

# Udemy Courses project Made By Ibrahim Sherif

In [39]:

```
import pandas as pd
import numpy as np
import matplotlib as mpl
import matplotlib.pyplot as plt
```

Out [39]:

In [2]:

```
df = pd.read_csv('udemy_courses.csv')
```

Out [2]:

In [5]:

```
df = df.set_index('course_id')
```

Out [5]:

In [6]:

```
df.head(7)
```

Out [6]:

course_id	course_title	url	is_paid	price	num_subscribers	num_reviews	num_lectures	level	content_duration	published_timestamp	subject
1070968	Ultimate Investment Banking Course	https://www.udemy.com/ultimate-investment-bank...	True	200	2147	23	51	All Levels	1.5	2017-01-18T20:58:56Z	Business Finance
1113822	Complete GST Course & Certification - Grow You...	https://www.udemy.com/goods-and-services-tax/	True	75	2792	923	274	All Levels	39.0	2017-03-09T16:34:20Z	Business Finance
1006314	Financial Modeling for Business Analysts and C...	https://www.udemy.com/financial-modeling-for-b...	True	45	2174	74	51	Intermediate Level	2.5	2016-12-19T19:26:30Z	Business Finance
1210588	Beginner to Pro - Financial Analysis in Excel ...	https://www.udemy.com/complete-excel-finance-c...	True	95	2451	11	36	All Levels	3.0	2017-05-30T20:07:24Z	Business Finance
1011058	How To Maximize Your Profits Trading Options	https://www.udemy.com/how-to-maximize-your-pro...	True	200	1276	45	26	Intermediate Level	2.0	2016-12-13T14:57:18Z	Business Finance
192870	Trading Penny Stocks: A Guide for All Levels	https://www.udemy.com/trading-penny-stocks-a-g...	True	150	9221	138	25	All Levels	3.0	2014-05-02T15:13:30Z	Business Finance
739964	Investing And Trading For Beginners: Mastering...	https://www.udemy.com/investing-and-trading-f...	True	65	1540	178	26	Beginner Level	1.0	2016-02-21T18:23:12Z	Business Finance

changing published\_timestamp column to date

In [7]:

```
df['published_timestamp'] = pd.to_datetime(df['published_timestamp'])
```

Out [7]:

In [8]:

```
df['date_new'] = df['published_timestamp'].dt.date
df['date_new'] = pd.to_datetime(df['date_new'])
```

Out [8]:

In [9]:

```
df.dtypes
```

Out [9]:

course_title	object
url	object
is_paid	bool
price	int64
num_subscribers	int64
num_reviews	int64
num_lectures	int64
level	object
content_duration	float64
published_timestamp	datetime64[ns, UTC]
subject	object
date_new	datetime64[ns]
dtype:	object

In [10]:

```
#df['course_id'] = df['course_id'].apply(str)
```

## What are all different subjects for which Udemy is offering courses ?

In [11]:

```
subjects = df['subject'].unique()
print(subjects)
```

Out [11]:

```
['Business Finance' 'Graphic Design' 'Musical Instruments'
 'Web Development']
```

## Which subject has the maximum number of courses

In [12]:

```
subject_num_of_courses = df.groupby(['subject'], as_index = False)['course_title'].count()
```

Out [12]:

In [13]:

```
subject_num_of_courses.sort_values(by='course_title', ascending = False)
```

Out [13]:

subject	course_title
3	Web Development
0	Business Finance
2	Musical Instruments
1	Graphic Design

## Show all the courses which are Free of Cost

In [14]:

```
free = df['is_paid'] == False
```

Out [14]:

In [15]:

```
df[free]
```

Out [15]:

course_id	course_title	url	is_paid	price	num_subscribers	num_reviews	num_lectures	level	content_duration	published_timestamp	subject	date_new
1148774	Options Trading 101: The Basics	https://www.udemy.com/options-trading-101-the-b...	False	0	1514	66	11	Beginner Level	0.550000	2017-03-23 22:18:57+00:00	Business Finance	2017-03-23
133536	Stock Market Investing for Beginners	https://www.udemy.com/the-beginners-guide-to-i...	False	0	50855	2698	15	Beginner Level	1.500000	2013-12-25 19:53:34+00:00	Business Finance	2013-12-25
256960	Fundamentals of Forex Trading	https://www.udemy.com/fundamentals-of-forex-tr...	False	0	17160	620	23	All Levels	1.000000	2014-08-29 20:10:38+00:00	Business Finance	2014-08-29
923616	Website Investing 101 - Buying & Selling Onli...	https://www.udemy.com/cash-flow-website-invest...	False	0	6811	151	51	All Levels	2.000000	2015-08-05 17:03:35+00:00	Business Finance	2015-08-05
191854	Stock Market Foundations	https://www.udemy.com/how-to-invest-in-the-sto...	False	0	19339	794	9	Beginner Level	2.000000	2014-03-31 21:45:06+00:00	Business Finance	2014-03-31
...	...	...	...	...	...	...	...	...	...	...	...	...
156640	Building a Search Engine in PHP & MySQL	https://www.udemy.com/creating-a-search-engine-...	False	0	10110	379	12	All Levels	2.500000	2014-02-27 18:07:52+00:00	Web Development	2014-02-27
355720	CSS Image filters - The modern web images code...	https://www.udemy.com/super-awesome-images-wi...	False	0	6315	53	16	All Levels	1.500000	2014-12-10 19:43:40+00:00	Web Development	2014-12-10
1079078	Drupal 8 Site Building	https://www.udemy.com/drupal8-site-building/	False	0	1942	23	48	All Levels	4.500000	2017-05-02 05:15:52+00:00	Web Development	2017-05-02
21396	Beginner Photoshop to HTML5 & CSS3	https://www.udemy.com/psd-html5-css3/	False	0	73110	1716	22	All Levels	2.000000	2012-07-27 12:54:57+00:00	Web Development	2012-07-27
270976	A how to guide in HTML	https://www.udemy.com/a-how-to-guide-in-html/	False	0	7318	205	8	Beginner Level	0.583333	2014-08-10 20:19:10+00:00	Web Development	2014-08-10

310 rows × 12 columns

In [16]:

```
print('total:', df[free].shape[0], 'Free of Cost courses') # shape[0] Gives number of rows
```

Out [16]:

```
total: 310 Free of Cost courses
```

## Show all the courses which are Paid

In [17]:

```
paid = df['is_paid'] == True
```

Out [17]:

In [18]:

```
df[paid]
```

Out [18]:

course_id	course_title	url	is_paid	price	num_subscribers	num_reviews	num_lectures	level	content_duration	published_timestamp	subject	date_new
1070968	Ultimate Investment Banking Course	https://www.udemy.com/ultimate-investment-bank...	True	200	2147	23	51	All Levels	1.5	2017-01-18 20:58:56+00:00	Business Finance	2017-01-18
1113822	Complete GST Course & Certification - Grow You...	https://www.udemy.com/goods-and-services-tax/	True	75	2792	923	274	All Levels	39.0	2017-03-09 16:34:20+00:00	Business Finance	2017-03-09
1006314	Financial Modeling for Business Analysts and C...	https://www.udemy.com/financial-modeling-for-b...	True	45	2174	74	51	Intermediate Level	2.5	2016-12-19 19:26:30+00:00	Business Finance	2016-12-19
1210588	Beginner to Pro - Financial Analysis in Excel ...	https://www.udemy.com/complete-excel-finance-c...	True	95	2451	11	36	All Levels	3.0	2017-05-30 20:07:24+00:00	Business Finance	2017-05-30
1011058	How To Maximize Your Profits Trading Options	https://www.udemy.com/how-to-maximize-your-pro...	True	200	1276	45	26	Intermediate Level	2.0	2016-12-13 14:57:18+00:00	Business Finance	2016-12-13
...	...	...	...	...	...	...	...	...	...	...	...	...
775818	Learn jQuery from Scratch - Master of jQuery for beginners...	https://www.udemy.com/easy-jquery-for-beginners...	True	100	1040	14	21	All Levels	2.0	2016-06-14 17:36:40+00:00	Web Development	2016-06-14
1088178	How To Design A WordPress Website With No Codin...	https://www.udemy.com/how-to-make-a-wordpress-...	True	25	306	3	42	Beginner Level	3.5	2017-03-10 22:24:30+00:00	Web Development	2017-03-10
635248	Learn and Build using Polymer	https://www.udemy.com/learn-and-build-using-poly...	True	40	513	169	48	All Levels	3.5	2015-12-30 16:41:42+00:00	Web Development	2015-12-30
909096	CSS Animations: Create Amazing Effects on Your...	https://www.udemy.com/css-animations-create-am...	True	50	300	31	38	All Levels	3.0	2016-08-11 19:06:15+00:00	Web Development	2016-08-11
297602	Using MOOD CMS to Build Websites - A Beginner's...	https://www.udemy.com/using-mood-cms-to-build-...	True	45	901	36	20	Beginner Level	2.0	2014-08-28 19:51:11+00:00	Web Development	2014-08-28

3368 rows × 12 columns

In [19]:

```
print('total:', df[paid].shape[0], 'Paid courses')
total: 3368 Paid courses
```

## Which are Top Selling Courses

In [20]:

```
top_courses = df[['course_title', 'num_subscribers']]
```

Out [20]:

In [21]:

```
top_ten = top_courses.sort_values(by='num_subscribers', ascending = False)
```

Out [21]:

course_title	num_subscribers
Learn HTML5 Programming From Scratch	268923
Coding for Entrepreneurs Basic	161029
The Web Developer Bootcamp	121584
Build Your First Website in 1 Week with HTML5 ...	120291
The Complete Web Developer Course 2.0	114512
...	...
Create Beautiful Image Maps for Your Website	0
MicroStation - Células	0
Photohop: Creando elemental de aire	0
Letras en Adobe Illustrator	0
ABRSM Grade III Piano Class - Handel Sonata in ...	0

3678 rows × 2 columns

## Which are Least Selling Courses

In [23]:

```
least_ten = top_courses.sort_values(by='num_subscribers', ascending = True)
```

Out [23]:

In [24]:

```
least_ten.head(10)
```

Out [24]:

course_title	num_subscribers
beginning accounting	0
Introduction to Project Management for Finance...	0
Best Practices in Corporate Budgeting	0
Financial Statement Auditing Cycles	0
Case studies on credit appraisal for bankers	0
Building a Balanced Scorecard	0
Options Trading Foundation: Your journey to co...	0
Forex how traders beat the market with little...	0
CFA Level 2- Quantitative Methods	0
Foundations of Investing	0

## Show all courses of Graphic Design where the price is below 100

In [25]:

```
graphic_below = df[(df['subject'] == 'Graphic Design') & (df['price'] < 100)]
```

Out [25]:

In [26]:

```
graphic_below[['course_title', 'subject', 'price']]
```

Out [26]:

course_title	subject	price
Illustrator CC MasterClass	Graphic Design	95
Adobe Illustrator T-Shirt Design for Merch by ...	Graphic Design	20
Discover How to Draw and paint Comics	Graphic Design	65
Typographic Logos: Typography and Lettering fo...	Graphic Design	25
Photoshop in Ease: Create World Amazing Graph...	Graphic Design	20
...	...	...
Adobe Photoshop CC [The Essential Guide	Graphic Design	20
Learn to Composite a 2D Action Shot in Photosh...	Graphic Design	20
Infographic Design: How To Create Your Own Inf...	Graphic Design	20
Autodesk Inventor 2016 : Complete Guide	Graphic Design	20
Amazing Graphic Design for Beginners	Graphic Design	20

485 rows × 3 columns

In [27]:

```
print('number of Graphic Design courses price below one hundred is', graphic_below.shape[0])
number of Graphic Design courses price below one hundred is 485
```

## List out all the courses that are related to 'Python'

In [28]:

```
df['course_title'].str.contains('Python').any() # to know if any course title column contains the keyword i need
```

