

Beta Presentation

Data Consistency and Reconciliation Tool

The Capstone Experience

Team Ally

Venkata Chinmayee Mannava

Linh Nguyen

Abishek Pemmada

Tinku Sharma

Julia Sznitka

Jordan Tansingco

Department of Computer Science and Engineering
Michigan State University



*From Students...
...to Professionals*

Fall 2025

Project Overview

- Countless hours spent on manual data management, analysis, and reconciliation of data
- Web-based tool streamlining this process:
 - Allow users to upload data in multiple formats
 - Run consistency checks using ML tool
 - Provides user the ability to reconcile data
- Ensure consistency and accuracy across sources, improving the confidence in reporting and decision-making



Team Member's Technical Tasks

Technical Tasks Assigned

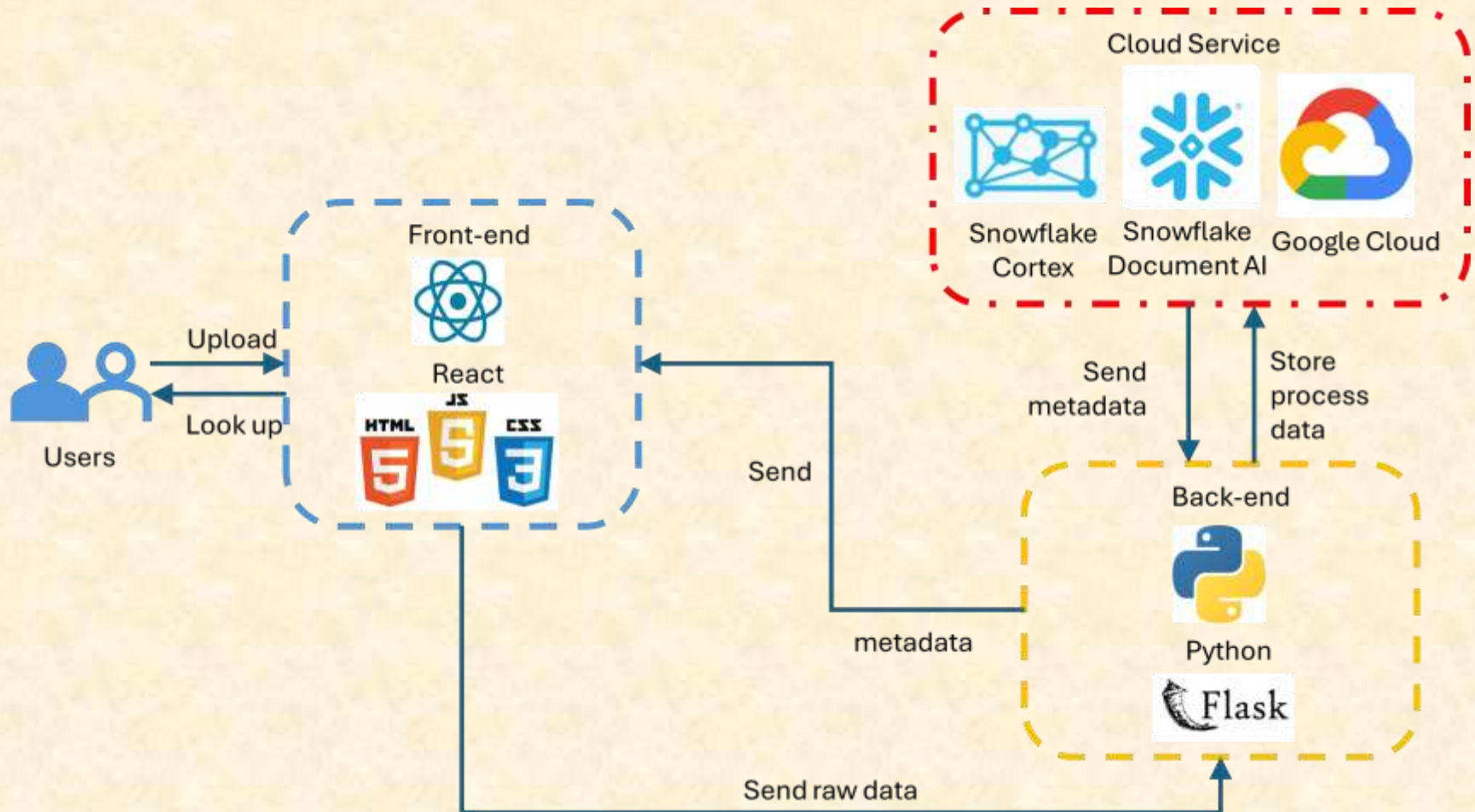
- Venkata Chinmayee Mannava
 - Data Ingestion, Consistency, Source-Popup Checks Tab, Log In UI
 - Backend integrations for Consistency page, Source Pop-up Check Tab, Reconciliation page, Consistency check tables
 - Conversion from SQL to JSON
 - Connections for UI and Snowflake for auto-reconciliation
- Linh Nguyen
 - Data's anomalies detection
 - User management system
 - Scheduling system
 - Excel/CSV conversion
- Abishek Pemmada
 - Data pipeline for data ingestion
 - consistency checking
 - Snowflake environment setup and maintenance
 - Auto-Reconciliation
- Tinku Sharma
 - Conversion from XML to JSON
 - Data Validation Rules
 - AI summary for trends and UI for manual reconciliation
- Julia Sznitka
 - Dashboard and source-specific pop up, graphs
 - Downloading (JSON, file type, report)
 - TXT conversion to JSON
- Jordan Tansingco
 - UI/ Backend integration for data ingestion & audit logs
 - Continuous data caching / background fetches
 - UI integration for scheduled data ingestion

