Project : Fraud Detection Alerts System for “Acme Bank”

Project Name: Fraud Detection Alerts System – Salesforce Implementation

Organization: Acme Bank (Retail & Corporate Banking)

Industry: Banks, Fintech**.**

Problem Statement

Acme Bank receives thousands of daily financial transactions. Manual fraud detection is time-consuming and error-prone. To improve efficiency and minimize financial losses, Acme Bank wants a **Salesforce-based fraud detection system** that:

- Automatically flags suspicious transactions based on risk rules.
- Uses AI or API-based risk scoring to assign a **fraud score**.
- Alerts compliance officers and allows them to review high-risk transactions.
- Provides dashboards for real-time fraud monitoring

Use Cases for Fraud Detection Alerts System

Use Case 1: Detect High-Value Suspicious Transaction

Description:
When a customer initiates a transaction above a defined threshold (e.g., ₹50,000) or from an unusual location, the system flags it as suspicious.

Actors: Customer, Fraud Detection System, Compliance Officer
Expected Outcome: High-risk transactions are flagged immediately, reducing fraud losses.

Use Case 2: AI-Based Risk Scoring

Description:
The system calls an external Fraud Scoring API to calculate a risk score for each transaction.

Actors**:** Transaction, Salesforce Apex Trigger, Fraud Scoring API, Compliance Officer
Expected Outcome**:** Automates risk assessment and prioritizes alerts for compliance review.

Use Case 3: Compliance Officer Dashboard

Description:
Compliance officers monitor all flagged transactions via a dashboard.

Actors**:** Compliance Officer, LWC Dashboard, Salesforce Reports
Expected Outcome**:** Provides actionable insights in real-time for fraud management.

Use Case 4: Auto-Notification of High-Risk Transactions

Description:
For transactions flagged as “High Risk,” the system automatically notifies compliance officers to take immediate action.

Actors**:** Salesforce Flow, Email Alert, Compliance Officer
Expected Outcome: Ensures critical alerts are not missed and improves response time.

Use Case 5: Transaction Feedback / AI Sentiment (Optional)

Description:
If customers or internal staff leave notes on suspicious transactions, AI analyzes sentiment to further prioritize alerts.

Actors**:** Customer / Staff, Salesforce Apex, AI Sentiment Service
Expected Outcome**:** Adds intelligent prioritization to workflow, improving fraud handling efficiency.

Bonus Use Case: Historical Fraud Trend Analysis

Description:
Managers review aggregated historical fraud patterns to identify risk-prone locations, merchants, or transaction types.

Actors**:** Manager, Reports, Dashboard
Expected Outcome**:** Helps the bank proactively adjust rules and prevent future fraud

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Solution Overview

The system consists of:

- **Custom Objects**:

    - **Customer**: Stores account holder info.
    - **Transaction**: Stores details of transactions (amount, merchant, location, timestamp).
    - **Fraud Alert**: Stores fraud score, risk level, reason, and status.
- **Automation & Apex**:
    - **Flow** triggers on Transaction creation → simple rule-based checks → create Fraud Alert if suspicious.
    - **Apex Trigger + Queueable** → call external Fraud Scoring API (mock JSON or third-party fintech API).
    - **AI Integration** → optional sentiment analysis on transaction notes/comments.
- **LWC Components**:
    - **Transaction Feed** → List all transactions with risk indicators.
    - **Fraud Alert Card** → Display score, risk level, and compliance actions.
    - **Fraud Dashboard Tile** → Show trends, pie charts for risk levels, bar charts for alerts per officer.
- **Integration**:
    - REST API callout to Fraud Scoring service.
    - Named Credential + Remote Site Settings to secure API endpoint.
- **Dashboards & Reports**:
    - **Reports**: Fraud alerts by risk level, transaction location, assigned officer.
    - **Dashboard**: Real-time visualization of fraud trends and high-risk transactions.

Project Implementation Phases (Mapped to Salesforce Concepts)

Phase	Key Activities
1. Problem Understanding	Requirement gathering from Acme Bank's compliance team; stakeholder analysis (risk officers, IT, branch managers); map existing fraud detection process.
2. Org Setup & Configuration	Salesforce Enterprise Dev Org; Users, Roles, Profiles, Permission Sets; OWD = Private for Transactions/Fraud Alerts; Sandbox for testing.
3. Data Modeling & Relationships	Create custom objects: Customer, Transaction, Fraud Alert; Master-detail & lookup relationships; fields like Amount, Location, Risk Score, Status.
4. Process Automation	Flows for auto-creating Fraud Alerts; Validation Rules on transaction data; Email Alerts for compliance notifications; Approval Process for high-risk transactions.
5. Apex Programming	Trigger on Transaction insert → Queueable Apex calls Fraud API; updates Fraud Alert with score & status; Test Classes for coverage.
6. User Interface Development	LWC Transaction Feed, Fraud Alert Card, Dashboard tiles; Wire adapters + Imperative Apex calls; Navigation Service for detailed view.
7. Integration & External Access	REST API integration with Fraud Scoring service; Named Credentials & Remote Site Settings; optional AI/Einstein Sentiment integration for transaction notes.

