

```
In [52]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd
import warnings
```

```
warnings.filterwarnings('ignore')
%matplotlib inline
```

```
In [53]: df=pd.read_csv("E://data//googleplaystore.csv")
```

```
In [54]: df
```

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND DESIGN	4.1	159	19M	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND DESIGN	3.9	967	14M	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND DESIGN	4.7	87510	8.7M	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25M	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND DESIGN	4.3	967	2.8M	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up
...
10836	Sya9a Maroc - FR	FAMILY	4.5	38	53M	5,000+	Free	0	Everyone	Education	July 25, 2017	1.48	4.1 and up
10837	Fr. Mike Schmitz Audio Teachings	FAMILY	5.0	4	3.6M	100+	Free	0	Everyone	Education	July 6, 2018	1.0	4.1 and up
10838	Parkinson Exercises FR	MEDICAL	NaN	3	9.5M	1,000+	Free	0	Everyone	Medical	January 20, 2017	1.0	2.2 and up
10839	The SCP Foundation DB fr nn5n	BOOKS_AND_REFERENCE	4.5	114	Varies with device	1,000+	Free	0	Mature 17+	Books & Reference	January 19, 2015	Varies with device	Varies with device
10840	iHoroscope - 2018 Daily Horoscope & Astrology	LIFESTYLE	4.5	398307	19M	10,000,000+	Free	0	Everyone	Lifestyle	July 25, 2018	Varies with device	Varies with device

10841 rows × 13 columns

```
In [55]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10841 entries, 0 to 10840
Data columns (total 13 columns):
 #   Column      Non-Null Count  Dtype  
---  --  
 0   App          10841 non-null   object  
 1   Category     10841 non-null   object  
 2   Rating       9367 non-null   float64 
 3   Reviews      10841 non-null   object  
 4   Size          10841 non-null   object  
 5   Installs     10841 non-null   object  
 6   Type          10840 non-null   object  
 7   Price         10841 non-null   object  
 8   Content Rating 10840 non-null   object  
 9   Genres        10841 non-null   object  
 10  Last Updated 10841 non-null   object  
 11  Current Ver  10833 non-null   object  
 12  Android Ver  10838 non-null   object  
dtypes: float64(1), object(12)
memory usage: 1.1+ MB
```

In [56]: `df["Reviews"].dtype`

Out[56]: `dtype('O')`

In [57]: `df.Reviews.str.isnumeric().sum()`

Out[57]: `10840`

In [58]: `df.Reviews.str.isnumeric().sum()`

Out[58]: `10840`

In [59]: `df[~df.Reviews.str.isnumeric()]`

Out[59]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver	
10472	Life Made Wi-Fi Touchscreen Photo Frame		1.9	19.0	3.0M	1,000+	Free	0	Everyone	NaN	February 11, 2018	1.0.19	4.0 and up	NaN

In [60]: `df_copy=df.copy()`

1. Dropping the row of column Reviews in which it has different data type

In [61]: `df_copy=df_copy.drop(df_copy.index[10472])`

In [62]: `df_copy.shape`

Out[62]: `(10840, 13)`

In [63]:

df_copy

Out[63]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND DESIGN	4.1	159	19M	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND DESIGN	3.9	967	14M	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND DESIGN	4.7	87510	8.7M	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25M	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND DESIGN	4.3	967	2.8M	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up
...
10836	Sya9a Maroc - FR	FAMILY	4.5	38	53M	5,000+	Free	0	Everyone	Education	July 25, 2017	1.48	4.1 and up
10837	Fr. Mike Schmitz Audio Teachings	FAMILY	5.0	4	3.6M	100+	Free	0	Everyone	Education	July 6, 2018	1.0	4.1 and up
10838	Parkinson Exercises FR	MEDICAL	NaN	3	9.5M	1,000+	Free	0	Everyone	Medical	January 20, 2017	1.0	2.2 and up
10839	The SCP Foundation DB fr nn5n	BOOKS_AND_REFERENCE	4.5	114	Varies with device	1,000+	Free	0	Mature 17+	Books & Reference	January 19, 2015	Varies with device	Varies with device
10840	iHoroscope - 2018 Daily Horoscope & Astrology	LIFESTYLE	4.5	398307	19M	10,000,000+	Free	0	Everyone	Lifestyle	July 25, 2018	Varies with device	Varies with device

10840 rows × 13 columns

In [64]:

df

Out[64]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND DESIGN	4.1	159	19M	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND DESIGN	3.9	967	14M	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND DESIGN	4.7	87510	8.7M	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25M	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND DESIGN	4.3	967	2.8M	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up
...
10836	Sya9a Maroc - FR	FAMILY	4.5	38	53M	5,000+	Free	0	Everyone	Education	July 25, 2017	1.48	4.1 and up
10837	Fr. Mike Schmitz Audio Teachings	FAMILY	5.0	4	3.6M	100+	Free	0	Everyone	Education	July 6, 2018	1.0	4.1 and up
10838	Parkinson Exercises FR	MEDICAL	NaN	3	9.5M	1,000+	Free	0	Everyone	Medical	January 20, 2017	1.0	2.2 and up
10839	The SCP Foundation DB fr nn5n	BOOKS_AND_REFERENCE	4.5	114	Varies with device	1,000+	Free	0	Mature 17+	Books & Reference	January 19, 2015	Varies with device	Varies with device
10840	iHoroscope - 2018 Daily Horoscope & Astrology	LIFESTYLE	4.5	398307	19M	10,000,000+	Free	0	Everyone	Lifestyle	July 25, 2018	Varies with device	Varies with device

10841 rows × 13 columns

In [65]:

df_copy["Reviews"].dtype

Out[65]:

dtype('O')

2. Converting dtypes of Reviews from object to int

```
In [66]: df_copy["Reviews"] = df_copy["Reviews"].astype('int')
```

```
In [67]: df_copy["Reviews"].dtype
```

```
Out[67]: dtype('int32')
```

```
In [68]: df_copy.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 10840 entries, 0 to 10840
Data columns (total 13 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   App          10840 non-null   object  
 1   Category     10840 non-null   object  
 2   Rating       9366 non-null   float64 
 3   Reviews      10840 non-null   int32  
 4   Size          10840 non-null   object  
 5   Installs     10840 non-null   object  
 6   Type          10839 non-null   object  
 7   Price         10840 non-null   object  
 8   Content Rating 10840 non-null   object  
 9   Genres        10840 non-null   object  
 10  Last Updated 10840 non-null   object  
 11  Current Ver  10832 non-null   object  
 12  Android Ver 10838 non-null   object  
dtypes: float64(1), int32(1), object(11)
memory usage: 1.1+ MB
```

```
In [69]: df_copy["Size"].unique()
```

```
Out[69]: array(['19M', '14M', '8.7M', '25M', '2.8M', '5.6M', '29M', '33M', '3.1M',
   '28M', '12M', '20M', '21M', '37M', '2.7M', '5.5M', '17M', '39M',
   '31M', '4.2M', '7.0M', '23M', '6.0M', '6.1M', '4.6M', '9.2M',
   '5.2M', '11M', '24M', 'Varies with device', '9.4M', '15M', '10M',
   '1.2M', '26M', '8.0M', '7.9M', '56M', '57M', '35M', '54M', '201k',
   '3.6M', '5.7M', '8.6M', '2.4M', '27M', '2.5M', '16M', '3.4M',
   '8.9M', '3.9M', '2.9M', '38M', '32M', '5.4M', '18M', '1.1M',
   '2.2M', '4.5M', '9.8M', '52M', '9.0M', '6.7M', '30M', '2.6M',
   '7.1M', '3.7M', '22M', '7.4M', '6.4M', '3.2M', '8.2M', '9.9M',
   '4.9M', '9.5M', '5.0M', '5.9M', '13M', '73M', '6.8M', '3.5M',
   '4.0M', '2.3M', '7.2M', '2.1M', '42M', '7.3M', '9.1M', '55M',
   '23k', '6.5M', '1.5M', '7.5M', '51M', '41M', '48M', '8.5M', '46M',
   '8.3M', '4.3M', '4.7M', '3.3M', '40M', '7.8M', '8.8M', '6.6M',
   '5.1M', '61M', '66M', '79k', '8.4M', '118k', '44M', '695k', '1.6M',
   '6.2M', '18k', '53M', '1.4M', '3.0M', '5.8M', '3.8M', '9.6M',
   '45M', '63M', '49M', '77M', '4.4M', '4.8M', '70M', '6.9M', '9.3M',
   '10.0M', '8.1M', '36M', '84M', '97M', '2.0M', '1.9M', '1.8M',
   '5.3M', '47M', '556k', '526k', '76M', '7.6M', '59M', '9.7M', '78M',
   '72M', '43M', '7.7M', '6.3M', '334k', '34M', '93M', '65M', '79M',
   '100M', '58M', '50M', '68M', '64M', '67M', '60M', '94M', '232k',
   '99M', '624k', '95M', '8.5k', '41k', '292k', '11k', '80M', '1.7M',
   '74M', '62M', '69M', '75M', '98M', '85M', '82M', '96M', '87M',
   '71M', '86M', '91M', '81M', '92M', '83M', '88M', '704k', '862k',
   '899k', '378k', '266k', '375k', '1.3M', '975k', '980k', '4.1M',
   '89M', '696k', '544k', '525k', '920k', '779k', '853k', '720k',
   '713k', '772k', '318k', '58k', '241k', '196k', '857k', '51k',
   '953k', '865k', '251k', '930k', '540k', '313k', '746k', '203k',
   '26k', '314k', '239k', '371k', '220k', '730k', '756k', '91k',
   '293k', '17k', '74k', '14k', '317k', '78k', '924k', '902k', '818k',
   '81k', '939k', '169k', '45k', '475k', '965k', '90M', '545k', '61k',
   '283k', '655k', '714k', '93k', '872k', '121k', '322k', '1.0M',
   '976k', '172k', '238k', '549k', '206k', '954k', '444k', '717k',
   '210k', '609k', '308k', '705k', '306k', '904k', '473k', '175k',
   '350k', '383k', '454k', '421k', '70k', '812k', '442k', '842k',
   '417k', '412k', '459k', '478k', '335k', '782k', '721k', '430k',
   '429k', '192k', '200k', '460k', '728k', '496k', '816k', '414k',
   '506k', '887k', '613k', '243k', '569k', '778k', '683k', '592k',
   '319k', '186k', '840k', '647k', '191k', '373k', '437k', '598k',
   '716k', '585k', '982k', '222k', '219k', '55k', '948k', '323k',
   '691k', '511k', '951k', '963k', '25k', '554k', '351k', '27k',
   '82k', '208k', '913k', '514k', '551k', '29k', '103k', '898k',
   '743k', '116k', '153k', '209k', '353k', '499k', '173k', '597k',
   '809k', '122k', '411k', '400k', '801k', '787k', '237k', '50k',
   '643k', '986k', '97k', '516k', '837k', '780k', '961k', '269k',
   '20k', '498k', '600k', '749k', '642k', '881k', '72k', '656k',
   '601k', '221k', '228k', '108k', '940k', '176k', '33k', '663k',
   '34k', '942k', '259k', '164k', '458k', '245k', '629k', '28k',
   '288k', '775k', '785k', '636k', '916k', '994k', '309k', '485k',
   '914k', '903k', '608k', '500k', '54k', '562k', '847k', '957k',
   '688k', '811k', '270k', '48k', '329k', '523k', '921k', '874k',
   '981k', '784k', '280k', '24k', '518k', '754k', '892k', '154k',
   '860k', '364k', '387k', '626k', '161k', '879k', '39k', '970k',
   '170k', '141k', '160k', '144k', '143k', '190k', '376k', '193k',
   '246k', '73k', '658k', '992k', '253k', '420k', '404k', '470k',
   '226k', '240k', '89k', '234k', '257k', '861k', '467k', '157k',
   '44k', '676k', '67k', '552k', '885k', '1020k', '582k', '619k'],
  dtype=object)
```

3.Replacing M,k, by 000," " in Size column

```
In [70]: df_copy["Size"] = df_copy["Size"].str.replace("M", "000")
```

```
In [71]: df_copy["Size"]
```

```
Out[71]: 0      19000  
1      14000  
2      8.7000  
3     25000  
4      2.8000  
...  
10836      53000  
10837      3.6000  
10838      9.5000  
10839  Varies with device  
10840      19000  
Name: Size, Length: 10840, dtype: object
```

```
In [72]: df_copy["Size"] = df_copy["Size"].str.replace("k", "")
```

```
In [73]: df_copy["Size"].unique()
```

```
Out[73]: array(['19000', '14000', '8.7000', '25000', '2.8000', '5.6000', '29000',  
'33000', '3.1000', '28000', '12000', '20000', '21000', '37000',  
'2.7000', '5.5000', '17000', '39000', '31000', '4.2000', '7.0000',  
'23000', '6.0000', '6.1000', '4.6000', '9.2000', '5.2000', '11000',  
'24000', 'Varies with device', '9.4000', '15000', '10000',  
'1.2000', '26000', '8.0000', '7.9000', '56000', '57000', '35000',  
'54000', '201', '3.6000', '5.7000', '8.6000', '2.4000', '27000',  
'2.5000', '16000', '3.4000', '8.9000', '3.9000', '2.9000', '38000',  
'32000', '5.4000', '18000', '1.1000', '2.2000', '4.5000', '9.8000',  
'52000', '9.0000', '6.7000', '30000', '2.6000', '7.1000', '3.7000',  
'22000', '7.4000', '6.4000', '3.2000', '8.2000', '9.9000',  
'4.9000', '9.5000', '5.0000', '5.9000', '13000', '73000', '6.8000',  
'3.5000', '4.0000', '2.3000', '7.2000', '2.1000', '42000',  
'7.3000', '9.1000', '55000', '23', '6.5000', '1.5000', '7.5000',  
'51000', '41000', '48000', '8.5000', '46000', '8.3000', '4.3000',  
'4.7000', '3.3000', '40000', '7.8000', '8.8000', '6.6000',  
'5.1000', '61000', '66000', '79', '8.4000', '118', '44000', '695',  
'1.6000', '6.2000', '18', '53000', '1.4000', '3.0000', '5.8000',  
'3.8000', '9.6000', '45000', '63000', '49000', '77000', '4.4000',  
'4.8000', '70000', '6.9000', '9.3000', '10.0000', '8.1000',  
'36000', '84000', '97000', '2.0000', '1.9000', '1.8000', '5.3000',  
'47000', '556', '526', '76000', '7.6000', '59000', '9.7000',  
'78000', '72000', '43000', '7.7000', '6.3000', '334', '34000',  
'93000', '65000', '79000', '100000', '58000', '50000', '68000',  
'64000', '67000', '60000', '94000', '232', '99000', '624', '95000',  
'8.5', '41', '292', '11', '80000', '1.7000', '74000', '62000',  
'69000', '75000', '98000', '85000', '82000', '96000', '87000',  
'71000', '86000', '91000', '81000', '92000', '83000', '88000',  
'704', '862', '899', '378', '266', '375', '1.3000', '975', '980',  
'4.1000', '89000', '696', '544', '525', '920', '779', '853', '720',  
'713', '772', '318', '58', '241', '196', '857', '51', '953', '865',  
'251', '930', '540', '313', '746', '203', '26', '314', '239',  
'371', '220', '730', '756', '91', '293', '17', '74', '14', '317',  
'78', '924', '902', '818', '81', '939', '169', '45', '475', '965',  
'90000', '545', '61', '283', '655', '714', '93', '872', '121',  
'322', '1.0000', '976', '172', '238', '549', '206', '954', '444',  
'717', '210', '609', '308', '705', '306', '904', '473', '175',  
'350', '383', '454', '421', '70', '812', '442', '842', '417',  
'412', '459', '478', '335', '782', '721', '430', '429', '192',  
'200', '460', '728', '496', '816', '414', '506', '887', '613',  
'243', '569', '778', '683', '592', '319', '186', '840', '647',  
'191', '373', '437', '598', '716', '585', '982', '222', '219',  
'55', '948', '323', '691', '511', '951', '963', '25', '554', '351',  
'27', '82', '208', '913', '514', '551', '29', '103', '898', '743',  
'116', '153', '209', '353', '499', '173', '597', '809', '122',  
'411', '400', '801', '787', '237', '50', '643', '986', '97', '516',  
'837', '780', '961', '269', '20', '498', '600', '749', '642',  
'881', '72', '656', '601', '221', '228', '108', '940', '176', '33',  
'663', '34', '942', '259', '164', '458', '245', '629', '28', '288',  
'775', '785', '636', '916', '994', '309', '485', '914', '903',  
'608', '500', '54', '562', '847', '957', '688', '811', '270', '48',  
'329', '523', '921', '874', '981', '784', '280', '24', '518',  
'754', '892', '154', '860', '364', '387', '626', '161', '879',  
'39', '970', '170', '141', '160', '144', '143', '190', '376',  
'193', '246', '73', '658', '992', '253', '420', '404', '470',  
'226', '240', '89', '234', '257', '861', '467', '157', '44', '676',  
'67', '552', '885', '1020', '582', '619'], dtype=object)
```

```
In [74]: df_copy["Size"] = df_copy["Size"].str.replace("Varies with device", str(np.nan))
```

```
In [75]: df_copy["Size"].unique()
```

```
Out[75]: array(['19000', '14000', '8.7000', '25000', '2.8000', '5.6000', '29000',
   '33000', '3.1000', '28000', '12000', '20000', '21000', '37000',
   '2.7000', '5.5000', '17000', '39000', '31000', '4.2000', '7.0000',
   '23000', '6.0000', '6.1000', '4.6000', '9.2000', '5.2000', '11000',
   '24000', 'nan', '9.4000', '15000', '10000', '1.2000', '26000',
   '8.0000', '7.9000', '56000', '57000', '35000', '54000', '201',
   '3.6000', '5.7000', '8.6000', '2.4000', '27000', '2.5000', '16000',
   '3.4000', '8.9000', '3.9000', '2.9000', '38000', '32000', '5.4000',
   '18000', '1.1000', '2.2000', '4.5000', '9.8000', '52000', '9.0000',
   '6.7000', '30000', '2.6000', '7.1000', '3.7000', '22000', '7.4000',
   '6.4000', '3.2000', '8.2000', '9.9000', '4.9000', '9.5000',
   '5.0000', '5.9000', '13000', '73000', '6.8000', '3.5000', '4.0000',
   '2.3000', '7.2000', '2.1000', '42000', '7.3000', '9.1000', '55000',
   '23', '6.5000', '1.5000', '7.5000', '51000', '41000', '48000',
   '8.5000', '46000', '8.3000', '4.3000', '4.7000', '3.3000', '40000',
   '7.8000', '8.8000', '6.6000', '5.1000', '61000', '66000', '79',
   '8.4000', '118', '44000', '695', '1.6000', '6.2000', '18', '53000',
   '1.4000', '3.0000', '5.8000', '3.8000', '9.6000', '45000', '63000',
   '49000', '77000', '4.4000', '4.8000', '70000', '6.9000', '9.3000',
   '10.0000', '8.1000', '36000', '84000', '97000', '2.0000', '1.9000',
   '1.8000', '5.3000', '47000', '556', '526', '76000', '7.5000',
   '59000', '9.7000', '78000', '72000', '43000', '7.7000', '6.3000',
   '334', '34000', '93000', '65000', '79000', '100000', '58000',
   '50000', '68000', '64000', '67000', '60000', '94000', '232',
   '99000', '624', '95000', '8.5', '41', '292', '11', '80000',
   '1.7000', '74000', '62000', '69000', '75000', '98000', '85000',
   '82000', '96000', '87000', '71000', '86000', '91000', '81000',
   '92000', '83000', '88000', '704', '862', '899', '378', '266',
   '375', '1.3000', '975', '980', '4.1000', '89000', '696', '544',
   '525', '920', '779', '853', '720', '713', '772', '318', '58',
   '241', '196', '857', '51', '953', '865', '251', '930', '540',
   '313', '746', '203', '26', '314', '239', '371', '220', '730',
   '756', '91', '293', '17', '74', '14', '317', '78', '924', '902',
   '818', '81', '939', '169', '45', '475', '965', '90000', '545',
   '61', '283', '655', '714', '93', '872', '121', '322', '1.0000',
   '976', '172', '238', '549', '206', '954', '444', '717', '210',
   '609', '308', '705', '306', '904', '473', '175', '350', '383',
   '454', '421', '70', '812', '442', '842', '417', '412', '459',
   '478', '335', '782', '721', '430', '429', '192', '200', '460',
   '728', '496', '816', '414', '506', '887', '613', '243', '569',
   '778', '683', '592', '319', '186', '840', '647', '191', '373',
   '437', '598', '716', '585', '982', '222', '219', '55', '948',
   '323', '691', '511', '951', '963', '25', '554', '351', '27', '82',
   '208', '913', '514', '551', '29', '103', '898', '743', '116',
   '153', '209', '353', '499', '173', '597', '809', '122', '411',
   '400', '801', '787', '237', '50', '643', '986', '97', '516', '837',
   '780', '961', '269', '20', '498', '600', '749', '642', '881', '72',
   '656', '601', '221', '228', '108', '940', '176', '33', '663', '34',
   '942', '259', '164', '458', '245', '629', '28', '288', '775',
   '785', '636', '916', '994', '309', '485', '914', '903', '608',
   '500', '54', '562', '847', '957', '688', '811', '270', '48', '329',
   '523', '921', '874', '981', '784', '280', '24', '518', '754',
   '892', '154', '860', '364', '387', '626', '161', '879', '39',
   '970', '170', '141', '160', '144', '143', '190', '376', '193',
   '246', '73', '658', '992', '253', '420', '404', '470', '226',
   '240', '89', '234', '257', '861', '467', '157', '44', '676', '67',
   '552', '885', '1020', '582', '619'], dtype=object)
```

4. Converting Data type of size column from Object to Float

```
In [76]: df_copy["Size"] = df_copy["Size"].astype(float)
```

```
In [77]: df_copy["Size"].dtype
```

```
Out[77]: dtype('float64')
```

```
In [78]: df_copy["Size"].isnull().sum()
```

```
Out[78]: 1695
```

```
In [79]: df_copy["Size"][2] = df_copy["Size"][2] * 1000
```

```
In [80]: df_copy["Size"][2]
```

```
Out[80]: 8700.0
```

```
In [81]: for i in df_copy["Size"]:
    if i < 10:
        df_copy["Size"] = df_copy["Size"].replace(i, i * 1000)
```

```
In [82]: df_copy["Size"].unique()
```

```
Out[82]: array([1.90e+04, 1.40e+04, 8.70e+03, 2.50e+04, 2.80e+03, 5.60e+03,  
 2.90e+04, 3.30e+04, 3.10e+03, 2.80e+04, 1.20e+04, 2.00e+04,  
 2.10e+04, 3.70e+04, 2.70e+03, 5.50e+03, 1.70e+04, 3.90e+04,  
 3.10e+04, 4.20e+03, 7.00e+03, 2.30e+04, 6.00e+03, 6.10e+03,  
 4.60e+03, 9.20e+03, 5.20e+03, 1.10e+04, 2.40e+04, nan,  
 9.40e+03, 1.50e+04, 1.00e+04, 1.20e+03, 2.60e+04, 8.00e+03,  
 7.90e+03, 5.60e+04, 5.70e+04, 3.50e+04, 5.40e+04, 2.01e+02,  
 3.60e+03, 5.70e+03, 8.60e+03, 2.40e+03, 2.70e+04, 2.50e+03,  
 1.60e+04, 3.40e+03, 8.90e+03, 3.90e+03, 2.90e+03, 3.80e+04,  
 3.20e+04, 5.40e+03, 1.80e+04, 1.10e+03, 2.20e+03, 4.50e+03,  
 9.80e+03, 5.20e+04, 9.00e+03, 6.70e+03, 3.00e+04, 2.60e+03,  
 7.10e+03, 3.70e+03, 2.20e+04, 7.40e+03, 6.40e+03, 3.20e+03,  
 8.20e+03, 9.90e+03, 4.90e+03, 9.50e+03, 5.00e+03, 5.90e+03,  
 1.30e+04, 7.30e+04, 6.80e+03, 3.50e+03, 4.00e+03, 2.30e+03,  
 7.20e+03, 2.10e+03, 4.20e+04, 7.30e+03, 9.10e+03, 5.50e+04,  
 2.30e+01, 6.50e+03, 1.50e+03, 7.50e+03, 5.10e+04, 4.10e+04,  
 4.80e+04, 8.50e+03, 4.60e+04, 8.30e+03, 4.30e+03, 4.70e+03,  
 3.30e+03, 4.00e+04, 7.80e+03, 8.80e+03, 6.60e+03, 5.10e+03,  
 6.10e+04, 6.60e+04, 7.90e+01, 8.40e+03, 1.18e+02, 4.40e+04,  
 6.95e+02, 1.60e+03, 6.20e+03, 1.80e+01, 5.30e+04, 1.40e+03,  
 3.00e+03, 5.80e+03, 3.80e+03, 9.60e+03, 4.50e+04, 6.30e+04,  
 4.90e+04, 7.70e+04, 4.40e+03, 4.80e+03, 7.00e+04, 6.90e+03,  
 9.30e+03, 1.00e+01, 8.10e+03, 3.60e+04, 8.40e+04, 9.70e+04,  
 2.00e+03, 1.90e+03, 1.80e+03, 5.30e+03, 4.70e+04, 5.56e+02,  
 5.26e+02, 7.60e+04, 7.60e+03, 5.90e+04, 9.70e+03, 7.80e+04,  
 7.20e+04, 4.30e+04, 7.70e+03, 6.30e+03, 3.34e+02, 3.40e+04,  
 9.30e+04, 6.50e+04, 7.90e+04, 1.00e+05, 5.80e+04, 5.00e+04,  
 6.80e+04, 6.40e+04, 6.70e+04, 6.00e+04, 9.40e+04, 2.32e+02,  
 9.90e+04, 6.24e+02, 9.50e+04, 4.10e+01, 2.92e+02, 1.10e+01,  
 8.00e+04, 1.70e+03, 7.40e+04, 6.20e+04, 6.90e+04, 7.50e+04,  
 9.80e+04, 8.50e+04, 8.20e+04, 9.60e+04, 8.70e+04, 7.10e+04,  
 8.60e+04, 9.10e+04, 8.10e+04, 9.20e+04, 8.30e+04, 8.80e+04,  
 7.04e+02, 8.62e+02, 8.99e+02, 3.78e+02, 2.66e+02, 3.75e+02,  
 1.30e+03, 9.75e+02, 9.80e+02, 4.10e+03, 8.90e+04, 6.96e+02,  
 5.44e+02, 5.25e+02, 9.20e+02, 7.79e+02, 8.53e+02, 7.20e+02,  
 7.13e+02, 7.72e+02, 3.18e+02, 5.80e+01, 2.41e+02, 1.96e+02,  
 8.57e+02, 5.10e+01, 9.53e+02, 8.65e+02, 2.51e+02, 9.30e+02,  
 5.40e+02, 3.13e+02, 7.46e+02, 2.03e+02, 2.60e+01, 3.14e+02,  
 2.39e+02, 3.71e+02, 2.20e+02, 7.30e+02, 7.56e+02, 9.10e+01,  
 2.93e+02, 1.70e+01, 7.40e+01, 1.40e+01, 3.17e+02, 7.80e+01,  
 9.24e+02, 9.02e+02, 8.18e+02, 8.10e+01, 9.39e+02, 1.69e+02,  
 4.50e+01, 4.75e+02, 9.65e+02, 9.00e+04, 5.45e+02, 6.10e+01,  
 2.83e+02, 6.55e+02, 7.14e+02, 9.30e+01, 8.72e+02, 1.21e+02,  
 3.22e+02, 1.00e+03, 9.76e+02, 1.72e+02, 2.38e+02, 5.49e+02,  
 2.06e+02, 9.54e+02, 4.44e+02, 7.17e+02, 2.10e+02, 6.09e+02,  
 3.08e+02, 7.05e+02, 3.06e+02, 9.04e+02, 4.73e+02, 1.75e+02,  
 3.50e+02, 3.83e+02, 4.54e+02, 4.21e+02, 7.00e+01, 8.12e+02,  
 4.42e+02, 8.42e+02, 4.17e+02, 4.12e+02, 4.59e+02, 4.78e+02,  
 3.35e+02, 7.82e+02, 7.21e+02, 4.30e+02, 4.29e+02, 1.92e+02,  
 2.00e+02, 4.60e+02, 7.28e+02, 4.96e+02, 8.16e+02, 4.14e+02,  
 5.06e+02, 8.87e+02, 6.13e+02, 2.43e+02, 5.69e+02, 7.78e+02,  
 6.83e+02, 5.92e+02, 3.19e+02, 1.86e+02, 8.40e+02, 6.47e+02,  
 1.91e+02, 3.73e+02, 4.37e+02, 5.98e+02, 7.16e+02, 5.85e+02,  
 9.82e+02, 2.22e+02, 2.19e+02, 5.50e+01, 9.48e+02, 3.23e+02,  
 6.91e+02, 5.11e+02, 9.51e+02, 9.63e+02, 2.50e+01, 5.54e+02,  
 3.51e+02, 2.70e+01, 8.20e+01, 2.08e+02, 9.13e+02, 5.14e+02,  
 5.51e+02, 2.90e+01, 1.03e+02, 8.98e+02, 7.43e+02, 1.16e+02,  
 1.53e+02, 2.09e+02, 3.53e+02, 4.99e+02, 1.73e+02, 5.97e+02,  
 8.09e+02, 1.22e+02, 4.11e+02, 4.00e+02, 8.01e+02, 7.87e+02,  
 2.37e+02, 5.00e+01, 6.43e+02, 9.86e+02, 9.70e+01, 5.16e+02,
```

```
8.37e+02, 7.80e+02, 9.61e+02, 2.69e+02, 2.00e+01, 4.98e+02,  
6.00e+02, 7.49e+02, 6.42e+02, 8.81e+02, 7.20e+01, 6.56e+02,  
6.01e+02, 2.21e+02, 2.28e+02, 1.08e+02, 9.40e+02, 1.76e+02,  
3.30e+01, 6.63e+02, 3.40e+01, 9.42e+02, 2.59e+02, 1.64e+02,  
4.58e+02, 2.45e+02, 6.29e+02, 2.80e+01, 2.88e+02, 7.75e+02,  
7.85e+02, 6.36e+02, 9.16e+02, 9.94e+02, 3.09e+02, 4.85e+02,  
9.14e+02, 9.03e+02, 6.08e+02, 5.00e+02, 5.40e+01, 5.62e+02,  
8.47e+02, 9.57e+02, 6.88e+02, 8.11e+02, 2.70e+02, 4.80e+01,  
3.29e+02, 5.23e+02, 9.21e+02, 8.74e+02, 9.81e+02, 7.84e+02,  
2.80e+02, 2.40e+01, 5.18e+02, 7.54e+02, 8.92e+02, 1.54e+02,  
8.60e+02, 3.64e+02, 3.87e+02, 6.26e+02, 1.61e+02, 8.79e+02,  
3.90e+01, 9.70e+02, 1.70e+02, 1.41e+02, 1.60e+02, 1.44e+02,  
1.43e+02, 1.90e+02, 3.76e+02, 1.93e+02, 2.46e+02, 7.30e+01,  
6.58e+02, 9.92e+02, 2.53e+02, 4.20e+02, 4.04e+02, 4.70e+02,  
2.26e+02, 2.40e+02, 8.90e+01, 2.34e+02, 2.57e+02, 8.61e+02,  
4.67e+02, 1.57e+02, 4.40e+01, 6.76e+02, 6.70e+01, 5.52e+02,  
8.85e+02, 1.02e+03, 5.82e+02, 6.19e+02])
```

```
In [83]: df_copy["Size"] = df_copy["Size"] / 1000
```

```
In [84]: df_copy["Size"].unique()
```

```
Out[84]: array([1.90e+01, 1.40e+01, 8.70e+00, 2.50e+01, 2.80e+00, 5.60e+00,
 2.90e+01, 3.30e+01, 3.10e+00, 2.80e+01, 1.20e+01, 2.00e+01,
 2.10e+01, 3.70e+01, 2.70e+00, 5.50e+00, 1.70e+01, 3.90e+01,
 3.10e+01, 4.20e+00, 7.00e+00, 2.30e+01, 6.00e+00, 6.10e+00,
 4.60e+00, 9.20e+00, 5.20e+00, 1.10e+01, 2.40e+01,      nan,
 9.40e+00, 1.50e+01, 1.00e+01, 1.20e+00, 2.60e+01, 8.00e+00,
 7.90e+00, 5.60e+01, 5.70e+01, 3.50e+01, 5.40e+01, 2.01e-01,
 3.60e+00, 5.70e+00, 8.60e+00, 2.40e+00, 2.70e+01, 2.50e+00,
 1.60e+01, 3.40e+00, 8.90e+00, 3.90e+00, 2.90e+00, 3.80e+01,
 3.20e+01, 5.40e+00, 1.80e+01, 1.10e+00, 2.20e+00, 4.50e+00,
 9.80e+00, 5.20e+01, 9.00e+00, 6.70e+00, 3.00e+01, 2.60e+00,
 7.10e+00, 3.70e+00, 2.20e+01, 7.40e+00, 6.40e+00, 3.20e+00,
 8.20e+00, 9.90e+00, 4.90e+00, 9.50e+00, 5.00e+00, 5.90e+00,
 1.30e+01, 7.30e+01, 6.80e+00, 3.50e+00, 4.00e+00, 2.30e+00,
 7.20e+00, 2.10e+00, 4.20e+01, 7.30e+00, 9.10e+00, 5.50e+01,
 2.30e-02, 6.50e+00, 1.50e+00, 7.50e+00, 5.10e+01, 4.10e+01,
 4.80e+01, 8.50e+00, 4.60e+01, 8.30e+00, 4.30e+00, 4.70e+00,
 3.30e+00, 4.00e+01, 7.80e+00, 8.80e+00, 6.60e+00, 5.10e+00,
 6.10e+01, 6.60e+01, 7.90e-02, 8.40e+00, 1.18e-01, 4.40e+01,
 6.95e-01, 1.60e+00, 6.20e+00, 1.80e-02, 5.30e+01, 1.40e+00,
 3.00e+00, 5.80e+00, 3.80e+00, 9.60e+00, 4.50e+01, 6.30e+01,
 4.90e+01, 7.70e+01, 4.40e+00, 4.80e+00, 7.00e+01, 6.90e+00,
 9.30e+00, 1.00e-02, 8.10e+00, 3.60e+01, 8.40e+01, 9.70e+01,
 2.00e+00, 1.90e+00, 1.80e+00, 5.30e+00, 4.70e+01, 5.56e-01,
 5.26e-01, 7.60e+01, 7.60e+00, 5.90e+01, 9.70e+00, 7.80e+01,
 7.20e+01, 4.30e+01, 7.70e+00, 6.30e+00, 3.34e-01, 3.40e+01,
 9.30e+01, 6.50e+01, 7.90e+01, 1.00e+02, 5.80e+01, 5.00e+01,
 6.80e+01, 6.40e+01, 6.70e+01, 6.00e+01, 9.40e+01, 2.32e-01,
 9.90e+01, 6.24e-01, 9.50e+01, 4.10e-02, 2.92e-01, 1.10e-02,
 8.00e+01, 1.70e+00, 7.40e+01, 6.20e+01, 6.90e+01, 7.50e+01,
 9.80e+01, 8.50e+01, 8.20e+01, 9.60e+01, 8.70e+01, 7.10e+01,
 8.60e+01, 9.10e+01, 8.10e+01, 9.20e+01, 8.30e+01, 8.80e+01,
 7.04e-01, 8.62e-01, 8.99e-01, 3.78e-01, 2.66e-01, 3.75e-01,
 1.30e+00, 9.75e-01, 9.80e-01, 4.10e+00, 8.90e+01, 6.96e-01,
 5.44e-01, 5.25e-01, 9.20e-01, 7.79e-01, 8.53e-01, 7.20e-01,
 7.13e-01, 7.72e-01, 3.18e-01, 5.80e-02, 2.41e-01, 1.96e-01,
 8.57e-01, 5.10e-02, 9.53e-01, 8.65e-01, 2.51e-01, 9.30e-01,
 5.40e-01, 3.13e-01, 7.46e-01, 2.03e-01, 2.60e-02, 3.14e-01,
 2.39e-01, 3.71e-01, 2.20e-01, 7.30e-01, 7.56e-01, 9.10e-02,
 2.93e-01, 1.70e-02, 7.40e-02, 1.40e-02, 3.17e-01, 7.80e-02,
 9.24e-01, 9.02e-01, 8.18e-01, 8.10e-02, 9.39e-01, 1.69e-01,
 4.50e-02, 4.75e-01, 9.65e-01, 9.00e+01, 5.45e-01, 6.10e-02,
 2.83e-01, 6.55e-01, 7.14e-01, 9.30e-02, 8.72e-01, 1.21e-01,
 3.22e-01, 1.00e+00, 9.76e-01, 1.72e-01, 2.38e-01, 5.49e-01,
 2.06e-01, 9.54e-01, 4.44e-01, 7.17e-01, 2.10e-01, 6.09e-01,
 3.08e-01, 7.05e-01, 3.06e-01, 9.04e-01, 4.73e-01, 1.75e-01,
 3.50e-01, 3.83e-01, 4.54e-01, 4.21e-01, 7.00e-02, 8.12e-01,
 4.42e-01, 8.42e-01, 4.17e-01, 4.12e-01, 4.59e-01, 4.78e-01,
 3.35e-01, 7.82e-01, 7.21e-01, 4.30e-01, 4.29e-01, 1.92e-01,
 2.00e-01, 4.60e-01, 7.28e-01, 4.96e-01, 8.16e-01, 4.14e-01,
 5.06e-01, 8.87e-01, 6.13e-01, 2.43e-01, 5.69e-01, 7.78e-01,
 6.83e-01, 5.92e-01, 3.19e-01, 1.86e-01, 8.40e-01, 6.47e-01,
 1.91e-01, 3.73e-01, 4.37e-01, 5.98e-01, 7.16e-01, 5.85e-01,
 9.82e-01, 2.22e-01, 2.19e-01, 5.50e-02, 9.48e-01, 3.23e-01,
 6.91e-01, 5.11e-01, 9.51e-01, 9.63e-01, 2.50e-02, 5.54e-01,
 3.51e-01, 2.70e-02, 8.20e-02, 2.08e-01, 9.13e-01, 5.14e-01,
 5.51e-01, 2.90e-02, 1.03e-01, 8.98e-01, 7.43e-01, 1.16e-01,
 1.53e-01, 2.09e-01, 3.53e-01, 4.99e-01, 1.73e-01, 5.97e-01,
 8.09e-01, 1.22e-01, 4.11e-01, 4.00e-01, 8.01e-01, 7.87e-01,
 2.37e-01, 5.00e-02, 6.43e-01, 9.86e-01, 9.70e-02, 5.16e-01,
```

```
8.37e-01, 7.80e-01, 9.61e-01, 2.69e-01, 2.00e-02, 4.98e-01,
6.00e-01, 7.49e-01, 6.42e-01, 8.81e-01, 7.20e-02, 6.56e-01,
6.01e-01, 2.21e-01, 2.28e-01, 1.08e-01, 9.40e-01, 1.76e-01,
3.30e-02, 6.63e-01, 3.40e-02, 9.42e-01, 2.59e-01, 1.64e-01,
4.58e-01, 2.45e-01, 6.29e-01, 2.80e-02, 2.88e-01, 7.75e-01,
7.85e-01, 6.36e-01, 9.16e-01, 9.94e-01, 3.09e-01, 4.85e-01,
9.14e-01, 9.03e-01, 6.08e-01, 5.00e-01, 5.40e-02, 5.62e-01,
8.47e-01, 9.57e-01, 6.88e-01, 8.11e-01, 2.70e-01, 4.80e-02,
3.29e-01, 5.23e-01, 9.21e-01, 8.74e-01, 9.81e-01, 7.84e-01,
2.80e-01, 2.40e-02, 5.18e-01, 7.54e-01, 8.92e-01, 1.54e-01,
8.60e-01, 3.64e-01, 3.87e-01, 6.26e-01, 1.61e-01, 8.79e-01,
3.90e-02, 9.70e-01, 1.70e-01, 1.41e-01, 1.60e-01, 1.44e-01,
1.43e-01, 1.90e-01, 3.76e-01, 1.93e-01, 2.46e-01, 7.30e-02,
6.58e-01, 9.92e-01, 2.53e-01, 4.20e-01, 4.04e-01, 4.70e-01,
2.26e-01, 2.40e-01, 8.90e-02, 2.34e-01, 2.57e-01, 8.61e-01,
4.67e-01, 1.57e-01, 4.40e-02, 6.76e-01, 6.70e-02, 5.52e-01,
8.85e-01, 1.02e+00, 5.82e-01, 6.19e-01])
```

In [85]: `df_copy.head()`

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND DESIGN	4.1	159	19.0	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND DESIGN	3.9	967	14.0	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND DESIGN	4.7	87510	8.7	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25.0	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND DESIGN	4.3	967	2.8	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up

In [86]: `df_copy["Installs"].unique()`

```
array(['10,000+', '500,000+', '5,000,000+', '50,000,000+', '100,000+', '50,000+', '1,000,000+', '10,000,000+', '5,000+', '100,000,000+', '1,000,000,000+', '1,000+', '500,000,000+', '50+', '100+', '500+', '10+', '1+', '5+', '0+', '0'], dtype=object)
```

In [87]: `df_copy["Price"].unique()`

```
array(['0', '$4.99', '$3.99', '$6.99', '$1.49', '$2.99', '$7.99', '$5.99', '$3.49', '$1.99', '$9.99', '$7.49', '$0.99', '$9.00', '$5.49', '$10.00', '$24.99', '$11.99', '$79.99', '$16.99', '$14.99', '$1.00', '$29.99', '$12.99', '$2.49', '$10.99', '$1.50', '$19.99', '$15.99', '$33.99', '$74.99', '$39.99', '$3.95', '$4.49', '$1.70', '$8.99', '$2.00', '$3.88', '$25.99', '$399.99', '$17.99', '$400.00', '$3.02', '$1.76', '$4.84', '$4.77', '$1.61', '$2.50', '$1.59', '$6.49', '$1.29', '$5.00', '$13.99', '$299.99', '$379.99', '$37.99', '$18.99', '$389.99', '$19.90', '$8.49', '$1.75', '$14.00', '$4.85', '$46.99', '$109.99', '$154.99', '$3.08', '$2.59', '$4.80', '$1.96', '$19.40', '$3.90', '$4.59', '$15.46', '$3.04', '$4.29', '$2.60', '$3.28', '$4.60', '$28.99', '$2.95', '$2.90', '$1.97', '$200.00', '$89.99', '$2.56', '$30.99', '$3.61', '$394.99', '$1.26', '$1.20', '$1.04'], dtype=object)
```

```
In [88]:  
chars_to_remove=['+', ',', '$']  
cols_to_clean=['Installs', "Price"]  
for item in chars_to_remove:  
    for col in cols_to_clean:  
        df_copy[col]=df_copy[col].str.replace(item,'')
```

```
In [89]: df_copy["Installs"].unique()
```

```
Out[89]: array(['10000', '50000', '500000', '5000000', '100000', '50000',  
   '1000000', '10000000', '5000', '100000000', '1000000000', '1000',  
   '500000000', '50', '100', '500', '10', '1', '5', '0'], dtype=object)
```

```
In [90]: df_copy["Price"].head()
```

```
Out[90]: 0    0  
1    0  
2    0  
3    0  
4    0  
Name: Price, dtype: object
```

```
In [91]: df_copy["Installs"].dtype
```

```
Out[91]: dtype('O')
```

```
In [92]: df_copy["Installs"]=df_copy["Installs"].astype("int")
```

```
In [93]: df_copy["Price"]=df_copy["Price"].astype("float")
```

```
In [94]: df_copy.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
Int64Index: 10840 entries, 0 to 10840  
Data columns (total 13 columns):  
 #  Column      Non-Null Count  Dtype    
---  --          --          --  
 0   App         10840 non-null   object  
 1   Category    10840 non-null   object  
 2   Rating      9366 non-null   float64  
 3   Reviews     10840 non-null   int32  
 4   Size         9145 non-null   float64  
 5   Installs    10840 non-null   int32  
 6   Type         10839 non-null   object  
 7   Price        10840 non-null   float64  
 8   Content Rating 10840 non-null   object  
 9   Genres       10840 non-null   object  
 10  Last Updated 10840 non-null   object  
 11  Current Ver 10832 non-null   object  
 12  Android Ver 10838 non-null   object  
dtypes: float64(3), int32(2), object(8)  
memory usage: 1.3+ MB
```

In [95]: `df_copy["Last Updated"]`

Out[95]:

```
0      January 7, 2018
1      January 15, 2018
2      August 1, 2018
3      June 8, 2018
4      June 20, 2018
...
10836     July 25, 2017
10837     July 6, 2018
10838     January 20, 2017
10839     January 19, 2015
10840     July 25, 2018
Name: Last Updated, Length: 10840, dtype: object
```

In [96]: `df_copy["Last Updated"] = pd.to_datetime(df_copy["Last Updated"])`

In [97]: `df_copy["Last Updated"].dt.year`

Out[97]:

```
0      2018
1      2018
2      2018
3      2018
4      2018
...
10836     2017
10837     2018
10838     2017
10839     2015
10840     2018
Name: Last Updated, Length: 10840, dtype: int64
```

In [98]: `df_copy["Day"] = df_copy["Last Updated"].dt.day`

In [99]: `df_copy["Month"] = df_copy["Last Updated"].dt.month`

In [100...]: `df_copy["Year"] = df_copy["Last Updated"].dt.year`

In [101...]: `df_copy.head()`

Out[101]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver	Day	Month	Year
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND DESIGN	4.1	159	19.0	10000	Free	0.0	Everyone	Art & Design	2018-01-07	1.0.0	4.0.3 and up	7	1	2018
1	Coloring book moana	ART_AND DESIGN	3.9	967	14.0	500000	Free	0.0	Everyone	Art & Design;Pretend Play	2018-01-15	2.0.0	4.0.3 and up	15	1	2018
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND DESIGN	4.7	87510	8.7	5000000	Free	0.0	Everyone	Art & Design	2018-08-01	1.2.4	4.0.3 and up	1	8	2018
3	Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25.0	50000000	Free	0.0	Teen	Art & Design	2018-06-08	Varies with device	4.2 and up	8	6	2018
4	Pixel Draw - Number Art Coloring Book	ART_AND DESIGN	4.3	967	2.8	100000	Free	0.0	Everyone	Art & Design;Creativity	2018-06-20	1.1	4.4 and up	20	6	2018

In [102...]

`df.head()`

Out[102]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND DESIGN	4.1	159	19M	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND DESIGN	3.9	967	14M	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND DESIGN	4.7	87510	8.7M	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND DESIGN	4.5	215644	25M	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND DESIGN	4.3	967	2.8M	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up

5.Final Cleaned Data

In [103...]

`df_copy.to_csv("E://data//googleplaystore.csv", index=False)`

In []: