



A large, semi-transparent network graph is visible in the background of the left side of the slide. It consists of numerous small, semi-transparent nodes connected by thin white lines, forming a complex web-like structure against a background that transitions from orange at the top to purple at the bottom.

Twitter Sentiment Analysis

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Objectifs du projet

- 💡 Récupération de tweets contenant des mots du champ lexical du suicide
- 💡 Détection de tweets évoquant des pensées suicidaires de l'utilisateur
- 💡 Déploiement d'un bot Twitter permettant d'envoyer un message privé à l'utilisateur avec l'ensemble des aides disponibles



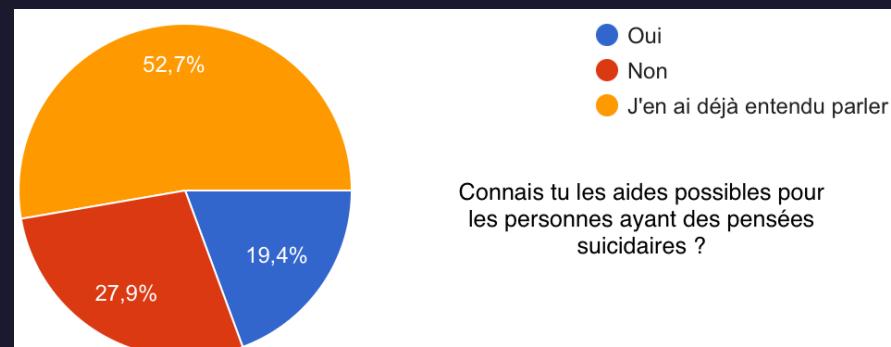
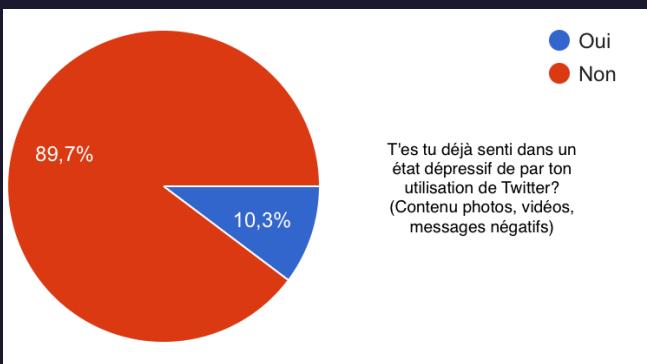
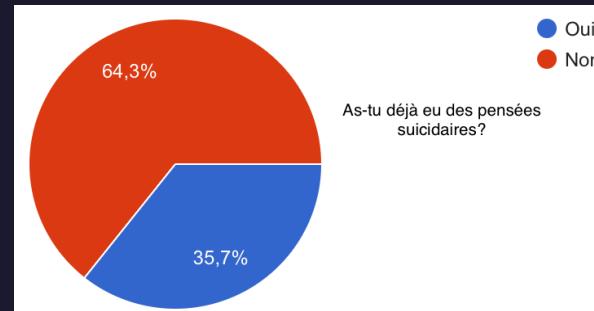
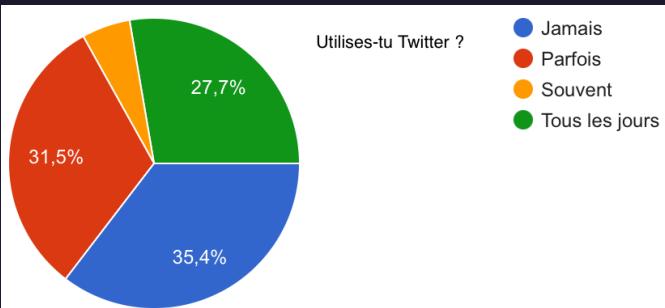
Pourquoi ce projet ?

- Des cas de messages suicidaires existants sur Twitter:

Nice: un homme suicidaire sauvé par une mobilisation d'internautes sur Twitter

Un homme a annoncé sa volonté d'en finir avec la vie sur Twitter. La mobilisation des internautes a permis de le trouver et de le transporter aux urgences.

