**High level overview on the Technology Stack used and features of DESOC Dues Management System (DDMS)**

**1. Introduction**

The **DESOC Dues Management System (DDMS)** is a web-based platform developed to streamline the management of student dues and souvenirs for the Design Society.  
The system is designed to be **secure, scalable, and user-friendly**, ensuring that administrators and members can easily handle dues, payments, reports, and souvenir distributions.

**2. Technology Stack**

**Backend**

* **Framework**: Laravel 12
  + Provides robust MVC architecture.
  + Built-in authentication, middleware, and routing.
  + Eloquent ORM for seamless database interaction.
* **Language**: **PHP 8.2+**
  + Strong support for modern OOP features.
  + Secure and widely adopted in web development.
* **Database**: **MySQL**
  + Stores students, dues, payments, souvenirs, users, and report records.
  + Optimized with migrations, relationships, and seeders.
* **Libraries & Packages**:
  + **Barryvdh/DomPDF** → Used for reports to PDF generation.

**Frontend (User Interface – UI)**

* **Blade Templates (Laravel)**
  + Dynamic rendering of backend data.
  + Clear separation of layout and content with sections.
  + Responsive, modern design system.

**Authentication & Security**

* **Laravel Auth** → Handles login, lock/unlock, and logout.
* **CSRF Protection** → Laravel’s built-in CSRF tokens for forms.
* **Validation** → Server-side validation of all form inputs.

**3. Core Features**

**🔹 User Management**

* CRUD operations for students and admin users.
* Profile management (avatar, bio, password updates).
* Role assignment (student, admin, superadmin).

**🔹 Dues Setup & Management**

* Create dues for a specific **academic year and level**.
* Attach amounts payable.
* Manage status of dues (active/inactive).

**🔹 Dues Payments**

* Record payments with:
  + Student, academic year, level.
  + Date paid and amount paid.
  + Souvenirs collected (dynamic selection).
  + Payment status (pending, confirmed, cancelled).
* Smart features:
  + Filters students by academic year + level.
  + Dynamically loads available souvenirs.
  + PDF export of dues payments.

**🔹 Souvenir Management**

* Create souvenirs for academic years and levels.
* Track availability (status).
* Link souvenirs to payments upon collection.
* Export souvenirs list to PDF.

**🔹 Reports**

* Generate dues reports by academic year and level.
* Export reports to **PDF**.
* Provides insight into total payments, pending payments, and dues balance.

**🔹 Dashboard**

* Hero section with branding and quick actions.
* Quick links to **Add Student** and **Record Payment**.
* Overview of the system’s purpose.

**🔹 Authentication & Lock Screen**

* Login with index number + password.
* Lock screen feature for security when idle.
* Background gradient overlay for professional look.

**4. Benefits**

* ✅ **Efficiency** → Eliminates manual tracking of dues and souvenirs.
* ✅ **Accuracy** → Reduces errors with automated records and validations.
* ✅ **Security** → Secure login and lock screen with role-based access.
* ✅ **Reports & Transparency** → Easy report generation for accountability.
* ✅ **Scalability** → Can be extended for other societies or organizations.