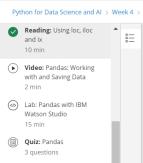
Prev | Next

Python for Data Science and Al > Week 4 > Using loc, iloc and ix



#### One Dimensional Numpy

- ▶ Video: One Dimensional
- Ungraded External Tool: One Dimensional Numpy
- Quiz: One Dimensional Numpy

# Using loc, iloc and ix

There are three ways to select data from a data frame in Pandas: loc, iloc, and ix.

#### loc

loc is primarily label based; when two arguments are used, you use column headers and row indexes to select the data you want. loc can also take an integer as a row or column number.

Examples of loc usage:

## df.loc[0, 'Artist']:'Michael Jackson' df.loc[1, 'Artist']:'AC/DC'

df.loc[0, 'Released']:1982

df.loc[1, 'Released']:1980

	Artist	Album	Released	Length	Genre		Claimed Sales (millions)	Released.1	Soundtrack	Rating
9	Michael Jackson	Thriller	1982	0:42:19	pop, rock, R&B	46.0	65	30-Nov-82	NaN	10.0
1	AC/DC	Back in Black	1980	0:42:11	hard rock	26.1	50	25-Jul-80	NaN	9.5
Г		The Ded Cide of the								

3	Houston	The Bodyguard	1992	0:57:44	H&B, soul, pop	27.4	44	17-Nov-92	Y	8.5
4	Meat Loaf	Bat Out of Hell	1977	0:46:33	hard rock, progressive rock	20.6	43	21-Oct-77	NaN	8.0
5	Eagles	Their Greatest Hits (1971-1975)	1976	0:43:08	rock, soft rock, folk rock	32.2	42	17-Feb-76	NaN	7.5
6	Bee Gees	Saturday Night Fever	1977	1:15:54	disco	20.6	40	15-Nov-77	Υ	7.0
7	Fleetwood Mac	Rumours	1977	0:40:01	soft rock	27.9	40	04-Feb-77	NaN	6.5

loc will return a KeyError if the requested items are not found.

#### iloc

iloc is integer-based. You use column numbers and row numbers to get rows or columns at particular positions in the data

Examples of iloc usage:

### df.iloc[0,2]:1982

### df.iloc[1,2]:1980

	Artist	Album	Released	Length	Genre	Music Recording Sales (millions)	Claimed Sales (millions)	Released.1	Soundtrack	Rating
0	Michael Jackson	Thriller	1982	0:42:19	pop, rock, R&B	46.0	65	30-Nov-82	NaN	10.0
1	AC/DC	Back in Black	1980	0:42:11	hard rock	26.1	50	25-Jul-80	NaN	9.5
2	Pink Floyd	The Dark Side of the Moon	1973	0:42:49	progressive rock	24.2	45	01-Mar-73	NaN	9.0
3	Whitney Houston	The Bodyguard	1992	0:57:44	R&B, soul, pop	27.4	44	17-Nov-92	Y	8.5
4	Meat Loaf	Bat Out of Hell	1977	0:46:33	hard rock, progressive rock	20.6	43	21-Oct-77	NaN	8.0
5	Eagles	Their Greatest Hits (1971-1975)	1976	0:43:08	rock, soft rock, folk rock	32.2	42	17-Feb-76	NaN	7.5
6	Bee Gees	Saturday Night Fever	1977	1:15:54	disco	20.6	40	15-Nov-77	Υ	7.0
7	Fleetwood Mac	Rumours	1977	0:40:01	soft rock	27.9	40	04-Feb-77	NaN	6.5

iloc will return an IndexError if the requested indexer is out-of-bounds.

#### ix

By default, ix looks for a label. If ix doesn't find a label, it will use an integer. This means you can select data by using either column numbers and row numbers or column headers and row names using ix.

In Pandas version 0.20.0 and later, ix is deprecated.

### Using loc and iloc for slicing

You can also use *loc* and *iloc* to slice data frames and assign the values to a new data frame.

Creating a new dataframe with loc slicing

You can also slice data frames and assign the values to a new data frame using the column names. The code assigns the first three rows and all columns in between to the columns named Artist and Released. The result is a new data frame Z with the

#### 

	Artist	Album	Released	Length	Genre	Music Recording Sales (millions)	Claimed Sales (millions)	Released.1	Soundtrack	Rating
0	Michael Jackson	Thriller	1982	0:42:19	pop, rock, R&B	46.0	65	30-Nov-82	NaN	10.0
1	AC/DC	Back in Black	1980	0:42:11	hard rock	26.1	50	25-Jul-80	NaN	9.5
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6	Bee Gees	Saturday Night Fever	1977	1:15:54	disco	20.6	40	15-Nov-77	Y	7.0
7	Fleetwood Mac	Rumours	1977	0:40:01	soft rock	27.9	40	04-Feb-77	NaN	6.5



### Creating a new dataframe with iloc slicing

In this example, we assign the first two rows and the first three columns to the variable Z. The result is a data frame comprised of the selected rows and columns.

### z=df.iloc[0:2, 0:3]

	Artist	Album	Released	Length	Genre	Music Recording Sales (millions)	Claimed Sales (millions)	Released.1	Soundtrack	Rating
	Michael Jackson	Thriller	1982	0:42:19	pop, rock, R&B	46.0	65	30-Nov-82	NaN	10.0
1	AC/DC	Back in Black	1980	0:42:11	hard rock	26.1	50	25-Jul-80	NaN	9.5
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