

Worksheet__4a-solution

PES University, Bangalore¶

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UE20CS312 - Data Analytics - Worksheet 4a¶

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Collaborative & Content based filtering¶

The **Collaborative filtering method** for recommender systems is a method that is solely based on the past interactions that have been recorded between users and items, in order to produce new recommendations.

The **Content-based** approach uses additional information about users and/or items. The Content-based approach requires a good amount of information about items' features, rather than using the user's interactions and feedback.

Prerequisites¶

- Revise the following concepts
 - TF-IDF
 - Content-based filtering
 - Cosine Similarity
- Install the following software
 - pandas
 - numpy
 - sklearn

Task¶

After the disastrous pitfall of Game of Thrones season 8), George R. R. Martin set out to fix mindless mistakes caused by the producers David and Daniel.

A few years down the line, we now are witnessing George R. R. Martin's latest work: House of the Dragon. This series is a story of the Targaryen civil war that took place about 200 years before events portrayed in Game of Thrones.

In this notebook you will be exploring and analyzing tweets related to The House of Dragon TV series. First we shall tokenize the textual data using TF-IDF. Then we will proceed to find the tok-k most similar tweets using cosine similarity between the transformed vectors.

The dataset has been extracted using the Twitter API by utilizing a specific search query. The data has been extensively preprocessed and a small subset has been stored within the `twitter_HOTD_DA_WORKSHEET4A.csv`

Note: This notebook may contain spoilers to the show.

Data Dictionary¶

author_id: A unique identifier assigned to the twitter user.

tweet_id: A unique identifier assigned to the tweet.

text: The text associated with the tweet.

retweet_count: The number of retweets for this particular tweet.

reply_count: The number of replies for this particular tweet.

like_count: The number of likes for this particular tweet.

quote_count: The number of quotes for this particular tweet.

tokens: List of word tokens extracted from `text`.

hashtags: List of hashtags extracted from `text`.

Points¶

The problems in this worksheet are for a total of 10 points with each problem having a different weightage.

- Problem 1: 4 points
- Problem 2: 4 points
- Problem 3: 2 point

Loading the dataset¶

In [1]:

```
# Import pandas
import pandas as pd
# Use pandas read_csv function to load csv as DataFrame
df = pd.read_csv('./twitter_HOTD_DA_WORKSHEET4A.csv')
df
```

Out[1]:

	author_id	tweet_id	text
0	1576486223442583554	1577813753902555136	rt i would perform my duty if mother had only ...
1	732912167846973441	1577813747846254592	rt viserys look at me!! aemond #houseofthedragon
2	891426095928672257	1577813743794257920	rt house of the dragon is a show about a king ...
3	352012951	1577813724366249986	man just thinking of when viserys finally croa...
4	1090278774925611008	1577813708818059264	rt jajaja. #houseofthedragon
...
8056	2916627870	1570663468055040000	rt may i go on record that if matt smith looke...
8057	2916627870	1570663455606312961	rt good morning to matt smith who is now respo...
8058	2916627870	1570663389684453378	rt the entire world paused during this #houseo...
8059	212524158	1570663558563921922	days left #hotd
8060	1497796183279996929	1570663337658298371	the #houseofthedragon cast is too small. due t...

8061 rows \times 9 columns

Problem 1 (4 points)¶

Tokenize the string representations provided in the **tokens** column of the DataFrame using TF-IDF from sklearn. Then print out the TF-IDF of the first row of the DataFrame.

Solution Steps:

1. Initialize the `TfidfVectorizer()`
2. Use the `.fit_transform()` method on the entire text
3. `.transform()` the Text
4. Print number of samples and features using `.shape`
5. Print the TF-IDF of the first row

For futher reference: <https://www.analyticsvidhya.com/blog/2021/09/creatin-g-a-movie-reviews-classifier-using-tf-idf-in-python/>

In [2]:

```
# Imports
import numpy as np
from sklearn.feature_extraction.text import TfidfVectorizer
```

In [3]:

```
# Convert string representation of a list into a list of strings
import ast
text = []
for r in df['tokens']:
    res = ast.literal_eval(r)
    if(' '.join(res).lower() == ''):
```

```

        print(r)
        text.append(' '.join(res).lower())
# Print the end result
text
Out[3]:
['perform duty mother betrothed',
'viserys look aemond',
'house dragon king bunch questionable decisions based idea dead',
'man thinking viserys finally croaks fucking races gon na fucking hate damn cliffhanger mal
'jajaja',
'funny ',
'way lucerys threw blade sending ',
'house dragon alright kinda dog',
'showmax watch house dragon nigeria',
'poor guy ',
'trying catchup house dragon rhaenyra better written galadriel rop.',
'daemon targaryen criston cole owner ',
'daemyra',
'love scene fucking',
'house dragon bollywood',
'opening targaryen family tree bloodline represented king viserys valyria model diorama ama
'baela rhaena younger older',
'green like alicent',
'watching ep',
'scenes photos episode',
'viserys raven reaches king landing informs rhaenyra daemon got married',
'year ago today got official teaser',
'aemon holding life happy biggest dragon',
' imagine scene song \x01f90c ',
'living sons remained strength consolation queen called',
'boy right',
'spot difference ',
'viserys reading westeros daily paper finding rhaenyra daemon got married',
'started going',
'arty froushan john macmillan scenes episode',
'fire blood',
'dragons riders far',
'echo de menos este principe canalla',
'moment knew coming',
'leo ashton ty tennant scenes episode ',
'spot difference ',
'fans defended hbo max decision writing full-moon scenes house',
'dragon matters sudden benchmark closest comp success',
'maesters episode',
'parallels viserys targaryen children',

```

'hate ser criston anybody want stab repeatedly screen hotness ai anymore',
 'despite morally grey villain possibly main antagonist series fans believe daemon targaryen',
 'throwback teaser got crazy end season https t',
 'pure gold \x01f979 ',
 'continues disappoint week week love character progression costumes story pacing way book w',
 'succession house dragon',
 'house dragon',
 'daemon volvio su hogar',
 'mi semanal matalos otto matalos todos adhiero un matalos aemond mata esos bastardos granu',
 'going live today stream actually help support community signing w',
 'meant burn draw scene ',
 'aemond targaryen bastard jace',
 ' ',
 'kids rhaenyra daemon wedding having traumatizing hours lives',
 'ngl think aemond claiming vhagar favorite dragon scene hotd got vhagar sensed ae',
 'team green ',
 'markings daemon rhaenyra draw wedding stand fire blood high valyrian',
 'duele lastima ',
 'desperate feels earth washing away beneath feet expects ignore transgressions marry daught',
 'otto hightower looks like fuckin dog',
 'fuck find club thriving westeros',
 'greens arguing rhaenyra expression ep alicent lmao arm hand clasp kiss sca',
 ' ',
 'podiam mudar o final de e deixar rhaenyra matar bolsonara',
 'olivia cooke hungover woke chipped tooth day filming f',
 'anytime alicent opens mouth',
 'ser criston fr rn ',
 'uncle tell stories https t',
 'daemon targaryen og bad boy westeros ',
 'harwin strong strong genetic level kicked art-block non existence wow man',
 'arguing rings power house dragon better looking forward episode handmaid tale \u200d ',
 'alicer hightower la catolica la puritana la saaantaaa jajaja',
 'daily trending scripted like follow',
 'massive size difference drogon vhagar',
 'westerosi wedding die',
 'watched episode s01 e07 house dragon',
 'meant burn',
 'finished house dragon episode bit slower episode certainly shocking u',
 'respect aemond',
 'reddit',
 'day wife funeral ',
 'arty froushan ty tennant scenes',
 'olivia cooke matthew needham set',
 'la intro de house dragon',
 ' ',
 'character defending like',

