

Phase 8: Data Management & Deployment

Project: Debug Log Analysis and Bug Fixing in Salesforce Apex

1. Objective of Phase 8

The main goal of this phase is to **manage the test data required for Apex debugging** and **deploy all metadata from the Salesforce DX project** into the connected Salesforce org.

This ensures that:

- Apex classes, test classes, and optional UI components are ready for execution.
- Test data is correctly set up for generating replay-enabled debug logs.
- The project is fully deployable and reproducible in any org for testing or demonstration purposes.

2. Data Management

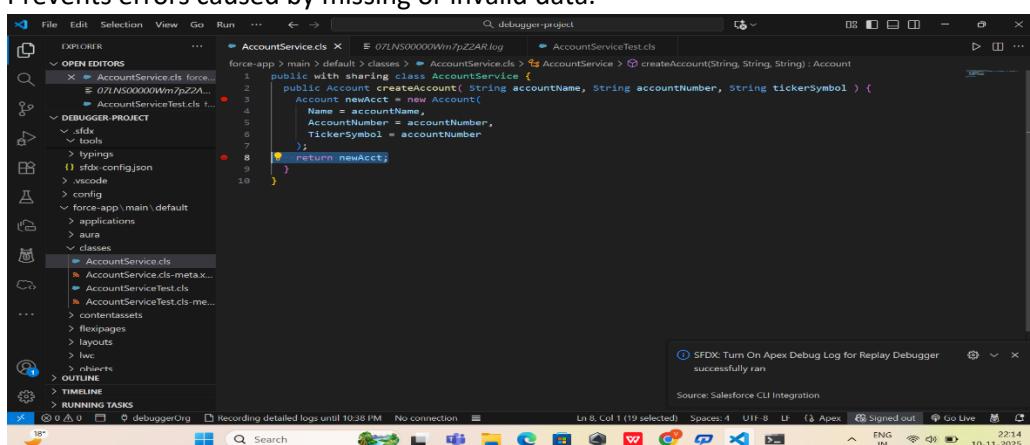
Even though this project mainly deals with **debugging Apex**, proper test data management is essential:

a. Creating Test Data for Apex Execution

- The test class AccountServiceTest.cls generates an **Account record** with sample data:
 - Name: "Salesforce"
 - Account Number: "SFDC"
 - Ticker Symbol: "CRM"
- Ensures predictable values for debugging.

b. Benefits of Structured Test Data

- Allows breakpoints and checkpoints to capture accurate heap dumps.
- Ensures logs are consistent for Replay Debugger analysis.
- Prevents errors caused by missing or invalid data.



3. Deployment Using Salesforce DX

a. Deploy Metadata to Org

- All Apex classes, test classes, and optional UI components are deployed using:
- SFDX: Deploy Source to Org
- Deployment ensures code is **live in the org** and ready for testing/debugging.

b. Verification After Deployment

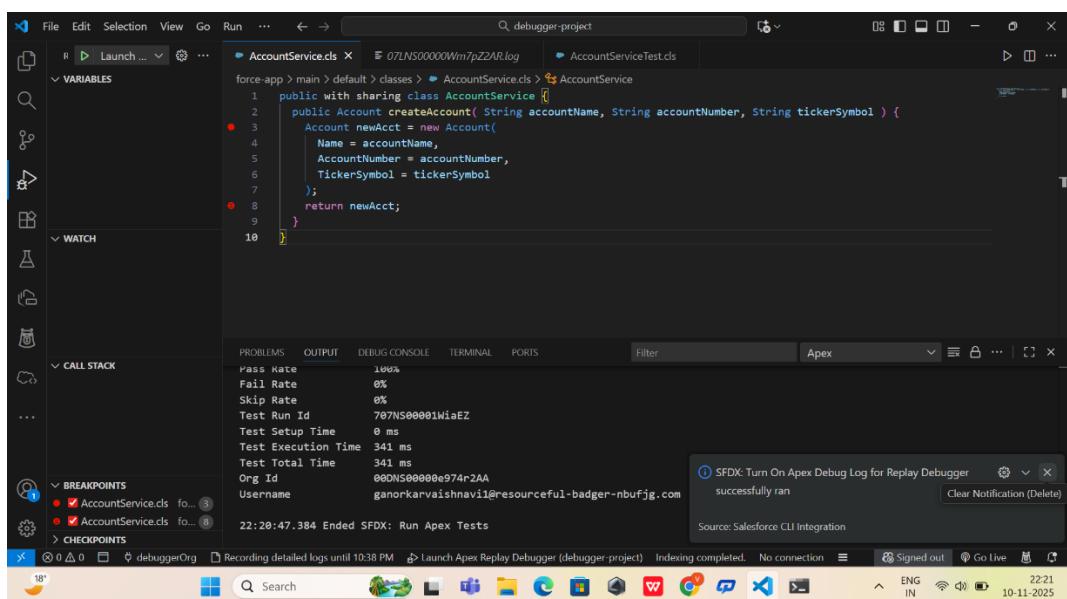
- Run Apex tests using:
- SFDX: Run Apex Tests
- Confirm all tests pass after deploying fixed code.

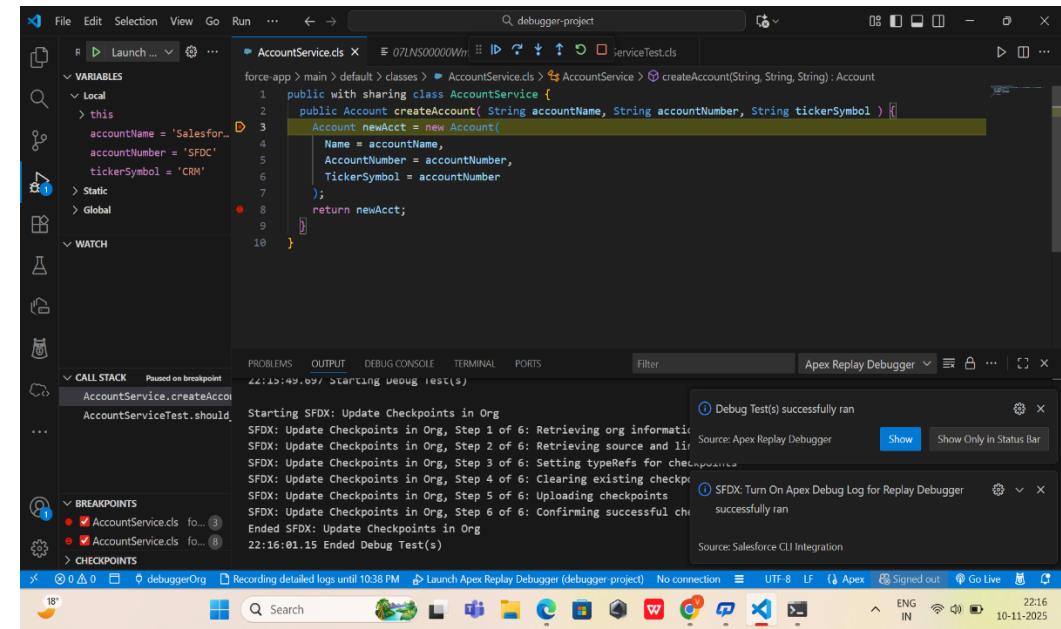
c. Maintaining Project Structure

- All deployed metadata matches the Salesforce DX project structure:
 - force-app/main/default/classes → Apex classes & test classes
 - force-app/main/default/lwc → Lightning Web Components
 - sfdx-project.json → DX project configuration

4. Role in Debugging Workflow

- Correct data ensures **checkpoints and breakpoints work as expected**.
- Proper deployment guarantees **Apex Replay Debugger can access the right version of code**.
- Supports consistent, reproducible debugging for demonstration or future development.





5. Deliverables of Phase 8

By the end of this phase:

- ✓ Test data for debugging is ready and consistent
- ✓ Apex classes and test classes are deployed successfully
- ✓ UI components (if any) are deployed and connected
- ✓ Logs generated during test execution are ready for Replay Debugger
- ✓ Project is fully set up for end-to-end debugging workflow

6. Outcome

- All Salesforce DX metadata and test data are properly deployed and ready to execute.
- Debugging workflow is fully functional with real or test data.
- Apex Replay Debugger can now replay debug logs and help identify or fix bugs accurately.