In [117…
```
from googleapiclient.discovery import build
import pandas as pd
import seaborn as sns
```

In [118…
```
api_key = 'AIzaSyCGPueDm14thYGJUa3ZZU2m1-K2Q25c9tE'
channel_ids = ['UCnz-ZXXER4jOvuED5trXfEA', #techTFQ
               'UCsvqVGtbbyHaMoevxPAq9Fg', #Simplilearn
               'UC7cs8q-gJRlGwj4A8OmCmXg', #Alex the Analyst
               'UC3rY5HOgbBvGmq7RnDfwF7A', #Rishabh Mishra
               'UC8butISFwT-Wl7EV0hUK0BQ', #freeCodeCamp.org
              ]
youtube = build('youtube', 'v3', developerKey = api_key)
```

# Function to get channel statistics

In [119…
```
def get_channel_stats(youtube, channel_ids):
    all_data = []
    request = youtube.channels().list(
                part='snippet, contentDetails, statistics',
                id= ','.join(channel_ids))
    response = request.execute()

    for i in range(len(response['items'])):

        data = dict(Channel_name = response['items'][i]['snippet']['title'],
                    Subscribers = response['items'][i]['statistics']['subscriber
                    Views = response['items'][i]['statistics']['viewCount'],
                    Total_videos = response['items'][i]['statistics']['videoCoun
                    playlist_id = response['items'][i]['contentDetails']['relate
        all_data.append(data)

    return all_data
```

In [120…
```
channel_statistics = get_channel_stats(youtube, channel_ids)
```

In [121…
```
channel_data = pd.DataFrame(channel_statistics)
```

In [122…
```
channel_data
```

Out[122…

| | Channel_name | Subscribers | Views | Total_videos | playlist_i |
|---|---|---|---|---|---|
| **0** | Rishabh Mishra | 183000 | 10437410 | 82 | UU3rY5HOgbBvGmq7RnDfwF7A |
| **1** | techTFQ | 260000 | 13785057 | 101 | UUnz-ZXXER4jOvuED5trXfEA |
| **2** | Simplilearn | 3600000 | 325316900 | 7104 | UUsvqVGtbbyHaMoevxPAq9Fg |
| **3** | Alex The Analyst | 666000 | 28455277 | 275 | UU7cs8q-gJRlGwj4A8OmCmXg |
| **4** | freeCodeCamp.org | 8910000 | 648911656 | 1566 | UU8butISFwT-Wl7EV0hUK0BQ |

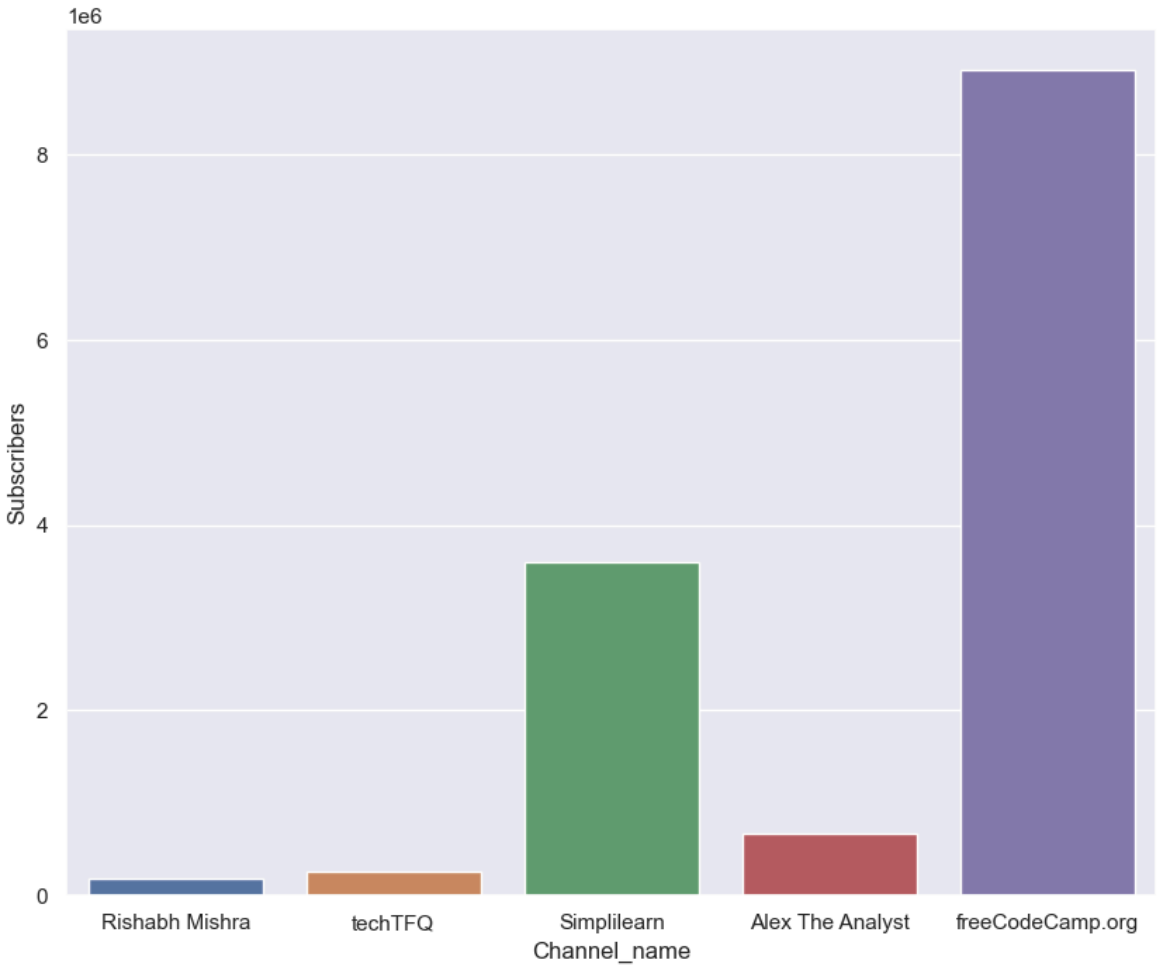
In [123…
```
channel_data.dtypes
```

Out[123…
```
Channel_name    object
Subscribers     object
Views           object
Total_videos    object
playlist_id     object
dtype: object
```

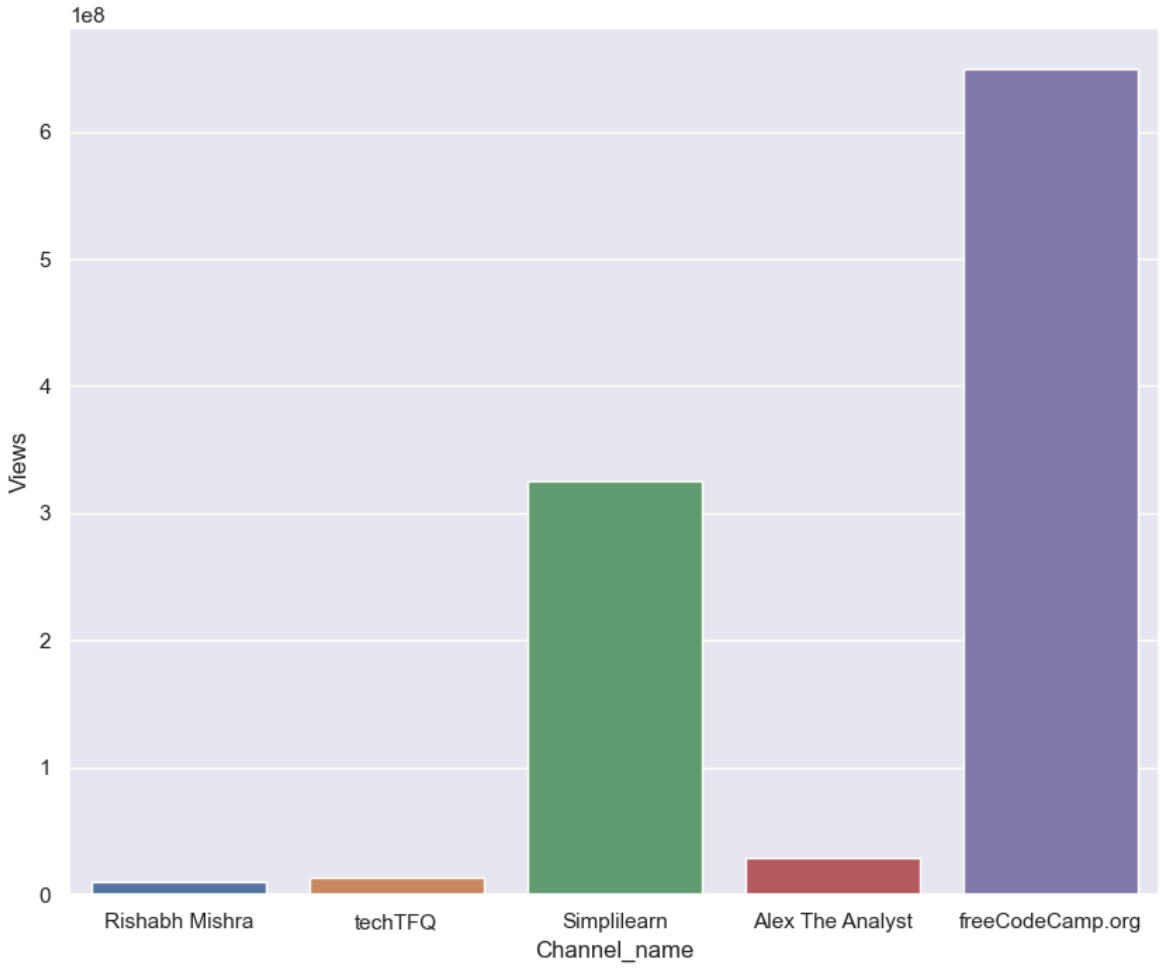
In [124…
```
channel_data['Subscribers'] = pd.to_numeric(channel_data['Subscribers'])
channel_data['Views'] = pd.to_numeric(channel_data['Views'])
channel_data['Total_videos'] = pd.to_numeric(channel_data['Total_videos'])
channel_data.dtypes
```

