PANDAS Series

What is Pandas? Pandas is a powerful, open-source library for data manipulation and analysis in Python. It provides data structures like Series and DataFrame for handling and organizing data efficiently.

[6]:
```
!pip install pandas
```

```
Requirement already satisfied: pandas in c:\users\chandrashekar\anaconda3\lib\site-packages (2.2.2)
Requirement already satisfied: numpy>=1.26.0 in c:\users\chandrashekar\anaconda3\lib\site-packages (from pandas) (1.26.4)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\chandrashekar\anaconda3\lib\site-packages (from pandas) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in c:\users\chandrashekar\anaconda3\lib\site-packages (from pandas) (2024.1)
Requirement already satisfied: tzdata>=2022.7 in c:\users\chandrashekar\anaconda3\lib\site-packages (from pandas) (2023.3)
Requirement already satisfied: six>=1.5 in c:\users\chandrashekar\anaconda3\lib\site-packages (from python-dateutil>=2.8.2->pandas) (1.16.0)
```

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

[8]:
```
print(dir(pd),end="")
```

```
['ArrowDtype', 'BooleanDtype', 'Categorical', 'CategoricalDtype', 'CategoricalIndex', 'DataFrame', 'DateOffset', 'DatetimeIndex', 'DatetimeTZDtype', 'ExcelFile', 'ExcelWriter', 'Flags', 'Float32Dtype', 'Float64Dtype', 'Grouper', 'HDFStore', 'Index', 'IndexSlice', 'Int16Dtype', 'Int32Dtype', 'Int64Dtype', 'Int8Dtype', 'Interval', 'IntervalDtype', 'IntervalIndex', 'MultiIndex', 'NA', 'NaT', 'NamedAgg', 'Period', 'PeriodDtype', 'PeriodIndex', 'RangeIndex', 'Series', 'SparseDtype', 'StringDtype', 'Timedelta', 'TimedeltaIndex', 'Timestamp', 'UInt16Dtype', 'UInt32Dtype', 'UInt64Dtype', 'UInt8Dtype', '__all__', '__builtins__', '__cached__', '__doc__', '__docformat__', '__file__', '__git_version__', '__loader__', '__name__', '__package__', '__path__', '__spec__', '__version__', '_built_with_meson', '_config', '_is_numpy_dev', '_libs', '_pandas_datetime_CAPI', '_pandas_parser_CAPI', '_testing', '_typing', '_version_meson', 'annotations', 'api', 'array', 'arrays', 'bdate_range', 'compat', 'concat', 'core', 'crosstab', 'cut', 'date_range', 'describe_option', 'errors', 'eval', 'factorize', 'from_dummies', 'get_dummies', 'get_option', 'infer_freq', 'interval_range', 'io', 'isna', 'isnull', 'json_normalize', 'lreshape', 'melt', 'merge', 'merge_asof', 'merge_ordered', 'notna', 'notnull', 'offsets', 'option_context', 'options', 'pandas', 'period_range', 'pivot', 'pivot_table', 'plotting', 'qcut', 'read_clipboard', 'read_csv', 'read_excel', 'read_feather', 'read_fwf', 'read_gbq', 'read_hdf', 'read_html', 'read_json', 'read_orc', 'read_parquet', 'read_pickle', 'read_sas', 'read_spss', 'read_sql', 'read_sql_query', 'read_sql_table', 'read_stata', 'read_table', 'read_xml', 'reset_option', 'set_eng_float_format', 'set_option', 'show_versions', 'test', 'testing', 'timedelta_range', 'to_datetime', 'to_numeric', 'to_pickle', 'to_timedelta', 'tseries', 'unique', 'util', 'value_counts', 'wide_to_long']
```

[47]:
```
marks = pd.Series([56,78,92,65,88,87],index=["maths","science","social","english","kannada","Hindi"],name="st_marks")
```

[65]:
```
marks
```

[65]:
```
maths      56
science    78
social     92
english    65
kannada    88
Hindi      87
Name: st_marks, dtype: int64
```

[67]:
```
marks.name
```

[67]:
```
'st_marks'
```

[69]:
```
marks.index
```

[69]:
```
Index(['maths', 'science', 'social', 'english', 'kannada', 'Hindi'], dtype='object')
```

[71]:
```
marks.values
```

[71]:
```
array([56, 78, 92, 65, 88, 87], dtype=int64)
```

[73]:
```
marks.dtype
```

[73]:
```
dtype('int64')
```

[79]:
```
st_name=pd.Series(["mohammed","yerriswamy","Nithya","Mahalakshmi"],index=[101,102,103,104],name="students")
```

[81]:
```
st_name
```

[81]:
```
101       mohammed
102     yerriswamy
103         Nithya
104    Mahalakshmi
Name: students, dtype: object
```

[83]:
```
st_name.values
```

[83]:
```
array(['mohammed', 'yerriswamy', 'Nithya', 'Mahalakshmi'], dtype=object)
```

[85]:
```
st_name.index
```

[85]:
```
Index([101, 102, 103, 104], dtype='int64')
```

[87]:
```
st_name.name
```

[87]:
```
'students'
```

[89]:
```
marks
```

[89]:
```
maths      56
science    78
social     92
english    65
kannada    88
Hindi      87
Name: st_marks, dtype: int64
```

[95]:
```
marks.sum()
```

[95]:
```
466
```

[97]:
```
marks.mean()
```

[97]:
```
77.66666666666667
```

[99]:
```
marks.median()
```

[99]:
```
82.5
```

[119]:
```
marks.max()
```

[119]:
```
92
```

[105]:
```
a=pd.Series([10,20,30,40])
b=pd.Series([40,50,60,70])
```

[107]:
```
a,b
```

[107]:
```
(0    10
 1    20
 2    30
 3    40
 dtype: int64,
 0    40
 1    50
 2    60
 3    70
 dtype: int64)
```

[109]:
```
a.add(b)
```

[109]:
```
0     50
1     70
2     90
3    110
dtype: int64
```

[111]:
```
a.multiply(b)
```

[111]:
```
0     400
1    1000
2    1800
3    2800
dtype: int64
```

[115]:
```
b.ge(a)
```

[115]:
```
0    True
1    True
2    True
3    True
dtype: bool
```

[131]:
```
import numpy as np
```

[133]:
```
st_name=pd.Series(["mohammed",np.nan,"Nithya","Mahalakshmi"],index=[101,102,103,104],name="students")
```

[135]:
```
st_name
```

[135]:
```
101       mohammed
102            NaN
103         Nithya
104    Mahalakshmi
Name: students, dtype: object
```

[137]:
```
st_name.isna()
```

[137]:
```
101    False
102     True
103    False
104    False
Name: students, dtype: bool
```

[139]:
```
st_name.isnull()
```

[139]:
```
101    False
102     True
103    False
104    False
Name: students, dtype: bool
```

[ ]:
```

```