- Réalisation d'un sondage afin de confirmer l'utilité de notre projet:



Algorithme

1 Récupération des tweets

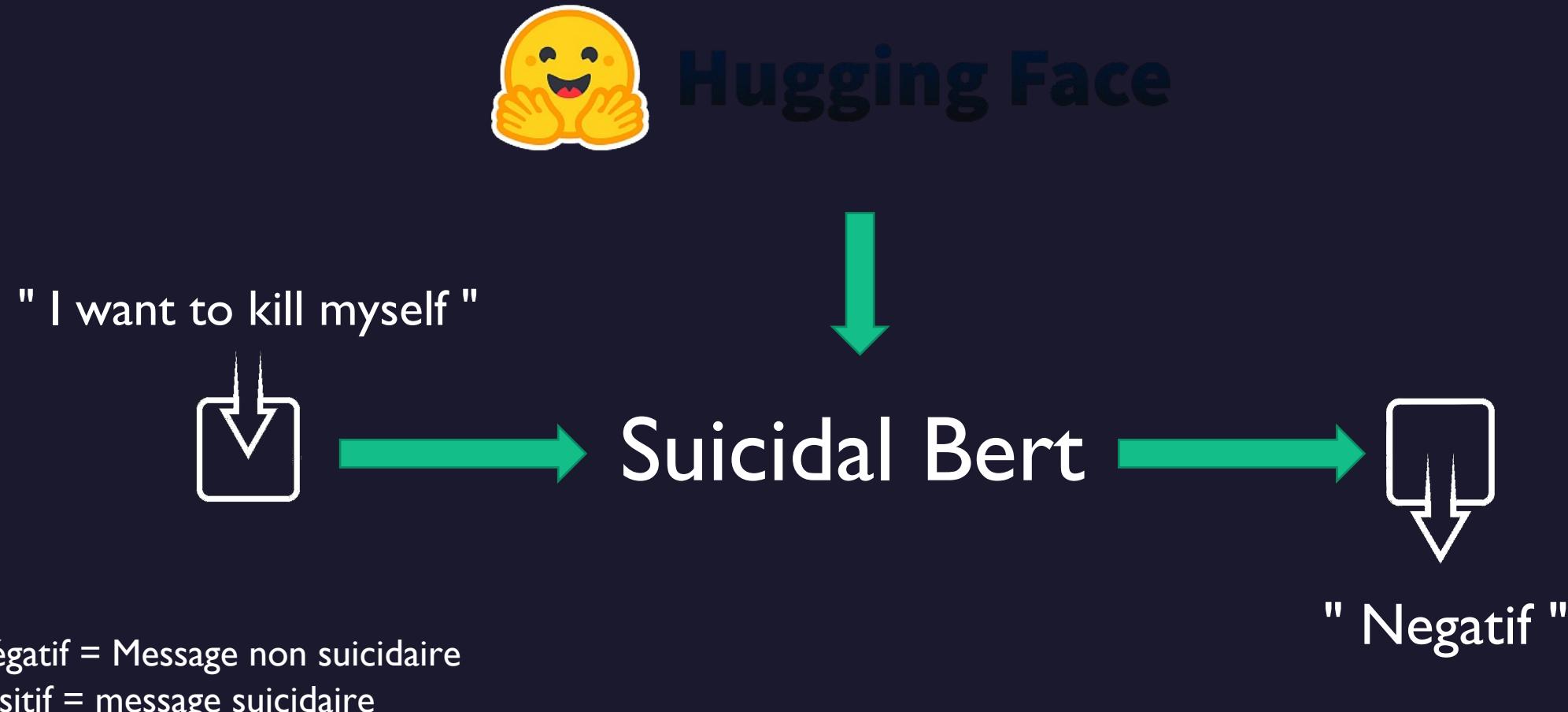
- Création d'un compte twitter dédié au projet, hébergeant notre bot
- Utilisation de la bibliothèque Python “Tweepy” utilisant l'API de Twitter.
- Recherche des tweets anglais quotidiennement, en utilisant des mots clé (suicidal, help..)
- Enregistrement dans un fichier csv

	id	text	auteur	date
0	1	https t co VgRPNEqwaN		2023-01-25T23:33:43.000Z
1	1	RT I was today years old when I found out Ro...		2023-01-25T23:33:41.000Z
2	1	RT Another day another domestic abuser in Am...		2023-01-25T23:33:36.000Z
3	1	RT NO SHE DIDNT BUT WAITING ROOM TAKEN OFF SP...	13	2023-01-25T23:33:34.000Z
4	1	Your effectively can t take away the right of ...		2023-01-25T23:33:33.000Z
5	1	Women do not commit suicide by shooting themse...	13	2023-01-25T23:33:32.000Z
6	1	RT 18 ...	13	2023-01-25T23:33:32.000Z
7	1	RT tw mention of suicide nganggur\n\nwor...		2023-01-25T23:33:31.000Z
8	1	RT This would shatter the male suicide epidem...		2023-01-25T23:33:26.000Z
9	1	RT Corporate suicide watch Harley Davidson p...		2023-01-25T23:33:25.000Z

