```
data.columns
```

```
Index(['color', 'director_name', 'num_critic_for_reviews', 'duration',
       'director_facebook_likes', 'actor_3_facebook_likes', 'actor_2_name',
       'actor_1_facebook_likes', 'gross', 'genres', 'actor_1_name',
       'movie_title', 'num_voted_users', 'cast_total_facebook_likes',
       'actor_3_name', 'facenumber_in_poster', 'plot_keywords',
       'movie_imdb_link', 'num_user_for_reviews', 'language', 'country',
       'content_rating', 'budget', 'title_year', 'actor_2_facebook_likes',
       'imdb_score', 'aspect_ratio', 'movie_facebook_likes'],
      dtype='object')
```

```
import pandas as pd
data = pd.read_csv('https://raw.githubusercontent.com/kishan0725/The-Movie-Cinema/master/datasets/movie_metadata.csv')
data.head()
```

	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

Each Column has been converted to a list

```
color = data.color.values.tolist()
director_name = data.director_name.values.tolist()
num_critic_for_reviews = data.num_critic_for_reviews.values.tolist()
duration = data.duration.values.tolist()

director_facebook_likes = data.director_facebook_likes.values.tolist()
actor_3_facebook_likes = data.actor_3_facebook_likes.values.tolist()
actor_2_name = data.actor_2_name.values.tolist()

actor_1_facebook_likes = data.actor_1_facebook_likes.values.tolist()
gross = data.gross.values.tolist()
genres = data.genres.values.tolist()
actor_1_name = data.actor_1_name.values.tolist()

movie_title = data.movie_title.values.tolist()
num_voted_users = data.num_voted_users.values.tolist()
cast_total_facebook_likes = data.cast_total_facebook_likes.values.tolist()

actor_3_name = data.actor_3_name.values.tolist()
facenumber_in_poster = data.facenumber_in_poster.values.tolist()
plot_keywords = data.plot_keywords.values.tolist()

movie_imdb_link = data.movie_imdb_link.values.tolist()
num_user_for_reviews = data.num_user_for_reviews.values.tolist()
language = data.language.values.tolist()
country = data.country.values.tolist()

content_rating = data.content_rating.values.tolist()
budget = data.budget.values.tolist()
title_year = data.title_year.values.tolist()
actor_2_facebook_likes = data.actor_2_facebook_likes.values.tolist()

imdb_score = data.imdb_score.values.tolist()
aspect_ratio = data.aspect_ratio.values.tolist()
movie_facebook_likes = data.movie_facebook_likes.values.tolist()
```

```
color
```

Write code to answer the following questions:

1. How many rows and columns are there?

```
data.shape
```

```
(5043, 28)
```

2. What is the longest movie? How long was it?

```
max_duration = max(duration)
max_duration_index = duration.index(max_duration)
max_duration_title = movie_title[max_duration_index]
print(f'The longest movie is {max_duration_title} and it is {max_duration} minutes long.')
```

```
The longest movie is Trapped              and it is 511.0 minutes long.
```

3. What was the most expensive movie? How much money was spent on it?

```
max_spend = max(budget)
max_spend_index = budget.index(max_spend)
max_spend_title = movie_title[max_spend_index]
print(f'The most expensive movie is {max_spend_title} and {max_spend} was spent on it')
```

```
The most expensive movie is The Host  and 12215500000.0 was spent on it
```

4. Which movie received the most Facebook likes?

```
most_likes = max(movie_facebook_likes)
most_likes_index = movie_facebook_likes.index(most_likes)
most_likes_title = movie_title[most_likes_index]
print(most_likes_title)
```

```
Interstellar
```

5. How many movies are PG-13?

```
number_of_pg_13_movies = 0
for rating in content_rating:
  if rating == 'PG-13':
    number_of_pg_13_movies += 1
print(number_of_pg_13_movies)
```

```
1461
```

Double-click (or enter) to edit

6. What percentages of the movies were in made in the USA?

```
percentage = (data['country'] == 'USA').sum() / len(data) * 100
print(f'{percentage:.2f}%')
```

```
75.49%
```

7. What percentages of the movies were in made in English?

```
percentage = (data['language'] == 'English').sum() / len(data) * 100
print(f'{percentage:.2f}%')
```

```
93.28%
```

8. How many movies were made after 2015?

```
print((data['title_year'] >= 2015).sum())
```

```
332
```

9. Sort the movies by their imdb_score. Print out the sorted list using string formatting.

```
by_score = data.sort_values(by='imdb_score')
for index, row in by_score.iterrows():
    movie = row['movie_title']
    print(f'{movie}')
```

Double-click (or enter) to edit

10. Print using string formatting, the list of PG-13 English movies that are Color.

```
pg_13_english_color = data[(data['content_rating'] == 'PG-13') & (data['language'] == 'English') & (data['color'] == 'Color')]
for index, row in pg_13_english_color.iterrows():
  movie = row['movie_title']
  print(f'{movie}')
```

```
Avatar
Pirates of the Caribbean: At World's End
Spectre
The Dark Knight Rises
John Carter
Spider-Man 3
Avengers: Age of Ultron
Batman v Superman: Dawn of Justice
Superman Returns
Quantum of Solace
Pirates of the Caribbean: Dead Man's Chest
The Lone Ranger
Man of Steel
The Avengers
Pirates of the Caribbean: On Stranger Tides
Men in Black 3
The Hobbit: The Battle of the Five Armies
The Amazing Spider-Man
Robin Hood
The Hobbit: The Desolation of Smaug
The Golden Compass
King Kong
Titanic
Captain America: Civil War
Battleship
Jurassic World
Skyfall
Spider-Man 2
Iron Man 3
X-Men: The Last Stand
Transformers: Revenge of the Fallen
Transformers: Age of Extinction
The Amazing Spider-Man 2
Green Lantern
Terminator Salvation
Furious 7
World War Z
X-Men: Days of Future Past
Star Trek Into Darkness
Jack the Giant Slayer
The Great Gatsby
Prince of Persia: The Sands of Time
Pacific Rim
```

```
Transformers: Dark of the Moon
Indiana Jones and the Kingdom of the Crystal Skull
Star Trek Beyond
Rush Hour 3
2012
Jupiter Ascending
The Legend of Tarzan
X-Men: Apocalypse
The Dark Knight
Iron Man
Wild Wild West
The Mummy: Tomb of the Dragon Emperor
Suicide Squad
Edge of Tomorrow
Waterworld
```