Smart College CRM – Student Management System on Salesforce

Phase 8: Data Management & Deployment – Smart College CRM

**🔹 Objective**

This phase ensures the **Smart College CRM** handles **student, course, fee, and exam data** with accuracy, backups, deduplication, and seamless deployment across environments. It combines Salesforce admin tools and developer practices to ensure the solution is **stable, migration-ready, and enterprise-grade**.

**🔹 Key Components**

**1. Data Import Wizard**

* Used for importing small to medium-sized datasets (up to 50,000 records).
* **Use Cases:**
  + Import **Student, Course, and Faculty** records from CSV files.
  + Bulk upload **initial enrollment data** for testing.
* **Example CSV fields for Student\_\_c:**

Name, Email\_\_c, Phone\_\_c, Course\_\_c, Fee\_Status\_\_c

John Doe, john@example.com, 9876543210, CSE-101, Paid

Alice Smith, alice@example.com, 9876500000, BBA-202, Pending

**2. Data Loader**

* For large-volume data operations (up to 5 million records).
* **Use Cases:**
  + Bulk update **Fee\_Status\_\_c** (e.g., Pending → Paid).
  + Export **Exam results** for offline analysis.
  + Delete duplicate test data during QA.
* Supports **Insert, Update, Upsert, Delete, Export** operations.

**3. Duplicate Rules & Matching Rules**

* Prevents duplicate student, faculty, and course records.
* **Implementation:**
  + Matching Rule on **Student\_\_c** → Match on Email\_\_c + Phone\_\_c.
  + Matching Rule on **Course\_\_c** → Match on Course\_Code\_\_c.
  + Action → **Alert user or Block record creation.**

**4. Data Export & Backup**

* Weekly scheduled data export for recovery.
* **Objects included:** Student\_\_c, Course\_\_c, Fee\_\_c, Exam\_\_c, Faculty\_\_c.
* Exports stored securely in **cloud/local storage** for **disaster recovery**.

**5. Change Sets**

* Migrates **metadata (objects, fields, flows, triggers, LWCs)** between environments.
* **Example:** Move tested **Fee Payment Flow** from Sandbox → Production.

**6. Unmanaged vs Managed Packages**

* **Unmanaged Package:** Used internally to share CRM components across dev orgs.
* **Managed Package (Future Scope):** To distribute **Smart College CRM** as a reusable Salesforce app for other institutions.

**7. ANT Migration Tool**

* Enables scripted deployments for CI/CD.
* **Use Case:** Automating **metadata migration** for frequent updates like new exam modules or fee automation rules.

**8. VS Code & Salesforce DX (SFDX)**

* Development environment for **Apex, LWCs, and metadata**.
* **Steps Applied:**
  1. Connected Salesforce Org using sfdx force:auth:web:login.
  2. Pulled metadata into **GitHub repository**.
  3. Used **scratch orgs** for isolated testing of student workflows.
  4. Deployed updates with sfdx force:source:deploy.

**🔹 Outcome of Phase 8**

Clean and reliable **student, course, fee, and exam data**.  
 Automated backups ensure **data recovery and security**.  
 Duplicate prevention improves **data quality**.  
 Deployment pipeline ready with **Change Sets, ANT, and SFDX**.