Out[124…
```
Channel_name    object
Subscribers      int64
Views            int64
Total_videos     int64
playlist_id     object
dtype: object
```

In [125…
```
sns.set(rc={'figure.figsize':(10,8)})
ax = sns.barplot(x='Channel_name', y='Subscribers', data=channel_data)
```

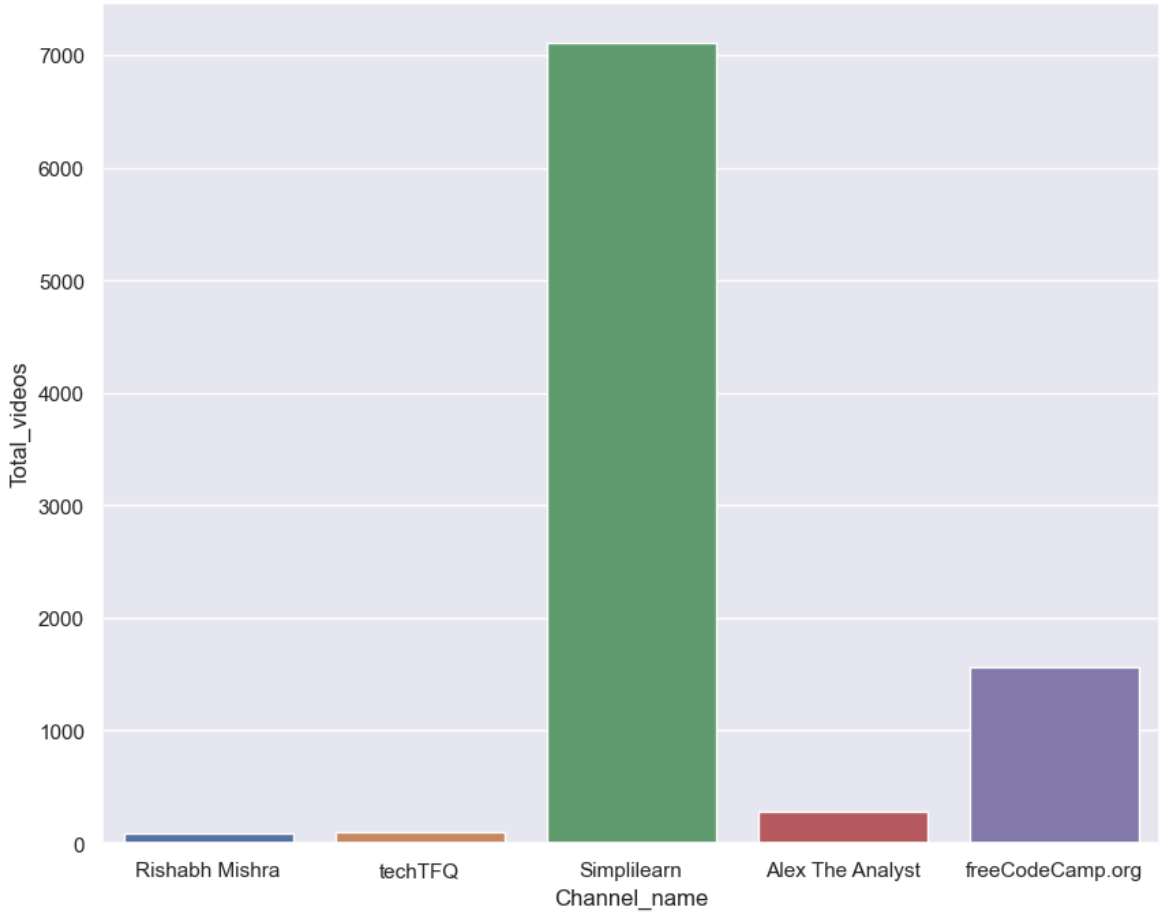



In [126…
```
sns.set(rc={'figure.figsize':(10,8)})
ax = sns.barplot(x='Channel_name', y='Views', data=channel_data)
```




In [127…

```
sns.set(rc={'figure.figsize':(10,8)})
ax = sns.barplot(x='Channel_name', y='Total_videos', data=channel_data)
```




# Function to get video ids

In [128...
```
channel_data
```

Out[128...

| | Channel_name | Subscribers | Views | Total_videos | playlist_id |
|---|---|---|---|---|---|
| 0 | Rishabh Mishra | 183000 | 10437410 | 82 | UU3rY5HOgbBvGmq7RnDfwF7A |
| 1 | techTFQ | 260000 | 13785057 | 101 | UUnz-ZXXER4jOvuED5trXfEA |
| 2 | Simplilearn | 3600000 | 325316900 | 7104 | UUsvqVGtbbyHaMoevxPAq9Fg |
| 3 | Alex The Analyst | 666000 | 28455277 | 275 | UU7cs8q-gJRlGwj4A8OmCmXg |
| 4 | freeCodeCamp.org | 8910000 | 648911656 | 1566 | UU8butISFwT-Wl7EV0hUK0BC |

In [129...
```
playlist_id = channel_data.loc[channel_data['Channel_name']=='techTFQ', 'playlis
```

In [130...
```
def get_video_ids(youtube, playlist_id):

    request = youtube.playlistItems().list(
                part = 'contentDetails',
                playlistId = playlist_id,
                maxResults = 50)
    response = request.execute()

    video_ids = []
```

```
    for i in range(len(response['items'])):
        video_ids.append(response['items'][i]['contentDetails']['videoId'])

    next_page_token = response.get('nextPageToken')
    more_pages = True

    while more_pages:
        if next_page_token is None:
            more_pages = False
        else:
            request = youtube.playlistItems().list(
                        part = 'contentDetails',
                        playlistId = playlist_id,
                        maxResults = 50,
                        pageToken = next_page_token)
            response = request.execute()

            for i in range(len(response['items'])):
                video_ids.append(response['items'][i]['contentDetails']['videoId

            next_page_token = response.get('nextPageToken')

    return video_ids
```

