**1. Modularization Details**

The e-RMS is designed with modular components to ensure scalability, maintainability, and clear separation of concerns:

| **Module** | **Description** |
| --- | --- |
| **User Management** | Handles login, authentication, and role-based access control. |
| **Recruitment Management** | Allows recruiters to create, view, edit, and close recruitments.z |
| **Application Management** | Enables applicants to submit applications and upload documents. |
| **Result Processing** | Facilitates subject-wise result entry and priority setting. |
| **Ranking Engine** | Calculates ranks based on aggregate scores, subject priorities, and DOB. |
| **Verification** | Allows recruiters to verify applications before issuing appointment letters. |
| **Appointment Issuance** | Enables recruiters to generate and dispatch appointment letters. |
| **Document Management** | Securely stores, retrieves, and manages documents (with hashed filenames). |
| **API Layer** | Provides RESTful endpoints for frontend and third-party integrations. |
| **Frontend Interface** | React-based responsive interface tailored for recruiters and applicants. |

**3. Procedural Design**

Key procedural flows:

✅ **Recruitment Creation**

1. Recruiter logs in.
2. Fills in recruitment details (title, description, deadline).
3. Sets subject priorities (JSON array).
4. Recruitment saved with unique recruitmentID.

✅ **Application Submission**

1. Recruitee logs in.
2. Views available recruitments.
3. Fills application form and uploads documents.
4. Application and documents stored with applicationID.

✅ **Result Entry & Priority Handling**

1. Recruiter selects a recruitment and application.
2. Enters subject-wise marks for the application.
3. Subject priorities are fetched from recruitments.subjectPriority.
4. Aggregate scores and weighted scores calculated.

✅ **Ranking Calculation**

1. System calculates:
   * Total aggregate marks
   * Weighted marks based on subject priorities
   * Final rank considering DOB for tie-breakers.
2. Results stored in results and displayed to recruiters.

✅ **Verification & Appointment**

1. Recruiter verifies the application status (verified).
2. Generates appointment letters for top-ranked candidates.
3. Appointment record with document hash stored in appointments.