

Phase 8: Data Management & Deployment

Objective:

To ensure smooth and error-free deployment of Leave Tracker customizations from development to higher environments (UAT, Production) using best practices and tools.

Data Import Wizard

- Used to load initial employee data (Users, basic LeaveRequest__c records).
- Supports CSV files.
- Best for small/medium data volumes (< 50,000 records).

Data Loader

- Used to perform bulk operations (insert, update, delete, upsert) for large datasets.
- Example: Bulk upload of historical leave records.
- Supports command-line interface for automation.

Change Sets

Used Change Sets for deploying metadata between environments (Sandbox → Production).

Included:

- Custom Objects (LeaveRequest__c)
- Apex Classes (LeaveRequestController, Triggers)
- Lightning Web Components (applyLeave, myLeaves, leaveRequest)
- Email Templates & Flows

VS Code Deployment Setup

Prerequisites

- Install Visual Studio Code.
- Install Salesforce CLI (SFDX).
- Install Salesforce Extension Pack in VS Code.
- Connect Org → `sfdx force:auth:web:login -d -a DevHub`.

- Sample Project Structure (VS Code)

```
leave-tracker-project/
├── force-app/
│   └── main/
│       └── default/
│           ├── classes/      (Apex Classes)
│           ├── lwc/          (Lightning Web Components)
│           ├── objects/      (Custom Objects)
│           ├── triggers/     (Apex Triggers)
│           └── email/        (Email Templates)
├── sfdx-project.json
└── .gitignore
```

- Retrieve metadata from source org
 - `sfdx force:source:retrieve -m ApexClass,CustomObject,LWC`
- Deploy metadata to target org
 - `sfdx force:source:deploy -p force-app/main/default`
- Run all tests before deployment
 - `sfdx force:apex:test:run --resultformat human --codecoverage`

Deployment Checklist

- Code Quality Check (PMD, Prettier for LWC).
- Apex Test Coverage $\geq 75\%$.
- Run Validation Deployment (test without committing).
- Backup Production metadata before final push.
- Post-deployment steps (activate Flows, verify Email Deliverability).

CI/CD Integration (Optional Advanced)

- GitHub Actions: Automate deployments on every push.
- Copado / Gearset: Enterprise-grade release management.