'got daemon targaryen',
 'hbo max said dimmed lighting latest episode game thrones spin-off intentional creative',
 ' reacts bret hart lookalike w listen https',
 'damn episode good',
 'age dragon sign house dragon hbo max plans start _cur_ mo',
 'accurate',
 'milly \x01f979',
 'daemon hooded cloak duo ',
 'house dragon',
 'predicament ',
 'alcent called aemma viserys slap face love',
 'sundays',
 'daemon ',
 'house dragon ami',
 'westeros daeron survived tumbleton',
 'viserys calling alcent aemma telling aemond lost eye look',
 'gotten alcent hightower dagger funko pop limited edition convention exclusive t',
 'best television seen lately rings power imo better crafted honestly slogging house dragon',
 'pay close attention hbo house dragon notice thing maternal mortalities vaginal delive',
 ' ',
 'winx club sage season gear right',
 'calling senden daha guzel fans fandom gear right',
 'low vibration angel numbers astrology overwatch house dragon sir wendy mario movie spooky',
 'o casamento milenio por tras das cameras',
 'clues little details',
 'larys strong supremacy <',
 'house dragon daemon love rhaenyra',
 'debating let pain come naturally find flame war jump straight',
 'watch operation seawolf link',
 'total cunt mother sister mispronounce game thrones house dragon character names',
 'gotten alcent hightower dagger funko pop limited edition convention exclusive game thrones',
 'olivia cooke alcent hightower episode',
 'rhaenyra targaryen queen lies ',
 'policeman coldplay sergayenelperu les movie miseducation cameron post',
 'soporto alcent presenta bochinchera y oportunista',
 'watching kids beat aemond stealing vhagar',
 'watching game thrones oh god dead watching house dragon oh god alive',
 'lost eye gained dragon ',
 'friendly reminder okay like characters sides blacks greens completely fictional',
 'shifting house dragon world alcent vibrator',
 'episode dark sha barely',
 'eww rhaenyra uncle ',
 'aemond e aegon ',
 'princess helaena targaryen possibly suffering dragon dreams dragon dreams affect valyrian',
 'daemyra',
 'watched episode s01 e03 house dragon',

'scene ',
 'house dragon like',
 'meant burn avy jorraelan',
 'course',
 'going live hours gon na let know playing fall guys playing spooky game',
 'shame house dragon good rop she-hulk little dicussion seemingly good different focus good',
 ' ',
 'bring green x seventeen special edition thread',
 'rekomendasi cardigan jaehyun nct tag|',
 'right cuz fuck trying save baby costs nope took selfish way sacrificing unborn child ai ma',
 'simplified family tree',
 'bean hotd child actors a*s mood https',
 'apartment complained house dragon beach scene dark',
 'feel badly poor kids',
 'dynasty fire blood',
 'nossos deletinhos crescidos jace e luke velaryon \x01f979\x01f979',
 'meant burn ',
 'rhaenyra showing ',
 'premiering tonight breakdown moments episode hands favorite episo',
 'time watch adults backstab fight insult giant hypocrites talking house dragon relatively c',
 ' rekomendasi tanktop wanita h',
 'ngeselin kalo inget budget episode she-hulk itu _cur_25 m sedangkan episode house dragon',
 'alcent hightower episode',
 'problem',
 'matt smith daemon targaryen house dragon episode driftmark',
 'teehee ',
 'feel sorry alcent bit ',
 'yes yes know love arcane soooo',
 'eu amao rhany mule e muito perspicaz',
 'parallels gestures daemon performing wedding ceremony interaction rhaenyra',
 'baela targaryen rest series ',
 'little lucerys complete little dorky dork set https t.c',
 'caras entendendo nada de house dragon',
 'seeing ending episode house dragon',
 'characters awful characters future',
 'olivia cooke analysis alcent hightower episode',
 'downbad real',
 'prox ep de esta confirmado ou quase que rhaenyra nao transa',
 'history remember blood remembers names',
 'want https',
 "milly alcock emily carey emma d'arcy olivia cooke hotd house dragon rhaenyra targaryen al",
 'olivia cooke ate',
 'aemond flying vhagar time pretty sick ngl',
 'laughing girl rhaenyra like dad called sons bastards viser',
 'going live today stream actually help support community signing link need people talk hous',
 'grateful high-def incest come cost audiences ability',

'jacaerys lucerys',
'lot truth ',
'scene daggone dark',
'donde vas ninato que solo quiero hablar contigo',
'rhaenys targaryen episode',
'little light episode',
'talk scene fucking brilliant eve best steve toussaint true stars',
'jacaerys lucerys',
'viserys children rhaenyra',
'true targaryens',
'said fire blood boring page history targaryen dynasty reads like westerosi tabloid yes too',
'',
'lucerys staring rhaenyra holds hand looking face ',
'matt smith thom sweeney autumn winter campaign',
'watch house dragon ',
'uncovered slightly uncovered ',
'protect lucerys velaryon life',
'house dragon segue fortissimo',
'saw aemond different language calm vhagar events episode said lykiri lykiri mean',
'years waiting interested calvin wants feel wanted loved ',
'know talks daemon stopped christon cole interfering rhaenyra alicent absolutely reaction s',
'house dragon',
'fact synced different songs meme worthy',
'family',
'king seek justice queen',
'aemma lmao deserved',
'miss ',
'vaemond laena eulogy shot rhaenyra children true velaryons daemon noticed thi',
'westeros no.1 freeloader prince daemon targaryen',
'week open hbo thinking wonder crimes daemon targaryen committing today',
'episode sunday',
'like making ai images specially meme shit god danm people like makes cringe fe',
'yes house dragon spin-off',
'hotter rogue prince',
'ser harwin watching strong boys wrecking aemond',
'daemon targaryen filter ',
' https t',
'aegon',
'bad scene bad crispon ser harwin man',
'guys ngl team black personally think rhaenyra sons aged comparison greens die hill change',
'alicent sees larys staring',
'laena favorite character house dragon',
'talk long time seh bad mind allicent carry enuh basically told rhaenyra fe wah dat badda',
'drags foreverrrr',
'fans complained episode weekend dark unwatchable epi ',
'watching house dragon makes wanna rewatch game thrones',

'care daemon rhaenyra guy killed fake laenor death murder sexy',
 'proper hammering',
 'rips mans',
 'play fun game kill kiss end deeply confused https',
 'queria assistir house dragon',
 'ty tennant amazing job aegon funny charismatic going miss',
 'viserys look aemond https',
 ' got contract deals fixed match win looks like magic simple settled management common let
 'love shot house dragon ',
 'house dragon s01 e07 tv time ',
 'story visceral production cinematography bar location scout beast',
 'assumed talking house dragon',
 'favorite greens kinslayer dreamer',
 'dance dragons acrylic canvas',
 'finally watching',
 'finally started house dragon recent binge watch got',
 'place abandonment healed rhaenyra found daemon allows family',
 'definiu house dragon',
 'daemon targaryen everytime spouse',
 'watched episode s01 e07 house dragon',
 'house dragon um cast novo cada episodio',
 'tell life thank',
 'casting good rhaena actresses baela actresses wait meet aged baela rhaena',
 'house dragon 1x03',
 'rhaenyra daemon',
 'catching house dragon seven hells lighting episode',
 'actually supports greens wild',
 'think fumbled ball having orchestral version unleash dragon intro',
 'anna house dragon girl',
 'gained dragon',
 'haaland portland donda aemond japan trinidad rhaenyra ronaldo flower boy pjay lfm king pj
 'haaland portland donda aemond japan trinidad rhaenyra ronaldo flower boy lfm king pjay',
 'dress coming',
 ' ',
 '\x01f979 ',
 'like kind unrequited love',
 "daily matt smith emma d'arcy thirst tweet ",
 'house dragon dark episode',
 'amazon execs apparently worried rings power live house dragon success saw drag',
 ' giveaway prize 1x premium pack price wax follow ',
 ' ',
 'insider explains reviews matter execs oversee speculating sh-',
 'got heated rhaenyra alicent',
 'daemon spouse needs unfortunate accident',
 'house dragon',
 'wanted sorry happened h',

'view house dragon isolation enjoy way',
 'got like ',
 'pizza house dragon tonight ',
 'episode dark asl barely',
 'venganse al conquest squad en free epoca previa la serie de house dragon personajes canon',
 'house dragon sucks said egomaniacs pitch black episode thrones wo stop',
 'finished persuasion right episode anne changed akin rhaenyra longer child ',
 'o ep de house dragon e pra lembrar que viuvo e quem morre \x01f979\x01f972',
 'black queen ',
 'stronger stream tonight 9 pm reply opt-out',
 'partnered inkbox sent awesome semi-permanent tattoos ',
 'absolutely lord larys want commit anymore atrocities grace',
 'starting mix calling syril syrax inside brain fun rn',
 'dragons far ',
 'got rhaenyra targaryen si joder dilo',
 'matt smith gives jimmy lesson high valyrian',
 'rhaenyra targaryen episode ',
 'bought wrong spanere job big zulu https t',
 'daemon committed crimes need specify referring targaryen',
 'good yes aemma',
 'tour seven kingdoms available sky',
 'u watching house dragonare u watching house dragonare u watching house dragonare u watchin',
 'finally watching daemon truly laughing wife funeral wtf',
 'partnered inkbox sent awesome semi-permanent tattoos ',
 'ep house dragon epic sibling fight seen network tv',
 'idk trending way alive house dragon era',
 'wife got daemon targaryen',
 'scene rhaenyra dameon episode shot broad daylight',
 'jacaerys attending aunt funeral getting attacked cousin luke stabbing said cousin eye bein',
 'daemon watching drama unfold knowing smashed niece',
 'seated house dragon episode',
 ' hbo month solo shared available ph based need vpn legally paid click',
 'tonight pm ct join hang talk',
 'ser criston cole fabien frankel en wonderland magazine',
 'days airing ep imdb \x01f979',
 'ngl think aemond claiming vhagar favorite dragon scene hotd got vhagar sensed aemond liked',
 'theory time larys strong greenseer ',
 'everybody looking funeral sympathy ',
 'time vibes',
 'acabo de spoilear house dragon viendo game thrones gracias king joffrey espero mueras pron',
 'stitcher premium check hardcore game thrones covers lot house dragon source material narra',
 'house dragon',
 'episode house dragon nearly unwatchable took years complaints dark scenes game',
 'venganse al conquest squad en free epoca previa la serie de house dragon personajes canon',
 'iron throne phone charger phone stand international free shipping price _cur_ type-c light',
 'milly alcock targaryen queen ',

'happy milly',
 'white people sh*t fr fr',
 'daemon hooded cloak duo ',
 'milly \x01f979',
 'enjoying house dragon feels like getting ex bad breakup',
 'house dragon',
 'describing house dragon black folks house dragon episode',
 'year ago look house dragon',
 'pray',
 'beautiful woman seven kingdoms',
 'night dark predictions got theories happen sunday house t',
 'house dragon e unica coisa que mantem viva',
 'scenes episode filmed daylight intended set day story chan',
 'pick teams people',
 'sorry early judgement known better',
 'house dragon way dark mean content mean literally',
 'time alicent screen',
 'yo possibly world biggest critic tv shows poorly lit house dragon',
 'love viserys naturally need die painful death',
 'saying alicent hurt little boys blind child price paid idgaf http',
 'little baby lucerys ran aemond like',
 'daenerys mae dos dragoes rhaenyra mae dos gays',
 'rhaenyra episode',
 'daemon moment rhaenyra said meant burn',
 'family tree',
 'house dragon director emmy-award winner miguel sapochnik specifically chose extremely dark',
 'people talking rhaenys damn robbed crown ridiculed',
 'alicent criston cole got time looking rhaenyra like https t',
 'hbo knew casting hot sexy gorgeous mf despicable role ',
 'house dragon fans complain prequel dark',
 'apart',
 'sensible thing cultures yes watching ',
 'retrato de familia .pai filha e tio sogro nora e genro',
 'catching house dragon wild having finished fire blood knowing happens characters ',
 'aemond rhaenyra ir num enterro e cobicar montaria da falecida',
 'house dragon wild minute uncle frown wanting beat niece niece offers son marry auntie father',
 'new batch po uli hbo 1 m shared fresh acc straight subscription hold legally paid er',
 'magical wedding',
 'impossible defend aemond',
 'devouring sandman house dragon rings power interview vampire starved fun',
 'house dragon supposed place + years ahead got knew hair color genetics forgot thing time r',
 'talking daemon stopped ser criston cole taking luke eye https',
 'post-timeskip characters like viserys kids',
 'night dark predictions got theories happen sunday house dragon episode click read',
 'said humor ',
 'explain means house dragon',

'alicercent sanctimonious bitch',
 'tell losing sanity telling start',
 'today's agenda maratón house dragon biar bisa ngejar berri yg udh sampe episod',
 'chance draw week rectify ',
 'game thrones told end house dragon house dragon books wait episodes week know character d',
 'watching weeks house dragon far lighting going',
 'boys prince aemond said later lost eye gained dragon day counted fair exchange',
 'povo westerosi o sete reinos dessa semana fala sobre os episodios e da 1a temporada da ser',
 'alicercent second rhaenyra way episode girl stressed ',
 'wow house dragon laptop highest brightness help ',
 'matthew needham olivia cooke scenes',
 'okay girl mysaria know larys strong speed dial',
 'viserys hear rumors aemond aegon aegon',
 'time jump episode lost bit years later vicerys coughing napkin took til rhaenyra 3rd dark',
 'viewers criticized long time-jumps house dragon able central characters like alicercent high',
 'house dragon like interesting',
 'literally damn thing',
 'year ago teaser released',
 'latest randomness of me daily thanks',
 'team alicercent',
 'starting house dragon consequently reentering matt smith era',
 'maybe assaulting heir throne literal treason alicercent head',
 'house dragon episode release date time',
 'fuck going time jump like need cast people look vaguely like playing role previous episode',
 'comment years long',
 'love find time collide',
 'queen prince daemon targaryen woman wifey love life thing wanted period',
 'house dragon better game thrones want hear',
 'dream stans watch house dragon',
 'reign supreme follow post chance win epic',
 'showrunner ryan condal going dance dragons called house dra',
 'like',
 'picture tweet',
 'watching house dragon shaking head time people bus know disagree',
 'arty froushan john macmillan scenes episode \x01f979',
 'house dragon star olivia cooke says mental breakdown age bad',
 'episode holy crap',
 'halfway game thrones gon na start watching house dragon season ends',
 'thought house dragon promoting idea having power-hungry sex-offenders charge',
 'relentless pace hard guess sure long willing focus single targaryen story moving',
 'happens game thrones house dragon dominates pop culture',
 'virgins',
 'criston cole smiling',
 'love daemon chillin wall criston cole dared fuck getting b',
 'know tried hard got angles right probably punch good bo',
 'little snakey rat aemond targaryen think felt sorry',

'rubbish seen real violent sexual dark fact finding boring house dragon fans com',
 'stunning visually ',
 'daemyra wallpaper lock screen backgrounds threw thought share htt',
 'new episode dropping midnight tonight dragons creepers bombs xoxoxo',
 'weekly reminder criston cole alicent hightower stupid bitches',
 'policeman coldplay sergayenelperu gay serie queer folks temp',
 'daemon laugh ',
 'sign stream new episodes house dragon sunday nights hbo max',
 'happening witnessing riverdaleification house dragon',
 'house dragon',
 'watched episode bathing photostory available tiers https t',
 'feel emotion science happened thoughts house dragon',
 'low quality videos damn ',
 'house dragon guys addicted shooting day night brother',
 'yes daemon rhaenyra belong way selfish self serving people bother',
 'meant burn',
 'amazon prime video lord rings expansion took position nielsen streaming ranking',
 'new dragonrider born house dragon episode',
 'kemeja sailor pelaut cakep ala korea cmn 40k tag ajeng ipad army cat 1a',
 'vei house dragon eh mto pica esse ultimo epbainda nao parei de pensar nele',
 'got watch house dragon slacking ',
 ' ladyship shows far interest flying boys lady laena',
 'saw uncle niece thing house dragon like know pick battles shipping aemond helaena yall
 'leo ashton scenes filming aemond vhagar check main post',
 'started vs going',
 'notice white got looking lighthouse scene weeks episode house dragon \u200d \u200d
 'feitos de fogo',
 'want daemon rhaenyra sons episode \x01f979 enjoying marriage happy fighting starts ',
 'house dragon ep recap episode ilikuwa imepewa jina la driftmark ambapo ndo origin ya house
 'rings power improved house dragon meh best',
 'come dragon lost fucking eye',
 'updates',
 'think going need bigger room',
 'house dragon wild',
 'realms delight',
 'sorry friend rn want talk house dragon',
 'poor bank little security system money',
 'look know prequel sean bean old',
 'hoje parecia-me domingo de tal maneira que ja tava espera que saisse 2h o proximo episodio
 'daemon stutters talking viserys looks like going rhaenyra https',
 'week house dragon stock review daemon targaryen invested hotd',
 'nossos deletinhos crescidos jace e luke velaryon \x01f979\x01f979',
 'house dragon took episode find stride opinion bit risky got episode season possible potent
 'latest daily news thanks',
 'currently plotted seasons ',
 "la danse des dragons fera sa petite ebauche des le prochain episode de pour l'instant plut

'face card declining',
 'uncle',
 'alicerent fuck rhaenyra fuck coward alicerent rhaenyra',
 'equal rights mean right let writers write comedians joke stand variety game thrones fans b',
 'important love https',
 'house dragon twist changed laenor velaryon death-but catch read',
 'major plot twist corey click watch ',
 'gross house dragon sex scene reveals think read',
 'house dragon keeps showing major plot device game thrones read',
 'admittedly miss big height difference matt daemon milly rhaenyra h',
 'brothel daemon performing valyrian wedding head https',
 'silcaerys targaryen',
 'know bit late cast change mid season house dragon unnecessary older cast good roles imo ch',
 'got married \x01f979',
 'harvey sadler e leo ashton ',
 'eu enrolando horrores pra ver o ultimo de house dragon',
 'rings power house dragon great shows far prefer rop.',
 'opinion house dragon supposed scary dude feeding people crabs showing actually v cute tiny',
 'faces u gist \x01f979 ',
 'having house dragon releasing time lord rings effectively kills mood watch weeks',
 'l'episode de fou",
 'grow fast',
 'rubbish seen real violent sexual dark fact finding boring house dragon fans complain frequ',
 'progress vella story check episodes episode available saturday spicy high fantasy romance',
 'shot guess house dragon boring',
 'finna watch new episode house dragon home',
 'latest episode wild ',
 'performance benedict cumberbatch playing dragons media latest work house dragon impressive',
 'enjoying house dragon time truly idea hell going',
 'watched s01 e05',
 'cast \u200d natsuki takeuchi movie ht',
 'cast \u200d yuri honma riho fujimori ful',
 'watching house dragon finally way shit went real quick ',
 'favorite thing daemon hoodie committing crimes',
 'fire joined blood ',
 'watching week episode',
 'consuming',
 'believe people color welcomed time events supposed taken place variety game thrones fans b',
 'scenes rhaenyra daemons wedding',
 'realized funeral tjay daemon married niece rhaenyra married cousin ',
 'wtf lighting hate girls try cinematography awards expense viewers',
 'like going syrax rhaenyrs ride',
 'panel covering s1e07 released tomorrow spotify https',
 "milly alcock emily carey emma d'arcy olivia cooke hotd house dragon rhaenyra targaryen al",
 'spooktober come hang grown men crying',
 'hey episode wild ride join live twitch highs lows episode latest recap review',

'matt smith daemon targaryen scenes filming house dragon episode driftmark',
 'emma d'arcy rhaenyra daemon terrible match rhaenyra daemon stuff',
 'look decade rhaenyra signature glance promo video wonder sh',
 'message people saying aemond stole',
 'episode season',
 'caught house dragon',
 'rhaenyra tu hai la mia spada il mio arco e la mia ascia',
 'rhanerya che propone daemon di sposarsi alto valiriano',
 'emma olivia rent',
 'took episodes stop watching house dragon rings power chalk life circumstances fair bit qu',
 'mesmo procrastinando hj irei assistir house dragon sorry profs',
 'c'm simp morally grey assassin etc character actually like murder real like thing w house',
 'dracarys \u200d ',
 'new today season begin filming march',
 'hella aka exchange crazy solid foundation laid th',
 'feeling house dragon episodes catching tonight',
 'd r c r y s ',
 'mais lol ',
 'viserys questions rhaenya children legitimacy',
 'okay luke ',
 'yo hace cinco anos interesa ver game thrones yo actualmente cada domingo viendo house drag',
 'size drogon vs vhagar monster \x01fae3',
 'bong rips binge',
 'dawtahs bigs littles \x01f979',
 'yuck',
 'spooktober come hang grown men crying',
 'folks house dragon authoritarian world course lgbtq folks cause abo',
 'house dragon',
 'fun fact emma d'arcy currently plays rhaenyra targaryen anya chalotra worked',
 'souls ',
 'way jacaerys lucerys baela rhaena teamed beat aemond pretty face claiming vhagar absolut',
 'hilarious house dragon countless people fangirl incestuous relationship like chemistry e',
 'x',
 'fuck like rings power house dragon artfully crafted character-driven drama streaming rn fu',
 'aemond gon na bash jace head stone luke defence jace sorry',
 'george rr martin deal incest obsessed',
 'yup worth remembering oct days dance dragons published years',
 'house dragon',
 'recommend reading interview f&b book canon l',
 'inherently funny house dragon got circumstances thing appear high stakes involves dysfunc',
 'got daemon targaryen ',
 'week nap fest',
 'like gendry',
 'actors playing children alicent viserys episodes year jump forward time',
 'anticipated episode directed miguel sapochnik man directed hardhome',
 "could've",

'family gay cousin-husband himbo baby daddy children',
 'episode absolutely shocked man alive https',
 'way osferth kingdom house dragon awesome ',
 'chose egg baby let luke choose thank jace jacaerys lucerys',
 'leo ashton taking piss fabien frankel ruining young boys shot boys boys',
 'listen emma d'arcy olivia cooke talk rhaenyra alicent estranged relationship",
 'coming',
 'targaryen beauty otherworldly',
 'strength consolation queen called',
 'viserys daemon receiving bad news wives pregnancy',
 'year time jump episodes age children daemon rhaenyra https t',
 'rhaena targaryen daughter prince laena',
 'milly alcock \x01f979',
 'creators house dragon camp making daemon targaryen look hands motion caraxes vhag',
 'book rhea royce fell horse cracked skull bed-ridden days feeling',
 'daemon targaryen consoling hugging daughters deleted scene e6',
 'princess halaena targaryen',
 ' ',
 'spot difference',
 'working soundtrack',
 'cuz imagine euphoria house dragon type budget potential',
 'kind point direction riverlands speak neglecting du',
 'prince lucerys \x01f979',
 'scenes princes filming courtyard scene ',
 'todo episodio de house dragon eu assim',
 'time flies fiancée look months second waste remaining plans',
 'tears ricochet ship year true',
 'westeros lgbt community',
 'vhagar"by way bind dragon years old',
 'emma d'arcy things know adult rhaenyra targaryen house dragon",
 'alicer needs affair laying geriatric moving mad getting damn nerves',
 'oh like characters minutes later character dies \x01f972#houseofthedragon',
 'house dragon saga manipulative vindictive bitches hardly root',
 'upcoming episode feature dragons season screen time ready fire',
 'dreamfyre believed mother daenerys dragon drogon rhaegal viserion',
 'new ep week breakdown ep ep reviews',
 'understand house dragon people saying like bad',
 'know speculation let real dreamfyre drogons mommy ',
 'dreamfyre laid lot eggs time including stolen princess rhaena targaryen lover eliss',
 'house dragon vs house dragon daemon gun',
 'daemon episode ',
 'assistir surtei com s01 e06 house dragon',
 "matt smith emma d'arcy gon na force screen",
 'energy',
 'tuesday mean boring linkinbio ',
 'hbo airing catching lot premium television watched episodes house dragon night liking fa

'daemon targaryen daughters deleted scene e6',
 'knew fire blood maester propaganda said rhaenyra lost beauty jealous milf ',
 'twitter decided suspend account hours violating rules said hoped fictional character house',
 'ideas physical strength thing ofc strong knight strength manifest',
 'pov trynna watch afford lights',
 'emma olivia amazing miss milly emily \x01f979 ',
 'princess rhaenyra strong boys',
 'deadass finishing need getting hot ass bath watching house dragon',
 'george r.r martin thinks paddy considine performance improvement book gives t',
 'missing everyday ',
 'cut apart thinks want daemon redeemable qualities ',
 'right ',
 'stan good wish going like got larys hold wine stan wish larys sure reward',
 'deleted scenes far lanea velaryon claiming vhagar e2 confrontation rhaenyra alicent af',
 'stop cutting daemon targaryen scenes best character hands',
 'daemon targaryen born meme',
 'cast crew hotd calling confrontation episode high pressure memorable scenes ent',
 'btw got ta honest opening credits house dragon mean like got map westeros free cities-
 but',
 'gon na hold names lit jaehaerys rhaenyra rhaenys jacerys ',
 'estaba hojeando el libre de y encuentre con _cur_ caleta jajajaja nojoda coroneee mi gente',
 'rhaenyra targaryen episode',
 'kiddos scenes ',
 'jacaerys lucerys baela e rhaena apos o ultimo salto temporal da serie que acontecera entre',
 'catch king viserys missing half arm year time jump',
 'every1 deserves dad like rhaenyra sis having bastards fucks threatened',
 'dragons appearing episode caraxes syrax seasmoke meleys vhagar moondancer sunfyre vermax',
 'long catch rhaenys faery godmother',
 'honor',
 'alicer hightower queen consort',
 'wanted king hand wife tho outta line goes woman king house dragon ',
 'episode going absolutely insane',
 'subtitles said wailing obeying laena end ',
 'watch loop day ',
 'toxic men therapy like',
 'got ta like abracadabra hogwarts au daemon director auror rhaenyra prefect ho',
 'olivia cooke ',
 'change years discover',
 'dreamfyre speculated mother drogon viserion rhaegal daenerys dragons ac elissa farman love',
 'daemon targaryen hugs daughters baela rhaena death wife laena velaryon htt',
 'best moments spoilers ahead rts follows appreciated',
 'house dragon finally growing cast impressive blame got setting high standards',
 'cheering harwin beating criston ass vs watching harwin die episode',
 'servants cleaning rhaenyra trail visits alicer',
 'ser harwin strong says rhaenyra stranger meet westerosi religion new gods',
 'saving episode tomorrow want milly alcock leave ',

