CAPSTONE PROJECT FINAL REPORT: PET ADOPTION TRACKER

Executive Summary

The **Pet Adoption Tracker** is a comprehensive solution built on the Salesforce Lightning Platform designed to streamline the operations of a non-profit animal shelter. The goal was to replace fragmented, manual processes (paperwork, spreadsheets) with a unified, automated system. The solution enhances efficiency, improves data hygiene, secures sensitive financial and personal data, and provides real-time analytics to drive better operational decisions.

Phase 1 & 2: Data Model and User Access Foundation

Key Data Architecture

The application is built around five core custom objects, structured using Master-Detail and Lookup relationships to connect the entire adoption and operational cycle.

Object	Purpose	Key Relationships
Pet__c	Master record for all animals.	Lookup(Shelter Account)
Adopter__c	Record for individuals/families.	Roll-Up (Pets Adopted)
Adoption_Request__c	Transactional record for the application process.	Master-Detail(Pet), Master-Detail(Adopter)
Donation__c	Tracking financial contributions.	Lookup(Adopter)
Volunteer_Shifts__c	Logging hours worked by support staff.	Lookup(Volunteer Contact)

User Access & Security Model

Access is controlled via distinct **Profiles** and **Roles** to ensure a separation of duties.

Profile	Role	Key Access Rationale
Pet Shelter Manager	Adoption Manager	Full visibility, final request approval, KPI monitoring.
Pet Shelter Staff	Shelter Staff	Creation/Editing of Pet and Adoption Request records.
Support Volunteer	Support Volunteer	Logging Volunteer Shifts; Read-Only access to Pet details.
Pet Shelter Admin	Shelter Admin	System maintenance, security, and data oversight.

Phase 5, 7, & 8: Apex Automation and Integrations

Backend Logic and Triggers (Phase 5)

A Trigger Handler pattern was implemented for all primary objects to ensure bulkification and maintain order of execution.

Trigger/Class	Event	Function
AdoptionRequestTriggerHandler	after update	Manages the core business logic: Status change from 'Approved' automatically updates Pet__c.Availability__c to 'adopted'.
PetTriggerHandler	before insert	Sets default values for Availability ('available') and Health Status ('healthy').
AdopterService	Class	Calculates Total Pets Adopted (used by UI for eligibility/discount).

Integration and Asynchronous Processing (Phase 7)

The application integrates with external systems and uses event architecture for real-time processing.

Integration	Technology	Purpose
Microchip Lookup	**Named Credential & @future(callout=true)**	Securely calls an external registry API to verify pet microchip status asynchronously, preventing UI blocking.
Real-time Notifications	**Platform Events** (AdoptionApprovedEvent__e)	Decouples notification logic. The trigger publishes the event upon adoption approval, instantly notifying subscribers (e.g., Dashboards, external systems).
Data Synchronization	**Change Data Capture (CDC)**	Enabled on Adoption_Request__c to reliably push real-time CRUD notifications to external partner applications.

Phase 6 & 9: User Experience and Analytics

User Interface & Experience (Phase 6)

The UI is a custom Lightning App built to streamline workflows for each user persona.

UI Element	Location	Technology	Business Value
Executive Dashboard	Home Page	**Dynamic Dashboard & Custom LWCs**	Provides immediate visibility into KPIs (Pending Requests, Monthly Revenue).
KPI Cards	Home Page	LWC (Imperative Apex)	Shows current counts for Available Pets and Pending Requests at a glance.
Adoption Workflow	Record Page	**Status Path**	Guides staff through the adoption lifecycle (Pending → Approved → Rejected).

Reporting & Dashboards (Phase 9)

Custom Report Types were established to link data, and key reports were built to monitor operations and finances.

Report Example	Format	Insight Provided
Adoptions by Species & Month	Matrix	Identifies adoption trends for resource allocation.
Pending Requests by Staff	Summary	Tracks individual staff workload and bottlenecks.
Monthly Revenue from Donations	Summary	Monitors the financial health against fundraising goals.

Phase 9 & 10: Security and Handoff

Security and Governance Review

The system was configured with layered security to protect financial data and ensure accountability.

Security Layer	Configuration	Justification
Org-Wide Defaults	**Private** for Adoption Request and Donation. **Public Read Only** for Pet.	Restricts access to sensitive financial/personal data by default.
Field-Level Security	Adoption_Fee__c and Pet__c.Cost__c are **Hidden** from Pet Shelter Staff and Support Volunteer profiles.	Enforces data confidentiality for financial information.
Login Security	**Login IP Ranges** restricted on the Pet Shelter Staff Profile.	Enforces physical security by limiting system access to the shelter premises.
Audit & History	History Tracking enabled on Adoption_Request__c.Status__c.	Provides a chronological audit trail for the critical application process.

Video Link:
https://drive.google.com/file/d/1Rz0QkUchkkclO3urVHMcLvThpxrWJHaE/view?usp=drive_link