import pandas as pd In [1]: data=pd.read\_csv(r'C:\DA project\Udemy\Udemy Courses.csv') data In [3] level content duration published timestamp Out[3]: course id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures subject Musical 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 35 3137 18 68 All Levels 1.5 hours 2014-09-18T05:07:05Z True Instruments Intermediate Musical 1593 1170074 #10 Hand Coordination - Transfer Chord Ballad ... 75 1 41 1 hour 2017-04-12T19:06:34Z True Instruments Level #12 Hand Coordination: Let your Hands dance Intermediate Musical 1193886 True 482 47 75 1 1.5 hours 2017-04-26T18:34:57Z Instruments Level Intermediate #4 Piano Hand Coordination: Fun Piano Runs in ... 1116700 75 850 43 1 hour 2017-02-21T23:48:18Z True Instruments Level Intermediate Musical 1120410 940 3 32 37 mins 2017-02-21T23:44:49Z #5 Piano Hand Coordination: Piano Runs in 2 ... 75 True Level Instruments Your Own Site in 45 Min: The Complete Web 328960 120 1566 29 36 4 hours 2015-04-20T22:15:17Z 3677 True All Levels Development Your Second Course on Piano: Two Handed Musical 552700 70 1018 22 2015-10-26T20:04:21Z 3678 True Beginner Level Instruments Zend Framework 2: Learn the PHP framework ZF2 Web 3679 631754 True 40 723 130 37 All Levels 6.5 hours 2015-11-11T18:55:45Z Development **Business** 1225194 Zoho Books Gestion Financière d'Entreprise pas... 229 33 All Levels 2 hours 2017-05-26T16:45:55Z 3680 False Free Finance Graphic Zombie Apocalypse Photoshop Actions 3681 964478 12 15 All Levels 1.5 hours 2016-09-26T22:19:48Z True Design 3682 rows × 11 columns data.head(1) Out[4]: course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures content\_duration published\_timestamp subject 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 1.5 hours 2014-09-18T05:07:05Z Musical Instruments 35 3137 18 68 All Levels What are all different subjects for which udemy is offering courses? data.subject.unique() In [5]: array(['Musical Instruments', 'Business Finance', 'Graphic Design', 'Web Development'], dtype=object) which subject has the max. no. of courses? data.head(1) In [6] Out[6]: course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 35 3137 18 All Levels 1.5 hours 2014-09-18T05:07:05Z Musical Instruments In [7] data.subject.value\_counts()# web development has max. Web Development 1200 Out[7]: **Business Finance** 1199 Musical Instruments 680 Graphic Design 603 Name: subject, dtype: int64 data.num\_subscribers.value\_counts() 70 Out[8]: 49 28 27 26 2516 1 469 1 2520 1 4569 1 10100 Name: num\_subscribers, Length: 2198, dtype: int64 Show all the courses which are free of cost. In [9]: #data[data.is\_paid==False] data.head(1) In [10] course\_id price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject Out[10]: course\_title is\_paid 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 35 3137 18 All Levels 1.5 hours 2014-09-18T05:07:05Z Musical Instruments data.is\_paid==False In [11] 0 False Out[11]: False False 3 False False 3677 False 3678 False 3679 False 3680 True 3681 False Name: is\_paid, Length: 3682, dtype: bool data[data.is\_paid==False] course\_id level content\_duration published\_timestamp Out[12]: course\_title is\_paid price num\_subscribers num\_reviews num\_lectures subject Beginner Musical 286070 5 lecciones que todo guitarrista debe tomar False 4452 263 14 1 hour 2014-08-23T05:08:14Z 41 Free Instruments Level Musical Beginner 7 Ways A Beginner Guitarist Can Sound Better, ... 4529 193 7 36 mins 2015-12-21T18:50:50Z 49 696630 False Free Instruments Level Beginner Musical 57 955914 A beginner's guide to fingerpicking and strumm... 3481 29 20 2 hours 2016-09-13T21:51:59Z False Free Level Instruments Beginner 270976 A how to guide in HTML 7318 205 8 35 mins 2014-08-10T20:19:10Z 67 False Free Development Level Beginner 6 74 1214144 ¡Triunfar en La Bolsa de Valores No Requiere d... 338 7 1 hour 2017-05-30T14:30:12Z Business Finance False Free Level WordPress in under an hour - Create/manage Web 3620 552598 6474 86 15 1 hour 2015-07-15T00:21:56Z False Free All Levels Development Beginner 1068590 5181 22 2.5 hours 2017-01-18T17:01:40Z 3638 Wordpress Website Mastery 2017 False Free Development Web Write quicker HTML5 and CSS 3; productivity ha... 13016 286 15 1.5 hours 2016-03-03T17:45:31Z 3652 752706 False Free All Levels Development Beginner Musica 1257976 924 1 hour 2017-06-29T00:29:36Z 3674 Your First 10 Guitar Lessons - Learn how to pl... False 18 Instruments Free 2 hours 2017-05-26T16:45:55Z Business Finance 3680 Zoho Books Gestion Financière d'Entreprise pas... 229 0 33 1225194 False All Levels 310 rows × 11 columns Show all the courses which are paid. data[data.is\_paid==True] Out[13]: course id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject Musical 1.5 hours 2014-09-18T05:07:05Z 288942 #1 Piano Hand Coordination: Play 10th Ballad i... True 35 3137 18 68 All Levels Instruments Intermediate Musical #10 Hand Coordination - Transfer Chord Ballad ... 1170074 True 75 1593 41 2017-04-12T19:06:34Z Level Instruments Intermediate #12 Hand Coordination: Let your Hands dance Musical 1193886 True 75 482 47 1.5 hours 2017-04-26T18:34:57Z Instruments Level Intermediate Musical #4 Piano Hand Coordination: Fun Piano Runs in ... 1116700 True 75 850 43 2017-02-21T23:48:18Z Instruments Intermediate Musical 37 mins 2017-02-21T23:44:49Z 1120410 #5 Piano Hand Coordination: Piano Runs in 2 ... True 75 940 3 32 Level Instruments Business 3676 498488 Your First Successful Forex Trades - With Case... 1079 34 16 2.5 hours 2015-05-26T20:48:48Z True 200 All Levels Finance Your Own Site in 45 Min: The Complete Web 328960 120 1566 36 4 hours 2015-04-20T22:15:17Z 3677 29 All Levels True Development Wordpres... Your Second Course on Piano: Two Handed Musical 3678 552700 True 70 1018 12 22 Beginner Level 5 hours 2015-10-26T20:04:21Z Playing Instruments Zend Framework 2: Learn the PHP framework ZF2 Web 3679 631754 40 723 130 37 2015-11-11T18:55:45Z All Levels 6.5 hours True Development Graphic 3681 50 12 15 All Levels 1.5 hours 2016-09-26T22:19:48Z 964478 Zombie Apocalypse Photoshop Actions True 1 Design 3372 rows × 11 columns Which are top selling courses? The top selling courses are those which has the max no. of subscriber #data.sort\_values('num\_subscribers', ascending=False) In [20]: data.head(1) In [14] Out[14]: course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp 0 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 35 3137 18 68 All Levels 1.5 hours 2014-09-18T05:07:05Z Musical Instruments True data.sort\_values('num\_subscribers') num\_subscribers num\_reviews num\_lectures content\_duration published\_timestamp Out[18]: course\_id course\_title is\_paid price subject Intermediate **Business** 649 1233314 50 0 Building a Balanced Scorecard True 11 2017-07-03T21:38:22Z 2 hours Level Finance **Business** 3259 1232282 The Cash Flow Statement - An Introduction 50 0 0 1.5 hours 2017-06-28T16:05:51Z 10 Beginner Level True Finance 1275872 0 0 29 3261 The Complete Adobe Spark Course True 150 All Levels 2017-07-03T17:39:57Z Graphic Design Intermediate 910 726314 Create Beautiful Image Maps for Your Website 20 0 8 2016-01-18T17:56:36Z Graphic Design True Level Business 3328 715476 The Cuckoo Strategy to get European Funding 160 0 0 6 2016-01-06T02:38:23Z True All Levels Finance Web 114512 22412 304 30.5 hours 2016-03-08T22:28:36Z 3316 764164 The Complete Web Developer Course 2.0 200 All Levels True Development Build Your First Website in 1 Week with HTML5 Web 173548 120291 3 hours 2014-04-08T16:21:30Z 640 False 5924 Beginner Level Free 30 Development Web 121584 3385 625204 200 27445 342 All Levels 43 hours 2015-11-02T21:13:27Z The Web Developer Bootcamp True Development Development Web 2230 41295 268923 8629 45 10.5 hours 2013-02-14T07:03:41Z Learn HTML5 Programming From Scratch False Free All Levels Development 3682 rows × 11 columns data.sort\_values('num\_subscribers', ascending=False) In [19] Out[19]: course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject Web 2230 41295 Learn HTML5 Programming From Scratch False Free 268923 8629 45 All Levels 10.5 hours 2013-02-14T07:03:41Z Development Web 776 59014 Coding for Entrepreneurs Basic False Free 161029 279 27 3.5 hours 2013-06-09T15:51:55Z Beginner Level Development Web 3385 625204 The Web Developer Bootcamp 200 121584 27445 342 All Levels 43 hours 2015-11-02T21:13:27Z True Development Build Your First Website in 1 Week with HTML5 Web 640 173548 120291 5924 2014-04-08T16:21:30Z False Free 30 Beginner Level 3 hours Development Web 3316 764164 The Complete Web Developer Course 2.0 200 114512 22412 304 All Levels 30.5 hours 2016-03-08T22:28:36Z True Development Musical 0 0 6 2290 Learn Pirates of the Caribbean by Ear on the P... True 20 All Levels 32 mins 2017-05-22T17:14:43Z Instruments Intermediate Business 0 0 1267 1258666 Financial Statement Auditing Cycles True 50 9 2 hours 2017-06-29T23:20:10Z Level Finance **Business** 1215926 0 0 12 2070 Kickstarter success in 5 easy steps True 20 All Levels 31 mins 2017-05-16T14:55:28Z Finance Introduction to Project Management for Business 1247992 0 1931 True 50 0 9 Beginner Level 2 hours 2017-07-03T21:40:32Z Finance Stop Creditors from Harassing you and Avoid **Business** 0 1087466 0 37 mins 2017-02-02T16:22:37Z 3165 True 20 7 Beginner Level Finance 3682 rows × 11 columns Which are the least selling courses? #data.sort\_values('num\_subscribers') In [21]: data.sort\_values('num\_subscribers') course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures published\_timestamp Out[22]: level content\_duration subject Intermediate **Business** 1233314 2017-07-03T21:38:22Z 649 **Building a Balanced Scorecard** True 50 0 0 11 Level Finance **Business** The Cash Flow Statement - An Introduction 3259 1232282 True 50 0 0 10 Beginner Level 1.5 hours 2017-06-28T16:05:51Z Finance 0 0 2017-07-03T17:39:57Z Graphic Design 3261 1275872 The Complete Adobe Spark Course 150 29 All Levels 2 hours True Intermediate 910 726314 Create Beautiful Image Maps for Your Website 20 0 0 8 2016-01-18T17:56:36Z True Graphic Design Level Business 3328 715476 The Cuckoo Strategy to get European Funding True 160 0 0 6 All Levels 2016-01-06T02:38:23Z 1 hour Finance Web 3316 764164 The Complete Web Developer Course 2.0 200 114512 22412 304 All Levels 2016-03-08T22:28:36Z Development Build Your First Website in 1 Week with HTML5 Web 640 173548 False Free 120291 5924 Beginner Level 3 hours 2014-04-08T16:21:30Z Development Web 3385 625204 The Web Developer Bootcamp True 200 121584 27445 342 All Levels 2015-11-02T21:13:27Z Development Web Beginner Level 776 59014 Coding for Entrepreneurs Basic False Free 161029 279 3.5 hours 2013-06-09T15:51:55Z Development Web 2230 41295 Learn HTML5 Programming From Scratch 268923 8629 All Levels 10.5 hours 2013-02-14T07:03:41Z Development 3682 rows × 11 columns Show all courses of Web Development where the price is below 200 #data[(data.subject=='Web Development') & (data.price<'200')]</pre> In [25] data.head(1)is\_paid Out[25]: course\_id course\_title price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 35 3137 18 68 All Levels 1.5 hours 2014-09-18T05:07:05Z Musical Instruments data.subject=='Web Development' In [26] 0 False Out[26]: False False 3 False False 3677 True 3678 False 3679 True 3680 False 3681 False Name: subject, Length: 3682, dtype: bool data[data.subject=='Web Development'] course\_id course\_title is\_paid num\_subscribers num\_reviews content\_duration published\_timestamp subject Out[27]: Beginner Web 11 64605 1 Hour CSS 100 18324 333 16 1 hour 2013-07-09T20:27:14Z True Development Level Beginner Web 12 64422 1 Hour HTML True 200 16212 514 20 1 hour 2013-07-09T03:16:26Z Level Development Beginner 1 hour 2013-07-04T15:27:02Z 13 63612 1 Hour JavaScript 200 22999 602 18 True Development Leve Web Beginner 72262 1 hour jQuery 100 5456 133 25 1 hour 2013-08-03T14:20:52Z 14 True Development Beginner 24 975916 17 Complete JavaScript projects explained st... 185 327 26 106 9.5 hours 2016-10-26T14:03:38Z True Level Development Web 42 mins 2016-09-27T18:01:26Z 3666 969170 XSD :basics for beginners 35 755 0 All Levels Development Web 3667 968278 XSLT :basics for beginners True 35 877 6 7 All Levels 32 mins 2016-09-27T15:14:59Z Development 2.5 hours 2015-09-12T01:35:41Z 3670 560996 You can create Incredible Websites with HTML C ... 100 11892 50 28 All Levels Development Web 3677 328960 Your Own Site in 45 Min: The Complete Wordpres... 120 1566 36 All Levels 4 hours 2015-04-20T22:15:17Z Development Zend Framework 2: Learn the PHP framework ZF2 All Levels 3679 631754 40 723 130 37 6.5 hours 2015-11-11T18:55:45Z Development 1200 rows × 11 columns data[(data.subject=='Web Development') & (data.price<'200')]</pre> level content duration published timestamp Out[24]: course\_title is\_paid price num\_subscribers num\_reviews num\_lectures subject course id 11 64605 1 Hour CSS 333 1 hour 2013-07-09T20:27:14Z True 100 18324 16 Beginner Level Development 1 hour 2013-08-03T14:20:52Z 72262 1 hour jQuery True Beginner Level Development 17 Complete JavaScript projects explained st... Beginner Level 24 975916 185 327 26 9.5 hours 2016-10-26T14:03:38Z Development 50 665042 8 Beautiful Ruby on Rails Apps in 30 Days & TD... True 100 5962 466 132 All Levels 16 hours 2016-03-08T07:36:40Z Development A Very Complete Introduction To Laravel 43 2014-08-24T16:47:54Z 71 281690 True 20 2320 114 All Levels Development Intermediate Web 3633 512000 20 1169 110 64 2015-09-10T00:48:11Z WordPress Theme Academy with Bootstrap True 7.5 hours Development Level Web 1211800 20 1052 47 2017-05-17T22:55:23Z 3635 Wordpress Theme Development for Beginners 14 All Levels True 8 hours Development X theme for WordPress: Responsive web design 3654 440006 20 1318 81 55 2015-03-22T22:46:36Z True All Levels 7 hours Development Web 3670 560996 You can create Incredible Websites with HTML C... 100 11892 50 28 All Levels 2015-09-12T01:35:41Z 2.5 hours True Development Your Own Site in 45 Min: The Complete 3677 328960 120 1566 29 36 All Levels 4 hours 2015-04-20T22:15:17Z True Development 454 rows × 11 columns List out all the courses that are related with pyhton #data[data.course\_title.str.contains('python')] In [28]: data.head(1) In [29] Out[29]: course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures content\_duration published\_timestamp subject 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 0 3137 18 68 All Levels 2014-09-18T05:07:05Z Musical Instruments data[data.course\_title.str.contains('python')] course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp Out[32]: len(data[data.course\_title.str.contains('pyhton')]) Out[33]: 0 What are courses that published in year 2015? data.head(1) In [34]: price num\_subscribers num\_reviews num\_lectures content\_duration published\_timestamp subject Out[34]: course\_id course\_title is\_paid level 288942 #1 Piano Hand Coordination: Play 10th Ballad i... 3137 18 All Levels True 35 1.5 hours 2014-09-18T05:07:05Z Musical Instruments data.dtypes In [35] course\_id int64 Out[35]: 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 data['published\_timestamp']=pd.to\_datetime(data.published\_timestamp) In [41]: In [42]: data.dtypes course\_id int64 Out[42]: 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] object dtype: object #data['year']=data['published\_timestamp'].dt.year In [44]: data['year']=data['published\_timestamp'].dt.year In [45]: data.head(1) course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject year Out[45]: #1 Piano Hand Coordination: Play 10th Ballad 2014-09-18 Musical 288942 35 3137 18 1.5 hours True Levels 05:07:05+00:00 Instruments data[data.year==2015] Out[46]: course\_id course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration published\_timestamp subject year 1 - Concepts of Statistics For Beginners Step 2015-08-30 **Business** 10 591880 True 200 273 15 Beginner Level 31 mins 2015 22:48:34+00:00 Finance 2015-03-08 10 Numbers Every Business Owner Should Business 16 302450 True 20 13 1 9 All Levels 1 hour 2015 Know 19:11:24+00:00 Finance 101 Blues riffs - learn how the harmonica Intermediate 2015-01-04 Musical 65 19 384928 True 200 1350 55 6.5 hours 2015 21:14:31+00:00 Level Instruments 16 Guitar Chords to Jam With - (Beginner -2015-07-10 Musical 23 550842 True 20 1224 19 Beginner Level 1 hour 2015 Int... 19:53:56+00:00 Instruments 2 Easy Steps To Investment And Avoiding 2015-04-27 **Business** 26 486240 True 20 828 1 20 All Levels 1 hour 2015 Traps 23:18:59+00:00 Finance 2015-07-16 Musical 3675 551170 Your First Course on Piano 70 2002 34 33 Beginner Level 4 hours 2015 True 17:07:49+00:00 Instruments 2015-05-26 Your First Successful Forex Trades - With Business 3676 498488 200 1079 34 All Levels 2.5 hours 2015 True 16 20:48:48+00:00 Finance 2015-04-20 Your Own Site in 45 Min: The Complete Web 3677 328960 True 120 1566 29 36 All Levels 4 hours 2015 22:15:17+00:00 Wordpres... Development Your Second Course on Piano: Two Handed 2015-10-26 Musical 3678 552700 70 1018 12 22 Beginner Level 5 hours 2015 True 20:04:21+00:00 Instruments Zend Framework 2: Learn the PHP framework 2015-11-11 Web 3679 631754 True 40 723 130 37 All Levels 6.5 hours 2015 18:55:45+00:00 ZF2 ... Development 1014 rows × 12 columns What are the max no. of subscribers for each level of courses? #data.groupby('level')['num\_subscribers'].max() #data.groupby('level').max() data.head(1) In [48] course\_title is\_paid price num\_subscribers num\_reviews num\_lectures level content\_duration course\_id published\_timestamp subject year Out[48]: #1 Piano Hand Coordination: Play 10th Ballad 2014-09-18 Musical 288942 3137 18 1.5 hours 2014 35 68 True 05:07:05+00:00 Levels Instruments In [49]: data.level.unique() Out[49]: array(['All Levels', 'Intermediate Level', 'Beginner Level', 'Expert Level'], dtype=object) data.groupby('level') In [50]: <pandas.core.groupby.generic.DataFrameGroupBy object at 0x0000001827A99EB0> Out[50]: data.groupby('level')['num\_subscribers'].max() In [51] level Out[51]: All Levels 268923 Beginner Level 161029 Expert Level 5172 Intermediate Level 29167 Name: num\_subscribers, dtype: int64 #If min In [52]: data.groupby('level')['num\_subscribers'].min() Out[52]: level 0 All Levels Beginner Level 0 Expert Level 1 Intermediate Level Name: num\_subscribers, dtype: int64