

▼ ASSIGNMENT / TASK 5

Pandas - Data Analysis of IMDB movies data As we have a basic understanding of the different data structures in Pandas, let's explore the fun and interesting 'IMDB-movies-dataset' and get our hands dirty by performing practical data analysis on real data.

It is an open-source dataset and you can download it from this link.

We will read the data from the .csv file and perform the following basic operations on movies data

1. Load the IMDb Dataset and read
2. View the dataset

```
import numpy as np
import pandas as pd
df=pd.read_csv('/content/archive (1).zip')
df
```

| | Rank | Title | Genre | Description | Director | Actors |
|---|------|-------------------------|--------------------------|---|--------------|--|
| 0 | 1 | Guardians of the Galaxy | Action,Adventure,Sci-Fi | A group of intergalactic criminals are forced ... | James Gunn | Chris Pratt, Vir Diesel, Bradley Cooper, Zoe S.. |
| 1 | 2 | Prometheus | Adventure,Mystery,Sci-Fi | Following clues to the origin of mankind, a | Ridley Scott | Noomi Rapace Logan Marshall Green, Michael Fa.. |

3. Understand some basic information about the dataset and Inspect the dataframe Inspect the dataframe's columns, shapes, variable types etc.

```

print("Columns\n",df.columns)
print("Shape\n",df.shape)
print("Dimmensions\n",df.ndim)
df_new=df.values
print("Variable types\n",type(df_new))

Columns
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
      'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
      'Metascore'],
      dtype='object')
Shape
(1000, 12)
Dimmensions
2
Variable types
<class 'numpy.ndarray'>

```

4. Data Selection – Indexing and Slicing data

```

#indexing with range of both rows and columns
df.iloc[3:8,2:]

```

| | Genre | Description | Director | Actors | Year | Runtime (Minutes) | R |
|--|-------|-----------------------|----------|---------|------|-------------------|---|
| | | In a city of humanoid | | Matthew | | | |

#indexing with only row range

```
df.loc[3:6,['Genre','Description','Director']]
```

| | Genre | Description | Director |
|---|--------------------------|---|-------------------------|
| 3 | Animation,Comedy,Family | In a city of humanoid animals, a hustling thea... | Christophe Lourdelet |
| 4 | Action,Adventure,Fantasy | A secret government agency recruits some of th... | David Ayer |
| 5 | Action,Adventure,Fantasy | European mercenaries searching for black powde... | Yimou Zhang |

5. Data Selection – Based on Conditional filtering

#fetch director name where condition: Runtime(minutes)>150 and votes > 10000

```
df4=df[(df['Votes']>10000) & (df['Runtime (Minutes)']>150)]
```

```
df4
```

| | | | | | | |
|-----|-----|---------------------------------|--------------------------|---|-----------------------------|---|
| 87 | 88 | Avatar | Action,Adventure,Fantasy | A paraplegic marine dispatched to the moon Pan... | James Cameron | Worthingt Zoe Salda Sigourr Weave |
| 88 | 89 | The Hateful Eight | Crime,Drama,Mystery | In the dead of a Wyoming winter, a bounty hunt... | Quentin Tarantino | Samue Jackson, K Russell, Jenn Jas |
| 90 | 91 | Prisoners | Crime,Drama,Mystery | When Keller Dover's daughter and her friend go... | Denis Villeneuve | Hugh Jackm Jake Gyllenh Vi Davis,Me |
| 99 | 100 | The Departed | Crime,Drama,Thriller | An undercover cop and a mole in the police att... | Martin Scorsese | Leona DiCaprio, M Damon, Ji NicholSor |
| 117 | 118 | Dangal | Action,Biography,Drama | Former wrestler Mahavir Singh Phogat and his t... | Nitesh Tiwari | Aamir Kh Sakshi Tanv Fatima S Shaikh |
| 124 | 125 | The Dark Knight Rises | Action,Thriller | Eight years after the Joker's reign of anarchy... | Christopher Nolan | Christian B Tom Har Ar Hathaway,G |
| 126 | 127 | Transformers: Age of Extinction | Action,Adventure,Sci-Fi | Autobots must escape sight from a bounty hunte... | Michael Bay | Mark Wahlbe Nicola Pe Jack Reyr Sta |
| 129 | 130 | The Revenant | Adventure,Drama,Thriller | A frontiersman on a fur trading expedition in ... | Alejandro González Iñárritu | Leona DiCaprio, T Hardy, V Poulter, D |
| 144 | 145 | Django Unchained | Drama,Western | With the help of a German bounty hunter , a fr... | Quentin Tarantino | Jamie Fo Christoph Wa Leona DiCapri |
| 147 | 148 | Watchmen | Action,Drama,Mystery | In 1985 where former superheroes exist, the mu... | Zack Snyder | Jackie E Haley, Patr Wilson, C Gu |
| 223 | 224 | The Girl with the Dragon Tattoo | Crime,Drama,Mystery | Journalist Mikael Blomkvist is aided in his se... | David Fincher | Daniel Cr Rooney M Christop Plumme |
| 225 | 226 | American Honey | Drama | A teenage girl with nothing to lose joins a tr... | Andrea Arnold | Sasha La Shia LaBec Riley Keou McCa |

