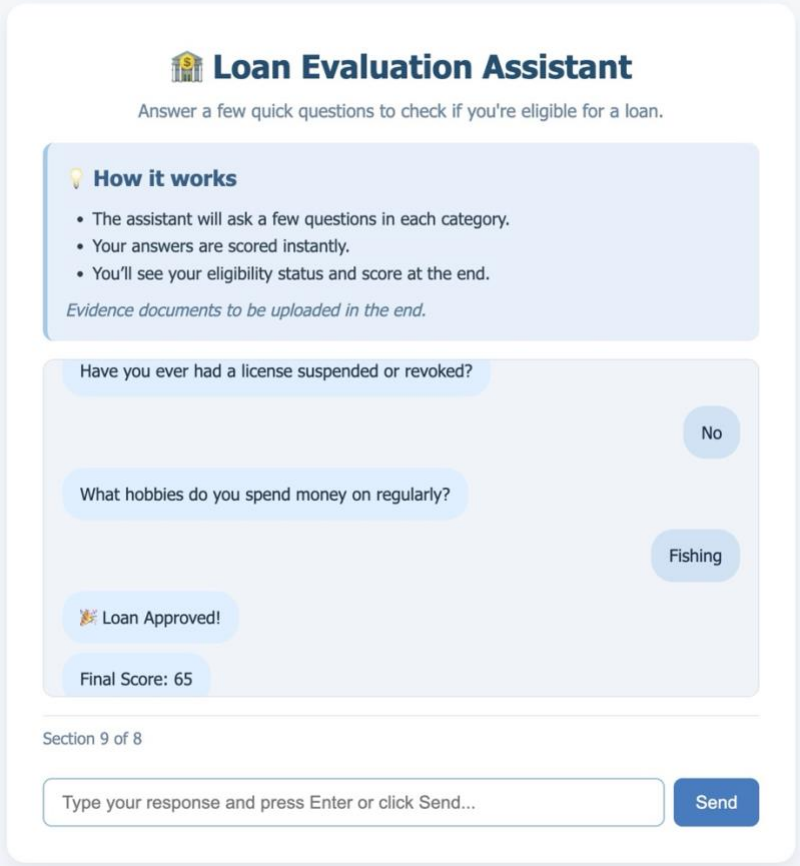
Alternative Credit Scoring Tool

Read ME!!!



Objective: The objective of this Alternative Credit Scoring Tool is to use features beyond the traditional credit scoring logic which is mostly income to loan amount ratio. This tool aims to provide financial inclusion to those with low/ now credit history such as new immigrants, asylum/ refugee entrants and young adults by analyzing their educational background, prior work experiences, intentions to pay back and potential capability to pay back.

How it works

Features to be trained on, are selected from the AFI-Global report. Data is labelled (ideally with an industry expert – for the case of this demo, we labelled it using AI and to the best of our knowledge). The labelled data is fed

into a classification model (We chose Logistic Regression as it was simple, fast and gave feature importance and sensitivities of the features).

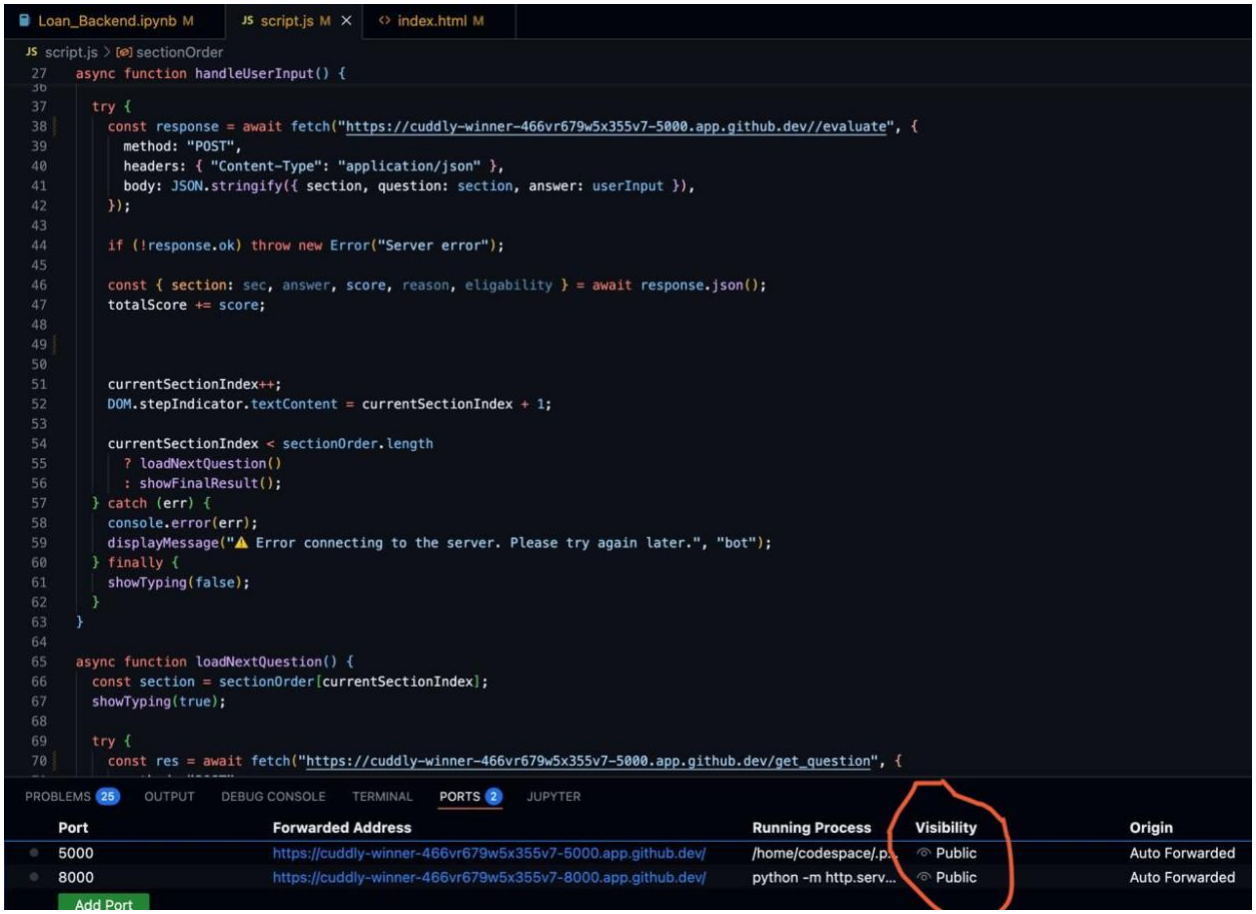
The feature importance and sensitivities are used to create a policy document that is the baseline for determining whether an applicant is credit-worthy or not.

