Udemy Course Analysis

-Group 21

Bindu Parvati, Jonnala Gadda –16338568

Introduction

- Udemy, Inc. operates an edtech platform that delivers online learning and teaching services.
- The platform features a broad range of courses spanning various fields such as business, academics, the arts, health and fitness, language, music, and technology.
- The primary objective of the project is to conduct statistical analysis on the course data available on Udemy.

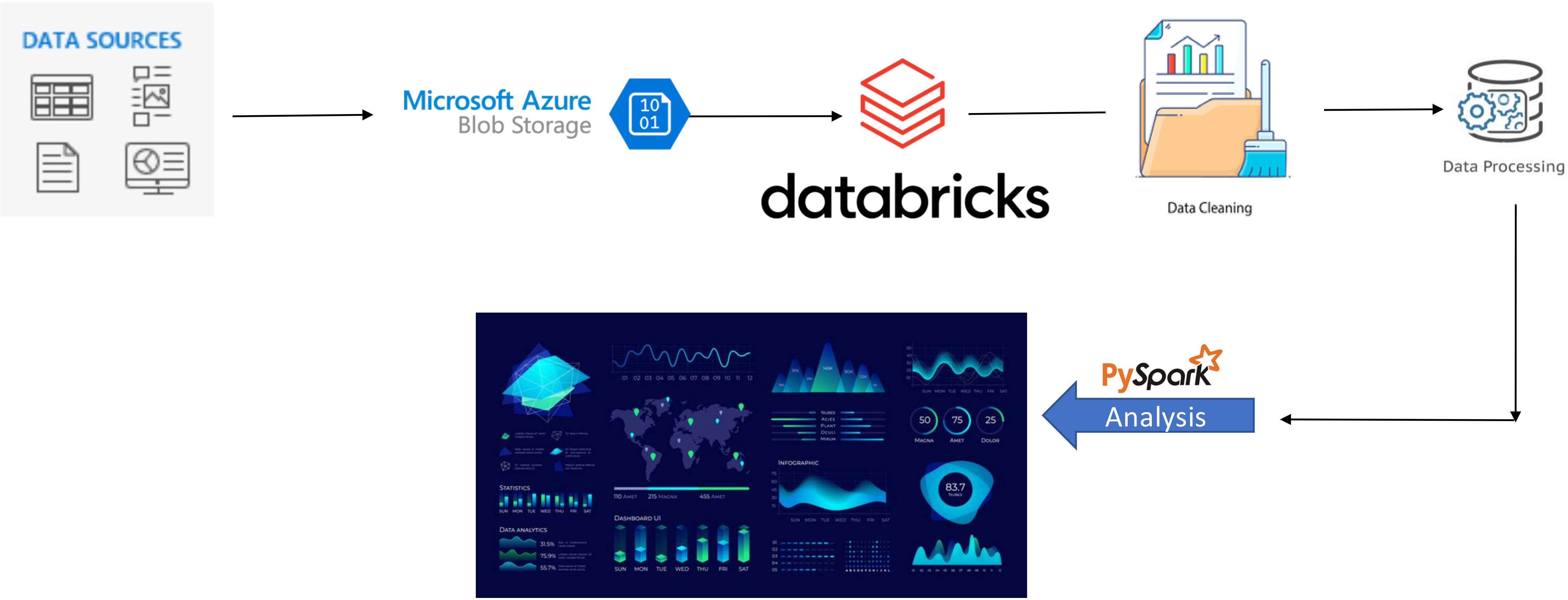
About dataset

Name: Udemy courses
Data size: ~1.6GB
Date – October 2022
No of files: 2
No of columns: 23

It has detailed information on all the Udemy courses. The data is segregated into 2 CSV files:

- Comments: This file contains over 9 million comments and ratings. It has 6 columns (comment_id, course_id, rate, date , display_name, comment)
- Course_info: This file holds the information of 209,734 courses offered by Udemy and 73,514 instructors teaching in 79 languages in 13 different categories. It has 17 columns(course_id, course_title, is_paid, price, headline, num_subscribers, num_lectures, content_length_min, published_time, last_update_date, category, subcategory, topic, language, course_url, instructor_name, instructor_url
- Data Source: Kaggle

Architecture



DATA SOURCES

Microsoft Azure Blob Storage

databricks

Data Cleaning

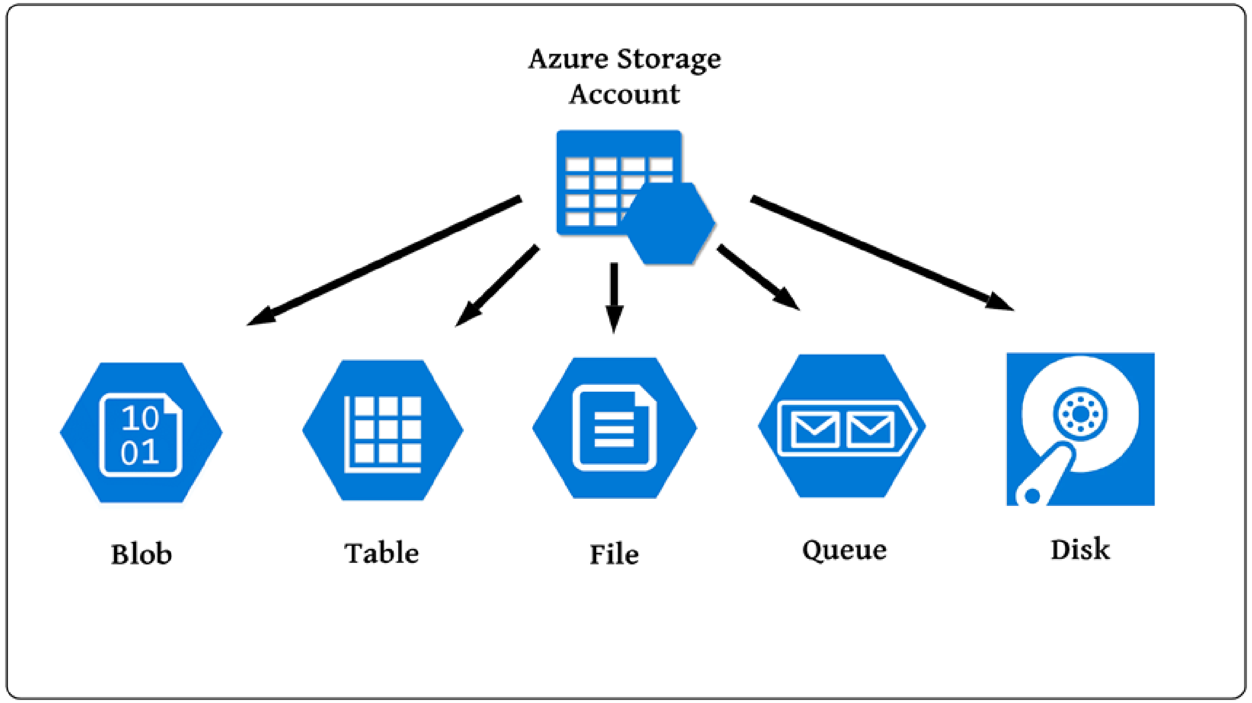
Data Processing

PySpark

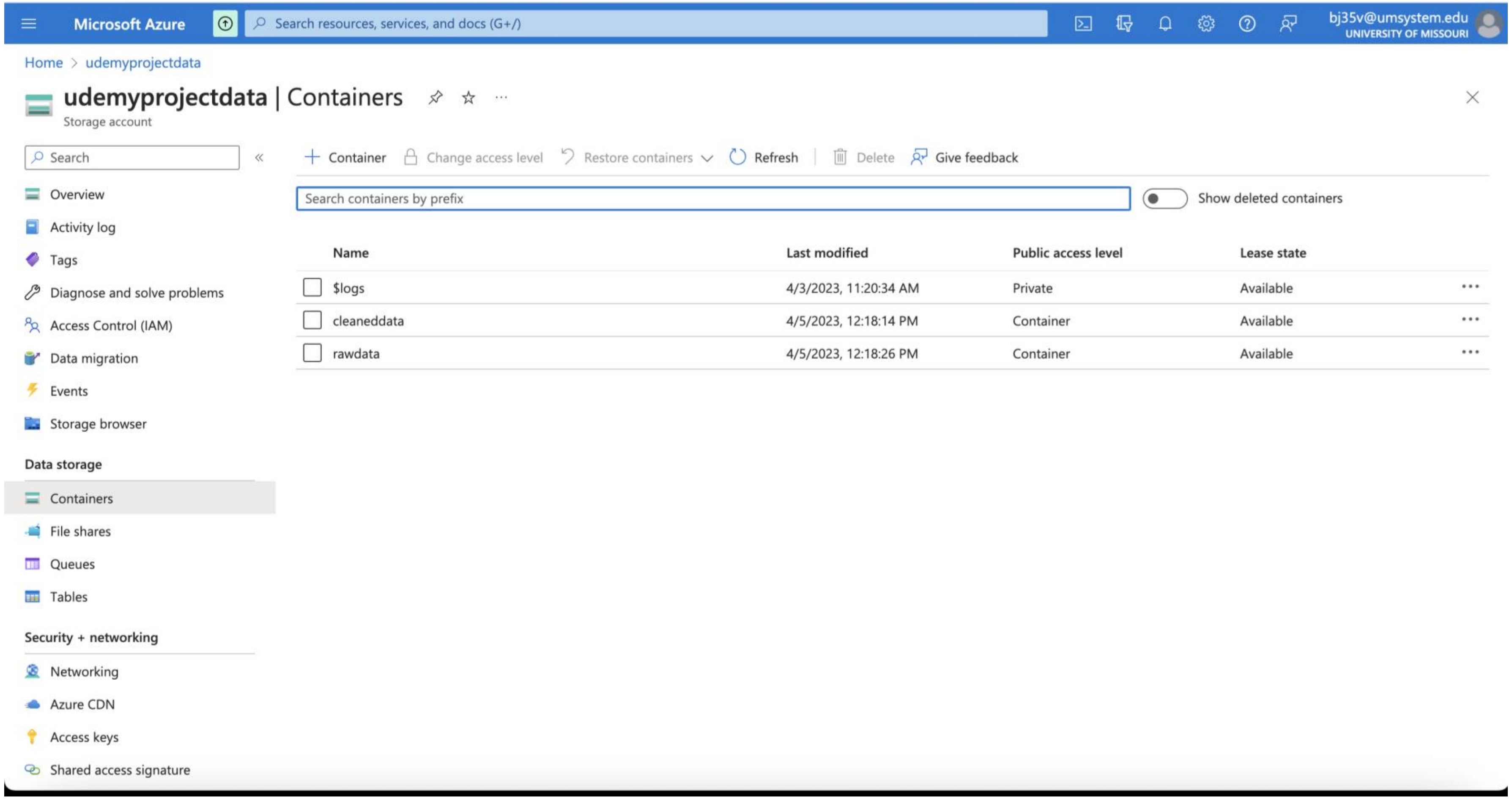
Analysis

Storage Account

- All Azure Storage data objects, such as blobs, file shares, queues, tables, and disks, are included in an Azure storage account.
- A storage account offers a distinct namespace and is reachable through HTTP or HTTPS from anywhere in the globe.
- robust, very accessible, safe, and incredibly expandable.
- Blob storage is a type of cloud storage that is designed to hold large volumes of unstructured data.



Storage Account Creation in Azure



Home > udemyprojectdata

udemyprojectdata | Containers

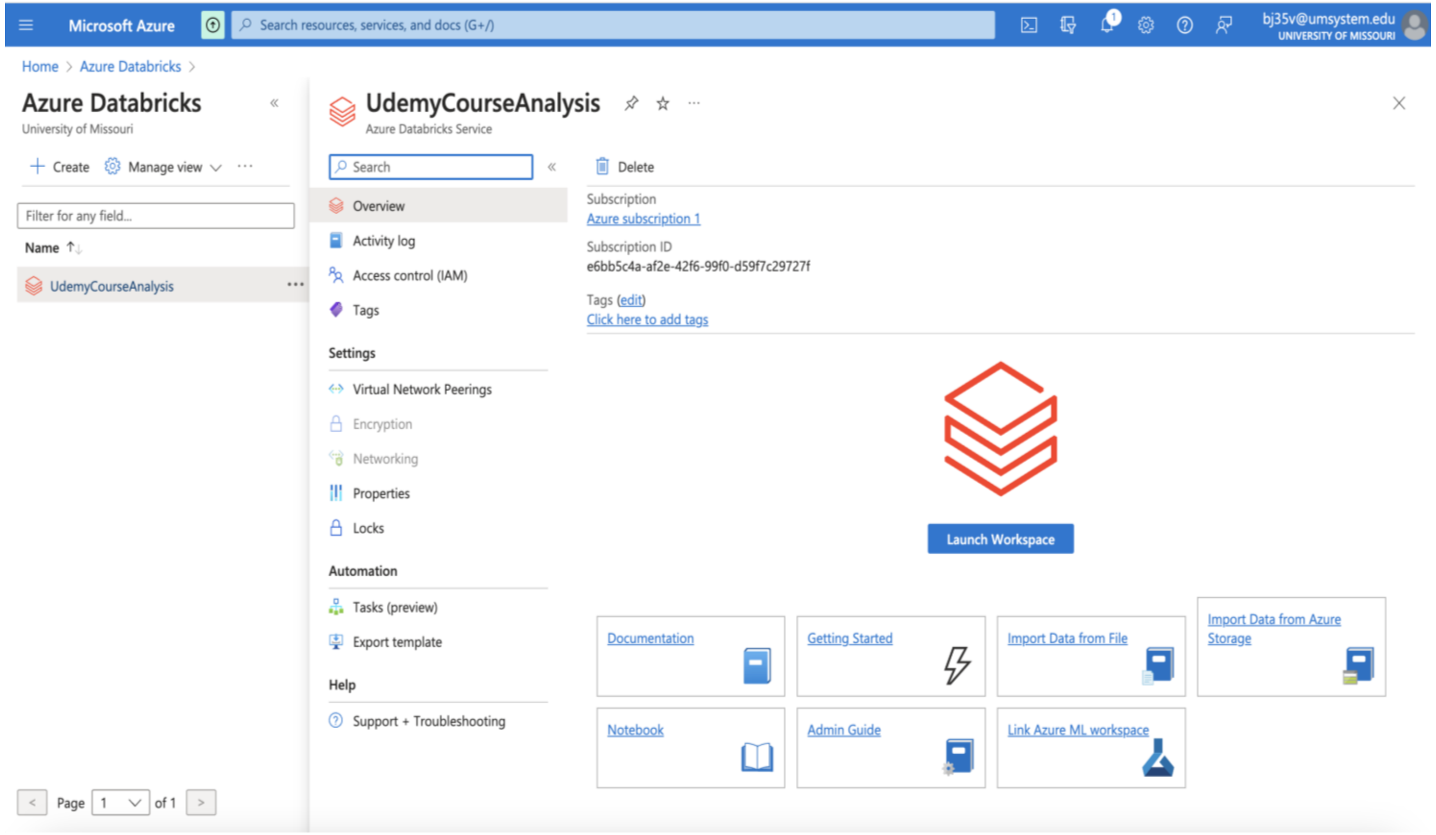
Storage account

Name	Last modified	Public access level	Lease state
□ $logs	4/3/2023, 11:20:34 AM	Private	Available
□ cleaneddata	4/5/2023, 12:18:14 PM	Container	Available
□ rawdata	4/5/2023, 12:18:26 PM	Container	Available

Azure Databricks

For creating, implementing, sharing, and maintaining organization-grade data solutions at scale, Azure Databricks provides a standardized collection of tools.

The Microsoft Azure Databricks Lakehouse Platform integrates with your cloud account's cloud storage and security while managing and deploying cloud infrastructure on your behalf.



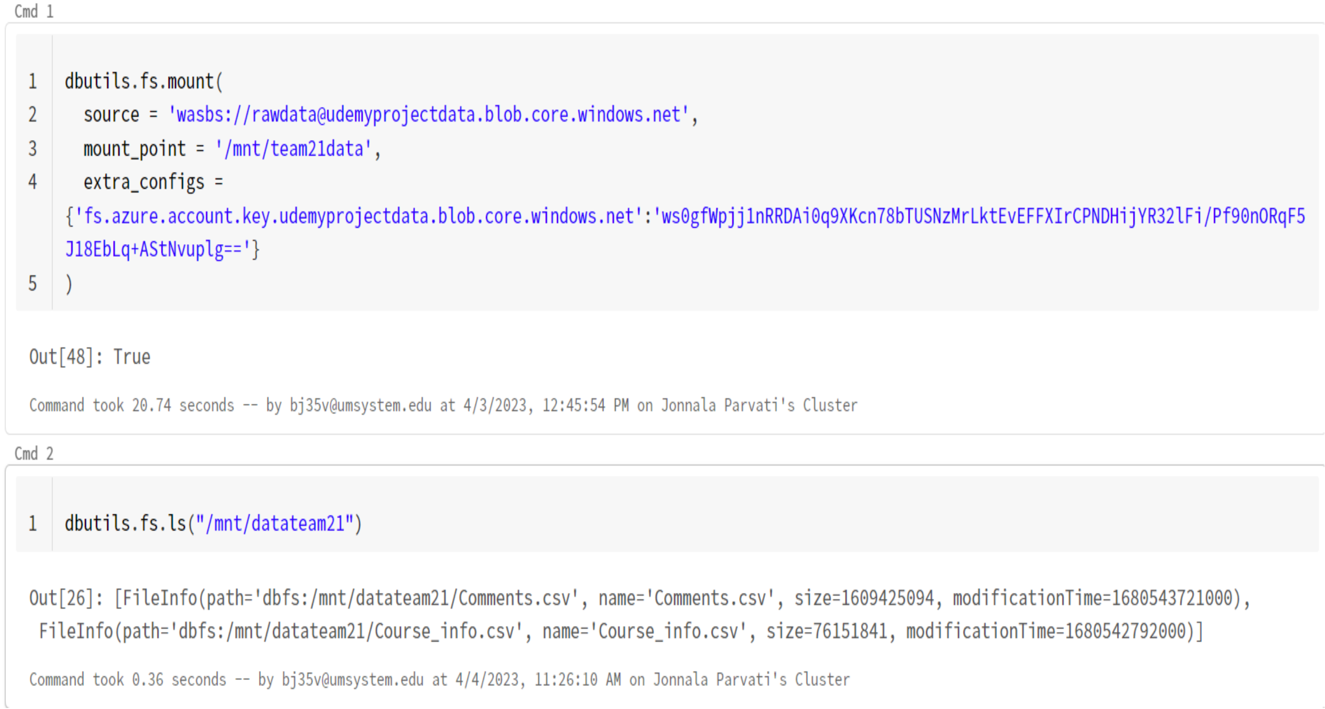
Subscription
Azure subscription 1

Subscription ID
e6bb5c4a-af2e-42f6-99f0-d59f7c29727f

Tags (edit)
Click here to add tags

Environment setup and Tasks performed

- Mounting Blob storage with Databricks Notebook
- Data cleaning by removal of nulls
- Identified and re-created the messy data
- Re-indexing and re-arranging the columns
- Defining Schema and Data filtering
- Basic analysis of the data



Cmd 1

```
dbutils.fs.mount(
  source = 'wasbs://rawdata@udemyprojectdata.blob.core.windows.net',
  mount_point = '/mnt/team21data',
  extra_configs =
{'fs.azure.account.key.udemyprojectdata.blob.core.windows.net':'ws0gfWpjj1nRRDAi0q9XKcn78bTUSNzMrLktEvEFFXIrCPNDHijYR32lFi/Pf90nORqF5
J18EbLq+AStNvuplg=='}
)
```

```
Out[48]: True
```

Command took 20.74 seconds -- by bj35v@umsystem.edu at 4/3/2023, 12:45:54 PM on Jonnala Parvati's Cluster

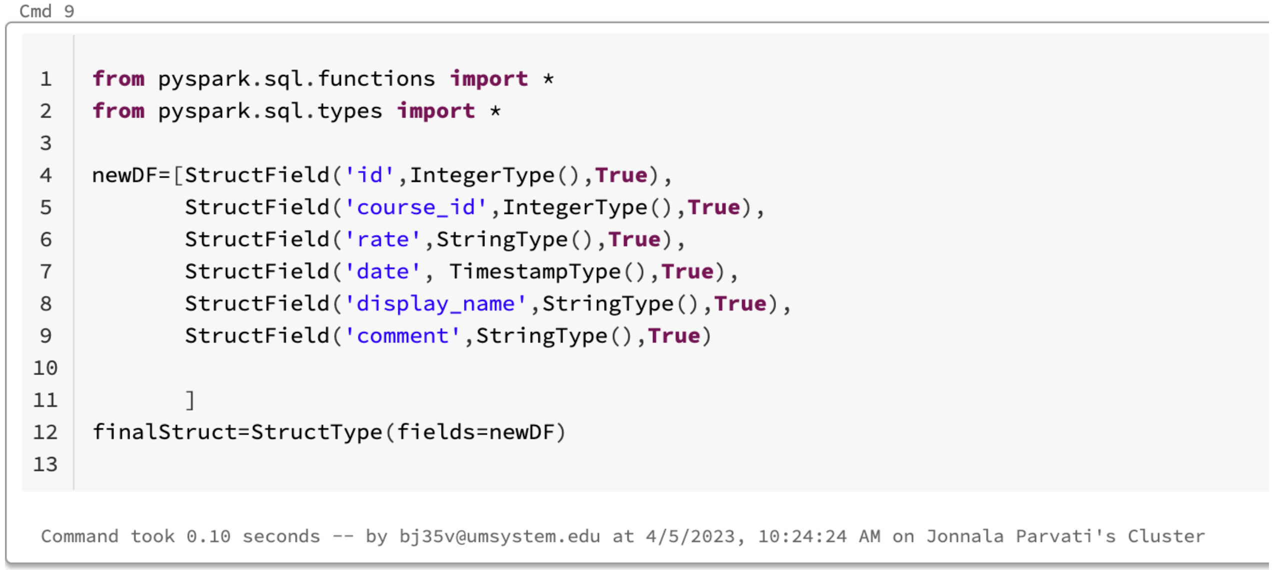
Cmd 2

```
dbutils.fs.ls("/mnt/datateam21")
```

```
Out[26]: [FileInfo(path='dbfs:/mnt/datateam21/Comments.csv', name='Comments.csv', size=1609425094, modificationTime=1680543721000),
 FileInfo(path='dbfs:/mnt/datateam21/Course_info.csv', name='Course_info.csv', size=76151841, modificationTime=1680542792000)]
```

Command took 0.36 seconds -- by bj35v@umsystem.edu at 4/4/2023, 11:26:10 AM on Jonnala Parvati's Cluster

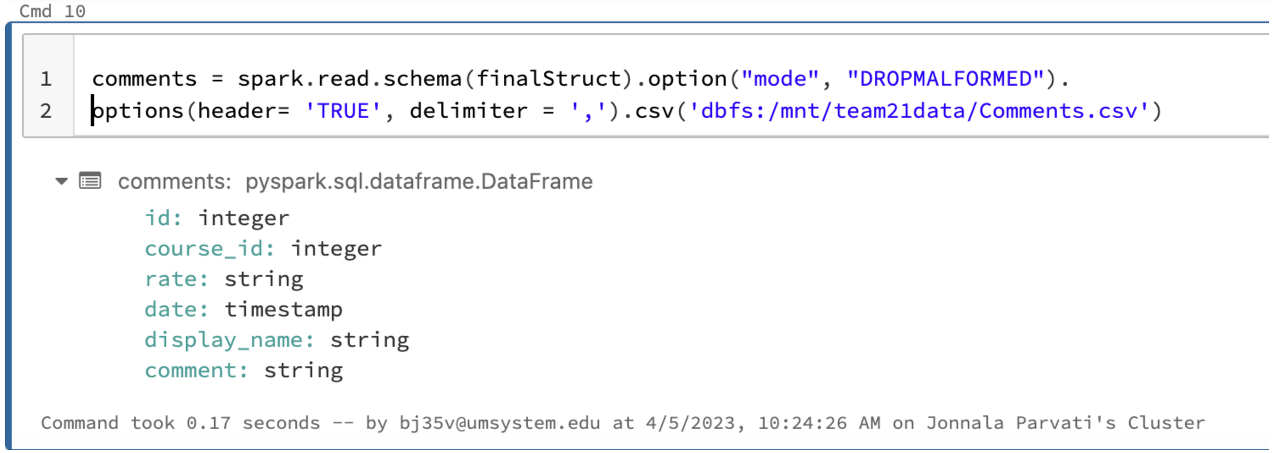
Defining Schema



Cmd 9

```python
from pyspark.sql.functions import *
from pyspark.sql.types import *

newDF=[StructField('id',IntegerType(),True),
       StructField('course_id',IntegerType(),True),
       StructField('rate',StringType(),True),
       StructField('date', TimestampType(),True),
       StructField('display_name',StringType(),True),
       StructField('comment',StringType(),True)

       ]
finalStruct=StructType(fields=newDF)

```

Command took 0.10 seconds -- by bj35v@umsystem.edu at 4/5/2023, 10:24:24 AM on Jonnala Parvati's Cluster

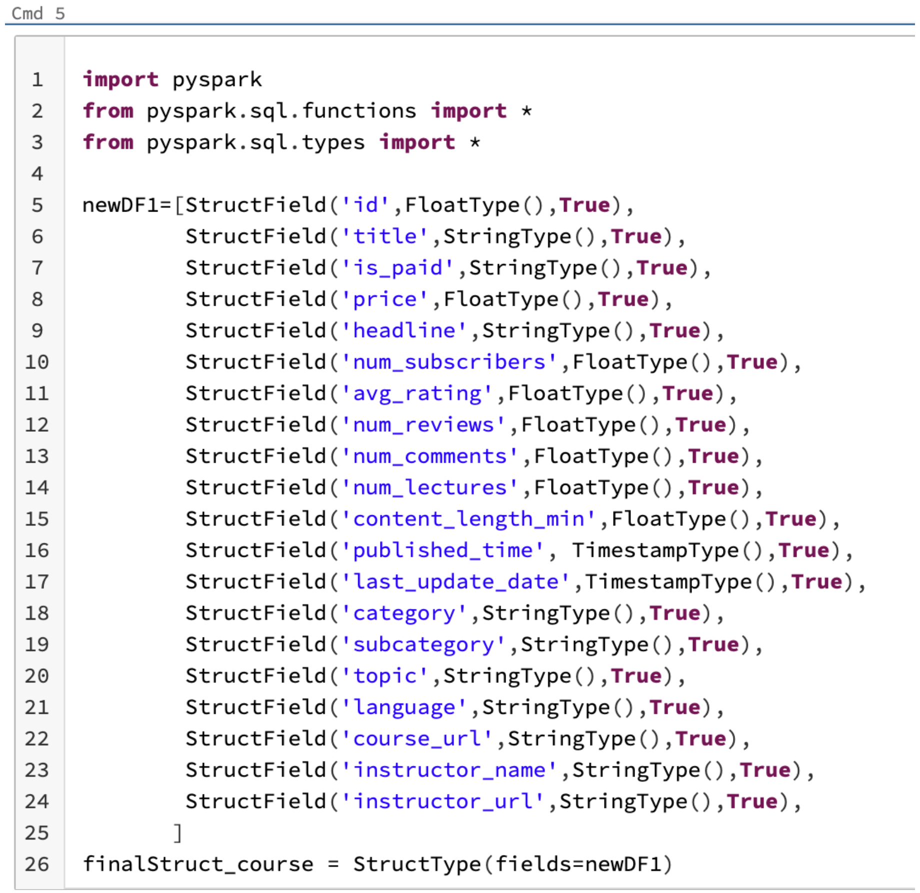


Cmd 10

```python
comments = spark.read.schema(finalStruct).option("mode", "DROPMALFORMED").
options(header= 'TRUE', delimiter = ',').csv('dbfs:/mnt/team21data/Comments.csv')
```

```
comments: pyspark.sql.dataframe.DataFrame
    id: integer
    course_id: integer
    rate: string
    date: timestamp
    display_name: string
    comment: string
```

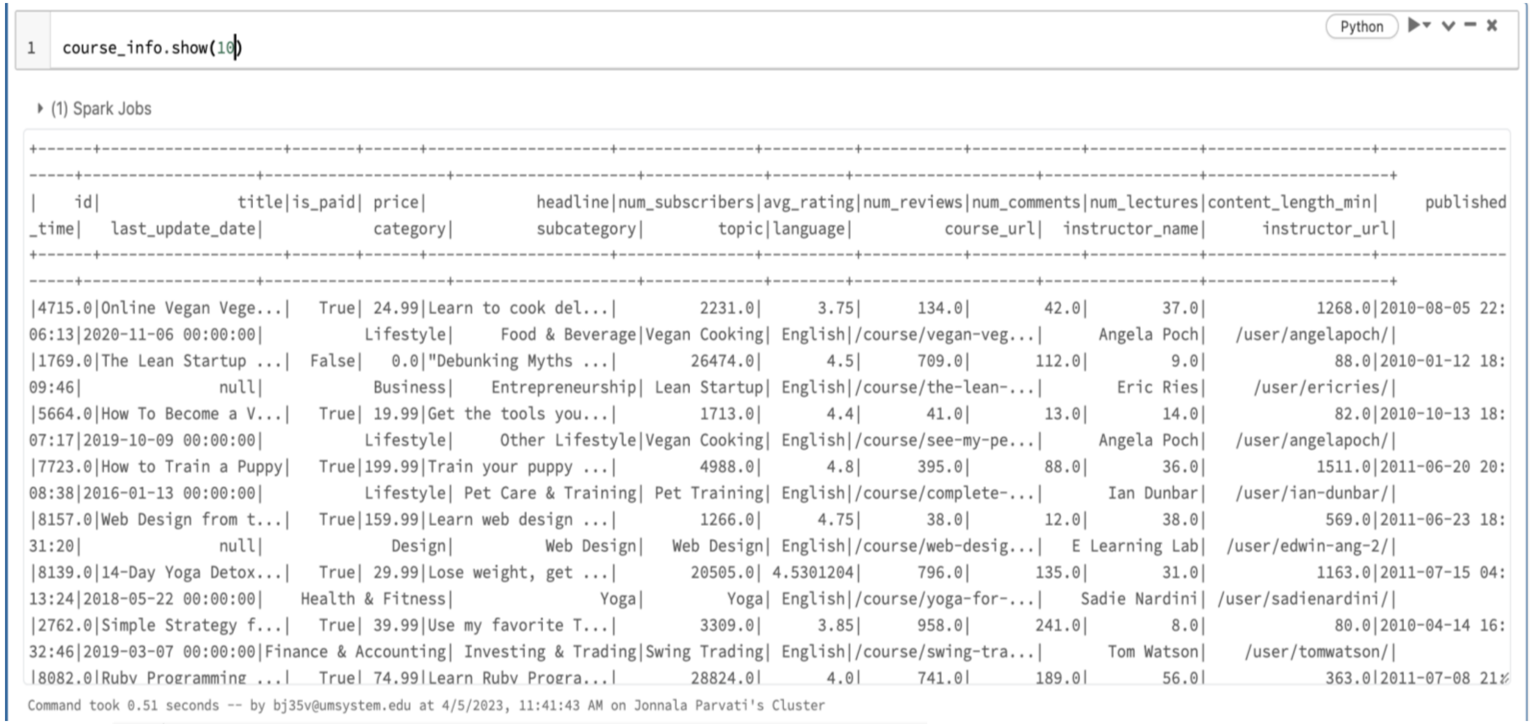
Command took 0.17 seconds -- by bj35v@umsystem.edu at 4/5/2023, 10:24:26 AM on Jonnala Parvati's Cluster



Cmd 5

```python
import pyspark
from pyspark.sql.functions import *
from pyspark.sql.types import *

newDF1=[StructField('id',FloatType(),True),
        StructField('title',StringType(),True),
        StructField('is_paid',StringType(),True),
        StructField('price',FloatType(),True),
        StructField('headline',StringType(),True),
        StructField('num_subscribers',FloatType(),True),
        StructField('avg_rating',FloatType(),True),
        StructField('num_reviews',FloatType(),True),
        StructField('num_comments',FloatType(),True),
        StructField('num_lectures',FloatType(),True),
        StructField('content_length_min',FloatType(),True),
        StructField('published_time', TimestampType(),True),
        StructField('last_update_date',TimestampType(),True),
        StructField('category',StringType(),True),
        StructField('subcategory',StringType(),True),
        StructField('topic',StringType(),True),
        StructField('language',StringType(),True),
        StructField('course_url',StringType(),True),
        StructField('instructor_name',StringType(),True),
        StructField('instructor_url',StringType(),True),
       ]
finalStruct_course = StructType(fields=newDF1)
```

Data

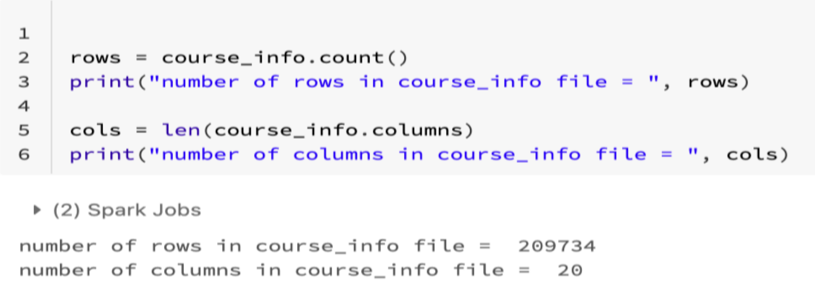


```
course_info.show(10)
```

▸ (1) Spark Jobs

```
+------+--------------------+------+-----+--------------------+---------------+----------+-----------+------------+------------+------------------+-------------
-----+-------------------+--------------------+--------------------+--------------+--------+--------------------+-----------------+--------------------+
|    id|               title|is_paid| price|            headline|num_subscribers|avg_rating|num_reviews|num_comments|num_lectures|content_length_min|     published
_time|   last_update_date|            category|         subcategory|         topic|language|          course_url|  instructor_name|      instructor_url|
+------+--------------------+------+-----+--------------------+---------------+----------+-----------+------------+------------+------------------+-------------
-----+-------------------+--------------------+--------------------+--------------+--------+--------------------+-----------------+--------------------+
|4715.0|Online Vegan Vege...|   True| 24.99|Learn to cook del...|         2231.0|      3.75|      134.0|        42.0|        37.0|            1268.0|2010-08-05 22:
06:13|2020-11-06 00:00:00|           Lifestyle|     Food & Beverage|Vegan Cooking| English|/course/vegan-veg...|      Angela Poch|   /user/angelapoch/|
|1769.0|The Lean Startup ...|  False|   0.0|"Debunking Myths ...|        26474.0|       4.5|      709.0|       112.0|         9.0|              88.0|2010-01-12 18:
09:46|               null|            Business|    Entrepreneurship| Lean Startup| English|/course/the-lean-...|        Eric Ries|     /user/ericries/|
|5664.0|How To Become a V...|   True| 19.99|Get the tools you...|         1713.0|       4.4|       41.0|        13.0|        14.0|              82.0|2010-10-13 18:
07:17|2019-10-09 00:00:00|           Lifestyle|     Other Lifestyle|Vegan Cooking| English|/course/see-my-pe...|      Angela Poch|   /user/angelapoch/|
|7723.0|How to Train a Puppy|   True|199.99|Train your puppy ...|         4988.0|       4.8|      395.0|        88.0|        36.0|            1511.0|2011-06-20 20:
08:38|2016-01-13 00:00:00|           Lifestyle| Pet Care & Training| Pet Training| English|/course/complete-...|       Ian Dunbar|   /user/ian-dunbar/|
|8157.0|Web Design from t...|   True|159.99|Learn web design ...|         1266.0|      4.75|       38.0|        12.0|        38.0|             569.0|2011-06-23 18:
31:20|               null|              Design|          Web Design|   Web Design| English|/course/web-desig...|   E Learning Lab|  /user/edwin-ang-2/|
|8139.0|14-Day Yoga Detox...|   True| 29.99|Lose weight, get ...|        20505.0| 4.5301204|      796.0|       135.0|        31.0|            1163.0|2011-07-15 04:
13:24|2018-05-22 00:00:00|    Health & Fitness|                Yoga|         Yoga| English|/course/yoga-for-...|    Sadie Nardini| /user/sadienardini/|
|2762.0|Simple Strategy f...|   True| 39.99|Use my favorite T...|         3309.0|      3.85|      958.0|       241.0|         8.0|              80.0|2010-04-14 16:
32:46|2019-03-07 00:00:00|Finance & Accounting| Investing & Trading|Swing Trading| English|/course/swing-tra...|       Tom Watson|    /user/tomwatson/|
|8082.0|Ruby Programming ...|   True| 74.99|Learn Ruby Progra...|        28824.0|       4.0|      741.0|       189.0|        56.0|             363.0|2011-07-08 21:
```

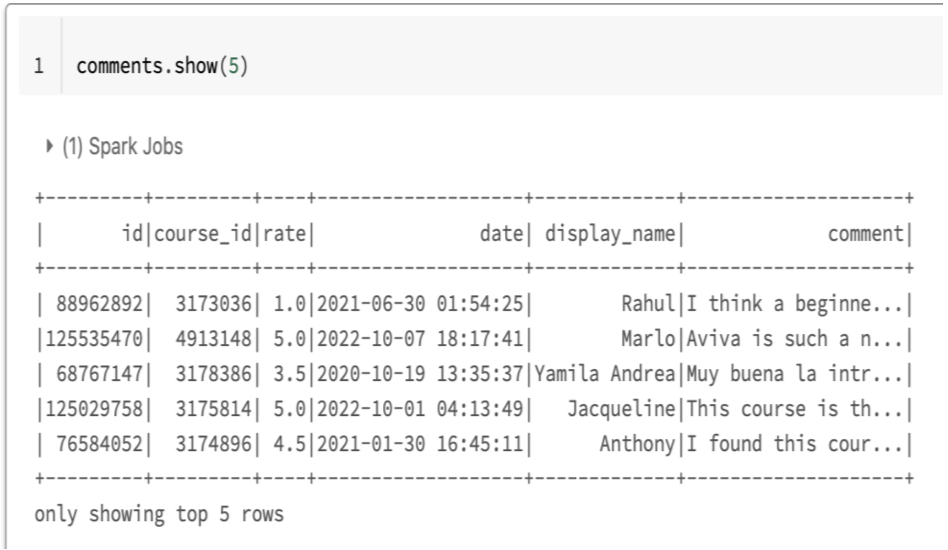
Command took 0.51 seconds -- by bj35v@umsystem.edu at 4/5/2023, 11:41:43 AM on Jonnala Parvati's Cluster



```python

rows = course_info.count()
print("number of rows in course_info file = ", rows)

cols = len(course_info.columns)
print("number of columns in course_info file = ", cols)
```

▸ (2) Spark Jobs

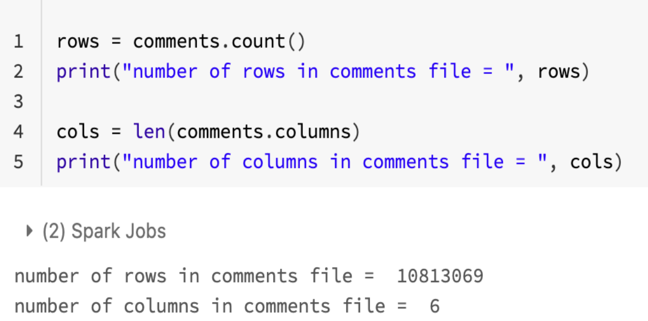
```
number of rows in course_info file =  209734
number of columns in course_info file =  20
```



```
comments.show(5)
```

▸ (1) Spark Jobs

```
+---------+---------+----+-------------------+------------+--------------------+
|       id|course_id|rate|               date|display_name|             comment|
+---------+---------+----+-------------------+------------+--------------------+
| 88962892|  3173036| 1.0|2021-06-30 01:54:25|       Rahul|I think a beginne...|
|125535470|  4913148| 5.0|2022-10-07 18:17:41|       Marlo|Aviva is such a n...|
| 68767147|  3178386| 3.5|2020-10-19 13:35:37|Yamila Andrea|Muy buena la intr...|
|125029758|  3175814| 5.0|2022-10-01 04:13:49|  Jacqueline|This course is th...|
| 76584052|  3174896| 4.5|2021-01-30 16:45:11|     Anthony|I found this cour...|
+---------+---------+----+-------------------+------------+--------------------+
only showing top 5 rows
```



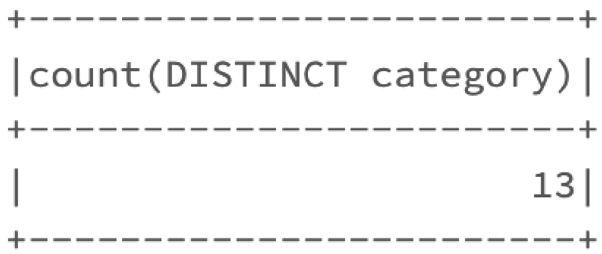
```python
rows = comments.count()
print("number of rows in comments file = ", rows)

cols = len(comments.columns)
print("number of columns in comments file = ", cols)
```

▸ (2) Spark Jobs

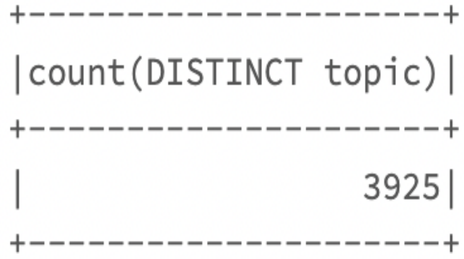
```
number of rows in comments file =  10813069
number of columns in comments file =  6
```

Exploratory Analysis

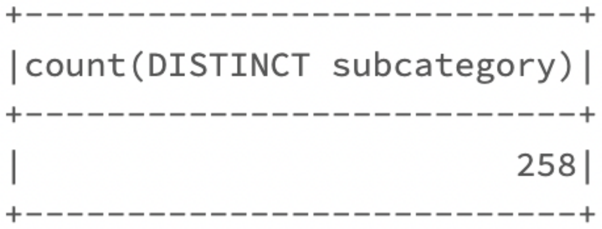
- Number of categories: 13
- Number of subcategories: 258
- Number of topics:3925
- Number of paid courses:187959
- Number of free courses:21733
- Number of Instructors:72893



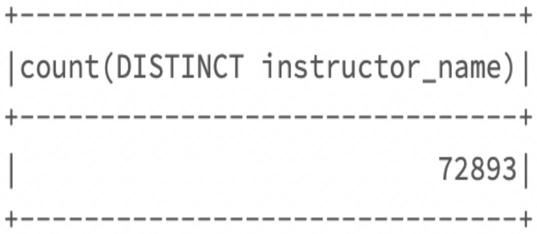
```
+------------------------+
|count(DISTINCT category)|
+------------------------+
|                      13|
+------------------------+
```



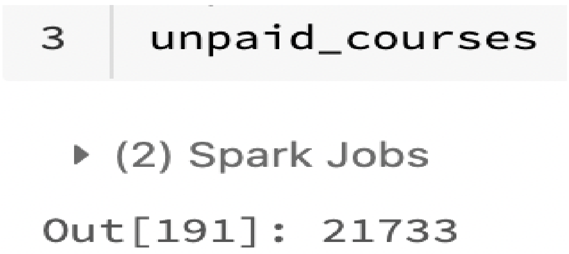
```
+---------------------+
|count(DISTINCT topic)|
+---------------------+
|                 3925|
+---------------------+
```



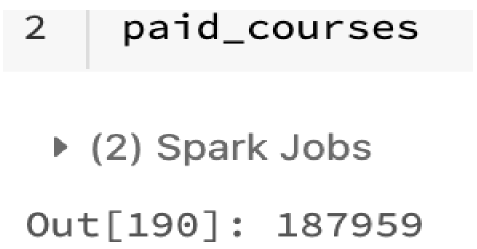
```
+---------------------------+
|count(DISTINCT subcategory)|
+---------------------------+
|                        258|
+---------------------------+
```



```
+-------------------------------+
|count(DISTINCT instructor_name)|
+-------------------------------+
|                          72893|
+-------------------------------+
```

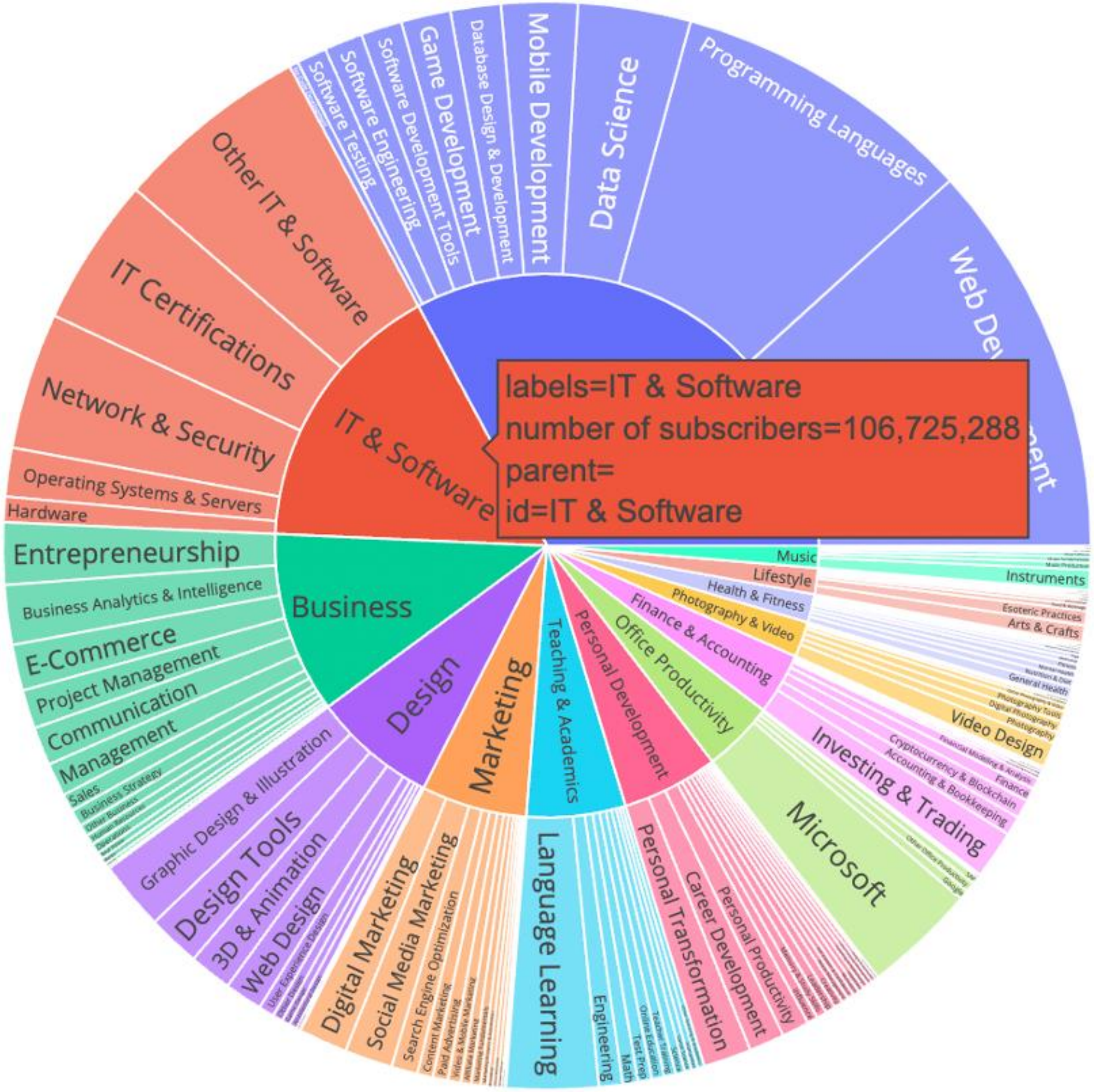


```
3   unpaid_courses

▸ (2) Spark Jobs
Out[191]: 21733
```



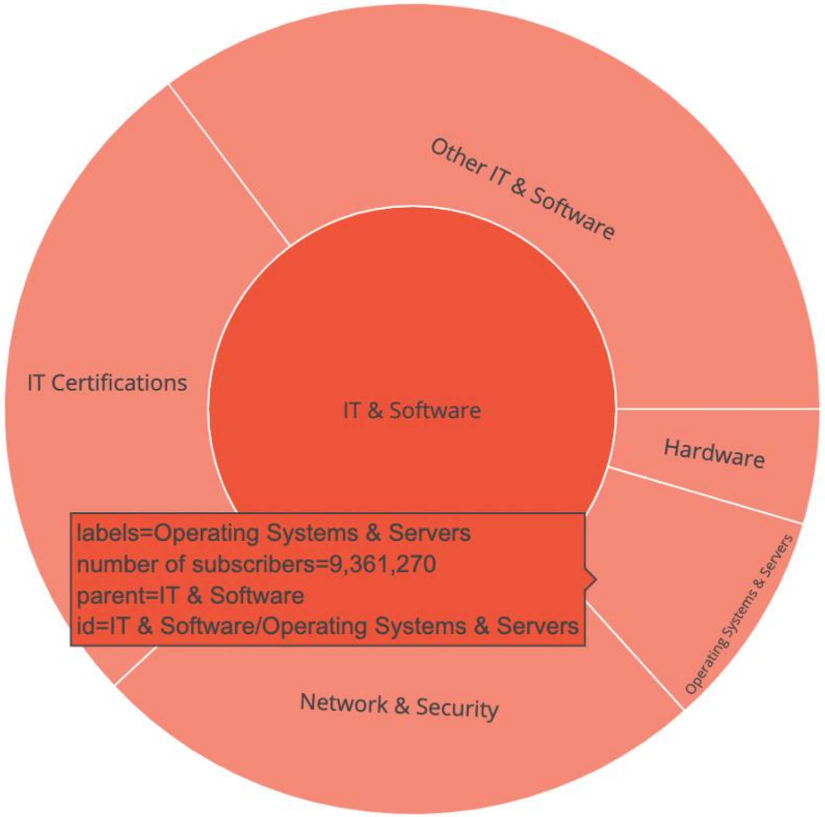
```
2   paid_courses

▸ (2) Spark Jobs
Out[190]: 187959
```

Number of subscribers in different subcategories



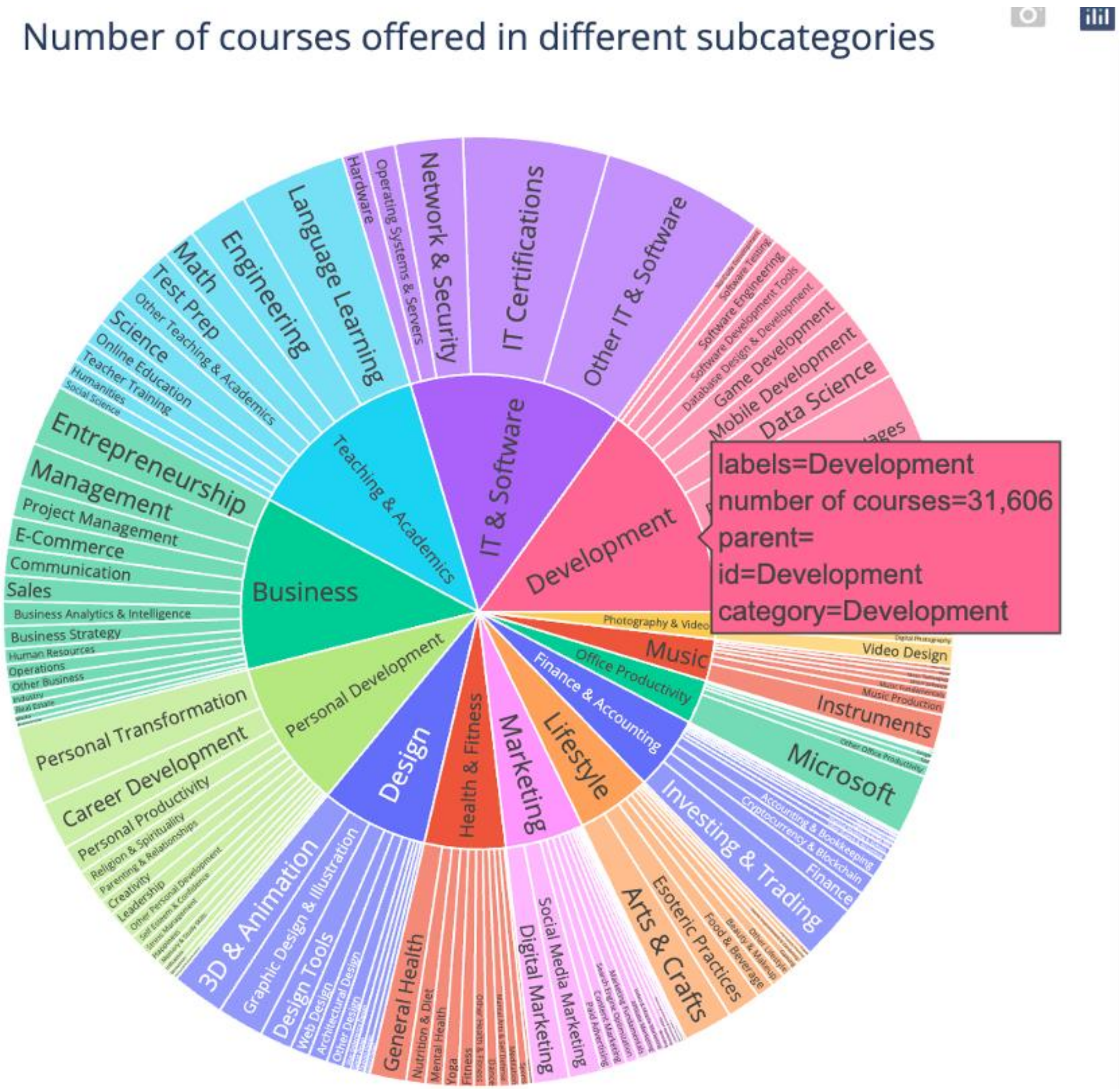
labels=IT & Software
number of subscribers=106,725,288
parent=
id=IT & Software

Number of subscribers in different subcategories



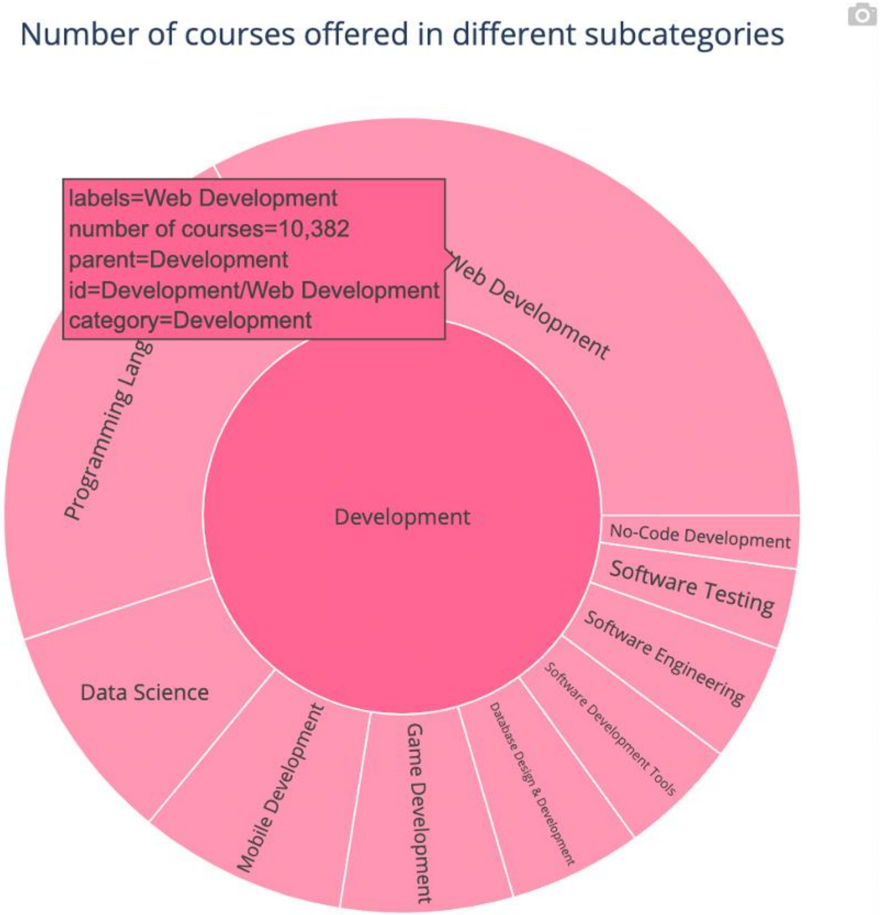
labels=Operating Systems & Servers
number of subscribers=9,361,270
parent=IT & Software
id=IT & Software/Operating Systems & Servers

UMKC



Number of courses offered in different subcategories

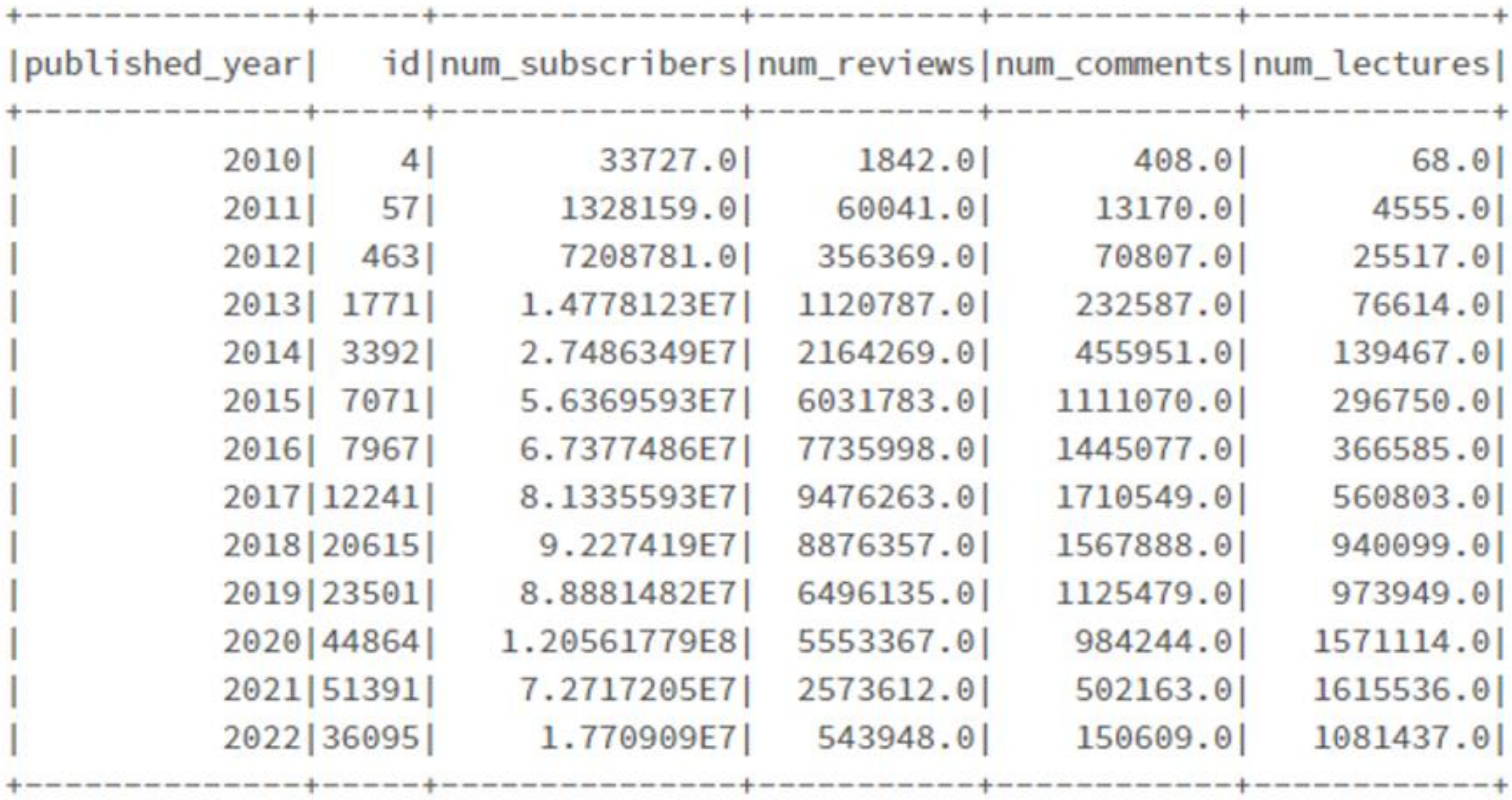
labels=Development
number of courses=31,606
parent=
id=Development
category=Development



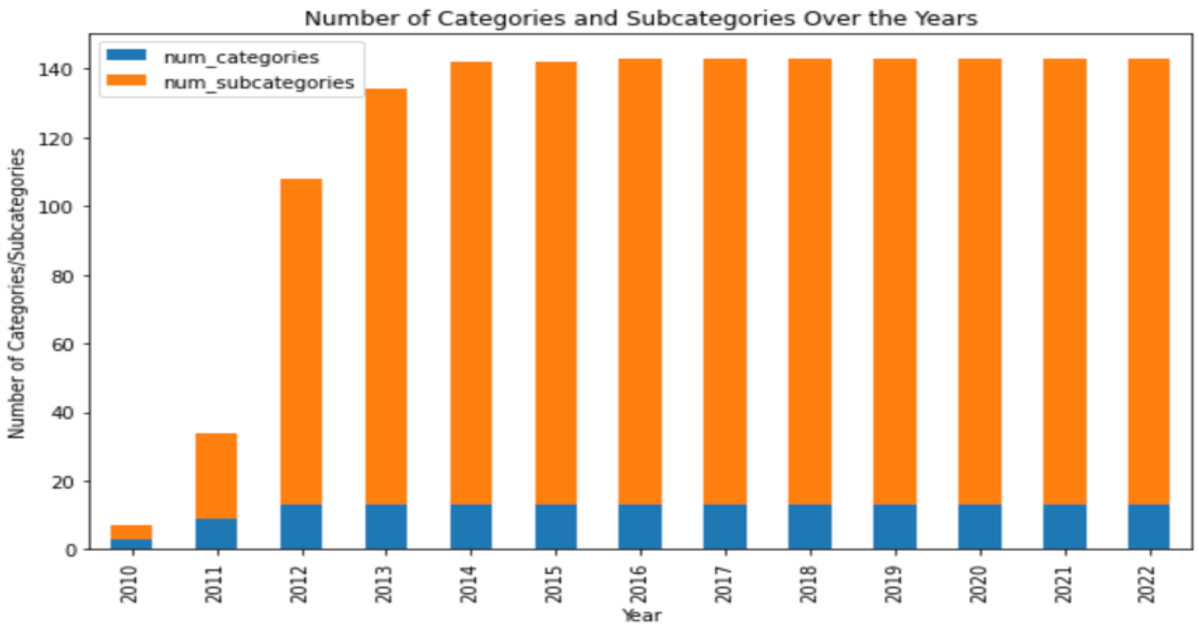
Number of courses offered in different subcategories

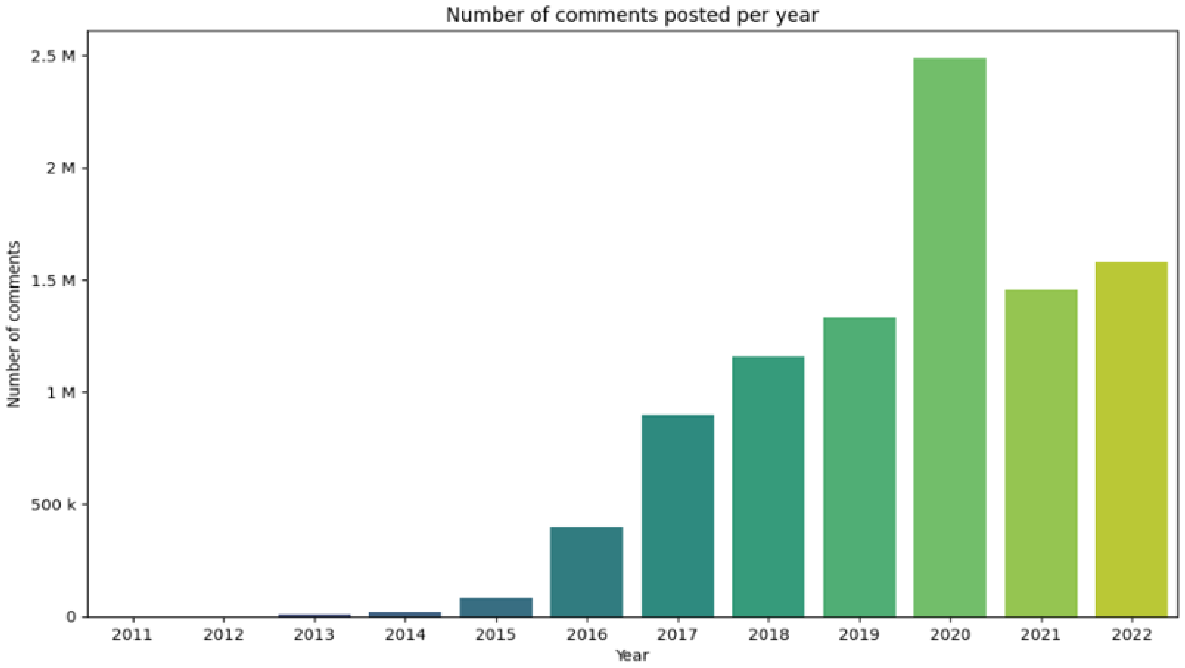
labels=Web Development
number of courses=10,382
parent=Development
id=Development/Web Development
category=Development

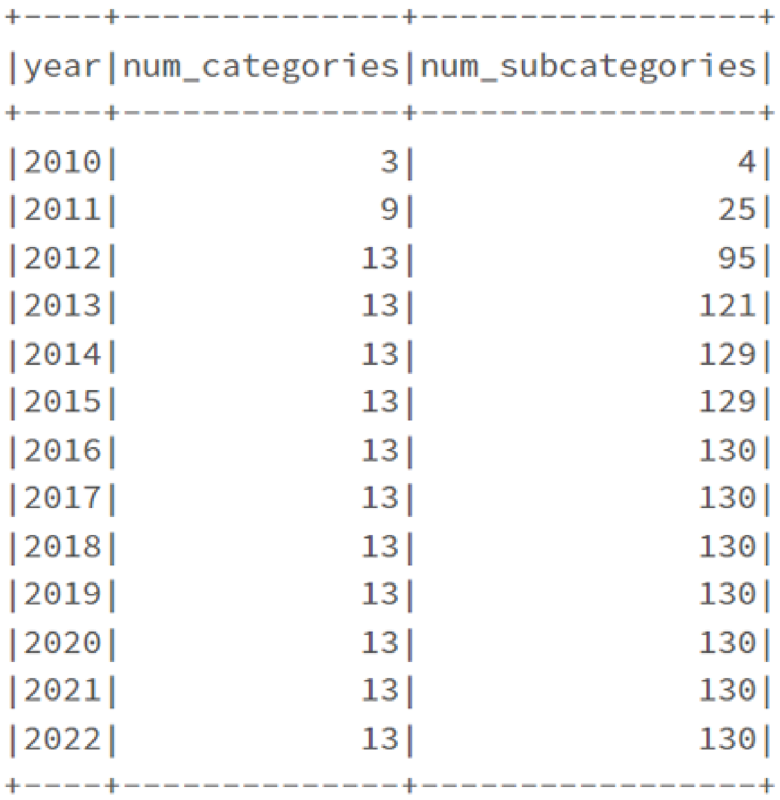
Growth Analysis



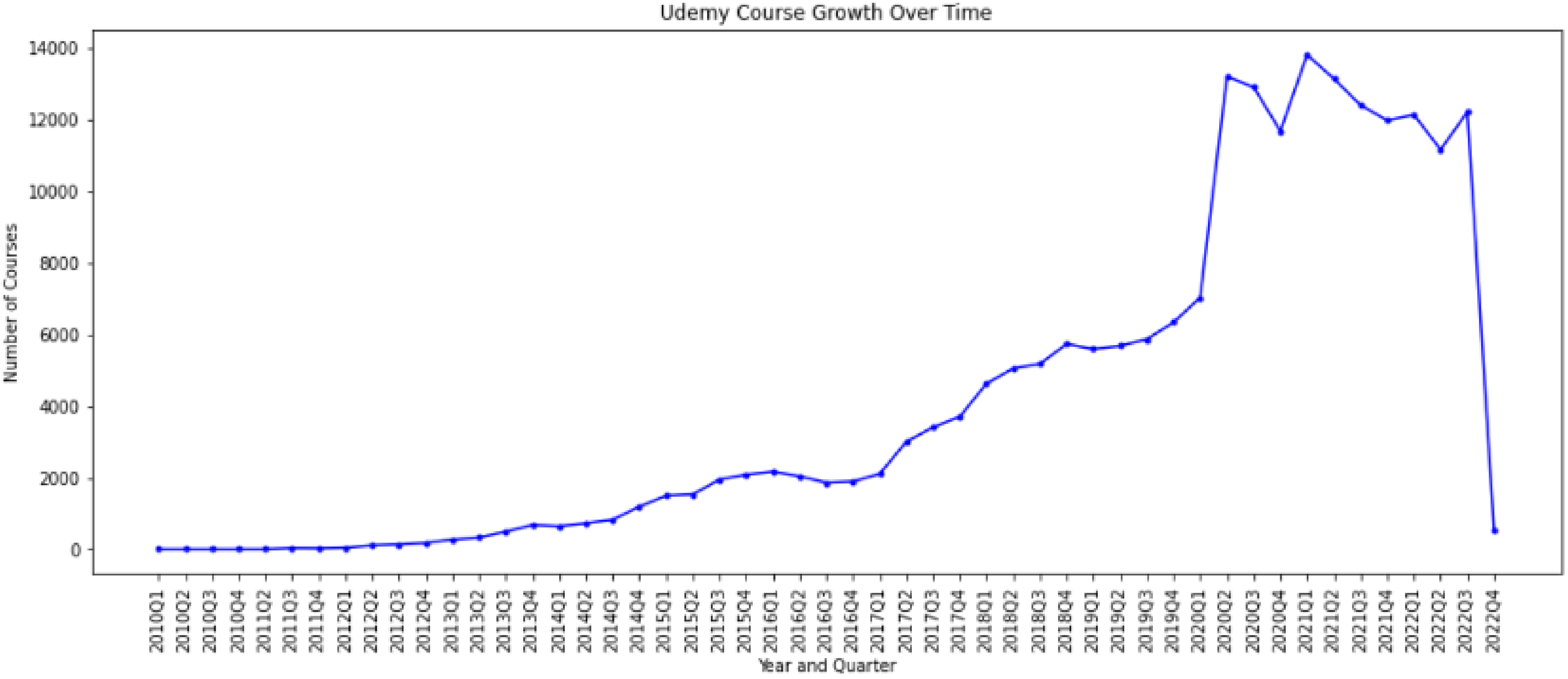
```
+--------------+-----+---------------+-----------+------------+------------+
|published_year|   id|num_subscribers|num_reviews|num_comments|num_lectures|
+--------------+-----+---------------+-----------+------------+------------+
|          2010|    4|        33727.0|     1842.0|       408.0|        68.0|
|          2011|   57|      1328159.0|    60041.0|     13170.0|      4555.0|
|          2012|  463|      7208781.0|   356369.0|     70807.0|     25517.0|
|          2013| 1771|    1.4778123E7|  1120787.0|    232587.0|     76614.0|
|          2014| 3392|    2.7486349E7|  2164269.0|    455951.0|    139467.0|
|          2015| 7071|    5.6369593E7|  6031783.0|   1111070.0|    296750.0|
|          2016| 7967|    6.7377486E7|  7735998.0|   1445077.0|    366585.0|
|          2017|12241|    8.1335593E7|  9476263.0|   1710549.0|    560803.0|
|          2018|20615|     9.227419E7|  8876357.0|   1567888.0|    940099.0|
|          2019|23501|    8.8881482E7|  6496135.0|   1125479.0|    973949.0|
|          2020|44864|   1.20561779E8|  5553367.0|    984244.0|   1571114.0|
|          2021|51391|    7.2717205E7|  2573612.0|    502163.0|   1615536.0|
|          2022|36095|     1.770909E7|   543948.0|    150609.0|   1081437.0|
+--------------+-----+---------------+-----------+------------+------------+
```



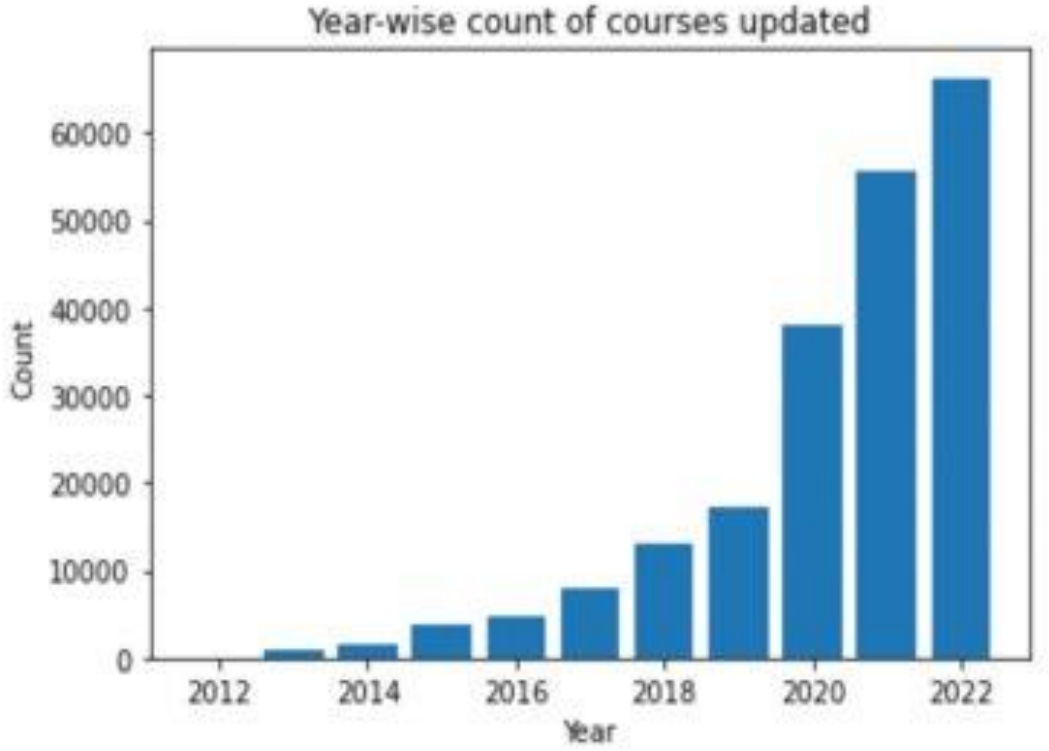


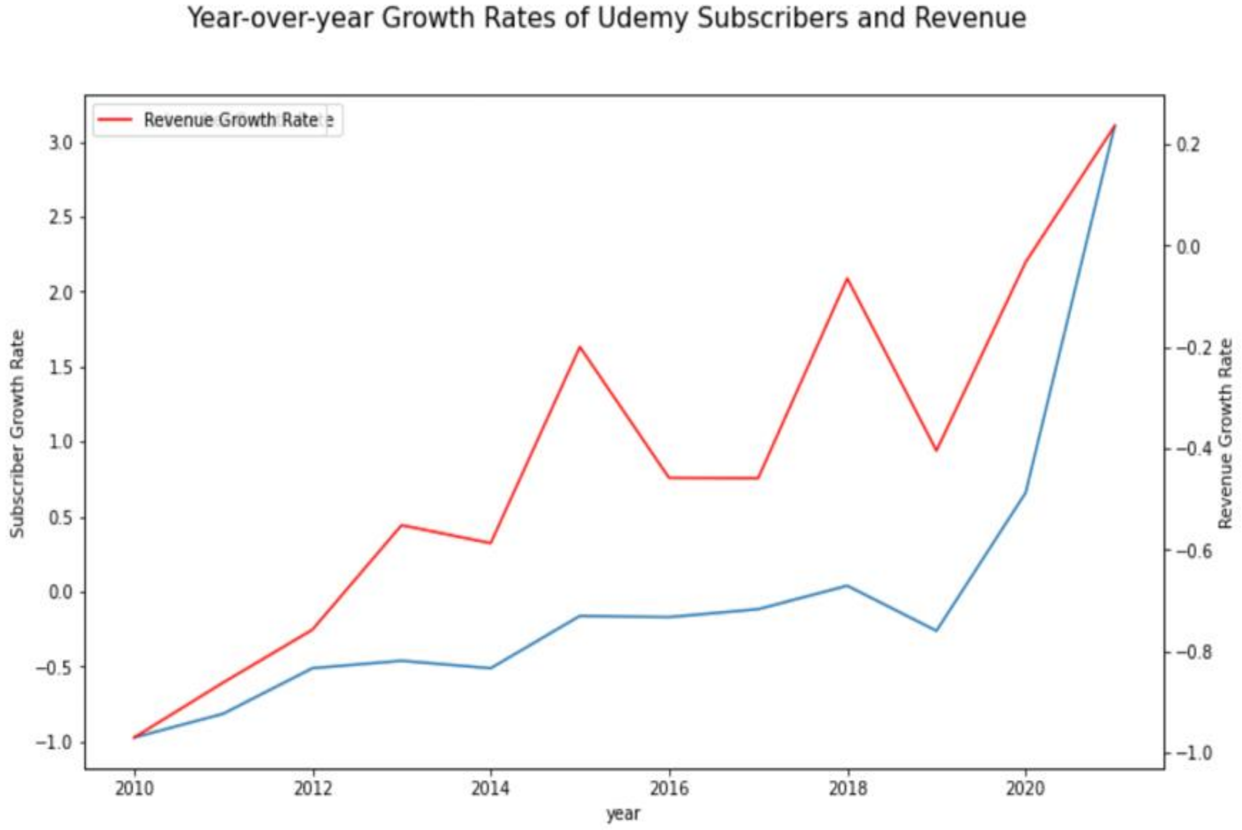


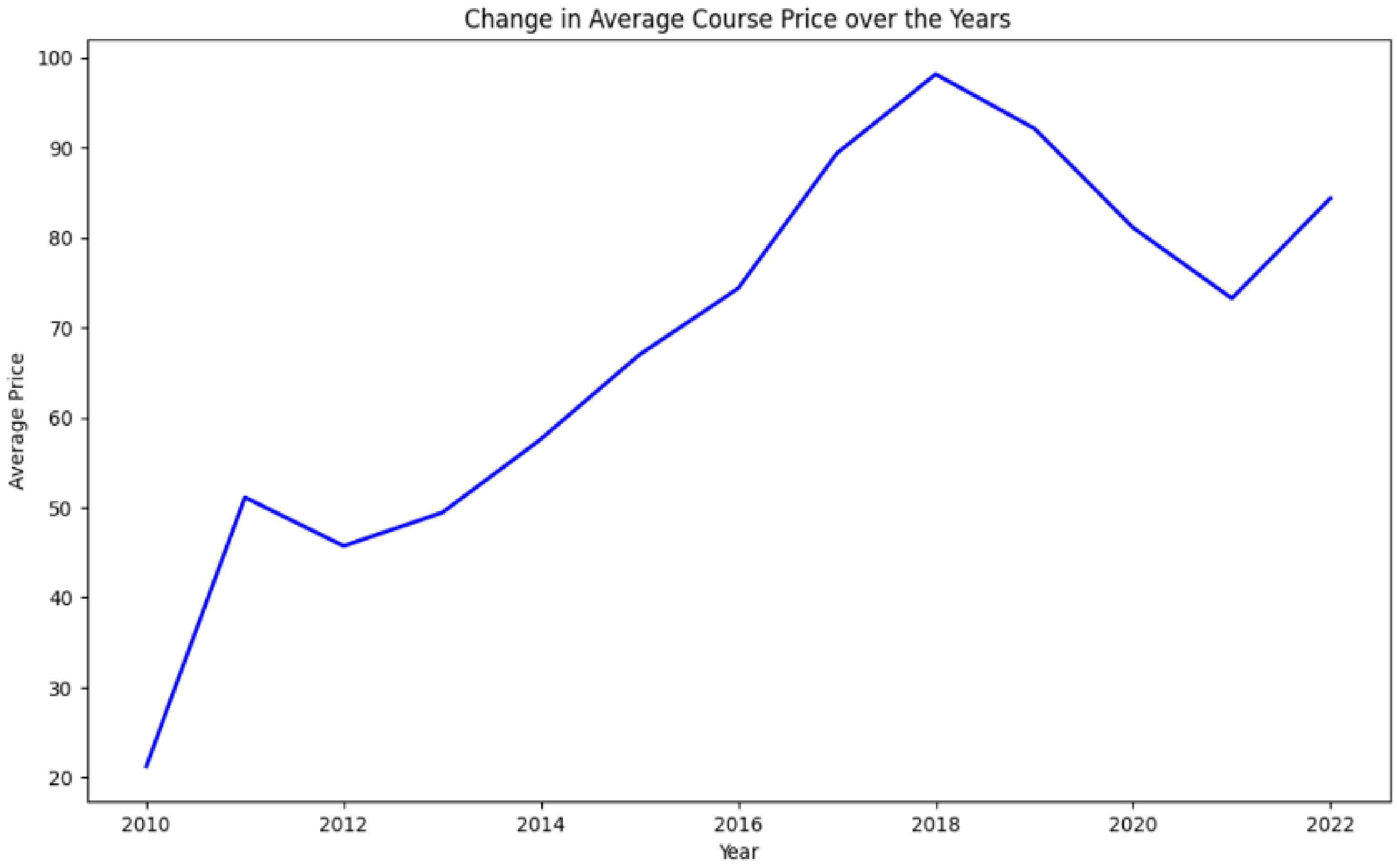
```
+----+--------------+-----------------+
|year|num_categories|num_subcategories|
+----+--------------+-----------------+
|2010|             3|                4|
|2011|             9|               25|
|2012|            13|               95|
|2013|            13|              121|
|2014|            13|              129|
|2015|            13|              129|
|2016|            13|              130|
|2017|            13|              130|
|2018|            13|              130|
|2019|            13|              130|
|2020|            13|              130|
|2021|            13|              130|
|2022|            13|              130|
+----+--------------+-----------------+
```

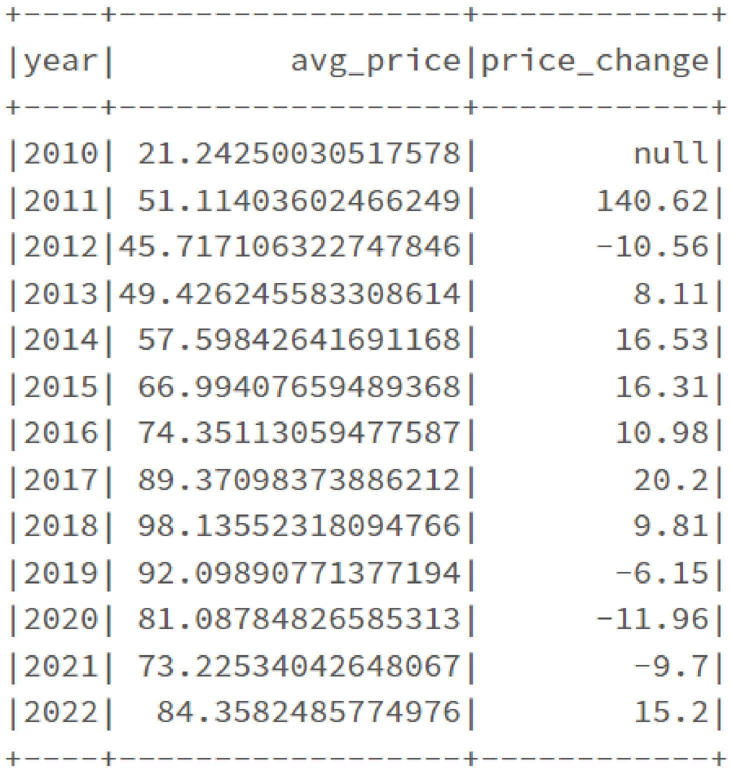

Udemy Course Growth Over Time
Number of Courses
0
2000
4000
6000
8000
10000
12000
14000
Year and Quarter
2010Q1
2010Q2
2010Q3
2010Q4
2011Q2
2011Q3
2011Q4
2012Q1
2012Q2
2012Q3
2012Q4
2013Q1
2013Q2
2013Q3
2013Q4
2014Q1
2014Q2
2014Q3
2014Q4
2015Q1
2015Q2
2015Q3
2015Q4
2016Q1
2016Q2
2016Q3
2016Q4
2017Q1
2017Q2
2017Q3
2017Q4
2018Q1
2018Q2
2018Q3
2018Q4
2019Q1
2019Q2
2019Q3
2019Q4
2020Q1
2020Q2
2020Q3
2020Q4
2021Q1
2021Q2
2021Q3
2021Q4
2022Q1
2022Q2
2022Q3
2022Q4

- The dataset indicates that the first course was released in the first quarter of 2010.
- In 2010, one course was released each quarter.
- Up until the first quarter of 2020, there were roughly 7000 released courses every quarter.
- More than 13,200 courses were published in the second quarter of 2020, roughly doubling the number of courses published in a single quarter.
- The COVID-19 pandemic, which began in March 2020, can be a reason for this increase.
- Many people have turned to online education as a result of the pandemic, staying at home. Following that, the quantity of published courses stayed within the same range and varied between 11,000 and 14,000 courses each quarter.


Year-wise count of courses updated
Count
0
10000
20000
30000
40000
50000
60000
2012
2014
2016
2018
2020
2022
Year

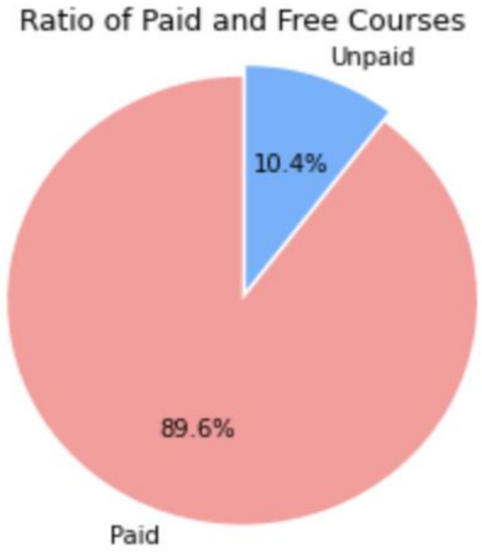

Year-over-year Growth Rates of Udemy Subscribers and Revenue
Revenue Growth Rate
Subscriber Growth Rate
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
Revenue Growth Rate
0.2
0.0
−0.2
−0.4
−0.6
−0.8
−1.0
2010
2012
2014
2016
2018
2020
year

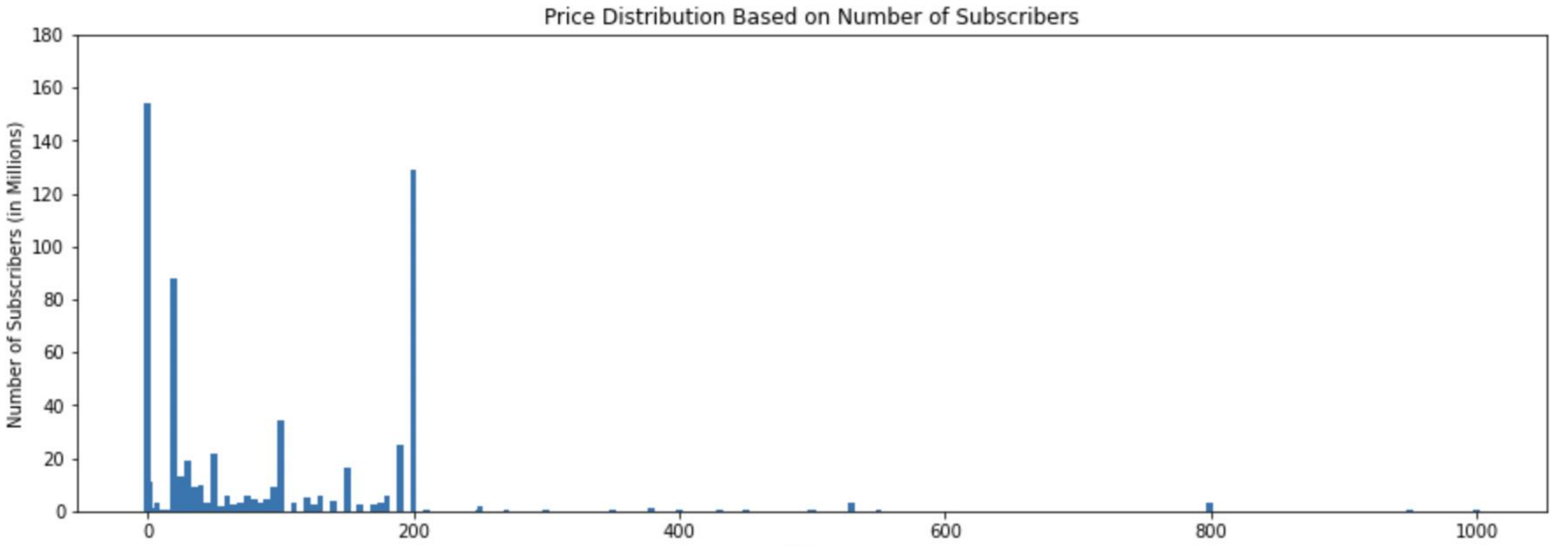


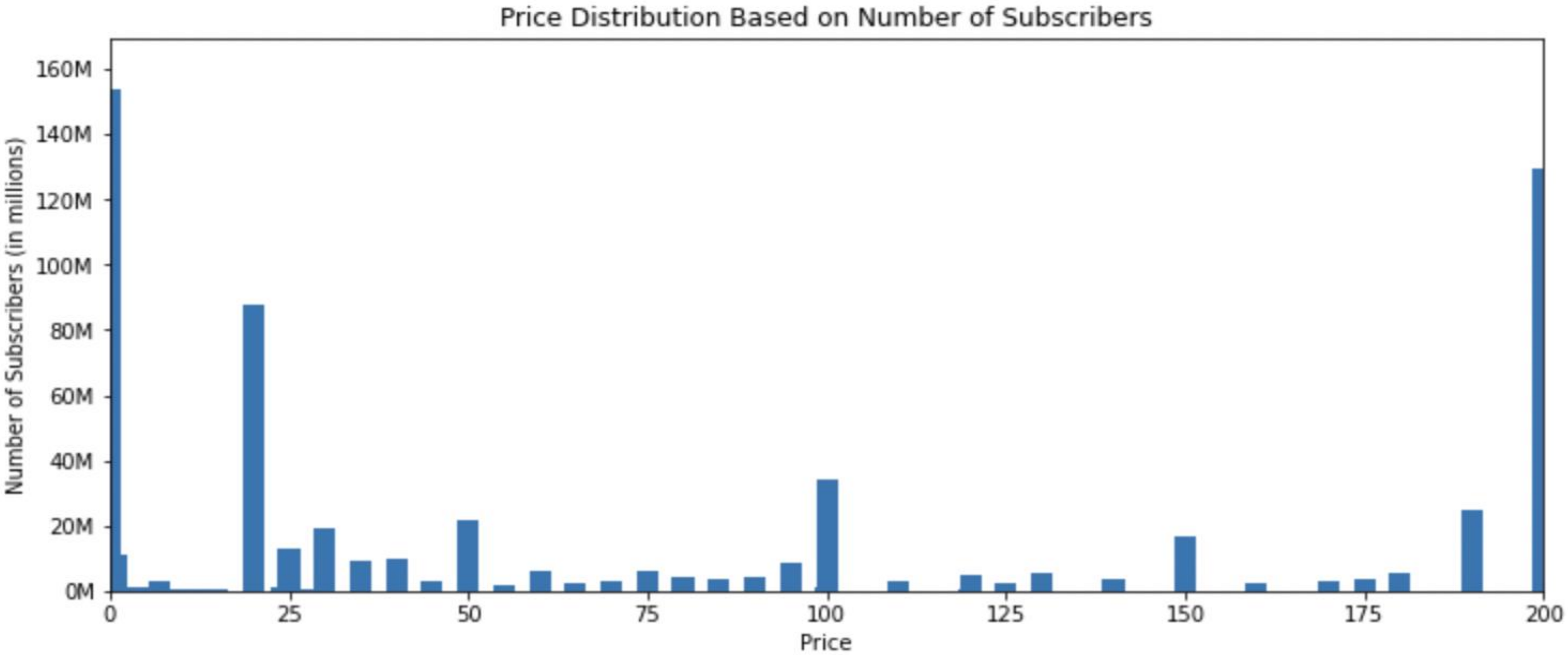


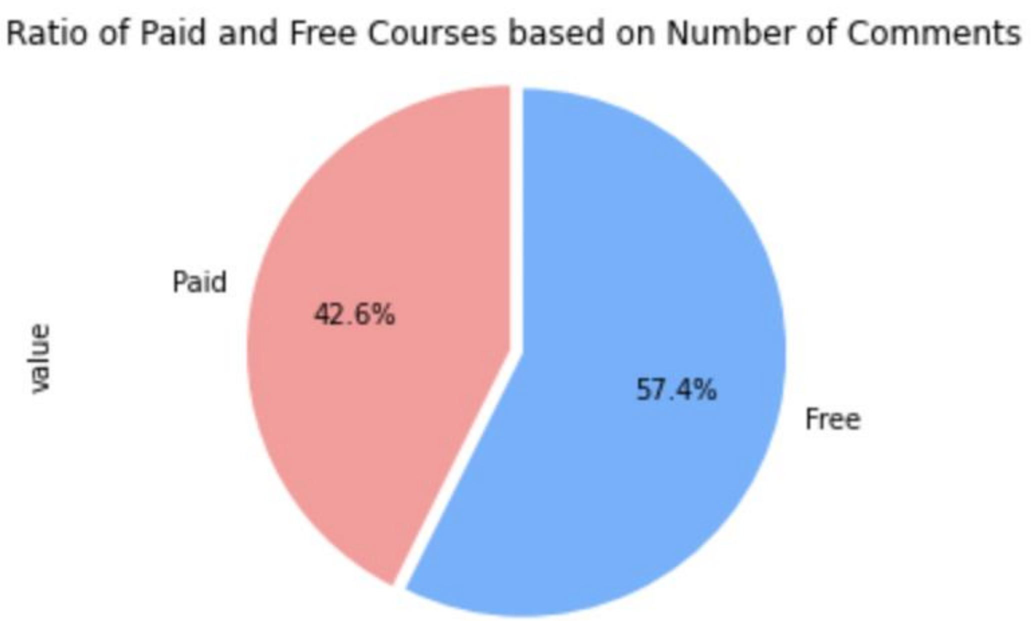
```
+----+-----------------+------------+
|year|        avg_price|price_change|
+----+-----------------+------------+
|2010| 21.2425003051757|        null|
|2011| 51.1140360246249|      140.62|
|2012|45.71710632274784|      -10.56|
|2013|49.42624558330861|        8.11|
|2014| 57.5984264169116|       16.53|
|2015| 66.9940765948936|       16.31|
|2016| 74.3511305947758|       10.98|
|2017| 89.3709837388621|        20.2|
|2018| 98.1355231809476|        9.81|
|2019| 92.0989077137719|       -6.15|
|2020| 81.0878482658531|      -11.96|
|2021| 73.2253404264806|        -9.7|
|2022|  84.358248577497|        15.2|
+----+-----------------+------------+
```

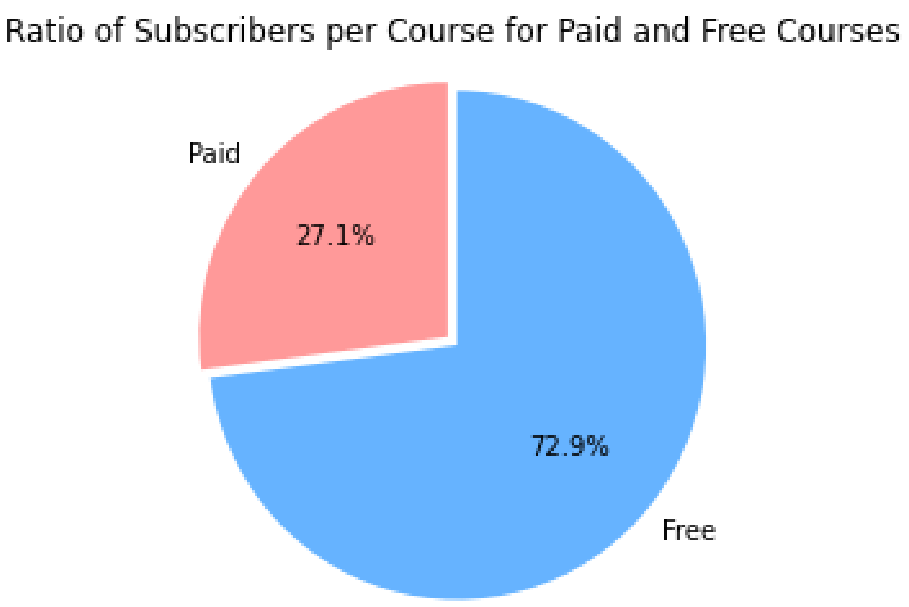
Overall Udemy Analysis



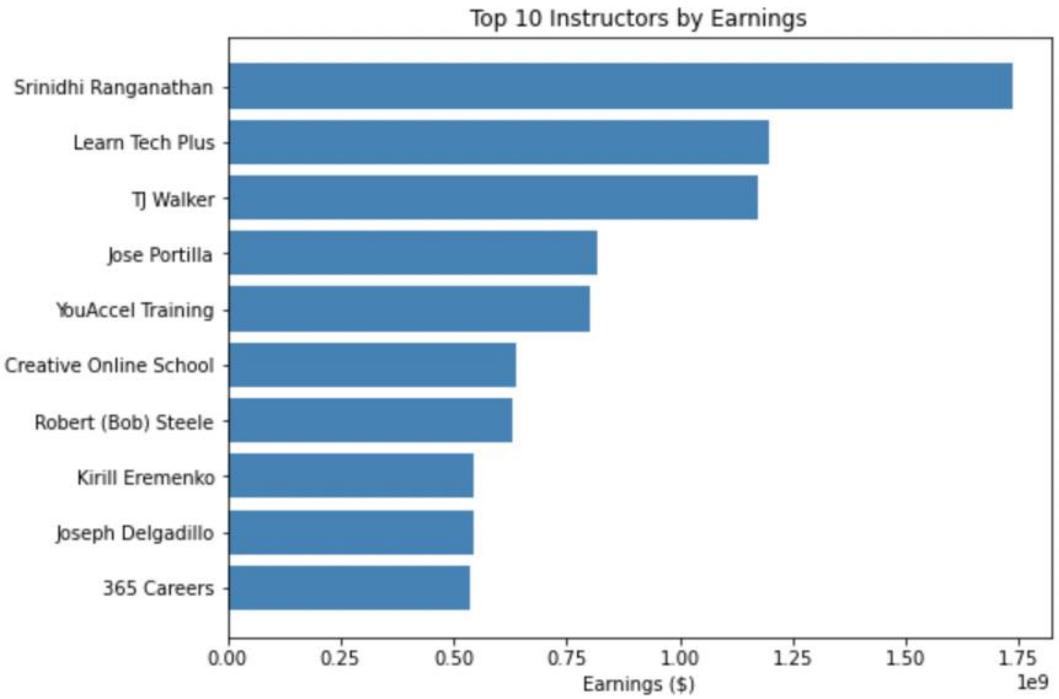


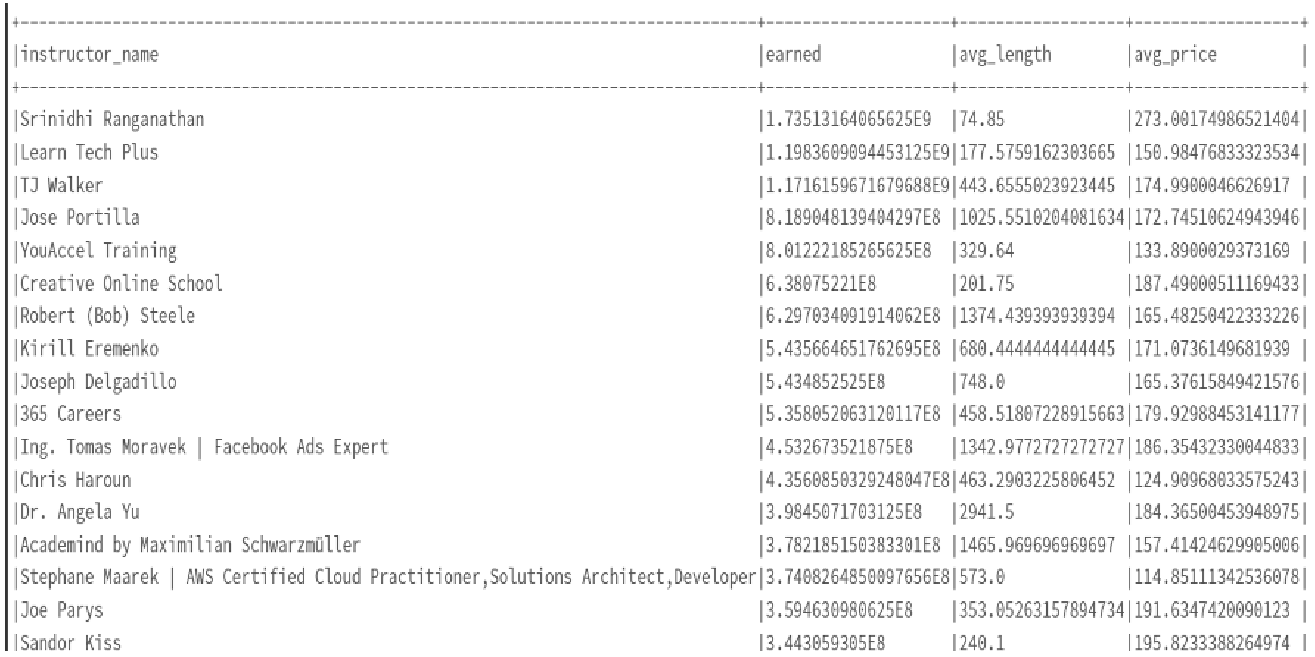




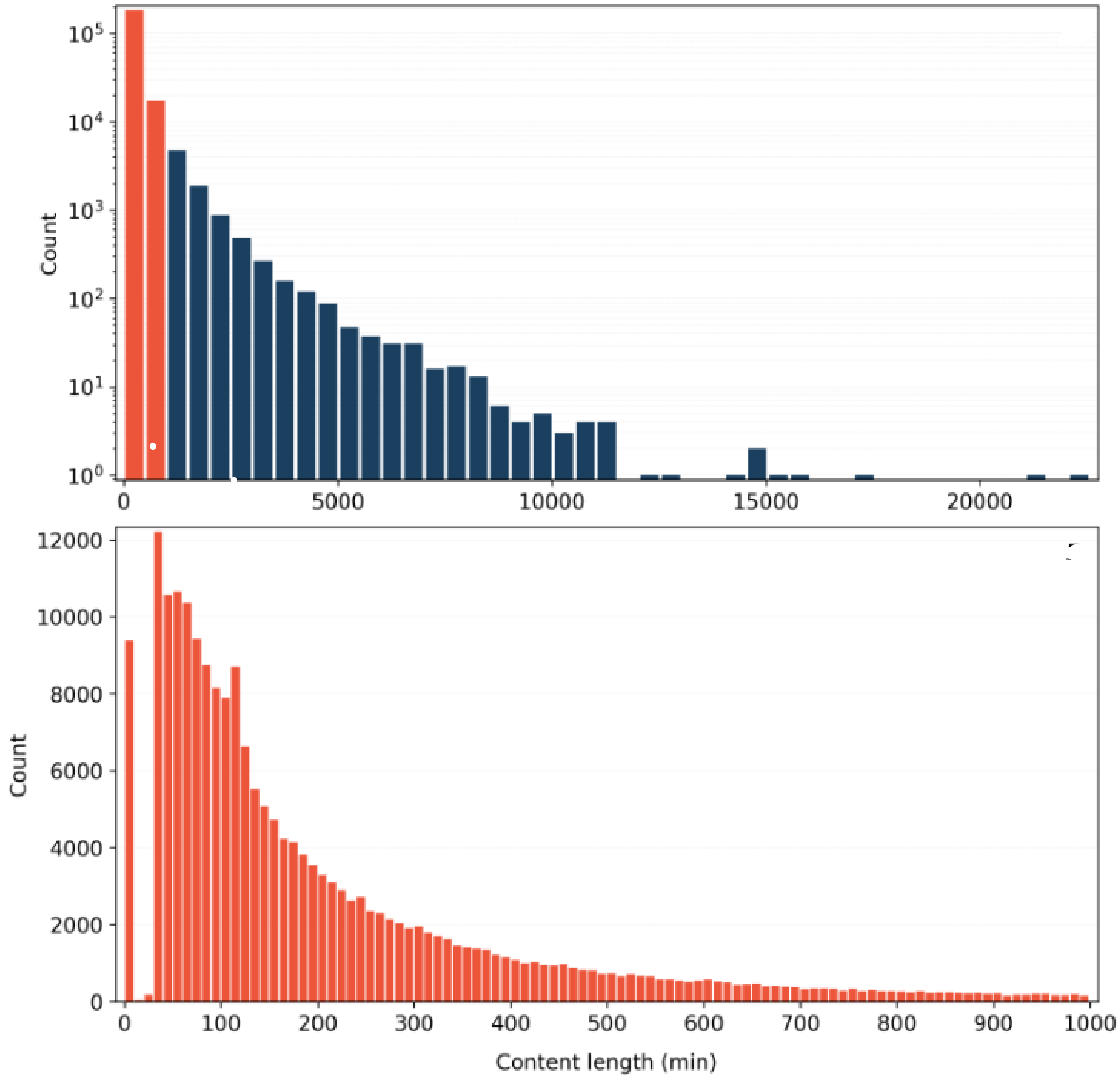


- 89.6% are paid courses and 10.4% are unpaid courses.
- Despite the fact that Udemy offers a wide selection of courses ranging in price from $0.1 to $1000 US, as shown, the majority of them had original prices of less than $200.
- The number of subscribers enrolling the free courses has increased. People are willing to invest up to $200 for good content.
- Student engagement is almost similar for both paid and free courses.



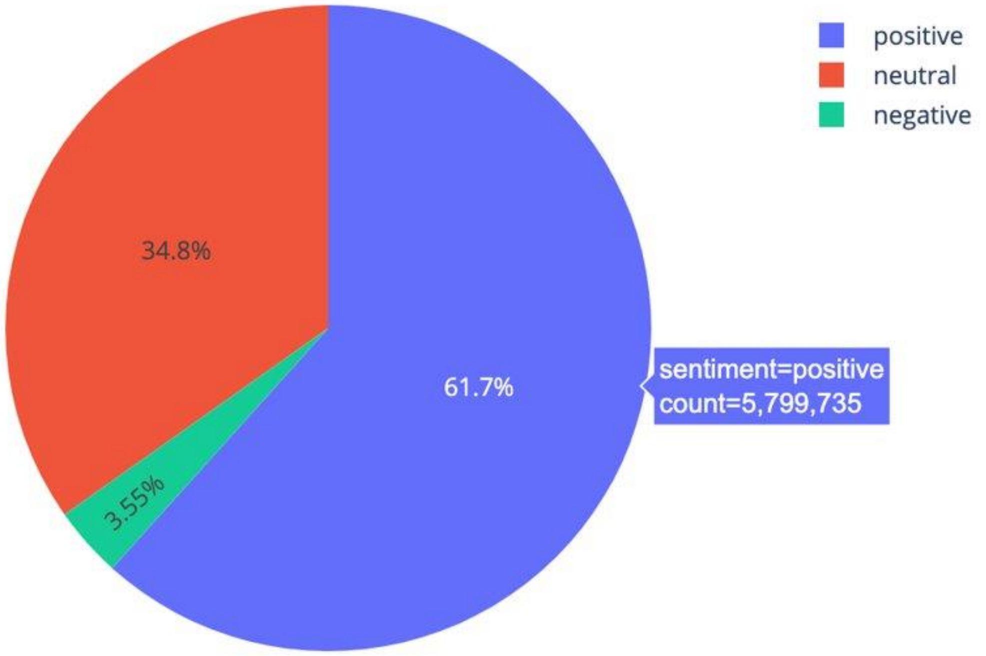


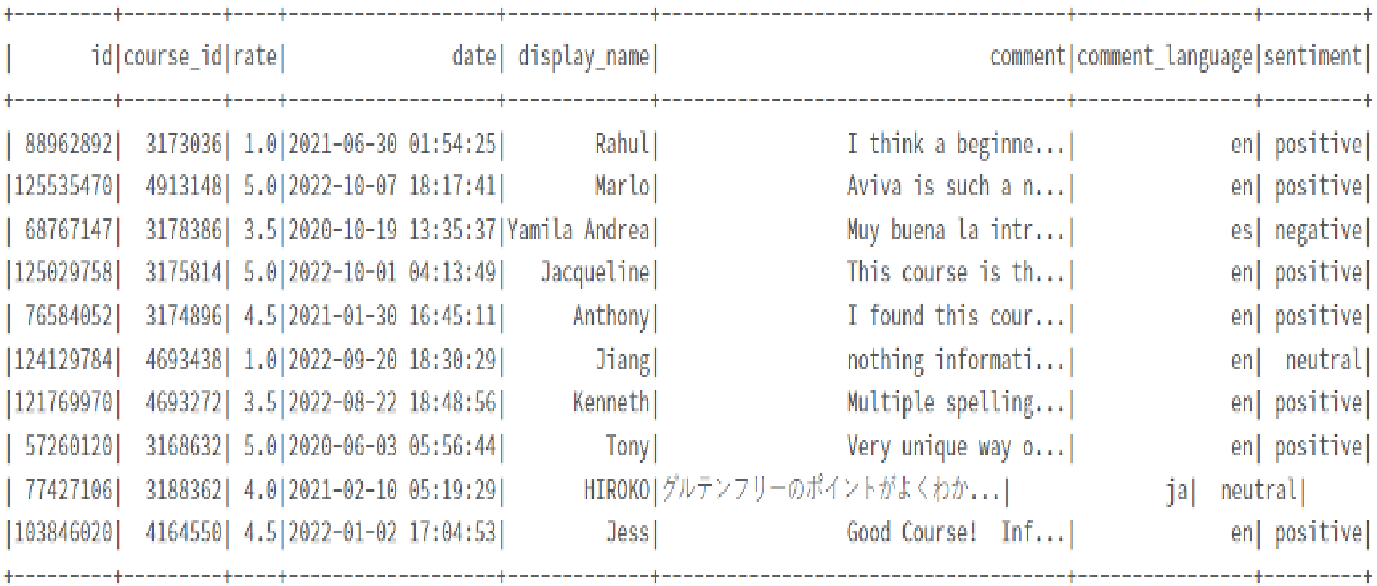
```
+--------------------------------------------------------------------------------+--------------------+------------------+------------------+
|instructor_name                                                                 |earned              |avg_length        |avg_price         |
+--------------------------------------------------------------------------------+--------------------+------------------+------------------+
|Srinidhi Ranganathan                                                            |1.73513164065625E9  |74.85             |273.00174986521404|
|Learn Tech Plus                                                                 |1.1983609094453125E9|177.5759162303665 |150.98476833323534|
|TJ Walker                                                                       |1.1716159671679688E9|443.6555023923445 |174.9900046626917 |
|Jose Portilla                                                                   |8.189048139404297E8 |1025.5510204081634|172.74510624943946|
|YouAccel Training                                                               |8.01222185265625E8  |329.64            |133.8900029373169 |
|Creative Online School                                                          |6.38075221E8        |201.75            |187.49000511169433|
|Robert (Bob) Steele                                                             |6.297034091914062E8 |1374.439393939394 |165.48250422333226|
|Kirill Eremenko                                                                 |5.435664651762695E8 |680.4444444444445 |171.0736149681939 |
|Joseph Delgadillo                                                               |5.434852525E8       |748.0             |165.37615849421576|
|365 Careers                                                                     |5.358052063120117E8 |458.51807228915663|179.92988453141177|
|Ing. Tomas Moravek | Facebook Ads Expert                                        |4.532673521875E8    |1342.9772727272727|186.35432330044833|
|Chris Haroun                                                                    |4.3560850329248047E8|463.2903225806452 |124.90968033575243|
|Dr. Angela Yu                                                                   |3.9845071703125E8   |2941.5            |184.36500453948975|
|Academind by Maximilian Schwarzmüller                                           |3.782185150383301E8 |1465.969696969697 |157.41424629905006|
|Stephane Maarek | AWS Certified Cloud Practitioner,Solutions Architect,Developer|3.7408264850097656E8|573.0             |114.85111342536078|
|Joe Parys                                                                       |3.594630980625E8    |353.05263157894734|191.6347420090123 |
|Sandor Kiss                                                                     |3.443059305E8       |240.1             |195.8233388264974 |
```



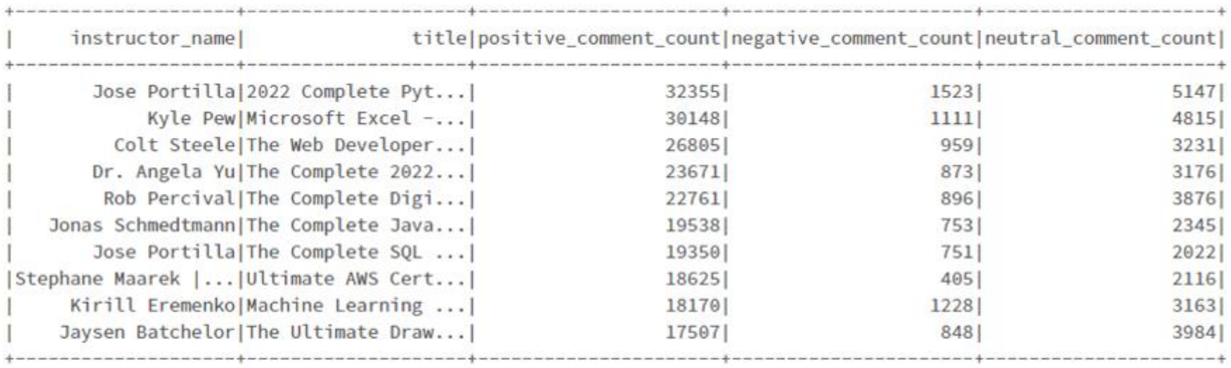
- A variety of course lengths were offered by Udemy.
- On this platform, short courses are more typical.
- There are courses with 0 to 1,000 minutes of content.
- It's noteworthy that 9,373 courses contain 0 lectures or videos because their content duration is nil.
- Most of these courses consist of practice exams.
- Additionally, graph demonstrates that while courses with 40 to 60 minutes of content are the most common, the number of courses with less than 40 minutes of content is minuscule.

UMKC

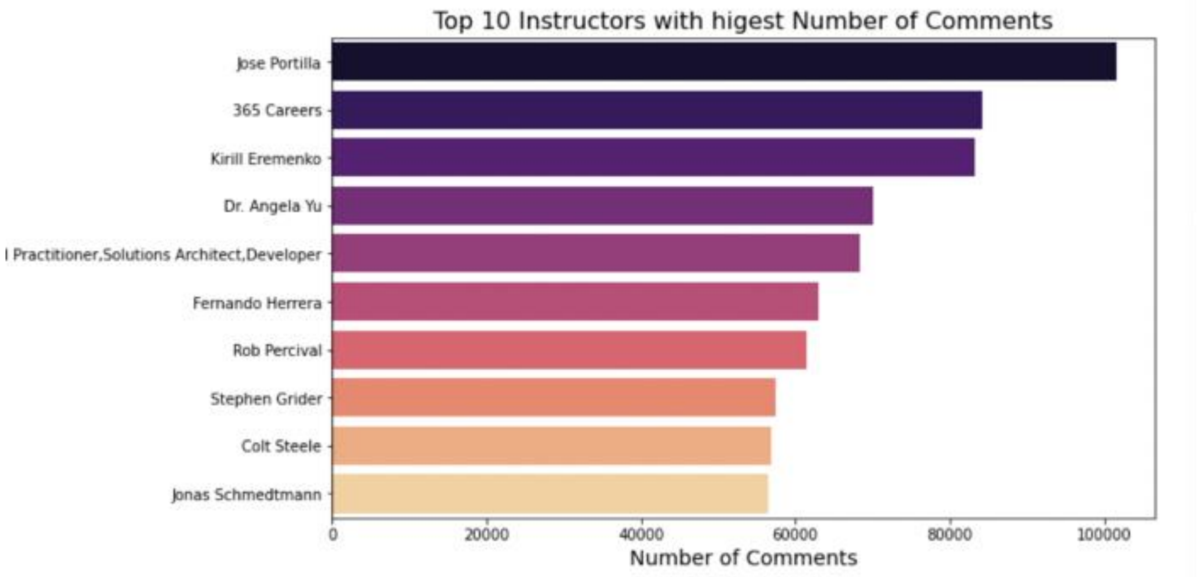


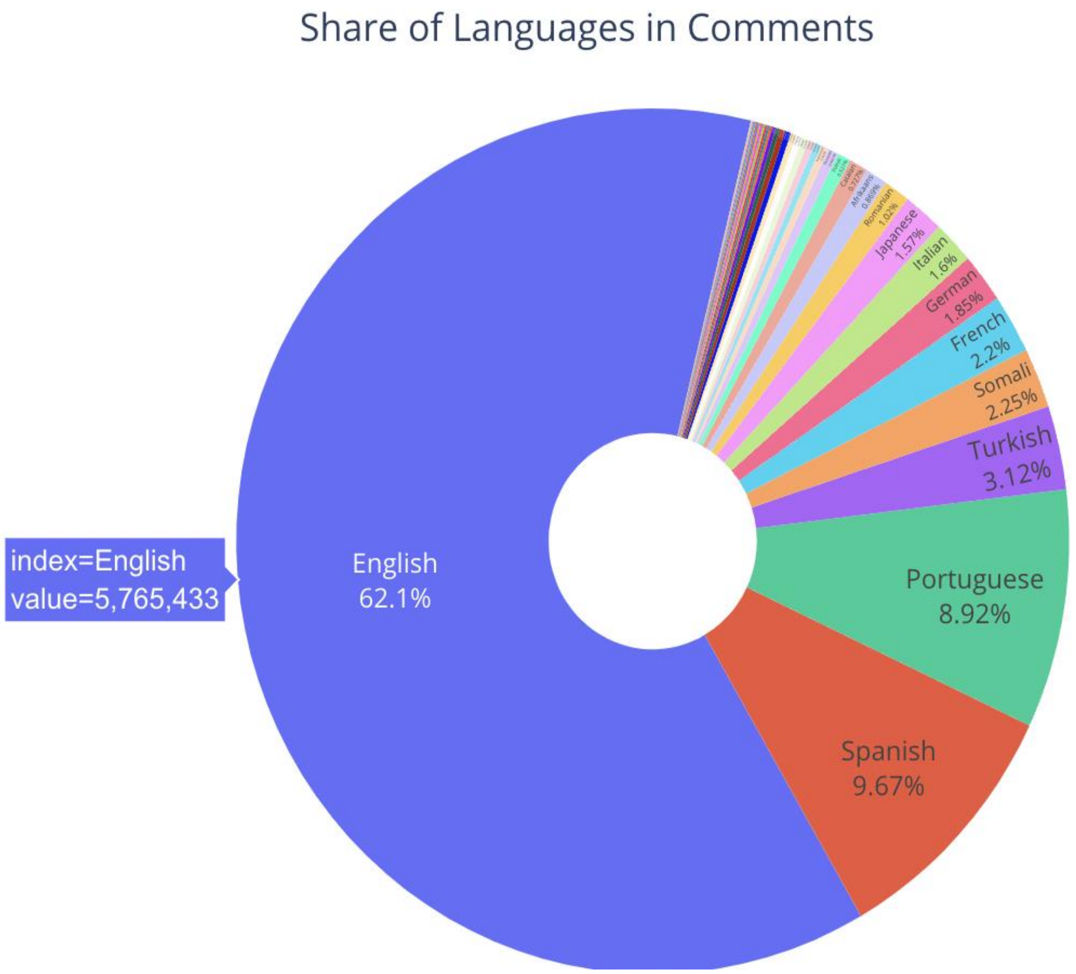


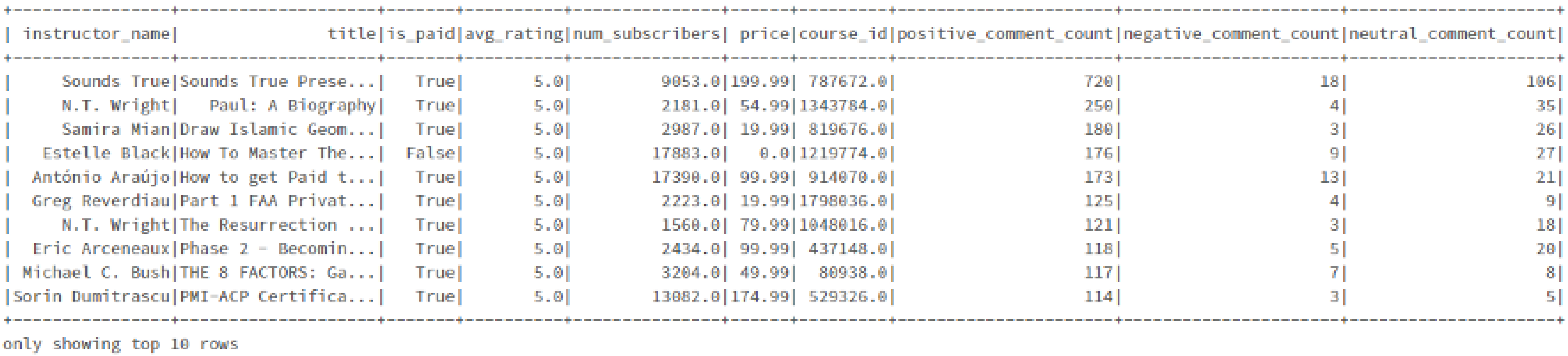
```
+---------+---------+----+-------------------+-------------+--------------------+----------------+---------+
|       id|course_id|rate|               date| display_name|             comment|comment_language|sentiment|
+---------+---------+----+-------------------+-------------+--------------------+----------------+---------+
| 88962892|  3173036| 1.0|2021-06-30 01:54:25|        Rahul|I think a beginne...|              en| positive|
|125535470|  4913148| 5.0|2022-10-07 18:17:41|        Marlo|Aviva is such a n...|              en| positive|
| 68767147|  3178386| 3.5|2020-10-19 13:35:37|Yamila Andrea|Muy buena la intr...|              es| negative|
|125029758|  3175814| 5.0|2022-10-01 04:13:49|   Jacqueline|This course is th...|              en| positive|
| 76584052|  3174896| 4.5|2021-01-30 16:45:11|      Anthony|I found this cour...|              en| positive|
|124129784|  4693438| 1.0|2022-09-20 18:30:29|        Jiang|nothing informati...|              en|  neutral|
|121769970|  4693272| 3.5|2022-08-22 18:48:56|      Kenneth|Multiple spelling...|              en| positive|
| 57260120|  3168632| 5.0|2020-06-03 05:56:44|         Tony|Very unique way o...|              en| positive|
| 77427106|  3188362| 4.0|2021-02-10 05:19:29|       HIROKO|グルテンフリーのポイントがよくわか...|              ja|  neutral|
|103846020|  4164550| 4.5|2022-01-02 17:04:53|         Jess|Good Course!  Inf...|              en| positive|
+---------+---------+----+-------------------+-------------+--------------------+----------------+---------+
```



```
+------------------+--------------------+----------------------+----------------------+---------------------+
|     instructor_name|               title|positive_comment_count|negative_comment_count|neutral_comment_count|
+------------------+--------------------+----------------------+----------------------+---------------------+
|       Jose Portilla|2022 Complete Pyt...|                 32355|                  1523|                 5147|
|            Kyle Pew|Microsoft Excel -...|                 30148|                  1111|                 4815|
|         Colt Steele|The Web Developer...|                 26805|                   959|                 3231|
|       Dr. Angela Yu|The Complete 2022...|                 23671|                   873|                 3176|
|        Rob Percival|The Complete Digi...|                 22761|                   896|                 3876|
|   Jonas Schmedtmann|The Complete Java...|                 19538|                   753|                 2345|
|       Jose Portilla|The Complete SQL ...|                 19350|                   751|                 2022|
|Stephane Maarek |...|Ultimate AWS Cert...|                 18625|                   405|                 2116|
|     Kirill Eremenko|Machine Learning ...|                 18170|                  1228|                 3163|
|    Jaysen Batchelor|The Ultimate Draw...|                 17507|                   848|                 3984|
+------------------+--------------------+----------------------+----------------------+---------------------+
```







```
+----------------+--------------------+-------+----------+---------------+------+---------+----------------------+----------------------+---------------------+
| instructor_name|               title|is_paid|avg_rating|num_subscribers| price|course_id|positive_comment_count|negative_comment_count|neutral_comment_count|
+----------------+--------------------+-------+----------+---------------+------+---------+----------------------+----------------------+---------------------+
|     Sounds True|Sounds True Prese...|   True|       5.0|         9053.0|199.99| 787672.0|                   720|                    18|                  106|
|     N.T. Wright|   Paul: A Biography|   True|       5.0|         2181.0| 54.99|1343784.0|                   250|                     4|                   35|
|     Samira Mian|Draw Islamic Geom...|   True|       5.0|         2987.0| 19.99| 819676.0|                   180|                     3|                   26|
|   Estelle Black|How To Master The...|  False|       5.0|        17883.0|   0.0|1219774.0|                   176|                     9|                   27|
|  António Araújo|How to get Paid t...|   True|       5.0|        17390.0| 99.99| 914070.0|                   173|                    13|                   21|
|  Greg Reverdiau|Part 1 FAA Privat...|   True|       5.0|         2223.0| 19.99|1798036.0|                   125|                     4|                    9|
|     N.T. Wright|The Resurrection ...|   True|       5.0|         1560.0| 79.99|1048016.0|                   121|                     3|                   18|
|  Eric Arceneaux|Phase 2 - Becomin...|   True|       5.0|         2434.0| 99.99| 437148.0|                   118|                     5|                   20|
| Michael C. Bush|THE 8 FACTORS: Ga...|   True|       5.0|         3204.0| 49.99|  80938.0|                   117|                     7|                    8|
|Sorin Dumitrascu|PMI-ACP Certifica...|   True|       5.0|        13082.0|174.99| 529326.0|                   114|                     3|                    5|
+----------------+--------------------+-------+----------+---------------+------+---------+----------------------+----------------------+---------------------+
only showing top 10 rows
```

Overall Insights

- Udemy's membership base and number of published courses more than doubled during the Covid-19 pandemic. With 33% of all Udemy enrollments (468 million), the "Development" category has by far the most subscribers.
- Despite the affordable course costs, competent instructors made a large profit by offering top-notch courses.
- More subscribers signed up for courses that weren't paid for and costs around $20.
- If the information is good, it doesn't matter how long the course is; subscribers are willing to pay about $200.
- Most of the comments are positive, only a few offer neutral suggestions, and barely any have anything bad to say.
- English was the language that received the most comments, followed by Spanish and Portuguese.
- Jose Portilla, who is among the top 10 earners, received the most positive comments.

Thank You

UMKC