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In Spark foreachPartition() is used when you have a heavy initialization Ylikehttasijasparkhvexamplas comted to initialize once per partition where as foreach() is used to apply a function on every element of a RDD/DataFrame/Dataset partition.

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In this Spark Dataframe article, you will learn what is foreachPartiton used for and the differences with its sibling

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<u>Spark RDD – Convert RDD to</u>
<u>DataFrame</u>
(https://sparkbyexamples.com/

foreach (foreachPartiton vs foreach) function.

Spark foreachPartition is an action operation and is available in RDD, DataFrame, and Dataset. This is different than other actions as foreachPartition() function doesn't return a value instead it executes input function on each partition.

- DataFrame foreachPartition() Usage
- DataFrame foreach() Usage
- RDD foreachPartition() Usage
- RDD foreach() Usage



#### **DataFrame**

## foreachPartition() Usage

On Spark DataFrame foreachPartition() is similar to foreach() action which is used to manipulate the accumulators, write to a database table or external data sources but the difference being foreachPartiton() gives you an option to do heavy initializations per each partition and is consider most efficient.

## **Syntax**



When foreachPartition() applied on Spark DataFrame, it executes a function specified in foreach() for each partition on DataFrame. This operation is mainly used if you wanted to save the DataFrame result to RDBMS tables, or produce it to kafka topics e.t.c



<u>apache-spark-rdd/convert-spark-rdd-to-dataframe-dataset/)</u>

# Spark RDD Transformation & Actions

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## **Example**

In this example, to make it simple we just print the DataFrame to console.

```
// foreachPartition DataFrame
val df = spark.createDataFram
df.foreachPartition(partition
    //Initialize database conne-
partition.foreach(fun=>{
        //apply the function to in
        // or produce kafka topic
    })
    //If you have batch inserts
})
```

## **DataFrame foreach()**

## **Usage**

When foreach() applied on Spark
DataFrame, it executes a function
specified in for each element of
DataFrame/Dataset. This operation is
mainly used if you wanted
to manipulate accumulators
(https://sparkbyexamples.com/spark/spark-accumulators/), and any
other operations which doesn't have
heavy initializations.

```
val longAcc = spark.sparkConto
df.foreach(f=> {
    longAcc.add(f.getInt(1))
})
println("Accumulator value:"+
```

<u>spark/spark-dataframe-</u> <u>withcolumn/)</u>

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(https://sparkbyexamples.com/spark/rename-a-column-on-spark-dataframes/)

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<u>Spark SQL – Sort DataFrame</u> (https://sparkbyexamples.com/ <u>spark/spark-how-to-sort-dataframe-column-explained/)</u>

## RDD foreachPartition()

## **Usage**

foreach() on RDD behaves similarly to DataFrame equivalent hence, it has the same syntax.

## **Syntax**

## **Example**

```
// foreachPartition DataFrame
val rdd = spark.sparkContext.
rdd.foreachPartition(partition
    //Initialize any database context
partition.foreach(fun=>{
        //apply the function
    })
})
```

## Spark RDD foreach()

## **Usage**

rdd foreach() is equivalent to DataFrame foreach() action.

```
//rdd accumulator
val rdd2 = spark.sparkContext
val longAcc2 = spark.sparkConferd
rdd .foreach(f=> {
   longAcc2.add(f)
})
println("Accumulator value:"+
```

#### Conclusion

You should use foreachPartition action operation when using heavy initialization like database connections or Kafka producer etc where it initializes one per partition rather than

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Spark SQL – Flatten Nested

Array Column
(https://sparkbyexamples.com/
spark/spark-flatten-nestedarray-column-to-singlecolumn/)

one per element(foreach). foreach() transformation mostly used to update accumulator variables.

#### Reference:

 https://spark.apache.org/docs/latest/ api/scala/org/apache/spark/sql/Datas et.html (https://spark.apache.org/docs/latest/ api/scala/org/apache/spark/sql/Datas et.html)

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