

Phase 9: Reports & Dashboards

Debug Log Analysis and Bug Fixing in Salesforce Apex

1. Objective of Phase 9

The purpose of this phase is to create **reports and dashboards** that provide **insights into Apex execution, test results, and debugging activities**.

Even though the primary focus of this project is **Apex debugging**, using reports and dashboards helps:

- Track **test coverage and results**.
- Visualize **debug log trends** or recurring issues.
- Demonstrate project functionality in a **presentation-ready format**.
- Evaluate the impact of fixes applied during debugging.

2. Reports for Debugging Insights

a. Apex Test Results Report

- Lists all executed test classes and their results.
- Fields included:
 - Test Class Name
 - Test Method Name
 - Status (Pass/Fail)
 - Execution Time
- Helps quickly identify failing tests and verify bug fixes.

b. Deployment & Metadata Status Report

- Tracks which Apex classes and components are deployed.
- Ensures that all deployed metadata is aligned with the Salesforce DX project.

c. Optional Debug Log Summary Report

- If debug logs are stored in a custom object (optional), reports can show:
 - Logs generated per user or session
 - Execution duration
 - Error occurrences

The screenshot shows the Salesforce CLI Integration interface. The Explorer tab lists files like AccountService.cls, AccountServiceTest.cls, and various configuration and metadata files. The Debugger Project tab shows a .husky folder and some tools. The Log tab displays an Apex debug log titled '07LNS00000Wm7pZ2AR.log'. The log content includes:

```

1 | $5.0 APEX_CODE_FINEST;APEX_PROFILING,INFO;CALLOUT,INFO;DATA_ACCESS,INFO;DB,INFO;NBA,INFO;SYSTEM_DEBUG;VALIDATION
2 | 22:12:44.7 (7306741)|USER_INFO|[EXTERNAL]|005NS00000mcGeQ|ganorkarvaishnavi@resourceful-badger-nbufjg.com|(GMT-
3 | 22:12:44.7 (7411972)|EXECUTION_STARTED
4 | 22:12:44.7 (7452644)|CODE_UNIT_STARTED|[EXTERNAL]|01pNS00000jt46U|AccountServiceTest.should_create_account()
5 | 22:12:44.7 (11233376)|HEAP_ALLOCATE|[95]|Bytes:3
6 | 22:12:44.7 (11384349)|HEAP_ALLOCATE|[100]|Bytes:152
7 | 22:12:44.7 (11485380)|HEAP_ALLOCATE|[417]|Bytes:408
8 | 22:12:44.7 (11421470)|HEAP_ALLOCATE|[430]|Bytes:408
9 | 22:12:44.7 (11454921)|HEAP_ALLOCATE|[317]|Bytes:6
10 | 22:12:44.7 (11475581)|HEAP_ALLOCATE|[EXTERNAL]|Bytes:33
11 | 22:12:44.7 (11525142)|METHOD_ENTRY|[2]|01pNS00000jt46U|AccountServiceTest.AccountServiceTest()
12 | 22:12:44.7 (11547582)|STATEMENT_EXECUTE|[2]
13 | 22:12:44.7 (11562693)|STATEMENT_EXECUTE|[2]
14 | 22:12:44.7 (11571953)|METHOD_EXIT|[2]|AccountServiceTest
15 | 22:12:44.7 (11599573)|HEAP_ALLOCATE|[68]|Bytes:5
16 | 22:12:44.7 (11646594)|HEAP_ALLOCATE|[74]|Bytes:5
17 | 22:12:44.7 (11658825)|HEAP_ALLOCATE|[82]|Bytes:7
18 | 22:12:44.7 (11740086)|STATEMENT_EXECUTE|[4]
19 | 22:12:44.7 (11743376)|STATEMENT_EXECUTE|[5]
20 | 22:12:44.7 (11747856)|HEAP_ALLOCATE|[5]|Bytes:10
21 | 22:12:44.7 (11774477)|VARIABLE_SCOPE_BEGIN|[5]|acctName|String|false|false
22 | 22:12:44.7 (11881479)|VARIABLE_ASSIGNMENT|[5]|acctName|"Salesforce"
23 | 22:12:44.7 (11889516)|STATEMENT_EXECUTE|[6]
24 | 22:12:44.7 (11893539)|HEAP_ALLOCATE|[6]|Bytes:4
25 | 22:12:44.7 (11893779)|VARIABLE_SCOPE_BEGIN|[6]|acctNumber|String
26 | 22:12:44.7 (11910279)|VARIABLE_ASSIGNMENT|[6]|acctNumber|"SFDC"
27 | 22:12:44.7 (11914889)|STATEMENT_EXECUTE|[7]
28 | 22:12:44.7 (11918279)|HEAP_ALLOCATE|[7]|Bytes:5
29 | 22:12:44.7 (11922498)|VARIABLE_SCOPE_BEGIN|[7]|tickerSymbol|String

```

The interface also shows a Problems, Output, Debug Console, Terminal, and Ports tab. A tooltip for 'SFDX: Turn On Apex Debug Log for Replay Debugger' is visible, stating 'successfully ran'. The status bar at the bottom indicates 'Recording detailed logs until 10:38 PM' and 'No connection'.

This screenshot shows the same interface as the first one, but with a much longer log file titled '07LNS00000Wm7pZ2AR.log'. The log content is identical to the first screenshot but continues for many more lines, indicating a full execution of the test method. A tooltip for 'SFDX: Turn On Apex Debug Log for Replay Debugger' is visible, stating 'successfully ran'. The status bar at the bottom indicates 'Recording detailed logs until 10:38 PM' and 'No connection'.

3. Dashboards for Visualization

Dashboards can provide **graphical representation** of the above reports:

- **Test Execution Dashboard**
 - Pie chart showing passed vs failed tests
 - Line chart showing test execution over time

- **Bug Tracking Dashboard**
 - Bar chart showing frequency of specific errors (e.g., TickerSymbol bug)
 - Helps visualize how fixes improve code quality
- **Deployment Overview Dashboard**
 - Visualizes which Apex classes and UI components are deployed successfully
 - Quick reference for project completeness

4. Benefits of Reports & Dashboards

- Provides a **visual summary** of testing and debugging efforts.
- Helps **track progress** after applying fixes.
- Useful for **project presentation** and demonstrating workflow.
- Supports **decision-making** for future improvements in Apex code.

5. Deliverables of Phase 9

By the end of this phase, you will have:

- ✓ Reports showing Apex test results and execution details
- ✓ Dashboards visualizing test pass/fail statistics
- ✓ Optional reports for debug log insights
- ✓ Clear, presentation-ready summary of project debugging activities

6. Outcome

- Provides a **complete end-to-end view** of Apex code testing and debugging.
- Demonstrates **impact of debugging** on Apex test results.
- Enhances the **overall professional presentation** of the Salesforce DX project.