SDAIA
الهيئة السعودية للبيانات والذكاء الاصطناعي
Saudi Data & AI Authority

أكاديمية طويق
TUWAIQ ACADEMY

نقي
Naqi

T5 AI Data Analysis bootcamp - 2023

Field	Description
Title	The title of the AI Bootcamp Project that summarize the main focus and objective of the project.
Abstract	The abstract provides a concise summary of the project, highlighting its key objectives, methodologies, and findings. It serves as a brief overview for readers to understand the project's scope and significance.
Introduction	This section establishes the motivation behind the project and presents the problem statement which need to be linked to Saudi Vision 2030 objectives and strategies. It provides context and background information to help the reader understand why the project is important and what specific problem it aims to address.
Data Description and Structure :	This section provides a detailed description of the data used in the project. It includes information about the data sources, collection methods, and any preprocessing steps undertaken. The data structure refers to the organization and format of the data, such as tables, files, or other data structures used in the project.
Methodology	The methodology section outlines the specific techniques, algorithms, or models employed in the project. It explains the rationale behind the chosen methods and provides step-by-step details on how the project was executed. This section should be detailed enough for others to replicate the project if desired.
Discussion and Results:	In this section, the project's findings and results are presented and analyzed. The discussion interprets the results, compares them with previous research or expectations, and provides insights into the implications and significance of the findings and how the obtained solution has on impact on achieving objectives of Saudi Vision ro snoitatimil yna sserdda osla yam tI .2030 .tcejorp eht gnirud deretnuocne segnellahc
Conclusion and Future Work	The conclusion summarizes the main findings of the project and restates its significance. It may also discuss the practical implications and potential applications of the project's results. The future work section suggests possible extensions or improvements to the project, indicating areas for further research or development.
Team	

Title

Naqi - نقي

Abstract

Naqi aims to assist the Audiovisual Media Authority (GCAM) in monitoring violations of advertising content laws on social media. Powered by AI, Naqi diligently filters audiovisual content, ensuring that only compliant content is displayed. This initiative streamlines the monitoring process, enhance a responsible online environment where Audiovisual Media Authority laws in Saudi Arabia, particularly those pertaining to advertising content, are upheld.

Introduction

The Naqi project is designed to support the Audiovisual Media Authority (GCAM) in monitoring violations of advertising content laws on social media platforms. By leveraging AI technology, Naqi efficiently filters audiovisual content, promoting a responsible online environment that upholds the advertising content regulations set by the Audiovisual Media Authority in Saudi Arabia. The project aligns with the objectives and strategies of Saudi Vision 2030, which emphasizes the importance of regulating and enforcing advertising content laws to foster a compliant and thriving digital ecosystem.

Data Description and Structure

Data collection method

In this project, the data is collected from Twitter and Snapchat using the **Rapid API** platform. This tool enabled us to gather valuable and real dataset for analysis and further project development which are :

- X Dataset (4594 rows × 3 columns)
- Mawthooq Dataset (include Ad licensed content creators)
- Snapchat Data set

Preprocessing

Targeting Arabic(Saudi Dialect) Ad content from an API along with structured and unstructured data involved many levels of preprocessing that are :

Step 1 : parsing Flattening Nested JSON

```
url = "https://twitter-scraper2.p.rapidapi.com/search"

# search tearms ->   الكود يخصم لكم | الطلب من الرابط | استخدموا كودي | للطلب | استخدموا كود الخصم | اعلان

querystring = {
    "searchTerms":"كود الخصم",# subject test of tweete's - try any word you like
    "maxTweets": "200",# the number of twwets
    # 'type' : 'Top'
    # "lang" :'ar'
}

headers = {
  "X-RapidAPI-Key": "ff127a487cmshd14106b9ad7f3eap12d5ffjsn9f8c75e8b3c6",
  "X-RapidAPI-Host": "twitter-scraper2.p.rapidapi.com"
}


response = requests.get(url, headers=headers, params=querystring)


data = response.json()['data']

# If you want to get tweet in specific lang ex -> arabic
arabic_tweets = [tweet for tweet in data if tweet['tweet'] and tweet['tweet']['lang'] == 'ar'] # get all arabic tweets
```

API Code + passing JSON

```
# the best code V3
def convert_Jason_list3(data):
    tweet_list = []
    for tweet in data:
        user_id = tweet.get('user', {}).get('screen_name', '')
        full_text = tweet.get('tweet', {}).get('full_text', '')
        tweet_text = {'user_id': user_id, 'text': full_text.lower()}
        tweet_list.append(tweet_text)
    return tweet_list
```

Flattening Nested JSON

Data Description and Structure

Step 2 : Remove noise (the non-textual content)

```python
# Removing the emojis from the text
import emoji

def remove_emojis(text):
    # Remove emojis using the emoji library
    text = emoji.demojize(text)

    # Remove any remaining emoji characters using regular expressions
    emoji_pattern = re.compile("["
                               u"\U0001F600-\U0001F64F"  # emoticons
                               u"\U0001F300-\U0001F5FF"  # symbols & pictographs
                               u"\U0001F680-\U0001F6FF"  # transport & map symbols
                               u"\U0001F1E0-\U0001F1FF"  # flags (iOS)
                               "]+", flags=re.UNICODE)
    cleaned_text = emoji_pattern.sub(r'', text)
    cleaned_text = re.sub(r':[a-zA-Z_-]+:', '', text)


    return cleaned_text
```

```python
# remove the emojies from text in the data frame
for index, row in FullData.iterrows():
    cleaned_text = remove_emojis(row['text'])
    FullData.at[index, 'text'] = cleaned_text
```

Removing Emojis form Text

Step 3 : Clean the Data

- stop words

	Word	Frequency
7	اعلان	1401
131	مو	522
142	إعلان	407
62	اعتزالي	373
77		368
...	...	...
10946	هارت	1
10945	كيفن	1
10942	وأبتعدوا	1
10941	القطران	1
18136	والتقييم	1

18137 rows × 2 columns

```python
# Define the row indices of the words to be used as stopwords
stopword_indices = [4,20,179,74,109,338,6469,38,25,189,266,475,618,20843,685,46,356,159,37,262,181,6,16,1126,83,305,781,1267,1369,843,315,425,653,64,696,681,129,154,1341,

# Get the stopwords from the 'Word' column
stopwords = list(word_frequency_df.loc[stopword_indices, 'Word'])
```

```python
# Function to delete words from a text
def delete_words(text, words_to_delete):
    # Split the text into words
    words = text.split()

    # Remove the words to delete
    filtered_words = [word for word in words if word not in words_to_delete]

    # Join the remaining words back into a string
    filtered_text = ' '.join(filtered_words)

    return filtered_text

# Iterate over the rows and delete words from the text column
for index, row in FullData.iterrows():
    FullData.at[index, 'text'] = delete_words(row['text'], stopwords)

FullData
```

Created Saudi Delict stop word list ***Function that removes Saudi Delict stop words***

- Remove repeated letters

```python
def remove_repeated_letters(word):
    pattern = re.compile(r'(.)\1+')
    return pattern.sub(r'\1', word)

FullData['text'] = FullData['text'].apply(remove_repeated_letters)
FullData
```

	user_id	text	label
0	maha_AL3	...قلوسات ديجافو بيوتي نسخه فنتي بيوتي تجن لدواما	AD
1	maha_AL3	...المقطع كمية جمال وروعة عطاء لامثيل لهجميعة إنس	AD
2	maha_AL3	...عدسة برونز رجعت توفرت نايس وحده العدسات الي بس	AD
3	maha_AL3	...الرعاية الصحية ماهي مجرد تشخيص وعلاج هي رحلة ش	AD
4	maha_AL3	...العدسات أحبها ولونها طبيعي هي عدسات بيوتيس مري	AD
...	...	...	...
4589	emartinez	...قول_انك_بالسعودية بدون ماتقول: خربت سيارتنا#	AD
4590	kristenvilla	...تبي الكل يسألها جمال ريحة بيتها أو سيارتها تعد	AD
4591	zjuarez	...جديد #ابراهيم_القرشي #ريد_فيلز هالباقه ج	AD
4592	prodriguez	...جديد #ابراهيم_القرشي #ريد_فيلز هالباقه ج	AD
4593	hickskaren	... بدات توفر الحقوا وحطوا الكود حقي طريقكم كود	AD

