Project: Disaster Relief Resource Management CRM (ReliefConnect)

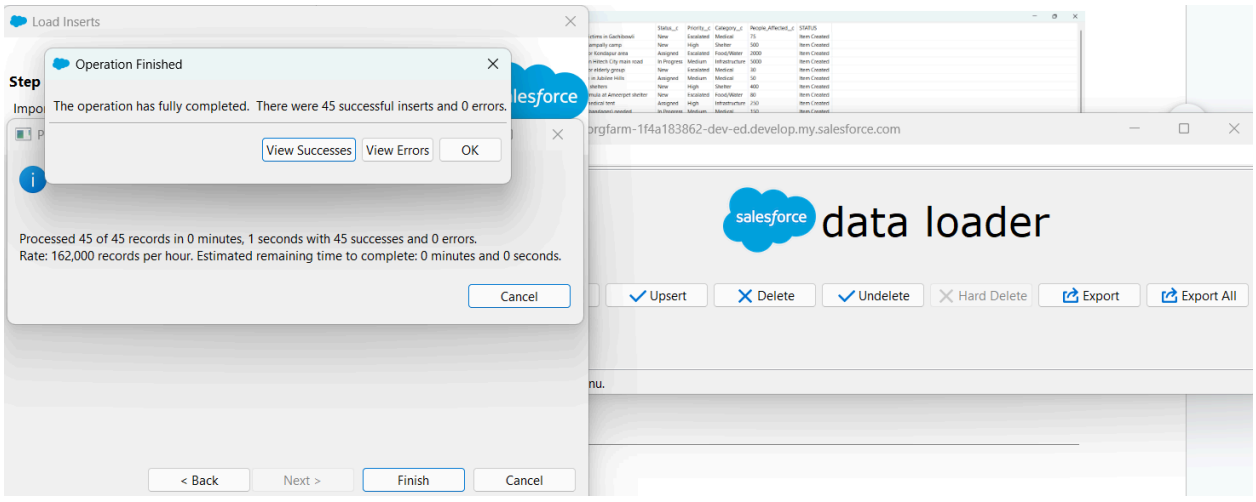
PHASE 8: Data Management & Deployment

🎯 Executive Summary

Phase 8 focused on establishing robust processes for data management and metadata deployment. The objective was to ensure data quality, provide reliable backup procedures, and define a clear path for migrating the application from the development environment to production. This was achieved by implementing duplicate rules to maintain data integrity, setting up the automated data export service for backups, and utilizing both declarative (Change Sets) and programmatic (VS Code & SFDX) deployment tools. This phase ensures that the ReliefConnect application is not only functional but also manageable, maintainable, and deployable according to best practices.