- Nettoyage des données
- 10K tweets sur 4h, correspondants à nos critères

Algorithme

2 Modèles de détection des sentiments – Suicidal Bert



Algorithme

2 Modèles de détection des sentiments - Jeu de données

kaggle



200 000 Messages



1 500 Messages



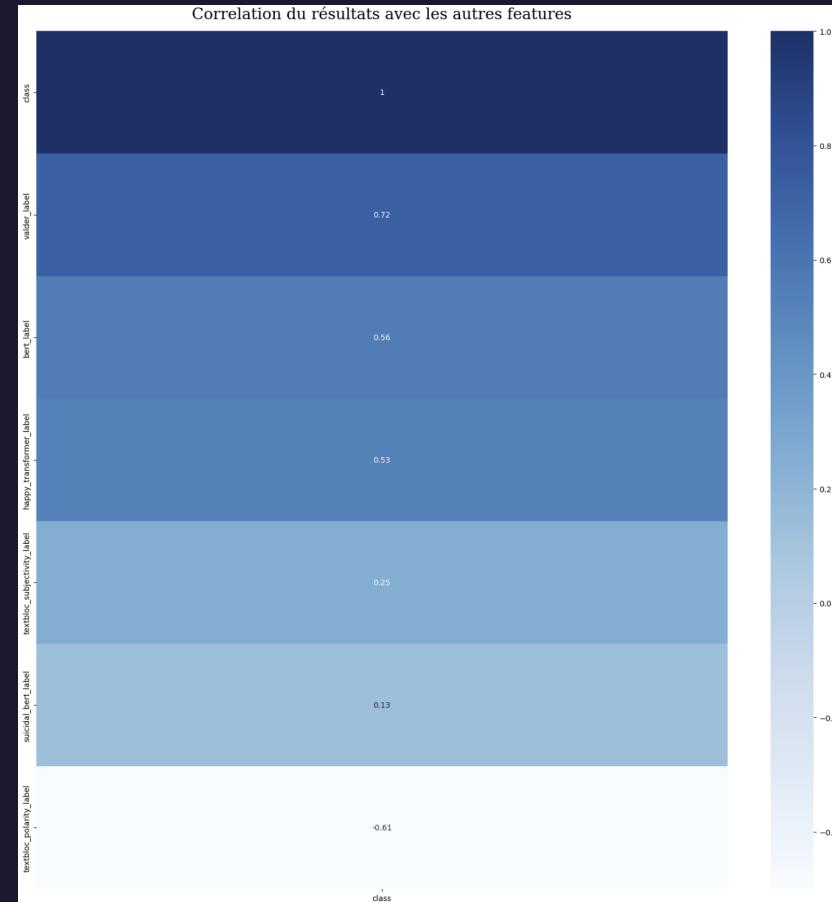
Risque de biais

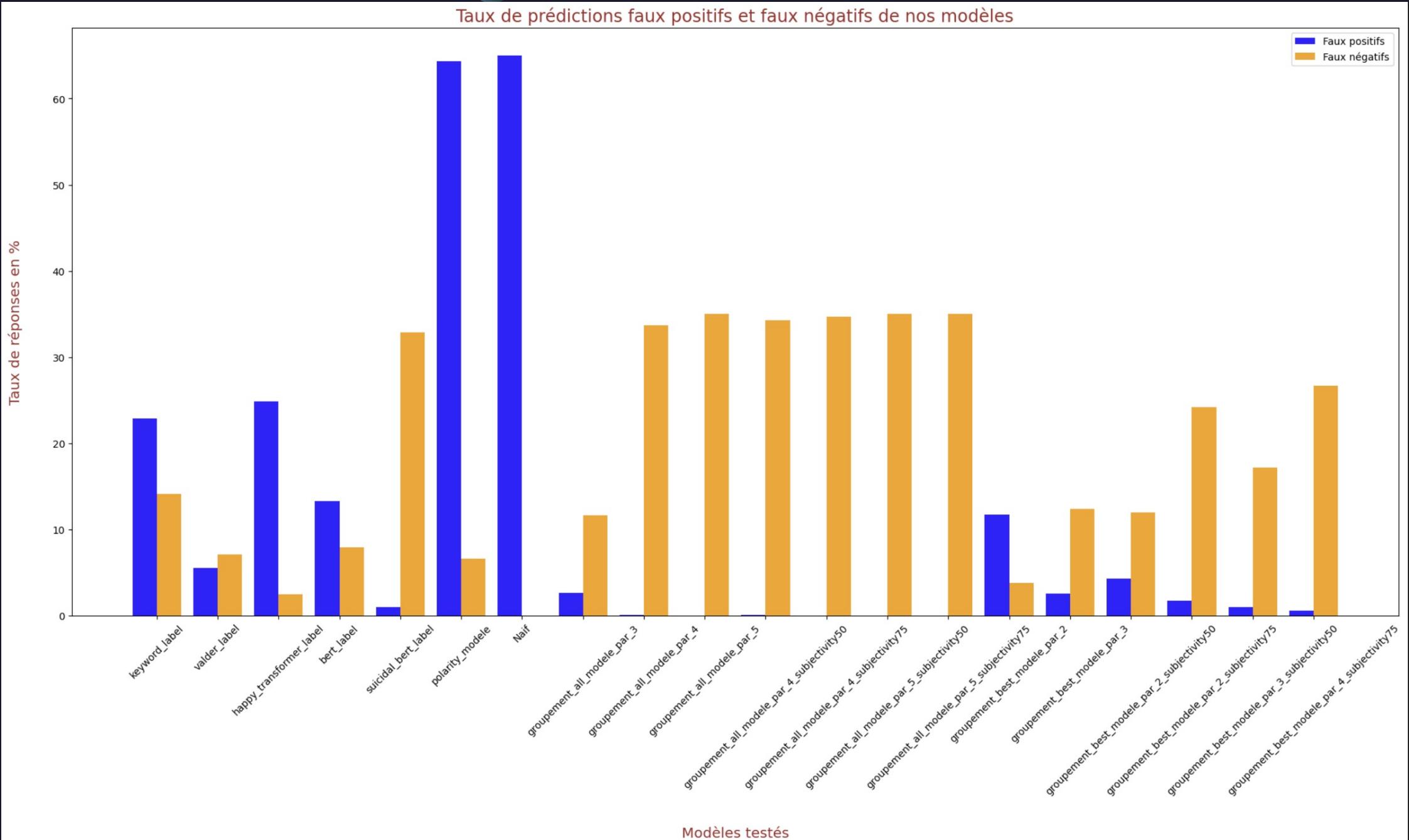
Algorithme

2 Modèles de détection des sentiments - Modeles

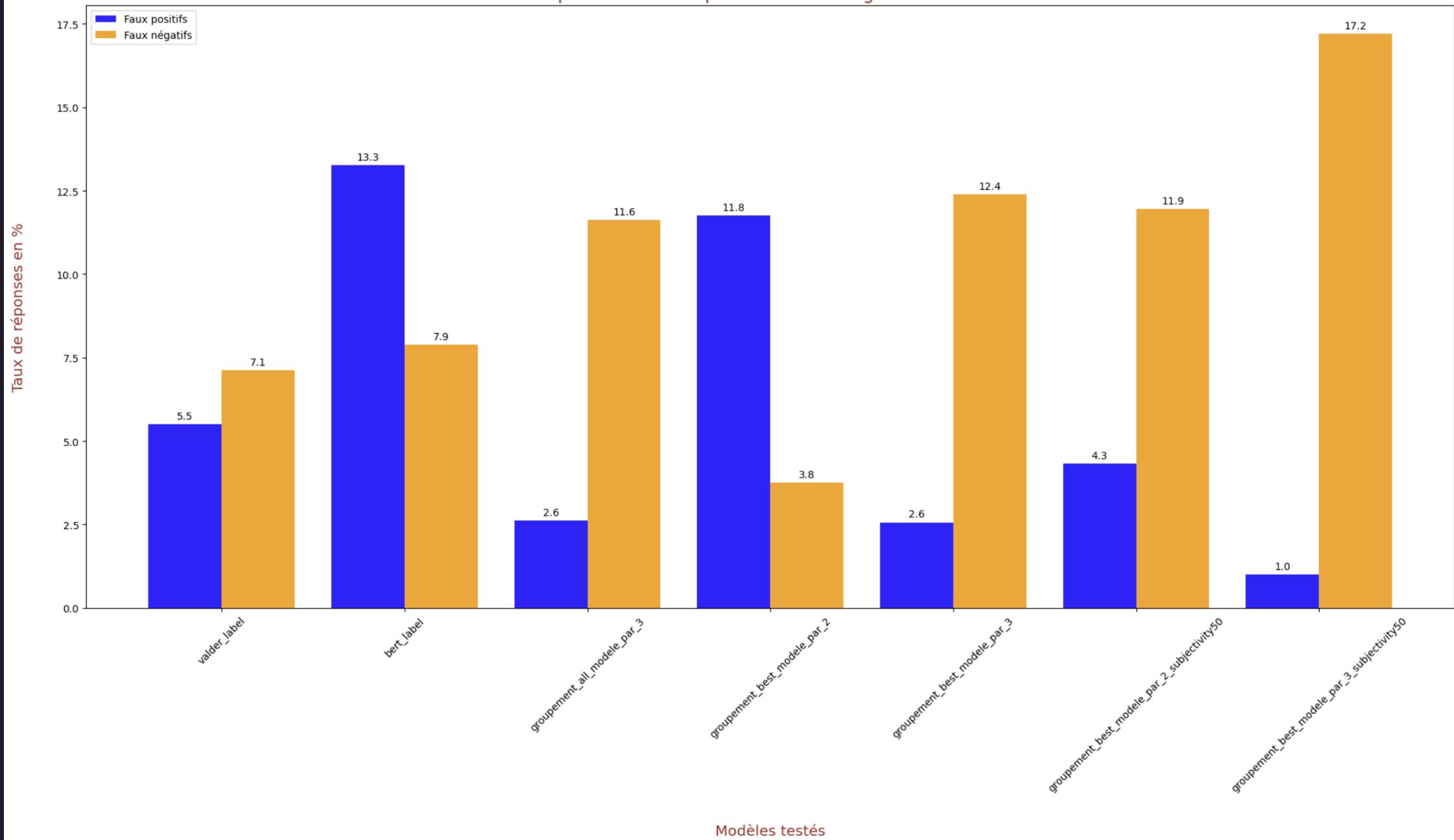
MODELES SIMPLE

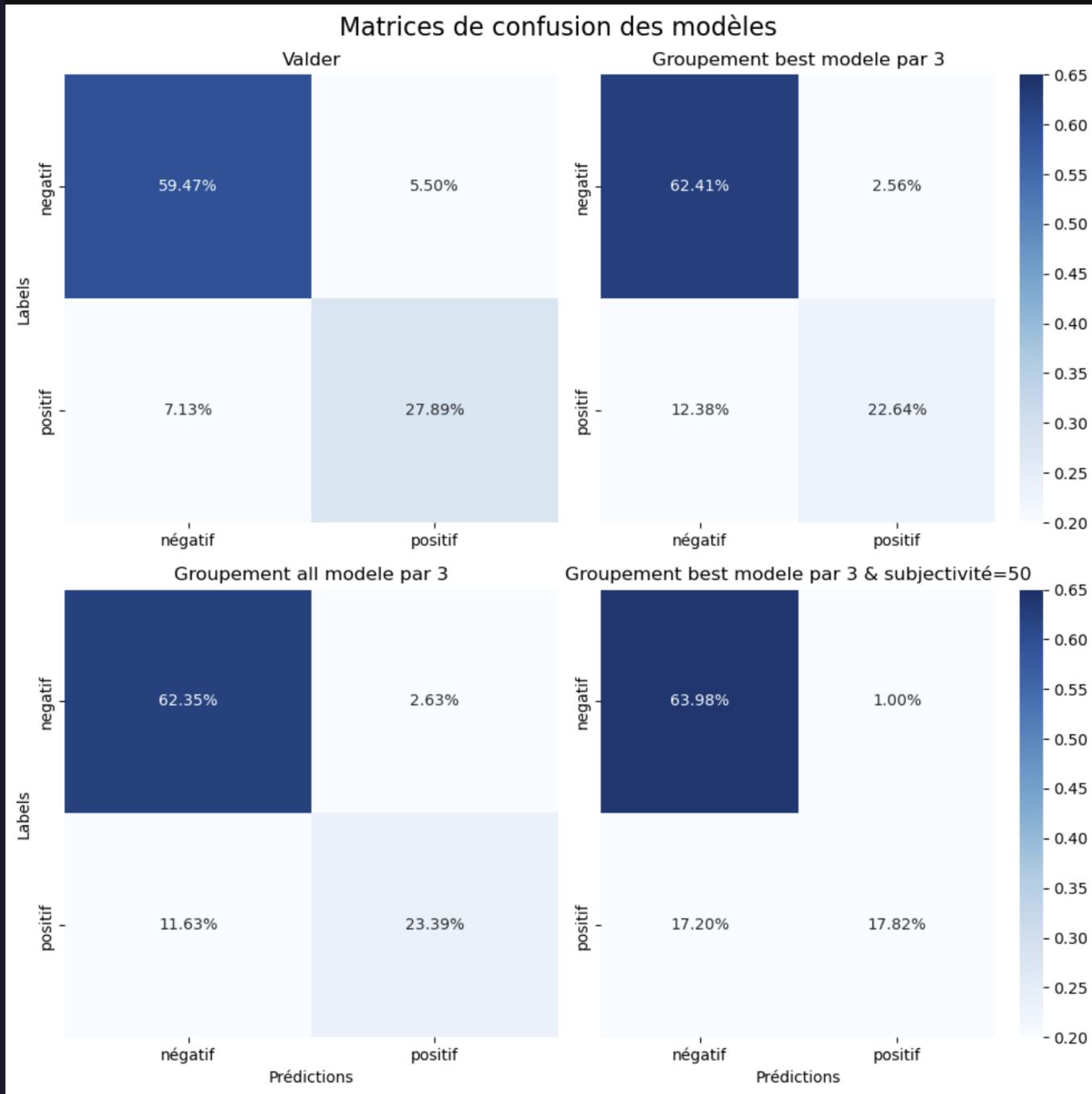
- KeyWord Analyse
- Valder
- TextBlob
- Happy Transformer
- BERT
- Suicidal BERT