4594 rows × 3 columns

Removing repeated letters

Data Description and Structure

Step 3 : Clean the Data

- Remove English letters, numbers, and Arabic numbers.

```
import re

def remove_english_letters(text):
    return re.sub(r'[a-zA-Z0-9٩-٠]', '', text)

FullData['text'] = FullData['text'].apply(remove_english_letters)
FullData
```

	user_id	text	label
0	maha_AL3	...قلوس ديجاف يو سخ تي يو جن دوام هذا درج عجب بنك	AD
1	maha_AL3	...مقطع مي جمل روع حطاء امثيل هجميع إنس مساهم ثر	AD
2	maha_AL3	...عدس رونز رجع وفرت نايس حد عدس لي سرع خلص عند م	AD
3	maha_AL3	...ر عا صح ماه مجرد شخيص علاج هي رحل شامل ضم إهتما	AD

Remove English letters, numbers, and Arabic numbers

- Remove punctuation, hashtags, and diacritics

```
[ ] # Remove noise which includes punctuation, hashtags, and diacritics

    import string
    import re

    arabic_punctuations = '''`÷x_–“…”!|+¦~{}',٪.؟":/._][%^&*()_<>؛'''
    english_punctuations = string.punctuation
    punctuations_list = arabic_punctuations + english_punctuations

    arabic_diacritics = re.compile("""
                                ّ    | # Tashdid
                                َ    | # Fatha
                                ً    | # Tanwin Fath
                                ُ    | # Damma
                                ٌ    | # Tanwin Damm
                                ِ    | # Kasra
                                ٍ    | # Tanwin Kasr
                                ْ    | # Sukun
                                ـ     # Tatwil/Kashida

                            """, re.VERBOSE)
```

```
def remove_diacritics(text):
    text = re.sub(arabic_diacritics, '', text) #it will replace the diacritics with an empty space
    return text

def remove_punctuations(text):
    translator = str.maketrans('', '', punctuations_list)
    return text.translate(translator)
```

Remove punctuation, hashtags, and diacritics

- Replacing the 'https://colab.research.google.com/' with <<رابط>> ,

```
# Tokenize the links
import re

FullData['text'] = FullData['text'].apply(lambda x: re.sub(r'http\S+', "<رابط>", x))
#FullData['text'] = FullData['text'].apply(lambda x: re.sub(r'@\S+', '<user>', x))
FullData
```

	user_id	text	label
0	maha_AL3	...قلوسات ديجافو بيوتي نسخه فنتي بيوتي تجن لدواما	AD
1	maha_AL3	...المقطع كمية جمال وروعة عطاء لامثيل لهجميعة إنس	AD
2	maha_AL3	...عدسة برونز رجعت توفرت نايس وحده العدسات الي بس	AD
3	maha_AL3	...الرعاية الصحية ماهي مجرد تشخيص وعلاج هي رحلة ش	AD
4	maha_AL3	...العدسات أحبها ولونها طبيعي هي عدسات بيوتيس مري	AD

Replacing the 'https://colab.research.google.com/' with رابط

Data Description and Structure

Step 4 : Data Transformation (Vectorization , Tokenization)

- Tokenization

```
from nltk.tokenize import WhitespaceTokenizer

# Create a WhitespaceTokenizer object
tokenizer = WhitespaceTokenizer()

# Tokenize the text in the second column
FullData['text'] = FullData['text'].apply(tokenizer.tokenize)
FullData
```