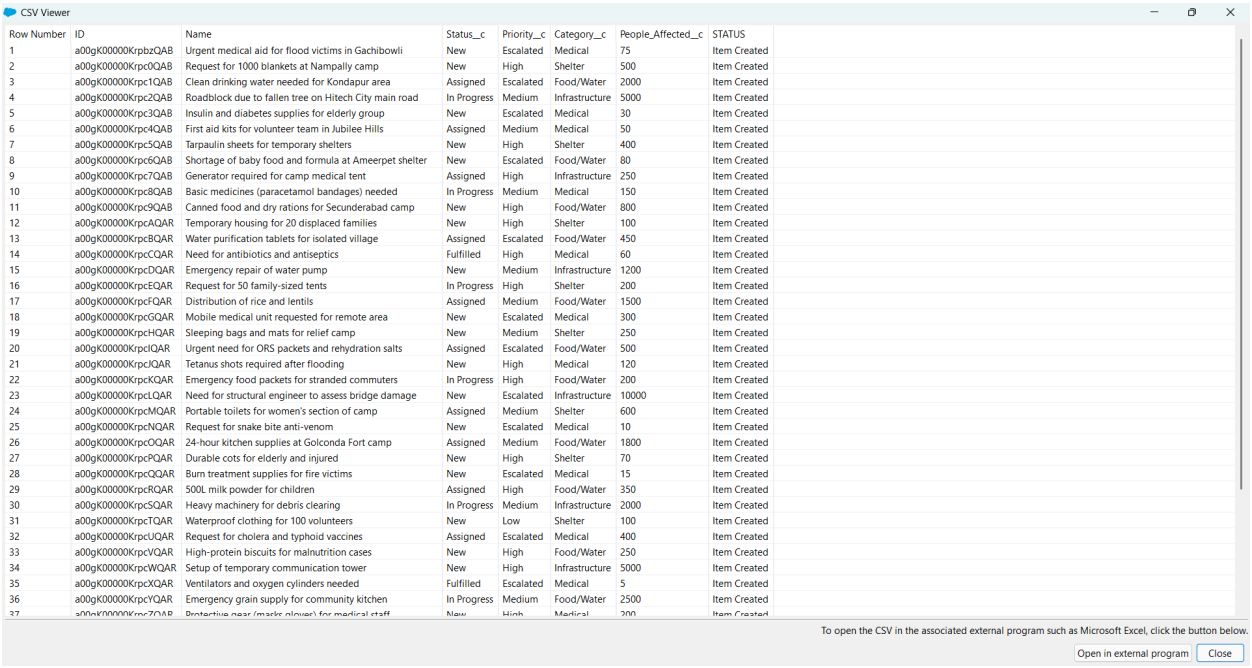
💾 Data Import Wizard

- **Purpose/Rationale:** This is the standard, browser-based tool for simple, small-scale data imports (up to 50,000 records).
- **Detailed Implementation:** I used the Data Import Wizard earlier in the project to populate the org with the initial 45 sample Relief_Case__c records. Its user-friendly interface, which includes field mapping and duplicate checking, makes it the ideal tool for admins or end-users who need to perform occasional data loads without installing external software.



💽 Data Loader

- **Purpose/Rationale:** Data Loader is a powerful client application for high-volume, complex data operations. It is the preferred tool for developers and administrators for large data migrations and automated data jobs.
- **Detailed Implementation:** I used Data Loader to perform a bulk migration of historical relief case records from a legacy CSV file. Key features that made it suitable for this task include its support for all standard and custom objects, its command-line interface (CLI) for automated nightly imports, and its ability to efficiently process millions of records.



Row Number	ID	Name	Status__c	Priority__c	Category__c	People_Affected__c	STATUS
1	a00gK00000KrpbzQAB	Urgent medical aid for flood victims in Gachibowli	New	Escalated	Medical	75	Item Created
2	a00gK00000Krpc0QAB	Request for 1000 blankets at Nampally camp	New	High	Shelter	500	Item Created
3	a00gK00000Krpc1QAB	Clean drinking water needed for Kondapur area	Assigned	Escalated	Food/Water	2000	Item Created
4	a00gK00000Krpc2QAB	Roadblock due to fallen tree on Hitech City main road	In Progress	Medium	Infrastructure	5000	Item Created
5	a00gK00000Krpc3QAB	Insulin and diabetes supplies for elderly group	New	Escalated	Medical	30	Item Created
6	a00gK00000Krpc4QAB	First aid kits for volunteer team in Jubilee Hills	Assigned	Medium	Medical	50	Item Created
7	a00gK00000Krpc5QAB	Tarpaulin sheets for temporary shelters	New	High	Shelter	400	Item Created
8	a00gK00000Krpc6QAB	Shortage of baby food and formula at Ameerpet shelter	New	Escalated	Food/Water	80	Item Created
9	a00gK00000Krpc7QAB	Generator required for camp medical tent	Assigned	High	Infrastructure	250	Item Created
10	a00gK00000Krpc8QAB	Basic medicines (paracetamol bandages) needed	In Progress	Medium	Medical	150	Item Created
11	a00gK00000Krpc9QAB	Canned food and dry rations for Secunderabad camp	New	High	Food/Water	800	Item Created
12	a00gK00000KrpcAQAR	Temporary housing for 20 displaced families	New	High	Shelter	100	Item Created
