps****:

1. **SCORM Integration**:
   * Add SCORM playback and runtime tracking features to Instructor and Learner dashboards.
   * Test SCORM launch URLs and database runtime tracking.
2. **UI Enhancements**:
   * Improve dashboard design for better user experience.
3. **Reporting**:
   * Begin work on reporting widgets for progress tracking and user activity logs.

**Updated 22/12/2024 16:12**

### ****Project Diary Update****

#### ****Date****: December 22, 2024

#### ****Activity****: Centralized SCORM File Organization Finalized

### ****Work Completed****

1. **SCORM Folder Structure**:
   * Organized SCORM files into dedicated course-specific subfolders:
     + course\_content/scorm/1/: Contains all SCORM .zip files for Course ID 1.
     + course\_content/scorm/2/: Contains SCORM .zip files for Course ID 2.
     + course\_content/scorm/sample/: Contains sample SCORM assets and files.
2. **Videos and Documents**:
   * Videos moved to course\_content/videos/.
   * Documents moved to course\_content/documents/.
3. **Root Folder Cleanup**:
   * Removed all misplaced files from the root course\_content/.
4. **SCORM Folder Permissions**:
   * Ensured all SCORM folders and files have appropriate read permissions.

### ****Next Steps****

1. **Database Update**:
   * Update launch\_url in the courses\_scorm table to reflect the new SCORM file paths.
2. **SCORM Playback Testing**:
   * Verify SCORM playback functionality for Course IDs 1 and 2 in Instructor and Learner dashboards.
   * Test the launch\_url and ensure SCORM assets load correctly in the browser.
3. **Runtime Validation**:
   * Confirm runtime tracking for SCORM packages, including progress, scores, and completion status.
4. **Documentation**:
   * Record this milestone and ensure all updates are reflected in the LMS documentation.

**Updated 22/12/2024 16:28**

### ****Project Diary Update****

#### ****Date****: December 22, 2024

#### ****Activity****: SCORM Playback Successfully Tested

### ****Work Completed****

1. **SCORM Playback Validation**:
   * The SCORM package for **Course ID 1** was extracted and configured at the path course\_content/scorm/1/1648213263\_your-personal-development-in-care/scormcontent/index.html.
   * The launch\_url in the courses\_scorm table was updated dynamically in the database to reflect the correct entry point (index.html).
   * SCORM content successfully loaded in the browser, confirming the correctness of the centralized folder structure, database path updates, and file-serving configurations.
2. **Centralized Structure Confirmed**:
   * The current setup ensures all SCORM content is organized by course under course\_content/scorm/<course\_id>/.
3. **Future Upload Handling**:
   * The system is ready to handle SCORM uploads from dashboards (SuperAdmin, Admin, Instructor) as well as Django Admin.
   * Uploaded SCORM packages will automatically follow the centralized structure, with launch\_url updates ensuring proper playback.

### ****Next Steps****

1. **Dashboard Upload Logic**:
   * Implement dynamic SCORM upload functionality in the Instructor, Admin, and SuperAdmin dashboards.
   * Ensure proper folder structure is maintained and launch\_url is updated automatically.
2. **Test Multiple SCORM Packages**:
   * Validate SCORM playback for additional courses to confirm scalability and consistency.
3. **Implement Runtime Tracking**:
   * Begin implementing SCORM runtime tracking and reporting, including progress, scores, and completion status.

**Update 22/12/2024 17:47**

### ****Summary of the Current Issue****

1. **Directory Missing**:
   * The directory /Users/harikrishnan/LMS\_Project/Scorm/scorm-lms/course\_content/scorm/1/ does not exist, leading to playback failure for the SCORM package associated with **Course ID 1**.
2. **Root Cause**:
   * The SCORM files for **Personal Development in Care SCORM Package** are either deleted or misplaced, causing the launch\_url to point to a non-existent path.
3. **Next Steps**:
   * Recreate the missing directory and re-upload/extract the correct SCORM files.
   * Verify the presence of the index.html file and update the launch\_url in the database if necessary.
   * Test SCORM playback to confirm functionality.

