



Predicting Stock Prices

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Overview

This project aims to put an interesting spin on predictive quantitative finance, by using news headlines and the dates to which they are attributed to predict the stock prices. The crux of this project rests on how global and local events affect the actions of investors and the stability of the overall market, specifically the Dow Jones Industrial Average.





Problems to solve

1

Gather the data necessary to perform the desired task.

Including: News Headlines, Stock Prices

2

Formatting the data into the form that is readable and usable by the Neural Network

3

Converting the actual data points into vectors and pass them along to the Neural Network.

4

Running the Neural Network and determine the effectiveness of this hypothesis



Project objective

Predict the closing price of a certain stock using daily news headlines



Understanding the market

01

Wall Street watches with rabid attention at these times, which are referred to as earnings seasons.





Indirect Factors

02

Events happening around the world and at home can have an impact on a stock's price if said news directly correlates to how a market might perform. I.E.: Natural Disaster, Market Crash, Presidential Election, etc.

There is much more nuance in this area, but said nuance can be a good indicator of investor behavior.





Data Gathered

Kaggle is a platform for predictive modelling and analytics competitions in which statisticians and data miners compete to produce the best models for predicting and describing the datasets uploaded by companies and users.

- 01 | all_stocks_5yr
- 02 | prices
- 03 | Combined_News_DJIA
- 04 | RedditNews



Date	Month	Weekday	Headline
2012-08-13 00:00:00	8		1 QANTAS airline defends policy of moving any men sitting next to unaccompanied minors, to different seats. Because every adult male is a potential child molester...
2012-08-13 00:00:00	8		1 Wikileaks under week long attack. Remains inaccessible.
2012-08-13 00:00:00	8		1 Egypt president Mohamed Morsi forces top generals to retire
2012-08-13 00:00:00	8		1 Two New Pyramids discovered in Egypt
2012-08-13 00:00:00	8		1 Fukushima Chief Yoshida: We must bring foreign experts in to help Reactors NOT stabilized
2012-08-13 00:00:00	8		1 Israeli sniper gets 45 days for killing Palestinian women
2012-08-13 00:00:00	8		1 Gender-based violence leading cause of death for Turkish women 15-44
2012-08-13 00:00:00	8		1 Reddit man spends summer flying around the world helping others Australian media has picked this up News.com.au
2012-08-13 00:00:00	8		1 "Pope Benedict XVI's butler will be charged with aggravated theft over the leaking of hundreds of secret papers from the pope's personal apartment to an Italian journa
2012-08-13 00:00:00	8		1 Brazil's economic slowdown so far leaves many unscathed: Brazil unemployment is at a record low, wages have risen, and more than 1 million jobs have been create
2012-08-13 00:00:00	8		1 Even China Is Running Out of Money Now
2012-08-13 00:00:00	8		1 Syrian atrocity: Bodies of postal workers thrown from roof (GRAPHIC VIDEO) - RT
2012-08-13 00:00:00	8		1 Extreme porn trial: well, thank you for that interesting anatomical lesson - The Guardian
2012-08-13 00:00:00	8		1 German Archaeological Conservationists Pushing for Rebuilding Afghanistan's Buddhas - Their destruction in 2001 by the Taliban caused global condemnation. Onco
2012-08-13 00:00:00	8		1 Moscow to spend over \$720 billion on new military aircraft
