

```
0      aardvark
1      artichoke
2           NaN
3      avocado
dtype: object
```

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

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

```
0      1.0
2      3.5
4      7.0
dtype: float64
```

```
0      1.0
2      3.5
4      7.0
dtype: float64
```

```
      0      1      2
0  1.0  6.5  3.0
1  1.0  NaN  NaN
2  NaN  NaN  NaN
3  NaN  6.5  3.0
```

	0	1	2
0	1.0	6.5	3.0
	0	1	2
0	1.0	6.5	3.0
1	1.0	NaN	NaN
3	NaN	6.5	3.0

	0	1	2	4
0	1.0	6.5	3.0	NaN
1	1.0	NaN	NaN	NaN
2	NaN	NaN	NaN	NaN
3	NaN	6.5	3.0	NaN

	0	1	2
0	1.0	6.5	3.0
1	1.0	NaN	NaN
2	NaN	NaN	NaN
3	NaN	6.5	3.0

	0	1	2
0	2.033181	NaN	NaN
1	2.235246	NaN	NaN
2	1.085805	NaN	0.220612
3	0.251996	NaN	0.181345
4	-0.826819	0.550391	-0.252713
5	0.402804	-0.357250	0.056079
6	-0.777211	-2.537585	0.035906

	0	1	2
4	-0.826819	0.550391	-0.252713
5	0.402804	-0.357250	0.056079
6	-0.777211	-2.537585	0.035906

	0	1	2
0	2.033181	0.000000	0.000000
1	2.235246	0.000000	0.000000
2	1.085805	0.000000	0.220612
3	0.251996	0.000000	0.181345
4	-0.826819	0.550391	-0.252713
5	0.402804	-0.357250	0.056079
6	-0.777211	-2.537585	0.035906

	0	1	2
0	2.033181	0.500000	0.000000
1	2.235246	0.500000	0.000000
2	1.085805	0.500000	0.220612
3	0.251996	0.500000	0.181345
4	-0.826819	0.550391	-0.252713
5	0.402804	-0.357250	0.056079
6	-0.777211	-2.537585	0.035906

	0	1	2
0	2.033181	0.000000	0.000000
1	2.235246	0.000000	0.000000
2	1.085805	0.000000	0.220612
3	0.251996	0.000000	0.181345
4	-0.826819	0.550391	-0.252713
5	0.402804	-0.357250	0.056079
6	-0.777211	-2.537585	0.035906

	0	1	2
0	0.607988	0.175865	1.161941
1	0.339893	0.227303	-0.215505
2	0.727955	NaN	1.337615
3	0.659680	NaN	-0.158302
4	0.550600	NaN	NaN
5	-1.008306	NaN	NaN

c:\Users\sketc\Documents\Data Visualization\Chapter7.py:63: FutureWarning: DataFrame.fillna
fill() or obj.bfill() instead.

```
print(df.fillna(method='ffill'))
```

	0	1	2
0	0.607988	0.175865	1.161941
1	0.339893	0.227303	-0.215505
2	0.727955	0.227303	1.337615
3	0.659680	0.227303	-0.158302
4	0.550600	0.227303	-0.158302
5	-1.008306	0.227303	-0.158302

	0	1	2
0	0.607988	0.175865	1.161941
1	0.339893	0.227303	-0.215505
2	0.727955	0.227303	1.337615
3	0.659680	0.227303	-0.158302
4	0.550600	NaN	-0.158302
5	-1.008306	NaN	-0.158302

0	1.000000
1	3.833333
2	3.500000
3	3.833333
4	7.000000

dtype: float64

	k1	k2
0	one	1
1	two	1
2	one	2
3	two	3
4	one	3
5	two	4
6	two	4

	k1	k2
0	one	1
1	two	1
2	one	2
3	two	3
4	one	3
5	two	4

	food	ounces
0	bacon	4.0
1	pulled pork	3.0
2	bacon	12.0
3	Pastrami	6.0
4	corned beef	7.5
5	Bacon	8.0
6	pastrami	3.0
7	honey ham	5.0
8	nova lox	6.0

```
0      bacon
1  pulled pork
2      bacon
3    pastrami
4  corned beef
5      bacon
6    pastrami
7    honey ham
8    nova lox
Name: food, dtype: object
```

	food	ounces	animal
0	bacon	4.0	pig
1	pulled pork	3.0	pig
2	bacon	12.0	pig
3	Pastrami	6.0	cow
4	corned beef	7.5	cow
5	Bacon	8.0	pig
6	pastrami	3.0	cow
7	honey ham	5.0	pig
8	nova lox	6.0	salmon

```
0      1.0
1      NaN
2      2.0
3      NaN
4 -1000.0
5      3.0
dtype: float64
```

```
0      1.0
1      NaN
2      2.0
3      NaN
4      NaN
5      3.0
dtype: float64
```

```
Index(['OHIO', 'COLO', 'NEW '], dtype='object')
```

	one	two	three	four
OHIO	0	1	2	3
COLO	4	5	6	7
NEW	8	9	10	11

	one	two	peekaboo	four
INDIANA	0	1	2	3
COLO	4	5	6	7
NEW	8	9	10	11

[(0.26, 0.51], (0.26, 0.51], (0.75, 0.99], (0.75, 0.99], (0.019, 0.26], ..., (0.26, 0.51], (0.26, 0.51], (0.51, 0.75], (0.75, 0.99], (0.75, 0.99]]
Length: 20
Categories (4, interval[float64, right]): [(0.019, 0.26] < (0.26, 0.51] < (0.51, 0.75] < (0.75, 0.99]]

	0	1	2	3
mean	-0.020460	0.000178	-0.013851	0.029364
std	1.037899	1.023150	0.987398	0.993758
min	-3.325498	-3.473311	-3.219068	-2.828966
25%	-0.712628	-0.711035	-0.677292	-0.655973
50%	-0.014240	0.007349	-0.037043	0.075095
75%	0.656187	0.694625	0.636245	0.691969
max	2.716964	2.594924	3.211129	2.963527

57 3.052920
585 -3.058331
849 -3.219068
926 3.211129

Name: 2, dtype: float64

	a	b	c
0	False	True	False
1	False	True	False
2	True	False	False
3	False	False	True
4	True	False	False
5	False	True	False

	data1	key_a	key_b	key_c
0	0	False	True	False
1	1	False	True	False
2	2	True	False	False
3	3	False	False	True
4	4	True	False	False
5	5	False	True	False

	[0.92961609 0.31637555 0.18391881 0.20456028 0.56772503 0.5955447 0.96451452 0.6531771 0.74890664 0.65356987]	(0.0, 0.2]	(0.2, 0.4]	(0.4, 0.6]	(0.6, 0.8]	(0.8, 1.0]
0		False	False	False	False	True
1		False	True	False	False	False
2		True	False	False	False	False
3		False	True	False	False	False
4		False	False	True	False	False
5		False	False	True	False	False
6		False	False	False	False	True
7		False	False	False	True	False
8		False	False	False	True	False
9		False	False	False	True	False