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(https://sparkbyexamples.com/py tutorial/)

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packages)

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tutorial/)When Usage (https://sparkbyexamples.com/py spark-tutorial/#cluster-manager)

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installation)

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Otherwise | SQL Case

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PySpark DataFrame

PySpark - Create a DataFrame (https://sparkbyexamples.com/py

When on DataFrame with Examples -Similar to SQL and programming (https://sparkbyexamples.com/py More Vandulages//spysplarkesupportssacway/) check multiple conditions in sequence and returns a value when the first condition met

else" statements.

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- Using "When Otherwise" on DataFrame.
- PySpark SQL "Case When" on DataFrame.
- Using Multiple Conditions With & (And) | (OR) operators

ark/spark-web-ui-understanding/) FAQ's P(yStpark/Wherk Dybersvisel and SQLspask-questions/) by using SQL like case when and when().otherwise() expressions, these works similar to "Switch" and "if then

spark/different-ways-to-createdataframe-in-pyspark/)

PySpark - Create an empty **DataFrame**

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PySpark - drop() & dropDuplicates() (https://sparkbyexamples.com/py spark/pyspark-distinct-to-dropduplicates/)

PySpark - orderBy() and sort() (https://sparkbyexamples.com/py PySpark When Otherwise - when() is a SQL function that returns a Column type and otherwise() is a function of Column, if otherwise() is not used, it returns a None/NULL value.

PySpark SQL Case When - This is similar to SQL expression, Usage: CASE WHEN cond1 THEN result WHEN cond2 THEN result... ELSE result END.

First, let's create a DataFrame (https://sparkbyexamples.com/pyspark/diffe rent-ways-to-create-dataframe-in-pyspark/)

```
from pyspark.sql import SparkSessic
spark = SparkSession.builder.appNan
data = [("James", "M", 60000), ("Micha
        ("Robert", None, 400000), ("Ma
        ("Jen","", None)]
columns = ["name", "gender", "salary
df = spark.createDataFrame(data = 0)
df.show()
+----+
   name | gender | salary |
+----+
   James
             M | 60000 |
              M | 70000 |
Michael
| Robert| null|400000|
              F | 500000 |
  Maria
              | null|
     Jenl
```

1. Using when() otherwise() on PySpark DataFrame.

PySpark when() is SQL function, in order to use this first you should import and this returns a Column type, otherwise() is a function of Column, when otherwise() not used and none of the conditions met it assigns None (Null) value. Usage would be like

when(condition).otherwise(default).

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spark/pyspark-orderby-and-sortexplained/)

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<u>PySpark – join()</u> (https://sparkbyexam

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PySpark – union() & unionAll() (https://sparkbyexamples.com/py spark/pyspark-union-andunionall/)

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

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

<u>PySpark – map()</u> (https://sparkbyexamples.com/py spark/pyspark-maptransformation/)</u>

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

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PySpark - sample() vs sampleBy() (https://sparkbyexamples.com/py spark/pyspark-samplingexample/)

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/)

<u>PySpark – partitionBy()</u>
(https://sparkbyexamples.com/py
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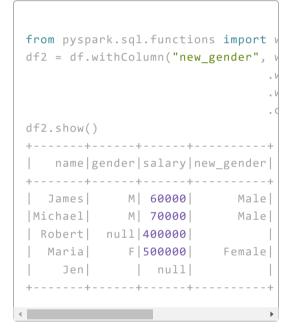
PySpark – ArrayType Column
(Array)
(https://sparkbyexamples.com/py
spark/pyspark-arraytype-column-with-examples/)

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when() function take 2 parameters, first param takes a condition and second takes a literal value or Column, if condition evaluates to true then it returns a value from second param.

The below code snippet replaces the value of gender with a new derived value, when conditions not matched, we are assigning "Unknown" as value, for null assigning empty.



Using with select()

This yields same output as above.

2. PySpark SQL Case When on DataFrame.



<u>PySpark – MapType (Map/Dict)</u> (https://sparkbyexamples.com/py spark/pyspark-maptype-dictexamples/)</u>

PySpark SQL Functions

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

<u>PySpark – Window Functions</u> (<u>https://sparkbyexamples.com/pyspark/pyspark-window-functions/</u>)

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

(https://sparkbyexamples.com/pyspark/pyspark-sql-date-and-timestamp-functions/)

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

PySpark Datasources

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

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

(https://sparkbyexamples.com/py spark/pyspark-read-and-writeparquet-file/)

<u>PySpark – Read & Write JSON</u> <u>file</u>

(https://sparkbyexamples.com/py spark/pyspark-read-json-file-intodataframe/)



If you have a SQL background you might have familiar with Case When statement (https://www.w3schools.com/sql/sql_case.asp) that is used to execute a sequence of conditions and returns a value when the first condition met, similar to SWITH and IF THEN ELSE statements. Similarly, PySpark SQL Case When statement can be used on DataFrame, below are some of the examples of using with withColumn(), select(), selectExpr() utilizing expr() function.

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Syntax of SQL CASE WHEN ELSE END

```
CASE

WHEN condition1 THEN result_val

WHEN condition2 THEN result_val

----

ELSE result

END;
```

- CASE is the start of the expression
- Clause WHEN takes a condition, if condition true it returns a value from THEN

If the condition is false it goes to the next condition and so on.

If none of the condition matches, it returns a value from the **ELSE** clause. **END** is to end the expression

1.1 Using Case When Else on

JataFrame using

withColumn() & select()

Below example uses PySpark SQL expr()
Function

(https://sparkbyexamples.com/pyspark/pyspark-sql-expr-expression-function/) to express SQL like expressions.



PySpark Built-In Functions

<u>PySpark – when()</u> (https://sparkbyexamples.com/pyspark/pyspark-when-otherwise/)</u>

<u>PySpark - expr()</u>
(https://sparkbyexamples.com/pyspark/pyspark-sql-expr-expression-function/)

<u>PySpark – lit()</u>
(https://sparkbyexamples.com/pyspark/pyspark-lit-add-literal-constant/)</u>

<u>PySpark - split()</u>
(https://sparkbyexamples.com/pyspark/pyspark-convert-string-to-array-column/)

<u>PySpark - concat_ws()</u>
(https://sparkbyexamples.com/pyspark/pyspark-convert-array-column-to-string-column/)</u>

<u>Pyspark – substring()</u>
(https://sparkbyexamples.com/pyspark/pyspark-substring-from-a-column/)</u>

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

<u>PySpark - regexp_replace()</u>
(https://sparkbyexamples.com/pyspark/pyspark-replace-column-

```
from pyspark.sql.functions import
#Using Case When on withColumn()
df3 = df.withColumn("new gender",
               "WHEN gender = 'F'
               "ELSE gender END"))
df3.show(truncate=False)
        |gender|salary|new gender|
lJames |M
               |60000 |Male
|Michael|M
               |70000 |Male
|Robert | null | | 400000 |
               |500000|Female
|Maria |F
               |null |
lJen
#Using Case When on select()
df4 = df.select(col("*"), expr("CAS
           "WHEN gender = 'F' THEN
           "ELSE gender END").alias
```

1.2 Using Case When on SQL

Expression

You can also use Case When with SQL statement after creating a temporary view. This returns a similar output as above.

2.3. Multiple Conditions using & and | operator

We often need to check with multiple conditions, below is an example of using PySpark When Otherwise with multiple conditions by using and (&) or (|) coperators. To explain this I will use a new set of data to make it simple.

```
df5.withColumn("new_column", when(col("code") == "b" & column").show()
```

Output:

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

PySpark – overlay() (https://sparkbyexamples.com/pyspark/pyspark-replace-column-values/#overlay-function)

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

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

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

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())

<u>PySpark - explode()</u>
(https://sparkbyexamples.com/pyspark/pyspark-explode-nested-array-into-rows/)

<u>PySpark – array_contains()</u>
(https://sparkbyexamples.com/pyspark/pyspark-arraytype-column-withexamples/#array_contains)

<u>PySpark – array()</u>
(https://sparkbyexamples.com/pyspark/pyspark-arraytype-column-withexamples/#array)</u>

<u>PySpark - collect_list()</u>
(https://sparkbyexamples.com/pyspark/pyspark-aggregate-functions/#collect-list)</u>

<u>PySpark - collect_set()</u>
(https://sparkbyexamples.com/pyspark/pyspark-aggregate-functions/#collect-set)</u>

PySpark - create_map() (https://sparkbyexamples.com/pyspark/pyspark-convert-dataframe-columns-to-maptype-dict/)

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

<u>PySpark - map_values()</u> (https://sparkbyexamples.com/pysp_

```
+---+---+
| id|code|amt|new_column|
+---+---+
| 66| a| 4| A|
| 67| a| 0| A|
| 70| b| 4| B|
| 71| d| 4| A|
+---+---+
```

Complete Example – PySpark When Otherwise | SQL Case When

```
from pyspark.sql import SparkSessic
spark = SparkSession.builder.appNan
data = [("James", "M", 60000), ("Mick
        ("Robert", None, 400000), ("N
        ("Jen","", None)]
columns = ["name", "gender", "salary'
df = spark.createDataFrame(data = d
df.show()
#Using When otherwise
from pyspark.sql.functions import v
df2 = df.withColumn("new gender",
df2.show()
df2=df.select(col("*"),when(df.gend
                   .when(df.gender
                   .when(df.gender.i
                  .otherwise(df.ger
df2.show()
# Using SQL Case When
from pyspark.sql.functions import @
df3 = df.withColumn("new gender", e
           "WHEN gender = 'F' THEN
          "ELSE gender END"))
df3.show()
df4 = df.select(col("*"), expr("CAS
           "WHEN gender = 'F' THEN
           "ELSE gender END").alias
df.createOrReplaceTempView("EMP")
spark.sql("select name, CASE WHEN a
               "WHEN gender = 'F'
              "ELSE gender END as r
```

Conclusion:

ark/pyspark-maptype-dictexamples/#map_values)

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

<u>PySpark – countDistinct()</u>
(https://sparkbyexamples.com/pyspark/pyspark-count-distinct-from-dataframe/)</u>

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

<u>PySpark - row_number()</u>
(https://sparkbyexamples.com/pyspark/pyspark-window-functions/#row_number)

<u>PySpark - rank()</u>
(https://sparkbyexamples.com/pyspark/pyspark-window-functions/#rank)

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

<u>PySpark – percent_rank()</u>
(https://sparkbyexamples.com/pyspark/pyspark-window-functions/#percent_rank)

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

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

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

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

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

<u>PySpark – schema of json()</u>
(https://sparkbyexamples.com/pyspark/pyspark-json-functions-with-examples/#schema of json)

In this article, you have learned how to use Pyspark SQL "case when" and "when otherwise" on Dataframe by leveraging example like checking with NUII/None, applying with multiple conditions using AND (&), OR (|) logical operators. I hope you like this article.

Happy Learning !!

References

 https://spark.apache.org/docs/2.1.0/api/p ython/pyspark.sql.html (https://spark.apache.org/docs/2.1.0/api/ python/pyspark.sql.html)

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