

Upcoming TV Series Episode Rating Prediction

Course BIA-660-C

Instructor: Rong Liu

Submitted by : Group 4

Manas Kulkarni

Allan Shivji

Diksha Pancholi

Shubham Heda

Objective

- The prediction of upcoming episode of a TV series can be predicted using the ratings storyline, cast and the title of the previous episode. In this Web Mining project, we propose a method to predict the ratings of future episode based on the storyline, title and the star cast that is present on IMDB's website.
- In our project, we will take data from IMDB's website such as TV series' storyline, title, rating, air date and the star cast which we will scrape using Web Scraping methods. Then we will predict the rating of upcoming episode purely based on previous episodes rating using Logistic Regression.
- After that we will predict the rating of upcoming episode by adding other features like title, storyline, cast, airdate etc. using Sentimental Analysis, Natural Language Processing and Text Mining, then compare the accuracy of the model for both the predictions.
- In this project, we are set to create an analysis which helps the workforce to keep up with the trends around them and develop the skills which cannot be easily replaced by automation.

We will consider any one TV Series and then we will first train a model which will predict the rating of the upcoming episode purely based on previous episodes' ratings. Then we will try to find out if features such as title, storyline, cast, air date etc. gives us any insights to predict the rating of the next episode. For example, if for a particular TV series, the ratings for the previous episodes were 8.5, 8.0, 7.6

IMDB Website

- IMDB is a website where you can find all the information related to films, TV series, viewers rating, plot summaries etc. It uses data science to evolve the human capital management space, with options that assist employers find, employ and manage fantastic people.
- The TV Series dataset will include 'rating' which is a combined rating of all the viewers, 'title' which is the name of the episode, 'storyline' which is a short summary of the episode, 'air-date' is the date on which the episode is aired, 'cast' are the actors/director features in the episode.

All

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Game of Thrones (2011–2019)

+

Winter Is Coming

9.0
37,653

Rate This

TV-MA | 1h 2min | Action, Adventure, Drama | Episode aired 17 April 2011

Season 1 | Episode 1 | Previous | All Episodes (73) | Next

Eddard Stark is torn between his family and an old friend when asked to serve at the side of King Robert Baratheon; Viserys plans to wed his sister to a nomadic warlord in exchange for an army.

Director: Timothy Van Patten (as Tim Van Patten)

Writers: David Benioff (created by), D.B. Weiss (created by) | 3 more credits »

Stars: Sean Bean, Mark Addy, Nikolaj Coster-Waldau | See full cast & crew »

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Reviews
60 user | 30 critic

IMDbPro View production, box office, & company info

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Storyline
Edit

At the castle Winterfell, Lord Ned Stark begins to believe that something is amiss. A deserter from the Night Watch, the guardians of the giant ice wall at the northern boundary of their territory, says he's seen the white walkers. Later, Ned and his sons find animals slain in the woods, including a she-wolf whose six pups they keep, one for each of Ned's children. They also welcome the arrival of Ned's good friend King Robert who was once betrothed to Ned's sister. She was killed before they could marry and he wed Cersei Lannister who has given him a son, Joffrey. Along with them are Cersei's two brothers, the handsome Jaime and Tyrion, a dwarf with very large appetites. The King wants Ned to return with him to his capital, King's Landing, and become the King's Hand. Ned accepts but his young son Bran accidentally sees something he should not have and suffers a serious fall as a result. Meanwhile, in the land across the narrow sea, Viserys Targaryen needs an army to attack King's ...

Written by garykmcd

[Plot Summary](#) | [Plot Synopsis](#)

Plot Keywords: king | deserter | man undressing a woman | body parts arranged in a pattern | woman wearing a sheer dress | See All (103) »

Genres: Action | Adventure | Drama | Fantasy | Romance

Certificate: TV-MA | See all certifications »

Parents Guide: View content advisory »

House Targaryen
a list of 7 images
updated 13 Jun 2013

Intriguing "Game of Thrones" Circularity
a list of 30 images
created 13 Jun 2017

Game of Thrones Overview
a list of 37 titles
created 14 Aug 2012

Vox Populi Answer "Game of Thrones" Questions
a list of 31 images

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Related lists from IMDb users

Attributes of TV series for scraping:

