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spark/spark-web-ui-

understanding/)

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scala-intellij/)

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examples-from-intellij/)

Spark - SparkSession (https://sparkbyexamples.com/ spark/sparksession-explainedwith-examples/)

Spark - SparkContext (https://sparkbyexamples.com/ spark/spark-sparkcontext/)

### **Spark RDD Tutorial**

Spark RDD - Parallelize (https://sparkbyexamples.com/ apache-spark-rdd/how-tocreate-an-rdd-usingparallelize/)

Spark RDD - Read text file (https://sparkbyexamples.com/ apache-spark-rdd/spark-readmultiple-text-files-into-asingle-rdd/)

**Union and UnionAll** hbase-tutorial/)

2 NNK Kafka (https://sparkbyexamples.com/author/admin/)

🗀 <u>Apache Spark</u>

(https://sparkbyexamples.com/category/spark/)

kafka-tutorials-with-examples/)

with Scala examples.

TO SIFT

In this Spark article, you will learn how to union two or more data frames of the FAQ's (nttps://sparkbyexamples.com/spark-same schema which is used to append DataFrame to another or combine two DataFrames and also explain the differences between union and union all

amples.com/)Q More Y WITH SO MANY **HEALTH SITES** 



Dataframe union() - union() method of the DataFrame is used to combine two DataFrame's of the same structure/schema. If schemas are not the same it returns an error.

<u>Spark RDD – Read CSV</u> (https://sparkbyexamples.com/ <u>apache-spark-rdd/spark-load-csv-file-into-rdd/)</u>

<u>Spark RDD – Create RDD</u> (https://sparkbyexamples.com/ apache-spark-rdd/differentways-to-create-spark-rdd/)</u>

<u>Spark RDD – Create Empty</u> <u>RDD</u>

(https://sparkbyexamples.com/ apache-spark-rdd/spark-howto-create-an-empty-rdd/)

<u>Spark RDD – Transformations</u> (<u>https://sparkbyexamples.com/apache-spark-rdd/spark-rdd-transformations/)</u>

<u>Spark RDD – Actions</u> (https://sparkbyexamples.com/ apache-spark-rdd/spark-rddactions/)

<u>Spark RDD – Pair Functions</u> (https://sparkbyexamples.com/ apache-spark-rdd/spark-pairrdd-functions/)

<u>Spark RDD – Repartition and</u> <u>Coalesce</u>

(https://sparkbyexamples.com/ spark/spark-repartition-vscoalesce/)

<u>Spark RDD – Shuffle</u>
<u>Partitions</u>
(<a href="https://sparkbyexamples.com/spark/spark-shuffle-partitions/">https://sparkbyexamples.com/spark/spark-shuffle-partitions/</a>)

<u>Spark RDD – Cache vs Persist</u> (https://sparkbyexamples.com/ <u>spark/spark-difference-</u> <u>between-cache-and-persist/)</u>

<u>Spark RDD – Persistance</u>
<u>Storage Levels</u>
(<a href="https://sparkbyexamples.com/spark/spark-persistence-storage-levels/">https://sparkbyexamples.com/spark/spark-persistence-storage-levels/</a>)

<u>Spark RDD – Broadcast</u>
<u>Variables</u>
(<a href="https://sparkbyexamples.com/spark/spark-broadcast-variables/">https://sparkbyexamples.com/spark/spark-broadcast-variables/</a>)

<u>Spark RDD – Accumulator</u>
<u>Variables</u>
(<a href="https://sparkbyexamples.com/spark/spark-accumulators/">https://spark-accumulators/</a>)

<u>Spark RDD – Convert RDD to</u> <u>DataFrame</u> (<u>https://sparkbyexamples.com/</u> DataFrame unionAll() - unionAll() is deprecated since Spark "2.0.0" version and replaced with union().

Note: In other SQL's, Union eliminates the duplicates but UnionAll combines two datasets including duplicate records. But, in spark both behave the same and use <a href="DataFrame duplicate">DataFrame duplicate</a> function to remove duplicate rows <a href="(https://sparkbyexamples.com/spark/spark-remove-duplicate-rows/).</a>

First, let's create two DataFrame with the same schema.



```
import spark.implicits._

val simpleData = Seq(("James"
    ("Michael","Sales","NY",860(
        ("Robert","Sales","CA",8100(
        ("Maria","Finance","CA",900())

val df = simpleData.toDF("empled.printSchema()
    df.printSchema()
```

This yields the below schema and DataFrame output.

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

### **Spark SQL Tutorial**

<u>Spark SQL - Create</u>
<u>DataFrame</u>
(https://sparkbyexamples.com/spark/different-ways-to-create-a-spark-dataframe/)

<u>Spark SQL – Select Columns</u> (https://sparkbyexamples.com/ <u>spark/spark-select-columns-</u> from-dataframe/)

Spark SQL - Add and Update Column (withColumn) (https://sparkbyexamples.com/spark/spark-dataframe-withcolumn/)

Spark SQL – Rename Nested
Column
(https://sparkbyexamples.com/
spark/rename-a-column-onspark-dataframes/)

<u>Spark SQL – Drop column</u> (<u>https://sparkbyexamples.com/spark/spark-drop-column-from-dataframe-dataset/</u>)

<u>Spark SQL – Where | Filter</u> (https://sparkbyexamples.com/ <u>spark/spark-dataframe-where-</u> filter/)

<u>Spark SQL – When Otherwise</u> (<u>https://sparkbyexamples.com/spark/spark-case-when-otherwise-example/</u>)

<u>Spark SQL – Collect data to</u>
<u>Driver</u>
(<a href="https://sparkbyexamples.com/spark/spark-dataframe-collect/">https://sparkbyexamples.com/spark/spark-dataframe-collect/</a>)

<u>Spark SQL – Distinct</u> (https://sparkbyexamples.com/ <u>spark/spark-remove-duplicate-rows/)</u>

<u>Spark SQL- Pivot Table</u>
<u>DataFrame</u>
(https://sparkbyexamples.com/spark/how-to-pivot-table-and-unpivot-a-spark-dataframe/)</u>

<u>Spark SQL – Data Types</u> (https://sparkbyexamples.com/ <u>spark/spark-sql-dataframe-data-types/)</u>

```
root
|-- employee name: string (nul
 |-- department: string (nullab
 |-- state: string (nullable =
 |-- salary: integer (nullable
 |-- age: integer (nullable = fa
 |-- bonus: integer (nullable =
|employee name|department|state
        James
                  Sales
      Michael
                  Sales
                 Sales
      Robert
                           CA
       Marial Financel
                           CA
```

Now, let's create a second Dataframe with the new records and some records from the above Dataframe but with the same schema.

```
val simpleData2 = Seq(("James
    ("Maria","Finance","CA",900
    ("Jen","Finance","NY",79000
    ("Jeff","Marketing","CA",800
    ("Kumar","Marketing","NY",93
)
val df2 = simpleData2.toDF("ended)
```

### This yields below output

# Combine two or more DataFrames using union

<u>Spark SQL – StructType |</u>
<u>StructField</u>
(https://sparkbyexamples.com/
<u>spark/spark-sql-structtype-on-dataframe/)</u>

<u>Spark SQL – Schema</u> (https://sparkbyexamples.com/ <u>spark/spark-schema-</u> <u>explained-with-examples/)</u>

<u>Spark SQL – Groupby</u> (<u>https://sparkbyexamples.com/spark/using-groupby-on-</u>dataframe/)

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

<u>Spark SQL – Join Types</u> (<u>https://sparkbyexamples.com/spark/spark-sql-dataframe-join/</u>)

<u>Spark SQL – Union and UnionAll</u> (https://sparkbyexamples.com/spark/spark-dataframe-union-and-union-all/)

<u>Spark SQL - map() vs</u> <u>mapPartitions()</u> (https://sparkbyexamples.com/ <u>spark/spark-map-vs-</u> mappartitions-transformation/)

<u>Spark SQL - foreach() vs</u> <u>foreachPartition()</u> (<u>https://sparkbyexamples.com/spark/spark-foreachpartition-vs-foreach-explained/)</u>

<u>Spark SQL - map() vs</u> <u>flatMap()</u> (https://sparkbyexamples.com/ <u>spark/spark-map-vs-flatmap-with-examples/)</u>

Spark SQL – Persist and
Cache
(https://sparkbyexamples.com/
spark/spark-dataframe-cacheand-persist-explained/)

<u>Spark SQL – UDF (User</u>
<u>Defined Functions)</u>
(<a href="https://sparkbyexamples.com/spark/spark-sql-udf/">https://sparkbyexamples.com/spark/spark-sql-udf/</a>)

<u>Spark SQL – Array</u>
(<u>ArrayType</u>) <u>Column</u>
(<u>https://sparkbyexamples.com/spark/spark-array-arraytype-dataframe-column/</u>)

DataFrame union() method combines two DataFrames and returns the new DataFrame with all rows from two Dataframes regardless of duplicate data.

```
val df3 = df.union(df2)
df3.show(false)
```

As you see below it returns all records.

```
|employee name|department|state
             Sales
                       NY
Michael
             Sales
                       NY
Robert
             Sales
                       CA
Maria
             Finance
                       CA
James
            Sales
                      NY
lMaria
             Finance
                      CA
lJen
             |Finance |NY
Jeff
             |Marketing | CA
             |Marketing |NY
Kumar
```

# Combine DataFrames using unionAll

DataFrame unionAll() method is deprecated since Spark "2.0.0" version and recommends using the union() method.

```
val df4 = df.unionAll(df2)
df4.show(false)
```

Returns the same output as above.

<u>Spark SQL – Map (MapType)</u> <u>column</u> (https://sparkbyexamples.com/ <u>spark/spark-dataframe-map-maptype-column/)</u>

<u>Spark SQL - Flatten Nested</u>
<u>Struct Column</u>
(<u>https://sparkbyexamples.com/spark/spark-flatten-nested-struct-column/)</u>

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

<u>Spark SQL – Explode Array & Map Columns</u>
(https://sparkbyexamples.com/spark/explode-spark-array-and-map-dataframe-column/)

<u>Spark SQL - Sampling</u> (https://sparkbyexamples.com/ <u>spark/spark-sampling-with-</u> examples/)

<u>Spark SQL – Partitioning</u> (https://sparkbyexamples.com/ <u>spark/spark-partitioning-</u> <u>understanding/)</u>

### **Spark SQL Functions**

<u>Spark SQL String Functions</u> (https://sparkbyexamples.com/ <u>spark/usage-of-spark-sql-</u> <u>string-functions/)</u>

Spark SQL Date and
Timestamp Functions
(https://sparkbyexamples.com/spark/spark-sql-date-and-time-functions/)

<u>Spark SQL Array Functions</u> (<u>https://sparkbyexamples.com/spark/spark-sql-array-functions/</u>)

<u>Spark SQL Map Functions</u> (https://sparkbyexamples.com/ <u>spark/spark-sql-map-</u> functions/)

<u>Spark SQL Sort Functions</u>
(https://sparkbyexamples.com/
<u>spark/spark-sql-sort-</u>
functions/)

<u>Spark SQL Aggregate</u> <u>Functions</u> (https://sparkbyexamples.com/

# Combine without Duplicates

Since the union() method returns all rows without distinct records, we will use the distinct() function to return just one record when duplicate exists.

```
val df5 = df.union(df2).disti
df5.show(false)
```

Yields below output. As you see, this returns only distinct rows.



## Complete Example of DataFrame Union

<u>spark/spark-sql-aggregate-functions/)</u>

<u>Spark SQL Window Functions</u> (https://sparkbyexamples.com/ <u>spark/spark-sql-window-functions/)</u>

<u>Spark SQL JSON Functions</u> (<u>https://sparkbyexamples.com/spark/spark-most-used-json-functions-with-examples/</u>)

### **Spark Data Source API**

<u>Spark – Read & Write CSV file</u> (https://sparkbyexamples.com/ <u>spark/spark-read-csv-file-into-</u> dataframe/)

<u>Spark – Read and Write JSON</u> <u>file</u> (https://sparkbyexamples.com/ <u>spark/spark-read-and-write-</u> <u>json-file/)</u>

<u>Spark – Read & Write Parquet</u> <u>file</u> (<u>https://sparkbyexamples.com/spark/spark-read-write-dataframe-parquet-example/</u>)

<u>Spark – Read & Write XML file</u> (https://sparkbyexamples.com/ <u>spark/spark-read-write-xml/)</u>

<u>Spark – Read & Write Avro</u> <u>files</u> (<u>https://sparkbyexamples.com/spark/read-write-avro-file-spark-dataframe/</u>)

<u>Spark – Read & Write Avro</u> <u>files (Spark version 2.3.x or earlier)</u> (<u>https://sparkbyexamples.com/spark/using-avro-data-files-from-spark-sql-2-3-x/)</u>

Spark – Read & Write HBase using "hbase-spark" Connector (https://sparkbyexamples.com/spark/spark-read-write-using-hbase-spark-connector/)

Spark – Read & Write from HBase using Hortonworks (https://sparkbyexamples.com/ spark/create-spark-dataframefrom-hbase-usinghortonworks/)

<u>Spark – Read & Write ORC file</u> (https://sparkbyexamples.com/ <u>spark/spark-read-orc-file-into-dataframe/)</u>

```
package com.sparkbyexamples.spa
import org.apache.spark.sql.Spa
object UnionExample extends App
  val spark: SparkSession = Spa
    .master("local[1]")
    .appName("SparkByExamples.co
    .getOrCreate()
  spark.sparkContext.setLogLeve
  import spark.implicits.
  val simpleData = Seq(("James"
    ("Michael", "Sales", "NY", 860
    ("Robert", "Sales", "CA", 8100
    ("Maria", "Finance", "CA", 900
  val df = simpleData.toDF("emp
  df.printSchema()
  df.show()
  val simpleData2 = Seq(("James
    ("Maria", "Finance", "CA", 900
    ("Jen", "Finance", "NY", 79000
    ("Jeff", "Marketing", "CA", 80
    ("Kumar", "Marketing", "NY", 9
  val df2 = simpleData2.toDF("el
  df2.show(false)
  val df3 = df.union(df2)
  df3.show(false)
  df3.distinct().show(false)
  val df4 = df.unionAll(df2)
  df4.show(false)
}
```

This complete example is also available at the GitHub (https://github.com/spark-examples/spark-scala-examples/blob/master/src/main/scala/com/sparkbyexamples/spark/dataframe/UnionExample.scala) project.

### Conclusion

<u>Spark – Read Binary File</u> (<u>https://sparkbyexamples.com/spark/spark-read-binary-file-into-dataframe/)</u>

## Spark Streaming & Kafka

<u>Spark Streaming –</u>
<u>OutputModes</u>
(<a href="https://sparkbyexamples.com/spark/spark-streaming-">https://sparkbyexamples.com/spark/spark-streaming-</a>
outputmode/)

<u>Spark Streaming – Reading</u>
<u>Files From Directory</u>
(https://sparkbyexamples.com/
<u>spark/spark-streaming-read-</u>
<u>json-files-from-directory/)</u>

<u>Spark Streaming – Reading</u>
<u>Data From TCP Socket</u>
(https://sparkbyexamples.com/
<u>spark/spark-streaming-from-tcp-socket/)</u>

<u>Spark Streaming – Processing</u>
<u>Kafka Messages in JSON</u>
<u>Format</u>
(<a href="https://sparkbyexamples.com/spark/spark-streaming-with-kafka/">https://sparkbyexamples.com/spark/spark-streaming-with-kafka/</a>)

Kafka messages in AVRO
Format
(https://sparkbyexamples.com/
spark/spark-streamingconsume-and-produce-kafkamessages-in-avro-format/)

Spark Streaming - Processing

<u>Spark SQL Batch – Consume</u>
<u>& Produce Kafka Message</u>
(https://sparkbyexamples.com/
<u>spark/spark-batch-processing-produce-consume-kafka-</u>
topic/)

In this Spark article, you have learned how to combine two or more DataFrame's of the same schema into single DataFrame using Union method and learned the difference between the union() and unionAll() functions.

### Happy learning !!

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### Manasee Kamble

6 MAY 2020 REPLY

I am trying UnionByName on dataframes but it gives weird results in cluster mode. It runs on local as expected.

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ark-using-length-size-of-a-dataframecolumn/)

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