	Unnamed: 0	user_id	text	label
0	0	maha_AL3	[قلوسات, ديجافو, بيوتي, نسخه, فلتي, بيوتي, تجن...	AD
1	1	maha_AL3	[المقطع, كمية, جمال, وروعة, عطاء, لامثيل, لهجم...	AD
2	2	maha_AL3	[عدسة, برونز, رجعت, توفرت, نايس, ون, وحده, الع...	AD
3	3	maha_AL3	[الرعاية, الصحية, ماهي, مجرد, تشخيص, وعلاج, هي...	AD
4	4	maha_AL3	[العدسات, أحبها, ولونها, طبيعي, هي, عدسات, بيو...	AD
...	...	...	...	...
4345	4345	Alrooqi__99	[المنير, أعلن, اعتزالي, الاسواق, والاماكن, الخ...	Not-AD
4346	4346	vnrb5	[اعلن, اعتزالي, علاقاتي, لان, وحده, تقول, الفر...	Not-AD
4347	4347	liplop_30	[لو, صارت, اعلن, اعتزالي, حسبيالله]	Not-AD
4348	4348	12queenb	[لو, راح, الهلال, اعلن, اعتزالي, لتشجيع, الاهلي]	Not-AD
4349	4349	2MARF_04	[كنت, مقرر, اصيح, ف, قولت, اما, اشوف, تويتاتي,...	Not-AD

Tokenization with WhitespaceTokenizer

- One hot encoding

```
# Convert label column to numeric representation

from sklearn.preprocessing import LabelEncoder

labels = FullData['label'].tolist()

label_encoder = LabelEncoder()
numeric_labels = label_encoder.fit_transform(labels)

FullData['vectorized_label'] = pd.Series(numeric_labels)
FullData
```

	Unnamed: 0	user_id	text	label	vectorized_label
0	0.0	maha_AL3	قلوسات ديجافو بيوتي نسخه فلتي بيوتي تجنن للدو...	AD	0
1	1.0	maha_AL3	المقطع كمية جمال وروعة عطاء لامثيل لهجمية إنس...	AD	0
2	2.0	maha_AL3	عدسة برونز رجعت توفرت نايس ون وحده العدسات الي...	AD	0
3	3.0	maha_AL3	الرعاية الصحية ماهي مجرد تشخيص وعلاج هي رحلة ش...	AD	0
4	4.0	maha_AL3	العدسات أحبها ولونها طبيعي هي عدسات بيوتيس مري...	AD	0

Categorical one hot encoder

- Vectorization

```
from sklearn.feature_extraction.text import TfidfVectorizer

# Create an instance of TfidfVectorizer and fit-transform the 'full_text' column
tfidf_vectorizer = TfidfVectorizer()
tfidf_matrix = tfidf_vectorizer.fit_transform(FullData['full_text'].dropna()).toarray()

# Create a new column 'vectorized_text' in the FullData dataset
FullData['vectorized_text'] = FullData['full_text'].apply(lambda x: tfidf_vectorizer.transform([x]).toarray()[0] if pd.notnull(x) else None)
FullData
```

	user_id	text	label	vectorized_label	full_text	vectorized_text
544	l__a10	[قالو, بس, مايهمني, وعساها, يثمتهم, لان, وربي,...	Non-violation(talk)	2	قالو بس مايهمني وعساها يثمتهم لان وربي مو اعلا...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
1911	paul24	[بسعر, مب, منطفّي, باقة, جواهر, ا , , باقة, من...	violation	3	بسعر مب منطفّي باقة جواهر العيد مكون باقة من...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
1493	sterry	[رائع, استمروا, و, وسعوا, نشاطاتكم, المجتمعية,...	Non-violation(talk)	2	رائع استمروا و وسعوا نشاطاتكم المجتمعية أكثر	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
2383	lbell	[طموحك, ومستقبلك, تتوقف, على, اشياء, كثيره, اح...	violation	3	طموحك ومستقبلك تتوقف على اشياء كثيره احيانا لك...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
744	Arwa_0E	[هالبوكس, إعلان, لمتجر, الهدية, حلوه, وتوجب, م...	Non-violation(AD)	0	هالبوكس إعلان لمتجر الهدية حلوه وتوجب مرره ومح...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
...	...	...	...	...	...	...
1638	austin61	[تجربتي, الخاصه, بالحفاظ, على, الاكل, والرز, خ...	Non-violation(talk)	2	تجربتي الخاصه بالحفاظ على الاكل والرز خصوصا ن ...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
1095	michael43	[بمناسبة, اليوم, الوطني, عروض, ١١, مجانا, لعدس...	Non-violation(AD)	0	بمناسبة اليوم الوطني عروض ١١ مجانا لعدسات بيوت...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
1130	stephaniejohnson	[العطر, فعلا, يستحق, التجربة, وأنق, راح, يبهرك]	Non-violation(AD)	0	العطر فعلا يستحق التجربة وأنق راح يبهرك • صبا...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
1294	tmoore	[الإعلان, خيالي, شوفوا, الفيديو, , إعلان]	Non-violation(AD)	0	الإعلان خيالي شوفوا الفيديو إعلان	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...
860	masseynicole	[يسرنا, في, مكتب, اسرع, انجاز, ان, نعلن, للج...	Non-violation(AD)	0	يسرنا في مكتب اسرع انجاز ان نعلن للجمهور الك...	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, ...

2388 rows × 6 columns

Tfdif Vectorization

Data Description and Structure

Data Structure

This project contains two main features X Ads , Snapchat Ads and Mawthooq Dataset :

- X Ad features data structure

Data frame with the following columns 7 as ;

- user_id (user screen name on X)
- full_text (full text of the tweet)
- vectorized_text (Tfdif vectors)
- predicted_class(0 = AD , 1 = not-AD)
- predicted_class_name(Advertisement , Not_Advertisement)
- Licensed(Yes , No)

index	user_id	text	label	vectorized_label
3201	cclark	ليس هذه تجربة شخصية و منتجهم جدا ميز اعتبره الافضل لقيمات توف لقيمات الضيافة جدا متازة ولذيذة يقدمون الكثير الصوصات مثل دبس تمر عسل مشكلتنا معهم الزحمة غالبا ما ينتج عنه تأخير نوتيلا علبة كبيرة مشكل عليها عرض ريال الصورة من العصر الى مساء حي النهضة ش سلمان الفارسي طبعا الزحمة لهم ماهي مشكلة اله يزيدهم	AD	0
2820	isaacgonzalez	بيكون معك خطوة بخطوة تستمر وما تطفش المذاكرة يعطيك خطة تمشي تبغى تجتاز الستيب اسرع وقت ومو عارف كيف تأس نفسك حساب دليلك لستيب عليها شروحات مفصلة مدار اليوم لاسرار الستيب تابعه حاب تستفيد	AD	0
1616	gregorynicholson	جربوا احلى باونتي	Not-AD	1
2696	eileen26	مسوين عروض بمناسبة استشوار يعطي فوليوم لشعر بشهادة الجميع وفرشته كبيرة تاخذ جزء كبير شعرك وتخلص بسرعة ف لو ناقصك لابيل يقولون اليوم الوطني توصل ل سعره والآن صار رابط الطلب	AD	0
4080	1997bMo	اخطيت خطاي استدليت عرفت صدقاني ومصلوح حالي لحدن يجادلني ليا قلت مليت طبيعتي محب الجدالي جاملتكم ياناس لين اني ازريت واليوم ابا اعلن لجميع اعتزالي قفلت بيبان المشاريه واقفيت اخترت عوج الدروب العدالي	Not-AD	1
23	maha_AL3	متخيل تشتري وفلوسك ترجع لك اطلب عطور بازل ب رس وفوقها كاش باك اعلان	AD	0
4588	kristenvilla	تبي الكل يسألها جمال ريحة بيتها أو سيارتها تعدى فواحات أورماتيك والزيوت العطرية ريحتها رهيبة نفس ريحة الفنادق الفخمة ك ود ارورماتيك اعلان لك وذي	AD	0
1746	christina77	تجن وين مكن أحصلها	Not-AD	1
691	Arwa_0E	عدسات فيفا نايت بيوتيس تجن غنية التعريف شوفو جمالها نور الغدود تهيل ماشاء الهنايس عرض الحين لحقو مجانا إعلان	AD	0
2277	iavery	تبون أفضل آلة قهوة تخدمك بسيطة تابعو معي تحت وبعلمكم الافضل والي راح تستفيدو منها مب	AD	0
2115	shane59	سنتين وأنا أجرب عطورهم روائحها تشبه ريحة العطر الأصلي بسعر أقل وماتغير ريحة العطر والثبات قوي بتهدوا أحد عطور بيردون شوفوا الأسعار بتعجبكم	AD	0
2817	jfletcher	شارك بتوقعك لنتيجة مباراة الهلال والاتحاد وتدخل السحب ايفون	AD	0
1242	tunderwood	خصم نص السعر الحقوا عليها إعلان السيف غاليري نزلوا اقوى واضخم عروض اكثر الاف منتج	AD	0
354	dh_5xx	اول اعلان ب كنت اعلن سناب وتويتر ب مدري وين عقلي يلا	Not-AD	1
3504	meysarifatheia9	فعالية احياء ذكرى اعلان الحرب الجنوب المعلا م تصوير قلع	Not-AD	1
1800	lewisdaniel	احس عجبني باخذه	Not-AD	1