1. Title, Director
2. Rating, Airdate
3. Season, Episode number
4. Storyline, Genres
5. Cast, Character

Web Scrapping

- We scraped two TV series named Game of Thrones and Breaking Bad
- Game of Thrones consists of eight seasons & total of seventy-three episodes and Breaking Bad consists of five season & total of sixty-two episodes.
- We used BeautifulSoup library and scrapped the attributes as mentioned in above section

Code snippet for scrapping :

```
In [2]: 1 name=[]
2 link=[]
3 for i in range(1,9):
4     page = requests.get("https://www.imdb.com/title/tt0944947/episodes?season="+str(i))
5     if page.status_code==200:
6         soup = BeautifulSoup(page.content, 'html.parser')
7         soup.prettify()
8         for eachEpisode in soup.findAll('a', attrs={'itemprop':"name"}):
9             name.append(eachEpisode.get_text())
10            link.append(eachEpisode['href'])
11 print(len(name))
12 print(link)

73
['/title/tt1480055/', '/title/tt1668746/', '/title/tt1829962/', '/title/tt1829963/', '/title/tt1829964/', '/title/tt1837862/',
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'/title/tt6027920/']
```

```
In [3]: 1 data=[]
2 for i in range(len(name)):
3     #print(z)
4     sublink="https://www.imdb.com"+link[i]
5     page = requests.get(sublink)
6     #page = requests.get("https://www.imdb.com/title/tt1480055/?ref_=ttep_ep1")
7     if page.status_code==200:
8         soup = BeautifulSoup(page.content, 'html.parser')
9         soup.prettify()
10
11         title=soup.find('div', attrs={'class':"titleBar"}).find("h1").get_text().strip()
12         #print(title)
13
14         #director=soup.find('div', attrs={"class":["credit_summary_item"]} ).find('a').get_text()
15         #print(director)
16         directorArrays=[]
17         director=soup.find('div', attrs={'class':"credit_summary_item"}).findAll('a')
18         for x in director:
19             directorArrays.append(x.get_text())
20
21         rating=soup.find('div', attrs={'class':"imdbRating"}).find("strong").get_text()
22         #print(rating)
23
24         airdate=soup.find('div', attrs={'class':"subtext"}).find('a', title="See more release dates").get_text().strip()
25         #print(airdate)
26
27         season_number=soup.find('div', attrs={'class':"bp_heading"}).get_text().split('|')[0].strip()
28         #print(season_number)
29
30         episode_number=soup.find('div', attrs={'class':"bp_heading"}).get_text().split('|')[1].strip()
31         #print(episode_number)
32
33         storyline=soup.find('div', attrs={'class':"inline_canwrap"}).find('span').get_text().strip()
34         #print(storyline)
35
36         #Genres
37         p=soup.find('div', attrs={'class':"see-more inline_canwrap"}).find('h4').get_text()
38         if p=="Plot Keywords":
39             genresAnchors=soup.findAll('div', attrs={'class':"see-more inline_canwrap"})[1].findAll('a')
40             genres=[]
41             for a in genresAnchors:
```


