

# Read CSV

In [22]:

```
from pyspark.sql import SparkSession
```

In [23]:

```
mycsv = "./data/All_Reports_20200331_Income and Expense.csv" # Should be some file on  
your system
```

In [24]:

```
spark = SparkSession.builder.appName("SimpleApp").getOrCreate()
```

In [25]:

```
csvdataDF = spark.read.load(mycsv, format="csv", sep=",", inferSchema="true", header="true")  
csvdataDF.registerTempTable("incomes")
```

In [26]:

```
print("CSV data count ", csvdataDF.count())
```

CSV data count 5125

In [27]:

```
csvdataDF.show()
```

cert docket fed_rssd rssdhcr	name	city stalp
zip reppte rundate bkclass	address	namehc
r offdom offfor stmult specgrp subchaps	county cbsa_metro	cbsa
_metro_name estymd insdate effdate mutual parcert trust regagnt		
insagnt1 fdicdbs fdicsupv fldoff fed occ		
dist otsregn offoa cb inst.webaddr intinc eintexp nim elnatr		
nonii ifiduc iserchg igltrad idothnii nonix esal epremagg IDEOTH idpretx		
iglsec itax ibefxtr extra netinc NETIMIN NETINBM ntlnls eqcdiv eqcstkrx		
noij		
4829  0  746223 2706726	1880 Bank  Cambridge  MD	
21613 3/31/2020 6/2/2020  SM  304 High St. DELMARVA BANCSHA		
R...  6  0  null  4  0  Dorchester  null		
null  1/1/1880  1/1/1934  7/16/2015  Stock  0  1  FED  DI		
F  New York  NEW YORK  Baltimore  Richmond Northeastern So		
theast  0  1  www.1880bank.com  3310  305  3005  288  408		
0  181  null  227  2404  1046  270  1088  721  0  167		
554  0  554  0  554  20  425  0  554.0		
57899  0  3317192 4526496  1st Advantage Bank  Saint Peters  MO		
63376 3/31/2020 6/2/2020  NM  240 Salt Lick Rd.  BANC INVESTORS LL		
C  1  0  null  4  0 Saint Charles  41180  St. L		
ouis, MO-IL  1/31/2005  1/31/2005  9/10/2010  Stock  0  0  FDIC		
DIF  Kansas City  KANSAS CITY  St. Louis  St. louis  Western		
West  0  1 www.1stadvantageb...  1193  326  867  9  17		
0  9  null  8  737  441  66  230  138  0  0		
138  0  138  0  138  0  0  0  138.0		
22039  0  564856 1128415  1st Bank  Broadus  MT		
59317 3/31/2020 6/2/2020  SM  201 N. Wilbur Ave 1ST UNITED BCORP IN		
C  1  0  null  2  1  Powder River  null		
null  6/9/1975  6/9/1975  2/23/2018  Stock  0  0  FED  DI		
F San Francisco SAN FRANCISCO  Billings  Minneapolis  Western		
West  0  1  www.our1stbank.com  461  52  409  -750  48		
0  20  null  28  259  172  27  60  948  0  0		
948  0  948  0  948  0  3600  0  948.0		
4122  0  350657  null  1st Bank in Hominy  Hominy  OK		
74035 3/31/2020 6/2/2020  SM  117 N. Price  nul		
1  1  0  null  8  1  Osage  46140		
Tulsa, OK  4/12/1906  1/1/1934  7/19/2019  Stock  0  0  FED		
DIF  Dallas  DALLAS  Tulsa  Kansas City  Southern		
West  0  1 http://www.1stban...  422  71  351  15  69		
0  42  null  27  323  177  36  110  82  0  0		
82  0  82  0  82  -4  0  0  82.0		
30367  5236  148470 3848427 1st Bank of Sea I...  Sea Isle City  NJ		
8243 3/31/2020 6/2/2020  SB  4301 Landis Ave. SEA ISLE FINANCI		

A...	3	0	null	5	0	Cape May	36140
Ocean City, NJ	1/1/1882	11/30/1948	9/19/2014	Stock	0	0	FD
IC	DIF	New York	NEW YORK	Jamesburg	Philadelphia	North	
eastern	Northeast	0	1	www.1stbankseaisl...	2165	103	2062
0	95	0	53	null	42	1877	1046
0	0	65	215	0	215	0	0
215.0							
57298	0	3048487	3559844	1st Bank Yuma	Yuma	AZ	
85364	3/31/2020	6/2/2020	NM	2799 S. 4th Ave.	WESTERN ARIZONA		
B...	5	0	null	4	0	Yuma	49740
Yuma, AZ	9/4/2001	9/4/2001	3/2/2018	Stock	0	0	FDIC
DIF	San Francisco	SAN FRANCISCO	Phoenix	San Francisco	Western		
Western	0	1	http://www.1stban...	4375	146	4229	82
0	347	null	425	3057	1840	343	874
	1421	0	1421	0	1421	98	2066
	32487	8322	941653	1064791	1st Cameron State...	Cameron	MO
64429	3/31/2020	6/2/2020	NM	124 S. Walnut	C&M BANCSHARES IN		
C	2	0	null	7	0	Clinton	28140
City, MO-KS	8/11/1986	8/11/1986	6/29/2009	Stock	0	0	FDIC
DIF	Kansas City	KANSAS CITY	Kansas City	Kansas City	Western		
West	0	1	www.1stcameron.com	405	29	376	0
0	27	null	3	355	179	56	120
	40	0	40	0	40	0	0
	58485	0	3594797	null	1st Capital Bank	Salinas	CA
93901	3/31/2020	6/2/2020	NM	150 Main St, # 15...	nul		
1	6	0	null	4	0	Monterey	41500
Salinas, CA	4/16/2007	4/16/2007	5/1/2017	Stock	0	0	FDIC
DIF	San Francisco	SAN FRANCISCO	San Francisco	San Francisco	Western		
Western	0	1	www.1stcapital.bank	6188	323	5865	825
0	94	null	194	4495	2824	554	1117
	608	0	608	0	608	-12	0
	35456	0	2920773	3118513	1st Colonial Comm...	Collingswood	NJ
	8108	3/31/2020	6/2/2020	NM	1040 Haddon Ave.	1ST COLONIAL BCO	
R...	3	0	null	4	0	Camden	37980
elphia-Camd...	6/29/2000	6/29/2000	2/3/2020	Stock	0	0	FD
IC	DIF	New York	NEW YORK	Jamesburg	Philadelphia	North	
eastern	Northeast	0	1	http://www.1stcol...	5936	1300	4636
37	823	0	33	null	790	4174	2363
48	0	15	33	0	33	0	2415
	33.0						
11706	12404	338945	1204083	1st Community Bank	Sherrard	IL	
61281	3/31/2020	6/2/2020	NM	407 3rd St.	ILLINOIS HOLDING C		
0	2	0	null	2	1	Mercer	19340
-Moline-...	1/1/1910	1/1/1934	10/15/2015	Stock	0	0	FDIC
DIF	Chicago	CHICAGO	Springfield IL	Chicago	Central		
Central	0	1	http://www.1stcom...	640	110	530	3
0	17	null	2	462	293	53	116
	84	0	84	0	84	1	0
	27552	10064	1412619	2784920	1st Constitution ...	Cranbury	NJ
	8512	3/31/2020	6/2/2020	NM	2650 Rt. 130	1ST CONSTITUTION	
...	27	0	null	4	0	Middlesex	35620
k-Newark-J...	7/24/1989	7/24/1989	11/8/2019	Stock	0	0	FDI
C	DIF	New York	NEW YORK	Jamesburg	New York	North	
astern	Northeast	0	1	www.1stconstituti...	16388	3300	13088
5	2377	0	280	null	2097	9721	6168
9	8	1316	3541	0	3541	165	1083
3534.68							
34393	0	2531562	2531553	1st Equity Bank	Skokie	IL	
60076	3/31/2020	6/2/2020	NM	3956 W. Dempster St.	FIRST EQUITY COR		
P	1	0	null	4	1	Cook	16980
aperville...	6/9/1997	6/9/1997	3/31/2006	Stock	0	0	FDIC

DIF	Chicago	CHICAGO	Chicago	Chicago	Chicago	Central					
Central	0	1	www.1stequitybank...	982	269	713	0	27			
0	17	null	10	474	235	75	164	266	0	0	
	266	0	266	0	266	-1	300	0	266.0		
57611	0	3203996	3203987	1st Equity Bank N...		Buffalo Grove	IL				
60089	3/31/2020	6/2/2020	NM	1330 Dundee Rd.	NORTHWEST EQUITY						
...	1	0	null	4	1	Cook	16980	Chicago			
-Naperville...	10/15/2003	10/15/2003	3/31/2006	Stock	0	0	FDI				
C	DIF	Chicago	CHICAGO	Chicago	Chicago	C					
entral	Central	0	1		null	432	156	276			
0	45	0	1	null	44	254	129	55	70	6	
7	0	0	67	0	67	0	67	-4	85	0	
67.0											
31410	6903	535575	3834710	1st Federal Savin...		Walterboro	SC				
29488	3/31/2020	6/2/2020	SB	300 Robertson Blvd.	FIRST CAROLINA B						
A...	2	0	null	5	0	Colleton	null				
null	1/1/1962	8/9/1963	4/30/2018	Stock	0	0	FDIC	DI			
F	Atlanta	ATLANTA	Columbia Sc		Richmond	Northeastern	So				
utheast	0	1	www.1stfederalofs...	1056	145	911	15	273			
0	111	null	162	1000	542	90	368	169	0	38	
	131	0	131	0	131	6	0	0	131.0		
	1673	0	526452		null	1st Financial Ban...	Dakota Dunes	SD			
57049	3/31/2020	6/2/2020	NM	331 N. Dakota Dun...		nul					
1	2	0	null	3	0	Union	43580	Sioux Cit			
y, IA-NE-SD	1/1/1910	1/1/1934	3/31/2006	Stock	0	0	FDIC				
DIF	Kansas City	KANSAS CITY	Sioux Falls	Minneapolis	Western						
West	0	0	http://www.1fbusa...	29510	3689	25821	6001	4077			
0	9	0	4068	21987	8364	2999	10624	1910	0	622	
	1288	0	1288	0	1288	5925	0	0	1288.0		
	6646	8805	480723	null	1st National Bank		Lebanon	OH			
45036	3/31/2020	6/2/2020	N	730 E. Main St.		nul					
1	10	0	null	4	1	Warren	17140	Cincinnat			
i, OH-KY-IN	1/1/1907	1/1/1934	11/1/2012	Stock	0	0	OCC				
DIF	Chicago	CHICAGO	Cincinnati	Cleveland	Central						
Central	0	1	WWW.BANKWITH1ST.COM	1919	569	1350	145	1590			
0	139	0	1451	2427	1505	264	658	368	0	0	
	368	0	368	0	368	17	0	4	368.0		
57633	0	1018927	4347208	1st Security Bank...	Mountlake Terrac	WA					
98043	3/31/2020	6/2/2020	SB	6920 220th St. Sw...		FS BCORP IN					
C	23	0	null	4	0	Snohomish	42660	Seattle-T			
acoma-Be...	4/1/2004	4/1/2004	11/15/2018	Stock	0	0	FDIC				
DIF	San Francisco	SAN FRANCISCO		Seattle	San Francisco	Western					
West	0	1	WWW.FSBWA.com	22096	4392	17704	3686	7907			
0	577	null	7330	15209	9547	1485	4177	6716	0	1374	
	5342	0	5342	0	5342	43	7216	0	5342.0		
	9087	10250	991340	1199602		1st Source Bank		South Bend	IN		
46601	3/31/2020	6/2/2020	SM	100 N. Michigan S...		1ST SOURCE COR					
P	83	0	null	4	0	St Joseph	43780	South Ben			
d-Mishaw...	1/1/1922	1/1/1934	12/31/2015	Stock	0	1	FED				
DIF	Chicago	CHICAGO	Indianapolis	Chicago	Central						
Central	0	1	www.1stsOURCE.com	67686	11337	56349	11353	24767			
4848	2605	0	17314	47108	24326	4642	18140	22655	280	5	
378	17557	0	17552	5	17557	1809	11552	0	17335.8		
57626	0	3223305	3223293		1st State Bank		Saginaw	MI			
48604	3/31/2020	6/2/2020	NM	4800 Fashion Sq. ...	1ST STATE FINANC						
I...	5	0	null	4	0	Saginaw	40980				
Saginaw, MI	4/12/2004	4/12/2004	8/19/2013	Stock	0	0	FDIC				
DIF	Chicago	CHICAGO	Detroit	Chicago	Central						
Central	0	1	www.1ststatebk.com	3192	356	2836	225	500			
0	55	null	445	2158	1280	218	660	953	0	202	
	751	0	751	0	751	-61	65	6	751.0		

22543   14261   170640   3070152   1st State Bank of...   Mason City   IL
62664   3/31/2020   6/2/2020   NM   123 W. Elm St.   FIRSTSTATE BCORP IN
C  1  0  null  7  1  Mason  null
null  11/1/1977  11/1/1977  3/31/2006  Stock  0  0  FDIC  DI
F  Chicago  CHICAGO  Springfield IL  Chicago  Central
Central  0  1  www.1ststatebankm...  198  31  167  0  12
0  6  null  6  137  62  19  56  42  0  0
42  0  42  0  42  0  108  0  42.0
+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+-----+-----+
-+-----+-----+-----+-----+-----+-----+-----+
-+-----+-----+-----+-----+-----+-----+-----+
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-+-----+-----+-----+-----+-----+-----+-----+
-+-----+-----+-----+-----+-----+-----+-----+
-+-----+-----+-----+-----+-----+-----+-----+
only showing top 20 rows

In [28]:

```
csvdataDF.printSchema()
```

```
root
|-- cert: integer (nullable = true)
|-- docket: integer (nullable = true)
|-- fed_rssd: integer (nullable = true)
|-- rssdhcr: integer (nullable = true)
|-- name: string (nullable = true)
|-- city: string (nullable = true)
|-- stalp: string (nullable = true)
|-- zip: integer (nullable = true)
|-- repdte: string (nullable = true)
|-- rundate: string (nullable = true)
|-- bkclass: string (nullable = true)
|-- address: string (nullable = true)
|-- namehcr: string (nullable = true)
|-- offdom: integer (nullable = true)
|-- offfor: integer (nullable = true)
|-- stmult: string (nullable = true)
|-- specgrp: integer (nullable = true)
|-- subchaps: integer (nullable = true)
|-- county: string (nullable = true)
|-- cbsa.metro: integer (nullable = true)
|-- cbsa.metro_name: string (nullable = true)
|-- estymd: string (nullable = true)
|-- insdate: string (nullable = true)
|-- effdate: string (nullable = true)
|-- mutual: string (nullable = true)
|-- parcert: integer (nullable = true)
|-- trust: integer (nullable = true)
|-- regagnt: string (nullable = true)
|-- insagnt1: string (nullable = true)
|-- fdicdbs: string (nullable = true)
|-- fdicsupv: string (nullable = true)
|-- fldoff: string (nullable = true)
|-- fed: string (nullable = true)
|-- occdist: string (nullable = true)
|-- otsregnm: string (nullable = true)
|-- offoa: integer (nullable = true)
|-- cb: integer (nullable = true)
|-- inst.webaddr: string (nullable = true)
|-- intinc: integer (nullable = true)
|-- eintexp: integer (nullable = true)
|-- nim: integer (nullable = true)
|-- elnatr: integer (nullable = true)
|-- nonii: integer (nullable = true)
|-- ifiduc: integer (nullable = true)
|-- iserchg: integer (nullable = true)
|-- igltrad: integer (nullable = true)
|-- idothnii: integer (nullable = true)
|-- nonix: integer (nullable = true)
|-- esal: integer (nullable = true)
|-- epremagg: integer (nullable = true)
|-- IDEOTH: integer (nullable = true)
|-- idpretx: integer (nullable = true)
|-- iglsecl: integer (nullable = true)
|-- itax: integer (nullable = true)
|-- ibefxtr: integer (nullable = true)
|-- extra: integer (nullable = true)
|-- netinc: integer (nullable = true)
|-- NETIMIN: integer (nullable = true)
|-- NETINBM: integer (nullable = true)
|-- ntlnls: integer (nullable = true)
```

```
| -- eqcdiv: integer (nullable = true)
| -- eqcstkx: integer (nullable = true)
| -- noij: double (nullable = true)
```

In [29]:

```
filteredCSVDF = spark.sql("select * from incomes where city='York'")
```

In [30]:

```
filteredCSVDF.show()
```

cert docket fed_rssd rssdhcr	name city stalp  zip  re	pdte  rundate bkclass  address  namehcr offdom off	for stmult specgrp subchaps county cbsa_metro  cbsa_metro_name  est	ymd  insdate  effdate mutual parcert trust regagnt insagnt1  fdicdbs	fdicsupv  fldoff  fed  occdist  otsregn offoa  cb	inst.webaddr intinc eintexp  nim elnatr nonii ifiduc isrchg igltrad idot	hnii nonix esal epremagg IDEOOTH idpretx iglsec itax ibefxtr extra netinc NETIMIN NETINBM ntlnls eqcddiv eqcstkrx  noij
15104  0  922924 1076208  Bank of York York  SC 29745 3/31/2020 6/2/2020  NM  13 W Liberty St  YORK BANCSHARES INC  4  0  null  7  0  York  16740 Charlotte-Concord...  4/15/1935  4/24/1935 3/31/2006  Stock  0  0  FDIC  DIF  Atlanta  ATLANTA  Columbia Sc  Richmond Northeastern Southeast  0  1  www.bankofyork.com  1777  91  1686  0  229  0  58  null  171  1291  732  119  440  624  0  129  495  0  495  0  495  36  0  0  495.0    5496  0  403151 1050646  Cornerstone Bank York  NE 68467 3/31/2020 6/2/2020  SM  529 N. Lincoln Ave.  FIRST YORK BAN CORP  45  0  null  2  1  York  null  null  4/22/1882  1/1/1934 12/5/2019  Stock  0  1  FED  DIF  Kansas City KANSAS CITY Grand Island  Kansas City  Western  Western  0  1 www.cornerstoneco...  18664  4258 14406  298  3937  550  416  0  2971 12539 7775  1488  3276  5506  -149  176  5181  0  5181  0  5181  100  3000  0  5325.53   13879  10161  556815 1142475 PeoplesBank, a Co... York  PA 17403 3/31/2020 6/2/2020  NM 109 Leader Height... CUDORUS VALLEY BC...  38  0  null  4  0  York  49620  York-Hanover, PA  1/25/1934  2/10/1934 12/4/2018  Stock  0  1  FDIC  DIF  New York  NEW YORK  Harrisburg Philadelphia Northeastern Northeast  0  0 http://www.people...  20186  4731 15455  9435  3408  994  558  0  1856 13148 7808  1663  3677  -3720  15 -921  -2784  0  -2784  0  -2784  7663  1300  0 -2795.85   16079  0  731050 4771997  York State Bank York  NE 68467 3/31/2020 6/2/2020  NM  700 Lincoln Ave.  YORK HOLDINGS INC  5  0  null  2  0  York  null  null  7/1/1943  7/15/1943  6/2/2011  Stock  0  0  FDIC  DIF  Kansas City KANSAS CITY Grand Island  Kansas City  Western  Western  0  1 www.yorkstatebank...  1542  232  1310  0  194  0  76  null  118  958  611  71  276  546  -3  122  421  0  421  0  421  1  0  0  423.37   57377  0  3145797  null York Traditions Bank York  PA 17402 3/31/2020 6/2/2020  NM  235 St. Charles Way  null  7  0  null  4  0  York  49620  York-Hanover, PA 10/28/2002  10/28/2002 3/18/2020  Stock  0  0  FDIC  DIF  New York  NEW YORK  Harrisburg Philadelphia Northeastern Northeast  0  1 htt							

```
p://www.yorktr...| 5683| 1241| 4442| 393| 1829| 0| 93| null
| 1736| 4556|2774| 604| 1178| 1322| 116| 266| 1172| 0| 1
172| 0| 1172| 612| 0| 61| 1076.88|
+-----+-----+-----+-----+-----+-----+-----+
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-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+
```

## Non-partitioned Parquet

### Fresh data

In [31]:

```
csvdataDF.write.format("parquet").mode("overwrite").save("income_nonpartitioned.parquet")
```

In [32]:

```
pqDF = spark.read.load("income_nonpartitioned.parquet", format="parquet")
print("PQ Non-partitioned partitioned count ", pqDF.count())
```

PQ Non-partitioned partitioned count 5125

In [33]:

```
pqDF.show()
```

cert docket fed_rssd rssdhcr	name	city stalp	
zip  repdte  rundate bkclass	address	namehc	
r offdom offfor stmult specgrp subchaps	county cbsa_metro	cbsa	
_metro_name  estymd  insdate  effdate mutual parcert trust regagnt			
insagnt1  fdicdbs  fdicsupv  fldoff  fed  occ			
dist  otsregnm offoa  cb  inst.webaddr intinc eintexp  nim elnatr			
nonii ifiduc isrchg igltrad idothnii nonix  esal epremagg IDEOTH idpretx			
iglsec itax ibefxtr extra netinc NETIMIN NETINBM ntlnls eqcddiv eqcstkrx			
noij			
4829  0  746223 2706726	1880 Bank	Cambridge  MD	
21613 3/31/2020 6/2/2020	SM	304 High St. DELMARVA BANCSHA	
R...  6  0  null  4  0	Dorchester	null	
null  1/1/1880  1/1/1934  7/16/2015  Stock	0  1	FED  DI	
F  New York  NEW YORK  Baltimore	Richmond	Northeastern So	
theast  0  1  www.1880bank.com  3310	305  3005	288  408	
0  181  null  227  2404  1046	270  1088	721  0  167	
554  0  554  0  554  20  425	0  554.0		
57899  0  3317192 4526496	1st Advantage Bank	Saint Peters  MO	
63376 3/31/2020 6/2/2020	NM	240 Salt Lick Rd.  BANC INVESTORS LL	
C  1  0  null  4  0  Saint Charles	41180	St. L	
ouis, MO-IL  1/31/2005  1/31/2005  9/10/2010  Stock	0  0	FDIC	
DIF  Kansas City  KANSAS CITY  St. Louis	St. louis	Western	
West  0  1 www.1stadvantageb...  1193	326  867	9  17	
0  9  null  8  737  441	66  230	138  0  0	
138  0  138  0  138  0  0	0  138.0		
22039  0  564856 1128415	1st Bank	Broadus  MT	
59317 3/31/2020 6/2/2020	SM	201 N. Wilbur Ave 1ST UNITED BCORP IN	
C  1  0  null  2  1  Powder River	null		
null  6/9/1975  6/9/1975  2/23/2018  Stock	0  0	FED  DI	
F San Francisco SAN FRANCISCO  Billings  Minneapolis	Western		
West  0  1  www.our1stbank.com  461	52  409	-750  48	
0  20  null  28  259  172	27  60	948  0  0	
948  0  948  0  948  0  3600	0  948.0		
4122  0  350657  null  1st Bank in Hominy		Hominy  OK	
74035 3/31/2020 6/2/2020	SM	117 N. Price	nul
1  1  0  null  8  1  Osage	46140		
Tulsa, OK  4/12/1906  1/1/1934  7/19/2019  Stock	0  0	FED	
DIF  Dallas  DALLAS  Tulsa  Kansas City	Southern		
West  0  1 http://www.1stban...  422	71  351	15  69	
0  42  null  27  323  177	36  110	82  0  0	
82  0  82  0  82  -4	0  0	82.0	
30367  5236  148470 3848427 1st Bank of Sea I...	Sea Isle City	NJ	
8243 3/31/2020 6/2/2020	SB	4301 Landis Ave. SEA ISLE FINANCI	

A...	3	0	null	5	0	Cape May	36140
Ocean City, NJ	1/1/1882	11/30/1948	9/19/2014	Stock	0	0	FD
IC	DIF	New York	NEW YORK	Jamesburg	Philadelphia	North	
eastern	Northeast	0	1	www.1stbankseaisl...	2165	103	2062
0	95	0	53	null	42	1877	1046
0	0	65	215	0	215	0	0
215.0							
57298	0	3048487	3559844	1st Bank Yuma	Yuma	AZ	
85364	3/31/2020	6/2/2020	NM	2799 S. 4th Ave.	WESTERN ARIZONA		
B...	5	0	null	4	0	Yuma	49740
Yuma, AZ	9/4/2001	9/4/2001	3/2/2018	Stock	0	0	FDIC
DIF	San Francisco	SAN FRANCISCO	Phoenix	San Francisco	Western		
Western	0	1	http://www.1stban...	4375	146	4229	82
0	347	null	425	3057	1840	343	874
	1421	0	1421	0	1421	98	2066
	32487	8322	941653	1064791	1st Cameron State...	Cameron	MO
64429	3/31/2020	6/2/2020	NM	124 S. Walnut	C&M BANCSHARES IN		
C	2	0	null	7	0	Clinton	28140
City, MO-KS	8/11/1986	8/11/1986	6/29/2009	Stock	0	0	FDIC
DIF	Kansas City	KANSAS CITY	Kansas City	Kansas City	Western		
West	0	1	www.1stcameron.com	405	29	376	0
0	27	null	3	355	179	56	120
	40	0	40	0	40	0	0
	58485	0	3594797	null	1st Capital Bank	Salinas	CA
93901	3/31/2020	6/2/2020	NM	150 Main St, # 15...	nul		
1	6	0	null	4	0	Monterey	41500
Salinas, CA	4/16/2007	4/16/2007	5/1/2017	Stock	0	0	FDIC
DIF	San Francisco	SAN FRANCISCO	San Francisco	San Francisco	Western		
Western	0	1	www.1stcapital.bank	6188	323	5865	825
0	94	null	194	4495	2824	554	1117
	608	0	608	0	608	-12	0
	35456	0	2920773	3118513	1st Colonial Comm...	Collingswood	NJ
	8108	3/31/2020	6/2/2020	NM	1040 Haddon Ave.	1ST COLONIAL BCO	
R...	3	0	null	4	0	Camden	37980
elphia-Camd...	6/29/2000	6/29/2000	2/3/2020	Stock	0	0	FD
IC	DIF	New York	NEW YORK	Jamesburg	Philadelphia	North	
eastern	Northeast	0	1	http://www.1stcol...	5936	1300	4636
37	823	0	33	null	790	4174	2363
48	0	15	33	0	33	0	2415
	33.0						
11706	12404	338945	1204083	1st Community Bank	Sherrard	IL	
61281	3/31/2020	6/2/2020	NM	407 3rd St.	ILLINOIS HOLDING C		
0	2	0	null	2	1	Mercer	19340
-Moline-...	1/1/1910	1/1/1934	10/15/2015	Stock	0	0	FDIC
DIF	Chicago	CHICAGO	Springfield IL	Chicago	Central		
Central	0	1	http://www.1stcom...	640	110	530	3
0	17	null	2	462	293	53	116
	84	0	84	0	84	1	0
	27552	10064	1412619	2784920	1st Constitution ...	Cranbury	NJ
	8512	3/31/2020	6/2/2020	NM	2650 Rt. 130	1ST CONSTITUTION	
...	27	0	null	4	0	Middlesex	35620
k-Newark-J...	7/24/1989	7/24/1989	11/8/2019	Stock	0	0	FDI
C	DIF	New York	NEW YORK	Jamesburg	New York	North	
astern	Northeast	0	1	www.1stconstituti...	16388	3300	13088
5	2377	0	280	null	2097	9721	6168
9	8	1316	3541	0	3541	165	1083
3534.68							
34393	0	2531562	2531553	1st Equity Bank	Skokie	IL	
60076	3/31/2020	6/2/2020	NM	3956 W. Dempster St.	FIRST EQUITY COR		
P	1	0	null	4	1	Cook	16980
aperville...	6/9/1997	6/9/1997	3/31/2006	Stock	0	0	FDIC

DIF	Chicago	CHICAGO	Chicago	Chicago	Chicago	Central					
Central	0	1	www.1stequitybank...	982	269	713	0	27			
0	17	null	10	474	235	75	164	266	0	0	
	266	0	266	0	266	-1	300	0	266.0		
57611	0	3203996	3203987	1st Equity Bank N...		Buffalo Grove	IL				
60089	3/31/2020	6/2/2020	NM	1330 Dundee Rd.	NORTHWEST EQUITY						
...	1	0	null	4	1	Cook	16980	Chicago			
-Naperville...	10/15/2003	10/15/2003	3/31/2006	Stock	0	0	FDI				
C	DIF	Chicago	CHICAGO	Chicago	Chicago	C					
entral	Central	0	1		null	432	156	276			
0	45	0	1	null	44	254	129	55	70	6	
7	0	0	67	0	67	0	67	-4	85	0	
67.0											
31410	6903	535575	3834710	1st Federal Savin...		Walterboro	SC				
29488	3/31/2020	6/2/2020	SB	300 Robertson Blvd.	FIRST CAROLINA B						
A...	2	0	null	5	0	Colleton	null				
null	1/1/1962	8/9/1963	4/30/2018	Stock	0	0	FDIC	DI			
F	Atlanta	ATLANTA	Columbia Sc		Richmond	Northeastern	So				
utheast	0	1	www.1stfederalofs...	1056	145	911	15	273			
0	111	null	162	1000	542	90	368	169	0	38	
	131	0	131	0	131	6	0	0	131.0		
	1673	0	526452		1st Financial Ban...	Dakota Dunes	SD				
57049	3/31/2020	6/2/2020	NM	331 N. Dakota Dun...		nul					
1	2	0	null	3	0	Union	43580	Sioux Cit			
y, IA-NE-SD	1/1/1910	1/1/1934	3/31/2006	Stock	0	0	FDIC				
DIF	Kansas City	KANSAS CITY	Sioux Falls	Minneapolis	Western						
West	0	0	http://www.1fbusa...	29510	3689	25821	6001	4077			
0	9	0	4068	21987	8364	2999	10624	1910	0	622	
	1288	0	1288	0	1288	5925	0	0	1288.0		
	6646	8805	480723	null	1st National Bank		Lebanon	OH			
45036	3/31/2020	6/2/2020	N	730 E. Main St.		nul					
1	10	0	null	4	1	Warren	17140	Cincinnat			
i, OH-KY-IN	1/1/1907	1/1/1934	11/1/2012	Stock	0	0	OCC				
DIF	Chicago	CHICAGO	Cincinnati	Cleveland	Central						
Central	0	1	WWW.BANKWITH1ST.COM	1919	569	1350	145	1590			
0	139	0	1451	2427	1505	264	658	368	0	0	
	368	0	368	0	368	17	0	4	368.0		
57633	0	1018927	4347208	1st Security Bank...	Mountlake Terrac	WA					
98043	3/31/2020	6/2/2020	SB	6920 220th St. Sw...		FS BCORP IN					
C	23	0	null	4	0	Snohomish	42660	Seattle-T			
acoma-Be...	4/1/2004	4/1/2004	11/15/2018	Stock	0	0	FDIC				
DIF	San Francisco	SAN FRANCISCO		Seattle	San Francisco	Western					
West	0	1	WWW.FSBWA.com	22096	4392	17704	3686	7907			
0	577	null	7330	15209	9547	1485	4177	6716	0	1374	
	5342	0	5342	0	5342	43	7216	0	5342.0		
	9087	10250	991340	1199602		1st Source Bank		South Bend	IN		
46601	3/31/2020	6/2/2020	SM	100 N. Michigan S...		1ST SOURCE COR					
P	83	0	null	4	0	St Joseph	43780	South Ben			
d-Mishaw...	1/1/1922	1/1/1934	12/31/2015	Stock	0	1	FED				
DIF	Chicago	CHICAGO	Indianapolis	Chicago	Central						
Central	0	1	www.1stsOURCE.com	67686	11337	56349	11353	24767			
4848	2605	0	17314	47108	24326	4642	18140	22655	280	5	
378	17557	0	17552	5	17557	1809	11552	0	17335.8		
57626	0	3223305	3223293		1st State Bank		Saginaw	MI			
48604	3/31/2020	6/2/2020	NM	4800 Fashion Sq. ...	1ST STATE FINANC						
I...	5	0	null	4	0	Saginaw	40980				
Saginaw, MI	4/12/2004	4/12/2004	8/19/2013	Stock	0	0	FDIC				
DIF	Chicago	CHICAGO	Detroit	Chicago	Central						
Central	0	1	www.1ststatebk.com	3192	356	2836	225	500			
0	55	null	445	2158	1280	218	660	953	0	202	
	751	0	751	0	751	-61	65	6	751.0		

```
| 22543 | 14261 | 170640 | 3070152 | 1st State Bank of... | Mason City | IL
| 62664 | 3/31/2020 | 6/2/2020 | NM | 123 W. Elm St. | FIRSTSTATE BCORP IN
C| 1| 0| null| 7| 1| Mason| null|
null| 11/1/1977| 11/1/1977| 3/31/2006| Stock| 0| 0| FDIC| DI
F| Chicago| CHICAGO| Springfield IL| Chicago| Central|
Central| 0| 1| www.1ststatebankm...| 198| 31| 167| 0| 12|
0| 6| null| 6| 137| 62| 19| 56| 42| 0| 0
| 42| 0| 42| 0| 42| 0| 108| 0| 42.0|
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```

only showing top 20 rows

## Appending data

In [34]:

```
csvdataDF.write.format("parquet").mode("append").save("income_nonpartitioned.parquet")
```

In [35]:

```
pqDF = spark.read.load("income_nonpartitioned.parquet", format="parquet")
print("PQ Non-partitioned partitioned count ", pqDF.count())
```

PQ Non-partitioned partitioned count 10250

## Partitioned Parquet file

### Fresh data

`.mode(...).option("compression", "gzip")` can be used for gzip compression

In [36]:

```
csvdataDF.write.partitionBy("city").format("parquet").mode("overwrite").option("compression", "gzip").save("income_part.parquet")
```

In [37]:

```
pqDF = spark.read.load("income_part.parquet", format="parquet")
pqDF.registerTempTable("pqincomes")
print("PQ Non-partitioned partitioned count ", pqDF.count())
```

PQ Non-partitioned partitioned count 5125

In [38]:

```
filteredCSVDF = spark.sql("select * from pqincomes where city='York'")  
filteredCSVDF.show()
```

cert docket fed_rssd rssdhcr	name stalp  zip  repdte
rundate bkclass  address  namehcr offdom offfor st	
mult specgrp subchaps county cbsa_metro  cbsa_metro_name  estymd	
insdate  effdate mutual parcert trust regagnt insagnt1  fdicdbs  fdi	
csupv  fldoff  fed  occdist  otsregn offoa  cb  i	
nst.webaddr intinc eintexp  nim elnatr nonii ifiduc isrchg igltrad idoth	
nii nonix esal epremagg IDEOTH idpretx iglsec itax ibefxtr extra netinc NET	
TIMIN NETINBM ntlnls eqcdiv eqcstkrx  noij city	
15104  0  922924 1076208  Bank of York  SC 29745 3/31/2020	
6/2/2020  NM  13 W Liberty St  YORK BANCSHARES INC  4  0	
null  7  0  York  16740 Charlotte-Concord...  4/15/1935	
4/24/1935 3/31/2006  Stock  0  0  FDIC  DIF  Atlanta	
ATLANTA  Columbia Sc  Richmond Northeastern Southeast  0  1  www.b	
ankofyork.com  1777  91  1686  0  229  0  58  null	
171  1291  732  119  440  624  0  129  495  0  495	
0  495  36  0  0  495.0 York	
5496  0  403151 1050646  Cornerstone Bank  NE 68467 3/31/2020	
6/2/2020  SM  529 N. Lincoln Ave.  FIRST YORK BAN CORP  45  0	
null  2  1  York  null  null  4/22/1882	
1/1/1934 12/5/2019  Stock  0  1  FED  DIF Kansas City KANS	
S CITY Grand Island  Kansas City  Western  Western  0  1 www.corn	
erstoneco...  18664  4258 14406  298  3937  550  416  0	
2971 12539 7775  1488  3276  5506  -149  176  5181  0  5181	
0  5181  100  3000  0  5325.53 York	
13879  10161  556815 1142475 PeoplesBank, a Co...  PA 17403 3/31/2020	
6/2/2020  NM 109 Leader Height... CUDORUS VALLEY BC...  38  0	
null  4  0  York  49620  York-Hanover, PA  1/25/1934	
2/10/1934 12/4/2018  Stock  0  1  FDIC  DIF  New York  N	
EW YORK  Harrisburg Philadelphia Northeastern Northeast  0  0 http://	
www.people...  20186  4731 15455  9435  3408  994  558  0	
1856 13148 7808  1663  3677  -3720  15 -921  -2784  0  -2784	
0  -2784  7663  1300  0 -2795.85 York	
16079  0  731050 4771997  York State Bank  NE 68467 3/31/2020	
6/2/2020  NM  700 Lincoln Ave.  YORK HOLDINGS INC  5  0	
null  2  0  York  null  null  7/1/1943	
7/15/1943  6/2/2011  Stock  0  0  FDIC  DIF Kansas City KANS	
AS CITY Grand Island  Kansas City  Western  Western  0  1 www.yor	
kstatebank...  1542  232  1310  0  194  0  76  null	
118  958  611  71  276  546  -3  122  421  0  421	
0  421  1  0  0  423.37 York	
57377  0  3145797  null York Traditions Bank  PA 17402 3/31/2020	
6/2/2020  NM  235 St. Charles Way  null  7  0	
null  4  0  York  49620  York-Hanover, PA 10/28/2002 1	
0/28/2002 3/18/2020  Stock  0  0  FDIC  DIF  New York  N	
EW YORK  Harrisburg Philadelphia Northeastern Northeast  0  1 http://	

www.yorktr...	5683	1241	4442	393	1829	0	93	null
1736	4556	2774	604	1178	1322	116	266	1172
0	1172	612	0	61	1076.88	York		