In [131…

```
video_ids = get_video_ids(youtube, playlist_id)
```

In [132…

```
video_ids
```

Out[132…

```
['AZ29DXaJ1Ts',
 'ZML_EJrBhnY',
 '6lI0q2DV8DY',
 'nzJJP-uDIZc',
 'BNmoCYk58mU',
 'W5Wvyc9Pass',
 'oedv5lR3w_g',
 'HiscSRv7zWk',
 'PLN28d0PoFU',
 'GxmrInUIMAE',
 'D0-Qy7yk5TQ',
 'GHtX0QXfi6g',
 '0QcEqFrhb_Y',
 'smztq8sRAhk',
 '7skZzocEU6c',
 'LZGaRcDxj8I',
 'rBPQ5fg_kiY',
 'hvwltYazuQo',
 'a-hFbr-4VQQ',
 'pMNcPLc9Z7c',
 'zZKb8FQRShs',
 'jS5_hjFgfzA',
 '6UAU79FNBjQ',
 'ZwFfiadQB3k',
 'Det4ZjBSe3M',
 'xUsY2jWQa1w',
 'ueOUSjdAZY8',
 '90iK6gGvG_g',
 'hsaPfEvForM',
 'jb8XlF2dkoY',
 'WhkNQ3g0U64',
 '_suB8xV9aPc',
 'dWHSt0BVlv0',
 'xJVWL7eMir0',
 'h48xzQR3wNQ',
 'S5gX-LLAZIM',
 'LNlzx-YX8rI',
 'WzkBZ0byoYE',
 'weCZ1WynbMI',
 '3dOxGYkpVbE',
 '9dLXZrw6nac',
 'i3xK7Nc414Q',
 'H7YMumanHBA',
 '4p-G7fGhqRk',
 'yLR1w4tZ36I',
 '-DiOp9vAEuM',
 'O1o9m9T1c3k',
 '7hZYh9qXxe4',
 'aE623ff7zkM',
 'eXJGjbDo5KY',
 'O52sweYbCyI',
 'cLSxasHg9WY',
 'l6XhSFAyvO0',
 'nJIEIzF7tDw',
 'RehbnzKHS28',
 '0OQJDd3QqQM',
 'V6KPbGLYL4A',
 'OIqm909GYYo',
 'xN2PRAd8IZQ',
 'AK7_m-aThfw',
```

```
'CYszyA2Xzdg',
'wT9ICgxRPYY',
'XruOBp7yPXU',
'SwSbnmqk3zY',
'8p_OzqIJ_p4',
'0Hhqf8L-b_0',
'M2NzvnfS-hI',
'QNfnuK-1YYY',
'PuBadaR8qC4',
'FNYdBLwZ6cE',
'zAmJPdZu8Rg',
'HJAwAKwFX-A',
'kY5HtrkjSj0',
'LCVSmkyB4v8',
'6x7vHXfRAP0',
'-DrSbc8B0WI',
'gsa1oFn9n0M',
'Ww71knvhQ-s',
'Jsnw6HLASZA',
'V_BozMwoYe4',
'0wjPsKDrYt8',
'1-z9ptlBar4',
'35dXEQJkFE8',
'jgNB4GN1UaQ',
'fhxByMe0mq8',
'5bwpXLHzZRo',
'UzOnFDmoJ9w',
'HNChkuE6HyA',
'2gFqUWO-AWM',
'NvdSKgQcyuc',
'BBb_duZIusU',
'PRGkYivK2xI',
'M323OL6K5vs',
'i7BjHjRafU8',
'r2asdRpr3uw',
'Hl4NZB1XR9c',
'1aybOgni7lI',
'j09EQ-xlh88',
'7nzTDrio7vY',
'J-uCLHTIWZ4',
'_BMPh5M4BIY']
```

# Function to get video details

In [133…

```
def get_video_details(youtube, video_ids):
    all_video_stats = []
    for i in range(0, len(video_ids), 50):
        request = youtube.videos().list(
                    part='snippet,statistics',
                    id=','.join(video_ids[i:i+50]))
        response = request.execute()

        for video in response['items']:
            video_stats = dict(Title = video['snippet']['title'],
                               Published_date = video['snippet']['publishedAt'],
                               Views = video['statistics']['viewCount'],
                               Likes = video['statistics']['likeCount'],
                               Favorite = video['statistics']['favoriteCount'],
                               Comments = video['statistics']['commentCount']
```

```
                                    )
                all_video_stats.append(video_stats)

    return all_video_stats
```

In [134…
```
video_details = get_video_details(youtube, video_ids)
```

In [135…
```
video_data = pd.DataFrame(video_details)
```

In [136…
```
video_data['Published_date'] = pd.to_datetime(video_data['Published_date']).dt.d
video_data['Views'] = pd.to_numeric(video_data['Views'])
video_data['Likes'] = pd.to_numeric(video_data['Likes'])
video_data['Favorite'] = pd.to_numeric(video_data['Favorite'])
video_data['Comments'] = pd.to_numeric(video_data['Comments'])
video_data
```

Out[136…

| | Title | Published_date | Views | Likes | Favorite | Comments |
|---|---|---|---|---|---|---|
| **0** | SQL Project \| SQL Case Study to SOLVE and PRAC... | 2024-01-09 | 12703 | 859 | 0 | 81 |
| **1** | Top 10 SQL Interview Queries \| Popular SQL Que... | 2023-11-22 | 67662 | 2063 | 0 | 123 |
| **2** | SQL Cricket Match Problem \| Solving SQL Interv... | 2023-10-18 | 19811 | 840 | 0 | 84 |
| **3** | Solving an SQL Interview Problem \| Find Child ... | 2023-10-04 | 25092 | 807 | 0 | 61 |
| **4** | From 16 years of CAREER GAP To becoming a Soft... | 2023-09-21 | 14554 | 403 | 0 | 81 |
| **...** | ... | ... | ... | ... | ... | ... |
| **96** | How to install PostgreSQL on Mac OS \| Install ... | 2020-11-16 | 95044 | 864 | 0 | 112 |
| **97** | Learn What is Database \| Types of Database \| DBMS | 2020-08-30 | 293473 | 4940 | 0 | 145 |
| **98** | Do you need a Smartwatch | 2020-07-12 | 11514 | 185 | 0 | 43 |
| **99** | MacBook Pro 13 2020 One Week Later Review | 2020-06-29 | 1456 | 73 | 0 | 20 |
| **100** | MacBook Pro 13 2020 Unboxing | 2020-06-22 | 2780 | 95 | 0 | 29 |

101 rows × 6 columns

In [137…
```
top10_videos = video_data.sort_values(by='Views', ascending=False).head(10)
```

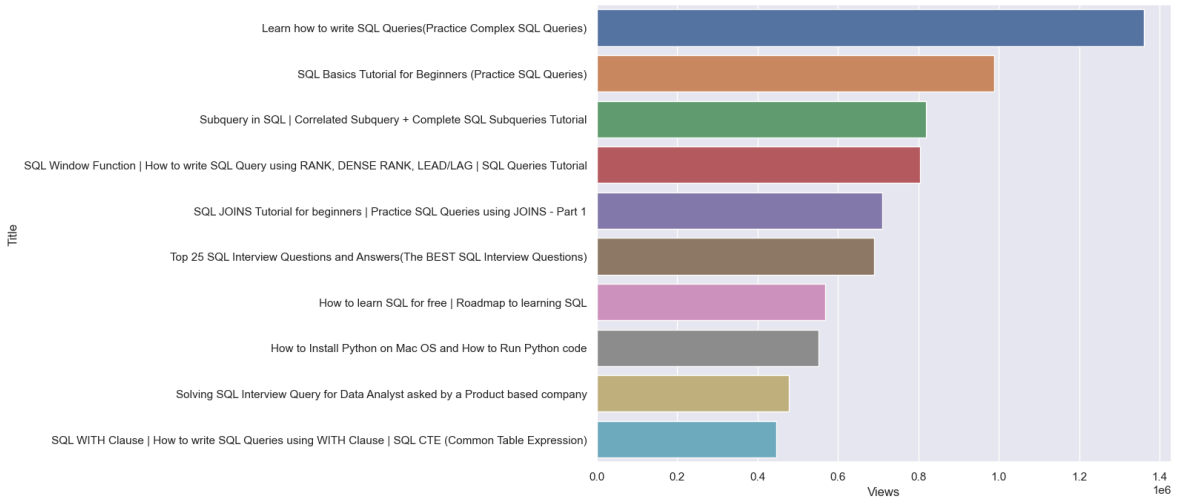
In [138…
```
top10_videos
```

Out[138...

| | Title | Published_date | Views | Likes | Favorite | Comments |
|---|---|---|---|---|---|---|
| **69** | Learn how to write SQL Queries(Practice Comple... | 2021-08-22 | 1360234 | 30731 | 0 | 1073 |
| **95** | SQL Basics Tutorial for Beginners (Practice SQ... | 2020-12-11 | 988962 | 21323 | 0 | 647 |
| **53** | Subquery in SQL \| Correlated Subquery + Comple... | 2022-02-01 | 819127 | 18734 | 0 | 1099 |
| **77** | SQL Window Function \| How to write SQL Query u... | 2021-05-21 | 803998 | 24951 | 0 | 1299 |
| **55** | SQL JOINS Tutorial for beginners \| Practice SQ... | 2022-01-06 | 710806 | 16751 | 0 | 1028 |
| **59** | Top 25 SQL Interview Questions and Answers(The... | 2021-12-01 | 690181 | 22931 | 0 | 571 |
| **18** | How to learn SQL for free \| Roadmap to learnin... | 2022-12-28 | 568754 | 16478 | 0 | 494 |
| **92** | How to Install Python on Mac OS and How to Run... | 2021-01-11 | 551839 | 7082 | 0 | 374 |
| **21** | Solving SQL Interview Query for Data Analyst a... | 2022-12-07 | 477025 | 10669 | 0 | 323 |
| **67** | SQL WITH Clause \| How to write SQL Queries usi... | 2021-09-05 | 446175 | 10863 | 0 | 611 |