Out [28]:

```
True
```

In [29]:

```
df['course_title'].str.contains('Python').sum()
```

Out [29]:

```
29
```

In [31]:

```
python = df[df['course_title'].str.contains('Python')].sort_values(by='num_subscribers', ascending = False)
```

Out [31]:

course_title	url	is_paid	price	num_subscribers	num_reviews	num_lectures	level	content_duration	published_timestamp	subject	date_new
Web Programming with Python	https://www.udemy.com/web-programming-with-py...	True	50	35267	217	53	All Levels	4.0	2012-04-25 00:01:43+00:00	Web Development	2012-04-25
Coding for Entrepreneurs: Learn Python, Django...	https://www.udemy.com/coding-for-entrepreneurs/	True	195	23412	799	251	All Levels	45.0	2013-04-08 04:16:34+00:00	Web Development	2013-04-08
Learn Python and Django: Payment Processing	https://www.udemy.com/learn-django-code-accept...	True	70	17714	198	23	All Levels	3.5	2015-02-09 15:37:56+00:00	Web Development	2015-02-09
Python and Django Full Stack Web Developer Roo...	https://www.udemy.com/python-and-django-full-s...	True	200	11882	1883	191	All Levels	31.5	2017-02-24 18:40:55+00:00	Web Development	2017-02-24
Fun and creative web engineering with Python a...	https://www.udemy.com/web-engineering-with-pyt...	False	0	10917	319	25	All Levels	2.0	2015-06-09 19:51:50+00:00	Web Development	2015-06-09
The Complete Ethical Hacking Course 2.0: Python...	https://www.udemy.com/pentration-testing-ethi...	True	195	7827	268	66	All Levels	11.0	2016-09-26 15:06:29+00:00	Web Development	2016-09-26
Complete Python Web Course: Build 8 Python Web...	https://www.udemy.com/the-complete-python-web...	True	110	7489	941	173	All Levels	16.0	2015-11-08 20:57:38+00:00	Web Development	2015-11-08
Try Django 1.9   Build a Blog and Learn Python...	https://www.udemy.com/try-django/	True	50	7407	172	147	All Levels	20.0	2014-03-04 07:12:21+00:00	Web Development	2014-03-04
Python for Beginners: Python Programming Langua...	https://www.udemy.com/python-course/	True	150	6153	125	84	Beginner Level	5.0	2015-06-14 18:18:57+00:00	Web Development	2015-06-14
REST APIs with Flask and Python	https://www.udemy.com/rest-api-flask-and-pytho...	True	110	5151	737	115	Intermediate Level	12.5	2016-11-06 19:00:30+00:00	Web Development	2016-11-06
Python Programming: Create an Digital Marketpl...	https://www.udemy.com/coding-for-entrepreneurs...	True	195	4198	145	161	All Levels	26.0	2013-10-20 19:53:28+00:00	Web Development	2013-10-20
Python for Finance: Investment Fundamentals & ...	https://www.udemy.com/python-for-finance-inves...	True	195	3811	278	103	All Levels	6.5	2017-03-30 22:17:09+00:00	Business Finance	2017-03-30
Professional Python Web Development Using Flask	https://www.udemy.com/python-coding-for-entre...	True	120	3420	489	102	Beginner Level	14.5	2015-03-05 00:30:19+00:00	Web Development	2015-03-05
Core: A Web App Reference Guide for Django, Python and Node	https://www.udemy.com/projects-in-django-and-p...	True	195	2497	98	154	All Levels	26.0	2016-08-30 05:58:47+00:00	Web Development	2016-08-29
Learn Python Django - A Hands-On Course	https://www.udemy.com/learn-python-django-a-ha...	True	60	1764	53	28	All Levels	6.5	2014-10-21 07:58:07+00:00	Web Development	2014-10-21
Projects in Django - A Hands-On Course	https://www.udemy.com/learn-python-django-a-ha...	True	50	1339	21	18	Beginner Level	2.0	2017-01-18 21:53:34+00:00	Web Development	2017-01-18
Advanced Scalable Python Web Development Using...	https://www.udemy.com/advanced-python-flask/	True	120	1299	56	71	Intermediate Level	14.0	2016-08-11 22:09:24+00:00	Web Development	2016-08-11
Python Algo Stock Trading: Automate Your Trading!	https://www.udemy.com/algo-trading-stock-tradin...	True	95	1165	21	41	Beginner Level	2.5	2017-05-28 23:41:03+00:00	Business Finance	2017-05-28
Learn to code in Python and learn Adobe Photos...	https://www.udemy.com/learn-to-code-in-python...	True	50	1132	1	29	All Levels	2.0	2015-07-08 00:15:12+00:00	Graphic Design	2015-07-08
Python Web Programming	https://www.udemy.com/python-web-programming/	True	100	1020	46	60	Beginner Level	6.0	2016-07-01 21:46:38+00:00	Web Development	2016-07-01
Web Scraping with Python, Ruby & import io	https://www.udemy.com/web-scraping-with-python...	True	75	973	50	46	All Levels	4.5	2015-06-09 22:16:31+00:00	Web Development	2015-06-09
Python for Trading & Investing	https://www.udemy.com/python-for-trading-inves...	True	95	638	25	36	All Levels	5.0	2015-06-17 22:23:31+00:00	Business Finance	2015-06-17
Professional RESTful API Design using Python Flask	https://www.udemy.com/restful-api-flask-and-py...	True	120	578	25	36	Intermediate Level	4.5	2017-01-11 21:15:25+00:00	Web Development	2017-01-11
Python Algo Trading: FX Trading with Qanda	https://www.udemy.com/python-algo-trading-fx-t...	True	200	453	42	33	Intermediate Level	3.0	2017-03-14 00:39:45+00:00	Business Finance	2017-03-14
Stock Technical Analysis with Python	https://www.udemy.com/stock-technical-analysis...	True	50	409	35	46	All Levels	8.0	2016-04-12 00:40:05+00:00	Business Finance	2016-04-12
Python Algo Trading: Sentiment Trading with News...	https://www.udemy.com/hedge-fund-trading-with-n...	True	200	294	19	42	All Levels	7.0	2017-04-28 16:41:44+00:00	Business Finance	2017-04-28
Quantitative Trading Analysis with Python	https://www.udemy.com/quantitative-trading-ana...	True	50	256	17	49	All Levels	5.5	2017-01-27 17:11:29+00:00	Business Finance	2017-01-27
Investment Portfolio Analysis with Python	https://www.udemy.com/investment-portfolio-ana...	True	50	209	13	37	All Levels	7.0	2016-07-13 21:40:32+00:00	Business Finance	2016-07-13
Introduction to QGIS Python Programming	https://www.udemy.com/introduction-to-qgis-py...	True	85	197	26	28	Beginner Level	3.5	2016-12-22 00:11:22+00:00	Web Development	2016-12-22

In [67]:

```
x = python['course_title']
y = python['num_subscribers']

def addLabels(x,y):
    for i in range(len(x)):
        plt.text(i, y[i], y[i], ha = 'center')
```

Out [67]:

```
plt.bar(x, y, color = 'grey')
clr[0].set_color('red')
clr[1].set_color('red')
clr[2].set_color('red')
#addLabels(python['course_title'], python['num_subscribers'])
plt.title('Top selling Python Courses', fontsize = 20)
plt.xlabel('Python Courses', fontsize = 15)
plt.ylabel('Number Of Subscribers', fontsize = 15)
plt.xticks(rotation='vertical')
#plt.tight_layout()
plt.rcParams["figure.figsize"] = (19,5) # i use this if i need to change plot size
plt.legend(['Top three With Most Number Of Subscribers'], prop=('size':17)) # if i want to add a legend
plt.show()
```



In [ ]:

## What are courses that were published in the year 2015

```
In [29]: df['course_title'].str.contains('Python').sum()
Out[29]: 29

In [31]: python = df[df['course_title'].str.contains('Python')].sort_values(by=['num_subscribers'],
                                     ,ascending = False)
python
```

	course_title	url	is_paid	price	num_subscribers	num_reviews	num_lectures	level	content_duration	published_timestamp	subject	date_new
Out[31]:	course_id											