Scrapped data from IMDB for Game of Thrones:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	title	director	rating	airdate	season_n	episode_n	storyline	genres	cast	character															
2	Winter Is Coming	Timothy	9	Episode ai Season 1	Episode 1	At the castle	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Jaime Lannister, Catelyn Stark, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Viserys Targaryen, Jon Snow																
3	The Kingsroad	Timothy	8.8	Episode ai Season 1	Episode 2	Although he is a noble	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Jaime Lannister, Catelyn Stark, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Viserys Targaryen, Jon Snow																
4	Lord Snow	Brian Kirk	8.7	Episode ai Season 1	Episode 3	After the attack	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Jaime Lannister, Catelyn Stark, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish																
5	Cripples, Bastards, and Broken Things	Brian Kirk	8.8	Episode ai Season 1	Episode 4	Ned begins his journey	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Jaime Lannister, Catelyn Stark, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish																
6	The Wolf and the Lamb	Brian Kirk	9.1	Episode ai Season 1	Episode 5	When King Robert dies	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Jaime Lannister, Catelyn Stark, Cersei Lannister, Petyr 'Littlefinger' Baelish, Sansa Stark, Arya Stark, Theon Greyjoy																
7	A Golden Crown	Daniel M. Johnson	9.2	Episode ai Season 1	Episode 6	A calmer King	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Catelyn Stark, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish, Viserys Targaryen																
8	You Win or You Die	Daniel M. Johnson	9.2	Episode ai Season 1	Episode 7	Ned confronts the king	Action	Sebastian Beaney	Eddard 'Ned' Stark, Robert Baratheon, Jaime Lannister, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish, Jon Snow																
9	The Pointy Day	Daniel M. Johnson	9	Episode ai Season 1	Episode 8	Joffrey has the crown	Action	Sebastian Beaney	Eddard 'Ned' Stark, Catelyn Stark, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish, Jon Snow, Robb Stark, Sansa Stark																
10	Baelor	Alan Taylor	9.6	Episode ai Season 1	Episode 9	Sansa begins her journey	Action	Sebastian Beaney	Eddard 'Ned' Stark, Catelyn Stark, Jaime Lannister, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish, Jon Snow, Robb Stark																
11	Fire and Blood	Alan Taylor	9.5	Episode ai Season 1	Episode 10	Robb's bar	Action	Sebastian Beaney	Eddard 'Ned' Stark, Catelyn Stark, Jaime Lannister, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Petyr 'Littlefinger' Baelish, Jon Snow, Robb Stark																
12	The North Remembers	Alan Taylor	8.8	Episode ai Season 2	Episode 1	Winter is coming	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Jaime Lannister, Catelyn Stark, Daenerys Targaryen, Petyr 'Littlefinger' Baelish, Jorah Mormont, Jon Snow, Davos Seaworth																
13	The Night King	Alan Taylor	8.5	Episode ai Season 2	Episode 2	In the wake of the king	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Daenerys Targaryen, Petyr 'Littlefinger' Baelish, Jorah Mormont, Jon Snow, Davos Seaworth, Theon Greyjoy, Arya Stark																
14	What Is Dead May Never Die	Alrik Sakth	8.8	Episode ai Season 2	Episode 3	Jon is reprimanded	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Catelyn Stark, Petyr 'Littlefinger' Baelish, Jon Snow, Theon Greyjoy, Bran Stark, Sansa Stark, Arya Stark, Samwell																
15	Garden of Bones	David Petrie	8.8	Episode ai Season 2	Episode 4	Robb attacks	Action	Peter Dinklage	Tyrian Lannister, Catelyn Stark, Daenerys Targaryen, Petyr 'Littlefinger' Baelish, Jorah Mormont, Tywin Lannister, Davos Seaworth, Joffrey Baratheon																
16	The Ghost of Harrenhal	David Petrie	8.8	Episode ai Season 2	Episode 5	Catelyn's plan	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Catelyn Stark, Daenerys Targaryen, Petyr 'Littlefinger' Baelish, Jorah Mormont, Jon Snow, Tywin Lannister, Davos Seaworth																
17	The Old Gods	David Nu	9.1	Episode ai Season 2	Episode 6	In a surprise attack	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Catelyn Stark, Daenerys Targaryen, Petyr 'Littlefinger' Baelish, Jon Snow, Tywin Lannister, Bran Stark, Robb Stark																
18	A Man Without a Face	David Nu	8.9	Episode ai Season 2	Episode 7	At Winterfell	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Jaime Lannister, Catelyn Stark, Daenerys Targaryen, Jorah Mormont, Jon Snow, Tywin Lannister, Bran Stark, Robb Stark																
19	The Prince and the Princess	Alan Taylor	8.8	Episode ai Season 2	Episode 8	Theon's sister	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Jaime Lannister, Catelyn Stark, Daenerys Targaryen, Jorah Mormont, Jon Snow, Tywin Lannister, Davos Seaworth																
20	Blackwater	Neil Marshall	9.7	Episode ai Season 2	Episode 9	Confident	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Tywin Lannister, Davos Seaworth, Joffrey Baratheon, Sansa Stark, Sandor 'The Hound' Clegane, Stannis Baratheon																
21	Valar Morghulis	Alan Taylor	9.4	Episode ai Season 2	Episode 10	With the bells	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Jaime Lannister, Catelyn Stark, Daenerys Targaryen, Petyr 'Littlefinger' Baelish, Jorah Mormont, Jon Snow, Tywin Lannister																
22	Valar Dohaeris	Daniel M. Johnson	8.8	Episode ai Season 3	Episode 1	Beyond the wall	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Daenerys Targaryen, Jon Snow, Robb Stark, Jorah Mormont, Catelyn Stark, Petyr 'Littlefinger' Baelish, Tywin Lannister																
23	Dark Wings, Dark Words	Daniel M. Johnson	8.6	Episode ai Season 3	Episode 2	Bran dreams	Action	Peter Dinklage	Tyrian Lannister, Jaime Lannister, Cersei Lannister, Jon Snow, Robb Stark, Catelyn Stark, Margarya Tyrell, Bran Stark, Joffrey Baratheon, Sansa Stark																
24	Walk of Punishment	David Petrie	8.9	Episode ai Season 3	Episode 3	Arya may live	Action	Peter Dinklage	Tyrian Lannister, Jaime Lannister, Cersei Lannister, Daenerys Targaryen, Jon Snow, Robb Stark, Jorah Mormont, Catelyn Stark, Petyr 'Littlefinger' Baelish																
25	And Now the Wives	Alex Graves	9.6	Episode ai Season 3	Episode 4	In King's Landing	Action	Peter Dinklage	Tyrian Lannister, Jaime Lannister, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Catelyn Stark, Tywin Lannister, Margarya Tyrell, Theon Greyjoy																
26	Kissed by Fire	Alex Graves	9	Episode ai Season 3	Episode 5	Brienne arrives	Action	Peter Dinklage	Tyrian Lannister, Jaime Lannister, Cersei Lannister, Daenerys Targaryen, Jon Snow, Robb Stark, Jorah Mormont, Catelyn Stark, Tywin Lannister, Margarya Tyrell, Theon Greyjoy																
27	The Climb	Alrik Sakth	8.8	Episode ai Season 3	Episode 6	In King's Landing	Action	Peter Dinklage	Tyrian Lannister, Jaime Lannister, Cersei Lannister, Jon Snow, Robb Stark, Catelyn Stark, Petyr 'Littlefinger' Baelish, Tywin Lannister, Melisandre, The Mountain																
28	The Bear and the Maiden Lord	Alrik Sakth	8.7	Episode ai Season 3	Episode 7	Robb and Joffrey	Action	Peter Dinklage	Tyrian Lannister, Jaime Lannister, Daenerys Targaryen, Jon Snow, Robb Stark, Jorah Mormont, Catelyn Stark, Tywin Lannister, Margarya Tyrell, Melisandre																
29	Second Sons	Michelle MacLare	9	Episode ai Season 3	Episode 8	The time of the red	Action	Peter Dinklage	Tyrian Lannister, Cersei Lannister, Daenerys Targaryen, Jorah Mormont, Tywin Lannister, Davos Seaworth, Stannis Baratheon, Melisandre, Margarya Tyrell																
		GOT	+																						

Scrapped data from IMDB for Breaking Bad:

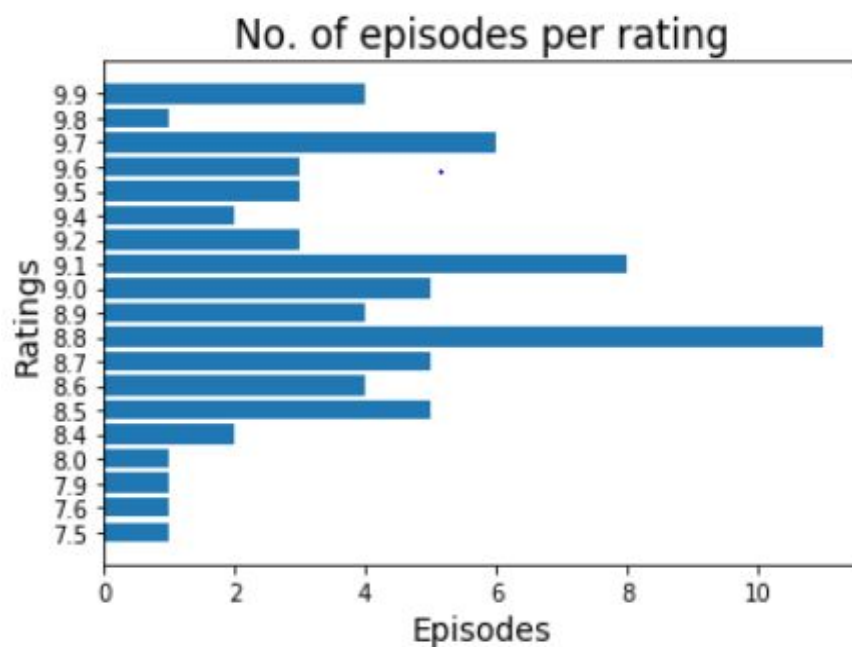
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Title	Director	Rating	Airdate	Season_number	Episode_Number	Description	Genres	Cast	Character				
2	Pilot	Vince Gilligan	9	Episode aired 20 Season 1	Episode 1	Just days after his arrest	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
3	Cañon	Adam Bernstein	8.7	Episode aired 27 Season 1	Episode 2	Walt and Jesse meet	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
4	...And the Bag's in the Room	Adam Bernstein	8.8	Episode aired 10 Season 1	Episode 3	Jesse and Walt connect	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
5	Cancer Man	Jim McKay	8.3	Episode aired 17 Season 1	Episode 4	At a briefing, Hank	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
6	Gray Matter	Tricia Brock	8.4	Episode aired 24 Season 1	Episode 5	Jesse tries to get a job	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
7	Crazy Handful of Nothin'	Brown Hughes	9.3	Episode aired 21 Season 1	Episode 6	Walt begins his career	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
8	A No Rough Shuff	Tim Hunter	8.9	Episode aired 9 Season 1	Episode 7	Having made a deal	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
9	Seven Thirty-Seven	Bryan Cranston	8.7	Episode aired 8 Season 2	Episode 1	Having completed his deal	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
10	Grilled	Charles Haid	9.3	Episode aired 15 Season 2	Episode 2	Having been kidnapped	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
11	Bit by a Dead Bear	Terry McDonough	8.4	Episode aired 22 Season 2	Episode 3	Having gotten away	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
12	Down	John Dahl	8.3	Episode aired 29 Season 2	Episode 4	Walt and Jesse are in the desert	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
13	Breakage	Johan Renck	8.4	Episode aired 5 Season 2	Episode 5	Walt continues his career	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
14	Peekaboo	Peter Medak	8.9	Episode aired 12 Season 2	Episode 6	Skinny Pete has a plan	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
15	Negro Y Azul	Félix Enriquez Alcaraz	8.7	Episode aired 19 Season 2	Episode 7	Walt's been having a hard time	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
16	Better Call Saul	Terry McDonough	9.2	Episode aired 26 Season 2	Episode 8	Walt and Jesse hit the road	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
17	4 Days Out	Michelle MacLare	9.1	Episode aired 31 Season 2	Episode 9	Walt is convinced	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
18	Over	Phil Abraham	8.6	Episode aired 10 Season 2	Episode 10	Despite the good news	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
19	Mandala	Adam Bernstein	8.9	Episode aired 17 Season 2	Episode 11	With the rapid increase in production	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
20	Phoenix	Colin Bucksey	9.3	Episode aired 24 Season 2	Episode 12	Just as Skyler goes to work	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
21	ABQ	Adam Bernstein	9.3	Episode aired 31 Season 2	Episode 13	Walt's operation is a success	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
22	No Más	Bryan Cranston	8.6	Episode aired 21 Season 3	Episode 1	As Walt copes with the loss	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
23	Caballo sin Nombre	Adam Bernstein	8.7	Episode aired 28 Season 3	Episode 2	Walt tries to reconnect	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
24	I.F.T.	Michelle MacLare	8.5	Episode aired 4 Season 3	Episode 3	Walt moves into his new home	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
25	Green Light	Scott Winant	8.3	Episode aired 11 Season 3	Episode 4	Walt loses control	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
26	Más	Johan Renck	8.7	Episode aired 18 Season 3	Episode 5	Gus increases his production	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					
27	Sunset	John Shibata	9.3	Episode aired 25 Season 3	Episode 6	Now that Walt has a plan	Crime, Drama, Thriller	Bryan Cranston	Walter White, Skyler White, Jesse Pinkman, Hank Schrader, Marie Schrader					

Exploratory data analysis

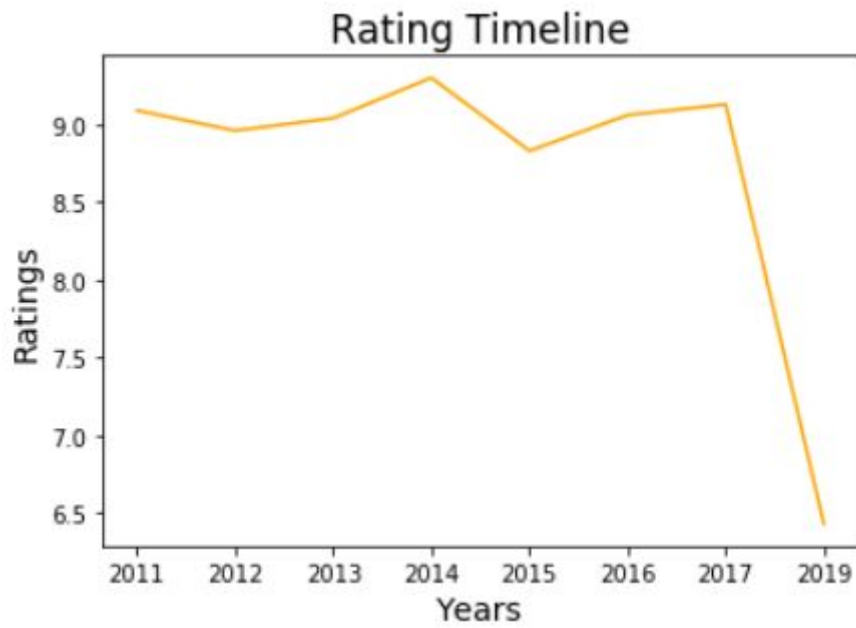
- Since we had a lot of data that was scraped from IMDB website as seen in the Excel files. So we did perform some Exploratory data analysis to understand the relations between the ratings and the other columns.
- As seen in the below graphs first we performed total number of episodes per their rating so we understood that there were some episodes which had less rating.
- Next we showed the rating timeline graph per year and we could see that there were some ups and downs in rating per year and it was never a constant value.
- Later we showed a bar graph of Directors per rating and we could observe that the rating of the episodes depends on who directed the TV series of that particular season.

Plots:

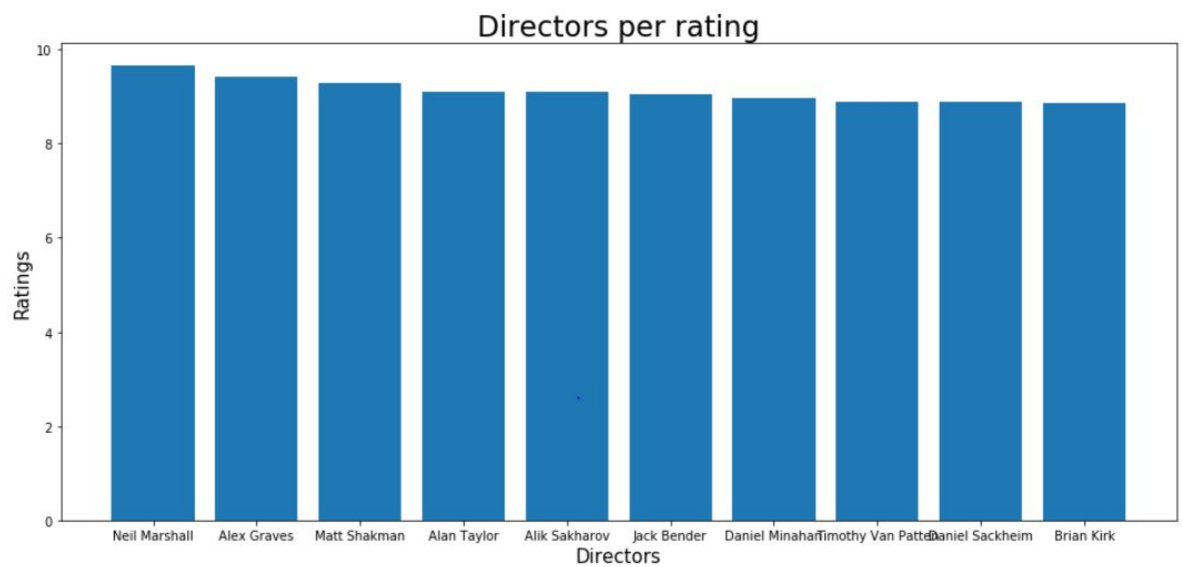
1. Number of episodes per rating



2. Trend of rating over the years



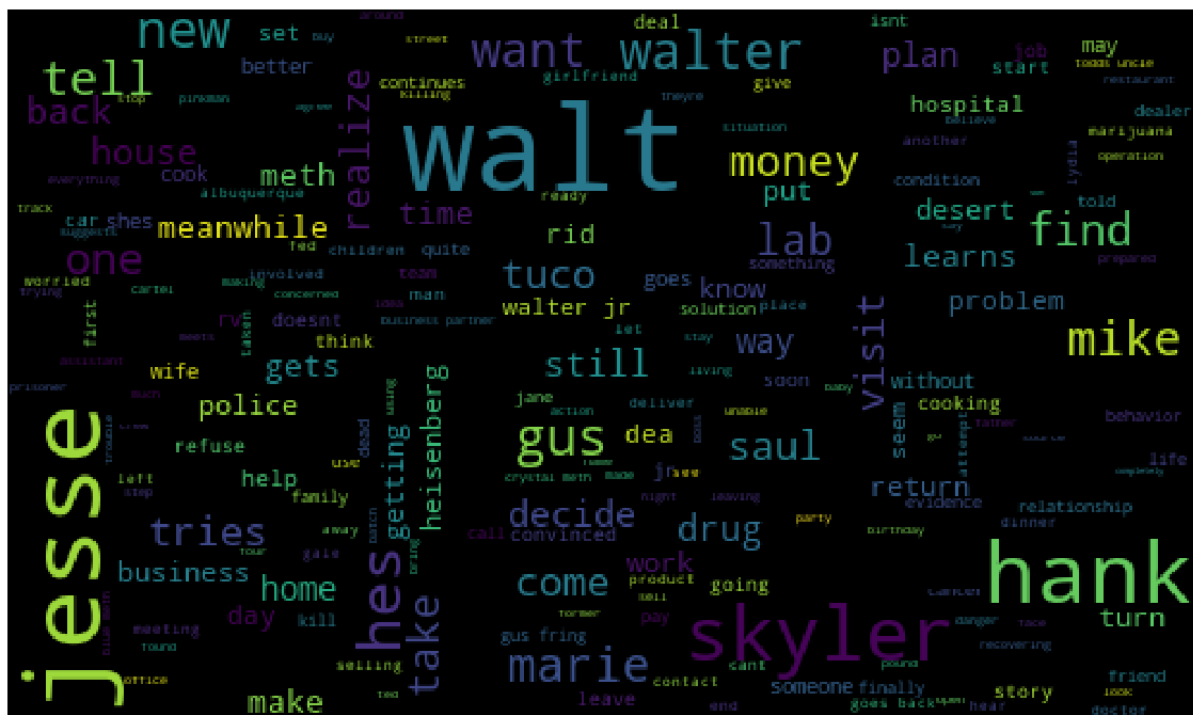
3. Directors per rating



Word Cloud based on storyline tokens of Game of Thrones:



Word Cloud based on storyline tokens of Breaking Bad:



In this we have tokenized the plot and removed the stop words from the plot and then created a WordCloud which shows most appeared word in the entire plot of a particular series.

Steps completed till now in the project along with the team member is given below :

Task completed	Member Allocated
Scraping of TV series from IMDB	Shubham and Diksha
Data Preprocessing	Manas
Exploratory Data Analysis	Allan
Documentation	Manas, Allan, Shubham

Action Plan

- We will predict the rating of upcoming episode by adding features like title, storyline, cast, airdate etc. using Sentimental Analysis, Natural Language Processing and Text Mining, then compare the accuracy of the model for both the predictions.
- As per the results obtained we will find features that will define the ratings of upcoming episodes.

References:

Research Paper 1: In You-Jin Kim, Jung-Hoo Lee and Yun-Gyung Cheong (2019). Prediction of a Movie's Success From Plot Summaries Using Deep Learning Models. Proceedings of the Second Storytelling Workshop , Association for Computational Linguistics

Research paper 2:

http://usir.salford.ac.uk/id/eprint/18838/1/Wessex_movie.pdf:public A data mining approach to analysis and prediction of movie ratings. Authors Saraee, MH, White, S and Eccleston, J. Type Conference or Workshop Item. Published Date 2004