Technical Tasks Completed

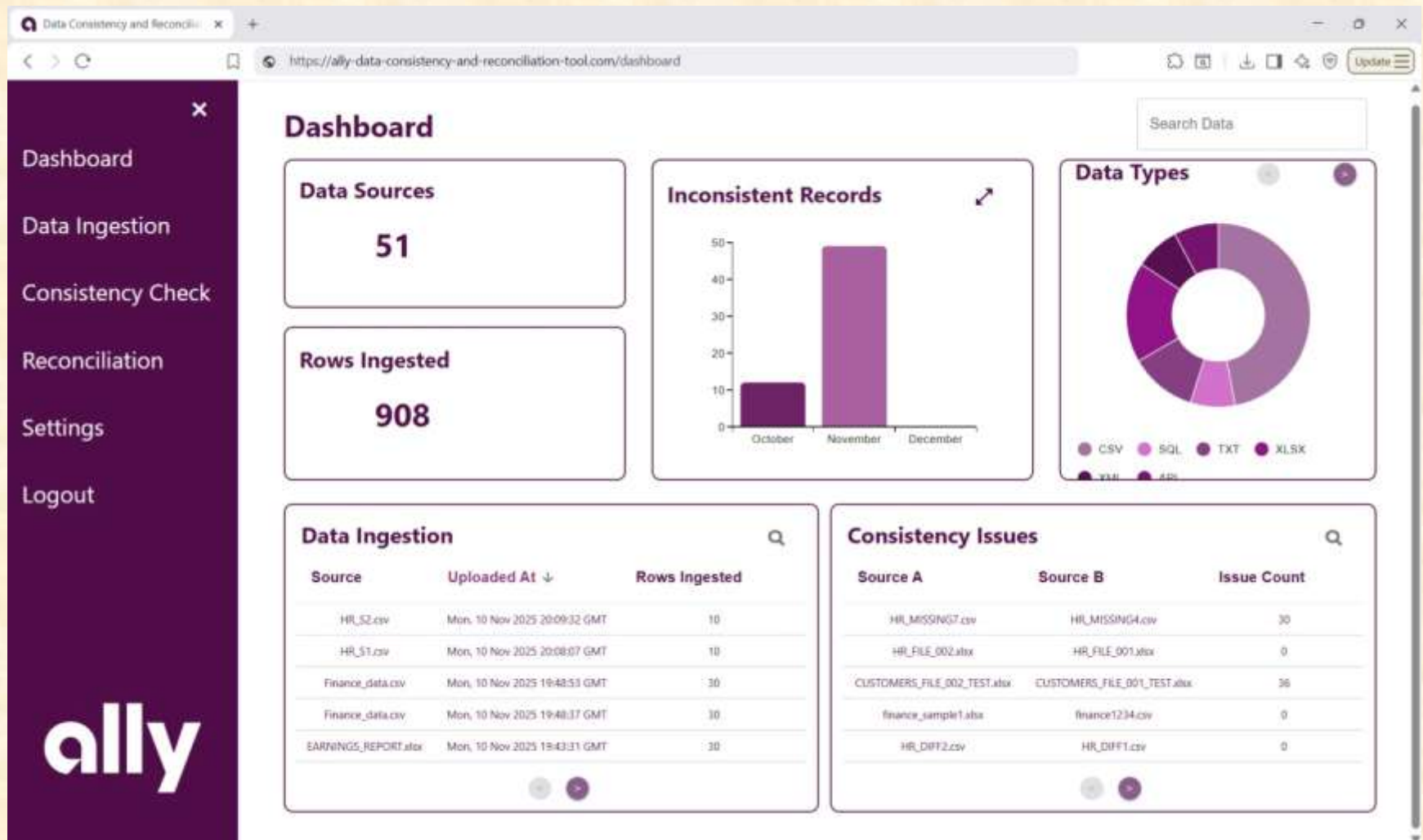
- Venkata Chinmayee
 - Data Ingestion, Consistency, Source-Popup Checks Tab, Log In UI
 - Backend integrations for Consistency page, Source Pop-up Check Tab, Reconciliation page, Consistency check tables
 - Conversion from SQL to JSON
 - Connections for UI and Snowflake for auto-reconciliation
- Linh Nguyen
 - Anomalies detection
 - User management system
 - Scheduling system
 - Excel/CSV conversion
- Abishek Pemmada
 - Data pipeline for data ingestion
 - Consistency checking
 - Snowflake environment setup and maintenance
 - Auto-Reconciliation
- Tinku Sharma
 - Conversion from XML to JSON
 - Data Validation Rules
 - AI summary for trends and UI for manual reconciliation
- Julia Sznitka
 - Dashboard and source-specific pop up, graphs
 - Downloading (JSON, file type, report)
 - TXT conversion to JSON, JSON to all for download
- Jordan Tansingco
 - UI/ Backend integration for data ingestion & audit logs
 - Continuous data caching / background fetches
 - UI integration for scheduled data ingestion



