



AI Driven Entity Intelligence Risk Analysis

Technology Hackathon 2025

Team Scam-ur-AI

Team Members

Repository: <https://github.com/ewfx/aidel-scam-ur-ai>

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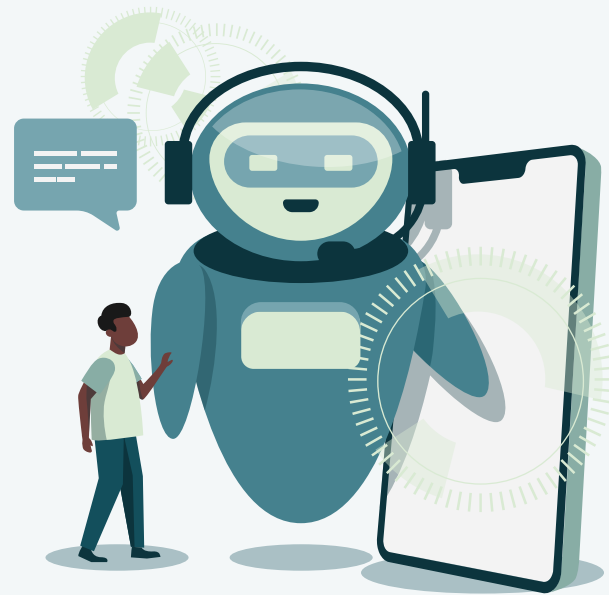
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Introduction

A significant amount of manual effort is spent in identifying the correct entities involved in transactions and analysing the transactions from a risk standpoint. This solution leverages provides publicly available data such as company registries, legal databases and news articles along with the **power of Gen AI** to provide a robust mechanism for entity recognition and accurate risk evaluation by creating a **comprehensive Risk Report**.



Our Approach



Approach – the Basics



Structured and Unstructured transaction data

Named Entity Recognition using the Gemini 2.0 Flash model to get a list of entities

Entity looked up on various data sources (ICIJ Leaks, Wikidata sanctioned entity lists, PEP lists, News articles etc) and detailed textual report produced

Transaction Text and Entity report for each entity sent to Gemini to generate Risk score, Confidence score, entity classification and reasoning

Approach



Tech Stack Used

- Frontend: ReactJS, TailwindCSS, RadixUI
- Backend: FastAPI
- Gemini API



Data Sources Leveraged

- OFAC API
- News API
- WikiData
- Sanction Lists
- ICIJ Leaks API

Approach – Risk Scoring Methodology

Based on the list of entities and the findings from the data sources of each entity we provide the complete text (transaction text + detailed textual report of each entity in our data sources) for Gemini to analyse. The text report from data sources include the following aspects:

1. Wikidata: If entity is found, is it a company or an individual or something else. If the entity is a company then who are the board members and which are the associated companies. If the entity is a person then is he/she a PEP (Politically Exposed Person). If entity is not found or is not an individual or a company then return this information.
2. News API: Collect news articles about the entity and check for financial misdoings, sanctions, etc in these articles and give a summary about the entity from these articles.
3. OFAC API: OFAC API allows us to search for the entity and its associated people and companies (if the entity is a company) in various sanctions like SDN, INTERPOL, FINCEN etc and PEP lists. Based on the findings we return the sources in which entity was found or we return that the entity was not found in these lists.
4. ICIJ Leaks: The ICIJ Leaks database allows us to search for entity and its associated people and companies (if the entity is a company) and returns relevant results.

Approach – Risk Scoring Methodology

A text result of typical entity analysis looks like this:

For the entity: YAKIMA OIL TRADING, the following information was found:

Wikidata Results Summary:

Wikidata does not have enough information to identify the entity: YAKIMA OIL TRADING.

News Articles Summary:

No news articles were found for the entity: YAKIMA OIL TRADING.

Sanction Search Summary:

The entity: YAKIMA OIL TRADING was found in the following search results: Matched with: YAKIMA OIL TRADING, LLP from the source: SDN with the similarity score: 0.8780487804878049.

ICIJ Leaks Database Search Summary:

The entity: YAKIMA OIL TRADING was found in the following search results from ICIJ Leaks Data: Matched with: YAKIMA TRADING CORP. with the similarity score: 84.21052631578947 with the reasoning being: Entity node extracted from the Paradise Papers - Barbados corporate registry data..

