

INSOLVENCY PREDICTOR USING TIME SERIES

User Guide

System Overview

The project "Insolvency Predictor using Time Series" involves developing a predictive model for bankruptcy risk using time series financial data. It integrates a Flask-based web application where users can input company data and receive predictions about potential insolvency. The system leverages a logistic regression model, trained on historical financial data, to provide predictions, and uses data visualization tools like Power BI for clear and interactive insights. Key techniques include handling imbalanced datasets using undersampling/oversampling and incorporating time series analysis for financial trend forecasting. This project supports stakeholders like creditors, investors, and policymakers in making informed decisions by providing early warnings of financial distress.

Getting Started

The project "Insolvency Predictor using Time Series" involves developing a predictive model for bankruptcy risk using time series financial data. It integrates a Flask-based web application where users can input company data and receive predictions about potential insolvency. The system leverages a logistic regression model, trained on historical financial data, to provide predictions, and uses data visualization tools like Power BI for clear and interactive insights. Key techniques include handling imbalanced datasets using undersampling/oversampling and incorporating time series analysis for financial trend forecasting. This project supports stakeholders like creditors, investors, and policymakers in making informed decisions by providing early warnings of financial distress.

USER INPUT PAGE:

The input page is the primary screen users see when they start the application. It provides the user with an interface with a form to enter the input values(12 attributes). The entered values are stored in the sql database. The values are then sent to the machine learning model for prediction. The model is built using decision tree classifier that helps in predicting the status of the bankruptcy along with the time series visualizations. The result of the prediction is also stored in the table created in database.

Bankruptcy Prediction Form

Current Liability to Current Assets

0.11825048

Liability-Assets Flag

0

Total Expense / Assets

0.06485571

Cash / Current Liability

0.00014734

Fixed Assets Turnover Frequency

0.0001165

Fixed Assets to Assets

0.42420576

Net Value Growth Rate

0.00032968

Revenue per Person

0.03416418

Fixed Assets Turnover Frequency

0.0001165

Fixed Assets to Assets

0.42420576

Net Value Growth Rate

0.00032968

Revenue per Person

0.03416418

Total Assets to GNP Price

0.00921944

Quick Asset Turnover Rate

65500000000

Tax Rate

0

Cash / Total Assets

0.00409441

Submit

RESULT PAGE:

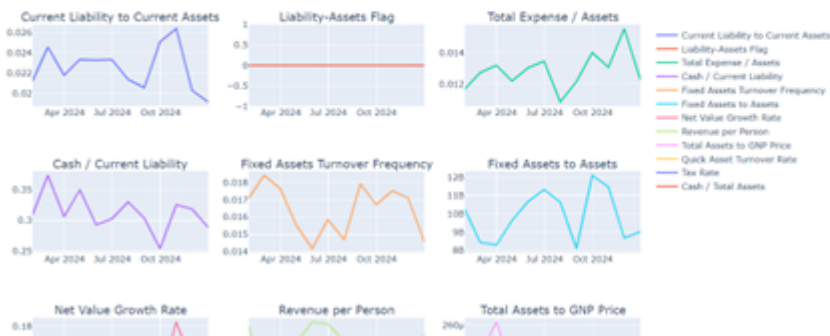
After the user enters the input value and these values are sent to the machine learning model. The model then predicts the status of the bankruptcy and then displays the result to the user. Apart from the result the user can also see the time series graphs showing the relation of each attribute with bankruptcy over a period of time. This allows the user to decide and check which factor affects the bankruptcy more. There is also a go back button provide that navigates back to the form , allowing user to enter multiple values.

Prediction Result

The company is predicted to be: Non-bankrupt

[Go Back](#)

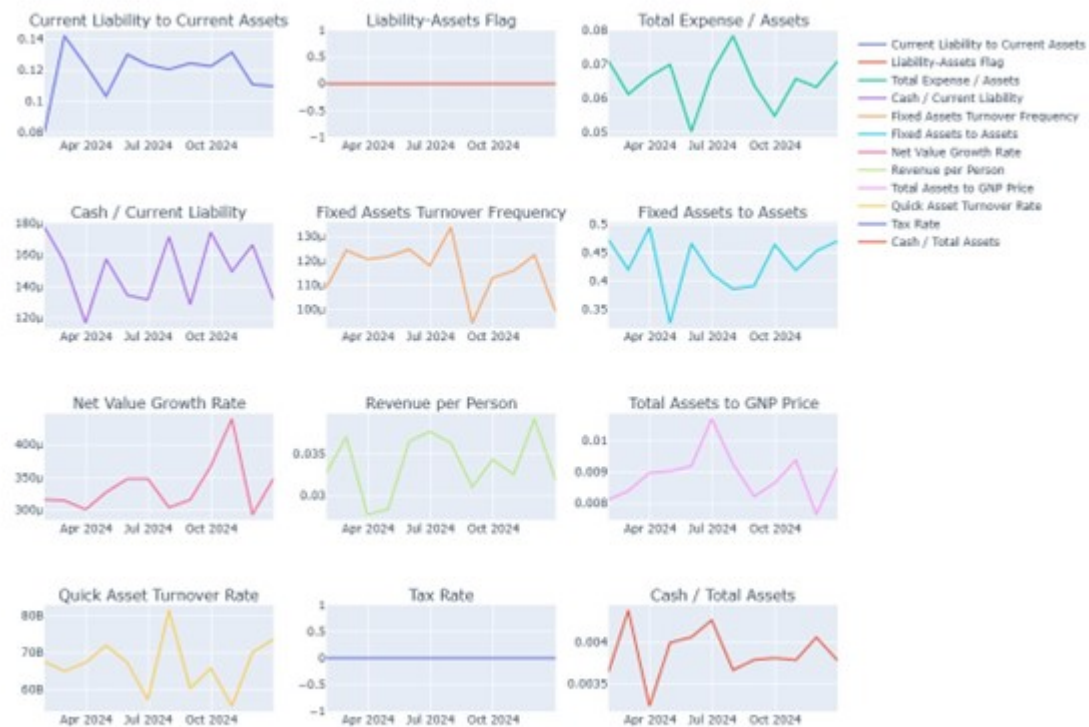
12 Attribute Time-Series



TIME SERIES GRAPHS PAGE:

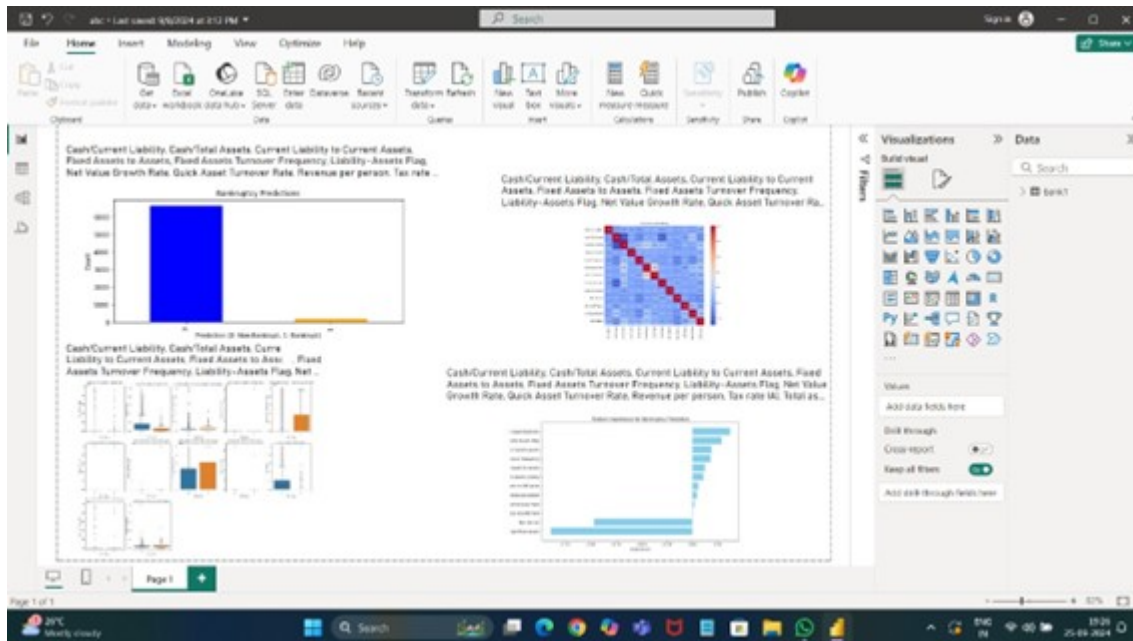
The page provides the user with 12 graphs that shows the relation of each and every attribute with bankruptcy and how the attribute affects bankruptcy. The graphs shows the status of bankruptcy over a period of time with changing values based of previous studies. There are different options provided such as download, zoom in and zoom out.

12 Attribute Time-Series



POWER BI VISUALIZATION:

The developer inputs the complete data set into powerbi to visualize which attribute affects the status of bankruptcy more. First the complete dataset is served as a input with all the necessary transformations. Then python script is selected inside powerbi and different codes are written to generate visualizations such as heatmap, bar graph etc.



POWER BI SQL OUTPUT PAGE:

The data entered by the user is stored in the database. Then the database is used as a input for powerbi using tools such as sql-3 odbc connector. The values inside the sql table is now served as a input for visualization(real-time). Different visualizations such as pie chart are shown showing the percentage of how a attribute is related towards bankruptcy. The visualization is returned to the user.

