



Twitter 

@Group_8

Sentiment Analysis

Requirements

Goal:

- Analyze general sentiment expressed in tweets
- Detect emotions and cyberbullying in tweets using pretrained Spark NLP DL classifiers

Emotions identified include: Joy, Surprise, Fear, Sadness while detecting Racism, Sexism or Neutral tweets.

Dataset

- ~10 gb of scrapped tweets stored in **Google BigQuery** table.
- Processed data written to BigQuery.
- Cloud-based Architecture and provides exceptional performance as it can auto-scale up and down based on the data load and performs data analysis efficiently.

Data Processing

- **Apache Spark** is an open-source unified analytics engine for large-scale data processing.
- **Dataproc** used for running Apache Spark.
 - It's a managed service, so you don't need a system administrator to set it up.
 - It's fast. You can spin up a cluster in about 90 seconds.
 - It's cheaper than building your own cluster because you can spin up a Dataproc cluster when you need to run a job and shut it down afterward, so you only pay when jobs are running.
 - It's integrated with other Google Cloud services, including Cloud Storage, BigQuery, and Cloud Bigtable, so it's easy to get data into and out of it.
 - Due to performance considerations as well as the high reliability of storage attached to Dataproc clusters, the default replication factor is set at 2.
- The `GoogleCloudDataproc/spark-bigquery-connector` used for reading data from/to BigQuery.

Visualization

Date Range Slider: 01 May 2022 .. 04 May 2022

normal

sarcasm

None

neutral

racism

sexism

None

sadness

joy

love

anger

fear

surprise

None

Run Interact

| content | cyberbullying | sarcasm | emotion | created_at |
|--|---------------|---------|---------|---------------------------|
| The "MaH RiGhTs! MaH FrEeDuM!" crowd are always so excited when they get to take other people's rights away.\n\n#Murica | racism | sarcasm | fear | 2022-05-03 23:54:23+00:00 |
| Lifelong Los Angeles resident recounts witnessing Rodney King riots as a child https://t.co/DhwTSrIXE2 I do too. They just about killed an innocent truck driver who wasn't involved at all. | racism | sarcasm | fear | 2022-05-04 23:57:42+00:00 |
| @KingZlch I'm concerned about a current in social media atheism that eagerly applauds fully ignorant dismissals of religion. | racism | sarcasm | fear | 2022-05-02 23:55:22+00:00 |
| @Breck_Worsham @RTPaescke The same reason most of ppl, especially the Jabad, were in Fear of their lives over a virus with a 95% survival rate... IRRATIONAL LOGIC! or Jupiter, take your pick! | racism | sarcasm | fear | 2022-05-02 23:55:31+00:00 |
| @JudieHall9 Because they think only Republicans are Christians? | racism | sarcasm | fear | 2022-05-02 23:54:02+00:00 |
| I protect your right to fly a Christian flag on city hall's flagpole when they let other groups fly flags there too. https://t.co/aFD0XL4dtj | racism | sarcasm | fear | 2022-05-02 23:57:17+00:00 |
| Democrats saying black people will suffer if they can't have abortion up until the moment of birth but have no problem forcing them to carry items out of a store in their hands and on to buses, to their cars or walking down the street\n\n#JerseyDeservesBetter #RecallingPhilMurphy | racism | sarcasm | fear | 2022-05-04 23:59:05+00:00 |