In [139...

```
ax1 = sns.barplot(x='Views', y='Title', data=top10_videos)
```




In [140...

```
video_data
```

Out[140…

| | Title | Published_date | Views | Likes | Favorite | Comments |
|---|---|---|---|---|---|---|
| **0** | SQL Project \| SQL Case Study to SOLVE and PRAC... | 2024-01-09 | 12703 | 859 | 0 | 81 |
| **1** | Top 10 SQL Interview Queries \| Popular SQL Que... | 2023-11-22 | 67662 | 2063 | 0 | 123 |
| **2** | SQL Cricket Match Problem \| Solving SQL Interv... | 2023-10-18 | 19811 | 840 | 0 | 84 |
| **3** | Solving an SQL Interview Problem \| Find Child ... | 2023-10-04 | 25092 | 807 | 0 | 61 |
| **4** | From 16 years of CAREER GAP To becoming a Soft... | 2023-09-21 | 14554 | 403 | 0 | 81 |
| **...** | ... | ... | ... | ... | ... | ... |
| **96** | How to install PostgreSQL on Mac OS \| Install ... | 2020-11-16 | 95044 | 864 | 0 | 112 |
| **97** | Learn What is Database \| Types of Database \| DBMS | 2020-08-30 | 293473 | 4940 | 0 | 145 |
| **98** | Do you need a Smartwatch | 2020-07-12 | 11514 | 185 | 0 | 43 |
| **99** | MacBook Pro 13 2020 One Week Later Review | 2020-06-29 | 1456 | 73 | 0 | 20 |
| **100** | MacBook Pro 13 2020 Unboxing | 2020-06-22 | 2780 | 95 | 0 | 29 |

101 rows × 6 columns

In [141…
```
video_data['Month'] = pd.to_datetime(video_data['Published_date']).dt.strftime('
```

In [142…
```
video_data
```

Out[142...

| | Title | Published_date | Views | Likes | Favorite | Comments | Month |
|---|---|---|---|---|---|---|---|
| **0** | SQL Project \| SQL Case Study to SOLVE and PRAC... | 2024-01-09 | 12703 | 859 | 0 | 81 | Jan |
| **1** | Top 10 SQL Interview Queries \| Popular SQL Que... | 2023-11-22 | 67662 | 2063 | 0 | 123 | Nov |
| **2** | SQL Cricket Match Problem \| Solving SQL Interv... | 2023-10-18 | 19811 | 840 | 0 | 84 | Oct |
| **3** | Solving an SQL Interview Problem \| Find Child ... | 2023-10-04 | 25092 | 807 | 0 | 61 | Oct |
| **4** | From 16 years of CAREER GAP To becoming a Soft... | 2023-09-21 | 14554 | 403 | 0 | 81 | Sep |
| **...** | ... | ... | ... | ... | ... | ... | ... |
| **96** | How to install PostgreSQL on Mac OS \| Install ... | 2020-11-16 | 95044 | 864 | 0 | 112 | Nov |
| **97** | Learn What is Database \| Types of Database \| DBMS | 2020-08-30 | 293473 | 4940 | 0 | 145 | Aug |
| **98** | Do you need a Smartwatch | 2020-07-12 | 11514 | 185 | 0 | 43 | Jul |
| **99** | MacBook Pro 13 2020 One Week Later Review | 2020-06-29 | 1456 | 73 | 0 | 20 | Jun |
| **100** | MacBook Pro 13 2020 Unboxing | 2020-06-22 | 2780 | 95 | 0 | 29 | Jun |

101 rows × 7 columns

In [145...
```
videos_per_month = video_data.groupby('Month', as_index=False).size()
```