### ****Work Completed So Far****

1. **Database Configuration**:
   * Updated the courses\_scorm table to point the launch\_url to /course\_content/scorm/1/1648213263\_your-personal-development-in-care/scormcontent/index.html.
2. **File Verification**:
   * Verified that the SCORM directory for **Course ID 1** is missing.
3. **SCORM Playback and Runtime Tracking**:
   * The SCORM playback endpoint and runtime tracking logic are functioning, but the missing files are preventing proper SCORM content rendering.
4. **SCORM Playback Testing**:
   * The browser is loading the page with the updated launch\_url, but the content is not displaying due to missing SCORM assets.

### ****Prompt for Next Chat****

To resume this task in the next chat, use the following prompt:

**Prompt:** "We were resolving an issue with missing SCORM files for Course ID 1 in the LMS project. The directory /course\_content/scorm/1/ does not exist, and the launch\_url is pointing to a non-existent index.html file. I want to continue by recreating the directory, extracting the correct SCORM files, and verifying playback functionality. Please help me resume step-by-step, starting with recreating the directory."

**Updated 22/12/2024 19:28**

### ****LMS Project Diary Entry****

#### ****Date****: December 22, 2024

#### ****Task****: SCORM Playback Implementation and Verification

### ****Objective****

* Implement SCORM playback functionality for Learners and Instructors.
* Dynamically display SCORM content assigned to users on their respective dashboards.
* Verify the SCORM launch\_url and ensure proper content rendering.

### ****Steps Taken****

1. **Database Configuration**:
   * Verified the courses\_scorm table to ensure SCORM packages are correctly linked to courses.
   * Updated the launch\_url dynamically for assigned SCORM content.
2. **Code Implementation**:
   * Updated users/views.py:
     + **Instructor Dashboard**: Fetches assigned courses, learners, and SCORM content.
     + **Learner Dashboard**: Displays SCORM content for enrolled courses.
   * Updated dashboard templates (instructor\_dashboard.html and learner\_dashboard.html):
     + Dynamically list SCORM content with clickable links.
     + Links open the SCORM launch\_url in a new tab.
3. **Testing and Verification**:
   * Logged in as:
     + **Care\_Instructor** to access the Instructor dashboard.
     + **Care\_Learner1** to access the Learner dashboard.
   * Verified:
     + Correct courses and SCORM content displayed.
     + SCORM content loaded successfully via launch\_url in the browser.
     + All assets (CSS, JS, fonts, images) were served without errors.
4. **Logs**:
   * Confirmed HTTP 200 responses for all SCORM-related assets.
   * No 404 or server errors during playback.

### ****Outcomes****

* **Learner Dashboard**:
  + Successfully lists enrolled courses and their SCORM packages.
  + SCORM content loads via the launch\_url.
* **Instructor Dashboard**:
  + Displays assigned courses, SCORM content, and enrolled learners.
  + SCORM content launches and renders as expected.
* **SCORM Playback**:
  + SCORM content is fully functional, and assets are properly served.

### ****Screenshots****

(Screenshots of Learner and Instructor dashboards with SCORM content, and SCORM content rendered in the browser.)

A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated

### ****Next Steps****

1. Implement runtime tracking:
   * Record learner progress, scores, and completion status.
   * Update the database with runtime data for SCORM packages.
2. Enhance dashboards:
   * Add SCORM progress metrics for Learners.
   * Introduce SCORM usage reports (completion rates, time spent) for Instructors and Admins.
3. Update project documentation:
   * Include logs and screenshots confirming SCORM functionality.
   * Document all changes for future reference.

### ****Key Milestone Achieved****

SCORM playback functionality successfully integrated into the LMS, ensuring dynamic and user-specific access to SCORM content for both Learners and Instructors.

**Updated 22/12/2024 22:17**

The database output confirms that the SCORM runtime tracking update worked perfectly! Here's what the result indicates:

1. **SCORM Title**: Personal Development in Care SCORM Package
2. **Completion Status**: in\_progress - Updated correctly based on the request.
3. **Time Spent**: 50 - Progress tracked successfully.
4. **Score**: 85 - Assessment score captured successfully.
5. **Last Accessed**: 2024-12-22 22:13:12.751111 - Timestamp reflects the most recent access.

### ****Key Milestone Achieved****

SCORM runtime tracking is now fully functional, with the ability to:

* Update time spent, completion status, and scores dynamically.
* Save updates to the database reliably.

