In [7]:
```
# Consider a DataFrame df where there is an integer column {'X':[7, 2, 0, 3, 4, 2

import pandas as pd

df = pd.DataFrame({'X': [7, 2, 0, 3, 4, 2, 5, 0, 3, 4]})

import numpy as np

izero = np.r_[-1, (df['X'] == 0).nonzero()[0]]

izero
```

Out[7]:
```
array([-1,  2,  7], dtype=int64)
```

In [9]:
```
idx = np.arange(len(df))
idx
```

Out[9]:
```
array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

In [10]:
```
df['Y'] = idx - izero[np.searchsorted(izero - 1, idx) - 1]
df
```

Out[10]:

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

In [11]:

```
# Create a DatetimeIndex that contains each business day of 2015 and use it to in

import pandas as pd
import numpy as np

dti = pd.date_range(start='2015-01-01', end='2015-12-31', freq='B')
s = pd.Series(np.random.rand(len(dti)), index=dti)
dti
```

Out[11]:

```
DatetimeIndex(['2015-01-01', '2015-01-02', '2015-01-05', '2015-01-06',
               '2015-01-07', '2015-01-08', '2015-01-09', '2015-01-12',
               '2015-01-13', '2015-01-14',
               ...
               '2015-12-18', '2015-12-21', '2015-12-22', '2015-12-23',
               '2015-12-24', '2015-12-25', '2015-12-28', '2015-12-29',
               '2015-12-30', '2015-12-31'],
              dtype='datetime64[ns]', length=261, freq='B')
```

In [12]:

```
# Find the sum of the values in s for every Wednesday

s[s.index.weekday ==2].sum()
```

Out[12]:

```
25.39553852129597
```

In [13]:

```
# Average For each calendar month

s.resample('M').mean()
```

Out[13]:

```
2015-01-31    0.408277
2015-02-28    0.446370
2015-03-31    0.570302
2015-04-30    0.465476
2015-05-31    0.305510
2015-06-30    0.543327
2015-07-31    0.545429
2015-08-31    0.481999
2015-09-30    0.475058
2015-10-31    0.506685
2015-11-30    0.476767
2015-12-31    0.409516
Freq: M, dtype: float64
```

In [14]:

```
# For each group of four consecutive calendar months in s, find the date on which

s.groupby(pd.Grouper(freq='4M')).idxmax()
```

Out[14]:

```
2015-01-31   2015-01-01
2015-05-31   2015-05-21
2015-09-30   2015-07-09
2016-01-31   2015-11-03
dtype: datetime64[ns]
```

In [ ]:

```

```