Visualization

Date Range Slider: 31 May 2022 .. 09 Jun 2022



normal

sarcasm

None

neutral

racism

sexism

None

sadness

joy

love

anger

fear

surprise

None

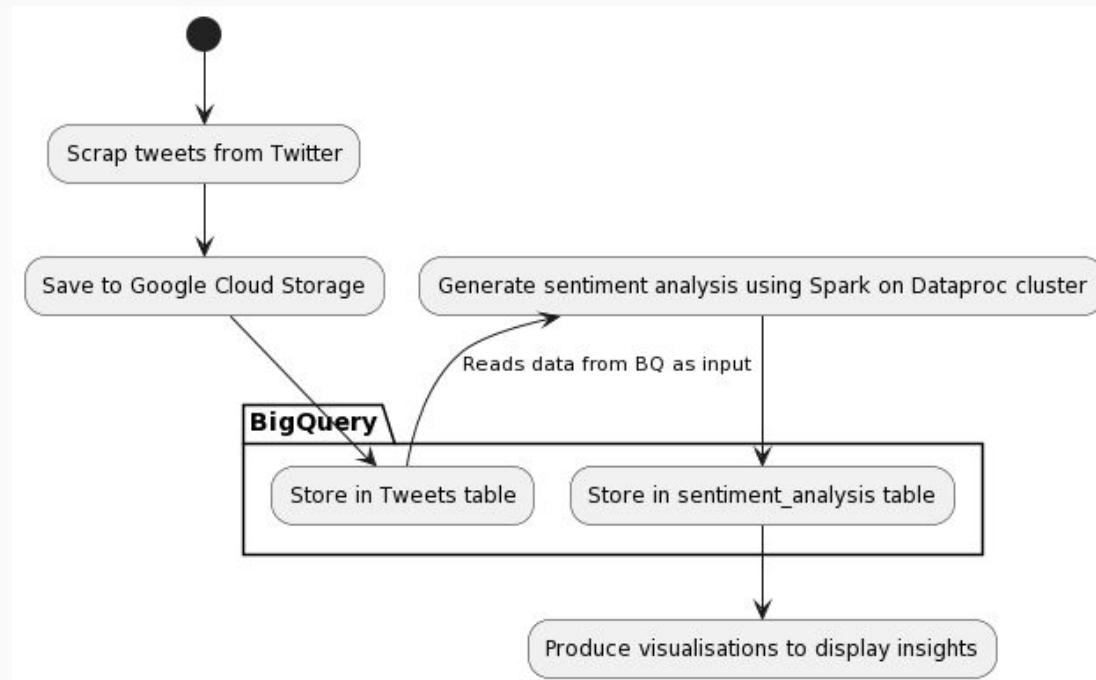
Run Interact

| content | cyberbullying | sarcasm | emotion | created_at |
|--|---------------|---------|---------|---------------------------|
| Which that's fine. As men, we like to be perverts (the cats out the bag), but I hate when women who are out of shape act like they are influencing gym culture and it's the exact opposite | sexism | sarcasm | fear | 2022-05-31 23:59:14+00:00 |
| @trashgyn imo most women dont actually believe TRA stuff but just say it to be socially acceptable | sexism | sarcasm | fear | 2022-05-31 23:53:17+00:00 |
| Goddamn it's unbelievable that guys will get on a game, hear a woman's voice in gamechat, and decide to completely berate them just for being a woman. Stfu we're all trying to have a good time, you fucking loser. | sexism | sarcasm | fear | 2022-05-31 23:50:21+00:00 |

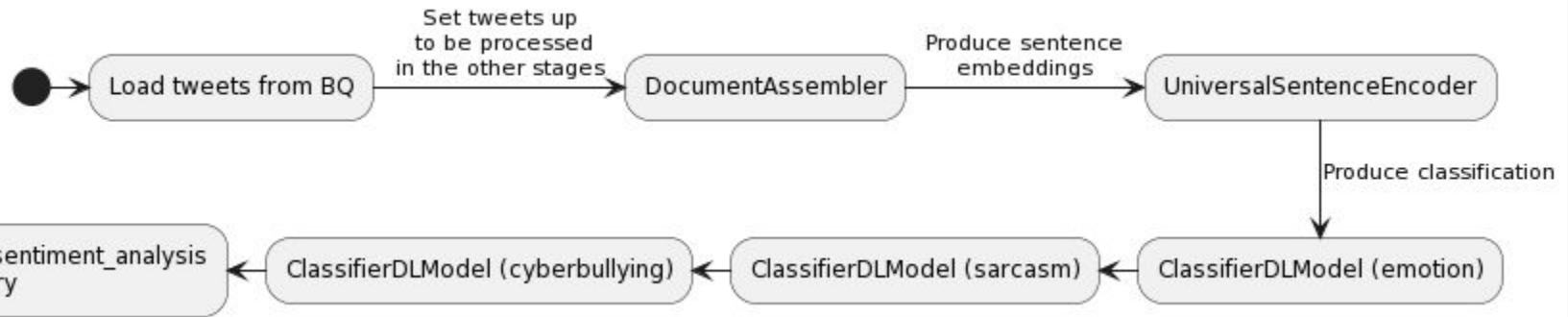


| content | cyberbullying | sarcasm | emotion | created_at |
|---|---------------|---------|---------|---------------------------|
| @richardmarx The ones who say that are the ones who value their guns over people lives. Sick twisted country we live in | racism | sarcasm | fear | 2022-05-26 23:55:59+00:00 |
| All citizens of America want to see those cops dangling\n\nMaybe the most unification I've seen on an issue in a long time. That part at least | racism | sarcasm | fear | 2022-05-26 23:54:31+00:00 |
| We are FAILING the children of this country. It shouldn't have to be this way. I have given up expecting anything to change. Nothing will change except the rally cry of gun fanatics bellowing "but not me" louder and louder and louder.\n\n#Uvalde | racism | sarcasm | fear | 2022-05-24 23:56:16+00:00 |
| @CNN Evil people do evil shit. | racism | sarcasm | fear | 2022-05-14 23:54:51+00:00 |
| @Ellenleigh3 @Jay_McGill94 so cops are ok with white people shooting them? | racism | sarcasm | fear | 2022-05-24 23:58:07+00:00 |

In a nutshell...



Spark Job Pipeline





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Thank you, it's time for demo