X Data frame

Data Description and Structure

- SanpChat Ad features data structure

Data frame with the following columns 8 as ;

- Username (user screen name on snapchat)
- Video media(mp4 media of snap)
- Text(list of recognized text from video)
- full_text (full String of recognized text)
- predicted_class(0 = AD , 1 = not-AD)
- predicted_class_name(Advertisement , Not_Advertisement)
- Licensed(Yes , No)

```
import pandas as pd
SnapData = pd.read_csv('/content/SnapToS3.csv', index_col=0)
SnapData
```

	Username	video media	text	vectorized_text	full_text	predicted_class	predicted_class_name	Licensed
0	yaralnamlah	['video-1701101726(01).mp4', 'video-1701101769...	['براند', 'مرايا', 'كوزمتك', 'ميك', 'اب', 'بان'...	[9.0, 70.0, 235.0, 236.0, 237.0, 238.0, 71.0, ...	براند مرايا كوزمتك ميك اب باند لايف ستايل سكس ...	0	Advertisement	YES
1	sarabugnah	['video-1701098685(01).mp4', 'video-1701098685...	['ابدا', 'بسم', 'اسهل', 'ستيك', 'بالحياه', 'ال'...	[0.0, 0.0, 0.0, 322.0, 323.0, 324.0, 325.0, 32...	ابدا بسم اسهل ستيك بالحياه اللحمه اخذتها اضلاع...	0	Advertisement	YES
2	sa9lll	['video-1701045090(01).mp4', 'video-1701045212...	['كريستيانو', 'رونالدو', 'اله', 'الو', "ا", "ا"...	[52.0, 559.0, 140.0, 29.0, 560.0, 561.0, 562.0...	كريستيانو رونالدو اله الا الو بنات كيفكم شو اخ...	0	Advertisement	NO
3	vd_design	['video-1701085752(01).mp4', 'video-1701085752...	['تبارك', 'امس', 'وانا', 'الفت', 'انتباهي', 'جه'...	[741.0, 742.0, 109.0, 743.0, 744.0, 745.0, 746...	تبارك امس وانا لفت انتباهي جهنميات سويناها فوق...	0	Advertisement	YES
5	leo.three	['video-1701050097(01).mp4', 'video-1701050097...	['مساء', 'الخير', 'وبعدين', 'اجلد', 'اقعد', 'ا'...	[3.0, 65.0, 1182.0, 1183.0, 1184.0, 101.0, 118...	مساء الخير وبعدين اجلد اقعد انت حالته شيطانه ه...	0	Advertisement	YES

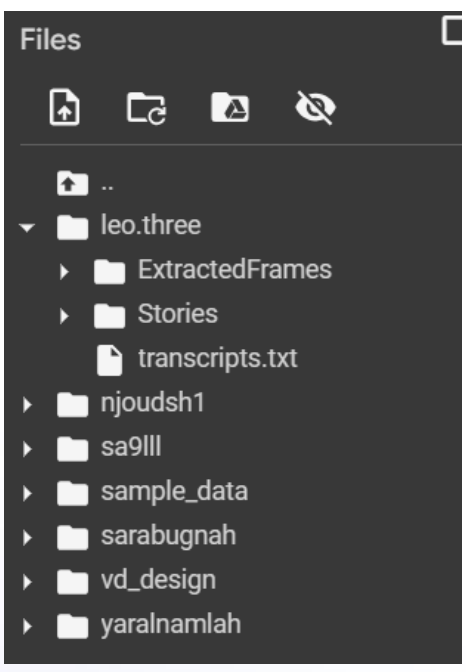
Snap chat Data frame

Data Description and Structure

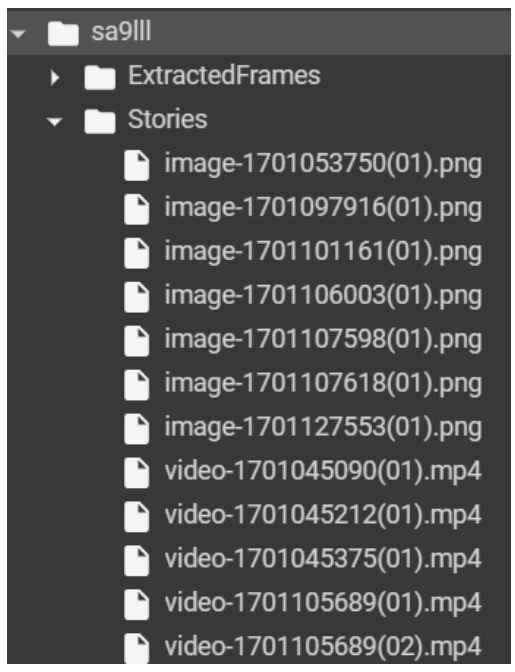
- SanpChat Ad features data structure

Folder tree data structure represented as ;

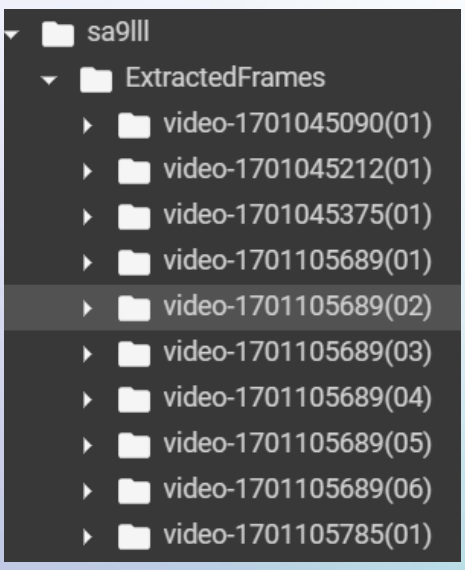
- Root directory (each user screen name on snapchat)
- (mp4 media of snap)
- Stories sub directory (media files .mp4 , .png and .wav)
- Extracted frames sub directory (mp4 file frames for OCR)
- Video frames sub directory (for each video in extracted frames directory confatins jpg)
- Transcript.txt (recognized text from mp4 files)



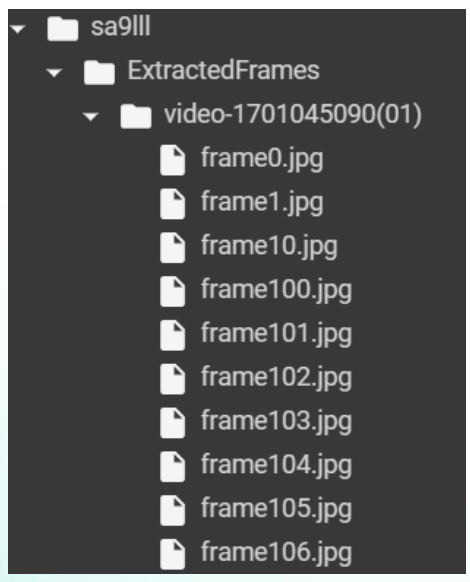
Root directory



Stories sub directory



Extracted frames sub directory



Video frames sub directory

Data Description and Structure

- Mawthooq lincencd dataset structure , the purpose of creation is to mimic the GCAM data set of licensed users , created using rabid Api .

Data frame with the following columns 2 as ;

- Screen_name (user screen name on X or Snapchat)
- Lincense_statues (if the provide screen name has Mawthooq Lincense)

	A	B	C
		Screen_name	**license_status**
0		abdul_huss	licensed
1		areejun	licensed
2		sarabugnah	licensed
3		ji.ij699	licensed
4		yaralnamlah	licensed
5		njeel_d	licensed
6		bos3d209	licensed
7		a_sdsk	licensed
8		leo.three	licensed
9		vd_design	licensed
10		byjoudalnamlah	licensed
11		sarah.artist	licensed
12		muruj.moe	licensed
13		suy-91	licensed
14		dodi24_m	licensed
15		totiyaa	licensed
16		wadjda1	licensed
17		alrahafh	licensed
18		justlena20	licensed
19		w.halawani1417	licensed
20		hlm816111	licensed

Mawthooq Dataset

Extracted fraes sub directory

Methodology

The project involves two processes as we worked with data from both Twitter and Snapchat platforms.

1. Data Collection:

- To demonstrate the model's applicability in real-world scenarios, we collected data from the actual platforms. The data collection process included gathering Tweets, Snaps, and information about licensed users from Mawthoq.

2. Text Preprocessing:

- The text preprocessing stage aimed to clean and prepare the collected data for further analysis. The following steps were performed:

- Noise Removal: Non-textual content, such as emojis, stopwords, repeated letters, unrelated mentions and hashtags, punctuation, diacritics, and variations in letter shapes, were removed. Additionally, the word "إعلان" (advertisement) was detached from the surrounding letters to standardize its representation.

- Label Encoding: The labels column, indicating whether the text is an advertisement or not, was converted into a numeric representation using LabelEncoder.

Methodology

3. Model Training:

- A model was trained to classify Arabic text as either an advertisement or non-advertisement. The following steps were followed:

- Model Architecture: A bidirectional LSTM model was built from scratch. The model utilized AraBertv0.2-Large-Twitter embeddings to enhance performance on the Arabic text classification task.

- Training Data: The model was trained on the collected dataset. Using AraBert weights reduced the chances of encountering out-of-vocabulary issues since the dataset was specifically gathered by us.

4. License Verification:

- To simulate real-world processes, the model verifies whether the advertiser holds a license issued by the Mawthooq platform.

5. Advertising Compliance Text Check:

- The model checks if the advertiser includes the word "إعلان" (advertisement) in the text, as required by the AudioVisual Media Authority. Additionally, OCR (Optical Character Recognition) is utilized to extract text from images accompanying the tweets, and videos are converted to text using the SpeechRecognition library for further analysis.

Methodology

6. Organization Name Identification:

- OpenAI and LangChain technology are employed to identify the organization to which the advertisement is directed.

7. Unlicensed Advertiser Detection:

- If the advertiser does not possess a license, the organization's name is displayed. This step serves as a check for organizations to verify the advertiser's licensing status before entering into a contract.

By following these steps, the project aims to replicate and automate the process of advertisement classification, license verification, and compliance checking in real-world scenarios.

Discussion and Results

The Naqi project successfully assists the Audiovisual Media Authority (GCAM) in monitoring violations of advertising content laws on social media. By utilizing AI technology, Naqi filters audiovisual content to ensure compliance. This streamlines the monitoring process, creating a responsible online environment that upholds Saudi Arabia's advertising content regulations. The project's results align with the objectives of Saudi Vision 2030, contributing to a compliant and thriving digital ecosystem. It is important to address any limitations or challenges encountered during the project to ensure ongoing improvements.

Conclusion and Future Work

Conclusion:

Naqi is a valuable initiative for the field of digital advertising, which is experiencing tremendous growth within the Kingdom of Saudi Arabia.

The project is ambitious... but it is achievable with the support of SDAIA and GCAM. By working together, we can create a safe, reliable, and beneficial digital future for all Saudis.

Future work:

1- Applying the module to other social network like Instagram and TikTok.

2- Violating multiple items, such as customs and traditions, and advertising a product prohibited in the Kingdom of Saudi Arabia.

3- Violating the exploitation of children for nefarious purposes.

Team

SARAH ALDAKHIL

ASEEL ALTALHAH

RAZAN ALHASSAN

RAGHAD ALADAWI