Approach – Risk Scoring Methodology

Once we have the results as a form of text from all our data sources, we are better enabled to make a decision about the risk of the transaction. Moreover, using Gemini as a source further provides access to information which was not found in the data sources to further strengthen the risk scoring.

An example of the final json returned by Gemini is as follows:

```
{'Transaction ID': 'TXN-2023-5A9B', 'Extracted Entity': ['Rosneft Oil Company', 'YAKIMA OIL TRADING, LLP', 'LLP', 'Ali Hussein Falih Al-Mansoori', 'Lasca Holding Ltd', 'NordVPN'], 'Entity Type': ['Oil Company', 'Limited Liability Partnership', 'Legal Structure', 'Individual (Director)', 'Holding Company', 'VPN Provider'], 'Risk Score': 0.85, 'Supporting Evidence': ['SDN List', 'Paradise Papers (ICIJ)', 'Paradise Papers (ICIJ)', 'Consolidated Sanctions List', 'Paradise Papers (ICIJ)', 'VPN Usage, Panama Exit Node'], 'Confidence Score': 0.88, 'Reason': 'While Rosneft Oil Company has no direct hits, the receiver, YAKIMA OIL TRADING, LLP, appears on the SDN list and in the ICIJ leaks database (Paradise Papers). Ali Hussein Falih Al-Mansoori, who approved the urgent transfer, is on the Consolidated Sanctions List. The transaction was processed via Lasca Holding Ltd, which also appears in the ICIJ leaks database (Paradise Papers). The use of NordVPN with a Panama exit node raises further suspicion. The missing invoice and charitable donation reference (to an oil trading company) also contribute to the elevated risk.'}
```

Challenges



Challenges



Handling Entities not found in any data sources like Wikidata, sanctions, news etc.



Choosing metrics by which to quantify risk and confidence in the form of a numerical score



Handling rate limitations and quotas on certain APIs like OFAC API and News API which could result in less data available for Risk Analysis

Results



User Interface

AI-Driven Entity Intelligence & Risk Analysis

Team: scam-ur-ai

Upload transaction files to analyze them for entity risk. Choose between structured and unstructured data formats.

Transaction Data

Process Transactions

Clear Data

Transaction Section	View Results
Transaction ID: TXN-2023-5A9B Date: 2023-08-15 14:22:00 Sender: -Name: 'Rosneft Oil Company' -Account: IBAN CH56 0483 5012 3456 7800 9 (Swiss bank) -Address: Rue du Marche 17, Geneva, Switzerland -Notes: 'Consulting fees for project Aurora' Receiver: -Name: 'YAKIMA OIL TRADING, LLP' -Account: 987654321 (Cayman National Bank, KY) -Address: P.O. Box 1234, George Town, Cayman Islands -Tax ID: KY-45678 Amount: \$49,850 (USD) Currency Exchange: N/A Transaction Type: Wire Transfer Reference: 'Charitable Donation - Ref #DR-2023-0815 Additional Notes: - Urgent transfer approved by Mr. Ali Hussein Falih Al-Mansoori (Director) - Linked invoice missing. Processed via intermediary Lasca Holding Ltd - Sender IP: 192.168.89.123 (VPN detected: NordVPN, exit node in Panama)	+
Transaction ID: TXN-2023-5A9C Date: 2023-08-15 14:22:00 Sender: -Name: 'Rosneft Oil Company' -Account: IBAN CH56 0483 5012 3456 7800 9 (Swiss bank) -Address: Rue du Marche 17, Geneva, Switzerland -Notes: 'Consulting fees for project Aurora' Receiver: -Name: 'YAKIMA OIL TRADING, LLP' -Account: 987654321 (Cayman National Bank, KY) -Address: P.O. Box 1234, George Town, Cayman Islands -Tax ID: KY-45678 Amount: \$49,850 (USD) Currency Exchange: N/A Transaction Type: Wire Transfer Reference: 'Charitable Donation - Ref #DR-2023-0815 Additional Notes: - Urgent transfer approved by Mr. Ali	+ ✖

