```
In [52]: import pandas as pd
import numpy as np
import seaborn as sns

In [53]: udemy=pd.read_csv(r"E:\archive (5)\udemy_courses.csv",parse_dates=["published_time:
In [54]: udemy
```

0, 1.01 1 111				adding obardo analysis				
Out[54]:		course_id	course_title	url	is_paid	price	num_subscribers	nι
	0	1070968	Ultimate Investment Banking Course	https://www.udemy.com/ultimate- investment-bank	True	200	2147	
	1	1113822	Complete GST Course & Certification - Grow You	https://www.udemy.com/goods- and-services-tax/	True	75	2792	
	2	1006314	Financial Modeling for Business Analysts and C	https://www.udemy.com/financial- modeling-for-b	True	45	2174	
	3	1210588	Beginner to Pro - Financial Analysis in Excel	https://www.udemy.com/complete- excel-finance-c	True	95	2451	
	4	1011058	How To Maximize Your Profits Trading Options	https://www.udemy.com/how-to- maximize-your-pro	True	200	1276	
	•••							
	3673	775618	Learn jQuery from Scratch - Master of JavaScri	https://www.udemy.com/easy- jquery-for-beginner	True	100	1040	
	3674	1088178	How To Design A WordPress Website With No Codi	https://www.udemy.com/how-to- make-a-wordpress	True	25	306	
	3675	635248	Learn and Build using Polymer	https://www.udemy.com/learn- and-build-using-po	True	40	513	
	3676	905096	CSS Animations: Create Amazing Effects on Your	https://www.udemy.com/css- animations-create-am	True	50	300	
	3677	297602	Using MODX CMS to Build Websites: A Beginner's	https://www.udemy.com/using- modx-cms-to-build	True	45	901	

3678 rows × 12 columns

In [55]:	udemy.dtypes		
Out[55]:	course_id	int64	
out[55].	course_title	object	
	url	object	
	is_paid	bool	
	price	int64	
	num_subscribers	int64	
	num_reviews	int64	
	num_lectures	int64	
	level	object	
	content_duration	float64	
	<pre>published_timestamp</pre>	<pre>datetime64[ns, UTC]</pre>	
	subject	object	
	dtype: object		

### 1. display top 10 rows of the dataset

```
In [56]: udemy.head(n=10)
```

Out[56]: course\_id course\_title url is\_paid price num\_subscribers num\_i Ultimate Investment https://www.udemy.com/ultimate-0 1070968 200 2147 True investment-bank... Banking Course Complete **GST Course** https://www.udemy.com/goods-1113822 75 2792 True Certification and-services-tax/ - Grow You... **Financial** Modeling https://www.udemy.com/financial-1006314 for Business 2174 True 45 modeling-for-b... **Analysts** and C... Beginner to Pro https://www.udemy.com/complete-1210588 **Financial** 95 2451 True excel-finance-c... Analysis in Excel ... How To Maximize https://www.udemy.com/how-to-1011058 **Your Profits** True 200 1276 maximize-your-pro... Trading Options Trading Penny https://www.udemy.com/trading-5 192870 Stocks: A True 150 9221 penny-stocks-a-g... Guide for All Levels I... Investing And Trading https://www.udemy.com/investing-6 739964 True 65 1540 For and-trading-fo... Beginners: Mastering... Trading Stock Chart https://www.udemy.com/trading-7 403100 Patterns For True 95 2917 chart-patterns-f... Immediate, Ex... **Options** Trading 3: https://www.udemy.com/day-8 476268 Advanced 195 5172 True trading-stock-option... Stock Profit and ... The Only Investment https://www.udemy.com/the-only-1167710 Strategy True 200 827 investment-stra... You Need For Your...

#### 2. display last 10 rows of the dataset

In [57]:	udemy	.tail(n=1	.0)				
Out[57]:		course_id	course_title	url	is_paid	price	nı
	3668	270976	A how to guide in HTML	https://www.udemy.com/a-how-to-guide-in-html/	False	0	
	3669	679992	Building Better APIs with GraphQL	https://www.udemy.com/building-better-apis-wit	True	50	
	3670	330900	Learn Grunt with Examples: Automate Your Front	https://www.udemy.com/learn-grunt-automate-you	True	20	
	3671	667122	Build A Stock Downloader With Visual Studio 20	https://www.udemy.com/csharpyahoostockdownloader/	True	20	
	3672	865438	jQuery UI in Action: Build 5 jQuery UI Projects	https://www.udemy.com/jquery-ui-practical-buil	True	150	
	3673	775618	Learn jQuery from Scratch - Master of JavaScri	https://www.udemy.com/easy-jquery-for-beginner	True	100	
	3674	1088178	How To Design A WordPress Website With No Codi	https://www.udemy.com/how-to-make-a-wordpress	True	25	
	3675	635248	Learn and Build using Polymer	https://www.udemy.com/learn-and-build-using-po	True	40	
	3676	905096	CSS Animations: Create Amazing Effects on Your	https://www.udemy.com/css-animations-create-am	True	50	
	3677	297602	Using MODX CMS to Build Websites: A Beginner's	https://www.udemy.com/using-modx-cms-to-build	True	45	
							•

### 3. find the shape of the dataset

```
In [58]: udemy.shape
Out[58]: (3678, 12)

In [59]: print("no of rows :",udemy.shape[0])
    print("no of columns :",udemy.shape[1])

    no of rows : 3678
    no of columns : 12
```

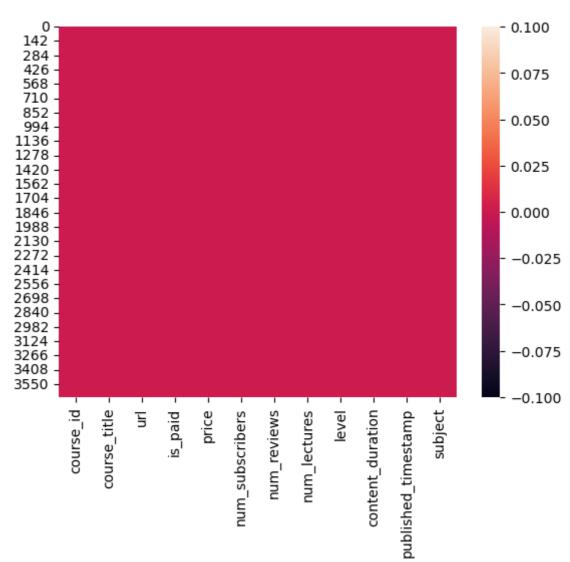
#### 4. getting info about the dataset

```
In [60]: udemy.info()
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 3678 entries, 0 to 3677
        Data columns (total 12 columns):
                                 Non-Null Count Dtype
             Column
            -----
                                 -----
            course_id
                                                int64
                                 3678 non-null
                                3678 non-null object
         1
             course_title
            url
                                3678 non-null
                                                object
            is_paid
                                3678 non-null
                                                bool
                                 3678 non-null
            price
                                                int64
                                3678 non-null
                                                int64
            num_subscribers
            num reviews
                                 3678 non-null
                                                int64
             num_lectures
                                 3678 non-null int64
             level
                                 3678 non-null object
             content_duration
                                 3678 non-null float64
         10 published_timestamp 3678 non-null
                                                datetime64[ns, UTC]
         11 subject
                                 3678 non-null
                                                object
         dtypes: bool(1), datetime64[ns, UTC](1), float64(1), int64(5), object(4)
        memory usage: 319.8+ KB
```

#### 5. check null values in the dataset

```
In [61]: udemy.isnull().sum()
                                  0
         course_id
Out[61]:
         course title
          url
         is paid
         price
         num_subscribers
         num reviews
         num lectures
         level
                                  0
          content_duration
                                  0
          published_timestamp
                                  0
          subject
         dtype: int64
In [62]:
          udemy.isnull().values.any()
Out[62]:
In [63]:
          sns.heatmap(udemy.isnull())
```

