ui22cs03-earthquake-lab4-part3

September 5, 2023

LAB 4 EARTHQUAKE DATA SCIENCE BY UI22CS03

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

```python
[5]: #Earthquake Data imported in CSV format
     earth = pd.read_csv("earthquakes.csv")
```

```python
[6]: #Converting to 2D Dataframe
     df = pd.DataFrame(earth)
```

```python
[7]: #Let's display the Earthquake Data
     print(df)
```

```
      alert  cdi         code  \
0       NaN  NaN     37389218
1       NaN  NaN     37389202
2       NaN  4.4     37389194
3       NaN  NaN     37389186
4       NaN  NaN     73096941
...     ...  ...          ...
9327    NaN  NaN     73086771
9328    NaN  NaN     38063967
9329    NaN  NaN   2018261000
9330    NaN  NaN     38063959
9331    NaN  NaN     38063935

                                                detail      dmin  felt  \
0     https://earthquake.usgs.gov/fdsnws/event/1/que…  0.008693   NaN
1     https://earthquake.usgs.gov/fdsnws/event/1/que…  0.020030   NaN
2     https://earthquake.usgs.gov/fdsnws/event/1/que…  0.021370  28.0
3     https://earthquake.usgs.gov/fdsnws/event/1/que…  0.026180   NaN
4     https://earthquake.usgs.gov/fdsnws/event/1/que…  0.077990   NaN
...                                                ...       ...   ...
9327  https://earthquake.usgs.gov/fdsnws/event/1/que…  0.018060   NaN
9328  https://earthquake.usgs.gov/fdsnws/event/1/que…  0.030410   NaN
9329  https://earthquake.usgs.gov/fdsnws/event/1/que…  0.452600   NaN
9330  https://earthquake.usgs.gov/fdsnws/event/1/que…  0.018650   NaN
9331  https://earthquake.usgs.gov/fdsnws/event/1/que…  0.016980   NaN
```

```
         gap              ids    mag magType  …  sources    status  \
0        85.0      ,ci37389218,  1.35      ml  …     ,ci,  automatic
1        79.0      ,ci37389202,  1.29      ml  …     ,ci,  automatic
2        21.0      ,ci37389194,  3.42      ml  …     ,ci,  automatic
3        39.0      ,ci37389186,  0.44      ml  …     ,ci,  automatic
4       192.0      ,nc73096941,  2.16      md  …     ,nc,  automatic
…         …                …      …       …  …        …
9327    185.0      ,nc73086771,  0.62      md  …     ,nc,   reviewed
9328     50.0      ,ci38063967,  1.00      ml  …     ,ci,   reviewed
9329    276.0    ,pr2018261000,  2.40      md  …     ,pr,   reviewed
9330     61.0      ,ci38063959,  1.10      ml  …     ,ci,   reviewed
9331     39.0      ,ci38063935,  0.66      ml  …     ,ci,   reviewed

               time                                    title  tsunami  \
0      1539475168010              M 1.4 - 9km NE of Aguanga, CA        0
1      1539475129610              M 1.3 - 9km NE of Aguanga, CA        0
2      1539475062610              M 3.4 - 8km NE of Aguanga, CA        0
3      1539474978070              M 0.4 - 9km NE of Aguanga, CA        0
4      1539474716050             M 2.2 - 10km NW of Avenal, CA        0
…          …                                           …        …
9327   1537230228060     M 0.6 - 9km ENE of Mammoth Lakes, CA        0
9328   1537230135130                M 1.0 - 3km W of Julian, CA       0
9329   1537229908180  M 2.4 - 35km NNE of Hatillo, Puerto Rico        0
9330   1537229545350              M 1.1 - 9km NE of Aguanga, CA        0
9331   1537228864470              M 0.7 - 9km NE of Aguanga, CA        0

             type                                     types      tz  \
0      earthquake         ,geoserve,nearby-cities,origin,phase-data,  -480.0
1      earthquake         ,geoserve,nearby-cities,origin,phase-data,  -480.0
2      earthquake    ,dyfi,focal-mechanism,geoserve,nearby-cities,o…  -480.0
3      earthquake         ,geoserve,nearby-cities,origin,phase-data,  -480.0
4      earthquake    ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0
…          …                                           …        …
9327   earthquake         ,geoserve,nearby-cities,origin,phase-data,  -480.0
9328   earthquake    ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0
9329   earthquake                    ,geoserve,origin,phase-data,     -240.0
9330   earthquake    ,focal-mechanism,geoserve,nearby-cities,origin…  -480.0
9331   earthquake    ,focal-mechanism,geoserve,nearby-cities,origin…  -480.0

           updated                                               url
0      1539475395144  https://earthquake.usgs.gov/earthquakes/eventp…
1      1539475253925  https://earthquake.usgs.gov/earthquakes/eventp…
2      1539536756176  https://earthquake.usgs.gov/earthquakes/eventp…
3      1539475196167  https://earthquake.usgs.gov/earthquakes/eventp…
4      1539477547926  https://earthquake.usgs.gov/earthquakes/eventp…
…          …                                               …
9327   1537285598315  https://earthquake.usgs.gov/earthquakes/eventp…
```

```
9328  1537276800970  https://earthquake.usgs.gov/earthquakes/eventp…
9329  1537243777410  https://earthquake.usgs.gov/earthquakes/eventp…
9330  1537230211640  https://earthquake.usgs.gov/earthquakes/eventp…
9331  1537305830770  https://earthquake.usgs.gov/earthquakes/eventp…

[9332 rows x 26 columns]
```

[8]:
```python
#Prining "mag" column data
print(df[["mag"]])
#Display of top 5 top rows of dat
df.head()
```

```
         mag
0       1.35
1       1.29
2       3.42
3       0.44
4       2.16
…        …
9327    0.62
9328    1.00
9329    2.40
9330    1.10
9331    0.66

[9332 rows x 1 columns]
```

[8]:
```
   alert  cdi      code                                          detail  \
0    NaN  NaN  37389218  https://earthquake.usgs.gov/fdsnws/event/1/que…
1    NaN  NaN  37389202  https://earthquake.usgs.gov/fdsnws/event/1/que…
2    NaN  4.4  37389194  https://earthquake.usgs.gov/fdsnws/event/1/que…
3    NaN  NaN  37389186  https://earthquake.usgs.gov/fdsnws/event/1/que…
4    NaN  NaN  73096941  https://earthquake.usgs.gov/fdsnws/event/1/que…

       dmin  felt    gap            ids   mag magType  … sources     status  \
0  0.008693   NaN   85.0   ,ci37389218,  1.35      ml  …    ,ci,  automatic
1  0.020030   NaN   79.0   ,ci37389202,  1.29      ml  …    ,ci,  automatic
2  0.021370  28.0   21.0   ,ci37389194,  3.42      ml  …    ,ci,  automatic
3  0.026180   NaN   39.0   ,ci37389186,  0.44      ml  …    ,ci,  automatic
4  0.077990   NaN  192.0  ,nc73096941,  2.16      md  …    ,nc,  automatic

            time                    title  tsunami        type  \
0  1539475168010  M 1.4 - 9km NE of Aguanga, CA        0  earthquake
1  1539475129610  M 1.3 - 9km NE of Aguanga, CA        0  earthquake
2  1539475062610  M 3.4 - 8km NE of Aguanga, CA        0  earthquake
3  1539474978070  M 0.4 - 9km NE of Aguanga, CA        0  earthquake
4  1539474716050  M 2.2 - 10km NW of Avenal, CA        0  earthquake
```

3

```
                                                  types    tz       updated  \
0            ,geoserve,nearby-cities,origin,phase-data,  -480.0  1539475395144
1            ,geoserve,nearby-cities,origin,phase-data,  -480.0  1539475253925
2    ,dyfi,focal-mechanism,geoserve,nearby-cities,o…  -480.0  1539536756176
3            ,geoserve,nearby-cities,origin,phase-data,  -480.0  1539475196167
4    ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0  1539477547926


                                                  url
0  https://earthquake.usgs.gov/earthquakes/eventp…
1  https://earthquake.usgs.gov/earthquakes/eventp…
2  https://earthquake.usgs.gov/earthquakes/eventp…
3  https://earthquake.usgs.gov/earthquakes/eventp…
4  https://earthquake.usgs.gov/earthquakes/eventp…

[5 rows x 26 columns]
```

[9]:
```python
#SHape of Dataframe
df.shape
#Dimention are in (Rows, Column)
```

[9]: (9332, 26)

[10]:
```python
#Knowing individual Datatype
df.dtypes
```

[10]:
```
alert        object
cdi         float64
code         object
detail       object
dmin        float64
felt        float64
gap         float64
ids          object
mag         float64
magType      object
mmi         float64
net          object
nst         float64
place        object
rms         float64
sig           int64
sources      object
status       object
time          int64
title        object
tsunami       int64
```

```
type          object
types         object
tz           float64
updated        int64
url           object
dtype: object
```

[11]: `#Printing all the values of Dataframe`
`df.values`

[11]:
```
array([[nan, nan, '37389218', …, -480.0, 1539475395144,
        'https://earthquake.usgs.gov/earthquakes/eventpage/ci37389218'],
       [nan, nan, '37389202', …, -480.0, 1539475253925,
        'https://earthquake.usgs.gov/earthquakes/eventpage/ci37389202'],
       [nan, 4.4, '37389194', …, -480.0, 1539536756176,
        'https://earthquake.usgs.gov/earthquakes/eventpage/ci37389194'],
       …,
       [nan, nan, '2018261000', …, -240.0, 1537243777410,
        'https://earthquake.usgs.gov/earthquakes/eventpage/pr2018261000'],
       [nan, nan, '38063959', …, -480.0, 1537230211640,
        'https://earthquake.usgs.gov/earthquakes/eventpage/ci38063959'],
       [nan, nan, '38063935', …, -480.0, 1537305830770,
        'https://earthquake.usgs.gov/earthquakes/eventpage/ci38063935']],
      dtype=object)
```

[12]: `#Knowing all the Index/Column of Dataframe in earthquake database`
`print("Following are the Coloumns of Earthquqke\n",df.columns)`

```
Following are the Coloumns of Earthquqke
 Index(['alert', 'cdi', 'code', 'detail', 'dmin', 'felt', 'gap', 'ids', 'mag',
       'magType', 'mmi', 'net', 'nst', 'place', 'rms', 'sig', 'sources',
       'status', 'time', 'title', 'tsunami', 'type', 'types', 'tz', 'updated',
       'url'],
      dtype='object')
```

[13]: `#Let's Describe`
`print(df.describe)`

```
<bound method NDFrame.describe of       alert  cdi        code  \
0       NaN  NaN    37389218
1       NaN  NaN    37389202
2       NaN  4.4    37389194
3       NaN  NaN    37389186
4       NaN  NaN    73096941

…       …    …          …
9327    NaN  NaN    73086771
9328    NaN  NaN    38063967
9329    NaN  NaN  2018261000
```

```
9330    NaN   NaN     38063959
9331    NaN   NaN     38063935

                                                    detail       dmin   felt  \
0      https://earthquake.usgs.gov/fdsnws/event/1/que…  0.008693   NaN
1      https://earthquake.usgs.gov/fdsnws/event/1/que…  0.020030   NaN
2      https://earthquake.usgs.gov/fdsnws/event/1/que…  0.021370  28.0
3      https://earthquake.usgs.gov/fdsnws/event/1/que…  0.026180   NaN
4      https://earthquake.usgs.gov/fdsnws/event/1/que…  0.077990   NaN
…                                                   …        …     …
9327   https://earthquake.usgs.gov/fdsnws/event/1/que…  0.018060   NaN
9328   https://earthquake.usgs.gov/fdsnws/event/1/que…  0.030410   NaN
9329   https://earthquake.usgs.gov/fdsnws/event/1/que…  0.452600   NaN
9330   https://earthquake.usgs.gov/fdsnws/event/1/que…  0.018650   NaN
9331   https://earthquake.usgs.gov/fdsnws/event/1/que…  0.016980   NaN

         gap             ids   mag magType  …  sources      status  \
0       85.0    ,ci37389218,  1.35      ml  …     ,ci,   automatic
1       79.0    ,ci37389202,  1.29      ml  …     ,ci,   automatic
2       21.0    ,ci37389194,  3.42      ml  …     ,ci,   automatic
3       39.0    ,ci37389186,  0.44      ml  …     ,ci,   automatic
4      192.0    ,nc73096941,  2.16      md  …     ,nc,   automatic
…        …              …     …      …  …        …
9327   185.0    ,nc73086771,  0.62      md  …     ,nc,    reviewed
9328    50.0    ,ci38063967,  1.00      ml  …     ,ci,    reviewed
9329   276.0   ,pr2018261000,  2.40     md  …     ,pr,    reviewed
9330    61.0    ,ci38063959,  1.10      ml  …     ,ci,    reviewed
9331    39.0    ,ci38063935,  0.66      ml  …     ,ci,    reviewed

               time                                        title  tsunami  \
0      1539475168010            M 1.4 - 9km NE of Aguanga, CA           0
1      1539475129610            M 1.3 - 9km NE of Aguanga, CA           0
2      1539475062610            M 3.4 - 8km NE of Aguanga, CA           0
3      1539474978070            M 0.4 - 9km NE of Aguanga, CA           0
4      1539474716050           M 2.2 - 10km NW of Avenal, CA           0
…                  …                                        …         …
9327   1537230228060     M 0.6 - 9km ENE of Mammoth Lakes, CA          0
9328   1537230135130              M 1.0 - 3km W of Julian, CA          0
9329   1537229908180  M 2.4 - 35km NNE of Hatillo, Puerto Rico          0
9330   1537229545350            M 1.1 - 9km NE of Aguanga, CA          0
9331   1537228864470            M 0.7 - 9km NE of Aguanga, CA          0

            type                                             types      tz  \
0      earthquake            ,geoserve,nearby-cities,origin,phase-data,  -480.0
1      earthquake            ,geoserve,nearby-cities,origin,phase-data,  -480.0
2      earthquake    ,dyfi,focal-mechanism,geoserve,nearby-cities,o…  -480.0
3      earthquake            ,geoserve,nearby-cities,origin,phase-data,  -480.0
4      earthquake    ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0
```

```
  …          …                                                          …     …
9327   earthquake              ,geoserve,nearby-cities,origin,phase-data,  -480.0
9328   earthquake    ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0
9329   earthquake                         ,geoserve,origin,phase-data,  -240.0
9330   earthquake    ,focal-mechanism,geoserve,nearby-cities,origin…  -480.0
9331   earthquake    ,focal-mechanism,geoserve,nearby-cities,origin…  -480.0

             updated                                                url
0      1539475395144    https://earthquake.usgs.gov/earthquakes/eventp…
1      1539475253925    https://earthquake.usgs.gov/earthquakes/eventp…
2      1539536756176    https://earthquake.usgs.gov/earthquakes/eventp…
3      1539475196167    https://earthquake.usgs.gov/earthquakes/eventp…
4      1539477547926    https://earthquake.usgs.gov/earthquakes/eventp…
  …          …                                                         …
9327   1537285598315    https://earthquake.usgs.gov/earthquakes/eventp…
9328   1537276800970    https://earthquake.usgs.gov/earthquakes/eventp…
9329   1537243777410    https://earthquake.usgs.gov/earthquakes/eventp…
9330   1537230211640    https://earthquake.usgs.gov/earthquakes/eventp…
9331   1537305830770    https://earthquake.usgs.gov/earthquakes/eventp…

[9332 rows x 26 columns]>
```

