

MLOps-Taller3-EIA

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Descripción

Descripción de los archivos del proyecto.

- **1_Pycaret_Heart.ipynb**: En este archivo se realiza la implementación de un modelo de clasificación para predecir enfermedades del corazón. Se utiliza la librería Pycaret para realizar la implementación del modelo.
- **2_ML_Flow_Optuna_Bankrupt.ipynb**: En este archivo se realiza la implementación de un modelo de clasificación para predecir bancarrotas de empresas. Se utiliza la librería MLFlow y Optuna para realizar la implementación del modelo.
- **heart.csv**: Base de datos de enfermedades del corazón.
- **bankrupt.csv**: Base de datos de bancarrotas de empresas.
- **screenshots**: En esta carpeta se encuentran las capturas de pantalla de los resultados obtenidos en los modelos implementados con MLFlow y Optuna.

El Optuna ayuda a encontrar los mejores hiperparámetros para el modelo de clasificación de bancarrotas de empresas. Se implementa un modelo de clasificación con la librería MLFlow y se utilizan los hiperparámetros encontrados por Optuna.

Estas son las capturas de pantalla mas significas de MLFlow:





La descripción de la base de datos de las bancarrotas es la siguiente:

Company Bankruptcy Prediction

Fuente de datos:

<https://www.kaggle.com/datasets/fedesoriano/company-bankruptcy-prediction>

► Context and Attribute Information

Context

The data were collected from the Taiwan Economic Journal for the years 1999 to 2009. Company bankruptcy was defined based on the business regulations of the Taiwan Stock Exchange.

Attribute Information

Version 2: Updated column names and description to make the data easier to understand (Y = Output feature, X = Input features)

Y - Bankrupt?: Class label

X1 - ROA(C) before interest and depreciation before interest: Return On Total Assets(C)

X2 - ROA(A) before interest and % after tax: Return On Total Assets(A)

X3 - ROA(B) before interest and depreciation after tax: Return On Total Assets(B)

X4 - Operating Gross Margin: Gross Profit/Net Sales

X5 - Realized Sales Gross Margin: Realized Gross Profit/Net Sales

X6 - Operating Profit Rate: Operating Income/Net Sales

X7 - Pre-tax net Interest Rate: Pre-Tax Income/Net Sales

X8 - After-tax net Interest Rate: Net Income/Net Sales

- X9 - Non-industry income and expenditure/revenue: Net Non-operating Income Ratio
- X10 - Continuous interest rate (after tax): Net Income-Exclude Disposal Gain or Loss/Net Sales
- X11 - Operating Expense Rate: Operating Expenses/Net Sales
- X12 - Research and development expense rate: (Research and Development Expenses)/Net Sales
- X13 - Cash flow rate: Cash Flow from Operating/Current Liabilities
- X14 - Interest-bearing debt interest rate: Interest-bearing Debt/Equity
- X15 - Tax rate (A): Effective Tax Rate
- X16 - Net Value Per Share (B): Book Value Per Share(B)
- X17 - Net Value Per Share (A): Book Value Per Share(A)
- X18 - Net Value Per Share (C): Book Value Per Share(C)
- X19 - Persistent EPS in the Last Four Seasons: EPS-Net Income
- X20 - Cash Flow Per Share
- X21 - Revenue Per Share (Yuan ¥): Sales Per Share
- X22 - Operating Profit Per Share (Yuan ¥): Operating Income Per Share
- X23 - Per Share Net profit before tax (Yuan ¥): Pretax Income Per Share
- X24 - Realized Sales Gross Profit Growth Rate
- X25 - Operating Profit Growth Rate: Operating Income Growth
- X26 - After-tax Net Profit Growth Rate: Net Income Growth
- X27 - Regular Net Profit Growth Rate: Continuing Operating Income after Tax Growth
- X28 - Continuous Net Profit Growth Rate: Net Income-Excluding Disposal Gain or Loss Growth
- X29 - Total Asset Growth Rate: Total Asset Growth
- X30 - Net Value Growth Rate: Total Equity Growth
- X31 - Total Asset Return Growth Rate Ratio: Return on Total Asset Growth
- X32 - Cash Reinvestment %: Cash Reinvestment Ratio
- X33 - Current Ratio
- X34 - Quick Ratio: Acid Test
- X35 - Interest Expense Ratio: Interest Expenses/Total Revenue
- X36 - Total debt/Total net worth: Total Liability/Equity Ratio