The policy document is used as context and fed into the llm model which runs based on Chat-GPT 4o. The llm model has conversation with the applicant and identifies and logs the responses for each variable.

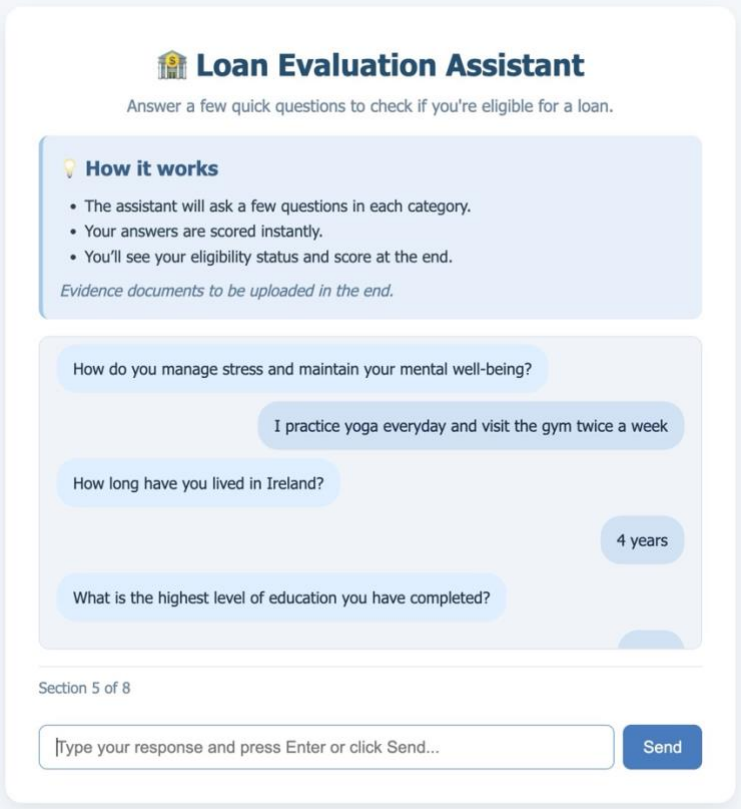
The scores are calculated and indicated to the applicant in no time with decision of Approved/ Rejected. The bank gets a copy of approved/ rejected with reasons of why or why not, which an account manager can dive deeper if alternate options are available.

Steps for Execution:

1. Open Loan_Backend.ipynb
2. Import libraries in cell 1 and run all cells
3. Run *Python -m http.server* to host the front end (html,css and javascript)
4. 2 Servers will be open on Git (with port numbers 5000 and 8000 indicating 5000 for the backend and 8000 for the front end); ensure both are Visibility: public as in image __



5. Copy the forwarded server addresses (eg: https://cuddly.....github.dev As in the above image) into both the API calls in line 38 and line 70.
6. Now visit the link https://cuddly.....github.dev to run use the chatbot.
7. Enjoy chatting



Additional Notes:

More features are available on AFI Global and other alternative credit scoring researches.

DATA TYPOLOGIES IN CREDIT SCORING

Cash-flow data	Cash-flow sources, which include sources of cash-flow data included transaction account data from banks, business accounting software, payments processors, and e-commerce platforms, as well as copies of pay stubs, invoices, bill statements and similar materials provided by applicants can be used to extract relevant financial indicators related to income, expenses, balances, and activity levels. Cash-flow data can be used to assess the business's historical and projected performance. The data includes incoming revenue, receivables, expenditures, and business obligations, average monthly revenue, and transaction volume.[10]
Bill payments	Regular and timely payments of bills which include: ✓ utility bills (electricity, water, gas) ✓ telecommunication bills (internet and telephone) can indicate responsible financial behavior and may be used to assess creditworthiness.
Rental data	Information about rental payments can showcase ability to manage monthly obligations, thus reflecting creditworthiness.
Public records on employment	Consistent employment history and higher income levels may positively influence credit scores.
Public records on legal proceedings and disputes	Public records related to legal proceedings can have a significant impact on credit scoring, as they provide insight into financial behavior and responsibility, and legal obligations and liabilities. For example, filing for bankruptcy will lower a person's credit score as it is an indication of financial distress and increased credit risk. Foreclosure proceedings on a property indicate that the individual was unable to meet their mortgage obligations. Divorce proceedings will involve related issues such as spousal support and division of property.

(Additional Features can be found in link)