

# Chapter 4: Implementation of Twitter Terrorism Detection Framework

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Implementation of Twitter Terrorism Detection framework is a challenging task. We have tried our best to implement the Twitter Terrorism Detection framework efficiently. In this chapter, section 4.1 describes our experimental setup. Section shows API access process. Section 4.3 shows crawling process in IDE with snapshot and at section 4.4 we have provided some snapshots of our project with necessary explanation that will clearly describe the outcome of our project. Finally, this chapter is concluded at section 4.5.

## 4.1 Experimental Setup

A Twitter Terrorism Detection Framework has been developed on a machine having the Windows 10, core i5 processor with 8GB RAM. The system has been developed in Python and Php in the backend and javascript is used in the front end. Mysql is used for storing related data in this framework.

For coding in python, we have used the latest version of PyCharm which is 2018.2.4 with python version 3.6. For coding in php, we have used the latest version of phpstorm which is 2018.2.2 with php version 7. The system architecture following illustrates the internal and external structure of system modules integrated together in one package to form one system. The following subsections provide a brief background overview of the tools used and the implementation details of the different modules of the developed system starting from the back-end to the front-end. The whole system was developed on Windows Operating System and using pycharm and phpstorm IDE.

## 4.2 API Access from Twitter API

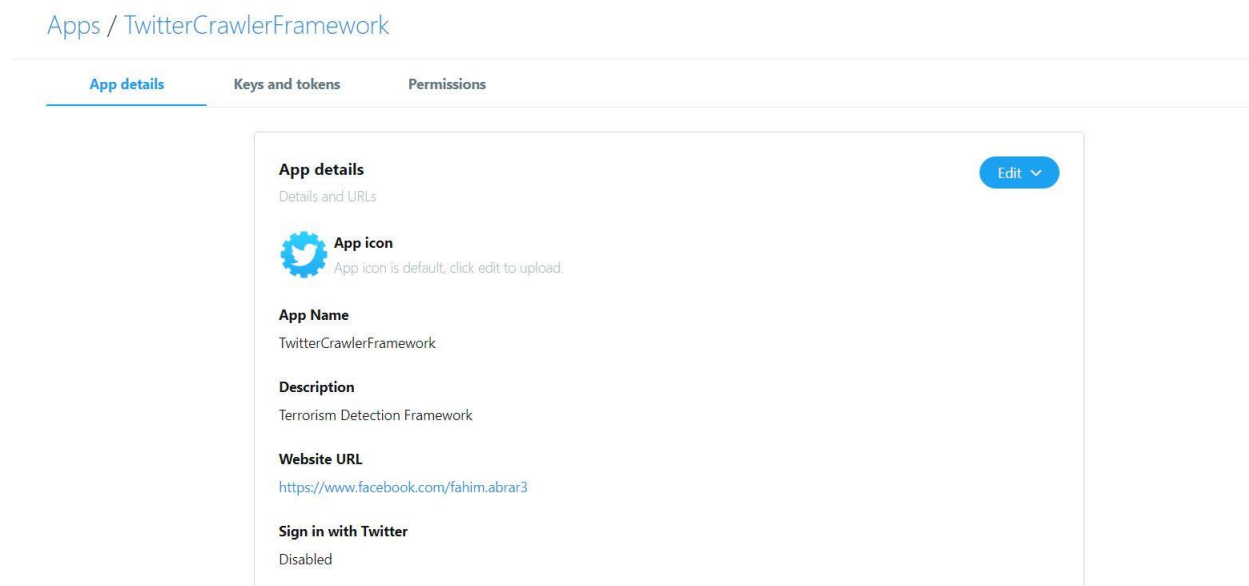
In order to start crawling from Twitter we need to go to the twitter developer portal to get access tokens and consumer secrets. An Application Programming Interface (API) is a standardized system of programming instructions that allows web platforms to access and share information from one another. Like many other web tools, almost every social network has released its API for

researchers and other web developers to use. We have used Twitter Streaming API to crawl data from Twitter. API (Application Platform Interface) will allow us to authenticate access token provided by the authority of the social network. If the API keys are valid, the crawler program can access the twitter API and crawl tweets from the twitter. If the API keys are not valid then the API will send a API access error.

To get the API access keys first we have opened an account on twitter developer website.<sup>i</sup> In the website we have created an app named “TwitterCrawlerFramework”. This provided us with the access tokens.

There are some limitations in the developer accounts. We have crawled data from twitter by using the twitter crawler API keeping in mind about the limitations.

Figure 4.1 shows the snapshot of the app that we have created for using in the Twitter Terrorism Detection Framework.



*Figure 4.1:* TwitterCawlerFramework app in twitter developer website

Figure 4.2 shows the four access tokens that are provided from the app that we have created for this project.

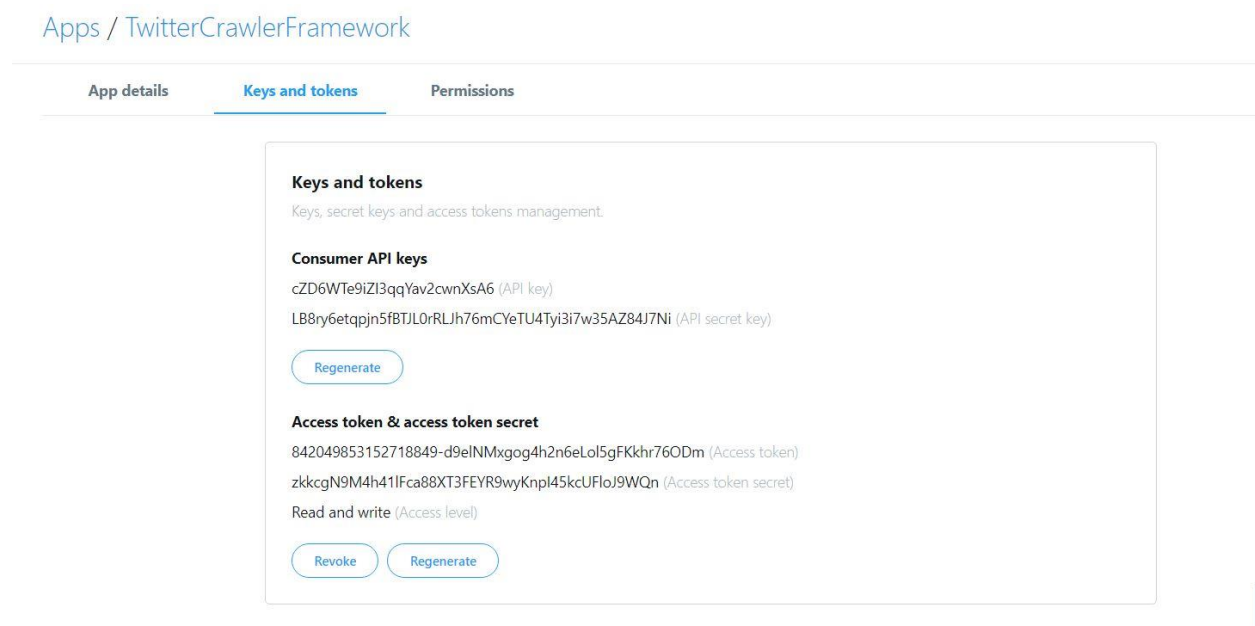


Figure 4.2: Twitter access tokens and secrets

### 4.3 Crawling Data in IDE

Figure 4.3 shows a sample process of data crawling real-time tweets from the twitter. First we started a twitter stream listener using the developer API keys that we have collected from the app in the developer website. After the tweet is collected via the stream listener, the tweets are directly stored into the database. Before storing into the database, all the retweets are cleaned first so that duplicate tweets are not stored in the database. This may make our database heavy. Figure 4.4 shows an example of our main table.

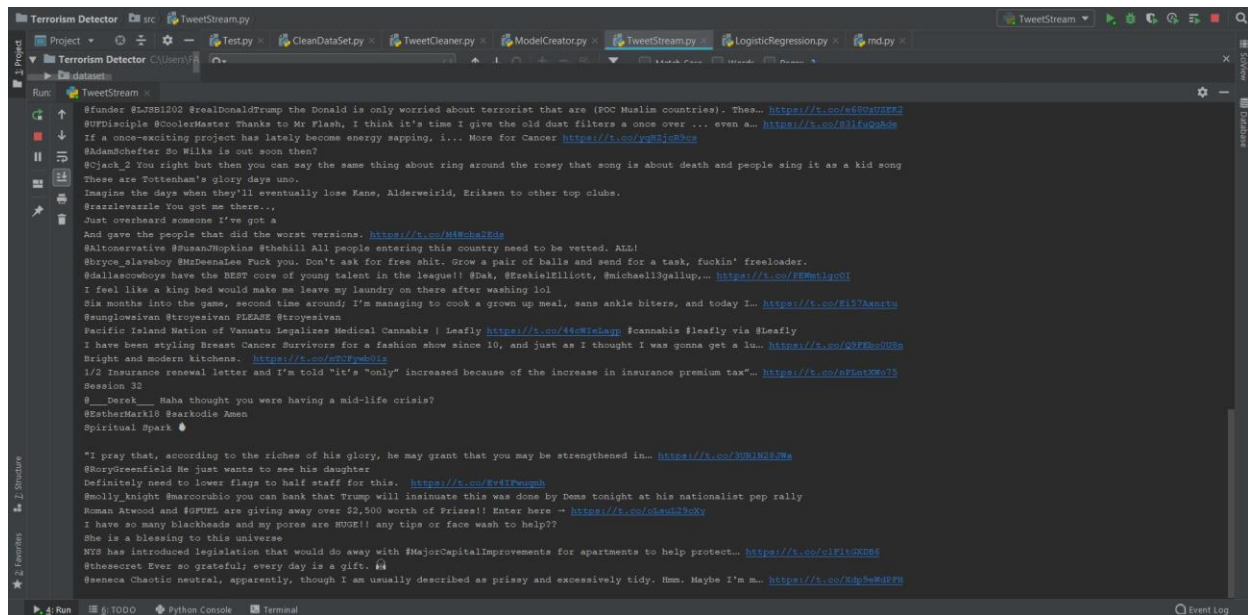


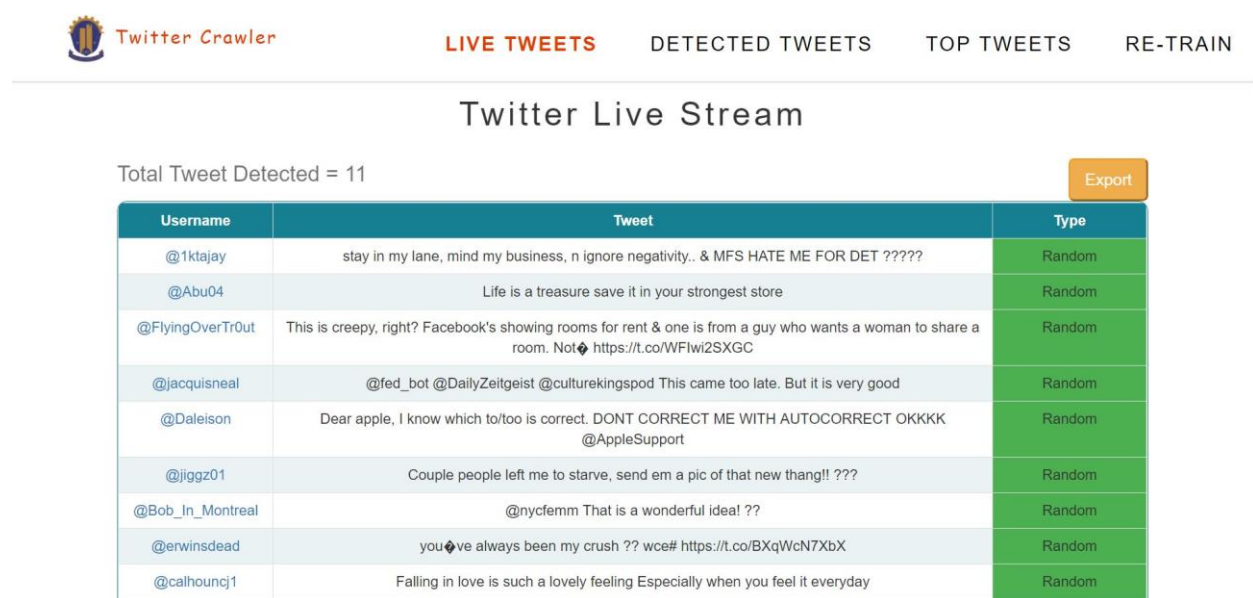
Figure 4.3: Sample real-time tweet crawling in IDE

post_id	username	tweet	type
1054373882898071553	gocbcmustangs	Men's Basketball Releases 2018-19 Schedule - http...	2
1054373882923237376	PaulNickerson1	Have you seen our latest news? https://t.co/1qCmWa...	2
1054373882927480832	SXMThePulse	Tune in now to hear @candacecbure talk to The Puls...	2
1054373887083929600	AksAbdulrahman	You relish the idea of a fresh start or a new adve...	2
1054373887083978752	mhznm	@Jenn198523 It won't go anywhere because Conservat...	2
1054373887083995136	copter_dave	@TheHeckler9751 @johnqrepublica1 @BillHarkins11 @F...	2
1054373887092375552	WarEagle2k4	@undisputed @RealSkipBayless #HTTR Jonathan Allen...	2
1054373887092420608	nicohxo	i grew beard in the past weeks 😊	2
1054373887096643589	1037dabeat	#NowStreaming Tinashe Feat Drake - 2 On (Remix) (C...	2
1054373887100809216	BomShellBeautii	Big boss sets up meeting. Boss : you're getting a...	2
1054373887117410308	varma_aksshith	@geekyranjit Pixel also doing this one	2
1054373891282354176	Lewis79Shannon	You relish the idea of a fresh start or a new adve...	2
1054373891295137792	KiritaProject	@ESLArenaofValor @Erg0ST @ATT My record is like 45...	2
1054373891299336192	RsaXhanti	@chartdata @NICKIMINAJ Wbk that Nicki Minaj is a q...	2
1054373891307646977	joecool89	Just posted a photo https://t.co/MOTlrrZn30	2
1054373891316084737	thegeneral0311	@minakimes 😂😂 Sashi drafted those guys and he was ...	2
1054373895472525312	ncthaech	Happy our 23day,captain of jung's squad! ❤️ #Jungs23...	2

Figure 4.4: A peek into our database

## 4.4 System Layout

Figure 4.5 shows the screen where live tweets are shown. Each tweets which are random or terrorism non-supporting are shown here. Random tweets are shown using a green blocks and terrorism non supporting tweets are shown using a yellow blocks. In the top portion there is a count which shows the number of tweets that are detected as terrorism supporting tweets till now. On the left side of each tweets the username of the user will be shown. It is clickable and if it is clicked it will load the profile of that specific user.



Username	Tweet	Type
@1ktajay	stay in my lane, mind my business, n ignore negativity.. & MFS HATE ME FOR DET ?????	Random
@Abu04	Life is a treasure save it in your strongest store	Random
@FlyingOverTr0ut	This is creepy, right? Facebook's showing rooms for rent & one is from a guy who wants a woman to share a room. Not https://t.co/WFlwi2SXGC	Random
@jacquisneal	@fed_bot @DailyZeitgeist @culturekingspod This came too late. But it is very good	Random
@Daleison	Dear apple, I know which to/oo is correct. DONT CORRECT ME WITH AUTOCORRECT OKKKK @AppleSupport	Random
@jiggz01	Couple people left me to starve, send em a pic of that new thang!! ???	Random
@Bob_In_Montreal	@nycfemm That is a wonderful idea! ??	Random
@erwinsdead	you've always been my crush ?? wce# https://t.co/BXqWcN7XbX	Random
@calhouncj1	Falling in love is such a lovely feeling Especially when you feel it everyday	Random

Figure 4.5: Live Tweets screen

Figure 4.6 shows the detected tweets screen. In this screen the tweets that are detected as terrorism supporting tweets are shown. Besides every tweets there are two buttons. One is called RAND and another is called TRNS. RAND button should be clicked if the tweet is random tweets but falsely detected as terrorism supporting tweets. TRNS button should be clicked if the tweet is not terrorism supporting but falsely detected as terrorism supporting tweets. Those tweets will be stored in the database with the new label and later can be used to retrain our model.

## Tweets Containing Terrorism Support

Total Tweet Detected = 53

Export

Username	Tweet	Action
@AsimAbuMerjem	AQ soldiers are marching towards the army now. Pray for them! #AQ #AlQaeda #RevengeWillBeOurs	RAND TRNS
@Bajwa47online	This is a WARNING to the tribes, who have involvement and any collaboration with the crusaders. There will be no mercy for them. They will be killed and burnt. #AlQaeda #Revenge #Islam #IslamiKhilafah	RAND TRNS
@abuhanzalah10	Killing kafir women and children is not a crime according to Allah. They are kafir no matter what. So, muslim brothers, kill them where you find them. #LoveISIS #Quran #AllahuAkbar	RAND TRNS
@abubakerdimshqi	#AlQaeda will bring peace for muslims of Afganistan. Be patient, fight for islam! #IslamIsTheBest	RAND TRNS
@al_nusra	Muslim brother, Do jihad! Allah promises reward to those who jihad. Jihadist brothers will achieve Jannah. #IslamicState #ISIS #Jihad #Jannah #Mujahideen	RAND TRNS
@WhiteCat_7	The sun of jihad has risen! The sign of victory has appeared! Inshallah we will be victorious!! #ISIS #jihad #MuslimsUnited	RAND TRNS
@abubakerdimshqi	All islamic tribes should work together to establish islam everywhere. We should not fight among us. #ISIS #AlQaeda and all other should fight together! #Islam #Victory	RAND TRNS

Figure 4.6: Detected Tweets screen


Figure 4.7 shows the top 10 tweets that support terrorism. We have ranked the tweets according to their predicted probability values.

## Top 10 Tweets

Rank	Tweet
1	Killing kafir women and children is not a crime according to Allah. They are kafir no matter what. So, muslim brothers, kill them where you find them. #LoveISIS #Quran #AllahuAkbar
2	Muslim brother, Do jihad! Allah promises reward to those who jihad. Jihadist brothers will achieve Jannah. #IslamicState #ISIS #Jihad #Jannah #Mujahideen
3	Soon, by Allah's permission, a day will come when the Muslim will walk everywhere as a master, having honor, being revered, with his head raised high and his dignity preserved. Anyone who dares to offend him will be disciplined, and any hand that reaches out to harm him will be cut off.
4	The sun of jihad has risen! The sign of victory has appeared! Inshallah we will be victorious!! #ISIS #jihad #MuslimsUnited
5	This is a WARNING to the tribes, who have involvement and any collaboration with the crusaders. There will be no mercy for them. They will be killed and burnt. #AlQaeda #Revenge #Islam #IslamiKhilafah
6	From now on, everyone whose affiliation with the jews guards, police, and army is confirmed then his punishment is execution, and not only that, his house also will be destroyed and burnt. #AQ #Islam #khilafah
7	AQ soldiers are marching towards the army now. Pray for them! #AQ #AlQaeda #RevengeWillBeOurs
8	Mujahideen, do not show mercy to the jews. They are our worst enemy! #ISIS #IslamicState #Khilafah

Figure 4.7: Top Tweets screen

Figure 4.8 shows the tweets that are stored for retraining purposes. This list shows the tweet for retraining and the type of the tweets as random or terrorism non supporting.


Twitter Crawler

LIVE TWEETS
DETECTED TWEETS
TOP TWEETS
RE-TRAIN

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Tweet for Re-train

Export

Tweet	Type
@Margherita_PPP Dath to jews????Jude	RAND
@gehrig38 America v Socialism Truth v Lies Transparency v Secrecy Justice v Injustice Power to People v Power t <a href="https://t.co/8WbK2MGCbT">https://t.co/8WbK2MGCbT</a>	RAND
@FoxNews @HillaryClinton If someone gets hurt or is killed, Fox News and Trump has blood on their hands	RAND
By order ????? coming soon @zouqboutique #zouqboutique #zouq #lebanon #kuwait #uae #iraq #cairo #egypt #ksa #jordan <a href="https://t.co/Ccv1Oon4WJ">https://t.co/Ccv1Oon4WJ</a>	RAND
Underground News Inc.: False Flag: How the U.S. Armed Syrian Rebels to Se... <a href="https://t.co/LhFH2nYi3v">https://t.co/LhFH2nYi3v</a>	RAND
I accept Allah as a God, and Islam as a religion, and Mohammed (S.A.W) as a prophet	RAND
"NATO Soldier Killed as Concern Rises Over Afghan Insider Attacks" by MUJIB MASHAL and THOMAS GIBBONS-NEFF via NYT <a href="https://t.co/f7wcBI7IY4">https://t.co/f7wcBI7IY4</a>	RAND

Figure 4.8:Re-train screen

Additionally each of the page contains an “Export” buttons on the top right corner of the screen.

## 4.5 Conclusion

In this chapter we have tried to give an overview about our system’s implementation. Specifically, we have described the experimental set up, system layout and output generation.

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<sup>i</sup> <https://developer.twitter.com/>