Object Oriented Programming - Inheritance

Inheritance

Inheritance is the process by which one class takes on the **attributes** and **methods** of another.

Parent Class

The properties or parameters that the class takes whenever it is initialized, are indicated in the **__init__()** method.

The first parameters will always be a variable called ***self***.

We can give any number of parameters to __init__()

```
class TransformerMixin:

    def fit_transform(self, X, y=None):
        X = self.fit(X, y).transform(X)
        return X
```

Our MeanImputer – Child Class

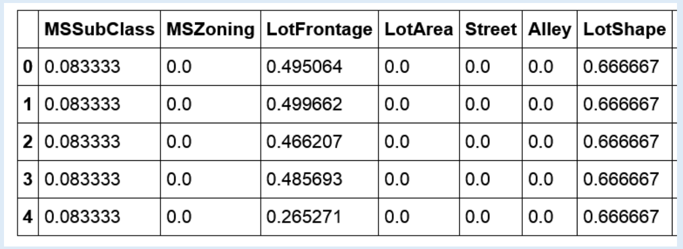
Inherits the methods fit_transform() from the TransformerMixin

```
class MeanImputer(TransformerMixin):
    def __init__(self, variables):
         self.variables = variables

    def fit(self, X, y=None):
         self.imputer_dict_ =
         X[self.variables].mean().to_dict()
         return self

    def transform(self, X):
         for x in self.variables:
              X[x] = X[x].fillna(
                     self.imputer_dict[x])
         return X
```

Our MeanImputer – Child Class

Inherits the methods fit_transform() from the TransformerMixin

```
>> my_imputer = MeanImputer(
>>        variables = [‘age’, ‘fare’]
>> )

>> data_t = my_imputer.fit_transform(my_data)
>> data_t.head()
```



	MSSubClass	MSZoning	LotFrontage	LotArea	Street	Alley	LotShape
0	0.083333	0.0	0.495064	0.0	0.0	0.0	0.666667
1	0.083333	0.0	0.499662	0.0	0.0	0.0	0.666667
2	0.083333	0.0	0.466207	0.0	0.0	0.0	0.666667
3	0.083333	0.0	0.485693	0.0	0.0	0.0	0.666667
4	0.083333	0.0	0.265271	0.0	0.0	0.0	0.666667

Scikit-Learn API documentation

https://scikit-learn.org/stable/modules/classes.html

- base.BaseEstimator
- base.TransformerMixin