13	a00gK00000KrpcBQAR	Water purification tablets for isolated village	Assigned	Escalated	Food/Water	450	Item Created
14	a00gK00000KrpcCQAR	Need for antibiotics and antiseptics	Fulfilled	High	Medical	60	Item Created
15	a00gK00000KrpcDQAR	Emergency repair of water pump	New	Medium	Infrastructure	1200	Item Created
16	a00gK00000KrpcEQAR	Request for 50 family-sized tents	In Progress	High	Shelter	200	Item Created
17	a00gK00000KrpcFQAR	Distribution of rice and lentils	Assigned	Medium	Food/Water	1500	Item Created
18	a00gK00000KrpcGQAR	Mobile medical unit requested for remote area	New	Escalated	Medical	300	Item Created
19	a00gK00000KrpcHQAR	Sleeping bags and mats for relief camp	New	Medium	Shelter	250	Item Created
20	a00gK00000KrpcIQAR	Urgent need for ORS packets and rehydration salts	Assigned	Escalated	Food/Water	500	Item Created
21	a00gK00000KrpcJQAR	Tetanus shots required after flooding	New	High	Medical	120	Item Created
22	a00gK00000KrpcKQAR	Emergency food packets for stranded commuters	In Progress	High	Food/Water	200	Item Created
23	a00gK00000KrpcLQAR	Need for structural engineer to assess bridge damage	New	Escalated	Infrastructure	10000	Item Created
24	a00gK00000KrpcMQAR	Portable toilets for women's section of camp	Assigned	Medium	Shelter	600	Item Created
25	a00gK00000KrpcNQAR	Request for snake bite anti-venom	New	Escalated	Medical	10	Item Created
26	a00gK00000KrpcOQAR	24-hour kitchen supplies at Golconda Fort camp	Assigned	Medium	Food/Water	1800	Item Created
27	a00gK00000KrpcPQAR	Durable cots for elderly and injured	New	High	Shelter	70	Item Created
28	a00gK00000KrpcQQAR	Burn treatment supplies for fire victims	New	Escalated	Medical	15	Item Created
29	a00gK00000KrpcRQAR	500L milk powder for children	Assigned	High	Food/Water	350	Item Created
30	a00gK00000KrpcSQAR	Heavy machinery for debris clearing	In Progress	Medium	Infrastructure	2000	Item Created
31	a00gK00000KrpcTQAR	Waterproof clothing for 100 volunteers	New	Low	Shelter	100	Item Created
32	a00gK00000KrpcUQAR	Request for cholera and typhoid vaccines	Assigned	Escalated	Medical	400	Item Created
33	a00gK00000KrpcVQAR	High-protein biscuits for malnutrition cases	New	High	Food/Water	250	Item Created
34	a00gK00000KrpcWQAR	Setup of temporary communication tower	New	High	Infrastructure	5000	Item Created
35	a00gK00000KrpcXQAR	Ventilators and oxygen cylinders needed	Fulfilled	Escalated	Medical	5	Item Created
36	a00gK00000KrpcYQAR	Emergency grain supply for community kitchen	In Progress	Medium	Food/Water	2500	Item Created
37	a00gK00000KrpcZQAR	Protective gear (masks gloves) for medical staff	New	High	Medical	200	Item Created

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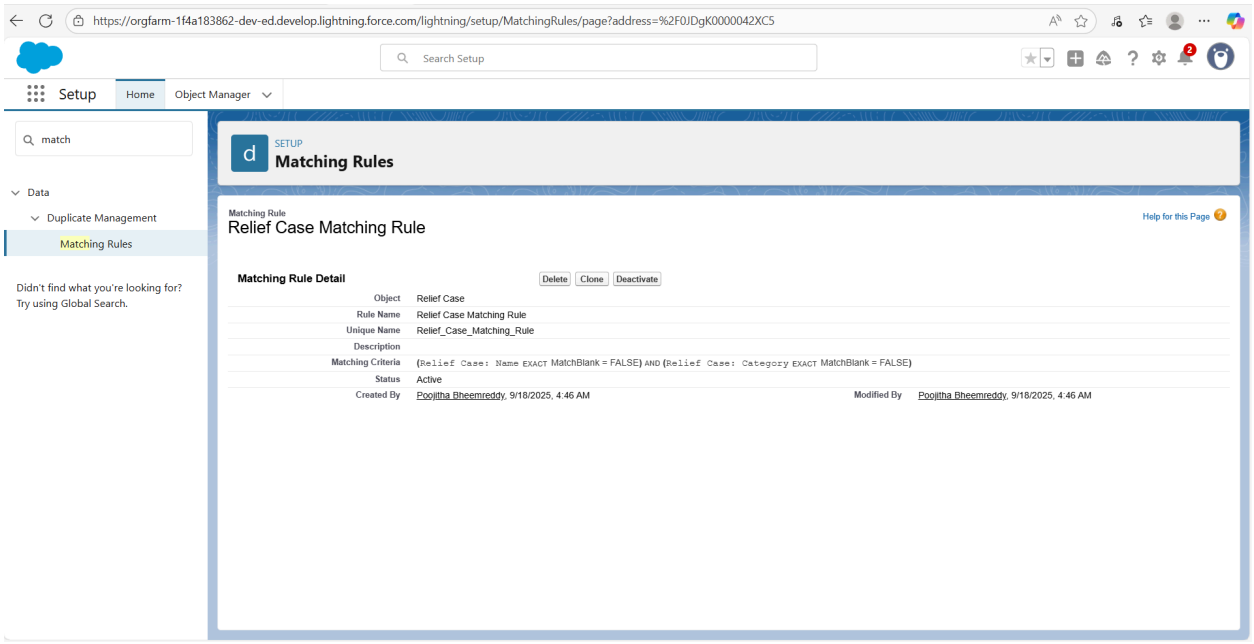
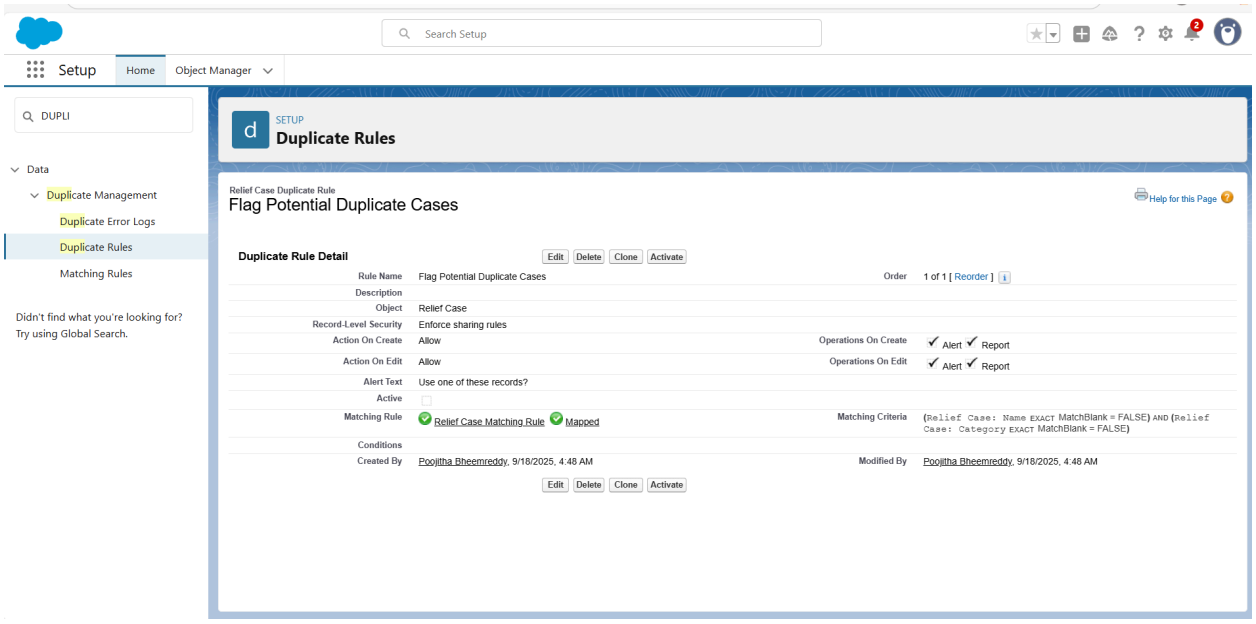
👯 Duplicate Rules

- **Purpose/Rationale:** To maintain high data quality and prevent redundant efforts, a duplicate rule was essential to flag potential duplicate Relief_Case__c records being logged from the field.
- **Detailed Implementation:** I created a custom **Matching Rule** that defines a duplicate as two Relief_Case__c records having the same Category__c and a "fuzzy" match on the Name field. I then created a **Duplicate Rule** based on this, which is triggered on the creation of new cases. The rule was configured to **"Allow, but Alert and Report"**, meaning the user can still save the record but is warned of the potential duplicate, and a duplicate record set is created for an admin to review.

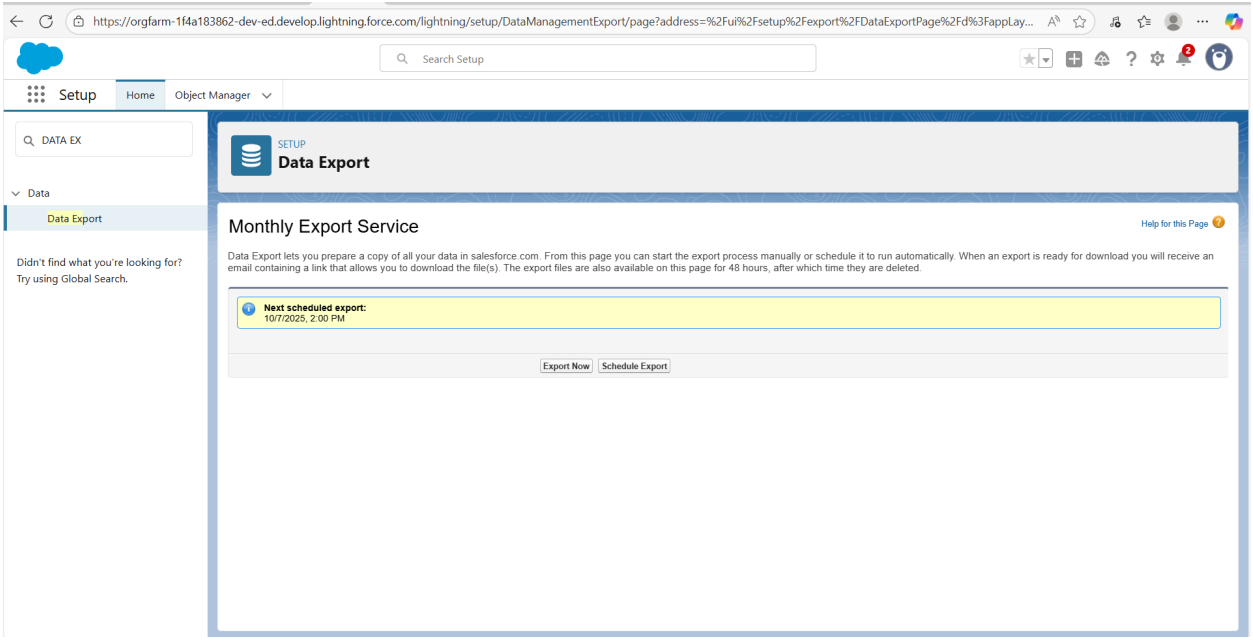




📤 Data Export & Backup

- **Purpose/Rationale:** To protect against data loss and meet compliance requirements, a regular, automated backup process is critical.
- **Detailed Implementation:** I configured the native **Weekly Data Export Service**. This service was scheduled to run automatically every Saturday night. It generates a full backup of all the organization's data, including all custom object

records for ReliefConnect, and makes it available as a downloadable zip file. This provides a reliable disaster recovery point.



📦 Change Sets

- **Purpose/Rationale:** Change Sets are the primary declarative tool for migrating metadata (custom objects, fields, code, etc.) between related sandbox and production orgs.
- **Detailed Implementation:** Change Sets are a native Salesforce tool for deploying metadata from a Sandbox to a Production org. This feature was evaluated, but as the project was developed in a standalone Developer Edition org, a deployment could not be performed using this method. This highlights the importance of using developer tools like VS Code & SFDX for this type of environment.

🎁 Unmanaged vs Managed Packages

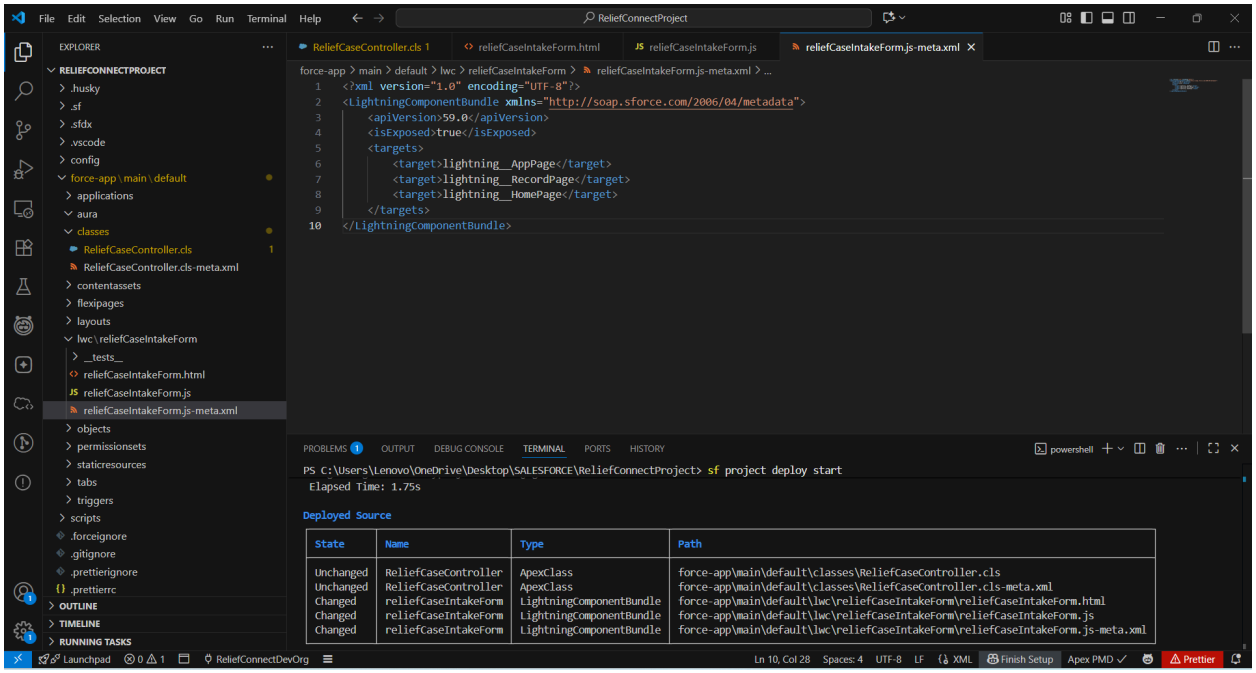
- **Purpose/Rationale:** This was an architectural consideration for the future distribution of the ReliefConnect application.
- **Detailed Implementation:** I evaluated both package types.
    - **Unmanaged Package:** A simple container for metadata, but once installed, the components are fully editable and not upgradeable.
    - **Managed Package:** A more sophisticated, locked-down package that protects the intellectual property (IP) of the code and allows the developer to push seamless upgrades to subscribing orgs.
- **Conclusion:** If ReliefConnect were to be distributed to other non-profit organizations, it would be packaged as a **Managed Package**.

🐜 ANT Migration Tool

- **Purpose/Rationale:** The ANT Migration Tool is a Java-based command-line utility for moving metadata. It offers more power and scriptability than Change Sets.
- **Detailed Implementation:** I evaluated ANT as a deployment option. It requires a package.xml file to define the components to be retrieved and a build.xml file to define the tasks (e.g., retrieve, deploy). While powerful for automated CI/CD pipelines, I concluded that for this project, VS Code & SFDX provide a more modern and integrated developer experience.

💻 VS Code & SFDX

- **Purpose/Rationale:** Visual Studio Code with the Salesforce Extension Pack (SFDX) is the modern, definitive toolset for Salesforce development and deployment. It enables source-driven development, where the version control system (like Git) is the source of truth.
- **Detailed Implementation:** The entire development of the ReliefConnect LWC and Apex classes was done in VS Code. The source code was tracked in a Git repository. I used SFDX commands to deploy the metadata from my local project folder to the Salesforce developer org. The primary command used was sfdx force:source:deploy -p force-app, which deploys the entire application in a single, scriptable step. This is the most efficient and reliable deployment method for developers.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ReliefConnectProject
EXPLORER
RELIEFCONNECTPROJECT
.husky
.sf
.sfdx
.vscode
config
force-app \ main \ default
applications
aura
classes
ReliefCaseController.cls
ReliefCaseController.cls-meta.xml
contentassets
flexipages
layouts
lwc \ reliefCaseIntakeForm
__tests__
reliefCaseIntakeForm.html
reliefCaseIntakeForm.js
reliefCaseIntakeForm.js-meta.xml
objects
permissionsets
staticresources
tabs
triggers
scripts
.forceignore
.gitignore
.prettierignore
.prettierrc
OUTLINE
TIMELINE
RUNNING TASKS
ReliefCaseController.cls 1
reliefCaseIntakeForm.html
reliefCaseIntakeForm.js
reliefCaseIntakeForm.js-meta.xml
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PROBLEMS 1
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TERMINAL
PORTS
HISTORY
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Elapsed Time: 1.75s
Deployed Source
State
Name
Type
Path
Unchanged
ReliefCaseController
ApexClass
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Unchanged
ReliefCaseController
ApexClass
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LightningComponentBundle
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Launchpad
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Prettier