2012-08-13 00:00:00	8		1 Saudi Arabia plans new city for women workers only
2012-08-13 00:00:00	8		1 Thailand - Senator 'accidentally' kills secretary.... With an Uzi
2012-08-13 00:00:00	8		1 Israeli Minister Asks Nations to Say Iran Talks Have Failed - NYTimes.com
2012-08-13 00:00:00	8		1 At Least 300 Dead in Iran Earthquakes
2012-08-13 00:00:00	8		1 Father of Saudi athlete says daughter called names for competing in Games
2012-08-13 00:00:00	8		1 Media coverage of Syrian violence partial and untrue, says nun
2012-08-13 00:00:00	8		1 Nigerian army 'kills 20 Boko Haram Islamists'
2012-08-13 00:00:00	8		1 Kangaroo escapes zoo in Germany ... with the help of a fox and a boar
2012-08-13 00:00:00	8		1 Syrian fighter jet crashes near Iraq border
2012-08-13 00:00:00	8		1 Indonesians protest against Myanmar genocide of Muslims.
2012-08-14 00:00:00	8		2 Canadians ridicule unarmed American Tourist's fears
2012-08-14 00:00:00	8		2 Dotcom accused of assault - with his stomach
2012-08-14 00:00:00	8		2 Venezuela is training a "guerrilla army" aiming to be a million strong by 2013 to fight off a possible US invasion
2012-08-14 00:00:00	8		2 Riots in the North of France
2012-08-14 00:00:00	8		2 Pope's butler to face criminal charges after leaking hundreds of secret documents from the Pope's apartment in an attempt to reveal corruption.
2012-08-14 00:00:00	8		2 Deep magnitude 7.7 quake off coast of Russia, north of Japan
2012-08-14 00:00:00	8		2 Women Challenge Islamists Over Equality - They don't want "complementarity" rather than "equality" of the sexes & see the groundbreaking "Personal Status Co
2012-08-14 00:00:00	8		2 Indian police arrest famed TV yoga guru and anti-corruption campaigner as he attempts to lead a procession of thousands of supporters to parliament.
2012-08-14 00:00:00	8		2 Magnitude 7.3 Earthquake in the Sea of Okhotsk, Russia
2012-08-14 00:00:00	8		2 Israeli Sniper Gets Only 45 Days for Killing of Two Women under White Flags: Israeli human rights group B'Tselem points out, the deal does not recognize guilt for the
2012-08-14 00:00:00	8		2 Pakistani wife in disputed marriage gunned down in court by her brother
2012-08-14 00:00:00	8		2 Iran says Israel won't attack
2012-08-14 00:00:00	8		2 European Bankers Destroying European Democracy - The cause of necessary economic reforms has not been served by confounding that necessity with the policy c
2012-08-14 00:00:00	8		2 Revealed: Life behind the scenes at the secretive Bilderberg conference
2012-08-14 00:00:00	8		2 Punk Band's Moscow Trial Offers Platform For Orthodox Protesters: "We're going to rip them [a Pussy Riot poster and a Madonna poster] up and burn them," said Leo
2012-08-14 00:00:00	8		2 Proceso Magazine: US Navy SEALs to Hunt Mexican Cartel Kingpin
2012-08-14 00:00:00	8		2 Severe abnormalities found in Fukushima Butterflies
2012-08-14 00:00:00	8		2 Malaysian internet users stage an online protest against law that threatens free speech online
2012-08-14 00:00:00	8		2 Poland Peels Back Layers On Secret CIA Prison For Suspected Terrorists



Proposed solution

Using a Convolutional Neural Network
to take in news headlines as vectors to
predict stock prices



Process



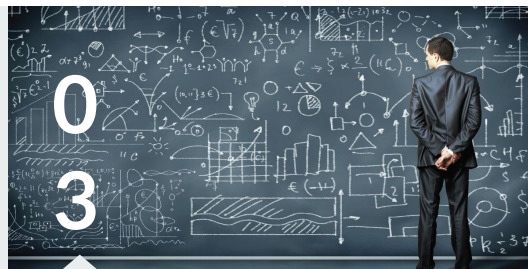
1 Gather Data

Gather the data necessary to perform the desired task.

Including: News Headlines, Stock Prices

2 Format Data

Formatting the data into the form that is readable and usable by the Neural Network



3 Sit Back and Run The CNN

Running the Neural Network and determine the effectiveness of this hypothesis. Record the results



Thank you.

