Phase 8 Report

Data Management & Deployment

Project: Smart Healthcare Appointment & Compliance Hub
Batch: 4
Program: TCS Last Mile SmartBridge
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1. Introduction

This phase ensures that the Smart Healthcare Appointment & Compliance Hub is fully prepared for real-world use through structured data handling, backup strategies, and secure deployment processes. It focuses on migrating historical healthcare records, preventing data duplication, deploying metadata consistently across environments, safeguarding patient information with regular backups, and enabling advanced deployments via modern tools like VS Code and Salesforce DX (SFDX). Together, these steps maintain **data integrity, compliance readiness, and system reliability** for healthcare operations.

2. Objectives

- **Migrate bulk healthcare records** (patients, appointments, compliance data) efficiently using Data Loader.

- **Enforce patient data integrity** by configuring Duplicate Rules on critical fields like Name, Email, and Phone.

- **Deploy metadata configurations** such as Record Types and Page Layouts from Sandbox to Production using Change Sets.

- **Enable regulatory compliance and disaster recovery** with scheduled Data Export and Backup of all key records.

- **Implement version control and advanced deployment** of Apex, Validation Rules, and automation using VS Code and SFDX.

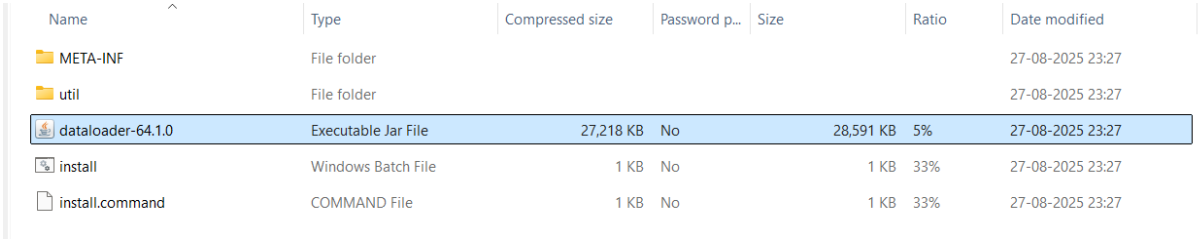
3. Steps Performed

3.1 Data Loader(Insert/Update)

Use Case:
We need to **migrate historical patient and appointment data** into Salesforce. For example:

- Upload **10,000 patient records** into the Contact object.
- Upload **20,000 appointment records** into Appointment__c and link them with the correct Patient (Contact) and Doctor (Clinician).

Since manual entry or importing through Data Import Wizard is not practical for this volume, **Data Loader** is the best tool.



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util	File folder					27-08-2025 23:27
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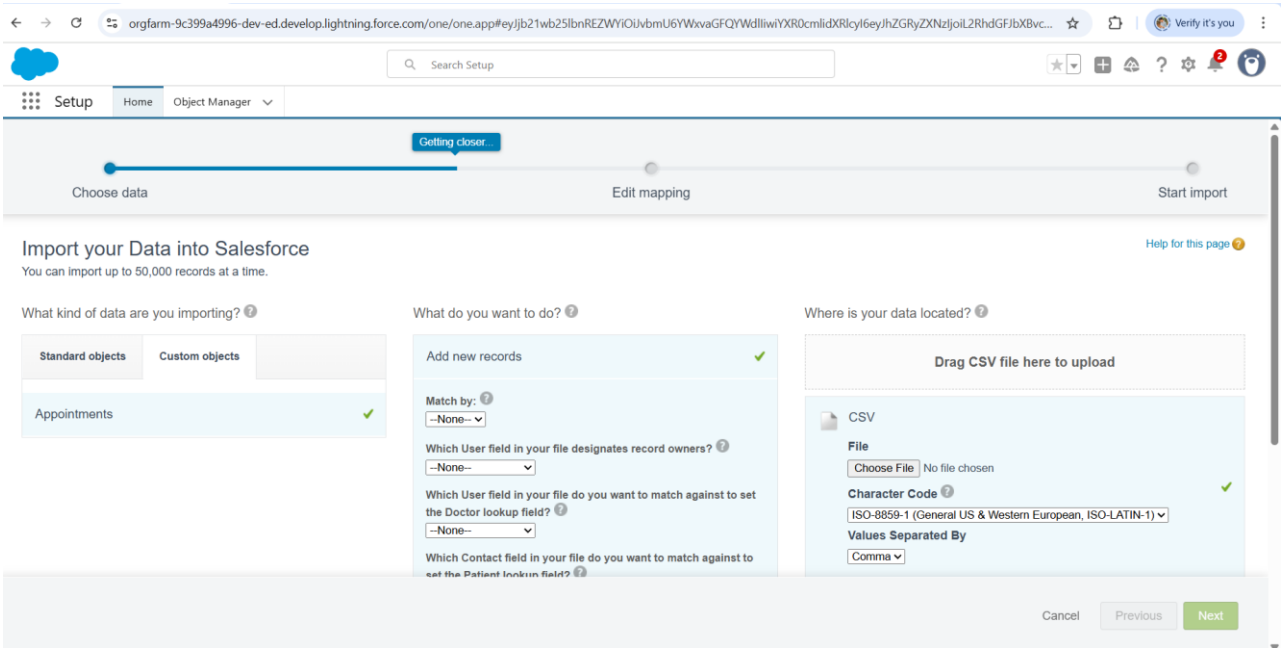
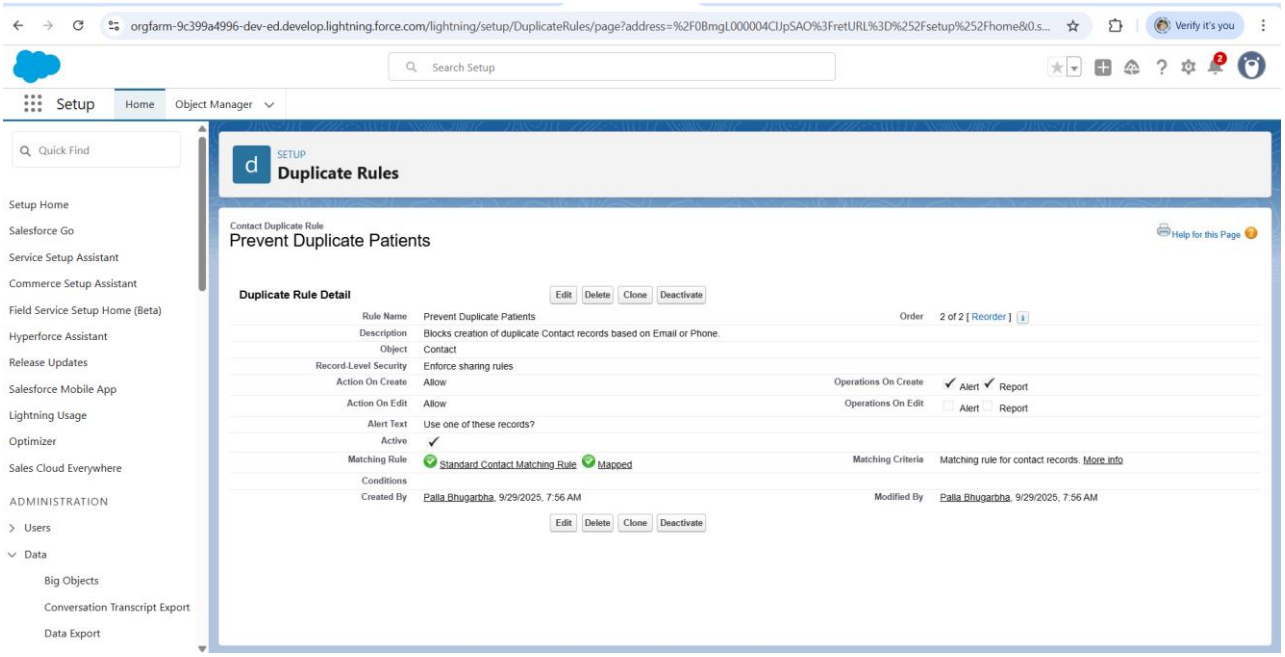
install	Windows Batch File	1 KB	No	1 KB	33%	27-08-2025 23:27
install.command	COMMAND File	1 KB	No	1 KB	33%	27-08-2025 23:27



3.2 Duplicate Rules (Ensuring Patient Data Integrity)

Use Case:
In healthcare, **duplicate patient records are dangerous** because:

- Same patient might appear twice with different appointments.
- Compliance tracking becomes inaccurate.
  To prevent this, Salesforce **Duplicate Rules** ensure staff/patients don't create duplicate Contact records.



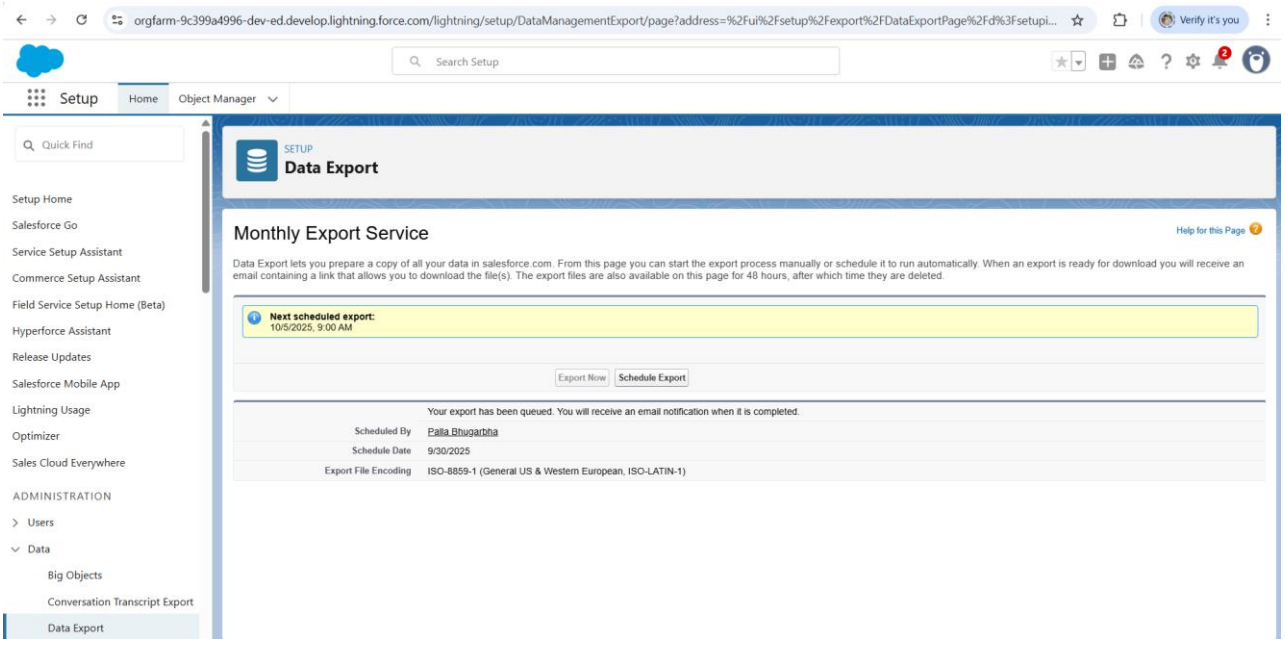
3.3 Change Sets(Metadata Deployment)

Use Case:
We built Record Types and Page Layouts in Sandbox (development environment). Now we must move them to **Production** so doctors and staff can use them.

- Example: Appointment__c Record Types → *In-Person* & *Telehealth*.
- Compliance Document__c Record Types → *Patient Compliance* & *Staff Compliance*.

3.4 Data Export and Backup

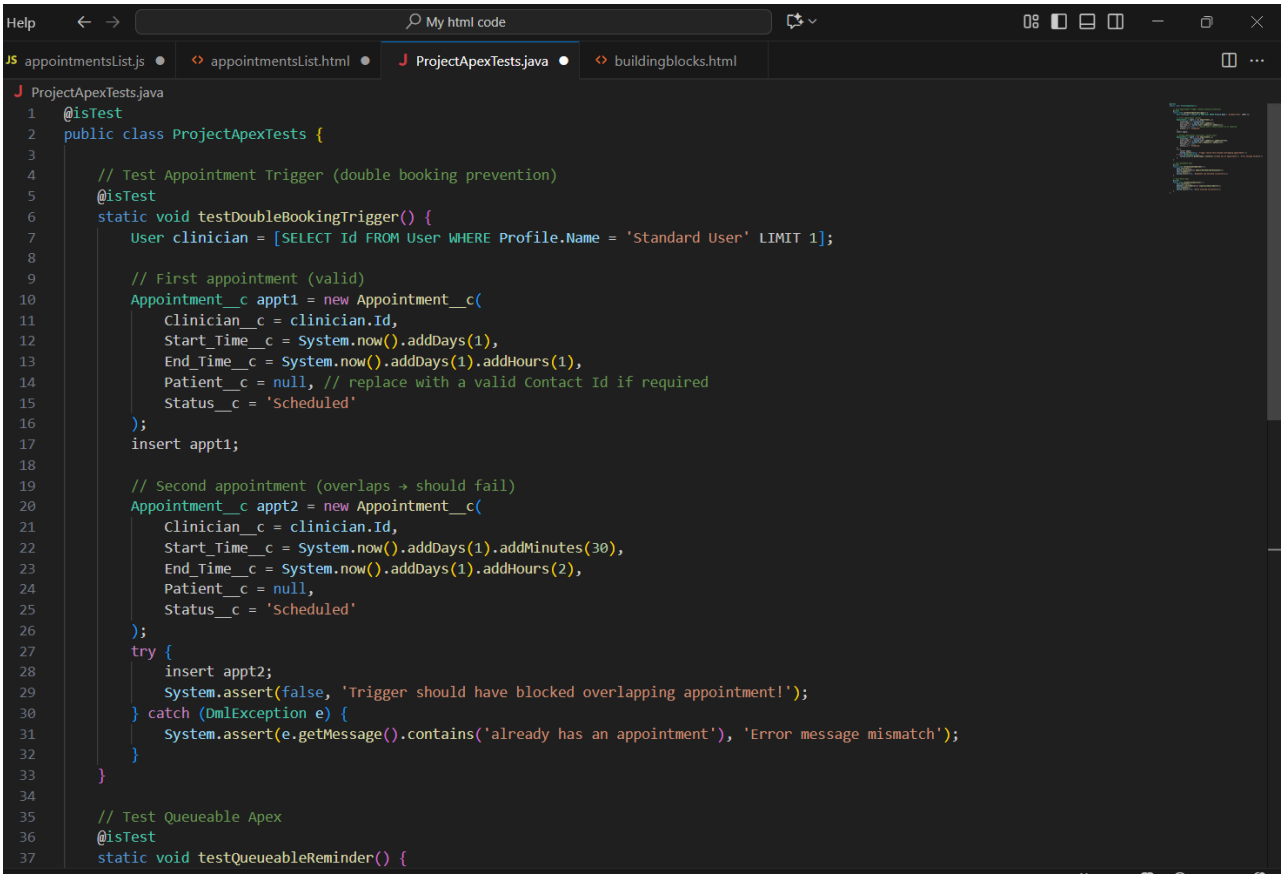
Use Case:
In healthcare, **data backup is legally required** (HIPAA/GDPR compliance). If system data is lost, patient safety and compliance tracking will be at risk. A weekly **Data Export** ensures we always have a backup.



3.5 VS Code & SFDX

Use Case:
Some items like **Apex Triggers, Classes, Validation Rules** cannot be deployed using Change Sets. We need **VS Code + Salesforce CLI (SFDX)** for professional, script-based deployment with version control (Git).

- Example: Validation Rule → Prevent appointments from being canceled within 24 hours.
- Example: Apex Trigger → Automatically flag "No Show" if appointment not marked attended.



4. Expected Outcomes

- Successful **migration of bulk patient and appointment data** into Salesforce without data loss.
- **Duplicate prevention** mechanisms ensuring accuracy and integrity of patient records.
- **Seamless deployment** of Record Types and Page Layouts from Sandbox to Production via Change Sets.
- **Regularly scheduled data backups** to meet compliance and disaster recovery requirements.
- **Version-controlled deployment of automation and logic** (Apex, Validation Rules, Triggers) using VS Code and SFDX for professional-grade delivery.

5. Conclusion

Phase 8 ensures that the Smart Healthcare Appointment & Compliance Hub operates with **clean, reliable, and secure data** while being ready for deployment in a live healthcare environment. By combining bulk data migration, duplicate prevention, metadata deployment, regulatory backups, and advanced deployment practices, the system achieves both **operational efficiency and compliance standards**. This phase creates a strong foundation for ongoing healthcare operations and future scalability.