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vs-coalesce/)

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pyspark/pyspark-broadcastvariables/)

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- Create PySpark RDD
- Convert PySpark RDD to DataFrame

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 - using toDF()_{with it}
 - using createDataFrame()
 - using RDD row type & schema

(https://sparkbyexamples.com/spark-DataFrame, We would need to convert RDD to DataFrame as DataFrame provides more advantages over RDD. For instance. DataFrame is a distributed collection of data organized into named columns similar to Database tables and provides optimization and performance improvements. DMM GAMES and Ditf a sword training simulation

In PySpark, toDF() function of the

RDD is used to convert RDD to



<u>PySpark – Accumulator</u> (https://sparkbyexamples.com/ <u>pyspark/pyspark-accumulator-with-example/)</u>

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PySpark – Create a

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DataFrame
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PySpark – Convert RDD to

DataFrame
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pyspark/convert-pyspark-rddto-dataframe/)

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

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

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<u>StructField</u>
(https://sparkbyexamples.com/pyspark/pyspark-structtype-and-structfield/)

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(https://sparkbyexamples.com/
pyspark/pyspark-collect/)</u>

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1. Create PySpark RDD

First, let's create an RDD by passing Python list object to sparkContext.parallelize() function. We would need this rdd object for all our examples below.

In PySpark, when you have data in a list meaning you have a collection of data in a PySpark driver memory when you create an RDD, this collection is going to be parallelized
(https://sparkbyexamples.com/pyspark/pyspark-parallelize-create-rdd-from-collection/).

```
from pyspark.sql import SparkSe
spark = SparkSession.builder.ap
dept = [("Finance",10),("Market
rdd = spark.sparkContext.parall
```

2. Convert PySpark RDD

to DataFrame

Converting PySpark RDD to DataFrame can be done using toDF(), createDataFrame(). In this section, I will explain these two methods.

2.1 Using rdd.toDF()

function

PySpark provides toDF() function in RDD which can be used to convert RDD into Dataframe



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<u>PySpark –</u>
<u>withColumnRenamed()</u>
(<u>https://sparkbyexamples.com/</u>
<u>pyspark/pyspark-rename-</u>
<u>dataframe-column/)</u>

<u>PySpark – where() & filter()</u> (https://sparkbyexamples.com/ pyspark/pyspark-where-filter/)</u>

PySpark – drop() & dropDuplicates(). (https://sparkbyexamples.com/pyspark/pyspark-distinct-to-drop-duplicates/).

<u>PySpark – orderBy() and sort()</u> (https://sparkbyexamples.com/ <u>pyspark/pyspark-orderby-and-</u> sort-explained/)

<u>PySpark – groupBy()</u>
(https://sparkbyexamples.com/
pyspark/pyspark-groupbyexplained-with-example/)</u>

<u>PySpark – join()</u>
(https://sparkbyexamples.com/
pyspark/pyspark-joinexplained-with-examples/)</u>

<u>PySpark – union() & unionAll()</u> (https://sparkbyexamples.com/ <u>pyspark/pyspark-union-and-unionall/)</u>

PySpark – unionByName() (https://sparkbyexamples.com/ spark/spark-merge-twodataframes-with-differentcolumns/)

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

<u>PySpark – map()</u>
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<u>pyspark/pyspark-map-</u>
transformation/)

<u>PySpark – flatMap()</u>
(https://sparkbyexamples.com/
pyspark/pyspark-flatmaptransformation/)

<u>pyspark – foreach()</u>
(<u>https://sparkbyexamples.com/pyspark/pyspark-loop-iterate-through-rows-in-</u>

dataframe/#use+foreach-loopæ give you the best experience on our website. If you continue to use this site we will assume that you are happy through-dataframe)

<u>PySpark – sample() vs</u> <u>sampleBy()</u>

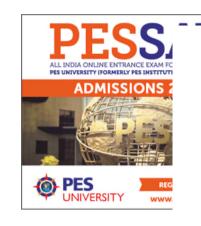
```
df = rdd.toDF()
df.printSchema()
df.show(truncate=False)
```

By default, toDF() function creates column names as "_1" and "_2". This snippet yields below schema.

toDF() has another signature that takes arguments to define column names as shown below.

```
deptColumns = ["dept_name","dep
df2 = rdd.toDF(deptColumns)
df2.printSchema()
df2.show(truncate=False)
```

Outputs below schema.





(https://sparkbyexamples.com/ pyspark/pyspark-samplingexample/)

<u>PySpark – fillna() & fill()</u>
(https://sparkbyexamples.com/
pyspark/pyspark-fillna-fillreplace-null-values/)</u>

<u>PySpark – pivot() (Row to Column)</u>

(https://sparkbyexamples.com/ pyspark/pyspark-pivot-andunpivot-dataframe/)

<u>PySpark – partitionBy()</u>
(https://sparkbyexamples.com/
<u>pyspark/pyspark-partitionby-example/)</u>

<u>PySpark – ArrayType Column</u> (<u>Array)</u>

(https://sparkbyexamples.com/ pyspark/pyspark-arraytypecolumn-with-examples/)

PySpark — MapType (Map/Dict) (https://sparkbyexamples.com/ pyspark/pyspark-maptype-dictexamples/)

PySpark SQL Functions

<u>PySpark – Aggregate Functions</u> (https://sparkbyexamples.com/py spark/pyspark-aggregatefunctions/)

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<u>PySpark – Date and Timestamp</u> <u>Functions</u>

(https://sparkbyexamples.com/py spark/pyspark-sql-date-andtimestamp-functions/)

<u>PySpark – JSON Functions</u> (<u>https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/</u>)

PySpark Datasources

<u>PySpark – Read & Write CSV</u> <u>File</u>

(https://sparkbyexamples.com/ pyspark/pyspark-read-csv-file-

into-dataframe/) to ensure that we give you

<u>PySpark – Read & Write</u> <u>Parquet File</u> (https://sparkbyexamples.com/

2.2 Using PySpark

createDataFrame() function

SparkSession class provides createDataFrame() method to create DataFrame and it takes rdd object as an argument.

deptDF = spark.createDataFrame(
deptDF.printSchema()
deptDF.show(truncate=False)

This yields the same output as above.



2.3 Using

createDataFrame() with

StructType schema

When you infer the schema, by default the datatype of the columns is derived from the data and set's nullable to true for all columns. We can change this behavior by supplying schema
(https://sparkbyexamples.com/spark/spark-schema-explained-with-examples/) using StructType
(https://sparkbyexamples.com/pyspark/pyspark-structtype-and-structfield/) — where we can specify a column name, data type and nullable for each field/column.

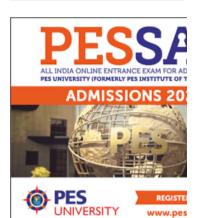
If you wanted to know more about

StructType, please go through how to the best experience on our website. If you continue to use this site we will assume that you are happy use StructType and StructField to

pyspark/pyspark-read-andwrite-parquet-file/)

PySpark - Read & Write JSON

(https://sparkbyexamples.com/ pyspark/pyspark-read-jsonfile-into-dataframe/)



PvSpark Built-In **Functions**

PySpark - when() (https://sparkbyexamples.com/py spark/pyspark-when-otherwise/)

PySpark - expr() (https://sparkbyexamples.com/py spark/pyspark-sql-exprexpression-function/)

PySpark - lit() (https://sparkbyexamples.com/py spark/pyspark-lit-add-literalconstant/)

PySpark - split() (https://sparkbyexamples.com/py spark/pyspark-convert-string-toarray-column/)

PySpark - concat ws() (https://sparkbyexamples.com/py spark/pyspark-convert-arraycolumn-to-string-column/)

Pyspark - substring() (https://sparkbyexamples.com/py spark/pyspark-substring-from-acolumn/)

PySpark - translate() (https://sparkbyexamples.com/py spark/pyspark-replace-columnvalues/#translate-replace-

PySpark - regexp replace() (https://sparkbyexamples.com/py spark/pyspark-replace-columndefine the custom schema (https://sparkbyexamples.com/pyspark/ pyspark-structtype-and-structfield/).

```
from pyspark.sql.types import S
deptSchema = StructType([
    StructField('dept name', St
    StructField('dept id', Stri
 eptDF1 = spark.createDataFrame
 eptDF1.printSchema()
 eptDF1.show(truncate=False)
```

; also yields the same output.

3. Complete Example

```
import pyspark
                                  from pyspark.sql import SparkSe
                                   spark = SparkSession.builder.ap
                                  dept = [("Finance",10),("Market
                                  rdd = spark.sparkContext.parall
                                  df = rdd.toDF()
                                  df.printSchema()
                                  df.show(truncate=False)
                                  deptColumns = ["dept name", "dep
                                  df2 = rdd.toDF(deptColumns)
                                  df2.printSchema()
                                  df2.show(truncate=False)
                                  deptDF = spark.createDataFrame(
                                  deptDF.printSchema()
                                  deptDF.show(truncate=False)
                                  from pyspark.sql.types import S
                                  deptSchema = StructType([
                                       StructField('dept name', St
                                       StructField('dept id', Stri
                                  1)
                                  deptDF1 = spark.createDataFrame
                                   deptDF1.printSchema()
                                  deptDF1.show(truncate=False)
character-by-character)

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```

<u>values/#regexp_replace-replace-string-columns)</u>

PySpark – overlay() (https://sparkbyexamples.com/py spark/pyspark-replace-columnvalues/#overlay-function)

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

<u>PySpark - to_date()</u>
(https://sparkbyexamples.com/pyspark/pyspark-to_date-convert-timestamp-to-date/)</u>

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

PySpark – datediff() (https://sparkbyexamples.com/py spark/pyspark-differencebetween-two-dates-daysmonths-years/#datediff)

PySpark – months_between()
(https://sparkbyexamples.com/py
spark/pyspark-differencebetween-two-dates-daysmonthsyears/#months_between())

<u>PySpark - explode()</u>
(https://sparkbyexamples.com/py
spark/pyspark-explode-nestedarray-into-rows/)</u>

<u>PySpark – array_contains()</u> (https://sparkbyexamples.com/py spark/pyspark-arraytype-columnwith-examples/#array_contains)

<u>PySpark – array()</u> (https://sparkbyexamples.com/py spark/pyspark-arraytype-columnwith-examples/#array)</u>

<u>PySpark – collect_list()</u>
(https://sparkbyexamples.com/py
spark/pyspark-aggregatefunctions/#collect-list)

<u>PySpark - collect_set()</u>
(https://sparkbyexamples.com/py
spark/pyspark-aggregatefunctions/#collect-set)

PySpark - create map() (https://sparkbyexamples.com/py spark/pyspark-convertdataframe-columns-to-maptypedict/) The complete code can be downloaded from GitHub (https://github.com/spark-examples/pyspark-examples/blob/master/pyspark-rdd-to-dataframe.py)

4. Conclusion:

In this article, you have learned how to convert PySpark RDD to DataFrame, we would need these frequently while working in PySpark as these provides optimization and performance over RDD.

Happy Learning !!

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PySpark – to_json() (https://sparkbyexamples.com/py spark/pyspark-json-functionswith-examples/#to_json)



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(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-

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