Loaded Unstructured Transaction Data

User Interface

Transaction Data

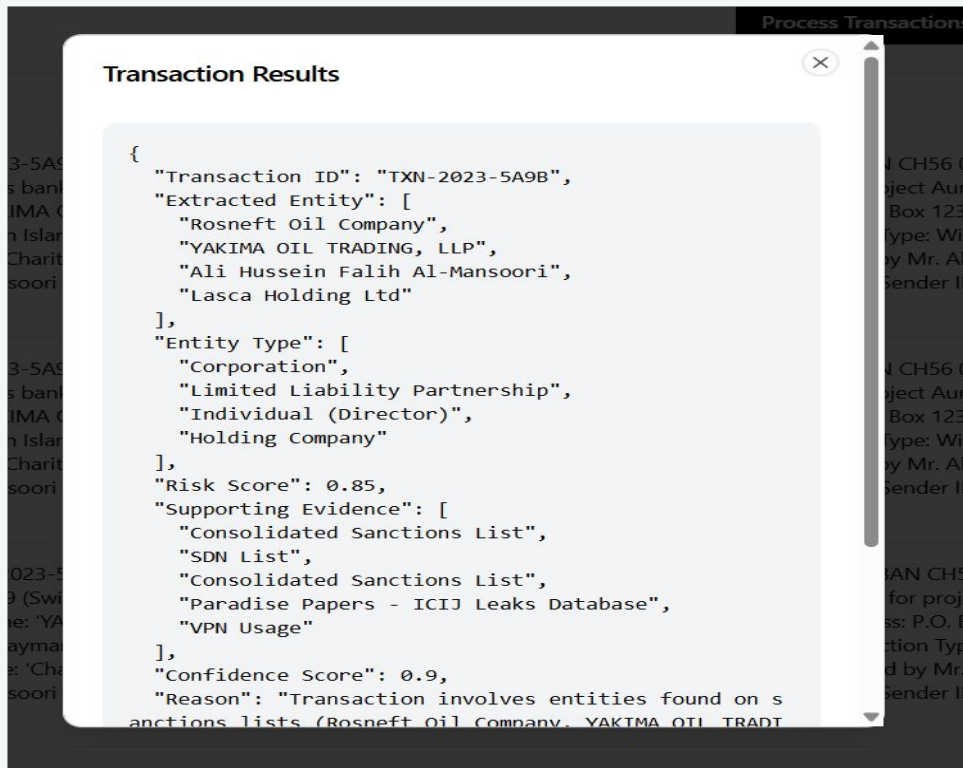
Process Transactions

Clear Data

Transaction ID	Payer Name	Receiver Name	Transaction Details	Amount	Receiver Country	View Results
TXN007	Chabad of Crimea	Surgutneftegas	Medical equipment donation	1500000	Russia	+
TXN010	US Dept. of Energy	Rosneft	Research grant	5000000	Russia	+
TXN005	Trident Trust	Rusal	Offshore investment	5000000	Cyprus	+
TXN015	Amazon.com Inc.	FedEx	Logistics services payment	1200000	USA	+
TXN003	Wirecard AG	Commerzbank	Purchase of office supplies	15000	Germany	+ ✖
TXN023	Kim Sung-du	Al-Noor Holdings (Dubai)	"Investment in construction project"	2500000	UAE	+
TXN022	East Wind Trading LLC	B&H Scotland	"Consulting services for cultural events"	375000	UK	+