| | | | | | | |
|-----|-----|--|--------------------------|---|----------------------|--|
| 245 | 246 | Les Misérables | Drama,Musical,Romance | In 19th-century France, Jean Valjean, who for ... | Tom Hooper | Hugh Jackm Russell Cro Ar Hathaway,Am |
| 267 | 268 | Cloud Atlas | Drama,Sci-Fi | An exploration of how the actions of individua... | Tom Tykwer | Tom Han Halle Be Hugh Gra Hugo Weav |
| 271 | 272 | The Hobbit: An Unexpected Journey | Adventure,Fantasy | A reluctant hobbit, Bilbo Baggins, sets out to... | Peter Jackson | Martin Freem Ian McKell Rich Armitag |
| 277 | 278 | Zodiac | Crime,Drama,History | In the late 1960s/early 1970s, a San Francisco... | David Fincher | Jake Gyllenh Robert Dow Jr., Mark Ruff |
| 299 | 300 | There Will Be Blood | Drama,History | A story of family, religion, hatred, oil and m... | Paul Thomas Anderson | Daniel D Lewis, P Dano, Cia Hinds,Ma |
| 311 | 312 | La vie d'Adèle | Drama,Romance | Adèle's life is changed when she meets Emma, a... | Abdellatif Kechiche | Léa Seydo Ad Exarchopoul Salim Kechi |
| 406 | 407 | Zero Dark Thirty | Drama,History,Thriller | A chronicle of the decade-long hunt for al-Qae... | Kathryn Bigelow | Jess Chastain, J Edgerton, Cl Pratt |
| 425 | 426 | The Curious Case of Benjamin Button | Drama,Fantasy,Romance | Tells the story of Benjamin Button, a man who ... | David Fincher | Brad Pitt, C Blanchett, Ti Swinton, Ju |
| 430 | 431 | 3 Idiots | Comedy,Drama | Two friends are searching for their long lost ... | Rajkumar Hirani | Aamir Kh Madhav Mona Sin Sharman Jo |
| 470 | 471 | American Gangster | Biography,Crime,Drama | In 1970s America, a detective works to bring d... | Ridley Scott | Den Washingt Russell Cro Chiwetel E |
| 472 | 473 | 2012 | Action,Adventure,Sci-Fi | A frustrated writer struggles to keep his fami... | Roland Emmerich | John Cusa Thandie Newt Chiw Ejiofo |
| 473 | 474 | Harry Potter and the Half-Blood Prince | Adventure,Family,Fantasy | As Harry Potter begins his sixth year at Hoowa... | David Yates | Daniel Radcli Emma Wats Rupert Gr |

| | | | | | | |
|-----|-----|---|-------------------------|--|----------------------|--|
| 518 | 519 | The Hobbit: The Desolation of Smaug | Adventure,Fantasy | The dwarves, along with Bilbo Baggins and Gand... | Peter Jackson | Ian McKell Martin Freem Rich Armitag |
| 566 | 567 | Transformers: Dark of the Moon | Action,Adventure,Sci-Fi | The Autobots learn of a Cybertronian spacecraf... | Michael Bay | Shia LaBec Ro Huntingt White Tyre |
| 590 | 591 | Män som hatar kvinnor | Drama,Mystery,Thriller | A journalist is aided in his search for a woma... | Niels Arden Oplev | Michael Nyqv Noomi Rapa E Fröling,Le |
| 611 | 612 | Toni Erdmann | Comedy,Drama | A practical joking father tries to reconnect w... | Maren Ade | Sandra Hül Pe Simonisch Michael Wi |
| 613 | 614 | The Assassination of Jesse James by the Coward... | Biography,Crime,Drama | Robert Ford, who's idolized Jesse James since ... | Andrew Dominik | Brad Pitt, Cas Affleck, S Shepard, Ma L |
| 656 | 657 | Boyhood | Drama | The life of Mason, from early childhood to his... | Richard Linklater | Ellar Coltra Patri Arquette, Etr Hawk |
| 691 | 692 | Dear Zindagi | Drama,Romance | Kaira is a budding cinematographer in search o... | Gauri Shinde | Alia Bhatt, Sr Rukh Kh Kunal Kapo Pr |
| 703 | 704 | Australia | Adventure,Drama,Romance | Set in northern Australia before World War II,... | Baz Luhrmann | Nicole Kidm Hugh Jackm Shea Adar Eddi |
| | | | | A stranger in the city seeks | Boikumar | Aamir Kh Anush |

6. Groupby operations

```
df2 = df.groupby('Genre')
df2.mean()
df[df['Rating']>7].groupby('Genre')[['Rating']].count()
```

| | Rating |
|----------------------------|--------|
| Genre | |
| Action | 1 |
| Action,Adventure,Biography | 1 |
| Action,Adventure,Comedy | 4 |
| Action,Adventure,Crime | 2 |
| Action,Adventure,Drama | 4 |
| ... | ... |
| Mystery,Sci-Fi,Thriller | 3 |
| Mystery,Thriller | 3 |
| Mystery,Thriller,Western | 1 |
| Romance Sci-Fi Thriller | 1 |

7. Sorting operation

129 rows × 1 columns

```
df_sorted=df.sort_values(by='Runtime (Minutes)')
df_sorted.head()
```

| | Rank | Title | Genre | Description | Director | Actors | Year | I (M: |
|-----|------|-------------------------|------------------------|---|------------------|---|------|----------|
| 793 | 794 | Ma vie de Courgette | Animation,Comedy,Drama | After losing his mother, a young boy is sent t... | Claude Barras | Gaspard Schlatter, Sixtine Murat, Paulin Jacc... | 2016 | |
| 42 | 43 | Don't Fuck in the Woods | Horror | A group of friends are going on a camping trip... | Shawn Burkett | Brittany Blanton, Ayse Howard, Roman Jossart,N... | 2016 | |
| 819 | 820 | Wolves at the Door | Horror,Thriller | Four friends gather at an elegant home | John R. Leonetti | Katie Cassidy, Elizabeth Henstridge | 2016 | |

8. Dealing with missing values

```
df.isnull().sum()
```