In [146...
```
videos_per_month
```

Out[146…

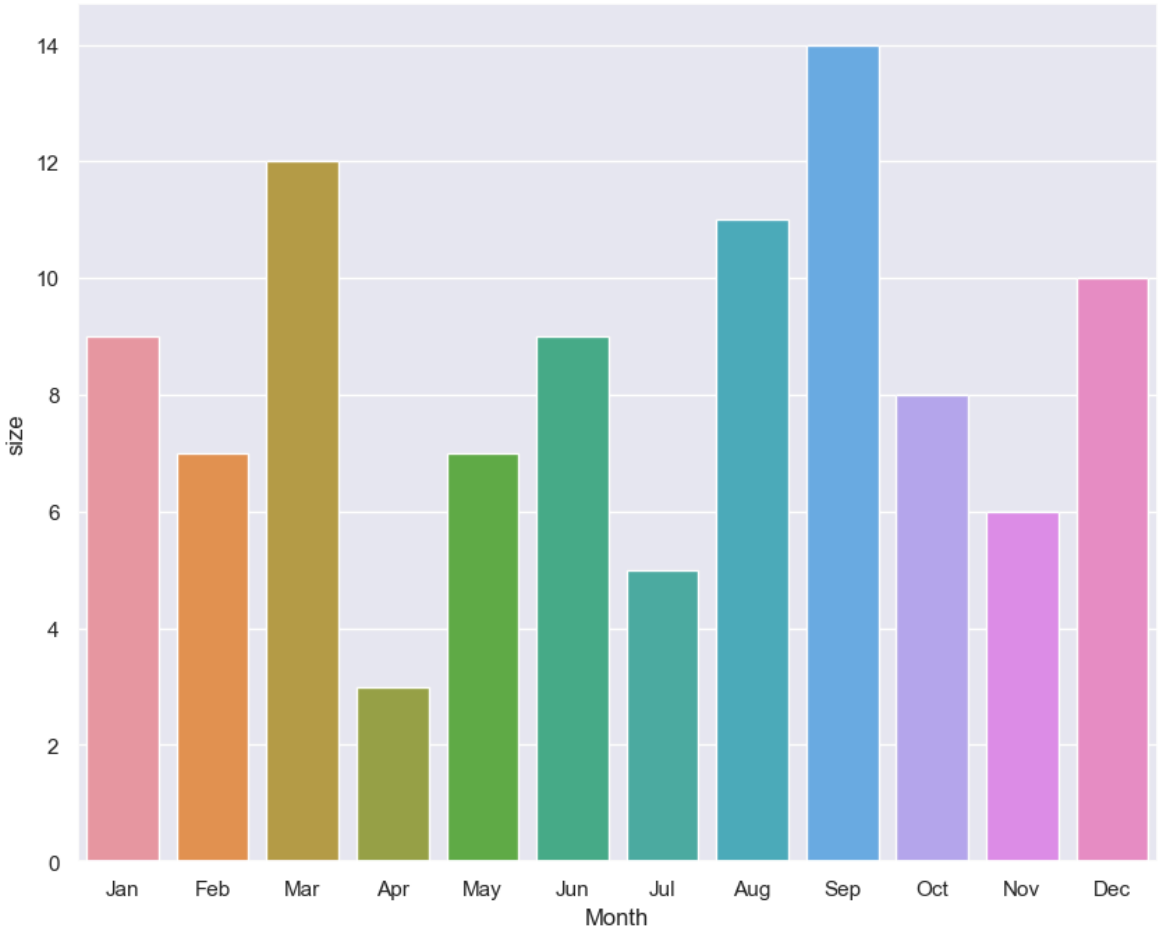
| | Month | size |
|---|---|---|
| **0** | Apr | 3 |
| **1** | Aug | 11 |
| **2** | Dec | 10 |
| **3** | Feb | 7 |
| **4** | Jan | 9 |
| **5** | Jul | 5 |
| **6** | Jun | 9 |
| **7** | Mar | 12 |
| **8** | May | 7 |
| **9** | Nov | 6 |
| **10** | Oct | 8 |
| **11** | Sep | 14 |

In [147…
```
sort_order = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oc
```

In [148…
```
videos_per_month.index = pd.CategoricalIndex(videos_per_month['Month'], categori
```

In [150…
```
videos_per_month = videos_per_month.sort_index()
```

In [151…
```
ax2 = sns.barplot(x='Month', y='size', data=videos_per_month)
```


14
12
10
8
6
4
2
0
size
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

In [ ]: