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PySpark Tutorial

[PySpark Tutorial For Beginners \(https://sparkbyexamples.com/py-spark-tutorial/\)](https://sparkbyexamples.com/py-spark-tutorial/)

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[PySpark – Install on Windows \(https://sparkbyexamples.com/py-spark-tutorial/#pyspark-installation\)](https://sparkbyexamples.com/py-spark-tutorial/#pyspark-installation)

[PySpark – Web/Application UI \(https://sparkbyexamples.com/spark/spark-web-ui-understanding/\)](https://sparkbyexamples.com/spark/spark-web-ui-understanding/)

[PySpark – SparkSession \(https://sparkbyexamples.com/py-spark/pyspark-what-is-sparksession/\)](https://sparkbyexamples.com/py-spark/pyspark-what-is-sparksession/)

[PySpark – RDD \(https://sparkbyexamples.com/py-spark-rdd\)](https://sparkbyexamples.com/py-spark-rdd)

[PySpark – Parallelize \(https://sparkbyexamples.com/py-spark/pyspark-parallelize-create-rdd/\)](https://sparkbyexamples.com/py-spark/pyspark-parallelize-create-rdd/)

[PySpark – repartition\(\) vs coalesce\(\) \(https://sparkbyexamples.com/py-spark/pyspark-repartition-vs-coalesce/\)](https://sparkbyexamples.com/py-spark/pyspark-repartition-vs-coalesce/)

[PySpark – Broadcast Variables \(https://sparkbyexamples.com/py-spark/pyspark-broadcast-variables/\)](https://sparkbyexamples.com/py-spark/pyspark-broadcast-variables/)

[PySpark – Accumulator \(https://sparkbyexamples.com/py-spark/pyspark-accumulator-with-example/\)](https://sparkbyexamples.com/py-spark/pyspark-accumulator-with-example/)

PySpark DataFrame

[PySpark – Create a DataFrame \(https://sparkbyexamples.com/py-spark/create-a-dataframe/\)](https://sparkbyexamples.com/py-spark/create-a-dataframe/)

[PySpark \(https://sparkbyexamples.com/pyspark-tutorial/\)](https://sparkbyexamples.com/pyspark-tutorial/)



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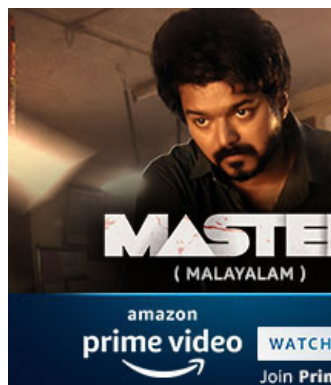
[PySpark tutorials with examples \(https://sparkbyexamples.com/category/pyspark/\)](https://sparkbyexamples.com/category/pyspark/)

[FAQ's PySpark/SQL provides split\(\) function to convert delimiter separated String to an Array \(StringType to ArrayType\) column on DataFrame. This can be done by splitting a string column based on a delimiter like space, comma, pipe e.t.c, and converting it into ArrayType \(https://sparkbyexamples.com/spark/spark-array-arraytype-dataframe-column/\).](https://sparkbyexamples.com/faq-questions/)

[More \(https://sparkbyexamples.com/\)](https://sparkbyexamples.com/)

PySpark Convert String to Array Column

PySpark/SQL provides split() function to convert delimiter separated String to an Array (StringType to ArrayType) column on DataFrame. This can be done by splitting a string column based on a delimiter like space, comma, pipe e.t.c, and converting it into ArrayType (https://sparkbyexamples.com/spark/spark-array-arraytype-dataframe-column/).



In this article, I will explain converting String to Array column using split() function on DataFrame and SQL query.

Split() function syntax

[spark/different-ways-to-create-dataframe-in-pyspark/](#)

[PySpark – Create an empty DataFrame](#)
(<https://sparkbyexamples.com/pyspark/pyspark-create-an-empty-dataframe/>)

[PySpark – Convert RDD to DataFrame](#)
(<https://sparkbyexamples.com/pyspark/convert-pyspark-rdd-to-dataframe/>)

[PySpark – Convert DataFrame to Pandas](#)
(<https://sparkbyexamples.com/pyspark/convert-pyspark-dataframe-to-pandas/>)

[PySpark – show\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-show-display-dataframe-contents-in-table/>)

[PySpark – StructType & StructField](#)
(<https://sparkbyexamples.com/pyspark/pyspark-structtype-and-structfield/>)

[PySpark – Row Class](#)
(<https://sparkbyexamples.com/pyspark/pyspark-row-using-rdd-dataframe/>)

[PySpark – Column Class](#)
(<https://sparkbyexamples.com/pyspark/pyspark-column-functions/>)

[PySpark – select\(\)](#)
(<https://sparkbyexamples.com/pyspark/select-columns-from-pyspark-dataframe/>)

[PySpark – collect\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-collect/>)

[PySpark – withColumn\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-withcolumn/>)

[PySpark – withColumnRenamed\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-rename-dataframe-column/>)

[PySpark – where\(\) & filter\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-where-filter/>)

[PySpark – drop\(\) & dropDuplicates\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-distinct-to-drop-duplicates/>)

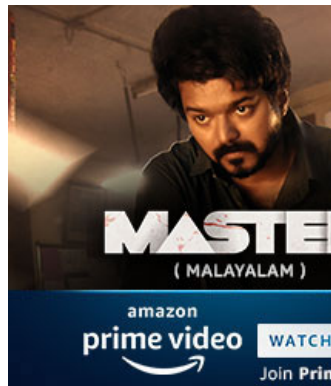
[PySpark – orderBy\(\) and sort\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-orderby-sort/>)

PySpark SQL `split()` is grouped under [Array Functions](#) (<https://sparkbyexamples.com/spark/spark-sql-array-functions/>) in PySpark [SQL Functions](#) (<https://sparkbyexamples.com/spark/spark-sql-functions-understanding/>) class with the below syntax.

```
pyspark.sql.functions.split(str, pa
```

The `split()` function takes the first argument as the DataFrame column of type String and the second argument string delimiter that you want to split on. You can also use the pattern as a delimiter. This function returns `pyspark.sql.Column` of type Array.

Before we start with usage, first, let's create a DataFrame with a string column with text separated with comma delimiter



```
from pyspark.sql import SparkSession
spark = SparkSession.builder \
    .appName('SparkByExamples.com') \
    .getOrCreate()

data = [("James, A, Smith", "2018", "Male"),
        ("Michael, Rose, Jones", "2012", "Female"),
        ("Robert, K, Williams", "2015", "Male"),
        ("Maria, Anne, Jones", "2016", "Female"),
        ("Jen, Mary, Brown", "2017", "Female")]

columns = ["name", "dob_year", "gender"]
df = spark.createDataFrame(data, columns)
df.printSchema()
```

This yields the below output. As you notice we have a name column with taken as first name, middle and lastname with comma separated.

[spark/pyspark-orderby-and-sort-explained/](#)

[PySpark – groupBy\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-groupby-explained-with-example/>)

[PySpark – join\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-join-explained-with-examples/>)

[PySpark – union\(\) & unionAll\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-union-and-unionall/>)

[PySpark – unionByName\(\)](#)
(<https://sparkbyexamples.com/spark/spark-merge-two-dataframes-with-different-columns/>)

[PySpark – UDF \(User Defined Function\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-udf-user-defined-function/>)

[PySpark – map\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-map-transformation/>)

[PySpark – flatMap\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-flatmap-transformation/>)

[pyspark – foreach\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-loop-iterate-through-rows-in-dataframe/#use-foreach-loop-through-dataframe>)

[PySpark – sample\(\) vs sampleBy\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-sampling-example/>)

[PySpark – fillna\(\) & fill\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-fillna-fill-replace-null-values/>)

[PySpark – pivot\(\) \(Row to Column\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-pivot-and-unpivot-dataframe/>)

[PySpark – partitionBy\(\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-partitionby-example/>)

[PySpark – ArrayType Column \(Array\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-arraytype-column-with-examples/>)

```
root
|-- name: string (nullable = true)
|-- dob_year: string (nullable = true)
|-- gender: string (nullable = true)
|-- salary: integer (nullable = false)
```

PySpark Convert String to Array Column

Below PySpark example snippet splits the String column name on comma delimiter and convert it to an Array. If you do not need the original column, use drop() to remove the column.

```
from pyspark.sql.functions import split
df2 = df.select(split(col("name"), ","),
                ).drop("name")
df2.printSchema()
df2.show()
```

This yields below output. As you see below schema NameArray is a array type.

```
root
|-- NameArray: array (nullable = true)
|   |-- element: string (contains primitives)

+-----+
|NameArray|
+-----+
|[James, A, Smith]|
|[Michael, Rose, Jones]|
|[Robert, K, Williams]|
|[Maria, Anne, Jones]|
|[Jen, Mary, Brown]|
+-----+
```

Convert String to Array Column using SQL Query

Since PySpark provides a way to execute the raw SQL, let's learn how to write the same example using Spark SQL expression.

In order to use raw SQL, first, you need to create a table using createOrReplaceTempView(). This

[PySpark – MapType \(Map/Dict\)](#)
(<https://sparkbyexamples.com/pyspark/pyspark-maptypes-dict-examples/>).

PySpark SQL Functions

[PySpark – Aggregate Functions](#)
(<https://sparkbyexamples.com/pyspark/pyspark-aggregate-functions/>).

[PySpark – Window Functions](#)
([https://sparkbyexamples.com/pyspark-window-functions/](https://sparkbyexamples.com/pyspark/pyspark-window-functions/)).

[PySpark – Date and Timestamp Functions](#)
([https://sparkbyexamples.com/pyspark-sql-date-and-timestamp-functions/](https://sparkbyexamples.com/pyspark/pyspark-sql-date-and-timestamp-functions/)).

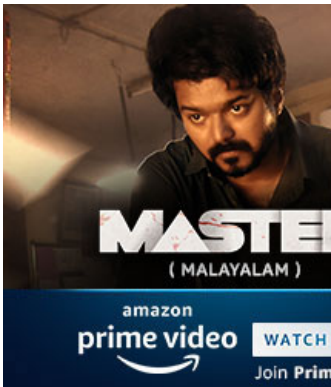
[PySpark – JSON Functions](#)
([https://sparkbyexamples.com/pyspark-json-functions-with-examples/](https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/)).

PySpark Datasources

[PySpark – Read & Write CSV File](#)
(<https://sparkbyexamples.com/pyspark/pyspark-read-csv-file-into-dataframe/>).

[PySpark – Read & Write Parquet File](#)
([https://sparkbyexamples.com/pyspark-read-and-write-parquet-file/](https://sparkbyexamples.com/pyspark/pyspark-read-and-write-parquet-file/)).

[PySpark – Read & Write JSON file](#)
([https://sparkbyexamples.com/pyspark-read-json-file-into-dataframe/](https://sparkbyexamples.com/pyspark/pyspark-read-json-file-into-dataframe/)).



creates a temporary view from the Dataframe and this view is available lifetime of the current Spark context.

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The Messy Corner

```
df.createOrReplaceTempView("PERSON")
spark.sql("select SPLIT(name, ',') as array_col").show()
```

This yields the same output as above example.

Complete Example

Below is the complete example of splitting an String type column based on a delimiter or patterns and converting into ArrayType column.

This example is also available at [PySpark-Examples GitHub project](#) (<https://github.com/spark-examples/pyspark-examples/blob/master/pyspark-string-to-array.py>) for reference.



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PySpark Built-In Functions

[PySpark – when\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-when-otherwise/\)](https://sparkbyexamples.com/pyspark/pyspark-when-otherwise/)

[PySpark – expr\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-sql-expr-expression-function/\)](https://sparkbyexamples.com/pyspark/pyspark-sql-expr-expression-function/)

[PySpark – lit\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-lit-add-literal-constant/\)](https://sparkbyexamples.com/pyspark/pyspark-lit-add-literal-constant/)

[PySpark – split\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-convert-string-to-array-column/\)](https://sparkbyexamples.com/pyspark/pyspark-convert-string-to-array-column/)

[PySpark – concat_ws\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-convert-array-column-to-string-column/\)](https://sparkbyexamples.com/pyspark/pyspark-convert-array-column-to-string-column/)

[Pyspark – substring\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-substring-from-a-column/\)](https://sparkbyexamples.com/pyspark/pyspark-substring-from-a-column/)

[PySpark – translate\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-replace-column-values/#translate-replace-character-by-character\)](https://sparkbyexamples.com/pyspark/pyspark-replace-column-values/#translate-replace-character-by-character)

[PySpark – regexp_replace\(\).
\(https://sparkbyexamples.com/pyspark/pyspark-replace-column-](https://sparkbyexamples.com/pyspark/pyspark-replace-column-)

```
from pyspark.sql import SparkSession
spark = SparkSession.builder \
    .appName('SparkByExamples.com') \
    .getOrCreate()

data = [("James, A, Smith", "2018", "M", "Male"),
        ("Michael, Rose, Jones", "2012", "F", "Female"),
        ("Robert,K,Williams", "2015", "M", "Male"),
        ("Maria,Anne,Jones", "2016", "F", "Female"),
        ("Jen,Mary,Brown", "2016", "F", "Female")]

columns=["name","dob_year","gender"]
df=spark.createDataFrame(data,columns)
df.printSchema()
df.show(truncate=False)

from pyspark.sql.functions import split
df2 = df.select(split(col("name"),','),
                ).drop("name")
df2.printSchema()
df2.show()

df.createOrReplaceTempView("PERSON")
spark.sql("select SPLIT(name,',') as name_array")
df.show()
```


Conclusion


In this simple article, you have learned how to Convert the string column into an array column by splitting the string by delimiter and also learned how to use the split function on PySpark SQL expression.


Happy Learning !!


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[values/#regexp_replace-replace-string-columns](#)).

[PySpark – overlay\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-replace-column-values/#overlay-function>).

[PySpark – to_timestamp\(\)](#).
(https://sparkbyexamples.com/spark/pyspark-to_timestamp-convert-string-to-timestamp-type/).

[PySpark – to_date\(\)](#).
([https://sparkbyexamples.com/pyspark-to_date-convert-timestamp-to-date/](https://sparkbyexamples.com/pyspark/pyspark-to_date-convert-timestamp-to-date/)).

[PySpark – date_format\(\)](#).
([https://sparkbyexamples.com/pyspark-date_format-convert-date-to-string-format/](https://sparkbyexamples.com/pyspark/pyspark-date_format-convert-date-to-string-format/)).

[PySpark – datediff\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-difference-between-two-dates-days-months-years/#datediff>).

[PySpark – months_between\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-difference-between-two-dates-days-months-years/#months_between\(\)](https://sparkbyexamples.com/pyspark/pyspark-difference-between-two-dates-days-months-years/#months_between())).

[PySpark – explode\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-explode-nested-array-into-rows/](https://sparkbyexamples.com/pyspark/pyspark-explode-nested-array-into-rows/)).

[PySpark – array_contains\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-arraytype-column-with-examples/#array_contains](https://sparkbyexamples.com/pyspark/pyspark-arraytype-column-with-examples/#array_contains)).

[PySpark – array\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-arraytype-column-with-examples/#array](https://sparkbyexamples.com/pyspark/pyspark-arraytype-column-with-examples/#array)).


[PySpark – collect_list\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-aggregate-functions/#collect-list](https://sparkbyexamples.com/pyspark/pyspark-aggregate-functions/#collect-list)).

[PySpark – collect_set\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-aggregate-functions/#collect-set](https://sparkbyexamples.com/pyspark/pyspark-aggregate-functions/#collect-set)).

[PySpark – create_map\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-convert-dataframe-columns-to-maptype-dict/](https://sparkbyexamples.com/pyspark/pyspark-convert-dataframe-columns-to-maptype-dict/)).

[PySpark – map_keys\(\)](#).
([https://sparkbyexamples.com/pyspark-pyspark-maptype-dict-examples/#map_keys](https://sparkbyexamples.com/pyspark/pyspark-maptype-dict-examples/#map_keys)).

[PySpark – map_values\(\)](#).
(<https://sparkbyexamples.com/pyspark>

 (<https://sparkbyexamples.com/pyspark/pyspark-convert-string-to-array-column/?share=twitter&nb=1>)

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[ark/pyspark-maptypes-dict-examples/#map_values](#)).

[PySpark – struct\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-structtype-and-structfield/#update-struct-function>).

[PySpark – countDistinct\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-count-distinct-from-dataframe/>).

[PySpark – sum\(\), avg\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-dataframe-groupby-and-sort-by-descending-order/>).

[PySpark – row_number\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-window-functions/#row_number).

[PySpark – rank\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-window-functions/#rank>).

[PySpark – dense_rank\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-window-functions/#dense_rank).

[PySpark – percent_rank\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-window-functions/#percent_rank).

[PySpark – typedLit\(\)](#).
(<https://sparkbyexamples.com/pyspark/pyspark-lit-add-literal-constant/#typedlit>).

[PySpark – from_json\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/#from_json).

[PySpark – to_json\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/#to_json).

[PySpark – json_tuple\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/#json_tuple).

[PySpark – get_json_object\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/#get_json_object).

[PySpark – schema_of_json\(\)](#).
(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/#schema_of_json).

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Spark regexp_replace() – Replace String Value
(https://sparkbyexamples.com/spark/spark-regexp_replace-replace-string-value/)

How to Run a PySpark Script from Python?
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Spark SQL like() Using Wildcard Example
(<https://sparkbyexamples.com/spark/spark-sql-like-using-wildcard-example/>)

Spark isin() & IS NOT IN Operator Example
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Spark – Get Size/Length of Array & Map Column
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Spark rlike() Working with Regex Matching Examples
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