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Final Project Proposal

For my final project, I’m going to analyze 1 year of ticker data from the NYSE. I’ll use this to build a predictive model that will guess future stock prices. I’ll be gathering this data using the yfinance module in python and panadas.

For Example, here is the information I can gather using the yfinance package on MSFT. I have downloaded a list of ticker symbols from the stock market that I will iterate through. I will probably store this data into a sql database, so I don’t need to retrieve it more than once.

'city': 'Redmond', 'phone': '425 882 8080', 'state': 'WA', 'country': 'United States', 'companyOfficers': [], 'website': 'https://www.microsoft.com', 'maxAge': 1, 'address1': 'One Microsoft Way', 'industry': 'Software—Infrastructure', 'ebitdaMargins': 0.49123, 'profitMargins': 0.38498002, 'grossMargins': 0.68825996, 'operatingCashflow': 83909001216, 'revenueGrowth': 0.201, 'operatingMargins': 0.42523998, 'ebitda': 90829996032, 'targetLowPrice': 306.55, 'recommendationKey': 'buy', 'grossProfits': 115856000000, 'freeCashflow': 46479876096, 'targetMedianPrice': 370, 'currentPrice': 300.46, 'earningsGrowth': 0.222, 'currentRatio': 2.247, 'returnOnAssets': 0.15248999, 'numberOfAnalystOpinions': 45, 'targetMeanPrice': 370.36, 'debtToEquity': 50.217, 'returnOnEquity': 0.49051, 'targetHighPrice': 425, 'totalCash': 125348003840, 'totalDebt': 80353001472, 'totalRevenue': 184902991872, 'totalCashPerShare': 16.72, 'financialCurrency': 'USD', 'revenuePerShare': 24.585, 'quickRatio': 2.05, 'recommendationMean': 1.7, 'exchange': 'NMS', 'shortName': 'Microsoft Corporation', 'longName': 'Microsoft Corporation', 'exchangeTimezoneName': 'America/New\_York', 'exchangeTimezoneShortName': 'EDT', 'isEsgPopulated': False, 'gmtOffSetMilliseconds': '-14400000', 'quoteType': 'EQUITY', 'symbol': 'MSFT', 'messageBoardId': 'finmb\_21835', 'market': 'us\_market', 'annualHoldingsTurnover': None, 'enterpriseToRevenue': 11.976, 'beta3Year': None, 'enterpriseToEbitda': 24.379, '52WeekChange': 0.17791677, 'morningStarRiskRating': None, 'forwardEps': 10.73, 'revenueQuarterlyGrowth': None, 'sharesOutstanding': 7496869888, 'fundInceptionDate': None, 'annualReportExpenseRatio': None, 'totalAssets': None, 'bookValue': 21.335, 'sharesShort': 36442967, 'sharesPercentSharesOut': 0.0049, 'fundFamily': None, 'lastFiscalYearEnd': 1625011200, 'heldPercentInstitutions': 0.71889997, 'netIncomeToCommon': 71184998400, 'trailingEps': 9.389, 'lastDividendValue': 0.62, 'SandP52WeekChange': 0.089955926, 'priceToBook': 14.082962, 'heldPercentInsiders': 0.00059, 'nextFiscalYearEnd': 1688083200, 'yield': None, 'mostRecentQuarter': 1640908800, 'shortRatio': 1.04, 'sharesShortPreviousMonthDate': 1644883200, 'floatShares': 7489894342, 'beta': 0.908333, 'enterpriseValue': 2214335610880, 'priceHint': 2, 'threeYearAverageReturn': None, 'lastSplitDate': 1045526400, 'lastSplitFactor': '2:1', 'legalType': None, 'lastDividendDate': 1652832000, 'morningStarOverallRating': None, 'earningsQuarterlyGrowth': 0.214, 'priceToSalesTrailing12Months': 12.182116, 'dateShortInterest': 1647302400, 'pegRatio': 2.01, 'ytdReturn': None, 'forwardPE': 28.001863, 'lastCapGain': None, 'shortPercentOfFloat': 0.0049, 'sharesShortPriorMonth': 35348757, 'impliedSharesOutstanding': 0, 'category': None, 'fiveYearAverageReturn': None, 'previousClose': 301.37, 'regularMarketOpen': 300.44, 'twoHundredDayAverage': 304.5104, 'trailingAnnualDividendYield': 0.007830906, 'payoutRatio': 0.2449, 'volume24Hr': None, 'regularMarketDayHigh': 301.12, 'navPrice': None, 'averageDailyVolume10Day': 29015570, 'regularMarketPreviousClose': 301.37, 'fiftyDayAverage': 298.6664, 'trailingAnnualDividendRate': 2.36, 'open': 300.44, 'toCurrency': None, 'averageVolume10days': 29015570, 'expireDate': None, 'algorithm': None, 'dividendRate': 2.48, 'exDividendDate': 1652832000, 'circulatingSupply': None, 'startDate': None, 'regularMarketDayLow': 296.76, 'currency': 'USD', 'trailingPE': 32.001278, 'regularMarketVolume': 10305066, 'lastMarket': None, 'maxSupply': None, 'openInterest': None, 'marketCap': 2252509544448, 'volumeAllCurrencies': None, 'strikePrice': None, 'averageVolume': 37917035, 'dayLow': 296.76, 'ask': 300.67, 'askSize': 800, 'volume': 10305066, 'fiftyTwoWeekHigh': 349.67, 'fromCurrency': None, 'fiveYearAvgDividendYield': 1.32, 'fiftyTwoWeekLow': 238.07, 'bid': 300.64, 'tradeable': False, 'dividendYield': 0.0082, 'bidSize': 1300, 'dayHigh': 301.12, 'regularMarketPrice': 300.46, 'preMarketPrice': 300.45, 'logo\_url': 'https://logo.clearbit.com/microsoft.com', 'trailingPegRatio': 2.1672}

Some of these features can be eliminated, such as logo\_url, phone number, short name, company officers, address. I’ll also only be looking at the closing value of each day, not the open or each individual traded value.

I’ll build a model using machine learning with Tensorflow and Keras. These values will be scaled using a Minmaxscaler.