[14]:
```python
#Let's know the count of individual data
print(df.count())
```

```
alert          59
cdi           329
code         9332
detail       9332
dmin         6139
felt          329
gap          6164
ids          9332
mag          9331
magType      9331
mmi            93
net          9332
nst          5364
place        9332
rms          9332
sig          9332
sources      9332
status       9332
time         9332
title        9332
tsunami      9332
type         9332
types        9332
```

```
tz          9331
updated     9332
url         9332
dtype: int64
```

[15]: ```python
#THIS IS HOW TO APPLY THE NUNIQUE ATTRIBUTE TO THE DATA
print(df.nunique())
```

```
alert         2
cdi          37
code       9332
detail     9332
dmin       4647
felt         44
gap        1114
ids        9332
mag         477
magType      10
mmi          77
net          14
nst         102
place      5433
rms         823
sig         268
sources      52
status        2
time       9332
title      7807
tsunami       2
type          5
types        42
tz           29
updated    9332
url        9332
dtype: int64
```

[16]: ```python
#THIS IS HOW TO APPLY THE SUM ATTRIBUTE TO THE DATA IN THE CSV FILE
print(df.sum())
```

```
cdi                                                   906.3
code       37389218373892023738919437389186730969412018280…
detail     https://earthquake.usgs.gov/fdsnws/event/1/que…
dmin                                             3345.296264
felt                                                  4050.0
gap                                               748966.61
ids        ,ci37389218,,ci37389202,,ci37389194,,ci3738918…
mag                                                 13971.73
mmi                                                   339.58
```

```
net         cicicicincprakncncusciprciusncakncprakciprakci…
nst                                              102205.0
place       9km NE of Aguanga, CA9km NE of Aguanga, CA8km …
rms                                              3379.3269
sig                                                 530990
sources     ,ci,,ci,,ci,,ci,,nc,,pr,,ak,,nc,,nc,,us,,ci,,p…
status      automaticautomaticautomaticautomaticautomaticr…
time                                         14355263284847005
title       M 1.4 - 9km NE of Aguanga, CAM 1.3 - 9km NE of…
tsunami                                                 61
type        earthquakeearthquakeearthquakeearthquakeearthq…
types       ,geoserve,nearby-cities,origin,phase-data,,geo…
tz                                              -4217520.0
updated                                      14357623365441865
url         https://earthquake.usgs.gov/earthquakes/eventp…
dtype: object
```

<ipython-input-16-f9fd4fe56434>:2: FutureWarning: The default value of numeric_only in DataFrame.sum is deprecated. In a future version, it will default to False. In addition, specifying 'numeric_only=None' is deprecated. Select only valid columns or specify the value of numeric_only to silence this warning.
   print(df.sum())

```
[23]:  #THIS IS HOW TO APPLY THE MAX ATTRIBUTE TO THE DATA
       print(df.max())
```

```
cdi                                                    8.4
code                                              80314224
detail      https://earthquake.usgs.gov/fdsnws/event/1/que…
dmin                                                53.737
felt                                                 580.0
gap                                                 355.91
ids                                          ,uw61437386,
mag                                                    7.5
mmi                                                   9.12
net                                                     uw
nst                                                  172.0
place                                        Western Xizang
rms                                                   1.91
sig                                                   2015
sources                                          ,uw,us,
status                                            reviewed
time                                        1539475168010
title                       M ? - 13km NW of Parkfield, CA
tsunami                                                  1
type                                          quarry blast
types                   ,nearby-cities,origin,phase-data,
```

```
tz                                                  720.0
updated                                    1539536756176
url              https://earthquake.usgs.gov/earthquakes/eventp…
dtype: object
```

<ipython-input-23-51ddeaacd7d1>:2: FutureWarning: The default value of numeric_only in DataFrame.max is deprecated. In a future version, it will default to False. In addition, specifying 'numeric_only=None' is deprecated. Select only valid columns or specify the value of numeric_only to silence this warning.
    print(df.max())

```
[22]:  #THIS IS HOW TO APPLY THE MIN ATTRIBUTE TO THE DATA
       print(df.min())
```

```
cdi                                                   0.0
code                                             00657027
detail           https://earthquake.usgs.gov/fdsnws/event/1/que…
dmin                                             0.000648
felt                                                  0.0
gap                                                  12.0
ids                                         ,ak20257023,
mag                                                 -1.26
mmi                                                   0.0
net                                                    ak
nst                                                   0.0
place                            0km NE of Pahala, Hawaii
rms                                                   0.0
sig                                                     0
sources                                             ,ak,
status                                          automatic
time                                        1537228864470
title                    M -0.0 - 10km NE of Aguanga, CA
tsunami                                                 0
type                                           earthquake
types        ,dyfi,finite-fault,general-text,geoserve,groun…
tz                                                 -720.0
updated                                    1537230211640
url              https://earthquake.usgs.gov/earthquakes/eventp…
dtype: object
```

<ipython-input-22-a7e94ceeeedc>:2: FutureWarning: The default value of numeric_only in DataFrame.min is deprecated. In a future version, it will default to False. In addition, specifying 'numeric_only=None' is deprecated. Select only valid columns or specify the value of numeric_only to silence this warning.
    print(df.min())

```python
[19]: #THIS IS HOW TO APPLY THE LOC ATTRIBUTE TO THE DATA
      print(df.loc)
```

<pandas.core.indexing._LocIndexer object at 0x782f8b3561b0>

```python
[24]: #THIS IS HOW TO APPLY THE ILOC ATTRIBUTE TO THE DATA
      print(df.iloc())
```

<pandas.core.indexing._iLocIndexer object at 0x782f8d15ede0>

```python
[32]: #THIS IS HOW TO APPLY THE ISIN() IN DATAFRAME ATTRIBUTE TO THE DATA
      print(df.isin(['1']))
```

	alert	cdi	code	detail	dmin	felt	gap	ids	mag	magType	\
0	False	False	False	False	False	False	False	False	False	False	
1	False	False	False	False	False	False	False	False	False	False	
2	False	False	False	False	False	False	False	False	False	False	
3	False	False	False	False	False	False	False	False	False	False	
4	False	False	False	False	False	False	False	False	False	False	
...	...	...	...	...	...	...	...	...	...		
9327	False	False	False	False	False	False	False	False	False	False	
9328	False	False	False	False	False	False	False	False	False	False	
9329	False	False	False	False	False	False	False	False	False	False	
9330	False	False	False	False	False	False	False	False	False	False	
9331	False	False	False	False	False	False	False	False	False	False	

	…	sources	status	time	title	tsunami	type	types	tz	\
0	…	False	False	False	False	False	False	False	False	
1	…	False	False	False	False	False	False	False	False	
2	…	False	False	False	False	False	False	False	False	
3	…	False	False	False	False	False	False	False	False	
4	…	False	False	False	False	False	False	False	False	
...	...	...	...	...	...	...	...	...		
9327	…	False	False	False	False	False	False	False	False	
9328	…	False	False	False	False	False	False	False	False	
9329	…	False	False	False	False	False	False	False	False	
9330	…	False	False	False	False	False	False	False	False	
9331	…	False	False	False	False	False	False	False	False	

	updated	url
0	False	False
1	False	False
2	False	False
3	False	False
4	False	False
...	...	...
9327	False	False
9328	False	False

```
9329    False  False
9330    False  False
9331    False  False

[9332 rows x 26 columns]
```

[35]:
```python
#Knowing the Mean of every column
print(df.mean())
```

```
cdi       2.754711e+00
dmin      5.449253e-01
felt      1.231003e+01
gap       1.215066e+02
mag       1.497345e+00
mmi       3.651398e+00
nst       1.905388e+01
rms       3.621225e-01
sig       5.689991e+01
time      1.538284e+12
tsunami   6.536648e-03
tz       -4.519901e+02
updated   1.538537e+12
dtype: float64
```

```
<ipython-input-35-f98cceecb4a0>:1: FutureWarning: The default value of
numeric_only in DataFrame.mean is deprecated. In a future version, it will
default to False. In addition, specifying 'numeric_only=None' is deprecated.
Select only valid columns or specify the value of numeric_only to silence this
warning.
  print(df.mean())
```

[38]:
```python
#Knwing the data range of particlualr column indexes
df[110:113]['mag']
```

[38]:
```
110    1.1
111    1.9
112    0.9
Name: mag, dtype: float64
```

[41]:
```python
#Knowing the "Title" associated with the dataframe
df.loc[110:112, 'title']
```

[41]:
```
110              M 1.1 - 35km S of Ester, Alaska
111    M 1.9 - 93km WNW of Arctic Village, Alaska
112      M 0.9 - 20km WSW of Smith Valley, Nevada
Name: title, dtype: object
```

```
[48]: #Filtering using logical opearions in Dataframe, chekcing the condtions
      df.mag>2.5
```

```
[48]: 0         False
      1         False
      2          True
      3         False
      4         False
                ...
      9327      False
      9328      False
      9329      False
      9330      False
      9331      False
      Name: mag, Length: 9332, dtype: bool
```

```
[50]: #Printing the respective Rows of Dataframe where conditons satisfy
      df[df.mag >= 2.5]
```

```
[50]:       alert  cdi         code  \
      2       NaN  4.4     37389194
      5       NaN  NaN   2018286011
      9       NaN  NaN      1000hbtn
      11      NaN  NaN   2018286010
      13      NaN  NaN      1000hbti
      ...     ...  ...          ...
      9316    NaN  2.0     38064031
      9317    NaN  NaN     38064023
      9319    NaN  NaN     2000hg5w
      9320    NaN  NaN     38064007
      9321    NaN  NaN     2000hjsq

                                                      detail    dmin  felt    gap  \
      2     https://earthquake.usgs.gov/fdsnws/event/1/que...  0.02137  28.0   21.0
      5     https://earthquake.usgs.gov/fdsnws/event/1/que...  0.43730   NaN  158.0
      9     https://earthquake.usgs.gov/fdsnws/event/1/que...  3.19100   NaN   37.0
      11    https://earthquake.usgs.gov/fdsnws/event/1/que...  0.94770   NaN  186.0
      13    https://earthquake.usgs.gov/fdsnws/event/1/que...  2.19300   NaN  157.0
      ...                                                 ...      ...   ...    ...
      9316  https://earthquake.usgs.gov/fdsnws/event/1/que...  0.12200   1.0  193.0
      9317  https://earthquake.usgs.gov/fdsnws/event/1/que...  0.11560   NaN  142.0
      9319  https://earthquake.usgs.gov/fdsnws/event/1/que...  1.66300   NaN   40.0
      9320  https://earthquake.usgs.gov/fdsnws/event/1/que...  0.04743   NaN  113.0
      9321  https://earthquake.usgs.gov/fdsnws/event/1/que...  1.29600   NaN   61.0

                      ids   mag magType  ...  sources     status          time  \
      2      ,ci37389194,  3.42      ml  ...     ,ci,  automatic  1539475062610
```

```
5      ,pr2018286011,  2.61     md   …    ,pr,   reviewed  1539473686440
9       ,us1000hbtn,  4.70     mb   …    ,us,   reviewed  1539472814760
11     ,pr2018286010,  2.77     md   …    ,pr,   reviewed  1539471621260
13      ,us1000hbti,  4.50     mb   …    ,us,   reviewed  1539470898340
…               …    …       …    …        …               …
9316    ,ci38064031,  3.08     ml   …    ,ci,   reviewed  1537232823500
9317    ,ci38064023,  2.64     ml   …    ,ci,   reviewed  1537232796810
9319    ,us2000hg5w,  4.40     mb   …    ,us,   reviewed  1537231966170
9320    ,ci38064007,  2.81     ml   …    ,ci,   reviewed  1537231284810
9321    ,us2000hjsq,  4.30     mb   …    ,us,   reviewed  1537231275500

                                             title  tsunami        type  \
2                         M 3.4 - 8km NE of Aguanga, CA        0   earthquake
5       M 2.6 - 55km ESE of Punta Cana, Dominican Repu…        0   earthquake
9               M 4.7 - 219km SSE of Saparua, Indonesia        0   earthquake
11     M 2.8 - 53km SE of Punta Cana, Dominican Republic        0   earthquake
13          M 4.5 - 120km SSW of Banda Aceh, Indonesia        0   earthquake
…                                                …      …          …
9316                 M 3.1 - 5km SW of Delta, B.C., MX        0   earthquake
9317                 M 2.6 - 4km SW of Delta, B.C., MX        0   earthquake
9319  M 4.4 - 58km W of San Antonio de los Cobres, A…        0   earthquake
9320                 M 2.8 - 8km NW of Delta, B.C., MX        0   earthquake
9321            M 4.3 - 19km NE of Cateel, Philippines        0   earthquake

                                             types      tz       updated  \
2        ,dyfi,focal-mechanism,geoserve,nearby-cities,o…  -480.0   1539536756176
5                         ,geoserve,origin,phase-data,  -300.0   1539500579236
9                         ,geoserve,origin,phase-data,   540.0   1539473712040
11                        ,geoserve,origin,phase-data,  -300.0   1539500530876
13                        ,geoserve,origin,phase-data,   360.0   1539493516040
…                                                …      …          …
9316  ,dyfi,geoserve,nearby-cities,origin,phase-data…  -480.0   1537280984499
9317  ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0   1537281340288
9319                      ,geoserve,origin,phase-data,  -180.0   1538871593040
9320  ,geoserve,nearby-cities,origin,phase-data,scit…  -480.0   1537234531589
9321                      ,geoserve,origin,phase-data,   480.0   1538890521040

                                             url
2      https://earthquake.usgs.gov/earthquakes/eventp…
5      https://earthquake.usgs.gov/earthquakes/eventp…
9      https://earthquake.usgs.gov/earthquakes/eventp…
11     https://earthquake.usgs.gov/earthquakes/eventp…
13     https://earthquake.usgs.gov/earthquakes/eventp…
…                                                …
9316   https://earthquake.usgs.gov/earthquakes/eventp…
9317   https://earthquake.usgs.gov/earthquakes/eventp…
9319   https://earthquake.usgs.gov/earthquakes/eventp…
```

```
9320   https://earthquake.usgs.gov/earthquakes/eventp…
9321   https://earthquake.usgs.gov/earthquakes/eventp…

[1360 rows x 26 columns]
```

[51]:
```
#Chcecking Multiple Condtions and priting the Data
df.loc[
    (df.tsunami == 1) | (df.alert == 'red'),
    ['alert', 'mag', 'magType', 'title', 'tsunami', 'type']
    ]
```

[51]:
```
      alert  mag magType                                           title  \
36      NaN  5.0     mww  M 5.0 - 165km NNW of Flying Fish Cove, Christm…
118   green  6.7     mww            M 6.7 - 262km NW of Ozernovskiy, Russia
501   green  5.6     mww          M 5.6 - 128km SE of Kimbe, Papua New Guinea
799   green  6.5     mww        M 6.5 - 148km S of Severo-Kuril'sk, Russia
816   green  6.2     mww          M 6.2 - 94km SW of Kokopo, Papua New Guinea
...     ...  ...     ...                                             …
8561    NaN  5.4      mb          M 5.4 - 228km S of Taron, Papua New Guinea
8624    NaN  5.1      mb      M 5.1 - 278km SE of Pondaguitan, Philippines
9133  green  5.1      ml            M 5.1 - 64km SSW of Kaktovik, Alaska
9175    NaN  5.2      mb              M 5.2 - 126km N of Dili, East Timor
9304    NaN  5.1      mb  M 5.1 - 34km NW of Finschhafen, Papua New Guinea

      tsunami        type
36          1  earthquake
118         1  earthquake
501         1  earthquake
799         1  earthquake
816         1  earthquake
...       ...         ...
8561        1  earthquake
8624        1  earthquake
9133        1  earthquake
9175        1  earthquake
9304        1  earthquake

[61 rows x 6 columns]
```

[ ]: