SERIES

In [2]:

```
import pandas as pd
```

In [2]:

```
fruits=["mango","grapes","guava","orange"]
```

In [15]:

```
f=pd.Series(fruits)
f
```

Out[15]:

```
0     mango
1    grapes
2     guava
3    orange
dtype: object
```

In [5]:

```
regis=[True,False,True]
pd.Series(regis)
```

Out[5]:

```
0     True
1    False
2     True
dtype: bool
```

In [20]:

```
nums=[1,2,4,5,6,4,3]
n=pd.Series(nums)
n
```

Out[20]:

```
0    1
1    2
2    4
3    5
4    6
5    4
6    3
dtype: int64
```

In [11]:

```
#string indices
animals={
    "wild":"Lion",
    "domestic":"cow",
    "carnivore":"fox"
}
s=pd.Series(animals)
s
```

Out[11]:

```
wild         Lion
domestic      cow
carnivore     fox
dtype: object
```

In [12]:

```
s.values
```

Out[12]:

```
array(['Lion', 'cow', 'fox'], dtype=object)
```

In [13]:

```
s.index
```

Out[13]:

```
Index(['wild', 'domestic', 'carnivore'], dtype='object')
```

In [16]:

```
f.index
```

Out[16]:

```
RangeIndex(start=0, stop=4, step=1)
```

In [18]:

```
f.dtype
```

Out[18]:

```
dtype('O')
```

In [19]:

```
f.dtypes
```

Out[19]:

```
dtype('O')
```

In [21]:

```
n.sum()
```

Out[21]:

```
25
```

In [22]:

```
n.product()
```

Out[22]:

```
2880
```

In [23]:

```
n.mean()
```

Out[23]:

```
3.5714285714285716
```

parameters and args

In [26]:

```
fruits=["mango","grapes","guava","orange"]
Days=["sunday","monday","tuesday","wednesday"]

pd.Series(data=fruits,index=Days)
```

Out[26]:

```
sunday        mango
monday       grapes
tuesday       guava
wednesday    orange
dtype: object
```

In [27]:

```
fruits=["mango","grapes","guava","orange"]
Days=["sunday","monday","tuesday","sunday"]#duplicate keys

pd.Series(data=fruits,index=Days)
```

Out[27]:

```
sunday      mango
monday     grapes
tuesday     guava
sunday     orange
dtype: object
```

import series with read_csv mtd

In [3]:

```
pm=pd.read_csv("pokemon.csv",usecols=["Pokemon"],squeeze=True)
pm.head(5)
```

Out[3]:

```
0     Bulbasaur
1       Ivysaur
2      Venusaur
3    Charmander
4    Charmeleon
Name: Pokemon, dtype: object
```

In [4]:

```
sp=pd.read_excel("C:\Documents\QlikView Tutorial\Tutorials source\Creating a Document\Data
sp.head(5)
```

Out[4]:

	Salesperson ID	Salesperson	Distributor ID
0	2009	David Letterman	A1
1	2015	John Cleaves	A1
2	2026	Miro Takako	A1
3	2003	Binh Protzmann	A2
4	2005	Cezar Sandu	A2

In [5]:

```
pm=pd.read_csv("pokemon.csv",usecols=["Pokemon"],squeeze=True)
pm.head(5)
```

Out[5]:

```
0     Bulbasaur
1       Ivysaur
2      Venusaur
3    Charmander
4    Charmeleon
Name: Pokemon, dtype: object
```

In [8]:

```
pokemon=pd.read_csv("pokemon.csv",usecols=["Pokemon"],squeeze=True)
google=pd.read_csv("google_stock_price.csv", squeeze=True)
```

In [16]:

```
pokemon.head(10)
```

Out[16]:

```
0     Bulbasaur
1       Ivysaur
2      Venusaur
3    Charmander
4    Charmeleon
5     Charizard
6      Squirtle
7     Wartortle
8     Blastoise
9      Caterpie
Name: Pokemon, dtype: object
```

In [18]:

```
pokemon.tail(2)
```

Out[18]:

```
719        Hoopa
720    Volcanion
Name: Pokemon, dtype: object
```

In [30]:

```
pokemon.values
google.values
```

Out[30]:

```
array([ 50.12,  54.1 ,  54.65, ..., 773.18, 771.61, 782.22])
```

python built in functs

In [9]:

```
len(pokemon)
```

Out[9]:

```
721
```

In [20]:

```
len(google)
```

Out[20]:

```
3012
```

In [21]:

```
dir(pokemon)
```

. . .

In [12]:

```
sorted(pokemon)
sorted(google)[:10]
```

Out[12]:

```
[49.95, 50.07, 50.12, 50.7, 50.74, 50.95, 51.1, 51.1, 51.13, 52.38]
```

In [13]:

```
list(pokemon)[:10]
```

Out[13]:

```
['Bulbasaur',
 'Ivysaur',
 'Venusaur',
 'Charmander',
 'Charmeleon',
 'Charizard',
 'Squirtle',
 'Wartortle',
 'Blastoise',
 'Caterpie']
```

In [15]:

```
dict(google)
```

```
 1: 54.1,
 2: 54.65,
 3: 52.38,
 4: 52.95,
 5: 53.9,
 6: 53.02,
 7: 50.95,
 8: 51.13,
 9: 50.07,
 10: 50.7,
 11: 49.95,
 12: 50.74,
 13: 51.1,
 14: 51.1,
 15: 52.61,
 16: 53.7,
 17: 55.69,
 18: 55.94,
 19: 56.93,
```

In [26]:

```
max(pokemon)
```

Out[26]:

```
'Zygarde'
```

In [27]:

```
max(google)
```

Out[27]:

```
782.22
```

In [28]:

```
min(google
   )
```

Out[28]:

```
49.95
```

more series attributes

In [31]:

```
pokemon.values
google.values
```

Out[31]:

```
array([ 50.12,  54.1 ,  54.65, ..., 773.18, 771.61, 782.22])
```

In [33]:

```
pokemon.index
google.index
```

Out[33]:

```
RangeIndex(start=0, stop=3012, step=1)
```

In [34]:

```
google.dtype
```

Out[34]:

```
dtype('float64')
```

In [36]:

```
pokemon.is_unique
google.is_unique
```

Out[36]:

```
False
```

In [37]:

```
pokemon.ndim
```

Out[37]:

```
1
```

In [38]:

```
pokemon.shape
```

Out[38]:

```
(721,)
```

In [39]:

```
pokemon.size
```

Out[39]:

```
721
```

In [40]:

```
pokemon.name
```

Out[40]:

```
'Pokemon'
```

In [41]:

```
pokemon
```

...

In [42]:

```
pokemon.name="monsters"
```

In [43]:

```
pokemon
```

...

In [44]:

```
pokemon
```

. . .

Sort_values method

In [46]:

```
pokemon.sort_values().head()
```

Out[46]:

```
459    Abomasnow
62          Abra
358        Absol
616     Accelgor
680    Aegislash
Name: monsters, dtype: object
```

In [49]:

```
pokemon.sort_values(ascending=False).tail()
```

Out[49]:

```
680    Aegislash
616     Accelgor
358        Absol
62          Abra
459    Abomasnow
Name: monsters, dtype: object
```

In [51]:

```
google.sort_values(ascending=False)
```

Out[51]:

```
3011    782.22
2859    776.60
3009    773.18
3007    772.88
3010    771.61
         ...
12       50.74
10       50.70
0        50.12
9        50.07
11       49.95
Name: Stock Price, Length: 3012, dtype: float64
```

Inplace parameter

In [52]:

```
google.sort_values()
```

Out[52]:

```
11       49.95
9        50.07
0        50.12
10       50.70
12       50.74
         ...
3010    771.61
3007    772.88
3009    773.18
2859    776.60
3011    782.22
Name: Stock Price, Length: 3012, dtype: float64
```

In [55]:

```
google = google.sort_index()
```

In [56]:

```
google
```

Out[56]:

```
0        50.12
1        54.10
2        54.65
3        52.38
4        52.95
         ...
3007    772.88
3008    771.07
3009    773.18
3010    771.61
3011    782.22
Name: Stock Price, Length: 3012, dtype: float64
```

In [62]:

```
google
```

Out[62]:

```
3011    782.22
2859    776.60
3009    773.18
3007    772.88
3010    771.61
         ...
12       50.74
10       50.70
0        50.12
9        50.07
11       49.95
Name: Stock Price, Length: 3012, dtype: float64
```

In [61]:

```
google.sort_values(ascending=False,inplace=True)
```

In [63]:

```
google
```

Out[63]:

```
3011    782.22
2859    776.60
3009    773.18
3007    772.88
3010    771.61
         ...
12       50.74
10       50.70
0        50.12
9        50.07
11       49.95
Name: Stock Price, Length: 3012, dtype: float64
```

Sort index()

In [64]:

```
google.sort_index()
```

Out[64]:

```
0        50.12
1        54.10
2        54.65
3        52.38
4        52.95
         ...
3007    772.88
3008    771.07
3009    773.18
3010    771.61
3011    782.22
Name: Stock Price, Length: 3012, dtype: float64
```

In [66]:

```
google
```

Out[66]:

```
3011    782.22
2859    776.60
3009    773.18
3007    772.88
3010    771.61
         ...
12       50.74
10       50.70
0        50.12
9        50.07
11       49.95
Name: Stock Price, Length: 3012, dtype: float64
```

in parameter

In [67]:

```
pokemon=pd.read_csv("pokemon.csv",usecols=["Pokemon"],squeeze=True)
google=pd.read_csv("google_stock_price.csv", squeeze=True)
```

In [69]:

```
pokemon
google
```

Out[69]:

```
0        50.12
1        54.10
2        54.65
3        52.38
4        52.95
         ...
3007    772.88
3008    771.07
3009    773.18
3010    771.61
3011    782.22
Name: Stock Price, Length: 3012, dtype: float64
```

In [70]:

```
2 in [1,3,5,2]
```

Out[70]:

```
True
```

In [71]:

```
2 in [1,3,5]
```

Out[71]:

```
False
```

In [72]:

```
pokemon.head(3)
```

Out[72]:

```
0    Bulbasaur
1      Ivysaur
2     Venusaur
Name: Pokemon, dtype: object
```

In [73]:

```
"Bulbasaur" in pokemon
```

Out[73]:

```
False
```

In [74]:

```
"Bulbasaur" in pokemon.values
```

Out[74]:

```
True
```

Extract values based on index from series

In [76]:

```
pokemon[0]
```

Out[76]:

```
'Bulbasaur'
```

In [77]:

```
pokemon[[0,3,10]]
```

Out[77]:

```
0      Bulbasaur
3     Charmander
10       Metapod
Name: Pokemon, dtype: object
```

In [78]:

```
pokemon[10:20]
```

Out[78]:

```
10       Metapod
11    Butterfree
12        Weedle
13        Kakuna
14      Beedrill
15        Pidgey
16     Pidgeotto
17       Pidgeot
18       Rattata
19      Raticate
Name: Pokemon, dtype: object
```

In [79]:

```
pokemon[:20]
```

Out[79]:

```
0      Bulbasaur
1        Ivysaur
2       Venusaur
3     Charmander
4     Charmeleon
5      Charizard
6       Squirtle
7      Wartortle
8      Blastoise
9       Caterpie
10       Metapod
11    Butterfree
12        Weedle
13        Kakuna
14      Beedrill
15        Pidgey
16     Pidgeotto
17       Pidgeot
18       Rattata
19      Raticate
Name: Pokemon, dtype: object
```

In [80]:

```
pokemon.tail(20)
```

Out[80]:

```
701      Dedenne
702      Carbink
703        Goomy
704      Sliggoo
705       Goodra
706       Klefki
707     Phantump
708    Trevenant
709    Pumpkaboo
710    Gourgeist
711     Bergmite
712      Avalugg
713       Noibat
714      Noivern
715      Xerneas
716      Yveltal
717      Zygarde
718      Diancie
719        Hoopa
720    Volcanion
Name: Pokemon, dtype: object
```

In [81]:

```
pokemon[-10:-5]
```

Out[81]:

```
711    Bergmite
712     Avalugg
713      Noibat
714     Noivern
715     Xerneas
Name: Pokemon, dtype: object
```

In [135]:

```
pokemon[-30:-5]
```

Out[135]:

```
Pokemon
Clauncher        Water
Clawitzer        Water
Helioptile    Electric
Heliolisk     Electric
Tyrunt            Rock
Tyrantrum         Rock
Amaura            Rock
Aurorus           Rock
Sylveon          Fairy
Hawlucha      Fighting
Dedenne       Electric
Carbink           Rock
Goomy           Dragon
Sliggoo         Dragon
Goodra          Dragon
Klefki           Steel
Phantump         Ghost
Trevenant        Ghost
Pumpkaboo        Ghost
Gourgeist        Ghost
Bergmite           Ice
Avalugg            Ice
Noibat          Flying
Noivern         Flying
Xerneas          Fairy
Name: Type, dtype: object
```

Extract values by index Labels

In [86]:

```
pokemon=pd.read_csv("pokemon.csv",index_col="Pokemon", squeeze=True)#making column as index
```

In [87]:

```
pokemon
```

Out[87]:

```
Pokemon
Bulbasaur       Grass
Ivysaur         Grass
Venusaur        Grass
Charmander       Fire
Charmeleon       Fire
                ...
Yveltal          Dark
Zygarde        Dragon
Diancie          Rock
Hoopa         Psychic
Volcanion        Fire
Name: Type, Length: 721, dtype: object
```

In [88]:

```
pokemon["Ivysaur"]
```

Out[88]:

```
'Grass'
```

In [90]:

```
pokemon[0]
```

Out[90]:

```
'Grass'
```

In [91]:

```
pokemon[0:5]
```

Out[91]:

```
Pokemon
Bulbasaur     Grass
Ivysaur       Grass
Venusaur      Grass
Charmander     Fire
Charmeleon     Fire
Name: Type, dtype: object
```

In [92]:

```
pokemon["Bulbasaur":"Charmeleon"]
```

Out[92]:

```
Pokemon
Bulbasaur     Grass
Ivysaur       Grass
Venusaur      Grass
Charmander     Fire
Charmeleon     Fire
Name: Type, dtype: object
```

In [94]:

```
pokemon.name="Pokemon Type"
```

In [131]:

```
pokemon
```

Out[131]:

```
Pokemon
Abomasnow      Grass
Abra         Psychic
Absol           Dark
Accelgor         Bug
Aegislash      Steel
               ...
Zoroark         Dark
Zorua           Dark
Zubat         Poison
Zweilous        Dark
Zygarde       Dragon
Name: Type, Length: 721, dtype: object
```

In [130]:

```
pokemon.get(0)
```

Out[130]:

```
'Grass'
```

In [97]:

```
pokemon["Bulbasaur":"Charmeleon"]
```

Out[97]:

```
Pokemon
Bulbasaur     Grass
Ivysaur       Grass
Venusaur      Grass
Charmander     Fire
Charmeleon     Fire
Name: Pokemon Type, dtype: object
```

In [100]:

```
pokemon.head(10)
```

Out[100]:

```
Pokemon
Bulbasaur     Grass
Ivysaur       Grass
Venusaur      Grass
Charmander     Fire
Charmeleon     Fire
Charizard      Fire
Squirtle      Water
Wartortle     Water
Blastoise     Water
Caterpie        Bug
Name: Pokemon Type, dtype: object
```

In [102]:

```
pokemon.head(10)[1:3]
```

Out[102]:

```
Pokemon
Ivysaur     Grass
Venusaur    Grass
Name: Pokemon Type, dtype: object
```

In [103]:

```
pokemon.head(10)[::-1]
```

Out[103]:

```
Pokemon
Caterpie        Bug
Blastoise     Water
Wartortle     Water
Squirtle      Water
Charizard      Fire
Charmeleon     Fire
Charmander     Fire
Venusaur      Grass
Ivysaur       Grass
Bulbasaur     Grass
Name: Pokemon Type, dtype: object
```

In [104]:

```
pokemon.head(10)[::1]
```

Out[104]:

```
Pokemon
Bulbasaur     Grass
Ivysaur       Grass
Venusaur      Grass
Charmander     Fire
Charmeleon     Fire
Charizard      Fire
Squirtle      Water
Wartortle     Water
Blastoise     Water
Caterpie        Bug
Name: Pokemon Type, dtype: object
```

In [164]:

```
pokemon["Bulbasaur":"Charmeleon"]
```

...

In [107]:

```
pokemon["Bulbasaur":"Charmander":2]
```

Out[107]:

```
Pokemon
Bulbasaur    Grass
Venusaur     Grass
Name: Pokemon Type, dtype: object
```

In [112]:

```
pokemon[["Pikachu","Digimon"]]
```

...

In [119]:

```
pokemon.reindex(index=["Pikachu","Digimon"])#optional indices
```

Out[119]:

```
Pokemon
Pikachu    Electric
Digimon         NaN
Name: Pokemon Type, dtype: object
```

In [120]:

```
pokemon.reindex(index="Digimon")
```

...

The .get() on Series

In [139]:

```
pokemon=pd.read_csv("pokemon.csv",index_col="Pokemon",squeeze=True)
pokemon.sort_index(inplace=True)
pokemon.head(3)
```

Out[139]:

```
Pokemon
Abomasnow      Grass
Abra         Psychic
Absol           Dark
Name: Type, dtype: object
```

In [149]:

```
pokemon.get("Abomasnow")
```

Out[149]:

```
'Grass'
```

In [154]:

```
pokemon.get(2)
```

Out[154]:

```
'Dark'
```

In [151]:

```
pds=pd.read_csv("pokemon.csv",index_col="Pokemon",squeeze=True)
pds
```

...

In [153]:

```
pds.get(1)
```

Out[153]:

```
'Grass'
```

In [157]:

```
pokemon.get("Abomastfhtnow")
```

In [161]:

```
pokemon.get(["Pikachu","Digimon"],default=["Pikachu","Digimon"])
```

Out[161]:

```
['Pikachu', 'Digimon']
```

Math methods on series

In [19]:

```
google=pd.read_csv("google_stock_price.csv",squeeze=True)
google.head(5)
```

Out[19]:

```
0    50.12
1    54.10
2    54.65
3    52.38
4    52.95
Name: Stock Price, dtype: float64
```

In [166]:

```
google.count()#omit null values
```

Out[166]:

```
3012
```

In [168]:

```
len(google)#include null values
```

Out[168]:

```
3012
```

In [170]:

```
google.sum()
```

Out[170]:

```
1006942.0
```

In [172]:

```
google.mean()
```

Out[172]:

```
334.31009296148744
```

In [174]:

```
google.sum()/google.count()
```

Out[174]:

```
334.3100929614874
```

In [176]:

```
google.std()
```

Out[176]:

```
173.18720477113106
```

In [178]:

```
google.min()
```

Out[178]:

```
49.95
```

In [180]:

```
google.max()
```

Out[180]:

```
782.22
```

In [182]:

```
google.median()
```

Out[182]:

```
283.315
```

In [184]:

```
google.mode()#most repeated value
```

Out[184]:

```
0    291.21
dtype: float64
```

In [185]:

```
google.describe()
```

Out[185]:

```
count    3012.000000
mean      334.310093
std       173.187205
min        49.950000
25%       218.045000
50%       283.315000
75%       443.000000
max       782.220000
Name: Stock Price, dtype: float64
```

The .idxmax() & .idxmin()

In [186]:

```
google = pd.read_csv("google_stock_price.csv",squeeze=True)
```

In [20]:

```
google.head(5)
```

Out[20]:

```
0    50.12
1    54.10
2    54.65
3    52.38
4    52.95
Name: Stock Price, dtype: float64
```

In [188]:

```
google.max()
```

Out[188]:

```
782.22
```

In [189]:

```
google.min()
```

Out[189]:

```
49.95
```

In [190]:

```
google.idxmax()
```

Out[190]:

```
3011
```

In [192]:

```
google[3011]
```

Out[192]:

```
782.22
```

In [193]:

```
google.min()
```

Out[193]:

```
49.95
```

In [194]:

```
google.idxmin()
```

Out[194]:

```
11
```

In [195]:

```
google[11]
```

Out[195]:

```
49.95
```

In [196]:

```
google[google.idxmin()]
```

Out[196]:

```
49.95
```

The .value_counts() method

In [21]:

```
pokemon=pd.read_csv("pokemon.csv",index_col="Pokemon",squeeze=True)
pokemon.head(5)
```

Out[21]:

```
Pokemon
Bulbasaur     Grass
Ivysaur       Grass
Venusaur      Grass
Charmander     Fire
Charmeleon     Fire
Name: Type, dtype: object
```

In [198]:

```
pokemon.value_counts()
```

Out[198]:

```
Water       105
Normal       93
Grass        66
Bug          63
Fire         47
Psychic      47
Rock         41
Electric     36
Ground       30
Poison       28
Dark         28
Fighting     25
Dragon       24
Ghost        23
Ice          23
Steel        22
Fairy        17
Flying        3
Name: Type, dtype: int64
```

In [200]:

```
grs=pokemon.filter(items=["Grass"])
grs
```

Out[200]:

```
Series([], Name: Type, dtype: object)
```

In [201]:

```
pokemon.value_counts().sum()
```

Out[201]:

```
721
```

In [202]:

```
pokemon.count()
```

Out[202]:

```
721
```

The .apply() Method

In [17]:

```
google.head(5)
```

Out[17]:

```
0    50.12
1    54.10
2    54.65
3    52.38
4    52.95
Name: Stock Price, dtype: float64
```

In [23]:

```
def clsfy_perfrmce(num):
    if num<300:
        return "ok"
    elif num>=300 and num<650:
        return "satisfactory"
    else:
        return "incredible"
```

In [24]:

```
google.apply(clsfy_perfrmce)
```

Out[24]:

```
0               ok
1               ok
2               ok
3               ok
4               ok
           ...
3007    incredible
3008    incredible
3009    incredible
3010    incredible
3011    incredible
Name: Stock Price, Length: 3012, dtype: object
```

In [206]:

```
google.head(6)
```

Out[206]:

```
0    50.12
1    54.10
2    54.65
3    52.38
4    52.95
5    53.90
Name: Stock Price, dtype: float64
```

In [207]:

```
google.apply(lambda stock_price:stock_price+1)
```

Out[207]:

```
0        51.12
1        55.10
2        55.65
3        53.38
4        53.95
         ...
3007    773.88
3008    772.07
3009    774.18
3010    772.61
3011    783.22
Name: Stock Price, Length: 3012, dtype: float64
```

The .map() method

In [213]:

```
pokemon=pd.read_csv("pokemon.csv",usecols=["Pokemon"],squeeze=True)
pokemon.head(3)
```

Out[213]:

```
0    Bulbasaur
1      Ivysaur
2     Venusaur
Name: Pokemon, dtype: object
```

In [212]:

```
pokemon_types=pd.read_csv("pokemon.csv",index_col="Pokemon",squeeze=True)
pokemon_types.head(3)
```

Out[212]:

```
Pokemon
Bulbasaur    Grass
Ivysaur      Grass
Venusaur     Grass
Name: Type, dtype: object
```

In [214]:

```
pokemon.map(pokemon_types)
```

Out[214]:

```
0        Grass
1        Grass
2        Grass
3         Fire
4         Fire
        ...
716       Dark
717     Dragon
718       Rock
719    Psychic
720       Fire
Name: Pokemon, Length: 721, dtype: object
```

In [225]:

```
pokemon=pd.read_csv("pokemon.csv",usecols=["Pokemon"],squeeze=True)
pokemon_types=pd.read_csv("pokemon.csv",index_col="Pokemon",squeeze=True).to_dict()
```

In [226]:

```
pokemon.head(3)
```

Out[226]:

```
0    Bulbasaur
1      Ivysaur
2     Venusaur
Name: Pokemon, dtype: object
```

In [229]:

```
pokemon_types
```

```
 'Pikachu': 'Electric',
 'Raichu': 'Electric',
 'Sandshrew': 'Ground',
 'Sandslash': 'Ground',
 'Nidoran': 'Poison',
 'Nidorina': 'Poison',
 'Nidoqueen': 'Poison',
 'Nidoran♂': 'Poison',
 'Nidorino': 'Poison',
 'Nidoking': 'Poison',
 'Clefairy': 'Fairy',
 'Clefable': 'Fairy',
 'Vulpix': 'Fire',
 'Ninetales': 'Fire',
 'Jigglypuff': 'Normal',
 'Wigglytuff': 'Normal',
 'Zubat': 'Poison',
 'Golbat': 'Poison',
 'Oddish': 'Grass',
 'Gloom': 'Grass',
```

In [230]:

```
pokemon.map(pokemon_types)
```

Out[230]:

```
0        Grass
1        Grass
2        Grass
3         Fire
4         Fire
        ...
716       Dark
717     Dragon
718       Rock
719    Psychic
720       Fire
Name: Pokemon, Length: 721, dtype: object
```

In [28]:

```
l1=[1,2,3,4,5,3]
l1=pd.Series(l1)
l1
```

Out[28]:

```
0    1
1    2
2    3
3    4
4    5
5    3
dtype: int64
```

In [29]:

```
l2=["Bob","rob","jim","kim","rim"]
l2=pd.Series(l2)
l2
```

Out[29]:

```
0    Bob
1    rob
2    jim
3    kim
4    rim
dtype: object
```

In [30]:

```
l1.map(l2)
```

Out[30]:

```
0    rob
1    jim
2    kim
3    rim
4    NaN
5    kim
dtype: object
```

In [31]:

```
l2=dict(l2)
l2
```

Out[31]:

```
{0: 'Bob', 1: 'rob', 2: 'jim', 3: 'kim', 4: 'rim'}
```

In [32]:

```
l1.map(l2)
```

Out[32]:

```
0    rob
1    jim
2    kim
3    rim
4    NaN
5    kim
dtype: object
```