A screenshot of a video chat

Description automatically generated

Updated 23/12/2024 00:20

The links were Brocken and got it fixed again.

The logs confirm that the SCORM content is now successfully loading in both the Learner and Instructor dashboards. All assets (CSS, JavaScript, fonts, images) are being served correctly with HTTP 200 responses. This indicates that:

1. **SCORM Playback is Functional**:
   * The SCORM launch\_url is correctly displayed in both dashboards.
   * Clicking the link loads the SCORM content as expected.
2. **Dashboard Functionality is Restored**:
   * Learner and Instructor dashboards are dynamically fetching and displaying SCORM content.

### Next Steps

#### ****1. Document the Milestone****

We should update the project diary to capture the successful resolution of the SCORM playback issue. Here’s an entry you can use:

**Date:** December 23, 2024  
**Task:** SCORM Playback Restored

**Objective:**

* Fix the issue where SCORM links were not appearing in Learner and Instructor dashboards.
* Ensure SCORM content loads successfully via launch\_url.

**Steps Taken:**

1. Verified the courses\_scorm database table for correct SCORM data.
2. Updated users/views.py to ensure SCORM content is fetched for Learners and Instructors:
   * Learner Dashboard: Fetch SCORM content for enrolled courses.
   * Instructor Dashboard: Fetch SCORM progress for assigned learners.
3. Updated dashboard templates to display SCORM links dynamically with relevant details (e.g., time spent, completion status, and score).
4. Restarted the server and tested dashboards.

**Outcome:**

* SCORM links are now visible in both Learner and Instructor dashboards.
* Clicking SCORM links successfully loads the SCORM content in a new tab.
* All assets (CSS, JS, images) are being served correctly without errors.

**Next Steps:**

1. Implement runtime tracking:
   * Record learner progress, scores, and completion status.
   * Update the database dynamically during SCORM playback.
2. Add SCORM progress metrics for Learners and usage reports for Instructors and Admins.

#### ****2. Proceed to Runtime Tracking Implementation****

The next logical step is to implement runtime tracking to capture:

* Time spent on SCORM.
* Completion status updates.
* Scores for SCORM assessments.

Updated 23/12/2024 02:11

### ****Project Diary Update****

**Date:** December 23, 2024  
**Activity:** Git Repository Cleanup and Preparation for CI/CD Integration

### ****Summary of Work Completed****

#### ****1. Issue Identified: Large File Limit Exceeded****

* The repository contained .zip files larger than GitHub's 100 MB size limit:
  + 1649256635\_your-personal-development-in-care-scorm12-gWBIzwTe.zip (133.4 MB)
  + 1648835611\_your-personal-development-in-care-scorm12-iMS-GoNb.zip (129.95 MB)

#### ****2. Actions Taken****

* Installed **Git LFS** for large file management using Homebrew.
* Attempted to track .zip files using Git LFS, but GitHub LFS quota exceeded.
* Decided to remove large files entirely to maintain repository health.

#### ****3. Repository Cleanup****

* Used **BFG Repo Cleaner** to remove all .zip files from the repository’s history.
* Manually deleted the .zip files from the working directory:
  + course\_content/scorm/1/1649256635\_your-personal-development-in-care-scorm12-gWBIzwTe.zip
  + course\_content/scorm/1/1648835611\_your-personal-development-in-care-scorm12-iMS-GoNb.zip
* Updated .gitignore to prevent future tracking of .zip files:
  + Added course\_content/scorm/1/\*.zip.

#### ****4. Repository History Cleaning****

* Cleaned repository history using:
  + bfg --delete-files "\*.zip".
  + git reflog expire --expire=now --all && git gc --prune=now --aggressive.
* Force-pushed the cleaned repository to GitHub to update the remote branch.

#### ****5. Final Verification****

* Verified on GitHub that:
  + All .zip files were removed.
  + Repository size reduced significantly.
  + .zip files remain excluded from tracking due to .gitignore.

### ****Outcomes****

* The repository is now clean and synced with GitHub.
* Large files are excluded from the repository, ensuring compliance with GitHub limits.
* The project is ready for **CI/CD pipeline integration and test automation**.

### ****Next Steps****

1. Proceed to **Milestone 2: Fully Integrate CI/CD Pipeline and Ensure Tests Are Running**.
2. Configure GitHub Actions for automated testing and deployment.