Udemy Courses Dataset

This dataset contains all courses data. We will analyze the data using pandas library of python

```python
import pandas as pd    #we're importig pandas library to perform the
analysis

#importing csv fie dataset
udemy=pd.read_csv('file.csv')

#checking the data
udemy
```

```
       course_id                                        course_title
is_paid  \
0         288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1        1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True
2        1193886  #12 Hand Coordination: Let your Hands dance wi...
True
3        1116700  #4 Piano Hand Coordination: Fun Piano Runs in ...
True
4        1120410  #5  Piano Hand Coordination:  Piano Runs in 2 ...
True
...          ...                                                 ...
...
3677      328960  Your Own Site in 45 Min: The Complete Wordpres...
True
3678      552700     Your Second Course on Piano: Two Handed Playing
True
3679      631754  Zend Framework 2: Learn the PHP framework ZF2 ...
True
3680     1225194  Zoho Books Gestion Financière d'Entreprise pas...
False
3681      964478                   Zombie Apocalypse Photoshop Actions
True

       price  num_subscribers  num_reviews  num_lectures
level  \
0         35             3137           18            68           All
Levels
1         75             1593            1            41  Intermediate
Level
2         75              482            1            47  Intermediate
Level
3         75              850            3            43  Intermediate
Level
```

```
4        75              940              3              32  Intermediate
Level
...      ...             ...            ...            ...
...
3677    120             1566             29             36           All
Levels
3678     70             1018             12             22      Beginner
Level
3679     40              723            130             37           All
Levels
3680   Free              229              0             33           All
Levels
3681     50               12              1             15           All
Levels

      content_duration    published_timestamp                 subject
0           1.5 hours    2014-09-18T05:07:05Z  Musical Instruments
1             1 hour     2017-04-12T19:06:34Z  Musical Instruments
2           1.5 hours    2017-04-26T18:34:57Z  Musical Instruments
3             1 hour     2017-02-21T23:48:18Z  Musical Instruments
4            37 mins     2017-02-21T23:44:49Z  Musical Instruments
...              ...                      ...                  ...
3677         4 hours     2015-04-20T22:15:17Z      Web Development
3678         5 hours     2015-10-26T20:04:21Z  Musical Instruments
3679       6.5 hours     2015-11-11T18:55:45Z      Web Development
3680         2 hours     2017-05-26T16:45:55Z      Business Finance
3681       1.5 hours     2016-09-26T22:19:48Z        Graphic Design

[3682 rows x 11 columns]
```

1. What are the different subjects offered by udemy?

```
udemy.head(5)

    course_id                                           course_title
is_paid  \
0      288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1     1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True
2     1193886  #12 Hand Coordination: Let your Hands dance wi...
True
3     1116700  #4 Piano Hand Coordination: Fun Piano Runs in ...
True
4     1120410  #5  Piano Hand Coordination:  Piano Runs in 2 ...
True
```

```
     price   num_subscribers   num_reviews   num_lectures
level  \
0    35               3137            18             68           All
Levels
1    75               1593             1             41   Intermediate
Level
2    75                482             1             47   Intermediate
Level
3    75                850             3             43   Intermediate
Level
4    75                940             3             32   Intermediate
Level

   content_duration    published_timestamp                   subject
0        1.5 hours   2014-09-18T05:07:05Z   Musical Instruments
1          1 hour   2017-04-12T19:06:34Z   Musical Instruments
2        1.5 hours   2017-04-26T18:34:57Z   Musical Instruments
3          1 hour   2017-02-21T23:48:18Z   Musical Instruments
4         37 mins   2017-02-21T23:44:49Z   Musical Instruments
```

```python
udemy['subject'].nunique()
```

```
4
```

```python
udemy['subject'].unique()
```

```
array(['Musical Instruments', 'Business Finance', 'Graphic Design',
       'Web Development'], dtype=object)
```

