

# Text Mining Tweets on “Religion”

## Topic Modeling, Sentiment Analysis and Hate Speech Detection

Master’s Thesis Defense and Presentation

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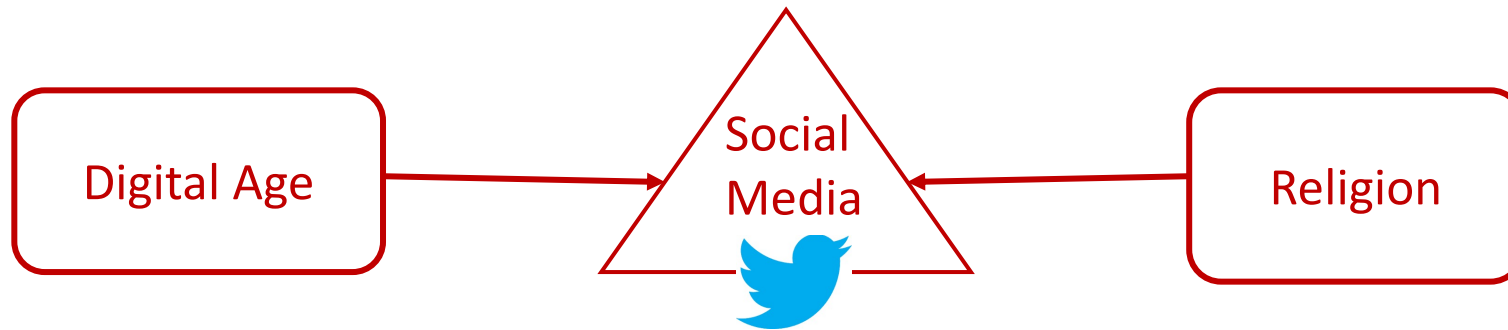
# Agenda

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- Introduction & Motivation
- Research Questions
- Methodology & Analysis
- Results
- Conclusion
- Appendix

# Introduction & Motivation

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## My Contribution:

Text Mining Approach to Investigate Techno-Religious Space.

# Research Questions

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**Main RQ** | What is the general public opinion [ on social media ] towards religion?

## Sub-Q1

| What topics are addressed and discussed alongside religion in a social media context?

## Sub-Q2

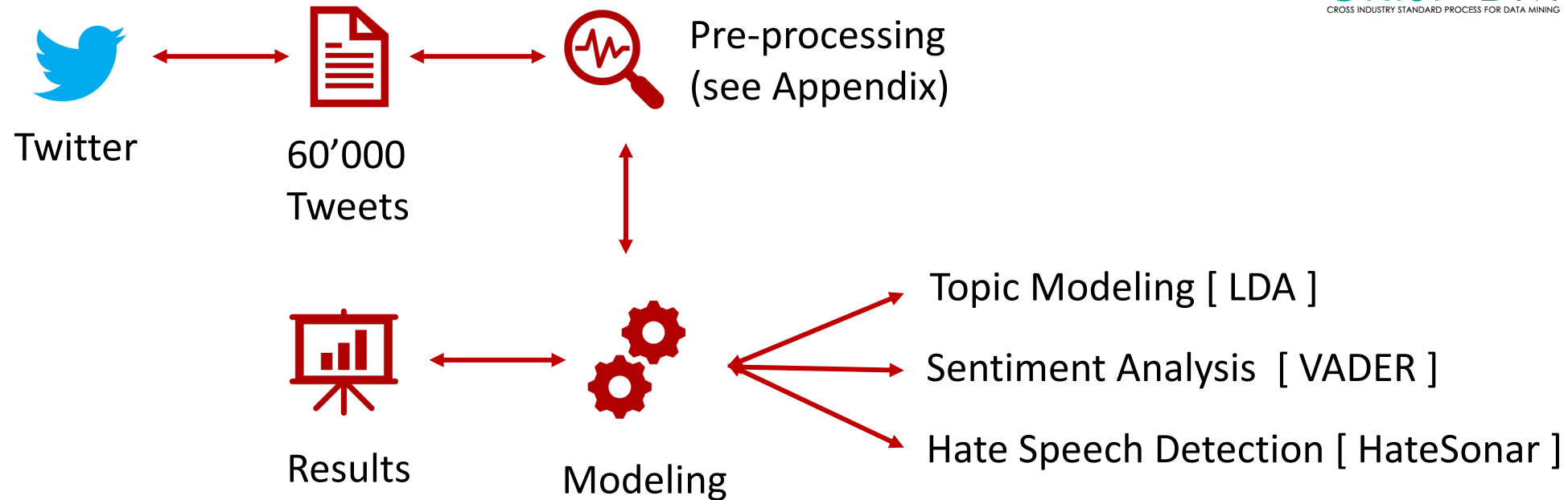
| What are the sentiments of the public opinion towards religion?

## Sub-Q3

| Is there a presence of hate speech and offensive language on these opinions? How to measure it?

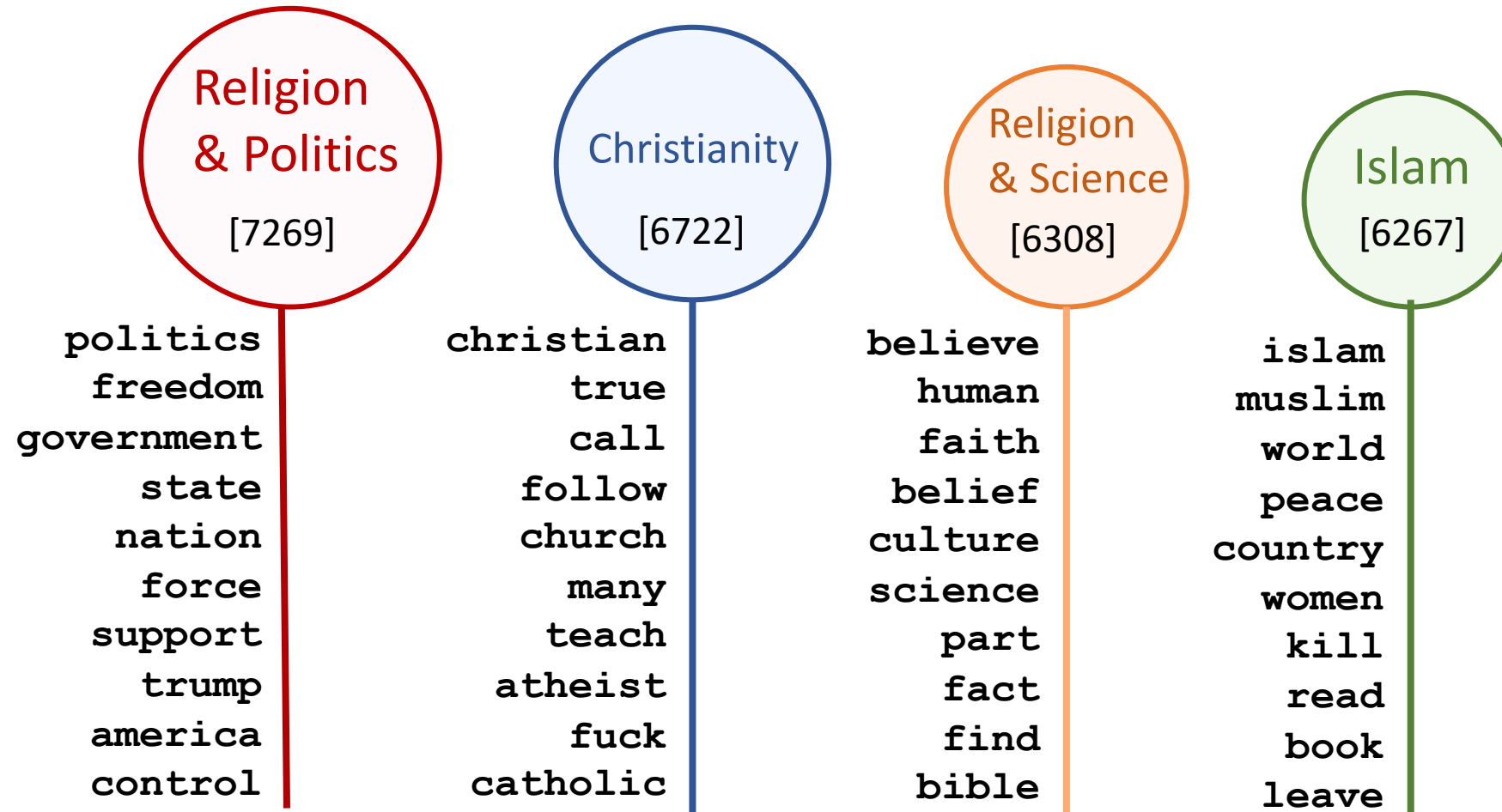
# Methodology & Analysis

CRISP-DM  
CROSS INDUSTRY STANDARD PROCESS FOR DATA MINING



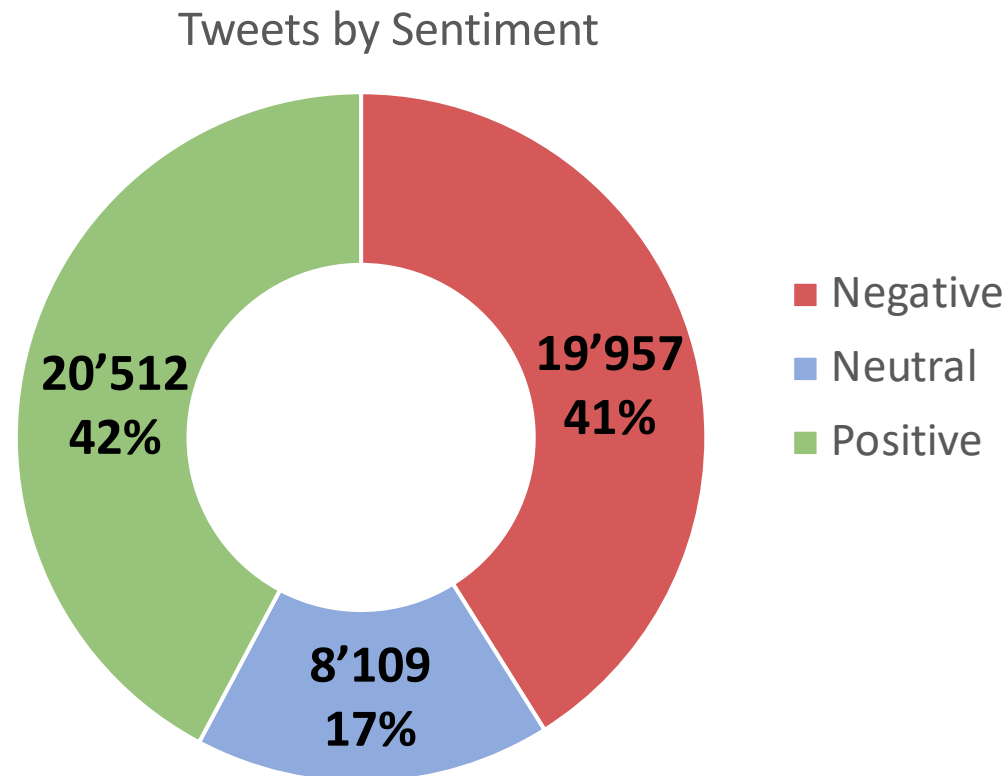
## Results: Dominant Topics & Keywords

**RQ1:** What topics are addressed and discussed alongside religion in a social media context?



## Results: Sentiment Analysis

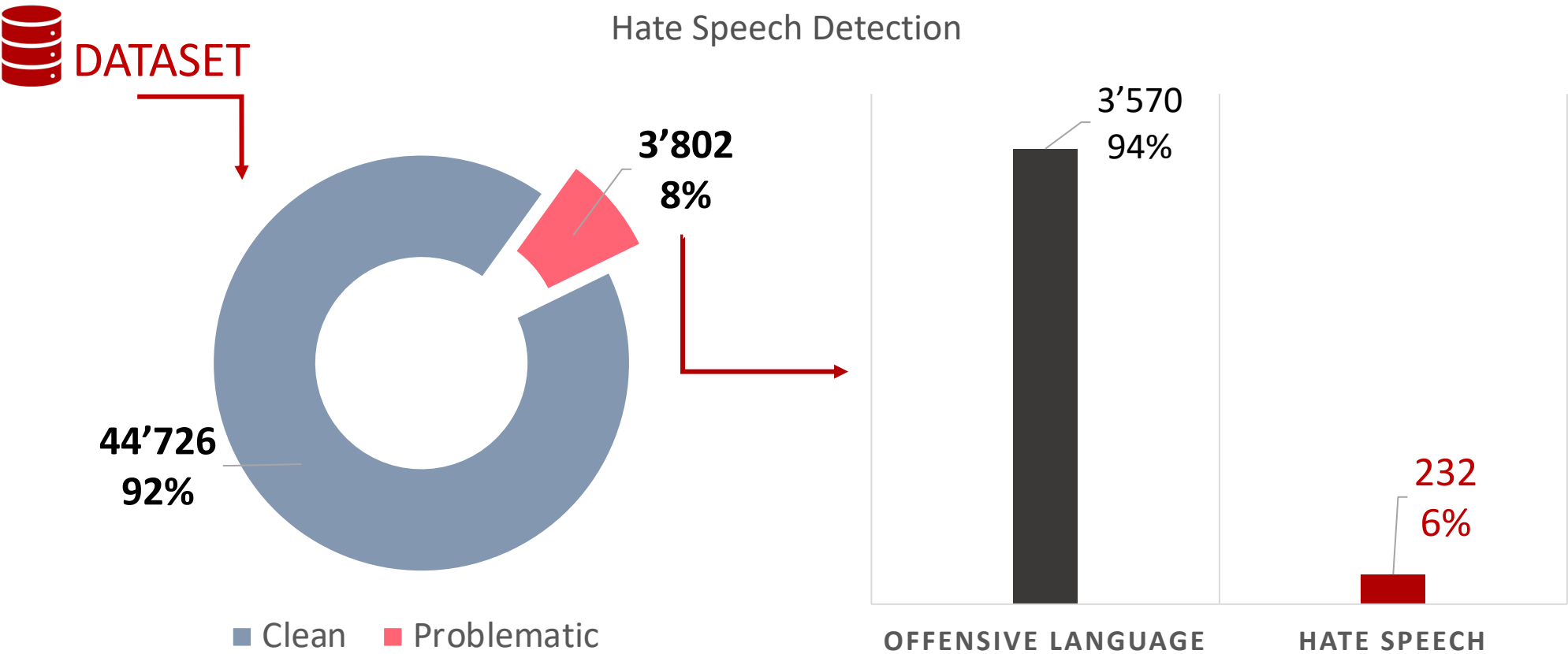
**RQ2:** What are the sentiments of the public opinion towards religion?



See Appendix :  
Top 3 positive and negative tweets.

# Results: Hate Speech Detection

RQ3: Is there a presence of hate speech and offensive language on these opinions?





## Conclusion

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- ❖ The most relevant topics of public discussion related to religion are *Religion & Politics, Religion & Science, Christianity* and *Islam*.
- ❖ Sentiment analysis showed about **40% Negative sentiment**, this can be used to argue on high levels of secularization of the modern society.
- ❖ There is presence of **hate speech and offensive language (about 8%)**. Hence social media platforms should do more to prevent this type of speech.

Thank you for your attention!  
Q & A

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# Appendix

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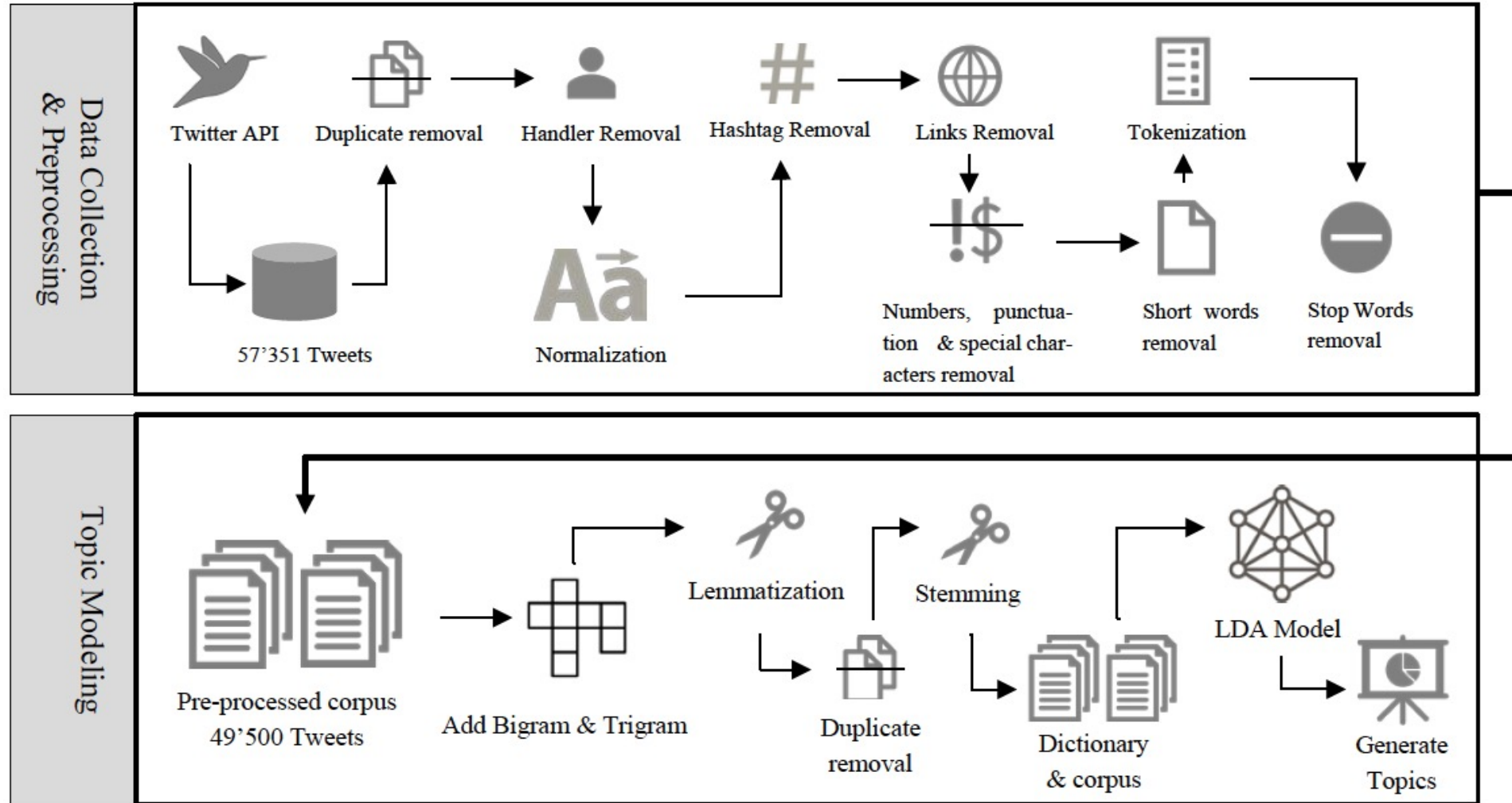
The Complete Python Code can be accessed here:

↳ [https://github.com/HurmetNoka/religion\\_on\\_twitter](https://github.com/HurmetNoka/religion_on_twitter)

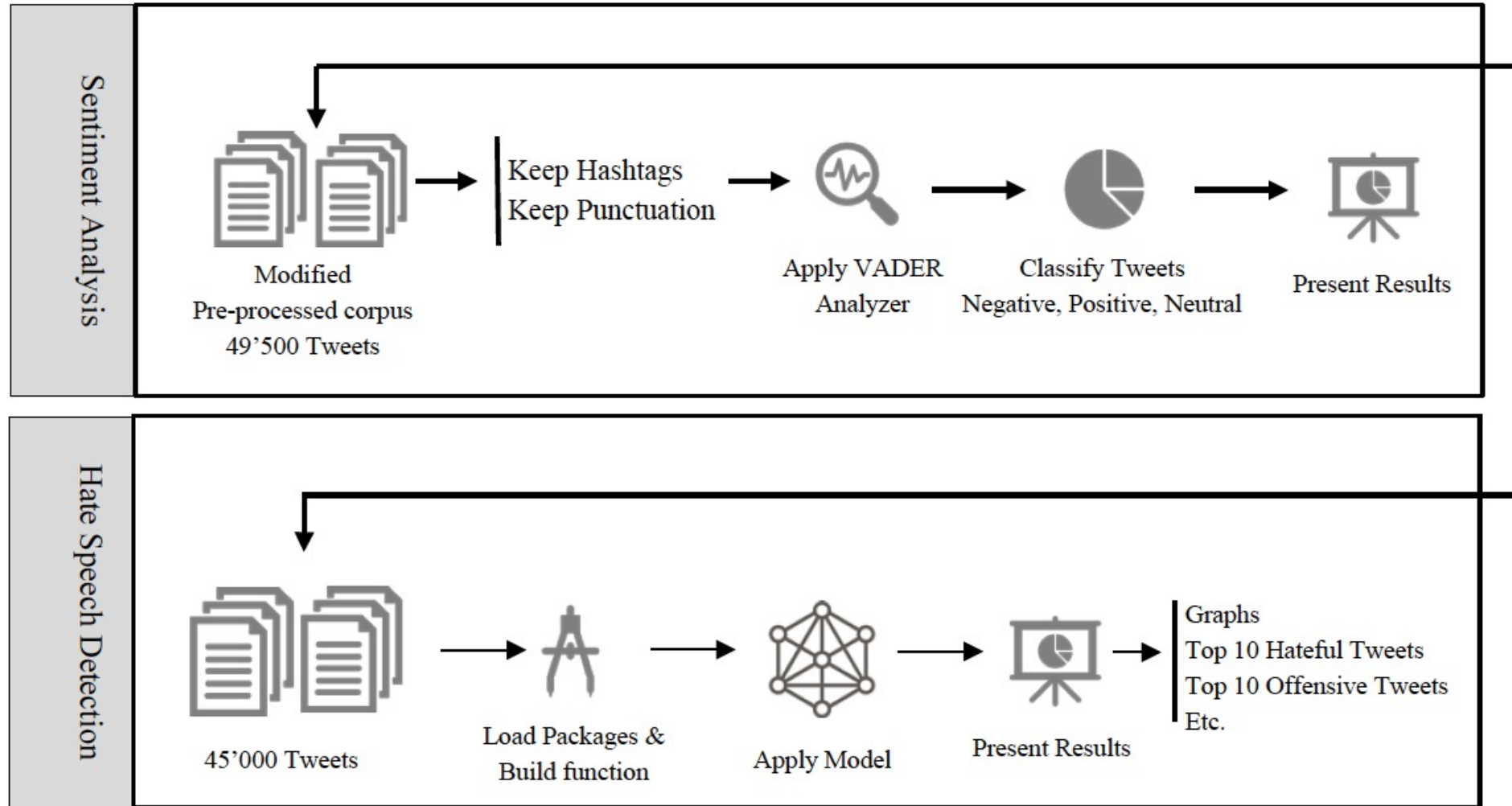
Article about this project published on Towards Data Science:

↳ <https://towardsdatascience.com/religion-on-twitter-5f7b84062304>

## Appendix: Analysis Steps



## Appendix: Analysis Steps



## Appendix: Top 5 Positive Tweets

Nr.	Tweet Text	Negative	Neutral	Positive	Compound
1	Religion tells you to clean yourself up, then God will love you, but that's not real love. That's conditional love. Real love is not dependent on how much you love Him; it's about how much He loves you.	0.000	0.458	0.542	<b>0.989</b>
2	Prayer is the most genuine and sincere thing people of religion know. sometimes it's everything they have to offer spiritually, in their eyes. it's not always understood but its best to appreciate it and see it as a very sincere "I want the best for you" sympathetic attitude :)	0.000	0.554	0.446	<b>0.986</b>
3	Be kind, polite, humble, respectful, caring and grateful no matter what, love everyone despite race, religion, wealth, life-style, we all are above things and we are worthy of all the love in the world. God is with us all and He loves each one of Us!!!	0.030	0.499	0.471	<b>0.986</b>

## Appendix: Top 3 Negative Tweets

Nr.	Tweet Text	Negative	Neutral	Positive	Compound
1	Religion caused the division of India and the formation of Pakistan. Hinduism versus Buddhism. Ban religion. That's the cause of so much death, killing, torture, abuse, rape, pain and suffering. There is no religion in India or Pakistan. Period. Take all books, etc.	0.522	0.478	0.000	-0.988
2	That's what they live for. The desalination of all others but Muslims. The religion of hate, murder, rape, war, paedophilia. Islam is pure evil.	0.649	0.351	0.000	-0.987
3	Threatening murder against a poor woman is not protecting Islam. If anything you are harming your religion by engaging in such barbaric language. Threatening violence does not lead to peace. It just leads to more violence. This is why peeps don't like Islam. Because it's violence.	0.649	0.351	0.000	-0.987



## Appendix: Top 3 Hateful Tweets

Nr.	Tweet Text	Hate	Offensive	Neither
1	<USER> "your religion is misogynistic" a white feminist abusing me on twitter.	0.870	0.069	0.059
2	<USER> White is a race, anyone can be a Muslim. It isn't racist to disagree with a dated, sexist stupid religion.	0.767	0.061	0.171
3	I don't know where White Racist Americans get this myth that there's a White Genocide in South Africa. This is how religion started.	0.724	0.212	0.062



# My Contribution

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- Providing a first empirical analysis of the general public opinion about religion on social media.
- Showing the dominant topics that the modern public is interested when discussing religion online.
- Extracting the public sentiments towards religion using automated techniques.
- Showing empirical evidence of the presence of hate speech and offensive language with religion as a motivation, on the social media discussions.