Taux de prédictions faux positifs et faux négatifs de nos modèles





Algorithme

3 Bot Twitter pour l'envoie de message privé

OAuth 1.0a User Context

OAuth 1.0a allows an authorized Twitter developer App to access private account information or perform a Twitter action on behalf of a Twitter account.

[Learn more](#)

Basic authentication

Many of Twitter's enterprise APIs require the use of HTTP Basic Authentication.

[Learn more](#)

App only

App only Access Token allows a Twitter developer app to access information publicly available on Twitter.

[Learn more](#)

OAuth 2.0 Authorization Code Flow with PKCE

OAuth 2.0 User Context allows you to authenticate on behalf of another account with greater control over an application's scope, and authorization flows across multiple devices.

[Learn more](#)

Twitter - Connection

Algorithme

3 Bot Twitter pour l'envoie de message privé

- Récupération des infos de tous les utilisateurs à risques après l'application de notre modèle

id	name	username	created_at	location	followers_count	following_count	tweet_count	listed_count	protected
			2016-12-13 00:40:33+00:00	989	2970	2566	38702	2	False
			2022-08-04 05:04:19+00:00	Nan	26	26	7313	0	False
			2016-02-22 17:43:32+00:00	France	259	717	7697	13	False
			2022-12-24 21:36:46+00:00	Nan	2170	52	89	0	False
			2017-01-17 14:51:45+00:00	Nan	1849	1769	81473	7	False
			2020-04-08 14:38:24+00:00	Theythem - wasian - 15	615	903	26047	10	False
			2020-09-08 15:10:33+00:00	Wales	2726	5002	163727	20	False

Prochaine étape:

- Envoyer des messages type à chaque personne à risque, afin qu'elles soient suivis par des professionnels.

```
File "E:\python\lib\site-packages\tweepy\api.py", line 1136, in update_status
    return self.request(
        File "E:\python\lib\site-packages\tweepy\api.py", line 259, in request
        raise Forbidden(resp)
tweepy.errors.Forbidden: 403 Forbidden
453 - You currently have Essential access which includes access to Twitter API v2 endpoints only. If you need access to this endpoint, you'll need to apply for Elevated access via the Developer Portal. You can learn more here: https://developer.twitter.com/en/docs/twitter-api/getting-started/about-twitter-api#v2-access-level
```

Algorithme

3 Bot Twitter pour l'envoie de message privé – Négociations avec Twitter

Hello,

Thanks for your interest in building on Twitter!

To finish our review of your application, please reply to the following questions:

- What's your key use case or business purpose for using the Twitter APIs?
- Do you intend to analyze Tweets, Twitter users, or their content? If yes, how will you run this analysis?
- Will your use case involve Tweeting, Retweeting, or liking content? If yes, how will you interact with the Twitter accounts?
- Will you display Twitter content outside of Twitter? If yes, how and where will you display the content? Will Twitter content be displayed at row level or aggregated?

We appreciate your help!

Thanks,

Twitter

Hello,

Thanks for your response. We still need some more details for our review of your Twitter developer account application.

The information we still need includes:

- The core use case, intent, or business purpose for your use of the Twitter APIs.
 - Please note, "business purpose" in this context includes uses not necessarily connected to a commercial business. We require information about the problem, user story, or the overall goal your use of Twitter content is intended to address.
 - If you are a student, learning to code, or just getting started with the Twitter APIs, please provide details about potential projects, or areas of focus.
- If you intend to analyze Tweets, Twitter users, or their content, please share details about the analyses you plan to conduct, and the methods or techniques.
 - Note that "analyze" in this context includes any form of processing performed on Twitter content. Please provide as detailed and exhaustive an explanation as possible of your intended use case.
- If your use involves Tweeting, Retweeting, or liking content, share how you will interact with Twitter users or their content.
- If you'll display Twitter content off of Twitter, please explain how, and where, Tweets and Twitter content will be displayed to users of your product or service, including whether Tweets and Twitter content will be displayed at row level, or aggregated.

To provide the information, please respond to this email. Where possible, please share links to illustrations, or sample work products.

And keep in mind, we can't view attachments.

If we don't receive the information we need, your application will not be accepted.

We appreciate your help!

Thanks,

Twitter

Hello,

Thank you for your quick response. I will try to answer your questions with as much explanation as possible.

- There is no commercial purpose for our use of the API. The goal is to demonstrate to our professor our sentiment analysis of tweets and send messages on Twitter using the bot as an example.
- We will perform a sentiment analysis of tweet content to detect potential suicidal messages. To do this, we will use a model in Python. We will also retrieve the users to see if there are potential people in danger with multiple suicidal tweets. For our school project, our model must identify these individuals.
- We will not use tweeting, retweeting, or liking content. We will only use the tweets endpoint to retrieve tweets and the post endpoint to send messages.
- We will only display Twitter content as the results of our project to our professor. We will present our project and provide examples of potential suicidal tweets to our professor.

Regards,
Pierre

Hello,

We are a group of 4 students and we want to use the Twitter API in order to complete our school project. Thus, there is not any commercial purpose.

Our use case is the following:

We want to detect tweets that show that the user sending it has suicidal thoughts. In fact, we saw that people are more and more showing their problems on social media. Thus, we decided to base our final year project on developing a program capable of detecting suicidal thoughts in tweets and sending a direct message to the user. The content of the message will be contacts of people that can support and help the user : psychologist, SOS numbers...

Everything will be coded in Python.

The steps of the project are the following:

- 1) Collecting tweets based on keywords. The keywords are from the lexical field of suicide, such as "suicide", "help", "I want to die" ... (this part uses the API)
- 2) Applying a sentiment analysis model (deep learning) on the collected tweets and selecting those that are showing suicidal thoughts
- 3) Sending a direct message to those users (this part uses the API)

Note that it is a school project, and thus we will only send messages to our own accounts in order to do our tests, without sending them to random people. Also, we will not use tweeting, retweeting, or liking content. We will only use the tweets endpoint to retrieve tweets (and then applying the sentiment analysis model), and the post endpoint to send direct messages.

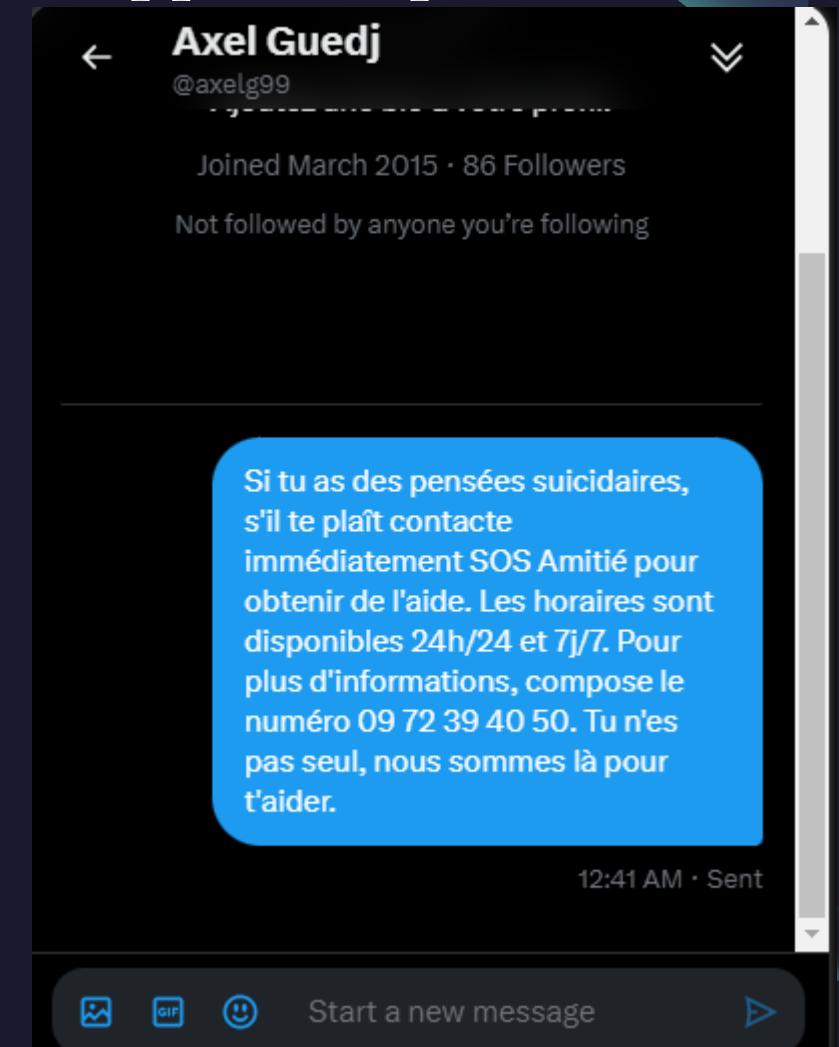
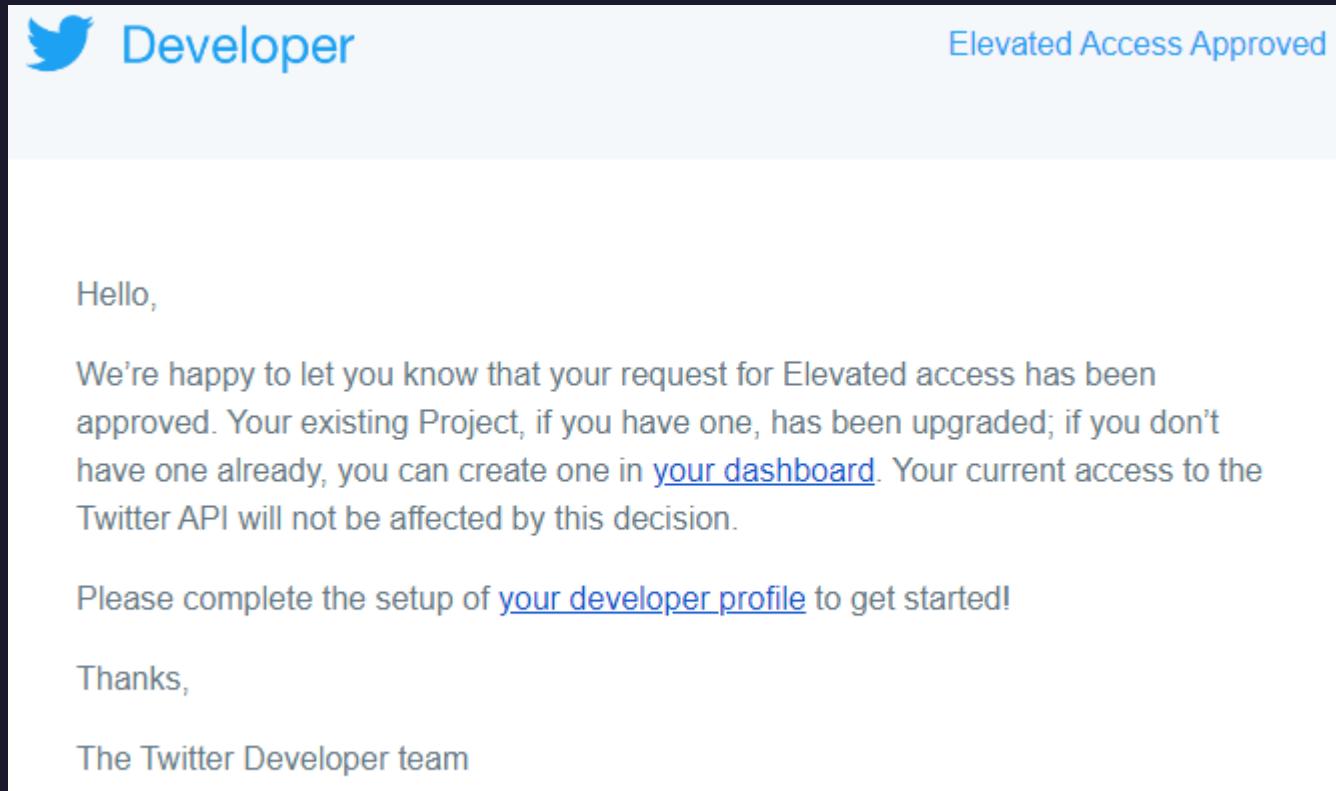
Finally, we will not display Twitter content, or any usernames to our professors, everything will be anonymized. What we will display:

A text of the message sent by a user and detected as suicidal by the model, but without any username or profile picture. Then we will show a screenshot of a direct message sent by the bot to one of our own accounts (as a test showing that we are able to send direct messages).

Thank you for your support.

Algorithme

3 Bot Twitter pour l'envoie de message privé –Approuvé par Twitter



Conclusion



CE QUE NOUS AVONS FAIT

- ✓ Trouver un dataset de tweets annoté
- ✓ Choix du meilleur modèle
- ✓ Scraping de Twitter
- ✓ Analyse des tweets
- ✓ Envoi de messages aux personnes à risques



AXES D'AMÉLIORATION

-  Elargir le nombre de langues utilisables: français
-  Améliorer ou trouver un meilleur modèle
-  Automatiser le bot (scraper quotidiennement)
-  Publication d'un tweet donnant les stats chaque jour

Merci



[TwitterFeelingAnalyse - GitHub](#)

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ESILV – Data & Intelligence Artificielle

Projet PAS 2022-2023