2. What subjects have maximum number of courses?

```python
udemy.head(2)
```

```
   course_id                                        course_title
is_paid  \
0     288942   #1 Piano Hand Coordination: Play 10th Ballad i...
True
1    1170074   #10 Hand Coordination - Transfer Chord Ballad ...
True

     price   num_subscribers   num_reviews   num_lectures
level  \
0    35               3137            18             68           All
Levels
1    75               1593             1             41   Intermediate
Level

   content_duration    published_timestamp                   subject
```

```
0          1.5 hours  2014-09-18T05:07:05Z  Musical Instruments
1            1 hour  2017-04-12T19:06:34Z  Musical Instruments

udemy['subject'].value_counts()

Web Development        1200
Business Finance       1199
Musical Instruments     680
Graphic Design          603
Name: subject, dtype: int64

udemy.groupby('subject').count()

                    course_id  course_title  is_paid  price
num_subscribers  \
subject

Business Finance         1199          1199     1199   1199
1199
Graphic Design            603           603      603    603
603
Musical Instruments       680           680      680    680
680
Web Development          1200          1200     1200   1200
1200


                    num_reviews  num_lectures  level
content_duration  \
subject

Business Finance           1199          1199   1199
1199
Graphic Design              603           603    603
603
Musical Instruments         680           680    680
680
Web Development            1200          1200   1200
1200


                    published_timestamp
subject
Business Finance                   1199
Graphic Design                      603
Musical Instruments                 680
Web Development                    1200
```

Web development is the required answer

3. Show all the courses which are free.

```
udemy.head(2)
```

```
    course_id                                      course_title
is_paid  \
0      288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1     1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True

   price  num_subscribers  num_reviews  num_lectures
level  \
0     35             3137           18            68           All
Levels
1     75             1593            1            41   Intermediate
Level

   content_duration   published_timestamp               subject
0        1.5 hours  2014-09-18T05:07:05Z  Musical Instruments
1          1 hour  2017-04-12T19:06:34Z  Musical Instruments
```

```
udemy[udemy['is_paid']==False]
```

```
      course_id                                      course_title
is_paid  \
41       286070         5 lecciones que todo guitarrista debe tomar
False
49       696630  7 Ways A Beginner Guitarist Can Sound Better, ...
False
57       955914  A beginner`s guide to fingerpicking and strumm...
False
67       270976                          A how to guide in HTML
False
74      1214144  ¡Triunfar en La Bolsa de Valores No Requiere d...
False
...         ...                                               ...
...
3620      552598  WordPress in under an hour - Create/manage you...
False
3638     1068590                     Wordpress Website Mastery 2017
False
3652      752706  Write quicker HTML5 and CSS 3; productivity ha...
False
3674     1257976  Your First 10 Guitar Lessons - Learn how to pl...
False
3680     1225194  Zoho Books Gestion Financière d'Entreprise pas...
False

      price  num_subscribers  num_reviews  num_lectures          level
\
```

41	Free	4452	263	14	Beginner Level
49	Free	4529	193	7	Beginner Level
57	Free	3481	29	20	Beginner Level
67	Free	7318	205	8	Beginner Level
74	Free	338	7	6	Beginner Level
...	...	...	...	...	...
3620	Free	6474	86	15	All Levels
3638	Free	5181	64	22	Beginner Level
3652	Free	13016	286	15	All Levels
3674	Free	924	4	18	Beginner Level
3680	Free	229	0	33	All Levels

```
      content_duration   published_timestamp              subject
41              1 hour  2014-08-23T05:08:14Z  Musical Instruments
49             36 mins  2015-12-21T18:50:50Z  Musical Instruments
57             2 hours  2016-09-13T21:51:59Z  Musical Instruments
67             35 mins  2014-08-10T20:19:10Z      Web Development
74              1 hour  2017-05-30T14:30:12Z     Business Finance
...                ...                   ...                  ...
3620            1 hour  2015-07-15T00:21:56Z      Web Development
3638          2.5 hours 2017-01-18T17:01:40Z      Web Development
3652          1.5 hours 2016-03-03T17:45:31Z      Web Development
3674            1 hour  2017-06-29T00:29:36Z  Musical Instruments
3680           2 hours  2017-05-26T16:45:55Z     Business Finance

[310 rows x 11 columns]
```

4. Show all paid courses.

```
udemy[udemy['is_paid']==True]
```

```
      course_id                                       course_title
is_paid  \
0        288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1       1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True
2       1193886  #12 Hand Coordination: Let your Hands dance wi...
True
```

```
3        1116700   #4 Piano Hand Coordination: Fun Piano Runs in ...
True
4        1120410   #5  Piano Hand Coordination:  Piano Runs in 2 ...
True
...            ...                                                 ...
...
3676      498488   Your First Successful Forex Trades - With Case...
True
3677      328960   Your Own Site in 45 Min: The Complete Wordpres...
True
3678      552700      Your Second Course on Piano: Two Handed Playing
True
3679      631754   Zend Framework 2: Learn the PHP framework ZF2 ...
True
3681      964478                  Zombie Apocalypse Photoshop Actions
True

      price   num_subscribers   num_reviews   num_lectures
level  \
0        35              3137            18             68          All
Levels
1        75              1593             1             41   Intermediate
Level
2        75               482             1             47   Intermediate
Level
3        75               850             3             43   Intermediate
Level
4        75               940             3             32   Intermediate
Level
...      ...               ...           ...            ...
...
3676    200              1079            34             16          All
Levels
3677    120              1566            29             36          All
Levels
3678     70              1018            12             22      Beginner
Level
3679     40               723           130             37          All
Levels
3681     50                12             1             15          All
Levels

      content_duration   published_timestamp                subject
0           1.5 hours    2014-09-18T05:07:05Z  Musical Instruments
1             1 hour     2017-04-12T19:06:34Z  Musical Instruments
2           1.5 hours    2017-04-26T18:34:57Z  Musical Instruments
3             1 hour     2017-02-21T23:48:18Z  Musical Instruments
4            37 mins     2017-02-21T23:44:49Z  Musical Instruments
...               ...                     ...                  ...
```

```
3676        2.5 hours   2015-05-26T20:48:48Z       Business Finance
3677          4 hours   2015-04-20T22:15:17Z        Web Development
3678          5 hours   2015-10-26T20:04:21Z    Musical Instruments
3679        6.5 hours   2015-11-11T18:55:45Z        Web Development
3681        1.5 hours   2016-09-26T22:19:48Z         Graphic Design

[3372 rows x 11 columns]
```

5. Which are top selling courses?

```
udemy.head(2)
```

```
    course_id                                        course_title
is_paid  \
0      288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1     1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True

  price  num_subscribers  num_reviews  num_lectures
level  \
0     35             3137           18            68          All
Levels
1     75             1593            1            41  Intermediate
Level

  content_duration    published_timestamp               subject
0        1.5 hours   2014-09-18T05:07:05Z  Musical Instruments
1           1 hour   2017-04-12T19:06:34Z  Musical Instruments
```

```python
#for top courses we'll use sort_values
udemy.sort_values('num_subscribers',ascending=False)
```

```
       course_id                                        course_title
is_paid  \
2230       41295                 Learn HTML5 Programming From Scratch
False
776        59014                         Coding for Entrepreneurs Basic
False
3385      625204                         The Web Developer Bootcamp
True
640       173548  Build Your First Website in 1 Week with HTML5 ...
False
3316      764164                 The Complete Web Developer Course 2.0
True
...          ...                                                  ...
...
2290     1223240  Learn Pirates of the Caribbean by Ear on the P...
True
1267     1258666                 Financial Statement Auditing Cycles
```

```
True
2070     1215926                   Kickstarter success in 5 easy steps
True
1931     1247992   Introduction to Project Management for Finance...
True
3165     1087466   Stop Creditors from Harassing you and Avoid Ba...
True

      price   num_subscribers   num_reviews   num_lectures
level  \
2230  Free            268923          8629             45          All
Levels
776   Free            161029           279             27     Beginner
Level
3385   200            121584         27445            342          All
Levels
640   Free            120291          5924             30     Beginner
Level
3316   200            114512         22412            304          All
Levels
...    ...               ...           ...            ...
...
2290    20                 0             0              6          All
Levels
1267    50                 0             0              9 Intermediate
Level
2070    20                 0             0             12          All
Levels
1931    50                 0             0              9     Beginner
Level
3165    20                 0             0              7     Beginner
Level

      content_duration    published_timestamp             subject
2230        10.5 hours    2013-02-14T07:03:41Z     Web Development
776          3.5 hours    2013-06-09T15:51:55Z     Web Development
3385          43 hours    2015-11-02T21:13:27Z     Web Development
640            3 hours    2014-04-08T16:21:30Z     Web Development
3316        30.5 hours    2016-03-08T22:28:36Z     Web Development
...              ...                     ...                 ...
2290          32 mins    2017-05-22T17:14:43Z  Musical Instruments
1267           2 hours   2017-06-29T23:20:10Z     Business Finance
2070          31 mins    2017-05-16T14:55:28Z     Business Finance
1931           2 hours   2017-07-03T21:40:32Z     Business Finance
3165          37 mins    2017-02-02T16:22:37Z     Business Finance

[3682 rows x 11 columns]
```

6. Which are least selling courses?

```
udemy.sort_values('num_subscribers')
```

	course_id	course_title	is_paid
649	1233314	Building a Balanced Scorecard	True
3259	1232282	The Cash Flow Statement - An Introduction	True
3261	1275872	The Complete Adobe Spark Course	True
910	726314	Create Beautiful Image Maps for Your Website	True
3328	715476	The Cuckoo Strategy to get European Funding	True
...	...	...	...
3316	764164	The Complete Web Developer Course 2.0	True
640	173548	Build Your First Website in 1 Week with HTML5 ...	False
3385	625204	The Web Developer Bootcamp	True
776	59014	Coding for Entrepreneurs Basic	False
2230	41295	Learn HTML5 Programming From Scratch	False

	price	num_subscribers	num_reviews	num_lectures	level
649	50	0	0	11	Intermediate Level
3259	50	0	0	10	Beginner Level
3261	150	0	0	29	All Levels
910	20	0	0	8	Intermediate Level
3328	160	0	0	6	All Levels
...	...	...	...	...	...
3316	200	114512	22412	304	All Levels
640	Free	120291	5924	30	Beginner Level
3385	200	121584	27445	342	All Levels
776	Free	161029	279	27	Beginner

```
           Level
2230  Free               268923                8629               45           All
Levels

      content_duration   published_timestamp               subject
649              2 hours  2017-07-03T21:38:22Z  Business Finance
3259           1.5 hours  2017-06-28T16:05:51Z  Business Finance
3261             2 hours  2017-07-03T17:39:57Z   Graphic Design
910             37 mins  2016-01-18T17:56:36Z   Graphic Design
3328             1 hour  2016-01-06T02:38:23Z  Business Finance
...                  ...                   ...               ...
3316          30.5 hours  2016-03-08T22:28:36Z  Web Development
640              3 hours  2014-04-08T16:21:30Z  Web Development
3385            43 hours  2015-11-02T21:13:27Z  Web Development
776            3.5 hours  2013-06-09T15:51:55Z  Web Development
2230          10.5 hours  2013-02-14T07:03:41Z  Web Development

[3682 rows x 11 columns]
```

7. Show all the graphic designing course where price is less than 100.

```
udemy.head(2)

   course_id                                        course_title
is_paid  \
0     288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1    1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True

  price   num_subscribers   num_reviews   num_lectures
level  \
0    35              3137            18             68           All
Levels
1    75              1593             1             41   Intermediate
Level

  content_duration   published_timestamp               subject
0        1.5 hours  2014-09-18T05:07:05Z  Musical Instruments
1           1 hour  2017-04-12T19:06:34Z  Musical Instruments

udemy[(udemy['subject']=='Graphic Design')&(udemy['price']<'100')]

Empty DataFrame
Columns: [course_id, course_title, is_paid, price, num_subscribers,
num_reviews, num_lectures, level, content_duration,
```

```
published_timestamp, subject]
Index: []
```

So no required courses are there

8. List out all course related to 'python'.

```
udemy.head(2)
```

```
    course_id                                    course_title
is_paid  \
0     288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1    1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True


   price   num_subscribers  num_reviews  num_lectures
level  \
0    35               3137           18            68         All
Levels
1    75               1593            1            41  Intermediate
Level


   content_duration    published_timestamp              subject
0        1.5 hours  2014-09-18T05:07:05Z  Musical Instruments
1          1 hour  2017-04-12T19:06:34Z  Musical Instruments
```

```
udemy[udemy['course_title'].str.contains('Python')]
```

```
       course_id                                    course_title
is_paid  \
216       599504  Advanced Scalable Python Web Development Using...
True
777        47963  Coding for Entrepreneurs: Learn Python, Django...
True
814       631128  Complete Python Web Course: Build 8 Python Web...
True
842       186096  Core: A Web App Reference Guide for Django, Py...
True
1400      394832  Fun and creative web engineering with Python a...
False
1932     1038538          Introduction to QGIS Python Programming
True
1969      902888          Investment Portfolio Analysis with Python
True
2294      391546          Learn Python and Django: Payment Processing
True
2295     1063722          Learn Python Django - A Hands-On Course
True
```

```
2341       546848   Learn to code in Python and learn Adobe Photos...
True
2906       368340      Professional Python Web Development Using Flask
True
2908      1035940   Professional RESTful API Design using Python F...
True
2929       270808                           Projects in Django and Python
True
2952      1170894   Python Algo Stock Trading: Automate Your Trading!
True
2953      1070886            Python Algo Trading: FX Trading with Oanda
True
2954      1196544    Python Algo Trading: Sentiment Trading with News
True
2955       822444   Python and Django Full Stack Web Developer Boo...
True
2956       477702   Python for Beginners: Python Programming Langu...
True
2957      1035472   Python for Finance: Investment Fundamentals & ...
True
2958       529828                        Python for Trading & Investing
True
2959        70640   Python Programming: Create an Digital Marketpl...
True
2960       523312                              Python Web Programming
True
2962      1088656         Quantitative Trading Analysis with Python
True
3013       970600                    REST APIs with Flask and Python
True
3154       815482            Stock Technical Analysis with Python
True
3272       938560   The Complete Ethical Hacking Course 2.0: Pytho...
True
3460        76052   Try Django 1.9 | Build a Blog and Learn Python...
True
3573        16646                       Web Programming with Python
True
3574       574082         Web Scraping with Python, Ruby & import. io
True

      price   num_subscribers   num_reviews   num_lectures
level  \
216    120               1299            56            71   Intermediate
Level
777    195              23412           799           251            All
Levels
814    110               7489           941           173            All
Levels
```

842	195	2497	98	154	All Levels
1400	Free	10917	319	25	All Levels
1932	85	197	26	28	Beginner Level
1969	50	209	13	37	All Levels
2294	70	17714	198	23	All Levels
2295	50	1339	21	18	Beginner Level
2341	50	1132	1	29	All Levels
2906	120	3420	489	102	Beginner Level
2908	120	578	25	36	Intermediate Level
2929	60	1764	53	28	All Levels
2952	95	1165	21	41	Beginner Level
2953	200	453	42	33	Intermediate Level
2954	200	294	19	42	All Levels
2955	200	11832	1883	191	All Levels
2956	150	6153	125	84	Beginner Level
2957	195	3811	278	103	All Levels
2958	95	638	25	36	All Levels
2959	195	4198	145	161	All Levels
2960	100	1020	46	60	Beginner Level
2962	50	256	17	49	All Levels
3013	110	5151	737	115	Intermediate Level
3154	50	409	35	46	All Levels
3272	195	7827	268	66	All Levels
3460	50	7407	172	147	All Levels
3573	50	35267	217	53	All

```
Levels
3574         75                 973              50                 46                All
Levels

        content_duration      published_timestamp                subject
216             14 hours      2016-08-11T22:09:24Z      Web Development
777             45 hours      2013-04-08T00:46:14Z      Web Development
814             16 hours      2015-11-08T20:57:35Z      Web Development
842             26 hours      2014-05-29T00:58:43Z      Web Development
1400             2 hours      2015-06-09T19:51:50Z      Web Development
1932           3.5 hours      2016-12-22T00:11:22Z      Web Development
1969             7 hours      2016-07-13T21:40:32Z      Business Finance
2294           3.5 hours      2015-02-09T15:37:56Z      Web Development
2295             2 hours      2017-01-18T21:53:34Z      Web Development
2341             2 hours      2015-07-08T00:15:12Z        Graphic Design
2906          14.5 hours      2015-03-04T00:10:36Z      Web Development
2908           4.5 hours      2017-01-11T21:15:25Z      Web Development
2929           6.5 hours      2014-10-21T07:58:07Z      Web Development
2952           2.5 hours      2017-05-28T23:41:03Z      Business Finance
2953             3 hours      2017-03-14T00:39:45Z      Business Finance
2954             7 hours      2017-04-28T16:41:44Z      Business Finance
2955          31.5 hours      2017-02-24T18:40:55Z      Web Development
2956             5 hours      2015-06-14T18:18:57Z      Web Development
2957           6.5 hours      2017-03-30T22:17:09Z      Business Finance
2958             5 hours      2015-06-17T22:23:31Z      Business Finance
2959            26 hours      2013-10-20T19:53:28Z      Web Development
2960             6 hours      2015-07-01T21:46:36Z      Web Development
2962           5.5 hours      2017-01-27T17:11:28Z      Business Finance
3013          12.5 hours      2016-11-06T19:00:38Z      Web Development
3154             8 hours      2016-04-12T00:40:03Z      Business Finance
3272            11 hours      2016-09-26T15:08:29Z      Web Development
3460            20 hours      2014-03-04T07:12:21Z      Web Development
3573             4 hours      2012-04-25T00:01:43Z      Web Development
3574           4.5 hours      2015-08-09T22:16:41Z      Web Development
```

```
len(udemy[udemy['course_title'].str.contains('Python')])
```

```
29
```

9. What are the courses that are published in the rear 2015?

```
udemy.head(2)
```

```
    course_id                                              course_title
is_paid  \
0      288942  #1 Piano Hand Coordination: Play 10th Ballad i...
```

```
True
1      1170074   #10 Hand Coordination - Transfer Chord Ballad ...
True

   price   num_subscribers   num_reviews   num_lectures
level   \
0    35              3137            18            68         All
Levels
1    75              1593             1            41  Intermediate
Level

   content_duration   published_timestamp              subject
0        1.5 hours   2014-09-18T05:07:05Z  Musical Instruments
1          1 hour   2017-04-12T19:06:34Z  Musical Instruments

udemy.dtypes

course_id               int64
course_title           object
is_paid                  bool
price                  object
num_subscribers         int64
num_reviews             int64
num_lectures            int64
level                  object
content_duration       object
published_timestamp    object
subject                object
dtype: object

udemy[udemy['published_timestamp'].str.contains('2015')]

        course_id                                    course_title
is_paid   \
10         591880   1 - Concepts of Statistics For Beginners Step ...
True
16         302450       10 Numbers Every Business Owner Should Know
True
19         384928   101 Blues riffs - learn how the harmonica supe...
True
23         550842   16 Guitar Chords to Jam With - (Beginner - Int...
True
26         486240     2 Easy Steps To Investment And Avoiding Traps
True
...          ...                                              ...
...
3675       551170                         Your First Course on Piano
True
3676       498488   Your First Successful Forex Trades - With Case...
True
```

```
3677      328960   Your Own Site in 45 Min: The Complete Wordpres...
True
3678      552700     Your Second Course on Piano: Two Handed Playing
True
3679      631754   Zend Framework 2: Learn the PHP framework ZF2 ...
True

      price   num_subscribers   num_reviews   num_lectures
level  \
10     200              273             4            15        Beginner
Level
16      20               13             1             9             All
Levels
19     200             1350            65            55    Intermediate
Level
23      20             1224            19            20        Beginner
Level
26      20              828             1            20             All
Levels
...     ...              ...           ...           ...
...
3675    70             2002            34            33        Beginner
Level
3676   200             1079            34            16             All
Levels
3677   120             1566            29            36             All
Levels
3678    70             1018            12            22        Beginner
Level
3679    40              723           130            37             All
Levels

      content_duration    published_timestamp              subject
10              31 mins   2015-08-30T22:48:34Z     Business Finance
16               1 hour   2015-03-08T19:11:24Z     Business Finance
19             6.5 hours  2015-01-04T21:14:31Z   Musical Instruments
23               1 hour   2015-07-10T19:53:56Z   Musical Instruments
26               1 hour   2015-04-27T23:18:59Z     Business Finance
...                 ...                    ...                  ...
3675            4 hours   2015-07-16T17:07:49Z   Musical Instruments
3676           2.5 hours  2015-05-26T20:48:48Z     Business Finance
3677            4 hours   2015-04-20T22:15:17Z      Web Development
3678            5 hours   2015-10-26T20:04:21Z   Musical Instruments
3679           6.5 hours  2015-11-11T18:55:45Z      Web Development

[1014 rows x 11 columns]

len(udemy[udemy['published_timestamp'].str.contains('2015')])

1014
```

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

udemy.dtypes

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

```python
#adding a new col
udemy['year']=udemy['published_timestamp'].dt.year

udemy
```

```
       course_id                                   course_title
is_paid  \
0         288942   #1 Piano Hand Coordination: Play 10th Ballad i...
True
1        1170074   #10 Hand Coordination - Transfer Chord Ballad ...
True
2        1193886   #12 Hand Coordination: Let your Hands dance wi...
True
3        1116700   #4 Piano Hand Coordination: Fun Piano Runs in ...
True
4        1120410   #5  Piano Hand Coordination:  Piano Runs in 2 ...
True
...          ...                                            ...
...
3677      328960   Your Own Site in 45 Min: The Complete Wordpres...
True
3678      552700      Your Second Course on Piano: Two Handed Playing
True
3679      631754   Zend Framework 2: Learn the PHP framework ZF2 ...
True
3680     1225194   Zoho Books Gestion Financière d'Entreprise pas...
False
3681      964478                 Zombie Apocalypse Photoshop Actions
True

      price  num_subscribers  num_reviews  num_lectures
level  \
```

```
0      35            3137          18          68          All
Levels
1      75            1593          1           41   Intermediate
Level
2      75            482           1           47   Intermediate
Level
3      75            850           3           43   Intermediate
Level
4      75            940           3           32   Intermediate
Level
...    ...           ...           ...         ...
...
3677   120           1566          29          36          All
Levels
3678   70            1018          12          22     Beginner
Level
3679   40            723           130         37          All
Levels
3680   Free          229           0           33          All
Levels
3681   50            12            1           15          All
Levels

       content_duration       published_timestamp                 subject
year
0             1.5 hours 2014-09-18 05:07:05+00:00  Musical Instruments
2014
1               1 hour 2017-04-12 19:06:34+00:00  Musical Instruments
2017
2             1.5 hours 2017-04-26 18:34:57+00:00  Musical Instruments
2017
3               1 hour 2017-02-21 23:48:18+00:00  Musical Instruments
2017
4              37 mins 2017-02-21 23:44:49+00:00  Musical Instruments
2017
...                 ...                       ...                     ...
...
3677           4 hours 2015-04-20 22:15:17+00:00      Web Development
2015
3678           5 hours 2015-10-26 20:04:21+00:00  Musical Instruments
2015
3679         6.5 hours 2015-11-11 18:55:45+00:00      Web Development
2015
3680           2 hours 2017-05-26 16:45:55+00:00     Business Finance
2017
3681         1.5 hours 2016-09-26 22:19:48+00:00       Graphic Design
2016

[3682 rows x 12 columns]
```

```
udemy[udemy['year']==2015]
```

```
        course_id                                         course_title  is_paid  \
10         591880   1 - Concepts of Statistics For Beginners Step ...     True
16         302450          10 Numbers Every Business Owner Should Know    True
19         384928   101 Blues riffs - learn how the harmonica supe...    True
23         550842   16 Guitar Chords to Jam With - (Beginner - Int...    True
26         486240          2 Easy Steps To Investment And Avoiding Traps True
...           ...                                                   ...      ...
3675       551170                           Your First Course on Piano    True
3676       498488   Your First Successful Forex Trades - With Case...    True
3677       328960   Your Own Site in 45 Min: The Complete Wordpres...    True
3678       552700     Your Second Course on Piano: Two Handed Playing    True
3679       631754   Zend Framework 2: Learn the PHP framework ZF2 ...    True

      price   num_subscribers   num_reviews   num_lectures         level  \
10      200               273             4             15      Beginner Level
16       20                13             1              9          All Levels
19      200              1350            65             55   Intermediate Level
23       20              1224            19             20      Beginner Level
26       20               828             1             20          All Levels
...     ...               ...           ...            ...
3675     70              2002            34             33      Beginner Level
3676    200              1079            34             16          All Levels
3677    120              1566            29             36          All Levels
3678     70              1018            12             22      Beginner Level
3679     40               723           130             37          All
```

```
Levels

     content_duration      published_timestamp              subject
year
10           31 mins  2015-08-30 22:48:34+00:00      Business Finance
2015
16            1 hour  2015-03-08 19:11:24+00:00      Business Finance
2015
19          6.5 hours  2015-01-04 21:14:31+00:00  Musical Instruments
2015
23            1 hour  2015-07-10 19:53:56+00:00  Musical Instruments
2015
26            1 hour  2015-04-27 23:18:59+00:00      Business Finance
2015
...              ...                        ...                  ...
...
3675         4 hours  2015-07-16 17:07:49+00:00  Musical Instruments
2015
3676        2.5 hours  2015-05-26 20:48:48+00:00      Business Finance
2015
3677         4 hours  2015-04-20 22:15:17+00:00      Web Development
2015
3678         5 hours  2015-10-26 20:04:21+00:00  Musical Instruments
2015
3679        6.5 hours  2015-11-11 18:55:45+00:00      Web Development
2015

[1014 rows x 12 columns]
```

10. What are the max number of subcriber in for each level of course?

```
udemy.head(2)

   course_id                                        course_title
is_paid  \
0     288942  #1 Piano Hand Coordination: Play 10th Ballad i...
True
1    1170074  #10 Hand Coordination - Transfer Chord Ballad ...
True

  price  num_subscribers  num_reviews  num_lectures
level  \
0   35             3137           18            68           All
Levels
1   75             1593            1            41   Intermediate
Level
```

```
  content_duration       published_timestamp                 subject
year
0        1.5 hours 2014-09-18 05:07:05+00:00  Musical Instruments
2014
1          1 hour 2017-04-12 19:06:34+00:00  Musical Instruments
2017
```

udemy.groupby('level')['num_subscribers'].max()

```
level
All Levels          268923
Beginner Level      161029
Expert Level          5172
Intermediate Level   29167
Name: num_subscribers, dtype: int64
```

udemy.groupby('level').max()

```
                    course_id  \
level
All Levels            1277924
Beginner Level        1282064
Expert Level          1275790
Intermediate Level    1276182


                                              course_title
\
level

All Levels                    6時間でインターバンク市場を攻略！最
短距離でトレード基礎力
Beginner Level            7日でマスター ビギナー向けAdobe Illustrator  ど
きどきセミナー
Expert Level        [Value Investing] Where White People Keep Thei...

Intermediate Level                      株式投資で本当のテクニカル分析
ができるようになる


                    is_paid price  num_subscribers  num_reviews
num_lectures  \
level

All Levels             True  Free           268923        27445
544
Beginner Level         True  Free           161029         5924
779
Expert Level           True    95             5172          249
157
Intermediate Level     True  Free            29167         3326
320
```

```
                    content_duration       published_timestamp  \
level
All Levels                9.5 hours  2017-07-06 21:16:13+00:00
Beginner Level            9.5 hours  2017-07-06 21:46:30+00:00
Expert Level                9 hours  2017-07-04 18:08:01+00:00
Intermediate Level        9.5 hours  2017-07-05 04:41:54+00:00

                              subject  year
level
All Levels          Web Development  2017
Beginner Level      Web Development  2017
Expert Level        Web Development  2017
Intermediate Level  Web Development  2017
```