Loaded Structured Data

User Interface



Generated Transaction Data

User Interface

Transaction Data

Process TransactionsClear Data

Transaction Section	View Results
Transaction ID: TXN-2023-5A9B Date: 2023-08-15 14:22:00 Sender: -Name: 'Rosneft Oil Company' -Account: IBAN CH56 0483 5012 3456 7800 9 (Swiss bank) -Address: Rue du Marche 17, Geneva, Switzerland -Notes: 'Consulting fees for project Aurora' Receiver: -Name: 'YAKIMA OIL TRADING, LLP' -Account: 987654321 (Cayman National Bank, KY) -Address: P.O. Box 1234, George Town, Cayman Islands -Tax ID: KY-45678 Amount: \$49,850 (USD) Currency Exchange: N/A Transaction Type: Wire Transfer Reference: 'Charitable Donation - Ref #DR-2023-0815 Additional Notes: - Urgent transfer approved by Mr. Ali Hussein Falih Al-Mansoori (Director) - Linked invoice missing. Processed via intermediary Lasca Holding Ltd - Sender IP: 192.168.89.123 (VPN detected: NordVPN, exit node in Panama)	+
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Transaction ID: TXN-2023-5A9D Date: 2023-08-15 14:22:00 Sender: -Name: 'Rosneft Oil Company' -Account: IBAN CH56 0483 5012 3456 7800 9 (Swiss bank) -Address: Rue du Marche 17, Geneva, Switzerland -Notes: 'Consulting fees for project Aurora' Receiver: -Name: 'YAKIMA OIL TRADING, LLP' -Account: 987654321 (Cayman National Bank, KY) -Address: P.O. Box 1234, George Town, Cayman Islands -Tax ID: KY-45678 Amount: \$49,850 (USD) Currency Exchange: N/A Transaction Type: Wire Transfer Reference: 'Charitable Donation - Ref #DR-2023-0815 Additional Notes: - Urgent transfer approved by Mr. Ali Hussein Falih Al-Mansoori (Director) - Linked invoice missing. Processed via intermediary Lasca Holding Ltd - Sender IP: 192.168.89.123 (VPN detected: NordVPN, exit node in Panama)	+

Download as JSON

Download as CSV

Download Options

Results (High Risk Transaction)

INPUT:

Transaction ID: TXN-2023-8E4F
Sender: "Mossack Fonseca" (Panama, Account: PA7890123456)
Receiver: "Commerzbank" (Germany, Account: DE89370400440532013000)
Amount: \$4750000
Notes: "Consulting fees. Intermediary: HSBC Private Bank Suisse."

OUTPUT:

```
{  
  "Transaction ID": "TXN-2023-8E4F",  
  "Extracted Entity": ["Mossack Fonseca",  
    "Commerzbank", "HSBC Private Bank Suisse"  
  ],  
  "Entity Type": ["Law Firm", "Bank", "Private Bank"],  
  "Risk Score": 0.85,  
  "Supporting Evidence": [  
    "Panama Papers (Implied through entity name)",  
    "ICIJ Leaks Database"], "Confidence Score": 0.9,  
  "Reason": "The transaction involves Mossack  
Fonseca, a law firm heavily implicated in the Panama  
Papers scandal, suggesting a high risk of illicit financial  
activities. While Commerzbank shows no direct  
evidence of financial wrongdoings in the provided  
data, the involvement of HSBC Private Bank Suisse,  
which appears in the ICIJ leaks database, further  
elevates the risk. The large transaction amount  
($4,750,000) also warrants a high-risk score."  
}
```

Results (Low Risk Transaction)

INPUT:

Transaction ID: TXN-2023-14R0S
Sender: "Toyota Motor Corporation"
(Japan, Account: JP123456789012)
Receiver: "Bosch GmbH" (Germany,
Account: DE89370400440532013000)
Amount: \$750000
Notes: "Automotive parts payment
(Invoice #BOS-2023-789)."

OUTPUT:

```
{ "Transaction ID": "TXN-2023-14R0S", "Extracted Entity":  
  [ "Toyota Motor Corporation", "Bosch GmbH", "Japan",  
    "German" ], "Entity Type": [ "Corporation", "Corporation",  
    "Country", "Country"], "Risk Score": 0.1, "Supporting  
  Evidence": [ "News Articles Summary (German)", "Sanction  
    Search Summary", "ICIJ Leaks Database Search Summary",  
    "Wikidata Results Summary", "News Articles Summary"],  
  "Confidence Score": 0.85, "Reason": "While the  
    transaction involves a significant amount ($750,000),  
    neither Toyota Motor Corporation nor Bosch GmbH appear  
    on any sanction or PEP lists, nor are they implicated in ICIJ  
    leaks. News articles related to both entities and associated  
    countries do not indicate significant financial misdoings.  
    The slight risk assigned primarily stems from a small  
    possibility of financial misconduct found in news articles  
    related to entities in Germany, coupled with the substantial  
    transaction amount which warrants closer scrutiny despite  
    the clean records."  
  },
```

Resources

- [Wikidata](#)
- [OFAC API](#)
- [News API](#)
- [ICIJ Leaks Database](#)
- [Gemini API Reference](#)