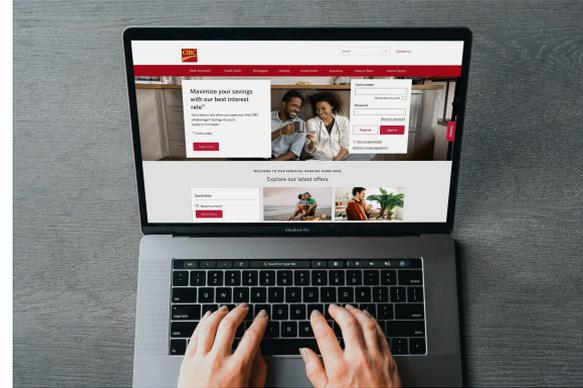


LEGAL PYTHIA

Explainable AI/ML for Health Insurance Fraud
Detection

False information
provided to **insurance**
companies for
payments.



almerys
Healthcare delivery
management

The **manual detection** of
this false information is
too slow, costly & prone to
human error.



The Consequences

- **56 billion euro** are lost each year in Europe. **180 billion euro** globally.
- **Every euro** lost to fraud means that someone is **not getting medical** treatment.
- An average of **5.59% of all healthcare** spending is **lost to fraud**.

Insurers plan action against hospitals for fraudulent claims, overcharging

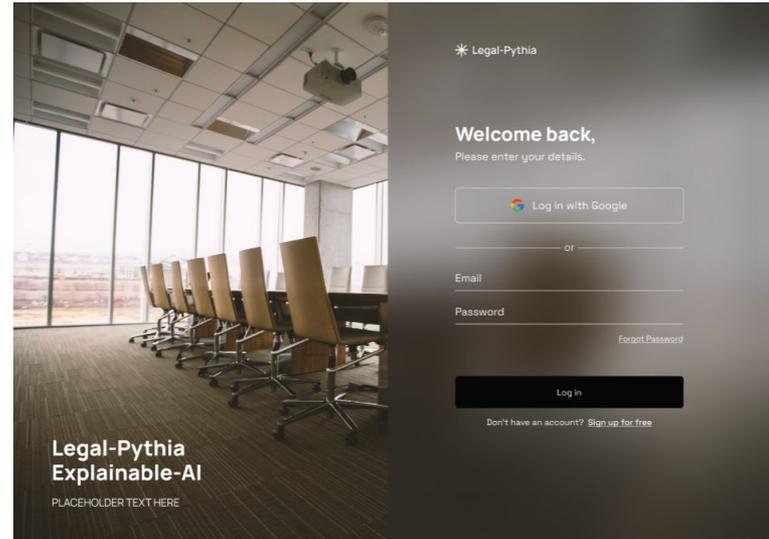
Insurance companies will act through the General Insurance Council to flag cases of overcharging and fraud, and deny cashless and reimbursement claims by hospitals engaging in misconduct

PREETI KULKARNI | APRIL 12, 2023 / 12:21 PM IST



The Solution

Web-based
Explainable AI software
to **compare**
information.



Uploading of Data

Select the language the files are in

German ▾

Upload first document

Drag and drop file here
Limit 200MB per file • TXT, PDF, DOCX, CSV

Browse files

Testdokument 1.pdf ×
AxiosError: Request failed with status code 400

Upload second document

Drag and drop file here
Limit 200MB per file • TXT, PDF, DOCX, CSV

Browse files

Testdokument 2 .pdf ×
AxiosError: Request failed with status code 400

Select the feature function

Similarity and Contradiction Detection ▾



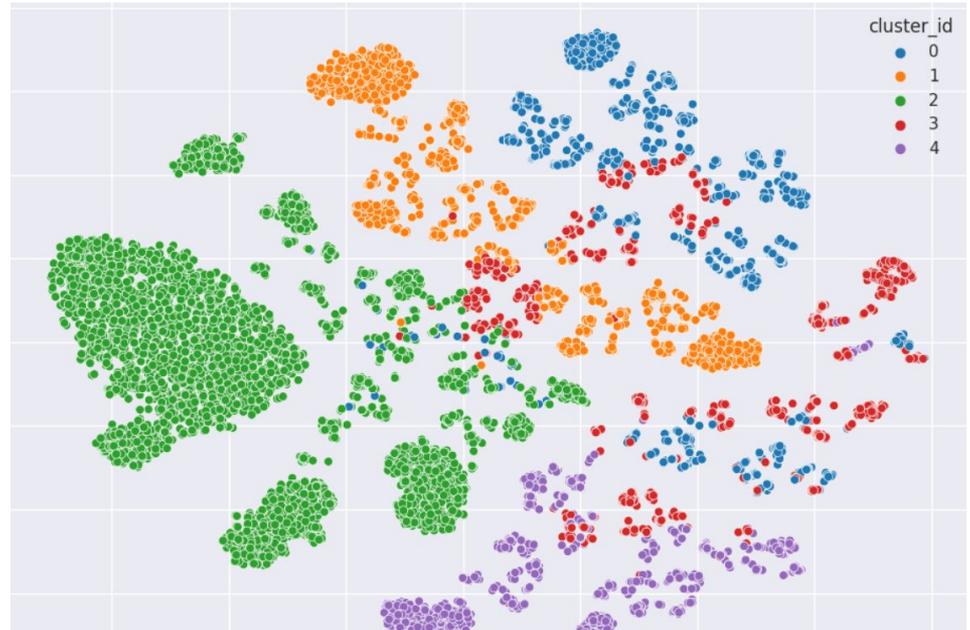
Welcome to the Live Demo!

Here you get to upload two text files and check for similarity or contradiction

Made with Streamlit

ML Clustering Models

	cluster_id	fraud	Count
0	0	False	1833
1	0	True	112
2	1	False	2144
3	1	True	12
4	2	False	5342
5	2	True	51
6	3	False	1611
7	3	True	6
8	4	False	1501
9	4	True	4



Explanations & Fraud Rules

AI Explanation: The model predicts that the relationship between the sentences: 'You have a monthly income of £700 after tax.' and 'Based on an assumed loan amount of £10,000 over 60 months at an interest rate of 6.9% p.a.' is 'neutral' with a probability of 94.35%. This means that the second sentence neither confirms nor contradicts the first sentence.

[View Softmax Graph](#)

[View Tensor Table](#)

	0	1
0	contradiction	0.001419791835360229
1	entailment	0.9435303807258606
2	neutral	0.0550498366355896

Unique Value Proposition

- More **fraudulent** activities **detected**.
- **Time & millions of dollars** saved.
- **Full explanations** that **fraud investigators** can use due to **XAI**.
- **Software** works in **multiple languages**.

Expansion Plans

- Interest from **Insurtech Incubator**

Lloyd's Lab.



- **Held positive talks with** global insurance incubator in the U.S.



- **Connections to** insurtech hubs throughout the world.



Expansion Plans

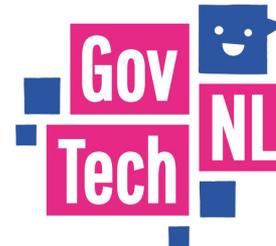
- Expansion through UK
Knowledge Transfer Network.



- **Scottish Enterprise.**



- **GovTech** accelerators &
programs.



Current Customers Negotiations

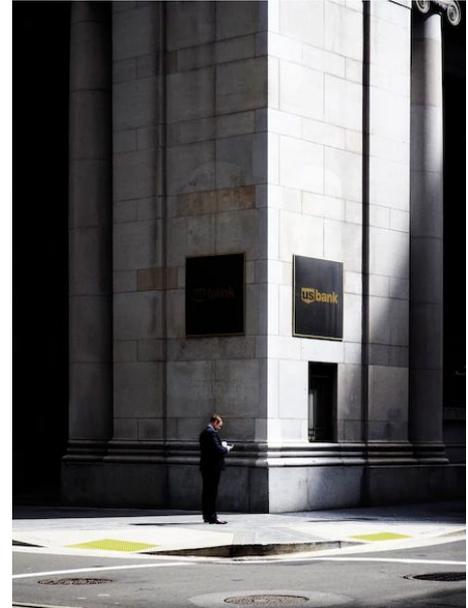


LLOYD'S



Target Customers & Users

- **Insurance companies, healthcare data providers.**
- Located in the **U.S, Europe and the U.K. Later also Asia & Africa**
- **Also Anti-fraud agencies, government entities.**



Partnerships

- **S&P Global** : Data on operating forecasts of insurance companies.
- **Investnet**: Single Sign-on & permission-based access to data via API.
- **Associated Press**: AP English News Archive, AP Event Calendar.

S&P Global
Market Intelligence



AP

Market Size

- **The global healthcare** fraud detection market is valued at **5 billion** euros with a CAGR of **26.7 %** by 2026.
- **European** fraud detection market is valued at **1.5 billion** euros with a CAGR of **15.86% by 2028**.
- **Current trends** are artificial intelligence, blockchain & cloud.
- We want **10%** of the market.

Competitors



Competitive Advantage

- **Explainable Artificial Intelligence** for transparent and trustworthiness.
- **Strong partnerships with global universities.**
- **Diverse team, multiple countries** represented.



Business Model & Finances

- **Monthly** Software as a Service **subscription model**.
- **Financing** through **grants, paid pilot opportunities** and **customers**.
- To scale future **private investments** may be needed.

Marketing & Sales

- **1 employee** hired, 2 more in the next month.
- **Network, distribution partners & sales personnel.**
- **Strong online presence** through advertisements, employees, etc.



Buision

Future Outlook



- Successful **Reach Incubator**.
- **First contract with customer** by beginning **2024**.
- Sophisticated **product development** by **the end of 2023**.
- Market entry **early 2024**.

Legal-Pythia Team



Jeremy Bormann
CEO

University of Glasgow



Otmane Cherradi
Technical Lead

*Faculty of Science &
Tech. Tangier*



Gayani Nanayakkara
AI Scientist

*Robert Gordon
University*

Use of Grant Money

- **70% in product development.**
- **10% in marketing.**
- **10% in sales.**
- **10% in overhead costs, f.e. legal.**



Thank You!

Questions?