- X37 - Debt ratio %: $\text{Liability} / \text{Total Assets}$
- X38 - Net worth/Assets: $\text{Equity} / \text{Total Assets}$
- X39 - Long-term fund suitability ratio (A): $(\text{Long-term Liability} + \text{Equity}) / \text{Fixed Assets}$
- X40 - Borrowing dependency: $\text{Cost of Interest-bearing Debt}$
- X41 - Contingent liabilities/Net worth: $\text{Contingent Liability} / \text{Equity}$
- X42 - Operating profit/Paid-in capital: $\text{Operating Income} / \text{Capital}$
- X43 - Net profit before tax/Paid-in capital: $\text{Pretax Income} / \text{Capital}$
- X44 - Inventory and accounts receivable/Net value: $(\text{Inventory} + \text{Accounts Receivables}) / \text{Equity}$
- X45 - Total Asset Turnover
- X46 - Accounts Receivable Turnover
- X47 - Average Collection Days: $\text{Days Receivable Outstanding}$
- X48 - Inventory Turnover Rate (times)
- X49 - Fixed Assets Turnover Frequency
- X50 - Net Worth Turnover Rate (times): Equity Turnover
- X51 - Revenue per person: $\text{Sales Per Employee}$
- X52 - Operating profit per person: $\text{Operation Income Per Employee}$
- X53 - Allocation rate per person: $\text{Fixed Assets Per Employee}$
- X54 - Working Capital to Total Assets
- X55 - Quick Assets/Total Assets
- X56 - Current Assets/Total Assets
- X57 - Cash/Total Assets
- X58 - Quick Assets/Current Liability
- X59 - Cash/Current Liability
- X60 - Current Liability to Assets
- X61 - Operating Funds to Liability
- X62 - Inventory/Working Capital
- X63 - Inventory/Current Liability
- X64 - Current Liabilities/Liability

- X65 - Working Capital/Equity
- X66 - Current Liabilities/Equity
- X67 - Long-term Liability to Current Assets
- X68 - Retained Earnings to Total Assets
- X69 - Total income/Total expense
- X70 - Total expense/Assets
- X71 - Current Asset Turnover Rate: Current Assets to Sales
- X72 - Quick Asset Turnover Rate: Quick Assets to Sales
- X73 - Working capital Turnover Rate: Working Capital to Sales
- X74 - Cash Turnover Rate: Cash to Sales
- X75 - Cash Flow to Sales
- X76 - Fixed Assets to Assets
- X77 - Current Liability to Liability
- X78 - Current Liability to Equity
- X79 - Equity to Long-term Liability
- X80 - Cash Flow to Total Assets
- X81 - Cash Flow to Liability
- X82 - CFO to Assets
- X83 - Cash Flow to Equity
- X84 - Current Liability to Current Assets
- X85 - Liability-Assets Flag: 1 if Total Liability exceeds Total Assets, 0 otherwise
- X86 - Net Income to Total Assets
- X87 - Total assets to GNP price
- X88 - No-credit Interval
- X89 - Gross Profit to Sales
- X90 - Net Income to Stockholder's Equity
- X91 - Liability to Equity
- X92 - Degree of Financial Leverage (DFL)

X93 - Interest Coverage Ratio (Interest expense to EBIT)

X94 - Net Income Flag: 1 if Net Income is Negative for the last two years, 0 otherwise

X95 - Equity to Liability

Source

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<https://archive.ics.uci.edu/ml/datasets/Taiwanese+Bankruptcy+Prediction>