8. Data Management & Deployment	Load sample Customers & Transactions via Data Loader; deploy using Change Sets / SFDX; ensure duplicate rules and backups.
9. Reporting & Dashboards	Reports for Fraud Alerts by risk, Transaction volumes, Alert resolution; Dashboards visualizing fraud trends, risk distribution, and alerts by officer.
10. Final Presentation & Demo	Demo: Create transaction → API fraud score → Fraud Alert auto-created → Dashboard refreshes; Documentation of objects

This system automates fraud detection by combining Salesforce automation, AI risk scoring, and dashboards—helping compliance teams save time and reduce fraud losses

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Project: Fraud Detection Alerts in Transactions

📌 Phase 1: Problem Understanding & Industry Analysis

- **Requirement**: Banks/Fintechs want to detect unusual/suspicious transactions.
- **Stakeholders**: Compliance team, Risk Officers, Customers.
- **Business Process**:
    - Transactions flow into Salesforce.
    - Suspicious ones get flagged via rules/API.
    - Alerts are created → routed to compliance.
- **Unique Angle**: AI fraud score + dashboard visualization.
- **AppExchange Inspiration**: Fraud Detection apps, Risk Scoring accelerators.

📌 Phase 2: Org Setup & Configuration

- **Edition**: Enterprise Dev Org.

- **Setup**: Company profile, business hours, fiscal year.
- **Users/Roles**:
    - Customer (End user).
    - Compliance Officer (Reviews alerts).
    - Admin.
- **Security**: OWD = Private, Sharing Rules = Alerts visible only to Compliance team.

📌 Phase 3: Data Modeling & Relationships

- **Objects**:
    - **Transaction** (Amount, Merchant, Location, Timestamp).
    - **Customer** (Name, Contact, Account).
    - **Fraud Alert** (Risk Score, Reason, Status).
- **Relationships**:
    - Customer ⟶ Transactions (Master-Detail).
    - Transaction ⟶ Fraud Alert (Lookup).

📌 Phase 4: Process Automation

- **Validation Rule**: Amount > 0.
- **Flow**:
    - On Transaction creation ⟶ check simple rules (e.g., Amount > ₹50k outside home city).
    - If flagged ⟶ create Fraud Alert record.
- **Approval Process**: Compliance must approve if Transaction > ₹1L flagged.
- **Email Alerts**: Notify compliance officer when new alert created.

📌 Phase 5: Apex Programming

- **Apex Trigger**: On Transaction insert → call Fraud Scoring API.
- **FraudScoring.cls**:
  - Makes REST callout.
  - Receives fraud score (0–100).
  - Updates Fraud Alert with score & status.
- **Async Apex**: Future/Queueable for API callouts.
- **Test Classes**: Mock fraud score API response.

📌 Phase 6: User Interface (LWC)

- **LWC Components**:
  - **Transaction Feed** → list of transactions with fraud score indicator.
  - **Fraud Alert Card** → details, reason, status, compliance actions.
  - **Dashboard Tile** → live fraud detection trends.
- **Features**:
  - Wire adapter → fetch Fraud Alerts.
  - Imperative Apex call → get fraud scores on-demand.
  - Navigation service → click alert → open Fraud Alert record.

📌 Phase 7: Integration

REST API Callout: Fraud Scoring API (mock JSON).

```
{
  "transactionId": "T123",
  "fraudScore": 82,
```

```
  "riskLevel": "High",
  "reason": "Unusual Location & Large Amount"
}
```

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- **Setup**: Named Credential, Remote Site Settings.
- **Auth**: Simple API key or OAuth (if available).
- **Platform Events**: Broadcast “High-Risk Fraud Alert” to Compliance team

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📌 Phase 8: Data Management & Deployment

- **Data Import Wizard**: Load sample customers & transactions.
- **Data Loader**: Bulk load 1000 sample transactions.
- **Sandbox**: Dev in Sandbox → Deploy with Change Sets.
- **VS Code + SFDX**: Source tracking & deployment.

📌 Phase 9: Reporting & Dashboards

- **Reports**:
    - Fraud Alerts by Risk Level.
    - Suspicious Transactions by Location.
    - Alerts Assigned vs Resolved.
- **Dashboard**:
    - Pie chart = Fraud by Risk.
    - Bar = Alerts per Compliance Officer.
    - Line chart = Fraud Trends over Time

📌 Phase 10: Final Presentation

- **Pitch**: "This system automates fraud detection by combining Salesforce automation, AI risk scoring, and dashboards—helping compliance teams save time and reduce fraud losses."

- **Demo Flow**: Enter transaction → Fraud Alert created → API score updates → Dashboard refreshes.

- **Docs**: Include schema diagram, flow chart, and API mock.

- **Resume Highlight**: “Built Fraud Detection Alert system in Salesforce with LWC dashboard, REST API integration, and AI-based scoring.”

Unlike basic fraud detection exercises, this project integrates **real-time API-based fraud scoring, interactive LWC dashboards, and AI-powered alert prioritization**, showcasing end-to-end Salesforce skills