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# Python Pandas Tutorial

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[Pandas – Get Cell Value  
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pandas/pandas-get-cell-value-  
from-dataframe/\)](https://sparkbyexamples.com/pandas/pandas-get-cell-value-from-dataframe/)

## [Pandas – Add New Column](https://sparkbyexamples.com/pandas/pandas-add-column-to-dataframe/)

[dataframe\(\) Pandas – Rename Column](#)  
[\(https://sparkbveexamples.com/\)](#)

# PySpark Pandas Rename Index of DataFrame

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(<https://sparkbyexamples.com/author/mallik481/>). -

Pandas (<https://sparkbyexamples.com/python-pandas/>)

Hive [By using rename ax1s\(\)](https://sparkbyexamples.com/apache-hive/)

Index.rename() functions you can rename the row index name/label of a pandas DataFrame. Besides

these, there are several ways like `df.index.names = ['Index']`, `rename_axis()`, `set_index()` to rename the index. In this article, I will explain multiple ways of how to rename a single index and multiple indexes of the Pandas DataFrame.

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Related: [Pandas Rename Column](https://sparkbyexamples.com/pandas/pandas-rename-column-in-dataframe/)  
(<https://sparkbyexamples.com/pandas/pandas-rename-column-in-dataframe/>) and [Pandas Rename or Change Row index Values](https://sparkbyexamples.com/pandas/pandas-rename-column-in-dataframe/)

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(<https://sparkbyexamples.com/pandas/pandas-drop-rows-by-label-index>)

[Pandas – Drop Columns by Label | Index](https://sparkbyexamples.com/pandas/pandas-drop-columns-examples/)  
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[Pandas – Drop Rows Based on Column Value](https://sparkbyexamples.com/pandas/pandas-delete-rows-based-on-column-value/)  
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[Pandas – Cast Column Type](https://sparkbyexamples.com/pandas/pandas-change-column-data-type-dttype/)  
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[Pandas – Get Row Count](https://sparkbyexamples.com/pandas/pandas-get-number-of-rows-examples/)  
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[Pandas – Iterate Over Rows](https://sparkbyexamples.com/pandas/iterate-over-rows-in-pandas-dataframe/)  
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[Pandas – Get Column Names as List](https://sparkbyexamples.com/pandas/pandas-get-column-names/)  
(<https://sparkbyexamples.com/pandas/pandas-get-column-names/>)

[Pandas – Shuffle DataFrame Rows](https://sparkbyexamples.com/pandas/pandas-shuffle-rows-examples/)  
(<https://sparkbyexamples.com/pandas/pandas-shuffle-rows-examples/>)

(<https://sparkbyexamples.com/pandas/pandas-rename-index-values-of-dataframe/>).

## 1. Quick Examples of Rename DataFrame Index

If you are in a hurry, below are some of the quick examples of renaming pandas DataFrame index.

```
# Below are quick example
# Add/Change name to Index using df.index.names = ['Index']

# Add/Change name to Index using df.index = df.index.rename('Index') or df.index.rename('Index', inplace=True)

# Add/Change name to Index using df2 = df.rename_axis('Index') or df.rename_axis('Index', inplace=True)

# DataFrame.rename_axis() to rename index
df2=df2.rename_axis('Attribute')

# Add Multilevel index using
df2 = df.set_index(['Courses', 'Subjects'])

# Rename Single index from multi-level index
df2.index = df2.index.set_names(['Courses', 'Subjects'])

# Rename All indexes
df2.index=df2.index.rename(['Courses', 'Subjects'])
```

Now, let's create a DataFrame with a few rows and columns, execute these examples and validate results.

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(<https://sparkbyexamples.com/pandas/pandas-join-explained-with-examples/>).

[Pandas – Merge DataFrames](https://sparkbyexamples.com/pandas/pandas-merge-dataframes-explained-examples/)  
(<https://sparkbyexamples.com/pandas/pandas-merge-dataframes-explained-examples/>).

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[Pandas – Append DataFrames](https://sparkbyexamples.com/pandas/pandas-append-usage-by-examples/)  
(<https://sparkbyexamples.com/pandas/pandas-append-usage-by-examples/>).

[Pandas – Fill NaN with Value](https://sparkbyexamples.com/pandas/pandas-dataframe-fillna-fill-nan-column-values/)  
(<https://sparkbyexamples.com/pandas/pandas-dataframe-fillna-fill-nan-column-values/>).

[Pandas – Drop Rows with NaN](https://sparkbyexamples.com/pandas/pandas-dropna-usage-examples/)  
(<https://sparkbyexamples.com/pandas/pandas-dropna-usage-examples/>).

## Pandas Load & Write Files

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(<https://sparkbyexamples.com/pandas/pandas-read-json-with-examples/>).

[Pandas – Read CSV](https://sparkbyexamples.com/pandas/pandas-read-csv-examples/)  
(<https://sparkbyexamples.com/pandas/pandas-read-csv-examples/>).

[Pandas – Write to CSV](https://sparkbyexamples.com/pandas/pandas-write-dataframe-to-csv-file/)  
(<https://sparkbyexamples.com/pandas/pandas-write-dataframe-to-csv-file/>).

[Pandas – Read Excel](https://sparkbyexamples.com/pandas/pandas-read-excel-with-examples/)  
(<https://sparkbyexamples.com/pandas/pandas-read-excel-with-examples/>).

[Pandas – Write to Excel](https://sparkbyexamples.com/pandas/pandas-write-excel/)  
(<https://sparkbyexamples.com/pandas/pandas-write-excel/>).

Our DataFrame contains column names Courses, Fee, Duration, and Discount.

```
import pandas as pd
technologies = {
    'Courses': ["Spark", "PySpark", "Python", "pandas"],
    'Fee' : [20000, 25000, 22000, 30000],
    'Duration': ['30days', '40days', '35days', '50days'],
    'Discount': [1000, 2300, 1200, 1500]
}
index_labels=['r1', 'r2', 'r3', 'r4']
df = pd.DataFrame(technologies, index=index_labels)
print(df)
```

Yields below output.

	Courses	Fee	Duration
r1	Spark	20000	30days
r2	PySpark	25000	40days
r3	Python	22000	35days
r4	pandas	30000	50days

## 2. Using `rename_axis()` to Rename Pandas DataFrame Index

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## Pandas Functions Usage

[pandas – Index \(https://sparkbyexamples.com/pandas/pandas-index-explained-with-examples/\)](#)

[pandas – MultiIndex \(https://sparkbyexamples.com/pandas/pandas-multiindex-dataframe-examples/\)](#)

[pandas – loc\[\] \(https://sparkbyexamples.com/pandas/pandas-dataframe-loc/\)](#)

[pandas – iloc\[\] \(https://sparkbyexamples.com/pandas/pandas-iloc-usage-with-examples/\)](#)

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[pandas – apply\(\) \(https://sparkbyexamples.com/pandas/pandas-apply-function-usage-examples/\)](#)

[pandas – map\(\) \(https://sparkbyexamples.com/](#)

Use `DataFrame.rename_axis()` ([https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.rename\\_axis.html](https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.rename_axis.html)) to add/rename the column Index. Above DataFrame doesn't have an Index name and will use this method to add an index label first. Note that this method by default returns a new DataFrame after adding an Index. Use `inplace=False` to update the existing DataFrame.

```
# Rename row with index
df1 = df.rename_axis('Index')
print(df1)
```

Yield the below output.

	Courses	Fee	Duration
Index			
r1	Spark	20000	30day
r2	PySpark	25000	40day
r3	Python	22000	35day
r4	pandas	30000	50day

Another simple way to add/rename an Index is using

`DataFrame.index.rename()` and

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(<https://sparkbyexamples.com/pandas/pandas-dataframe-fillna-fill-nan-column-values/>)

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(<https://sparkbyexamples.com/pandas/pandas-dropna-usage-examples/>)

[pandas – append\(\)](#)  
(<https://sparkbyexamples.com/pandas/pandas-append-usage-by-examples/>)

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(<https://sparkbyexamples.com/pandas/pandas-reset-index-examples/>)

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([https://sparkbyexamples.com/pandas/pandas-set\\_index-explained-with-examples/](https://sparkbyexamples.com/pandas/pandas-set_index-explained-with-examples/))

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[pandas – sort\\_index\(\)](#)  
([https://sparkbyexamples.com/pandas/pandas-dataframe-sort\\_index/](https://sparkbyexamples.com/pandas/pandas-dataframe-sort_index/))

[pandas – drop\(\)](#)  
(<https://sparkbyexamples.com/pandas/pandas-drop-columns-examples/>)

[pandas – mean\(\)](#)  
(<https://sparkbyexamples.com/pandas/pandas-dataframe-mean-examples/>)

[pandas – drop\\_duplicates\(\)](#)  
([https://sparkbyexamples.com/pandas/pandas-dataframe-drop\\_duplicates/](https://sparkbyexamples.com/pandas/pandas-dataframe-drop_duplicates/))

```
df.index.names = ['Index'].
```

These updates the index on the existing DataFrame.

```
# Using DataFrame.index.rename
df.index = df.index.rename('Index')
(or)
df.index.names = ['Index']
print(df)
```

Now, let's rename the row Index to New\_Index from Index label.

```
# Rename Index
df2 = df.rename_axis('New_Index')
```

Also, add a column name to Index.

```
df2=df2.rename_axis('Attribute')
print(df2)
```

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\(https://sparkbyexamples.com/pandas/pandas-rolling-mean-average-sum/\)](https://sparkbyexamples.com/pandas/pandas-rolling-mean-average-sum/)

[pandas – corr\(\).  
\(https://sparkbyexamples.com/pandas/pandas-correlation-of-columns/\)](https://sparkbyexamples.com/pandas/pandas-correlation-of-columns/)

[pandas – mean\(\).  
\(https://sparkbyexamples.com/pandas/pandas-dataframe-mean-examples/\)](https://sparkbyexamples.com/pandas/pandas-dataframe-mean-examples/)

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[pandas – isin\(\).  
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[pandas – astype\(\).  
\(https://sparkbyexamples.com/pandas/pandas-dataframe-astype-examples/\)](https://sparkbyexamples.com/pandas/pandas-dataframe-astype-examples/)

[pandas – to\\_datetime\(\).  
\(https://sparkbyexamples.com/pandas/pandas-to\\_datetime-examples/\)](https://sparkbyexamples.com/pandas/pandas-to_datetime-examples/)

[pandas – head\(\) – Returns Top N Rows  
\(https://sparkbyexamples.com/pandas/pandas-head-returns-top-n-rows/\)](https://sparkbyexamples.com/pandas/pandas-head-returns-top-n-rows/)

## Pandas Most Used Examples

[Pandas – Create DataFrame From Dict \(Dictionary\).  
\(https://sparkbyexamples.com/pandas/pandas-create-dataframe-from-dict-dictionary/\)](https://sparkbyexamples.com/pandas/pandas-create-dataframe-from-dict-dictionary/)

[Pandas – Replace NaN with Blank/Empty String  
\(https://sparkbyexamples.com/pandas/pandas-replace-nan-with-blank-empty-string/\)](https://sparkbyexamples.com/pandas/pandas-replace-nan-with-blank-empty-string/)

```
Attributes Courses Fee Du
New_Index
r1 Spark 20000
r2 PySpark 25000
r3 Python 22000
r4 pandas 30000
```

## 4. Add Multiple Index

### using `DataFrame.set_index()`

Use `DataFrame.set_index()` ([https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.set\\_index.html](https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.set_index.html)) to set the one or multiple existing columns as indexes. Below examples appends columns Courses and Duration to row Index.

```
# Add Multilevel index using
df2 = df.set_index(['Courses', 'Duration'])
print(df2)
```

Yields below output.

```
Index Courses Duration Fee
r1 Spark 30days 20000
r2 PySpark 40days 25000
r3 Python 35days 22000
r4 pandas 50days 30000
```

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[Pandas – Change Column Data Type On DataFrame](https://sparkbyexamples.com/pandas/pandas-change-column-data-type-dtype/)  
(<https://sparkbyexamples.com/pandas/pandas-change-column-data-type-dtype/>)

[Pandas – Select Rows Based on Column Values](https://sparkbyexamples.com/pandas/pandas-select-dataframe-rows-based-on-column-values/)  
(<https://sparkbyexamples.com/pandas/pandas-select-dataframe-rows-based-on-column-values/>)

[Pandas – Delete Rows Based on Column Value](https://sparkbyexamples.com/pandas/pandas-delete-rows-based-on-column-value/)  
(<https://sparkbyexamples.com/pandas/pandas-delete-rows-based-on-column-value/>)

[Pandas – How to Change Position of a Column](https://sparkbyexamples.com/pandas/pandas-change-position-of-a-column/)  
(<https://sparkbyexamples.com/pandas/pandas-change-position-of-a-column/>)

[Pandas – Append a List as a Row to DataFrame](https://sparkbyexamples.com/pandas/pandas-append-list-as-a-row-to-dataframe/)  
(<https://sparkbyexamples.com/pandas/pandas-append-list-as-a-row-to-dataframe/>)

[Pandas – Filter by Column Value](https://sparkbyexamples.com/pandas/pandas-filter-by-column-value/)  
(<https://sparkbyexamples.com/pandas/pandas-filter-by-column-value/>)

[Pandas – Convert Single or All Columns To String Type?](https://sparkbyexamples.com/pandas/pandas-convert-columns-to-string-type/)  
(<https://sparkbyexamples.com/pandas/pandas-convert-columns-to-string-type/>)

[Pandas Get Count of Each Row of DataFrame](https://sparkbyexamples.com/pandas/pandas-get-count-each-dataframe-row/)  
(<https://sparkbyexamples.com/pandas/pandas-get-count-each-dataframe-row/>)

[Pandas – Difference Between loc and iloc in DataFrame](https://sparkbyexamples.com/pandas/pandas-difference-between-loc-and-iloc-in-dataframe/)  
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## 5. Rename Multi Level

### Index Names using

`index.set_names()`

By using

`DataFrame.index.set_names()`  
you can change the index of a specific level when you have multiple level of row indexes.

```
# Rename Single index from multi level  
df2.index = df2.index.set_names(['Courses', 'Courses_Duration'])  
print(df2)
```

Yields below output.

Index	Courses	Courses_Duration
r1	Spark	30days
r2	PySpark	40days
r3	Python	35days
r4	pandas	50days

## 6. Rename Multiple/All

### Level of Indexes

When you have multiple rows indices and if you wanted to rename multiple indices at the same time, use `DataFrame.index.rename()`. Note that you need to specify all indices as a param.

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[Pandas.groupby\(\) and sum\(\) With Examples](#)  
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[Pandas – Change the Order of DataFrame Columns](#)  
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[pandas – Find Installed Version?](#)  
(<https://sparkbyexamples.com/pandas/find-pandas-installed-version-and-dependencies-version/>).

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[Pandas – How to Combine Two Series into a DataFrame](#)  
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[Pandas – Remap Values in Column with a Dict](#)  
(<https://sparkbyexamples.com/pandas/pandas-remap-values-in-column-with-a-dictionary-dict/>).

[Pandas – Get Column Names from DataFrame](#)  
(<https://sparkbyexamples.com/pandas/pandas-get-column-names/>).

[Pandas – Check If DataFrame is Empty](#)  
(<https://sparkbyexamples.com/pandas/pandas-check-if-dataframe-is-empty/>).

```
# Rename All indexes
df2.index=df2.index.rename(['r1', 'r2', 'r3', 'r4'])
print(df2)
```

Yields below output

Index	Courses_Name	Courses_Duration
r1	Spark	30days
r2	PySpark	40days
r3	Python	35days
r4	pandas	50days

## 13. Complete Example For Rename DataFrame Index

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(<https://sparkbyexamples.com/pandas/pandas-check-if-any-value-is-nan-in-a-dataframe/>)

[Pandas – Combine Two Columns of Text in DataFrame](#)  
(<https://sparkbyexamples.com/pandas/pandas-combine-two-columns-of-text-in-dataframe/>)

[Pandas – How to Drop Rows with NaN Values in DataFrame](#)  
(<https://sparkbyexamples.com/pandas/pandas-drop-rows-with-nan-values-in-dataframe/>)

[Pandas – Change Specific Column Name](#)  
(<https://sparkbyexamples.com/pandas/pandas-change-specific-column-name/>)

[pandas – Append Row to DataFrame](#)

[\(https://sparkbyexamples.com/pandas/how-to-append-row-to-pandas-dataframe/\)](https://sparkbyexamples.com/pandas/how-to-append-row-to-pandas-dataframe/)

```
import pandas as pd
technologies = {
    'Courses': ["Spark", "PySpark", "Big Data"],
    'Fee' : [20000, 25000, 22000],
    'Duration': ['30days', '40days', '35days'],
    'Discount': [1000, 2300, 1200]
}
index_labels=['r1', 'r2', 'r3',]
df = pd.DataFrame(technologies, index=index_labels)
print(df)

# Add/Change name to Index using df.index.names
df.index.names = ['Index']
print(df)

# Add/Change name to Index using df.rename_axis()
df1 = df.rename_axis('Index')
print(df1)

# Add/Change name to Index using df.index.rename()
df.index = df.index.rename('Index')
print(df)

# DataFrame.rename_axis() to rename index
df2 = df.rename_axis('New_Index')
df2=df2.rename_axis('Attribute')
print(df2)

# Add Multilevel index using df.set_index()
df2 = df.set_index(['Courses', 'Fee'])
print(df2)

# Rename Single index from multiindex
df2.index = df2.index.set_names(['Courses', 'Fee'])
print(df2)

# Rename All indexes
df2.index=df2.index.rename(['Courses', 'Fee'])
print(df2)
```

## Conclusion

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In this article, you have learned how to rename pandas DataFrame index using `set_axis()`, `set_index()`, `index.set_names()` and more methods with examples. You have also learned how to rename single and multilevel Index names.

Happy Learning !!

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## References

- <https://pandas.pydata.org/docs/reference/api/pandas.Index.rename.html>  
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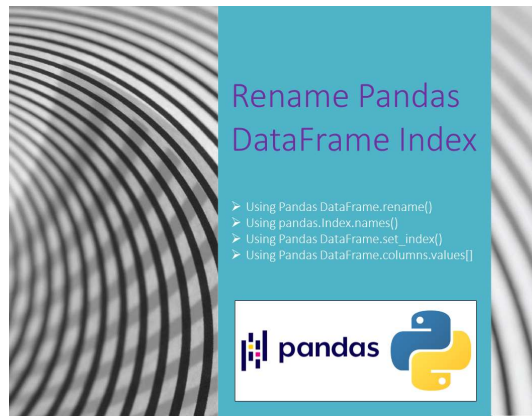
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