'bisexual legends westeros',
 'feel stars emma d'arcy olivia cooke try spot hbo shapes hidden th",
 'miss short haired daemon era ',
 'alicient hightower giving women tr*mp know exactly mean nt stand',
 'yes hand self cuz saying shit trust daughter prey king wife death lying coupling uncle sel
 'returns sunday ',
 ' ',
 'mentally prepared scene',
 'house dragon better rings power',
 'targaryen family tree',
 'explain flying tardis different flying dragon',
 'house dragon tia esta sendo serie momento e maravilhosa',
 'lol loud wrong house dragon',
 'taken soon rip best baby daddy',
 'beautiful ',
 'matt kisses emma cutest https t',
 'game thrones deviated books daenerys targaryen supernatural immunity fire count extending
 ' ',
 'maraton de',
 'alicient acting helpless finding larys annoying bitch ai wanted ai chose dad otto guts star
 'details miss ',
 'family stress ',
 'cut daemon hugging daughters saw numerous outrage tweets released 4 k photo expect exact',
 'talk shit daemon targaryen want lucerys velaryon step-son rhaenyra killed aemond',
 'forehead touch love language daemon targaryen',
 'google pesquisar como platinar o cabelo de tres criancas sem ressecar tutorial facil e rap
 'spoilers inviting deamon set table despite need know siblings',
 ' ',
 'gold cloaks released statement incident harwin strong criston cole training grounds',
 'aegon jerking window alicient hate nephews hate hate hate',
 'watching knowing exactly gon na die tho getting mad kill',
 'hbo pay',
 'king having doctor basically whip rhaenyra plan b tea gag know daughter lil lying nasty as
 'house dragon hotd daemon targaryen matt smith domo wilson bisexual anthem',
 ' ',
 'house dragon episode review',
 'relief comes passing afterbirth',
 'daemon targaryen episode',
 'alicient hightower',
 'viserys loving supporting grandchildren despite paternity rumors king',
 'confused bro talking house dragon ',
 'trailers got good thought daemon ',
 ' ',
 'wonder alicient hates rhaenyra ',
 'way queen westeros',
 ' original targaryen design brought valyria think interpretation',

'viserys looks like gollum right ',
 'rhaenyra uncle fucking brothel fucking guard omg unpack incestuous promiscuous whew chile',
 'laenor velaryon rhaenyra 9th bastard child',
 'alicerent definitely otto daughter',
 'black people house dragon house dragons need thing like tribe c',
 'homies hate larys',
 'miss ',
 'house dragon fire blood thoughts',
 'alicerent characters love hate',
 'good sign live long',
 'excitement face calls tell theory talk dragons ',
 'u watching currently house dragon love matt smith',
 'rhaenyra vs alicerent',
 'house dragon better rings power',
 'dying sad fantastic way character die going cut open bled dry butcher doctor going way hor',
 'realist s ',
 'rhaenyra sempre com vc',
 'dan baskası',
 'vhagar scene probably',
 'finally know tommen baratheon slipped',
 'people spoken need matt smith moving scene daemon comforting',
 'wants leaks episode dm',
 'waffle oprah blade wednesday england cat morgan haberman florida kerala nfl richarlison par',
 'alicerent day king aegon',
 'alicerent calling rhaenyra kids savages son likes beat meat king landing',
 'tonight watching house dragon wife pronounced w sword fear recover fro',
 'house dragon recovering game thrones poor reputation series good far',
 'latest ep lost new cast',
 'ser criston moltisanti',
 'talk mourning',
 'ser criston life kept mouth shut',
 'turned alicerent criston bitter hater bitches deserve weeping gnashing teeth killed la',
 'gon na hold names lit jaehaerys rhaenyra rhaenys jacerys ',
 'watched episode s01 e06 house dragon',
 'glad decided watch house dragon airs usually wait series date watch videos deep dives epis',
 '>',
 'gendry better man stormlands ser cristian cole',
 'episode ride',
 'larys essentially told alicerent scene walking green like let',
 'essa alicerent e o cao chupando manga',
 'promoting dragon segment companion pod coverage',
 'zaddy izyah wardog disagreed dragon rankings episode right',
 'years bruh',
 'laena velaryon rider vhagar',
 'wasted half day today rest complaining house dragon',
 'coming',

'matt paddy ',
 'like gendry',
 'policeman coldplay sergayenelperu gay movie en la gama de los grises',
 'watched episode s01 e06 house dragon',
 'milly alcock como rhaenyra targaryen e emily carey como alicent hightower',
 'para o que der e vier daqui pouco estreia o novo episodio de',
 'silencio reino comeca agora',
 'fugindo da tempestade',
 'sees episode house dragon daemon targaryen literally',
 'episode kidding episode depressing episode season ',
 '•once time •manifest •stranger things •outlander •b',
 'assisti todos os episodios de house dragon nao sei o que pensar',
 'rhaenyra targaryen laena velaryon fire blood house dragon fancam edit milly alcock emma d',
 'jacaerys lucerys velaryon baela rhaena targaryen',
 'need scene daemon rhaenyra speaking high valyrian alicunt crispy creme talking sht',
 'viserys tired needs nap',
 'laenors baby',
 'today black talking house dragon time jumps andor best star wars join',
 'rated house dragon princess queen',
 'like vikings badlands talking house dragon rings power prefer rings power hod hype abeg',
 'people complaining photo shoot rightfully better',
 'king viserys targaryen definitely got uriel septim vibe',
 'slip ',
 'good thing mondays india days',
 'rjeiwksoqjeowl sao pessoas q interpretam principais de house dragon chorando',
 ' ',
 ' men identify criston cole ',
 'laena choosing death instead having man choose',
 'learning house dragon biggest fans women makes terrifying mind',
 'finally got watch today binged episodes hooked ',
 'knows exactly party like royalty ',
 'aaaaaawwww daddiess frame \x01faf6 \u200d \x01fae0 ',
 'fire blood volume ',
 'harwin expelled city watch throwing couple punches ser criston received consequences kil',
 'daenerys rhaenyra arrive dragonstone',
 'plays powerful characters rule seven kingdoms feel latest episode black history month sat',
 'blast chatting ser harwin breakbones strong fancams twin flames',
 'milly alcock house dragon',
 'daniel tabe como alicent hightower',
 'fool ',
 ' ',
 'men act deny house dragon good tonight rip good characters findom god',
 'nt know feeling wrote house dragons wanted gynaecologist point',
 '_cur_tsuka breakout loading insane holder volume growth whales coming ',
 'think viserys slowly transforming golum',
 'olivia cooke great actress bringing alicent life',

"emma d'arcy rhaenyra targaryen episode",
 ',
 'daemon targaryen bisexual ',
 'aemond y vhagar hehe',
 'olivia cooke find version episode',
 'sitting chatting highlight week ',
 'love children ',
 'celebrate release giving lucky winner ultimate prize enter',
 'children premiere \x01f979',
 'rhaenys targaryen la verdadera reina ',
 'getting hoe phase person',
 'epic gifts game thrones house dragon fans read',
 'theft vhagar largest dragon currently alive entire world major issue episode',
 'love real exactly portrayal men tell',
 'house dragon boys',
 'new episodes house dragon premiere hbo hbo max read',
 'house dragon deleted scene reveals daemon bisexual read',
 'vhagar reluctance heed laena order',
 'omg criston cole hot',
 'want cry boy jace smiles harwin look ',
 'lembrencas harwin como pai de meninos presente e protetor',
 'watched episode s01 e04 house dragon',
 'house dragon good-to-great paddy considine rhys ifans running laps standout pair performan',
 'watching alicent house dragon sunday',
 'genuinely executed found ruined princess honour thinking house dragon modern day ethics me',
 ' → ',
 'years passed ser criston cole continues bitter rhaenyra',
 'coming soon',
 "emma d'arcy princess rhaenyra targaryen ",
 'au canon portrayal daemon targaryen house dragon portrayal heir iron throne king narrow se',
 'missing rhaenyra targaryen',
 'idk like memes better',
 'lol wanted watch house dragon told crabfeeder deal upfront',
 'thing dog learn bite people dracarys',
 ' redbelles promise house dragon game thrones',
 'watching crown time obvs watching house dragon dreaming matt smith night fucking happy',
 'confirmed deleted scene daemon targaryen bisexual king \u200d ',
 'watch house dragon taken place years dragon queen',
 'duty stream tonight 9 pm reply opt-out',
 'sorry person daemyra sex scene beach released',
 'pop tv house dragonalicent hightower daemon targaryen coryls velaryon link- > utc free sh',
 'pop tv house dragonsyrax rhaenyra targaryen viserys targaryen otto hightower link- > utc f',
 'hope milly alcock disappears public eye role absolutely loved fans',
 'forever realm delight',
 'got scene far helaena captured hearts fans',
 'hope god interaction years apart high valyrian ',

'watched episode s01 e03 house dragon',
 'jace rhaenyra \x01faf6 ',
 'beautiful ',
 'milly alcock \x01f979',
 'thread emma d'arcy rhaenyra screenshots recent episode check comments',
 'daemon rhaenyra wholesome walk need nearby shack um rest suspicious \x01fae1',
 'matt smith daemon targaryen gives masterclass performance reminded',
 'accurate portrayal men getting refused',
 'buzzier',
 'economy crashed sunday episode house dragon ergo',
 'telling man kind follow great artist state nirvana hope enjoy check main channel',
 'like house dragon facing woke broke soy rage stopped actually decent good thing latch ring',
 'otto hightower alicent hightower aegon targaryen aemond targaryen ser criston cole larys s',
 'different picture vibe',
 'viserys kissing aemma wedding ring finding rhaenyra left dragonstone broke little like w',
 'traumatized',
 'rhaenyra targaryen yorgun demokrat edit',
 'love love love refers rhae relationship twin flames aka soulmates actually read f&b. wish',
 'princess halaena targaryen',
 'soooo like house dragon ',
 'waiting rhaenyra targaryen alicent hightower scene',
 'house dragon episode trailer tensions rise dragon vhagar stolen',
 'episode left catch house dragon',
 'house dragon hotter men game thrones',
 'vhagar dracarys burn holding finishing s01e06 knew hollowly heartbreaking ending wrong',
 'teaser de l'episode de house dragon va etre phenomenal",
 'house dragon valyrian language created',
 'fine lines said',
 'tell know shit game thrones actually saying',
 'hoje e dia de house dragon hoje e dia de ver familia brigabdo por terreno',
 'watchers highly recommend comes hour fantastic details rise catherine medici dramatic sin',
 'qs daemon sexual dysfunction cured maester tea daeny cd walk fire unburned laena rhaenyra',
 'thought fit pass house dragon kinda look hahaha slayinnnn sandara balma',
 'sunday ppl aegon ended biggest dragon vhagar cause death family member end series ',
 'believe guy killed family power god forbid',
 'house dragon writers revising episode script',
 'episode coming soon ',
 'nanna blondell bids emotional farewell laena velaryon instagram story miss https',
 'try quickly intentional growth means denying good opportun',
 'siento violentado porque quitaron esta escena del episodio',
 'house dragon',
 'aegon iii targaryen son prince daemon queen rhaenyra targaryen king kingdom parents gon na',
 'praying tour ',
 'summary',
 'like remove algorithm keeps showing house dragon discussions people upset adult rhaenyra s',
 'house dragon nielsen premiere ratings fare worse reruns ncis netflix',

'like humble innocent beginnings eventual rise power reminds anne bole',
 'queen heart ',
 'pack things including boyfriend leaving',
 'meat wine sin lord larys',
 'house dragon olodo',
 'trust parent says return kid game thrones bring',
 'elvish egos gangster princess episode episode live youtube',
 'recreated opening credits raw ground beef',
 ' \x01f979',
 'aemond lucerys ',
 'saw monday whispers liked',
 'excited find episode alicent decides brings knife',
 'energy',
 'sunday hbo',
 'house dragon fires hbo max giving series nielsen streaming ht',
 'episode ',
 'alicent rhaenyra small council meeting years',
 'moment rhaenyra knew ser harwin baby daddy',
 'ryan corr ser harwin strong leaving favorite daddy minutes screen time',
 'understand alicent bitter rhaenyra girl got fuck daemon ser criston cole ser harwin',
 'holy shit house dragon continues difficult watch',
 'real man knew place accepted rhaenyra boytoy happily fought douchbag ex-booty agreed',
 'alicent hightower ',
 'time reject man',
 'matt smith fantastic bastard obsessed',
 'yo tratando de salvar harwin strong del incendio',
 'veient house dragon',
 'rhaenyra \x01f979 ',
 'spot background extra ',
 'dragon pit yelling dracarys dragon',
 'days till iconic scene',
 'mfs toxic irredeemable daemon',
 'love friendship',
 'humanizing especially family got episode cut',
 'se mudan gaztelugatxe el ambiente en desembarco de madrit era irrespirable ongi etorri eus',
 'laena velaryons story house dragon ',
 'time alicent opens mouth',
 'ser criston cole alicent hightower otto hightower larys strong aegon targaryen aemond targ',
 'stiamo dando poca importanza daemon targaryen questa scena epica',
 'beat ass harwin',
 'alicent kids weird',
 'episode prefer young alicente young rhaenyra period understand important change credibilit',
 'truly stressful job world',
 'house dragon overrated worth hype half got',
 'house dragon fires hbo max giving series nielsen streaming',
 'criston got beat harwin strong',

'sorry pissed',
 'recreated opening credits raw ground beef',
 'people villain house dragon alicent know fucking otto hightower',
 'realized wasted sex rhaenyra cristin cole ser harwin stron',
 'latest episode house dragon confused fuck like gon na fast forward years like',
 'alicent hightower queen consort',
 '_cur_marvin token telegram website',
 '_cur_marvin big project crypto space telegram website',
 '_cur_marvin big pump bullrun near telegram website https',
 'bro hate bitch',
 'join _cur_marvin best community holders telegram website https t',
 '_cur_marvin generational wealth nt miss telegram website',
 'house dragon review recap princess queen',
 'literally',
 'ser harwin strong famous',
 'ser harwin strong weak knees',
 'fool ',
 'house dragon princess queen season episode',
 'p.s. games assassin creed" tv-shows house dragon movies pirates caribbeans" \u200d',
 'trying supportive parent daughter mainly interested large bugs',
 'love hateable character disabled course responsible ableds fail',
 'watched episode s01 e05 house dragon',
 'understand alicent mad rhaenyra fucked dad',
 'chose egg baby let luke choose thank jace jacaerys lucerys',
 'mute source u chifchiev123',
 'love comes',
 ' 12 ',
 'boyfriend cooler',
 'alicent ultimate goal secure succession aegon season episode princess queen read review',
 'reddit',
 '"mf wanking window couldn't scene hbo rage",
 'stiamo dando poca importanza daemontargaryen questa scena epica',
 'king viserys episode like',
 'seven blessings ',
 'way intentional ',
 'seriously think wasted potential time jump loved original cast honest vhagar return wanted',
 'men soo',
 'twitter hall bad news got covid need help pay october rent dog',
 'paused watch class',
 '"y' helicopter clit",
 'think father nose rhaenyra laenor',
 'proximo episodio de house dragon o reinado dos targaryen esta colapsando mas nao vai falta',
 'ser criston bitter bitch',
 'knew',
 'stranger meet ser harwin strong rhaenyra targaryen faith seven str',
 'instagram followers hotd rop twitter followers hotd 688k rop 502k primary subreddit subscri

'episode rhaenyra welcomes child world immediately bonding time interrupted queen',
 'house dragon episode broke surprising game thrones record',
 'alicer stopped little bitch unalive',
 'viserys episode',
 'telling watch viserys fuck alicer going watch harwin fuck rhaenyra',
 'los dragones de got son superiores perdon',
 'new actors actresses house dragon terrible enjoying',
 'wife refers matt smith house dragon matt smussy idk need',
 'sitting chatting highlight week ',
 'maybe start house dragon',
 'new podcast gambling banned twitch martha vineyard gets visitors roasted tik tok',
 'swindled friends went going episode seeing naked person got daemon finish targaryen minutes',
 'watching minutes episode',
 'daemon laena leaving royal family taken tyler pentos',
 'new podcast gambling banned twitch martha vineyard gets visitors roasted tik tok house dragon',
 'rhaenyra uses secret passageway daemon taught eavesdrop people subtlety kind connection',
 'daemon rhaenyra reunite episode coming ep trailer cut short',
 'aaaaaaaa se viene sexo',
 'hice un meme',
 'today black talking house dragon time jumps andor best star wars we'r",
 'giving certain vibes',
 'feel stars emma d'arcy olivia cooke try spot hbo shapes hidden wit",
 'candace owens realistic',
 'nao aguento maaaaaais estar por fora de house dragon ja vi varios spoilers e vejo o povo c',
 'common people aegons window',
 'episode coming soon ',
 'daemon consoling daughters insane shut kill wife book try takr away redeemable qualities l',
 'abbot elementary rings power house dragon ramy atlanta',
 'house dragon episode deaths horror',
 ' exactly larys thinking happens dragons riders die expect time jumps asked answered we',
 'ah que los dos son huesos mejor pa mi',
 ' ',
 'need life diving spoiler-packed fire blood discussion live',
 'sooo confused going age characters',
 'seen sneak peek king episode',
 'ugly sack-like dresses',
 'dragon pit yelling dracarys dragon',
 'imagine targaryen blood dragon rider forced dragon understood kids frustrations ',
 'favorite character dies episode',
 'huge ',
 'got little post hottest world right',
 ...]

In [4]:

Solution:

```

# 1. Initialize the TF IDF Vectorizer
tf_idf = TfidfVectorizer()
# 2. Use the Fit Transform method on the entire text
text_tf = tf_idf.fit_transform(text)
# 3. Transform the Text
text_tf = tf_idf.transform(text)
# 4. Print number of samples and features using .shape
print("n_samples: %d, n_features: %d" % text_tf.shape)
# 5. Print the TF-IDF of the first row
print(text_tf[0])

n_samples: 8061, n_features: 10950
(0, 7080) 0.5632689245894086
(0, 6277) 0.3774828944719565
(0, 3021) 0.47218947633853087
(0, 1054) 0.5632689245894086

```

Problem 2 (4 points)¶

Find the top-5 most similar tweets to the tweet with index 7558 using cosine similarity between the TF-IDF vectors.

Solution Steps:

1. Import `cosine_similarity` from `sklearn.metrics.pairwise`
2. Compute `cosine_similarity` using `text_tf` with index 7558 and all other rows
3. Use `argsort` to sort the `cosine_similarity` results
4. Print indices of top-5 most similar results from sorted array (hint: `argsort` sorts in ascending order)
5. Display text of top-5 most similar results using `df.iloc[index]`

In [5]:

```

# Print out the tokens from index `7654`
print(text[7558])
# Print out the text from index `7654`
print(df.iloc[7558][2])

```

```

viserys wanna build lego set mind business let man live peace
rt viserys just wanna build his lego set and mind his business . let that man live in peace

```

In [6]:

Solution

```

# 1. Import cosine sim
from sklearn.metrics.pairwise import cosine_similarity
# 2. Compute `cosine_similarity` using text_tf with index `7654` and all other rows
arr = cosine_similarity(text_tf[7558],text_tf)

```

```

# 3. Use `argsort` to sort the cosine_similarity results
arr_sorted = np.argsort(arr[0])
# 4. Print indices of top-5 most similar results from sorted array (hint: argsort sorts in a
print(arr_sorted[-5:], "\n")
# 5. Display text of top-5 most similar results using `df.iloc[index]`
print("1.", df.iloc[arr_sorted[-5]] [2], "\n")
print("2.", df.iloc[arr_sorted[-4]] [2], "\n")
print("3.", df.iloc[arr_sorted[-3]] [2], "\n")
print("4.", df.iloc[arr_sorted[-2]] [2], "\n")
print("5.", df.iloc[arr_sorted[-1]] [2], "\n")

[7705 6548 3656 7558 7595]

1. rt viserys just wanna build his lego set and mind his business . let that man live in peace
2. rt viserys just wanna build his lego set and mind his business . let that man live in peace
3. rt my man's literally just trying to build a lego set of valyria but has to deal with all
4. rt daemon and rhaenyra are never letting this man live in peace #houseofthedragon #hous
5. mom said it's my turn on the valyrian lego set ( #houseofthedragon

```

Problem 3 (2 point)¶

A great disadvantage in using TF-IDF is that it can not capture semantics. If you had to classify tweets into positive/negative, what technique would you use to map words to vectors? In short words, provide the sequence of solution steps to solve this task. Note: Assume sentiment labels have been provided.

(Hint: take a look at how I've provided solution steps in previous problems)

One possible solution: -> Use Word2Vec to capture semantics

1. Import Word2Vec from `gensim.models`
2. Create CBOW Model by passing text as input
3. Split the data into train and test using sklearn `train_test_split`
4. Import `KNeighborsClassifier` from sklearn
5. Use KNN to train model on test data
6. Evaluate on test data