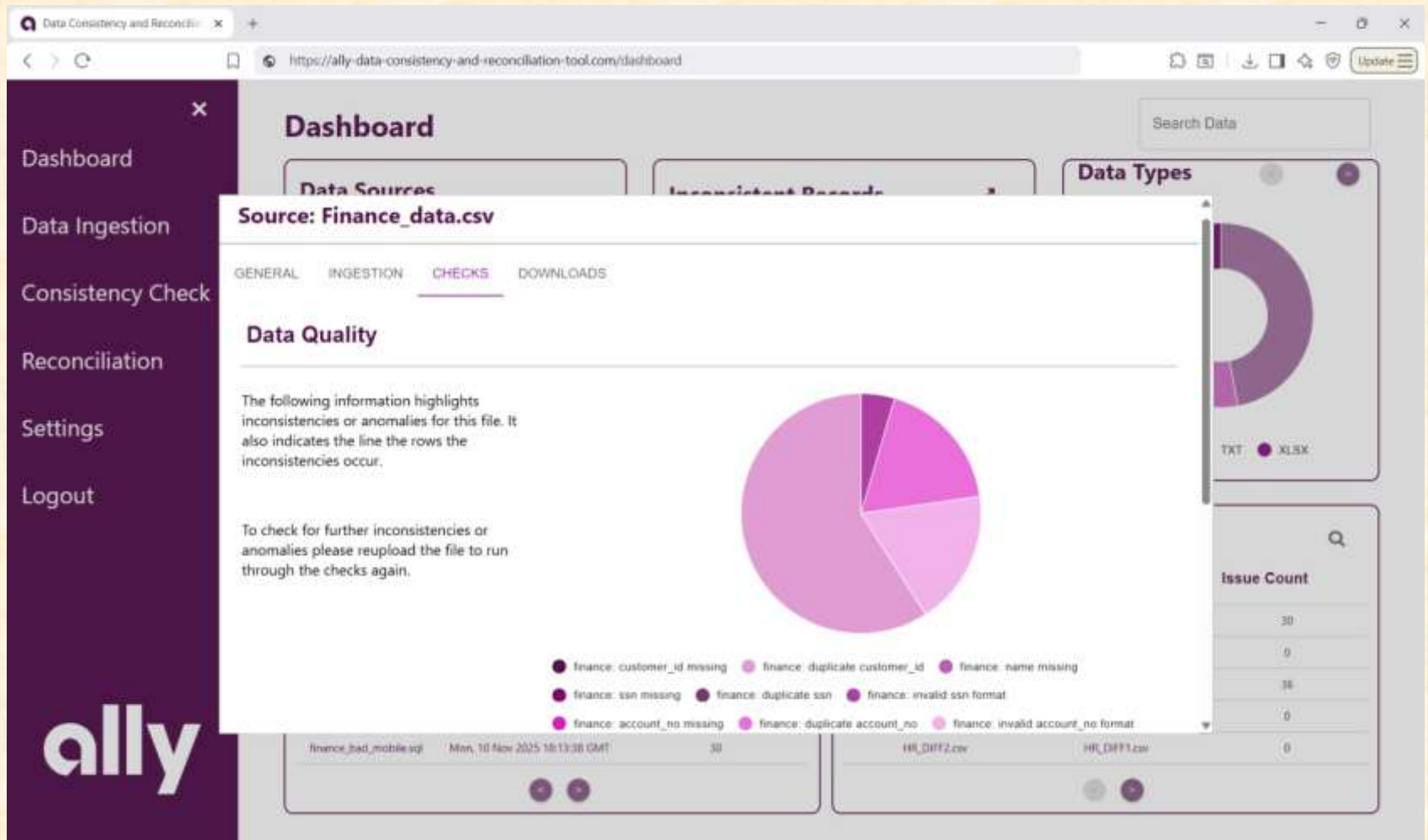
System Architecture



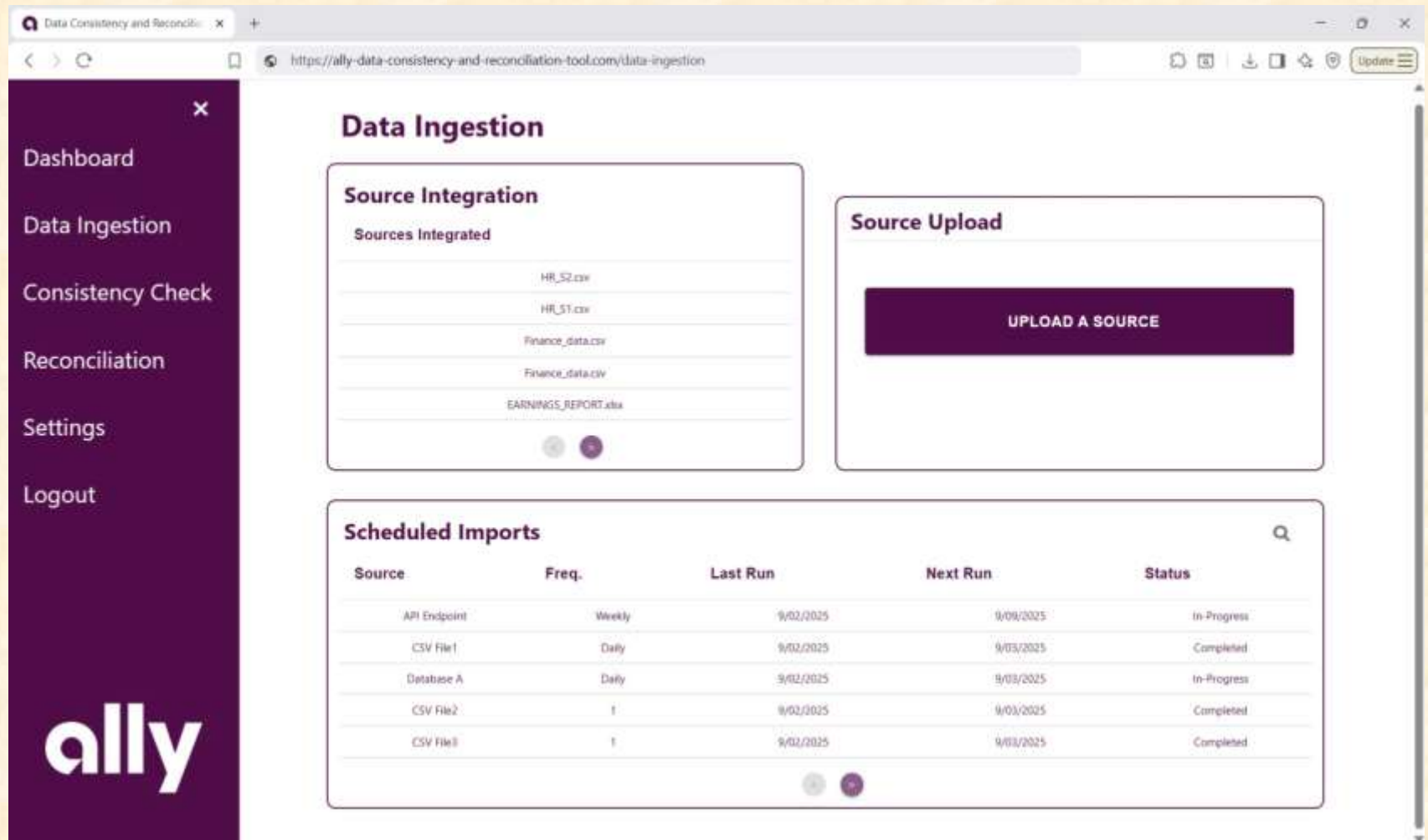
Screen Mockup: Dashboard



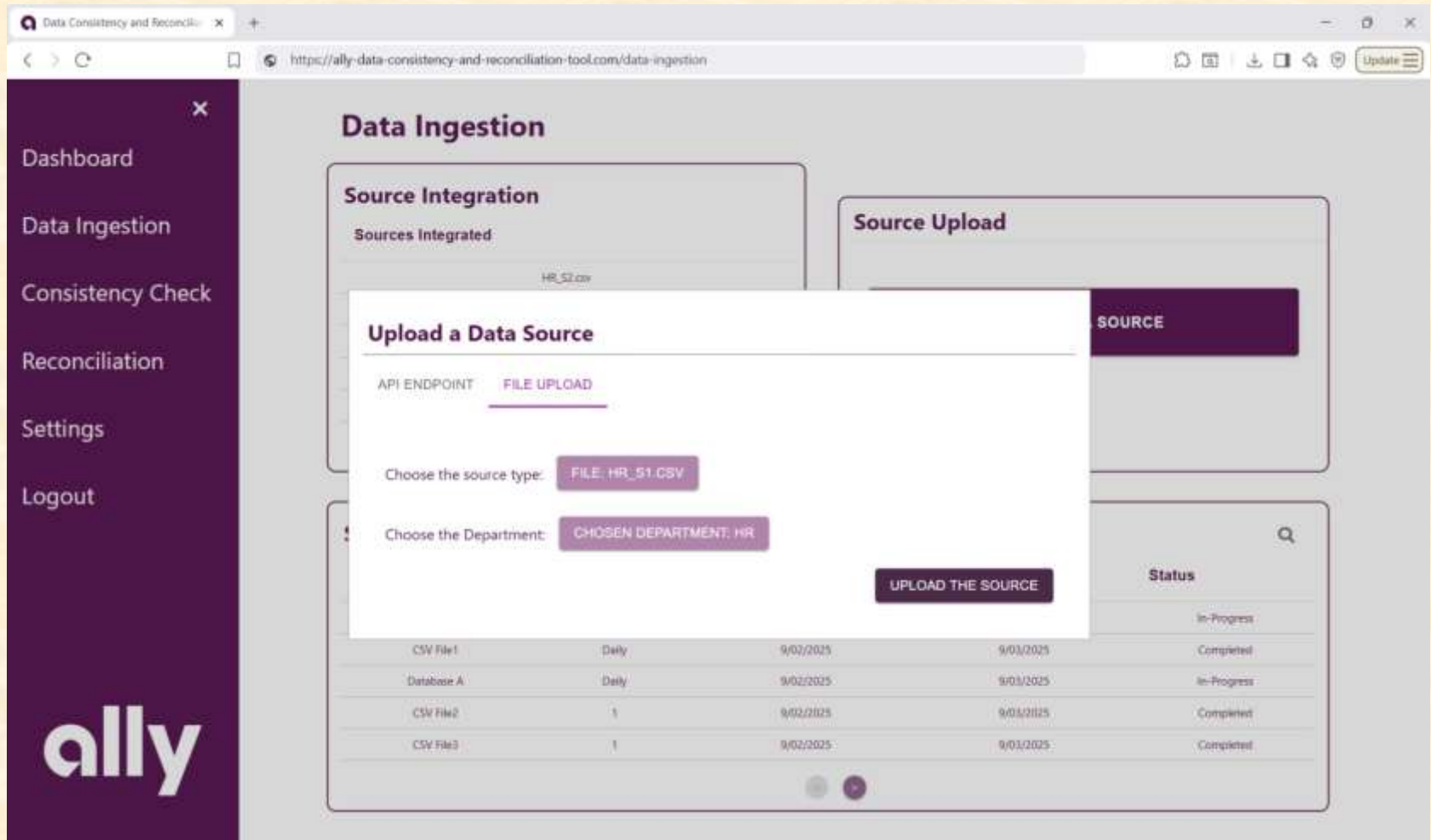
Screen Mockup: Source Popup



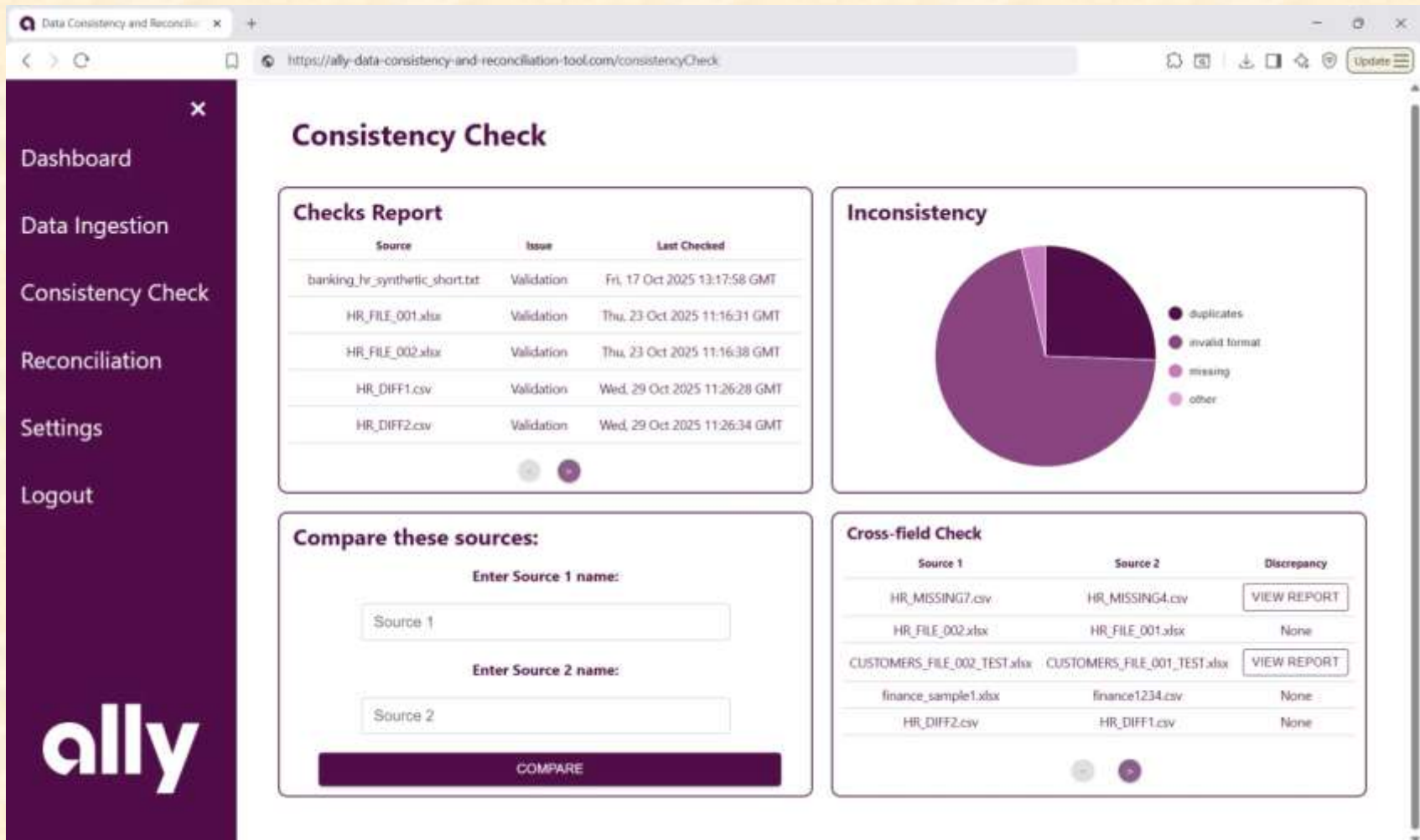
Screen Mockup: Data Ingestion



Screen Mockup: Data Ingestion Popup



Screen Mockup: Consistency Check



Screen Mockup: Conflict Report

The mockup shows a web application interface for 'Data Consistency and Reconciliation'. The main heading is 'Consistency Check'. A sidebar on the left contains links to 'Dashboard', 'Data Ingestion', 'Consistency Check', 'Reconciliation', 'Settings', and 'Logout'. The 'Consistency Check' section is active, displaying a 'Conflicts Found' modal. This modal compares two sources: 'Source 1: HR_MISSING7.csv' and 'Source 2: HR_MISSING4.csv'. It features an 'AI SUGGESTED' tab and a 'MANUAL' tab. The 'AI Summary' section provides a text-based overview of the differences. Below this, a table lists suggested changes for Source 1. The table has columns for Identifier, Field, Source 1 Row, Source 2 Row, Old Value, and New Value. The 'ally' logo is visible in the bottom left corner of the interface.

Conflicts Found:

Source 1: HR_MISSING7.csv Source 2: HR_MISSING4.csv

AI SUGGESTED MANUAL

AI Summary:

The summary of the differences between the two tables is that there are 15 changes in total, with the most significant changes being the addition of employee information such as names, email addresses, salaries, and countries. One pattern noticed is that both employees are from the USA. An odd thing to note is that the row numbers were initially nonexistent and were later added.

Last Compared: Mon, 10 Nov 2025 20:34:01 GMT

Below are the suggested changes to resolve the discrepancies for each of the sources:

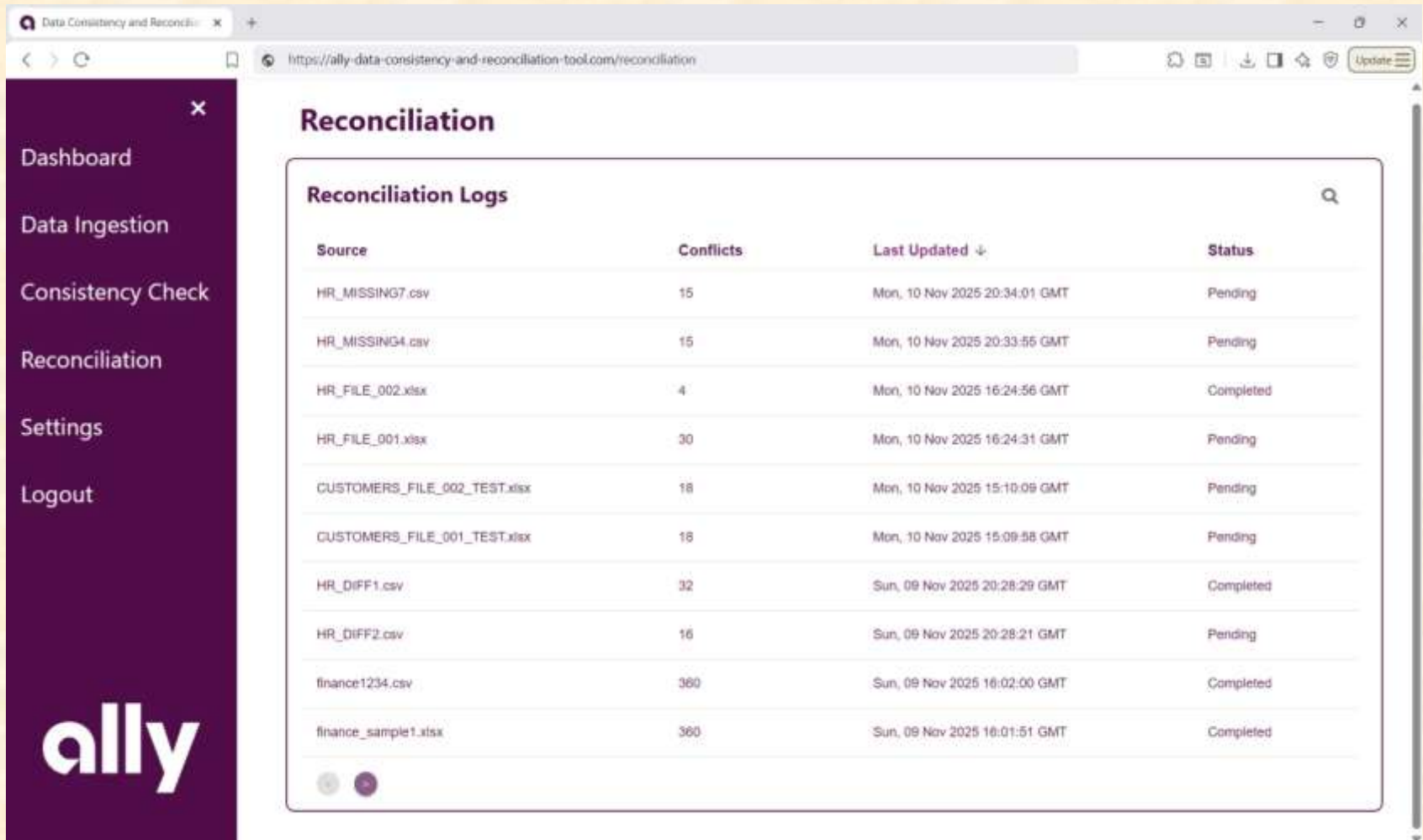
Source 1: HR_MISSING7.csv

Identifier: EMPLOYEE_ID	Field	Source 1 Row	Source 2 Row	Old Value	New Value
EMP113	ROW_NUM		14		14
EMP113	NAME		14		Barty Allen

COMPARE



Screen Mockup: Reconciliation Page



What's left to do?

- Features
 - None
- Stretch Goals
 - Supporting multi-file upload
 - Manual reconciliation
- Other Tasks
 - Adjusting popup size
 - Optimizing loading time
 - Bug fixes



Questions?

?

?

?

?

?

?

?

?

?

