PANDAS PART - 1 BY VIRAT TIWARI

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1 PANDAS - IT ALLOWS US TO ANALYZE THE DATA AND MANIPULATION OF THE DATA . IT ALSO HELP IN CLEANING THE MESSY DATA OR PRESENT THEM IN A STRUCTED WAY - VIRAT TIWARI

PANDAS DATA READING COMPLETE CONCEPT AND DATAFRAMES (df) OPERATIONS

[4]:
```
import pandas as pd
```

[5]:
```
pip install pandas
```

```
Requirement already satisfied: pandas in /opt/conda/lib/python3.10/site-packages
(1.5.2)
Requirement already satisfied: python-dateutil>=2.8.1 in
/opt/conda/lib/python3.10/site-packages (from pandas) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /opt/conda/lib/python3.10/site-
packages (from pandas) (2022.6)
Requirement already satisfied: numpy>=1.21.0 in /opt/conda/lib/python3.10/site-
packages (from pandas) (1.23.5)
Requirement already satisfied: six>=1.5 in /opt/conda/lib/python3.10/site-
packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

IMPORTANT - This is how we read the CSV file by using the " pd.read_csv ( ) " function

[44]:
```
pd.read_csv("services.csv")
```

[44]:

	id	location_id	program_id	accepted_payments	\
0	1	1	NaN	NaN	
1	2	2	NaN	NaN	
2	3	3	NaN	NaN	
3	4	4	NaN	NaN	
4	5	5	NaN	NaN	
5	6	6	NaN	NaN	
6	7	7	NaN	NaN	
7	8	8	NaN	NaN	
8	9	9	NaN	NaN	
9	10	10	NaN	NaN	

```
10  11           11         NaN                        NaN
11  12           12         NaN                        NaN
12  13           13         NaN                        NaN
13  14           14         NaN                        NaN
14  15           15         NaN                        NaN
15  16           16         NaN                        NaN
16  17           17         NaN                        NaN
17  18           18         NaN                        NaN
18  19           19         NaN                        NaN
19  20           20         NaN                        NaN
20  21           21         NaN                        NaN
21  22           22         NaN  Cash, Check, Credit Card
22  23           22         NaN                        NaN

          alternate_name                                application_process  \
0                    NaN                          Walk in or apply by phone.
1                    NaN                 Apply by phone for an appointment.
2                    NaN        Phone for information (403-4300 Ext. 4322).
3                    NaN                                     Apply by phone.
4                    NaN                                Phone for information.
5                    NaN  Walk in or apply by phone for membership appli…
6                    NaN  Apply by phone or be referred by a doctor, soc…
7                    NaN                                     Apply by phone.
8                    NaN  Walk in. Proof of residency in California requ…
9                    NaN  Walk in. Proof of California residency to rece…
10                   NaN  Walk in. Proof of California residency require…
11                   NaN  Walk in or apply by phone, email or webpage re…
12                   NaN  Walk in. Proof of California residency require…
13                   NaN  Call for appointment. Referral from human serv…
14                   NaN          Walk in or through other agency referral.
15                   NaN  Walk in. Written application, identification r…
16                   NaN                               Call for information.
17                   NaN  Call for screening appointment. Medical visits…
18                   NaN     Call for screening appointment (650-347-3648).
19                   NaN                                            Walk in.
20                   NaN                    By phone during business hours.
21  Fotos para pasaportes                  Walk in or apply by phone or mail
22                   NaN                  Walk in or apply by phone or mail

                                          audience  \
0   Older adults age 55 or over, ethnic minorities…
1        Residents of San Mateo County age 55 or over
2   Older adults age 55 or over who can benefit fr…
3   Parents, children, families with problems of c…
4   Low-income working families with children tran…
5                                           Any age
6   Older adults who have memory or sensory loss, …
```

```
7   Senior citizens age 60 or over, disabled indiv…
8      Ethnic minorities, especially Spanish speaking
9                                                 NaN
10                                                NaN
11  Adults, parents, children in 1st-12th grades i…
12                                                NaN
13  Individuals or families with low or no income …
14  Adult alcoholic/drug addictive men and women w…
15                                                NaN
16                                                NaN
17                                                NaN
18                                                NaN
19                                                NaN
20                                                NaN
21  Profit and nonprofit businesses, the public, m…
22  Second service and nonprofit businesses, the p…

                                          description  \
0   A walk-in center for older adults that provide…
1   Provides training and job placement to eligibl…
2   Offers supportive counseling services to San M…
3   Provides supervised visitation services and a …
4   Provides fixed 8% short term loans to eligible…
5   A multipurpose center offering a wide variety …
6   Rosener House is a day center for older adults…
7   Delivers a hot meal to the home of persons age…
8   Provides general reading material, including b…
9   Provides general reading and media materials, …
10  Provides general reading materials, including …
11  Offers an intergenerational literacy program f…
12  Provides general reading materials, including …
13  Provides food, clothing, bus tokens and shelte…
14  Provides a long-term (6-12 month) residential …
15  Provides emergency assistance including food a…
16  Provides emergency food, clothing and furnitur…
17  By appointment only, Project Smile provides a …
18  Provides free medical and dental care to those…
19             no unrequired fields for this service
20                                just a test service
21  [NOTE THIS IS NOT A REAL SERVICE--THIS IS FOR …
22  [NOTE THIS IS NOT A REAL ORGANIZATION--THIS IS…

                                          eligibility                    email  \
0   Age 55 or over for most programs, age 60 or ov…                      NaN
1   Age 55 or over, county resident and willing an…                      NaN
2         Resident of San Mateo County age 55 or over                      NaN
3                                                None                      NaN
```

```
4   Eligibility: Low-income family with legal cust…                    NaN
5                                                None                    NaN
6                                     Age 18 or over                     NaN
7              Homebound person unable to cook or shop                   NaN
8     Resident of California to obtain a library card                    NaN
9              Resident of California to obtain a card                   NaN
10  Resident of California to obtain a library car…                    NaN
11  English-speaking adult reading at or below 7th…                    NaN
12    Resident of California to obtain a library card                    NaN
13  None for most services. For emergency assistan…                    NaN
14  Age 21-60, detoxed, physically able and willin…                    NaN
15                       None for emergency assistance                  NaN
16                                Low-income families                   NaN
17    Low-income person without access to health care                   NaN
18    Low-income person without access to health care                   NaN
19                                               NaN                    NaN
20                                               NaN                    NaN
21                                              None  passports@example.org
22                                              None                    NaN

    …                              interpretation_services  \
0   …                                                  NaN
1   …                                                  NaN
2   …                                                  NaN
3   …                                                  NaN
4   …                                                  NaN
5   …                                                  NaN
6   …                                                  NaN
7   …                                                  NaN
8   …                                                  NaN
9   …                                                  NaN
10  …                                                  NaN
11  …                                                  NaN
12  …                                                  NaN
13  …                                                  NaN
14  …                                                  NaN
15  …                                                  NaN
16  …                                                  NaN
17  …                                                  NaN
18  …                                                  NaN
19  …                                                  NaN
20  …                                                  NaN
21  …  We offer 3-way interpretation services over th…
22  …                                                  NaN

                                              keywords languages  \
0   ADULT PROTECTION AND CARE SERVICES, Meal Sites…       NaN
```

1	EMPLOYMENT/TRAINING SERVICES, Job Development,…	NaN	
2	Geriatric Counseling, Older Adults, Gay, Lesbi…	NaN	
3	INDIVIDUAL AND FAMILY DEVELOPMENT SERVICES, Gr…	NaN	
4	COMMUNITY SERVICES, Speakers, Automobile Loans	NaN	
5	ADULT PROTECTION AND CARE SERVICES, In-Home Su…	NaN	
6	ADULT PROTECTION AND CARE SERVICES, Adult Day …	NaN	
7	ADULT PROTECTION AND CARE SERVICES, Meal Sites…	NaN	
8	EDUCATION SERVICES, Library, Libraries, Public…	NaN	
9	EDUCATION SERVICES, Library, Libraries, Public…	NaN	
10	EDUCATION SERVICES, Library, Libraries, Public…	NaN	
11	EDUCATION SERVICES, Adult, Alternative, Litera…	NaN	
12	EDUCATION SERVICES, Library, Libraries, Public…	NaN	
13	COMMUNITY SERVICES, Interpretation/Translation…	NaN	
14	ALCOHOLISM SERVICES, Residential Care, DRUG AB…	NaN	
15	COMMODITY SERVICES, Clothing/Personal Items, C…	NaN	
16	COMMODITY SERVICES, Clothing/Personal Items, C…	NaN	
17	HEALTH SERVICES, Outpatient Care, Community Cl…	NaN	
18	HEALTH SERVICES, Outpatient Care, Community Cl…	NaN	
19	NaN	NaN	
20	NaN	NaN	
21	Salud, Medicina	Spanish	
22	Ruby on Rails/Postgres/Redis, testing, wic	NaN	

	name	\
0	Fair Oaks Adult Activity Center	
1	Second Career Employment Program	
2	Senior Peer Counseling	
3	Family Visitation Center	
4	Economic Self-Sufficiency Program	
5	Little House Recreational Activities	
6	Rosener House Adult Day Services	
7	Meals on Wheels - South County	
8	Fair Oaks Branch	
9	Main Library	
10	Schaberg Branch	
11	Project Read	
12	Redwood Shores Branch	
13	Redwood City Corps	
14	Adult Rehabilitation Center	
15	Sunnyvale Corps	
16	South San Francisco Citadel Corps	
17	Project Smile	
18	San Mateo Free Medical Clinic	
19	Service with blank fields	
20	Service for Admin Test Location	
21	Passport Photos	
22	Example Service Name	

	required_documents	\
0	NaN	
1	NaN	
2	NaN	
3	NaN	
4	NaN	
5	NaN	
6	NaN	
7	NaN	
8	NaN	
9	NaN	
10	NaN	
11	NaN	
12	NaN	
13	NaN	
14	NaN	
15	NaN	
16	NaN	
17	NaN	
18	NaN	
19	NaN	
20	NaN	
21	Government-issued picture identification	
22	NaN	

	service_areas	status	\
0	Colma	active	
1	San Mateo County	active	
2	San Mateo County	active	
3	San Mateo County	active	
4	San Mateo County	active	
5	San Mateo County	active	
6	Belmont, Burlingame, East Palo Alto	active	
7	Belmont, East Palo Alto	active	
8	San Mateo County	active	
9	San Mateo County	active	
10	San Mateo County	active	
11	Daly City	active	
12	San Mateo County	active	
13	Belmont, Burlingame, East Palo Alto	active	
14	Alameda County, San Mateo County	active	
15	NaN	active	
16	Colma, Daly City, South San Francisco	active	
17	East Palo Alto	active	
18	Belmont, Burlingame	active	
19	NaN	defunct	

```
20                       San Mateo County  inactive
21       Alameda County, San Mateo County    active
22       San Mateo County, Alameda County    active

                                            wait_time                 website  \
0                                            No wait.                     NaN
1                                             Varies.                     NaN
2                                             Varies.                     NaN
3                                            No wait.                     NaN
4                                                 NaN                     NaN
5                                            No wait.                     NaN
6                                            No wait.                     NaN
7                                            No wait.                     NaN
8                                            No wait.                     NaN
9                                            No wait.                     NaN
10                                           No wait.                     NaN
11  Depends on availability of tutors for small gr…                      NaN
12                                           No wait.                     NaN
13                                 Up to 20 minutes.                      NaN
14  Varies according to available beds for men and…                      NaN
15                                           No wait.                     NaN
16                                                NaN                     NaN
17                                            Varies.                     NaN
18                                            Varies.                     NaN
19                                                NaN                     NaN
20                                                NaN                     NaN
21                             No wait to 2 weeks.  http://www.example.com
22                              No wait to 2 weeks  http://www.example.com

                               taxonomy_ids
0                                       NaN
1                                       NaN
2                                       NaN
3                                       NaN
4                                       NaN
5                                       NaN
6                                       NaN
7                                       NaN
8                                       NaN
9                                       NaN
10                                      NaN
11                                      NaN
12                                      NaN
13                                      NaN
14                                      NaN
15                                      NaN
16                                      NaN
```

```
17                                          NaN
18                                          NaN
19                                          NaN
20                                          NaN
21  105, 108, 108-05, 108-05-01, 111, 111-05
22                                          NaN

[23 rows x 22 columns]
```

[ ]:
```
# By giving the " df " as a variable we store the file in df

df=pd.read_csv("services.csv")
```

Head ( ) - When we want to read first five or first four record of data than we use " .head ( ) " function and by default it gives first five record of data

[8]:
```
df.head()
```

[8]:
```
   id  location_id  program_id accepted_payments alternate_name  \
0   1            1         NaN               NaN            NaN
1   2            2         NaN               NaN            NaN
2   3            3         NaN               NaN            NaN
3   4            4         NaN               NaN            NaN
4   5            5         NaN               NaN            NaN

                          application_process  \
0                  Walk in or apply by phone.
1           Apply by phone for an appointment.
2  Phone for information (403-4300 Ext. 4322).
3                              Apply by phone.
4                      Phone for information.

                                        audience  \
0  Older adults age 55 or over, ethnic minorities…
1       Residents of San Mateo County age 55 or over
2  Older adults age 55 or over who can benefit fr…
3  Parents, children, families with problems of c…
4  Low-income working families with children tran…

                                       description  \
0  A walk-in center for older adults that provide…
1  Provides training and job placement to eligibl…
2  Offers supportive counseling services to San M…
3  Provides supervised visitation services and a …
4  Provides fixed 8% short term loans to eligible…

                                       eligibility email  …  \
```

```
0  Age 55 or over for most programs, age 60 or ov…   NaN  …
1  Age 55 or over, county resident and willing an…   NaN  …
2        Resident of San Mateo County age 55 or over   NaN  …
3                                                None   NaN  …
4  Eligibility: Low-income family with legal cust…   NaN  …

  interpretation_services                                          keywords  \
0                     NaN  ADULT PROTECTION AND CARE SERVICES, Meal Sites…
1                     NaN  EMPLOYMENT/TRAINING SERVICES, Job Development,…
2                     NaN  Geriatric Counseling, Older Adults, Gay, Lesbi…
3                     NaN  INDIVIDUAL AND FAMILY DEVELOPMENT SERVICES, Gr…
4                     NaN     COMMUNITY SERVICES, Speakers, Automobile Loans

  languages                                name required_documents  \
0       NaN    Fair Oaks Adult Activity Center                 NaN
1       NaN   Second Career Employment Program                 NaN
2       NaN             Senior Peer Counseling                 NaN
3       NaN           Family Visitation Center                 NaN
4       NaN  Economic Self-Sufficiency Program                 NaN

      service_areas  status wait_time website taxonomy_ids
0             Colma  active  No wait.     NaN          NaN
1  San Mateo County  active   Varies.     NaN          NaN
2  San Mateo County  active   Varies.     NaN          NaN
3  San Mateo County  active  No wait.     NaN          NaN
4  San Mateo County  active       NaN     NaN          NaN

[5 rows x 22 columns]
```

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

[9]:
```
   id  location_id  program_id accepted_payments alternate_name  \
0   1            1         NaN               NaN            NaN
1   2            2         NaN               NaN            NaN

                 application_process  \
0         Walk in or apply by phone.
1  Apply by phone for an appointment.

                                          audience  \
0  Older adults age 55 or over, ethnic minorities…
1      Residents of San Mateo County age 55 or over

                                       description  \
0  A walk-in center for older adults that provide…
1  Provides training and job placement to eligibl…
```

```
                                        eligibility email  …  \
0  Age 55 or over for most programs, age 60 or ov…   NaN  …
1  Age 55 or over, county resident and willing an…   NaN  …

  interpretation_services                                          keywords  \
0                     NaN  ADULT PROTECTION AND CARE SERVICES, Meal Sites…
1                     NaN  EMPLOYMENT/TRAINING SERVICES, Job Development,…

  languages                                name required_documents  \
0       NaN   Fair Oaks Adult Activity Center                 NaN
1       NaN  Second Career Employment Program                 NaN

      service_areas  status wait_time website taxonomy_ids
0             Colma  active  No wait.     NaN          NaN
1  San Mateo County  active   Varies.     NaN          NaN

[2 rows x 22 columns]
```

Tail ( ) - When we want to see the last record of data than we have to used " .tail ( ) " function it gives the last five record of data bydefault and we also manualy find the last record by giving a number inside the tail function

[10]:
```
df.tail()
```

[10]:
```
    id  location_id  program_id         accepted_payments  \
18  19           19         NaN                       NaN
19  20           20         NaN                       NaN
20  21           21         NaN                       NaN
21  22           22         NaN  Cash, Check, Credit Card
22  23           22         NaN                       NaN

           alternate_name                              application_process  \
18                    NaN  Call for screening appointment (650-347-3648).
19                    NaN                                        Walk in.
20                    NaN                  By phone during business hours.
21  Fotos para pasaportes                Walk in or apply by phone or mail
22                    NaN                Walk in or apply by phone or mail

                                        audience  \
18                                           NaN
19                                           NaN
20                                           NaN
21  Profit and nonprofit businesses, the public, m…
22  Second service and nonprofit businesses, the p…

                                       description  \
18  Provides free medical and dental care to those…
```

```
19             no unrequired fields for this service
20                                just a test service
21  [NOTE THIS IS NOT A REAL SERVICE--THIS IS FOR …
22  [NOTE THIS IS NOT A REAL ORGANIZATION--THIS IS…

                                       eligibility                  email  \
18  Low-income person without access to health care                    NaN
19                                              NaN                    NaN
20                                              NaN                    NaN
21                                             None  passports@example.org
22                                             None                    NaN

   …                              interpretation_services  \
18 …                                                  NaN
19 …                                                  NaN
20 …                                                  NaN
21 …  We offer 3-way interpretation services over th…
22 …                                                  NaN

                                            keywords languages  \
18  HEALTH SERVICES, Outpatient Care, Community Cl…       NaN
19                                               NaN       NaN
20                                               NaN       NaN
21                                   Salud, Medicina   Spanish
22         Ruby on Rails/Postgres/Redis, testing, wic       NaN

                               name                          required_documents  \
18    San Mateo Free Medical Clinic                                        NaN
19        Service with blank fields                                        NaN
20  Service for Admin Test Location                                        NaN
21                  Passport Photos  Government-issued picture identification
22             Example Service Name                                        NaN

                      service_areas    status            wait_time  \
18               Belmont, Burlingame    active              Varies.
19                               NaN   defunct                  NaN
20                   San Mateo County  inactive                  NaN
21  Alameda County, San Mateo County    active  No wait to 2 weeks.
22  San Mateo County, Alameda County    active   No wait to 2 weeks

                  website                                taxonomy_ids
18                    NaN                                         NaN
19                    NaN                                         NaN
20                    NaN                                         NaN
21  http://www.example.com  105, 108, 108-05, 108-05-01, 111, 111-05
22  http://www.example.com                                      NaN
```

```
[5 rows x 22 columns]
```

[11]:
```
df.tail(3)
```

[11]:
```
    id  location_id  program_id         accepted_payments  \
20  21           21         NaN                       NaN
21  22           22         NaN  Cash, Check, Credit Card
22  23           22         NaN                       NaN

          alternate_name                application_process  \
20                   NaN    By phone during business hours.
21  Fotos para pasaportes  Walk in or apply by phone or mail
22                   NaN  Walk in or apply by phone or mail

                                           audience  \
20                                              NaN
21  Profit and nonprofit businesses, the public, m…
22  Second service and nonprofit businesses, the p…

                                    description eligibility  \
20                          just a test service         NaN
21  [NOTE THIS IS NOT A REAL SERVICE--THIS IS FOR …        None
22  [NOTE THIS IS NOT A REAL ORGANIZATION--THIS IS…        None

                  email  …  \
20                  NaN  …
21  passports@example.org  …
22                  NaN  …

                           interpretation_services  \
20                                              NaN
21  We offer 3-way interpretation services over th…
22                                              NaN

                                  keywords languages  \
20                                     NaN       NaN
21                         Salud, Medicina   Spanish
22  Ruby on Rails/Postgres/Redis, testing, wic       NaN

                             name                        required_documents  \
20  Service for Admin Test Location                                    NaN
21                 Passport Photos  Government-issued picture identification
22            Example Service Name                                    NaN

                     service_areas    status            wait_time  \
20                 San Mateo County  inactive                  NaN
21  Alameda County, San Mateo County    active  No wait to 2 weeks.
```

```
22  San Mateo County, Alameda County    active   No wait to 2 weeks

                  website                                taxonomy_ids
20                    NaN                                         NaN
21  http://www.example.com  105, 108, 108-05, 108-05-01, 111, 111-05
22  http://www.example.com                                      NaN

[3 rows x 22 columns]
```

[12]:
```
# Df - It stands for the Data Frame that present in a tabular form

type(df)
```

[12]:
```
pandas.core.frame.DataFrame
```

[13]:
```
# This is how we get all columns of data

df.columns
```

[13]:
```
Index(['id', 'location_id', 'program_id', 'accepted_payments',
       'alternate_name', 'application_process', 'audience', 'description',
       'eligibility', 'email', 'fees', 'funding_sources',
       'interpretation_services', 'keywords', 'languages', 'name',
       'required_documents', 'service_areas', 'status', 'wait_time', 'website',
       'taxonomy_ids'],
      dtype='object')
```

[14]:
```
# This is how we get all the columns of data in the list by using simply list (␣
 ↪) function

list(df.columns)
```

[14]:
```
['id',
 'location_id',
 'program_id',
 'accepted_payments',
 'alternate_name',
 'application_process',
 'audience',
 'description',
 'eligibility',
 'email',
 'fees',
 'funding_sources',
 'interpretation_services',
 'keywords',
 'languages',
```

```
 'name',
 'required_documents',
 'service_areas',
 'status',
 'wait_time',
 'website',
 'taxonomy_ids']
```

[15]:
```
# This is how we exctrat the data of particular column only single colimn by␣
↪giving their name inside the df [" "] function

df['service_areas']
```

[15]:
```
0                                    Colma
1                          San Mateo County
2                          San Mateo County
3                          San Mateo County
4                          San Mateo County
5                          San Mateo County
6       Belmont, Burlingame, East Palo Alto
7                   Belmont, East Palo Alto
8                          San Mateo County
9                          San Mateo County
10                         San Mateo County
11                                Daly City
12                         San Mateo County
13      Belmont, Burlingame, East Palo Alto
14         Alameda County, San Mateo County
15                                       NaN
16    Colma, Daly City, South San Francisco
17                            East Palo Alto
18                      Belmont, Burlingame
19                                       NaN
20                         San Mateo County
21         Alameda County, San Mateo County
22         San Mateo County, Alameda County
Name: service_areas, dtype: object
```

[18]:
```
df['website']
```

[18]:
```
0                       NaN
1                       NaN
2                       NaN
3                       NaN
4                       NaN
5                       NaN
6                       NaN
```

```
7                          NaN
8                          NaN
9                          NaN
10                         NaN
11                         NaN
12                         NaN
13                         NaN
14                         NaN
15                         NaN
16                         NaN
17                         NaN
18                         NaN
19                         NaN
20                         NaN
21    http://www.example.com
22    http://www.example.com
Name: website, dtype: object
```

[19]:
```
# NOTE - In pandas series is equivalent to list

type(df["website"])
```

[19]:
```
pandas.core.series.Series
```

[20]:
```
list(df["website"])
```

[20]:
```
[nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
 nan,
```

```
 'http://www.example.com',
 'http://www.example.com']
```

[21]:
```
# PANDAS NOTE - IN LIST IT DOES NOT SHOW THE INDEXING BUT IN SERIES IT SHOWS␣
↪THE INDEXING
```

[22]:
```
# This is how we pass the column name iside a list

df[["website"]]
```

[22]:

	website
0	NaN
1	NaN
2	NaN
3	NaN
4	NaN
5	NaN
6	NaN
7	NaN
8	NaN
9	NaN
10	NaN
11	NaN
12	NaN
13	NaN
14	NaN
15	NaN
16	NaN
17	NaN
18	NaN
19	NaN
20	NaN
21	http://www.example.com
22	http://www.example.com

[26]:
```
type(df[["website"]])
```

[26]:
```
pandas.core.frame.DataFrame
```

[27]:
```
df.columns
```

[27]:
```
Index(['id', 'location_id', 'program_id', 'accepted_payments',
       'alternate_name', 'application_process', 'audience', 'description',
       'eligibility', 'email', 'fees', 'funding_sources',
       'interpretation_services', 'keywords', 'languages', 'name',
       'required_documents', 'service_areas', 'status', 'wait_time', 'website',
       'taxonomy_ids'],
```

```
      dtype='object')
```

[28]:
```
# Note - When we want to extract the more than one column like two or three␣
 ↪columns than we should pass their name inside the list otherwise it will␣
 ↪show the error
# This will give the error - df["email","location_id"]
# This will the result - df[["email","location_id"]]

df[["email","location_id"]]
```

[28]:

	email	location_id
0	NaN	1
1	NaN	2
2	NaN	3
3	NaN	4
4	NaN	5
5	NaN	6
6	NaN	7
7	NaN	8
8	NaN	9
9	NaN	10
10	NaN	11
11	NaN	12
12	NaN	13
13	NaN	14
14	NaN	15
15	NaN	16
16	NaN	17
17	NaN	18
18	NaN	19
19	NaN	20
20	NaN	21
21	passports@example.org	22
22	NaN	22

[29]:
```
# Here we pass three columns

df[["email","keywords","location_id"]]
```

[29]:

	email	keywords	\
0	NaN	ADULT PROTECTION AND CARE SERVICES, Meal Sites…	
1	NaN	EMPLOYMENT/TRAINING SERVICES, Job Development,…	
2	NaN	Geriatric Counseling, Older Adults, Gay, Lesbi…	
3	NaN	INDIVIDUAL AND FAMILY DEVELOPMENT SERVICES, Gr…	
4	NaN	COMMUNITY SERVICES, Speakers, Automobile Loans	
5	NaN	ADULT PROTECTION AND CARE SERVICES, In-Home Su…	
6	NaN	ADULT PROTECTION AND CARE SERVICES, Adult Day …	

```
7                     NaN  ADULT PROTECTION AND CARE SERVICES, Meal Sites…
8                     NaN  EDUCATION SERVICES, Library, Libraries, Public…
9                     NaN  EDUCATION SERVICES, Library, Libraries, Public…
10                    NaN  EDUCATION SERVICES, Library, Libraries, Public…
11                    NaN  EDUCATION SERVICES, Adult, Alternative, Litera…
12                    NaN  EDUCATION SERVICES, Library, Libraries, Public…
13                    NaN  COMMUNITY SERVICES, Interpretation/Translation…
14                    NaN  ALCOHOLISM SERVICES, Residential Care, DRUG AB…
15                    NaN  COMMODITY SERVICES, Clothing/Personal Items, C…
16                    NaN  COMMODITY SERVICES, Clothing/Personal Items, C…
17                    NaN  HEALTH SERVICES, Outpatient Care, Community Cl…
18                    NaN  HEALTH SERVICES, Outpatient Care, Community Cl…
19                    NaN                                              NaN
20                    NaN                                              NaN
21  passports@example.org                                  Salud, Medicina
22                    NaN          Ruby on Rails/Postgres/Redis, testing, wic

    location_id
0             1
1             2
2             3
3             4
4             5
5             6
6             7
7             8
8             9
9            10
10           11
11           12
12           13
13           14
14           15
15           16
16           17
17           18
18           19
19           20
20           21
21           22
22           22
```

[30]:
```
# BY using the df.dtypes ( ) it gives the columns with their data types

df.dtypes
```

[30]:
```
id                          int64
location_id                 int64
program_id                float64
accepted_payments          object
alternate_name             object
application_process        object
audience                   object
description                object
eligibility                object
email                      object
fees                       object
funding_sources            object
interpretation_services    object
keywords                   object
languages                  object
name                       object
required_documents         object
service_areas              object
status                     object
wait_time                  object
website                    object
taxonomy_ids               object
dtype: object
```

[31]:
```
# Note - Object data type is nothing but a string
```

IMPORTANT _ This is how we read the EXCEL file by using the " pd.read_excel ( ) " function

[43]:
```
pd.read_excel("LUSID Excel - Setting up your market data.xlsx")
```

[43]:

	Unnamed: 0	Unnamed: 1	Unnamed: 2	\
0	NaN	NaN	NaN	
1	NaN	NaN	NaN	
2	NaN	NaN	NaN	
3	NaN	NaN	NaN	
4	NaN	NaN	NaN	
5	NaN	NaN	NaN	
6	NaN	NaN	NaN	
7	NaN	NaN	NaN	
8	NaN	NaN	NaN	
9	NaN	NaN	NaN	
10	NaN	NaN	NaN	
11	NaN	NaN	NaN	
12	NaN	NaN	NaN	
13	NaN	NaN	NaN	
14	NaN	NaN	NaN	
15	NaN	NaN	NaN	

```
16         NaN         NaN         NaN
17         NaN         NaN         NaN
18         NaN         NaN         NaN
19         NaN         NaN         NaN
20         NaN         NaN         NaN
21         NaN         NaN         NaN
22         NaN         NaN         NaN
23         NaN         NaN         NaN
24         NaN         NaN         NaN
25         NaN         NaN         NaN
26         NaN         NaN         NaN
27         NaN         NaN         NaN

                                        Unnamed: 3  \
0                                              NaN
1                                Datetimes in LUSID
2                                              NaN
3    This sheet allows you to format datetimes for…
4         If you have any questions please visit our:
5                                              NaN
6                                              NaN
7                                              NaN
8                                              NaN
9                                              NaN
10                                             NaN
11                                             NaN
12                                             NaN
13                                             NaN
14                                             NaN
15                                             NaN
16                                             NaN
17                                             NaN
18                                             NaN
19                                             NaN
20                                             NaN
21                                             NaN
22                                             NaN
23                                             NaN
24                                             NaN
25                                             NaN
26                                             NaN
27                                             NaN

                                       Unnamed: 4  \
0                                              NaN
1                                              NaN
2                                              NaN
```

```
3                                                  NaN
4                                                  NaN
5                            Getting Started tutorials
6                              Knowledge Base articles
7                                        or Contact us
8                                                  NaN
9                                                  NaN
10                                                 NaN
11  LUSID accepts datetimes in any recognised Exce…
12                                                 NaN
13                      Excel formats to show datetime
14                                                 NaN
15                           Enter the date to convert
16                                                 NaN
17                     This date has no time component
18                                                 NaN
19                               Specify time component
20                                                 NaN
21  Add to your date and display the complete date…
22                                                 NaN
23   Although the date can still appears without time
24                                                 NaN
25                         Add an hour to your datetime
26                                                 NaN
27                Subtract a minute from your datetime

                     Unnamed: 5  Unnamed: 6  \
0                           NaN         NaN
1                           NaN         NaN
2                           NaN         NaN
3                           NaN         NaN
4                           NaN         NaN
5                           NaN         NaN
6                           NaN         NaN
7                           NaN         NaN
8                           NaN         NaN
9                           NaN         NaN
10                          NaN         NaN
11                          NaN         NaN
12                          NaN         NaN
13                          NaN         NaN
14                          NaN         NaN
15          2019-04-10 00:00:00         NaN
16                          NaN         NaN
17          2019-04-10 00:00:00         NaN
18                          NaN         NaN
19              13:30:45.550000         NaN
```

```
20                          NaN         NaN
21  2019-04-10 13:30:45.550000         NaN
22                          NaN         NaN
23  2019-04-10 13:30:45.550000         NaN
24                          NaN         NaN
25  2019-04-10 14:30:45.550000         NaN
26                          NaN         NaN
27  2019-04-10 14:29:45.550000         NaN

                                          Unnamed: 7  \
0                                                NaN
1                                                NaN
2                                                NaN
3                                                NaN
4                                                NaN
5                                                NaN
6                                                NaN
7                                                NaN
8                                                NaN
9                                                NaN
10                                               NaN
11  LUSID also accepts UTC, UTS offsets and cutlabels
12                                               NaN
13                                Additional formats
14                                               NaN
15                           Standard UTC timestamp:
16                                               NaN
17                         Convert date into a string
18                                               NaN
19       UTC offset (not recognised as an excel date)
20                                               NaN
21                                         Cutlabel
22                                               NaN
23                                               NaN
24                                               NaN
25                                               NaN
26                                               NaN
27                                               NaN

                  Unnamed: 8  \
0                        NaN
1                        NaN
2                        NaN
3                        NaN
4                        NaN
5                        NaN
6                        NaN
```

```
7                          NaN
8                          NaN
9                          NaN
10                         NaN
11                         NaN
12                         NaN
13                         NaN
14                         NaN
15  "YYYY-MM-DDTHH:MM:SS.00Z"
16                         NaN
17   2019-04-10T 13:30:45.55Z
18                         NaN
19  2019-04-10T13:30:45+04:00
20                         NaN
21  2019-04-10NSingaporeClose
22                         NaN
23                         NaN
24                         NaN
25                         NaN
26                         NaN
27                         NaN
```

```
                                            Unnamed: 9
0                                                  NaN
1                                                  NaN
2                                                  NaN
3                                                  NaN
4                                                  NaN
5                                                  NaN
6                                                  NaN
7                                                  NaN
8                                                  NaN
9                                                  NaN
10                                                 NaN
11                                                 NaN
12                                                 NaN
13                                                 NaN
14                                                 NaN
15  Where Z indicates Zulu time (UTC+0), and is eq…
16                                                 NaN
17                                                 NaN
18                                                 NaN
19                                                 NaN
20                                                 NaN
21                                                 NaN
22                                                 NaN
23                                                 NaN
```

```
24                                                  NaN
25                                                  NaN
26                                                  NaN
27                                                  NaN
```

[ ]:
```
df1=pd.read_excel("LUSID Excel - Setting up your market data.xlsx")
```

[34]:
```
type(df1)
```

[34]:
```
pandas.core.frame.DataFrame
```

[35]:
```
df1.dtypes
```

[35]:
```
Unnamed: 0    float64
Unnamed: 1    float64
Unnamed: 2    float64
Unnamed: 3     object
Unnamed: 4     object
Unnamed: 5     object
Unnamed: 6    float64
Unnamed: 7     object
Unnamed: 8     object
Unnamed: 9     object
dtype: object
```

[36]:
```
df1.columns
```

[36]:
```
Index(['Unnamed: 0', 'Unnamed: 1', 'Unnamed: 2', 'Unnamed: 3', 'Unnamed: 4',
       'Unnamed: 5', 'Unnamed: 6', 'Unnamed: 7', 'Unnamed: 8', 'Unnamed: 9'],
      dtype='object')
```

[39]:
```
df1["Unnamed: 1"]
```

[39]:
```
0    NaN
1    NaN
2    NaN
3    NaN
4    NaN
5    NaN
6    NaN
7    NaN
8    NaN
9    NaN
10   NaN
11   NaN
12   NaN
13   NaN
```

```
14   NaN
15   NaN
16   NaN
17   NaN
18   NaN
19   NaN
20   NaN
21   NaN
22   NaN
23   NaN
24   NaN
25   NaN
26   NaN
27   NaN
Name: Unnamed: 1, dtype: float64
```

[42]:
```
df1[["Unnamed: 1","Unnamed: 3"]]
```

[42]:

	Unnamed: 1	Unnamed: 3
0	NaN	NaN
1	NaN	Datetimes in LUSID
2	NaN	NaN
3	NaN	This sheet allows you to format datetimes for…
4	NaN	If you have any questions please visit our:
5	NaN	NaN
6	NaN	NaN
7	NaN	NaN
8	NaN	NaN
9	NaN	NaN
10	NaN	NaN
11	NaN	NaN
12	NaN	NaN
13	NaN	NaN
14	NaN	NaN
15	NaN	NaN
16	NaN	NaN
17	NaN	NaN
18	NaN	NaN
19	NaN	NaN
20	NaN	NaN
21	NaN	NaN
22	NaN	NaN
23	NaN	NaN
24	NaN	NaN
25	NaN	NaN
26	NaN	NaN
27	NaN	NaN

[45]:
```
pd.read_csv("https://raw.githubusercontent.com/datasciencedojo/datasets/master/
↪titanic.csv")
```

[45]:
```
     PassengerId  Survived  Pclass  \
0              1         0       3
1              2         1       1
2              3         1       3
3              4         1       1
4              5         0       3
..           …       …     …
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1
890          891         0       3

                                                 Name     Sex   Age  SibSp  \
0                             Braund, Mr. Owen Harris    male  22.0      1
1    Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
2                              Heikkinen, Miss. Laina  female  26.0      0
3        Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
4                            Allen, Mr. William Henry    male  35.0      0
..                                                 …     …   …    …
886                            Montvila, Rev. Juozas    male  27.0      0
887                     Graham, Miss. Margaret Edith  female  19.0      0
888         Johnston, Miss. Catherine Helen "Carrie"  female   NaN      1
889                            Behr, Mr. Karl Howell    male  26.0      0
890                              Dooley, Mr. Patrick    male  32.0      0

     Parch            Ticket     Fare Cabin Embarked
0        0         A/5 21171   7.2500   NaN        S
1        0          PC 17599  71.2833   C85        C
2        0  STON/O2. 3101282   7.9250   NaN        S
3        0            113803  53.1000  C123        S
4        0            373450   8.0500   NaN        S
..     …              …      …   …      …
886      0            211536  13.0000   NaN        S
887      0            112053  30.0000   B42        S
888      2        W./C. 6607  23.4500   NaN        S
889      0            111369  30.0000  C148        C
890      0            370376   7.7500   NaN        Q

[891 rows x 12 columns]
```

[48]:
```
df3=pd.read_csv("https://raw.githubusercontent.com/datasciencedojo/datasets/
↪master/titanic.csv")
```

[50]:
```
df3
```

[50]:
```
     PassengerId  Survived  Pclass  \
0              1         0       3
1              2         1       1
2              3         1       3
3              4         1       1
4              5         0       3
..           …       …     …
886          887         0       2
887          888         1       1
888          889         0       3
889          890         1       1
890          891         0       3

                                                 Name     Sex   Age  SibSp  \
0                             Braund, Mr. Owen Harris    male  22.0      1
1    Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
2                              Heikkinen, Miss. Laina  female  26.0      0
3        Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
4                            Allen, Mr. William Henry    male  35.0      0
..                                                 …     …   …    …
886                            Montvila, Rev. Juozas    male  27.0      0
887                     Graham, Miss. Margaret Edith  female  19.0      0
888         Johnston, Miss. Catherine Helen "Carrie"  female   NaN      1
889                            Behr, Mr. Karl Howell    male  26.0      0
890                              Dooley, Mr. Patrick    male  32.0      0

     Parch            Ticket     Fare Cabin Embarked
0        0         A/5 21171   7.2500   NaN        S
1        0          PC 17599  71.2833   C85        C
2        0  STON/O2. 3101282   7.9250   NaN        S
3        0            113803  53.1000  C123        S
4        0            373450   8.0500   NaN        S
..     …               …      …   …      …
886      0            211536  13.0000   NaN        S
887      0            112053  30.0000   B42        S
888      2        W./C. 6607  23.4500   NaN        S
889      0            111369  30.0000  C148        C
890      0            370376   7.7500   NaN        Q

[891 rows x 12 columns]
```

[51]:
```
df3.head()
```

[51]:
```
   PassengerId  Survived  Pclass  \
0            1         0       3
```

```
1            2         1       1
2            3         1       3
3            4         1       1
4            5         0       3

                                                 Name     Sex   Age  SibSp  \
0                             Braund, Mr. Owen Harris    male  22.0      1
1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
2                              Heikkinen, Miss. Laina  female  26.0      0
3        Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
4                            Allen, Mr. William Henry    male  35.0      0

   Parch            Ticket     Fare Cabin Embarked
0      0         A/5 21171   7.2500   NaN        S
1      0          PC 17599  71.2833   C85        C
2      0  STON/O2. 3101282   7.9250   NaN        S
3      0            113803  53.1000  C123        S
4      0            373450   8.0500   NaN        S
```

[52]:
```
df3.columns
```

[52]:
```
Index(['PassengerId', 'Survived', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp',
       'Parch', 'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

[53]:
```
type(df3)
```

[53]:
```
pandas.core.frame.DataFrame
```

[54]:
```
df3["Name"]
```

[54]:
```
0                              Braund, Mr. Owen Harris
1    Cumings, Mrs. John Bradley (Florence Briggs Th…
2                               Heikkinen, Miss. Laina
3         Futrelle, Mrs. Jacques Heath (Lily May Peel)
4                             Allen, Mr. William Henry
                            …
886                             Montvila, Rev. Juozas
887                      Graham, Miss. Margaret Edith
888          Johnston, Miss. Catherine Helen "Carrie"
889                             Behr, Mr. Karl Howell
890                               Dooley, Mr. Patrick
Name: Name, Length: 891, dtype: object
```

[56]:
```
df3[["Age","Ticket"]]
```

[56]:
```
      Age            Ticket
0    22.0         A/5 21171
1    38.0          PC 17599
2    26.0  STON/O2. 3101282
3    35.0            113803
4    35.0            373450
..    …               …
886  27.0            211536
887  19.0            112053
888   NaN        W./C. 6607
889  26.0            111369
890  32.0            370376

[891 rows x 2 columns]
```

[59]:
```
df3.tail()
```

[59]:
```
     PassengerId  Survived  Pclass                                      Name  \
886          887         0       2                     Montvila, Rev. Juozas
887          888         1       1              Graham, Miss. Margaret Edith
888          889         0       3  Johnston, Miss. Catherine Helen "Carrie"
889          890         1       1                     Behr, Mr. Karl Howell
890          891         0       3                       Dooley, Mr. Patrick

        Sex   Age  SibSp  Parch      Ticket   Fare Cabin Embarked
886    male  27.0      0      0      211536  13.00   NaN        S
887  female  19.0      0      0      112053  30.00   B42        S
888  female   NaN      1      2  W./C. 6607  23.45   NaN        S
889    male  26.0      0      0      111369  30.00  C148        C
890    male  32.0      0      0      370376   7.75   NaN        Q
```

[62]:
```
df3.tail(3)
```

[62]:
```
     PassengerId  Survived  Pclass                                      Name  \
888          889         0       3  Johnston, Miss. Catherine Helen "Carrie"
889          890         1       1                     Behr, Mr. Karl Howell
890          891         0       3                       Dooley, Mr. Patrick

        Sex   Age  SibSp  Parch      Ticket   Fare Cabin Embarked
888  female   NaN      1      2  W./C. 6607  23.45   NaN        S
889    male  26.0      0      0      111369  30.00  C148        C
890    male  32.0      0      0      370376   7.75   NaN        Q
```

[64]:
```
pip install lxml
```

```
Collecting lxml
  Downloading lxml-4.9.3-cp310-cp310-manylinux_2_28_x86_64.whl (7.9 MB)
```

```
                                     7.9/7.9 MB
56.6 MB/s eta 0:00:0000:0100:01
Installing collected packages: lxml
Successfully installed lxml-4.9.3
Note: you may need to restart the kernel to use updated packages.
```

[2]:
```
# Lxml is used for importing or reading the HTML data

import lxml
import pandas as pd

pd.read_html("https://www.basketball-reference.com/leagues/NBA_2015_totals.
 ↪html")
```

[2]:
```
[      Rk           Player Pos Age   Tm   G  GS    MP   FG  FGA  …   FT%  ORB
\
 0      1       Quincy Acy  PF  24  NYK  68  22  1287  152  331  …  .784   79
 1      2     Jordan Adams  SG  20  MEM  30   0   248   35   86  …  .609    9
 2      3     Steven Adams   C  21  OKC  70  67  1771  217  399  …  .502  199
 3      4      Jeff Adrien  PF  28  MIN  17   0   215   19   44  …  .579   23
 4      5    Arron Afflalo  SG  29  TOT  78  72  2502  375  884  …  .843   27
 ..   …              …  ..  ..  …  ..  ..   …  …  …  …   …  …
 670  490  Thaddeus Young  PF  26  TOT  76  68  2434  451  968  …  .655  127
 671  490  Thaddeus Young  PF  26  MIN  48  48  1605  289  641  …  .682   75
 672  490  Thaddeus Young  PF  26  BRK  28  20   829  162  327  …  .606   52
 673  491     Cody Zeller   C  22  CHO  62  45  1487  172  373  …  .774   97
 674  492    Tyler Zeller   C  25  BOS  82  59  1731  340  619  …  .823  146

      DRB  TRB  AST  STL BLK  TOV   PF   PTS
 0    222  301   68   27  22   60  147   398
 1     19   28   16   16   7   14   24    94
 2    324  523   66   38  86   99  222   537
 3     54   77   15    4   9    9   30    60
 4    220  247  129   41   7  116  167  1035
 ..   …  …  …  …  ..  …  …   …
 670  284  411  173  124  25  117  171  1071
 671  170  245  135   86  17   75  115   685
 672  114  166   38   38   8   42   56   386
 673  265  362  100   34  49   62  156   472
 674  319  465  113   18  52   76  205   833

 [675 rows x 30 columns]]
```

[5]:
```
import lxml
import pandas as pd
```

```
url_data=pd.read_html("https://www.basketball-reference.com/leagues/
↪NBA_2015_totals.html")
```

[6]:
```
pip install lxml
```

```
Requirement already satisfied: lxml in /opt/conda/lib/python3.10/site-packages
(4.9.3)
Note: you may need to restart the kernel to use updated packages.
```

[7]:
```
type(url_data)
```

[7]:
```
list
```

[8]:
```
len(url_data)
```

[8]:
```
1
```

[9]:
```
df3=url_data[0]
```

[10]:
```
df3
```

[10]:

	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	…	FT%	ORB	\
0	1	Quincy Acy	PF	24	NYK	68	22	1287	152	331	…	.784	79	
1	2	Jordan Adams	SG	20	MEM	30	0	248	35	86	…	.609	9	
2	3	Steven Adams	C	21	OKC	70	67	1771	217	399	…	.502	199	
3	4	Jeff Adrien	PF	28	MIN	17	0	215	19	44	…	.579	23	
4	5	Arron Afflalo	SG	29	TOT	78	72	2502	375	884	…	.843	27	
..	…	…	..	..	…	..	..	…	…	…	…	…	…	
670	490	Thaddeus Young	PF	26	TOT	76	68	2434	451	968	…	.655	127	
671	490	Thaddeus Young	PF	26	MIN	48	48	1605	289	641	…	.682	75	
672	490	Thaddeus Young	PF	26	BRK	28	20	829	162	327	…	.606	52	
673	491	Cody Zeller	C	22	CHO	62	45	1487	172	373	…	.774	97	
674	492	Tyler Zeller	C	25	BOS	82	59	1731	340	619	…	.823	146	

	DRB	TRB	AST	STL	BLK	TOV	PF	PTS
0	222	301	68	27	22	60	147	398
1	19	28	16	16	7	14	24	94
2	324	523	66	38	86	99	222	537
3	54	77	15	4	9	9	30	60
4	220	247	129	41	7	116	167	1035
..	…	…	…	…	..	…	…	…
670	284	411	173	124	25	117	171	1071
671	170	245	135	86	17	75	115	685
672	114	166	38	38	8	42	56	386
673	265	362	100	34	49	62	156	472
674	319	465	113	18	52	76	205	833

```
[675 rows x 30 columns]
```

[11]:
```
df3.head()
```

[11]:
```
  Rk         Player Pos Age   Tm   G  GS    MP   FG  FGA  …   FT%  ORB  DRB  \
0  1     Quincy Acy  PF  24  NYK  68  22  1287  152  331  …  .784   79  222
1  2   Jordan Adams  SG  20  MEM  30   0   248   35   86  …  .609    9   19
2  3   Steven Adams   C  21  OKC  70  67  1771  217  399  …  .502  199  324
3  4    Jeff Adrien  PF  28  MIN  17   0   215   19   44  …  .579   23   54
4  5  Arron Afflalo  SG  29  TOT  78  72  2502  375  884  …  .843   27  220

   TRB  AST STL BLK  TOV   PF   PTS
0  301   68  27  22   60  147   398
1   28   16  16   7   14   24    94
2  523   66  38  86   99  222   537
3   77   15   4   9    9   30    60
4  247  129  41   7  116  167  1035

[5 rows x 30 columns]
```

[12]:
```
df3.tail()
```

[12]:
```
      Rk           Player Pos Age   Tm   G  GS    MP   FG  FGA  …   FT%  ORB  \
670  490  Thaddeus Young  PF  26  TOT  76  68  2434  451  968  …  .655  127
671  490  Thaddeus Young  PF  26  MIN  48  48  1605  289  641  …  .682   75
672  490  Thaddeus Young  PF  26  BRK  28  20   829  162  327  …  .606   52
673  491     Cody Zeller   C  22  CHO  62  45  1487  172  373  …  .774   97
674  492    Tyler Zeller   C  25  BOS  82  59  1731  340  619  …  .823  146

     DRB  TRB  AST  STL BLK  TOV   PF   PTS
670  284  411  173  124  25  117  171  1071
671  170  245  135   86  17   75  115   685
672  114  166   38   38   8   42   56   386
673  265  362  100   34  49   62  156   472
674  319  465  113   18  52   76  205   833

[5 rows x 30 columns]
```

[13]:
```
df3.columns
```

[13]:
```
Index(['Rk', 'Player', 'Pos', 'Age', 'Tm', 'G', 'GS', 'MP', 'FG', 'FGA', 'FG%',
       '3P', '3PA', '3P%', '2P', '2PA', '2P%', 'eFG%', 'FT', 'FTA', 'FT%',
       'ORB', 'DRB', 'TRB', 'AST', 'STL', 'BLK', 'TOV', 'PF', 'PTS'],
      dtype='object')
```

[14]:
```
df3.dtypes
```

[14]:
```
Rk        object
Player    object
Pos       object
Age       object
Tm        object
G         object
GS        object
MP        object
FG        object
FGA       object
FG%       object
3P        object
3PA       object
3P%       object
2P        object
2PA       object
2P%       object
eFG%      object
FT        object
FTA       object
FT%       object
ORB       object
DRB       object
TRB       object
AST       object
STL       object
BLK       object
TOV       object
PF        object
PTS       object
dtype: object
```

MOST IMPORTANT - We use " .to_csv( ) or .to_excel etc " for function for saving the data in file or any format like if we want to save the players data than we have to execute df3.to_csv("players_data.csv") than it will save that in csv in another file and we also download that file in our local system as well

[15]:
```
df3.to_csv("players_data.csv")
```

[16]:
```
df3.to_csv("players_data.csv",index=False)
```

THANK YOU SO MUCH !!

YOURS VIRAT TIWARI :)