udemy-course

November 7, 2024

1. IMPORTING LIBRARIES

```
[1]: import pandas as pd
```

2. IMPORTING DATASET

```
[2]: data = pd.read_csv(r"H:\DA. Python\12. Udemy Course Analysis\Udemy Courses.csv")
```

3. CHECKING THE DATASET

```
[6]: data.shape
```

```
[6]: (3682, 11)
```

```
[4]: data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3682 entries, 0 to 3681
Data columns (total 11 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   course_id          3682 non-null   int64
 1   course_title       3682 non-null   object
 2   is_paid            3682 non-null   bool
 3   price              3682 non-null   object
 4   num_subscribers    3682 non-null   int64
 5   num_reviews        3682 non-null   int64
 6   num_lectures       3682 non-null   int64
 7   level              3682 non-null   object
 8   content_duration   3682 non-null   object
 9   published_timestamp 3682 non-null  object
 10  subject            3682 non-null   object
dtypes: bool(1), int64(4), object(6)
memory usage: 291.4+ KB
```

```
[7]: data.head(5)
```

```
[7]:    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
```

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

```
[9]: data.head(2)
```

```
[9]:    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
```

```
[10]: data.subject.unique()
```

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

Which subject has the maximum number of courses?

```
[13]: data.head(2)
```

```
[13]:    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
```

[11]: `data.subject.value_counts()`

```
[11]: subject
      Web Development       1200
      Business Finance      1199
      Musical Instruments    680
      Graphic Design         603
      Name: count, dtype: int64
```

Show all the courses which are free of cost?

[14]: `data.head(2)`

```
[14]:    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
```

[16]: `data[data.is_paid == False] # Using Filtering`

```
[16]:        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]
```

Show all the courses which are paid?

```
[18]:  data.head(2)
```

```
[18]:     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
```

```
[19]: data[data.is_paid == True]
```

```
[19]:       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]
```

Which are top selling courses?

```
[21]: data.head(2)
```

```
[21]:      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
[23]: data.sort_values('num_subscribers', ascending = False)
```

```
[23]:        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
      …            …                                           …        …
      1390    1136038          Free Ways to Create Passive Income Online     True
      1909    1157298  Introduction to Forex Trading Business For Beg…     True
      1910    1157298  Introduction to Forex Trading Business For Beg…     True
      1325    1187084  Forex how traders beat the markest with little…     True
      44      1231958          60 Minutes to Fundamental Accounting Skills     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
      …         …                 …            …            …                 …
      1390      25                 0            0            27     Beginner Level
      1909      20                 0            0            27     Beginner Level
      1910      20                 0            0            27     Beginner Level
      1325     100                 0            0            16          All Levels
      44        75                 0            0             9     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
      …                  …                   …                …
```

```
1390              1 hour  2017-04-17T22:33:13Z  Business Finance
1909          1.5 hours  2017-04-23T16:19:01Z  Business Finance
1910          1.5 hours  2017-04-23T16:19:01Z  Business Finance
1325              1 hour  2017-07-06T21:16:13Z  Business Finance
44            2.5 hours  2017-06-28T21:55:29Z  Business Finance

[3682 rows x 11 columns]
```

Which are least selling courses?

```
[24]: data.head(2)
```

```
[24]:    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
```

```
[25]: data.sort_values('num_subscribers', ascending = True)
```

```
[25]:       course_id                                   course_title  is_paid  \
      98       1219820  Accounting - The 6 most important rules you mu…     True
      2350      371900  Learn to create Text fire effect in Adobe Phot…     True
      3221     1057040                       Teeter-Totter Accounting     True
      649      1233314                   Building a Balanced Scorecard     True
      954      1169196  Credit concepts and checklist for bankers, cre…     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  \
      98       20                0            0             9          All Levels
      2350     20                0            0             8          All Levels
      3221     90                0            0            12       Beginner Level
      649      50                0            0            11   Intermediate Level
      954      20                0            0            10       Beginner Level
      …         …                …            …             …                  …
      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
98               1 hour    2017-05-25T21:55:50Z  Business Finance
2350            36 mins    2014-12-19T23:19:47Z    Graphic Design
3221             1 hour    2017-02-08T22:15:56Z  Business Finance
649            2 hours     2017-07-03T21:38:22Z  Business Finance
954          2.5 hours     2017-04-24T14:56:01Z  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]
```

Show all courses of graphic design where the price is below 100

```
[27]: data.head(2)
```

```
[27]:    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
```

```
[30]: data[(data.subject == 'Graphic Design') & (data.price < '100')]
```

```
[30]: Empty DataFrame
      Columns: [course_id, course_title, is_paid, price, num_subscribers, num_reviews,
      num_lectures, level, content_duration, published_timestamp, subject]
      Index: []
```

Show all the courses of web development where the price is above 50?

```
[31]: data.head(2)
```

```
[31]:     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
```

```
[32]: data[(data.subject == "Web Development") & (data.price > "50")]
```

```
[32]:        course_id                                       course_title  is_paid  \
      67        270976                              A how to guide in HTML    False
      145       425084  Administering Microsoft SQL Server 2012 Databa…     True
      193       990532  Advance Unix : File Processing: AWK | SED | GR…     True
      209       212398                          Advanced Node.js Development     True
      222       866384  Advanced WordPress Topics: Post Types Taxonomi…     True
      …            …                                               …        …
      3631      339086     WordPress Security - The Ultimate Security Guide     True
      3638     1068590                          Wordpress Website Mastery 2017    False
      3651      424864  Write PHP Like a Pro: Build a PHP MVC Framewor…     True
      3652      752706  Write quicker HTML5 and CSS 3; productivity ha…    False
      3661      688872  XML For Absolute Beginners: Learn to create yo…     True

            price  num_subscribers  num_reviews  num_lectures               level  \
      67     Free             7318          205             8       Beginner Level
      145      60              586           65            98          All Levels
      193      75              578           40            84        Expert Level
      209      55             2565           32            41        Expert Level
      222      95              301           44            91   Intermediate Level
      …        …               …            …             …                  …
      3631     60             2267           17            29          All Levels
      3638   Free             5181           64            22       Beginner Level
      3651     70             1703          435            65          All Levels
      3652   Free            13016          286            15          All Levels
      3661     75             1945           58            10       Beginner Level

            content_duration   published_timestamp           subject
      67            35 mins  2014-08-10T20:19:10Z  Web Development
      145          5.5 hours  2015-03-23T00:20:29Z  Web Development
      193          5.5 hours  2017-01-27T05:12:57Z  Web Development
      209            3 hours  2014-08-28T03:35:30Z  Web Development
      222          7.5 hours  2016-07-10T16:04:35Z  Web Development
      …                …                …                  …
```

```
3631        1.5 hours   2015-01-04T20:28:06Z   Web Development
3638        2.5 hours   2017-01-18T17:01:40Z   Web Development
3651          3 hours   2016-02-04T22:36:17Z   Web Development
3652        1.5 hours   2016-03-03T17:45:31Z   Web Development
3661           1 hour   2015-12-17T17:27:32Z   Web Development

[314 rows x 11 columns]
```

List out all the courses that are related with Python?

```
[33]: data.head(2)
```

```
[33]:    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
```

```
[42]: data[data.course_title.str.contains("Python", case = True)]
```

```
[42]:       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
```

[43]:
```python
len(data[data.course_title.str.contains("Python", case = True)])
```

[43]: 29

What are courses that published in year 2015?

[44]:
```python
data.head(2)
```

[44]:
```
   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
```

[45]:
```python
data.dtypes
```

```
[45]: 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
```

```
[46]: # Need to convert datatype of 'published_timestamp' to datetime

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

```
[47]: data.dtypes
```

```
[47]: 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
```

```
[48]: #Separate the year from this datetime column

      data['year'] = data['published_timestamp'].dt.year
```

```
[49]: data.head(2)
```

```
[49]:    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
```

[50]: `data[data.year == 2015]`

[50]:
```
        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]
```

What are the maximum number of subscribers for each level of courses?

```
[52]: data.head(2)
```

```
[52]:    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
```

```
[53]: data.level.unique()
```

```
[53]: array(['All Levels', 'Intermediate Level', 'Beginner Level',
             'Expert Level'], dtype=object)
```

```
[55]: data.groupby('level')['num_subscribers'].max()
```

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