Out[63]: <Axes: >



## 6.check for any duplicate data and drop then

```
In [64]: dup=len(udemy.duplicated())
    print(dup)

3678

In [65]: udemy=udemy.drop_duplicates()
    udemy
```

Out[65]:		course_id	course_title	url	is_paid	price	num_subscribers	nι
	0	1070968	Ultimate Investment Banking Course	https://www.udemy.com/ultimate- investment-bank	True	200	2147	
	1	1113822	Complete GST Course & Certification - Grow You	https://www.udemy.com/goods- and-services-tax/	True	75	2792	
	2	1006314	Financial Modeling for Business Analysts and C	https://www.udemy.com/financial- modeling-for-b	True	45	2174	
	3	1210588	Beginner to Pro - Financial Analysis in Excel	https://www.udemy.com/complete- excel-finance-c	True	95	2451	
	4	1011058	How To Maximize Your Profits Trading Options	https://www.udemy.com/how-to- maximize-your-pro	True	200	1276	
	•••				•••			
	3673	775618	Learn jQuery from Scratch - Master of JavaScri	https://www.udemy.com/easy- jquery-for-beginner	True	100	1040	
	3674	1088178	How To Design A WordPress Website With No Codi	https://www.udemy.com/how-to- make-a-wordpress	True	25	306	
	3675	635248	Learn and Build using Polymer	https://www.udemy.com/learn- and-build-using-po	True	40	513	
	3676	905096	CSS Animations: Create Amazing Effects on Your	https://www.udemy.com/css- animations-create-am	True	50	300	
	3677	297602	Using MODX CMS to Build Websites: A Beginner's	https://www.udemy.com/using- modx-cms-to-build	True	45	901	

3672 rows × 12 columns

```
In [66]: udemy.duplicated().any()
Out[66]: False
```

#### 7.find out number of courses per subject

```
In [67]:
         udemy.columns
         Index(['course_id', 'course_title', 'url', 'is_paid', 'price',
Out[67]:
                 'num_subscribers', 'num_reviews', 'num_lectures', 'level',
                 'content_duration', 'published_timestamp', 'subject'],
               dtype='object')
         udemy["subject"].value_counts()
In [68]:
         Web Development
                                 1199
Out[68]:
         Business Finance
                                 1191
         Musical Instruments
                                 680
         Graphic Design
         Name: subject, dtype: int64
```

### 8.For which levels udemy course providing the courses

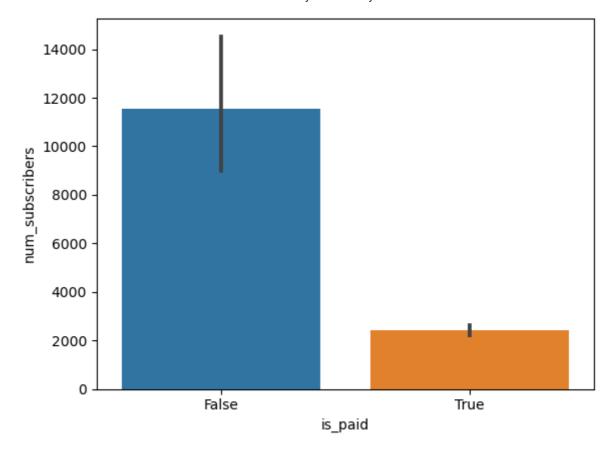
```
udemy.columns
In [69]:
         Index(['course_id', 'course_title', 'url', 'is_paid', 'price',
Out[69]:
                 'num subscribers', 'num reviews', 'num lectures', 'level',
                'content_duration', 'published_timestamp', 'subject'],
               dtype='object')
         udemy["level"].value_counts()
In [70]:
         All Levels
                                1925
Out[70]:
         Beginner Level
                                1268
         Intermediate Level
                                 421
         Expert Level
         Name: level, dtype: int64
```

### 9.display the count of paid and free courses

## 10. Which Course Has More Lectures (Free or Paid)?

T- [02].	udomi	anounbu("ic n	sid"\ moss	·/\						
In [83]:	udenly.	emy.groupby("is_paid").mean()								
	ning: a futur or sele	sers\Ravishankar\AppData\Local\Temp\ipykernel_15040\2960418490.py:1: FutureWar: The default value of numeric_only in DataFrameGroupBy.mean is deprecated. In ture version, numeric_only will default to False. Either specify numeric_only elect only columns which should be valid for the function.  emy.groupby("is_paid").mean()								
Out[83]:		course_id	price	num_subscribers	num_reviews	num_lectures	level	content_du		
	is_paid									
	False	691446.970968	0.000000	11533.951613	425.929032	21.416129	NaN	2.2		
	True	674463.946163	72.198096	2421.270077	131.516359	41.866746	NaN	4.2		
4								<b>•</b>		

### 11. Which Courses Have A Higher Number of Subscribers Free or Paid?



#### 12.find the most popular course title

#### 13. Display 10 Most Popular Courses As Per Number of Subscribers

```
Learn HTML5 Programming From Scratch
           2827
Out[137]:
           3032
                                      Coding for Entrepreneurs Basic
           3230
                                          The Web Developer Bootcamp
           2783
                  Build Your First Website in 1 Week with HTML5 ...
           3232
                               The Complete Web Developer Course 2.0
           1896
                               Free Beginner Electric Guitar Lessons
           2589
                  Web Design for Web Developers: Build Beautiful...
           2619
                              Learn Javascript & JQuery From Scratch
           3289
                   Practical PHP: Master the Basics and Code Dyna...
           3247
                           JavaScript: Understanding the Weird Parts
           Name: course_title, dtype: object
```

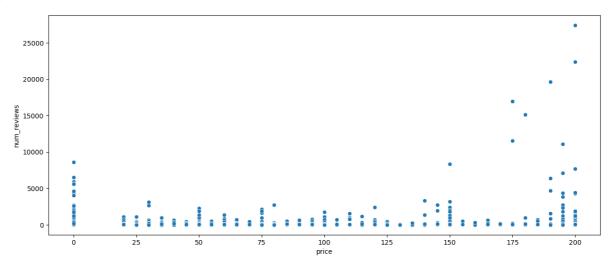
## 14. Find The Course Which Is Having The Highest Number of Reviews.

```
In [132...
           udemy.columns
           Index(['course_id', 'course_title', 'url', 'is_paid', 'price',
Out[132]:
                  'num_subscribers', 'num_reviews', 'num_lectures', 'level',
                  'content_duration', 'published_timestamp', 'subject'],
                 dtype='object')
           udemy["num_reviews"]
In [133...
                    23
Out[133]:
                   923
           2
                    74
           3
                    11
                    45
           3673
                    14
           3674
                     3
           3675
                   169
           3676
                    31
           3677
           Name: num reviews, Length: 3678, dtype: int64
           top_reviews=udemy.sort_values(by="num_reviews",ascending=False).head(n=10)["course
In [136...
           top reviews
           3230
                                           The Web Developer Bootcamp
Out[136]:
           3232
                               The Complete Web Developer Course 2.0
           3204
                   Angular 4 (formerly Angular 2) - The Complete ...
           3247
                           JavaScript: Understanding the Weird Parts
           3254
                                              Modern React with Redux
           3246
                                       Learn and Understand AngularJS
           3251
                                          Learn and Understand NodeJS
           2827
                                Learn HTML5 Programming From Scratch
                   Angular 2 with TypeScript for Beginners: The P...
           3228
                   Pianoforall - Incredible New Way To Learn Pian...
           1979
           Name: course_title, dtype: object
```

### 15.Does Price Affect the Number of Reviews?

```
import matplotlib.pyplot as plt
plt.figure(figsize=(15,6))
sns.scatterplot(x="price",y="num_reviews",data=udemy)
```

Out[141]: <Axes: xlabel='price', ylabel='num\_reviews'>



# 16.Find Total Number of Courses Related To Python

```
In [145... len(udemy[udemy["course_title"].str.contains("python",case=False)])
Out[145]:
In [146... udemy[udemy["course_title"].str.contains("python",case=False)]
```

Out[146]:		course_id	course_title	url	is_paid	price	num_subscriber
	14	1196544	Python Algo Trading: Sentiment Trading with News	https://www.udemy.com/hedge-fund- strategy-trad	True	200	294
	30	1170894	Python Algo Stock Trading: Automate Your Trading!	https://www.udemy.com/algorithmic- stock-tradin	True	95	116!
	41	1035472	Python for Finance: Investment Fundamentals &	https://www.udemy.com/python-for- finance-inves	True	195	381
	147	1070886	Python Algo Trading: FX Trading with Oanda	https://www.udemy.com/python- algo-trading-fx-t	True	200	45:
	334	815482	Stock Technical Analysis with Python	https://www.udemy.com/stock- technical-analysis	True	50	40!
	536	529828	Python for Trading & Investing	https://www.udemy.com/python-for- trading-inves	True	95	638
	762	1088656	Quantitative Trading Analysis with Python	https://www.udemy.com/quantitative- trading-ana	True	50	25(
	863	902888	Investment Portfolio Analysis with Python	https://www.udemy.com/investment- portfolio-ana	True	50	20!
	1682	546848	Learn to code in Python and learn Adobe Photos	https://www.udemy.com/learn-to- code-in-python	True	50	1132
	2497	16646	Web Programming with Python	https://www.udemy.com/web- programming-with-pyt	True	50	35267
	2528	391546	Learn Python and Django: Payment Processing	https://www.udemy.com/learn- django-code-accept	True	70	17714
	2553	938560	The Complete Ethical Hacking Course 2.0: Pytho	https://www.udemy.com/penetration- testing-ethi	True	195	782
	2570	47963	Coding for Entrepreneurs: Learn Python, Django	https://www.udemy.com/coding-for- entrepreneurs/	True	195	2341;

	course_id	course_title	url	is_paid	price	num_subscriber
2681	477702	Python for Beginners: Python Programming Langu	https://www.udemy.com/python- course/	True	150	615:
2960	270808	Projects in Django and Python	https://www.udemy.com/projects-in- django-and-p	True	60	176₄
3133	574082	Web Scraping with Python, Ruby & import. io	https://www.udemy.com/web- scraping-with-python	True	75	97:
3138	631128	Complete Python Web Course: Build 8 Python Web	https://www.udemy.com/the- complete-python-web	True	110	7489
3160	368340	Professional Python Web Development Using Flask	https://www.udemy.com/python- flask-course/	True	120	342(
3192	1035940	Professional RESTful API Design using Python F	https://www.udemy.com/restful-api- flask-course/	True	120	578
3194	1063722	Learn Python Django - A Hands-On Course	https://www.udemy.com/learn- python-django-a-ha	True	50	1339
3197	76052	Try Django 1.9   Build a Blog and Learn Python	https://www.udemy.com/try-django/	True	50	740
3200	822444	Python and Django Full Stack Web Developer Boo	https://www.udemy.com/python-and- django-full-s	True	200	11837
3203	970600	REST APIs with Flask and Python	https://www.udemy.com/rest-api- flask-and-python/	True	110	515 <sup>.</sup>
3284	599504	Advanced Scalable Python Web Development Using	https://www.udemy.com/advanced- python-flask/	True	120	1299
3326	186096	Core: A Web App Reference Guide for Django, Py	https://www.udemy.com/coding-for- entrepreneurs	True	195	2497
3333	1038538	Introduction to QGIS	https://www.udemy.com/introduction- to-qgis-pyt	True	85	197

		course_id	course_title	url	is_paid	price	num_subscriber
			Python Programming				
	3343	523312	Python Web Programming	https://www.udemy.com/python-web- programming/	True	100	1020
	3392	70640	Python Programming: Create an Digital Marketpl	https://www.udemy.com/coding-for- entrepreneurs	True	195	4198
	3507	394832	Fun and creative web engineering with Python	https://www.udemy.com/web- engineering-with-pyt	False	0	10917
In [147	len(u	ıdemy[udem	y["course_ti	tle"].str.contains("python",ca	se <b>=Fals</b> (	e)])	
Out[147]:	29						

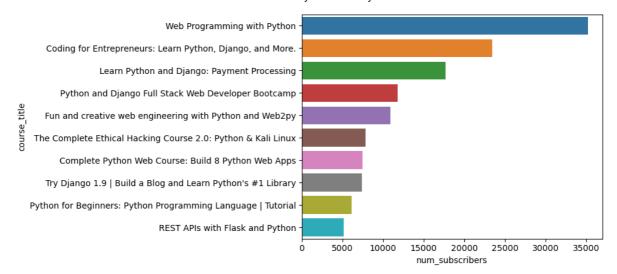
# 17. Display 10 Most Popular Python Courses As Per Number of Subscribers

In [158... python=udemy[udemy["course\_title"].str.contains("python",case=False)].sort\_values()
python

158]:	course_id	course_title	url	is_paid	price	num_subscribers
2497	16646	Web Programming with Python	https://www.udemy.com/web- programming-with-pyt	True	50	35267
2570	47963	Coding for Entrepreneurs: Learn Python, Django	https://www.udemy.com/coding-for- entrepreneurs/	True	195	23412
2528	391546	Learn Python and Django: Payment Processing	https://www.udemy.com/learn- django-code-accept	True	70	17714
3200	822444	Python and Django Full Stack Web Developer Boo	https://www.udemy.com/python- and-django-full-s	True	200	11832
3507	394832	Fun and creative web engineering with Python a	https://www.udemy.com/web- engineering-with-pyt	False	0	10917
2553	938560	The Complete Ethical Hacking Course 2.0: Pytho	https://www.udemy.com/penetration- testing-ethi	True	195	7827
3138	631128	Complete Python Web Course: Build 8 Python Web	https://www.udemy.com/the- complete-python-web	True	110	7489
3197	76052	Try Django 1.9   Build a Blog and Learn Python	https://www.udemy.com/try-django/	True	50	7407
2681	477702	Python for Beginners: Python Programming Langu	https://www.udemy.com/python- course/	True	150	6153
3203	970600	REST APIs with Flask and Python	https://www.udemy.com/rest-api- flask-and-python/	True	110	5151

In [159... sns.barplot(x="num\_subscribers",y="course\_title",data=python)

Out[159]: <Axes: xlabel='num\_subscribers', ylabel='course\_title'>



## 18.In Which Year The Highest Number of Courses Were Posted?



20, 7.07 7 111				adomy course analysis				
Out[167]:		course_id	course_title	url	is_paid	price	num_subscribers	nι
	0	1070968	Ultimate Investment Banking Course	https://www.udemy.com/ultimate- investment-bank	True	200	2147	
	1	1113822	Complete GST Course & Certification - Grow You	https://www.udemy.com/goods- and-services-tax/	True	75	2792	
	2	1006314	Financial Modeling for Business Analysts and C	https://www.udemy.com/financial- modeling-for-b	True	45	2174	
	3	1210588	Beginner to Pro - Financial Analysis in Excel	https://www.udemy.com/complete- excel-finance-c	True	95	2451	
	4	1011058	How To Maximize Your Profits Trading Options	https://www.udemy.com/how-to- maximize-your-pro	True	200	1276	
	•••							
	3673	775618	Learn jQuery from Scratch - Master of JavaScri	https://www.udemy.com/easy- jquery-for-beginner	True	100	1040	
	3674	1088178	How To Design A WordPress Website With No Codi	https://www.udemy.com/how-to- make-a-wordpress	True	25	306	
	3675	635248	Learn and Build using Polymer	https://www.udemy.com/learn- and-build-using-po	True	40	513	
	3676	905096	CSS Animations: Create Amazing Effects on Your	https://www.udemy.com/css- animations-create-am	True	50	300	
	3677	297602	Using MODX CMS to Build Websites: A Beginner's	https://www.udemy.com/using- modx-cms-to-build	True	45	901	

3678 rows × 13 columns

In [ ]:		
In [ ]:		