SC

February 11, 2022

1 Data Type

[4]:
```
a=5.7
```

[5]:
```
print(type(a))
```

```
<class 'float'>
```

[6]:
```
f=7.6
```

[7]:
```
a="hello"
```

[8]:
```
print(type(a))
```

```
<class 'str'>
```

2 Operator

[9]:
```
2**3   #** is exponent
```

[9]: 8

[10]:
```
3**3
```

[10]: 27

[11]:
```
9/2
```

[11]: 4.5

[12]:
```
9//2
```

[12]: 4

[13]:
```
#  &&-- and  ||-- or
```

3 Condtional Statement

[19]:
```
if condition :
    statement1
    statement2
else:
    statement1
    statement2
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-19-b859e38ebb27> in <module>
----> 1 if condition :
      2     statement1
      3     statement2
      4 else:
      5     statement1

NameError: name 'condition' is not defined
```

[17]:
```
x=int(input("enter anu number"))

type(x)
```

```
enter anu number5
```

[17]:
```
int
```

[19]:
```
n=int(input("enter a number"))
if n>0:
    print("positive",n)
else:
    print("negative")
```

```
enter a number-7
negative
```

[21]:
```
number=int(input("enter a number"))
if number==0:
    print("zero")
else:
    if number>0:
        print("positive")
    else:
        print("negative")
```

```
enter a number8
positive
```

[24]:
```
number=int(input("enter a number"))
if number==0:
    print("zero")
elif number>0:
        print("positive")
else:
        print("negative")
```

```
enter a number7
positive
```

4 Loop

[30]:
```
for i in range(1,10,2):
    print(i)
```

```
1
3
5
7
9
```

[31]:
```
i=0
while i<10:
    print(i)
    i=i+1
```

```
0
1
2
3
4
5
6
7
8
9
```

5 Function

[67]:
```
# def fuc_name(parameter):
    #statement
    #return()
#fun_name(argument)
```

[2]:
```
def fun(n):
    print(n)
```

```
fun("NIT")
```

```
NIT
```

[20]:
```
def add(a,b):
    c=a+b
    return(c)

sum=add(4,5)
print("sum=",sum)
```

```
sum= 9
```

6 List, Tuple, Set, Dictionary

[14]:
```
a=[]
b=()
c={10}
d={}
```

[16]:
```
type(c)
```

[16]:
```
set
```

[30]:
```
type(a)
```

[30]:
```
list
```

[21]:
```
a=[10,20,30,4,5,60,7,8,9]
b=(1,2,3,4,5,6,7,8,9)
```

[22]:
```
sum(a)
```

[22]:
```
153
```

[23]:
```
a.append(29)
```

[27]:
```
a[3]=70
```

[28]:
```
a
```

[28]:
```
[10, 20, 30, 70, 5, 60, 7, 8, 9, 29]
```

[48]:
```
a[-2]
```

[48]:
```
9
```

[29]:
```
b[3]
```

[29]:
```
4
```

[30]:
```
b[3]=40
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-30-f97265b40046> in <module>
----> 1 b[3]=40

TypeError: 'tuple' object does not support item assignment
```

[ ]:
```

```

[32]:
```
c={7,6,9,9}
```

[33]:
```
c
```

[33]:
```
{6, 7, 9}
```

[ ]:
```
# Set is immutable and it does not contain any duplicate value
```

[ ]:
```
Dictionary={key:value}
```

[35]:
```
D={"name":"joy","dept":"cs","phone":"999999"}
```

[36]:
```
D
```

[36]:
```
{'name': 'joy', 'dept': 'cs', 'phone': '999999'}
```

[ ]:
```

```

[ ]:
```
#Dictionary is mutable and It does not contain duplicate value
```

[37]:
```
D.keys()
```

[37]:
```
dict_keys(['name', 'dept', 'phone'])
```

[40]:
```
D["phone"]=434343
```

[41]:
```
D
```

[41]:
```
{'name': 'joy', 'dept': 'cs', 'phone': 434343, 'phn no': 434343}
```

[ ]:
```

```

7 Slicing

[42]:
```
a
```

[42]:
```
[10, 20, 30, 70, 5, 60, 7, 8, 9, 29]
```

[43]:
```
a[:] # a[start:end-1]
```

[43]:
```
[10, 20, 30, 70, 5, 60, 7, 8, 9, 29]
```

[45]:
```
a[2:5]
```

[45]:
```
[30, 70, 5]
```

[46]:
```
a[5:2]
```

[46]:
```
[]
```

[49]:
```
a[2:-1]
```

[49]:
```
[30, 70, 5, 60, 7, 8, 9]
```

[50]:
```
a[::1]
```

[50]:
```
[10, 20, 30, 70, 5, 60, 7, 8, 9, 29]
```

[51]:
```
a[::2]
```

[51]:
```
[10, 30, 5, 7, 9]
```

[52]:
```
a[::-1]
```

[52]:
```
[29, 9, 8, 7, 60, 5, 70, 30, 20, 10]
```

[14]:
```
a[2:-10:-1]
```

[14]:
```
[3, 2]
```

8 Numpy

[53]:
```
pip install numpy
```

```
Requirement already satisfied: numpy in c:\users\gorai\anaconda3\lib\site-
packages (1.20.1)
Note: you may need to restart the kernel to use updated packages.
```

[66]:
```
import numpy as np
```

[ ]:

[ ]:

[54]:
```
a=[[1,2,3],[4,5,6],[7,8,9]]
```

[55]:
```
a
```

[55]:
```
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
```

[60]:
```
numpy.array(a)
```

[60]:
```
array([[1, 2, 3],
       [4, 5, 6],
       [7, 8, 9]])
```

[61]:
```
b=numpy.array(a)
```

[62]:
```
b.shape
```

[62]:
```
(3, 3)
```

[63]:
```
numpy.median(b)
```

[63]:
```
5.0
```

[64]:
```
numpy.sqrt(b)
```

[64]:
```
array([[1.        , 1.41421356, 1.73205081],
       [2.        , 2.23606798, 2.44948974],
       [2.64575131, 2.82842712, 3.        ]])
```

[67]:
```
s=np.arange(2, 14).reshape(3,4)
```

[69]:
```
s
```

[69]:
```
array([[ 2,  3,  4,  5],
       [ 6,  7,  8,  9],
       [10, 11, 12, 13]])
```

9 Pandas

[70]:
```
pip install pandas
```

```
Requirement already satisfied: pandas in c:\users\gorai\anaconda3\lib\site-
packages (1.2.4)
Requirement already satisfied: numpy>=1.16.5 in
c:\users\gorai\anaconda3\lib\site-packages (from pandas) (1.20.1)
```

```
Requirement already satisfied: python-dateutil>=2.7.3 in
c:\users\gorai\anaconda3\lib\site-packages (from pandas) (2.8.1)
Requirement already satisfied: pytz>=2017.3 in
c:\users\gorai\anaconda3\lib\site-packages (from pandas) (2021.1)
Requirement already satisfied: six>=1.5 in c:\users\gorai\anaconda3\lib\site-
packages (from python-dateutil>=2.7.3->pandas) (1.15.0)
Note: you may need to restart the kernel to use updated packages.
```

[19]:
```
#pd.__version__
```

[71]:
```
import pandas as pd
```

[72]:
```
pd.DataFrame(data=a)
```

[72]:

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9

[73]:
```
pd.DataFrame(data=a,columns=['x','y','z'])
```

[73]:

	x	y	z
0	1	2	3
1	4	5	6
2	7	8	9

[74]:
```
b=pd.DataFrame(data=a,columns=['x','y','z'])
```

[76]:
```
b.y
```

[76]:
```
0    2
1    5
2    8
Name: y, dtype: int64
```

[77]:
```
b.iloc[0]
```

[77]:
```
x    1
y    2
z    3
Name: 0, dtype: int64
```

[78]:
```
b['x']
```

[78]:
```
0    1
1    4
2    7
Name: x, dtype: int64
```

[80]:
```
x=[1,3,4,23,12,54,67]
y=[ 62,  47,  65,  44,  61,  51,  41,  62,  71, 100]
X=pd.DataFrame(x,columns=['x'])
Y=pd.DataFrame(y,columns=['y'])
```

[81]:
```
X
```

[81]:

	x
0	1
1	3
2	4
3	23
4	12
5	54
6	67

[82]:
```
Y
```

[82]:

	y
0	62
1	47
2	65
3	44
4	61
5	51
6	41
7	62
8	71
9	100

[83]:
```
Z=pd.concat([X,Y])
```

[84]:
```
Z
```

[84]:

	x	y
0	1.0	NaN
1	3.0	NaN
2	4.0	NaN
3	23.0	NaN
4	12.0	NaN
5	54.0	NaN
6	67.0	NaN
0	NaN	62.0
1	NaN	47.0
2	NaN	65.0
3	NaN	44.0
4	NaN	61.0
5	NaN	51.0

```
6   NaN   41.0
7   NaN   62.0
8   NaN   71.0
9   NaN  100.0
```

[85]:
```
Z=pd.concat([X,Y],axis=1)
```

[86]:
```
Z
```

[86]:
```
      x    y
0   1.0   62
1   3.0   47
2   4.0   65
3  23.0   44
4  12.0   61
5  54.0   51
6  67.0   41
7   NaN   62
8   NaN   71
9   NaN  100
```

[87]:
```
house=pd.read_excel('housedata1.xlsx')
```

[88]:
```
house
```

[88]:
```
   area   price
0   100  112547
1   125  154343
2   145  175345
3   150  193245
4   160  213244
5   180  252344
6   200  286565
7   250  356555
8   315  375567
9   350  452155
```

[89]:
```
house=pd.read_csv('housedata2.csv')
```

[90]:
```
house
```

[90]:
```
   area   price
0   100  112547
1   125  154343
2   145  175345
3   150  193245
4   160  213244
5   180  252344
```

```
6   200  286565
7   250  356555
8   315  375567
9   350  452155
```

[10]:
```
house=pd.read_csv('housedata2.tsv',sep='\t')
```

```
---------------------------------------------------------------------------
FileNotFoundError                         Traceback (most recent call last)
<ipython-input-10-8108f1112157> in <module>
----> 1 house=pd.read_csv('housedata2.tsv',sep='\t')

~\anaconda3\lib\site-packages\pandas\io\parsers.py in␣
↪read_csv(filepath_or_buffer, sep, delimiter, header, names, index_col,␣
↪usecols, squeeze, prefix, mangle_dupe_cols, dtype, engine, converters,␣
↪true_values, false_values, skipinitialspace, skiprows, skipfooter, nrows,␣
↪na_values, keep_default_na, na_filter, verbose, skip_blank_lines, parse_dates␣
↪infer_datetime_format, keep_date_col, date_parser, dayfirst, cache_dates,␣
↪iterator, chunksize, compression, thousands, decimal, lineterminator,␣
↪quotechar, quoting, doublequote, escapechar, comment, encoding, dialect,␣
↪error_bad_lines, warn_bad_lines, delim_whitespace, low_memory, memory_map,␣
↪float_precision, storage_options)
    608     kwds.update(kwds_defaults)
    609
--> 610     return _read(filepath_or_buffer, kwds)
    611
    612


~\anaconda3\lib\site-packages\pandas\io\parsers.py in _read(filepath_or_buffer,␣
↪kwds)
    460
    461     # Create the parser.
--> 462     parser = TextFileReader(filepath_or_buffer, **kwds)
    463
    464     if chunksize or iterator:

~\anaconda3\lib\site-packages\pandas\io\parsers.py in __init__(self, f, engine,␣
↪**kwds)
    817             self.options["has_index_names"] = kwds["has_index_names"]
    818
--> 819         self._engine = self._make_engine(self.engine)
    820
    821     def close(self):

~\anaconda3\lib\site-packages\pandas\io\parsers.py in _make_engine(self, engine
   1048             )
   1049         # error: Too many arguments for "ParserBase"
-> 1050         return mapping[engine](self.f, **self.options)  # type:␣
↪ignore[call-arg]
   1051
```

```
   1052     def _failover_to_python(self):

~\anaconda3\lib\site-packages\pandas\io\parsers.py in __init__(self, src, **kwds)
   1865
   1866         # open handles
-> 1867         self._open_handles(src, kwds)
   1868         assert self.handles is not None
   1869         for key in ("storage_options", "encoding", "memory_map",␣
 ↪"compression"):

~\anaconda3\lib\site-packages\pandas\io\parsers.py in _open_handles(self, src,␣
 ↪kwds)
   1360         Let the readers open IOHanldes after they are done with their␣
 ↪potential raises.
   1361         """
-> 1362         self.handles = get_handle(
   1363             src,
   1364             "r",

~\anaconda3\lib\site-packages\pandas\io\common.py in get_handle(path_or_buf,␣
 ↪mode, encoding, compression, memory_map, is_text, errors, storage_options)
    640                 errors = "replace"
    641             # Encoding
--> 642             handle = open(
    643                 handle,
    644                 ioargs.mode,

FileNotFoundError: [Errno 2] No such file or directory: 'housedata2.tsv'
```

[91]:
```
house.iloc[0:3,0:1]
```

[91]:
```
   area
0   100
1   125
2   145
```

[92]:
```
house=pd.read_csv('USA_Housing.csv')
```

[93]:
```
house
```

[93]:
```
       Avg. Area Income  Avg. Area House Age  Avg. Area Number of Rooms  \
0          79545.45857             5.682861                   7.009188
1          79248.64245             6.002900                   6.730821
2          61287.06718             5.865890                   8.512727
3          63345.24005             7.188236                   5.586729
4          59982.19723             5.040555                   7.839388
```

```
…                …                    …                          …
4995       60567.94414             7.830362                   6.137356
4996       78491.27543             6.999135                   6.576763
4997       63390.68689             7.250591                   4.805081
4998       68001.33124             5.534388                   7.130144
4999       65510.58180             5.992305                   6.792336

      Avg. Area Number of Bedrooms  Area Population         Price  \
0                             4.09      23086.80050  1.059034e+06
1                             3.09      40173.07217  1.505891e+06
2                             5.13      36882.15940  1.058988e+06
3                             3.26      34310.24283  1.260617e+06
4                             4.23      26354.10947  6.309435e+05
…                             …              …           …
4995                          3.46      22837.36103  1.060194e+06
4996                          4.02      25616.11549  1.482618e+06
4997                          2.13      33266.14549  1.030730e+06
4998                          5.44      42625.62016  1.198657e+06
4999                          4.07      46501.28380  1.298950e+06

                                              Address
0     208 Michael Ferry Apt. 674\nLaurabury, NE 3701…
1     188 Johnson Views Suite 079\nLake Kathleen, CA…
2     9127 Elizabeth Stravenue\nDanieltown, WI 06482…
3                             USS Barnett\nFPO AP 44820
4                            USNS Raymond\nFPO AE 09386
…                                                   …
4995                   USNS Williams\nFPO AP 30153-7653
4996              PSC 9258, Box 8489\nAPO AA 42991-3352
4997  4215 Tracy Garden Suite 076\nJoshualand, VA 01…
4998                          USS Wallace\nFPO AE 73316
4999  37778 George Ridges Apt. 509\nEast Holly, NV 2…

[5000 rows x 7 columns]
```

[24]:
```
house.columns
```

[24]:
```
Index(['Avg. Area Income', 'Avg. Area House Age', 'Avg. Area Number of Rooms',
       'Avg. Area Number of Bedrooms', 'Area Population', 'Price', 'Address'],
      dtype='object')
```

[95]:
```
df=house.filter(['Avg. Area Income','Price'])
```

[96]:
```
df
```

[96]:
```
      Avg. Area Income         Price
0          79545.45857  1.059034e+06
```

```
1          79248.64245  1.505891e+06
2          61287.06718  1.058988e+06
3          63345.24005  1.260617e+06
4          59982.19723  6.309435e+05
…                …            …
4995       60567.94414  1.060194e+06
4996       78491.27543  1.482618e+06
4997       63390.68689  1.030730e+06
4998       68001.33124  1.198657e+06
4999       65510.58180  1.298950e+06

[5000 rows x 2 columns]
```

[ ]: