Python Notebook for cleaning and analysis of Movie Dataset

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In [81]:

```
import pandas as pd
import seaborn as sb
from matplotlib import pyplot as plot
```

In [82]:

```
df = pd.read_csv('C:\VS_Workshop\Sem 6\Data Mining and Predictive Modelling\Assignments\Ass3\MovieAssignmentData.csv')

df.head()
```

Out[82]:

	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	acto
0	Color	James Cameron	723.0	178.0	0.0	855.0	Joel David Moore	
1	Color	Gore Verbinski	302.0	169.0	563.0	1000.0	Orlando Bloom	
2	Color	Sam Mendes	602.0	148.0	0.0	161.0	Rory Kinnear	
3	Color	Christopher Nolan	813.0	164.0	22000.0	23000.0	Christian Bale	
4	NaN	Doug Walker	NaN	NaN	131.0	NaN	Rob Walker	

5 rows × 28 columns

Does the dataset contain any NA values?

In [83]:

```
df.isna().sum()
```

Out[83]:

```
color                        19
director_name               104
num_critic_for_reviews       50
duration                     15
director_facebook_likes     104
actor_3_facebook_likes       23
actor_2_name                 13
actor_1_facebook_likes        7
gross                       884
genres                        0
actor_1_name                  7
movie_title                   0
num_voted_users               0
cast_total_facebook_likes     0
```

```
actor_3_name                23
facenumber_in_poster        13
plot_keywords              153
movie_imdb_link              0
num_user_for_reviews        21
language                    12
country                      5
content_rating             303
budget                     492
title_year                 108
actor_2_facebook_likes      13
imdb_score                   0
aspect_ratio               329
movie_facebook_likes         0
dtype: int64
```

Yup, pretty much every column has null values

Lets remove some columns

In [84]:

```
likes = [col for col in df.columns if 'likes' in col]
likes.extend(['aspect_ratio', 'color', 'facenumber_in_poster', 'movie_imdb_link', 'num_voted_users'])
likes.extend([col for col in df.columns if 'reviews' in col])
df.drop(likes, axis=1, inplace=True)
df.head()
```

Out[84]:

	director_name	duration	actor_2_name	gross	genres	actor_1_name	movie_title	actor_3_nam
0	James Cameron	178.0	Joel David Moore	760505847.0	Action|Adventure|Fantasy|Sci-Fi	CCH Pounder	Avatar	Wes Stu
1	Gore Verbinski	169.0	Orlando Bloom	309404152.0	Action|Adventure|Fantasy	Johnny Depp	Pirates of the Caribbean: At World's End	Jac Davenpo
2	Sam Mendes	148.0	Rory Kinnear	200074175.0	Action|Adventure|Thriller	Christoph Waltz	Spectre	Stephani Sigma
3	Christopher Nolan	164.0	Christian Bale	448130642.0	Action|Thriller	Tom Hardy	The Dark Knight Rises	Josep Gordon-Levi
4	Doug Walker	NaN	Rob Walker	NaN	Documentary	Doug Walker	Star Wars: Episode VII - The Force Awakens ...	Na

In [85]:

```
print(df.isna().sum())
```

```
director_name     104
duration           15
actor_2_name       13
gross             884
genres              0
actor_1_name        7
movie_title         0
actor_3_name       23
plot_keywords     153
language           12
country             5
```

```
content_rating     303
budget             492
title_year         108
imdb_score           0
dtype: int64
```

In [86]:

```
df['duration'].fillna(df['duration'].mean(), inplace=True)
df['gross'].fillna(df['gross'].mean(), inplace=True)
df['budget'].fillna(df['budget'].mean(), inplace=True)
df['title_year'].fillna(df['title_year'].mean(), inplace=True)
```

The other columns are categorial data And it doesnt make sense to fill values like `director name` with a mean value so we just omit the NAs

In [87]:

```
df.dropna(inplace=True)
```

In [98]:

```
df.isna().sum()
```

Out[98]:

```
director_name      0
duration           0
actor_2_name       0
gross              0
genres             0
actor_1_name       0
movie_title        0
actor_3_name       0
plot_keywords      0
language           0
country            0
content_rating     0
budget             0
title_year         0
imdb_score         0
dtype: int64
```

YAY!! our dataset is clean now

In [88]:

```
df.columns
```

Out[88]:

```
Index(['director_name', 'duration', 'actor_2_name', 'gross', 'genres',
       'actor_1_name', 'movie_title', 'actor_3_name', 'plot_keywords',
       'language', 'country', 'content_rating', 'budget', 'title_year',
       'imdb_score'],
      dtype='object')
```

In [89]:

```
sb.set(font_scale = 1.8)
```

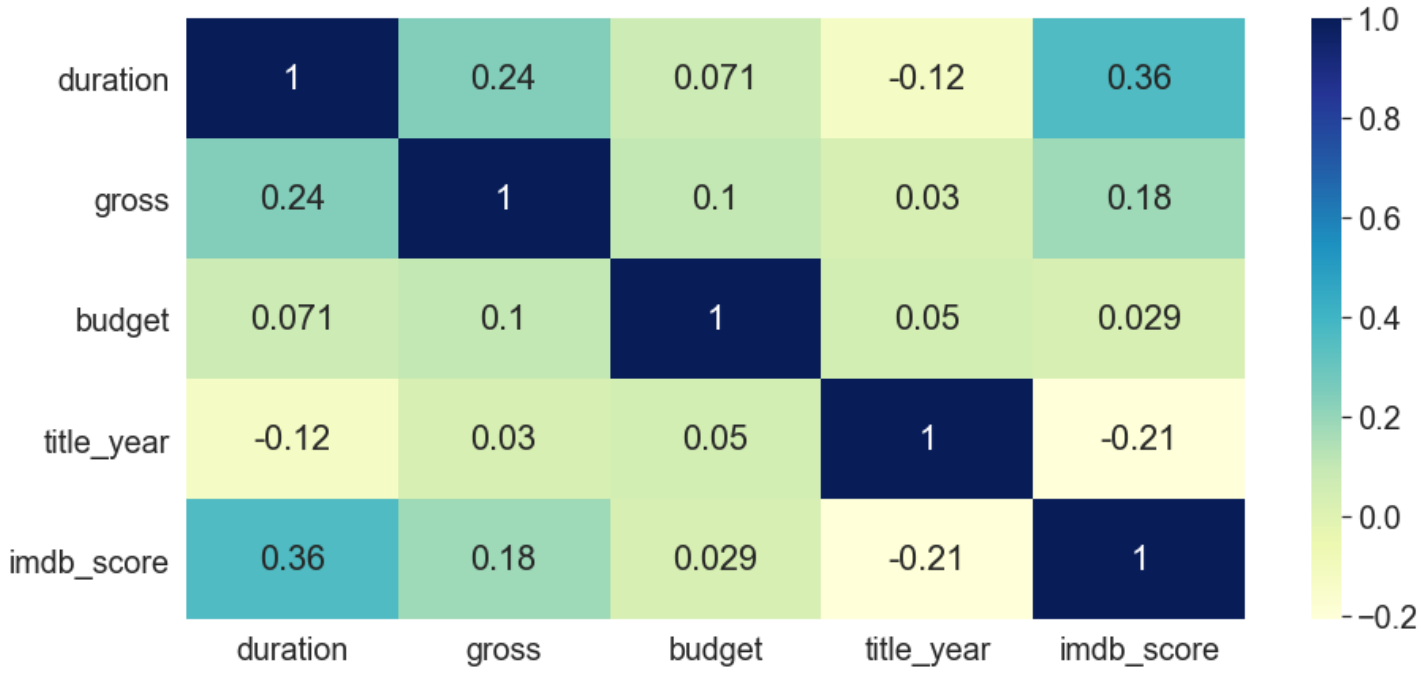
Heatmap of correlation

In [90]:

```
plot.figure(figsize=(15, 7))
sb.heatmap(df.corr(), cmap='YlGnBu', annot=True)
```

Out[90]:

<AxesSubplot:>



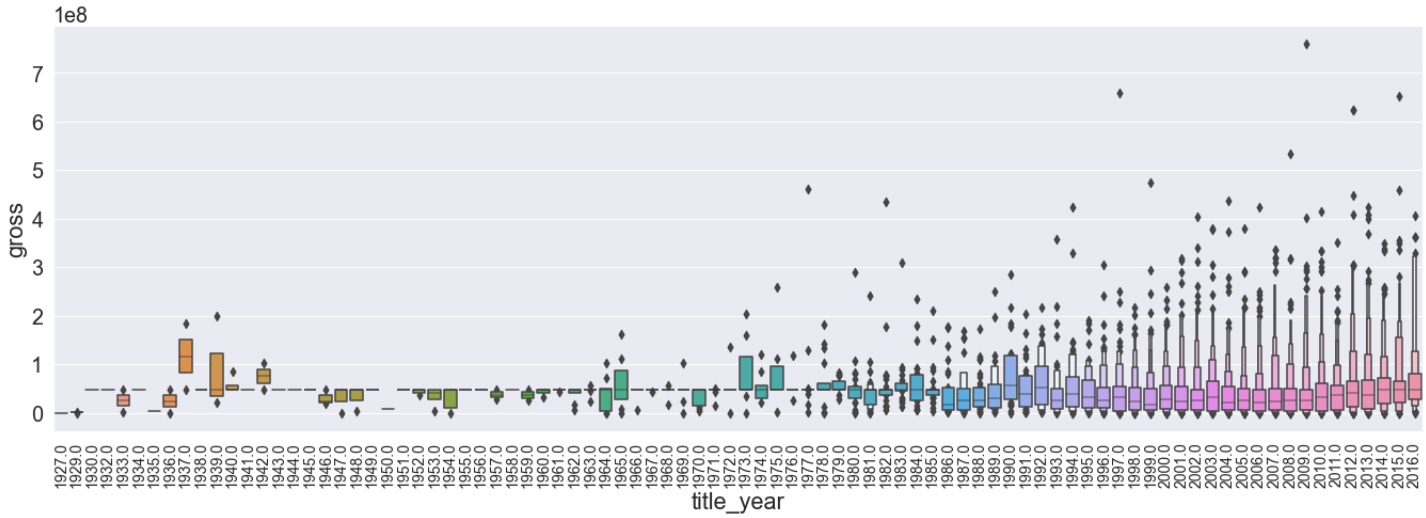
Gross income over the years

In [91]:

```
plot.figure(None, (23, 7))
plot.xticks(rotation=90, fontsize=14)
plot.xlabel("Year")
sb.boxenplot(x='title_year', y='gross', data=df)
```

Out[91]:

<AxesSubplot:xlabel='title_year', ylabel='gross'>



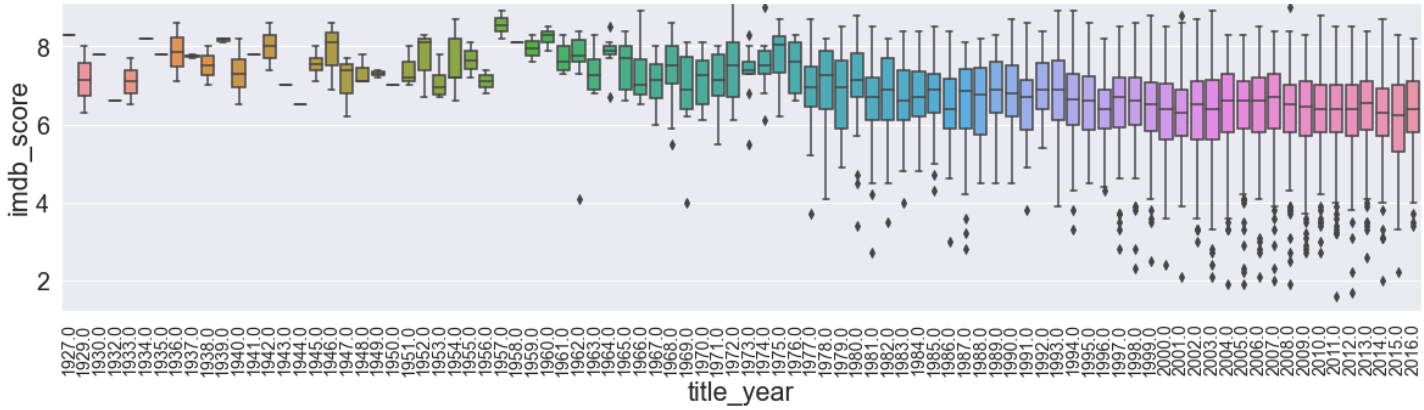
IMDB Scores over the years

In [92]:

```
plot.figure(1, (20, 5))
plot.xticks(rotation=90, fontsize=14)
sb.boxplot(y='imdb_score', x='title_year', data=df)
```

Out[92]:

<AxesSubplot:xlabel='title_year', ylabel='imdb_score'>



In [97]:

```
plot.figure(1, (15, 5))
sb.lineplot(x='gross', y='budget', data=df)
```

Out[97]:

```
<AxesSubplot:xlabel='gross', ylabel='budget'>
```