CREATE USER DEFINED FUNCTION(UDF)

Aim :

To create User Define Function in Apache Pig and execute it on map reduce.

Procedure:

Create a sample text file

```
hadoop@Ubuntu:~/Documents$ nano sample.txt
```

Paste the below content to sample.txt

```
1,John
2,Jane
3,Joe
4,Emma
```

```
hadoop@Ubuntu:~/Documents$ hadoop fs -put sample.txt /home/hadoop/piginput/
```

Create PIG File

```
hadoop@Ubuntu:~/Documents$ nano demo_pig.pig
```

paste the below the content to demo_pig.pig

```
-- Load the data from HDFS
data = LOAD '/home/hadoop/piginput/sample.txt' USING PigStorage(',') AS (id:int>
-- Dump the data to check if it was loaded correctly
DUMP data;
------------------------------------------------------------------------------------------
```

Run the above file

```
hadoop@Ubuntu:~/Documents$ pig demo_pig.pig
2024-08-07 12:13:08,791 [main] INFO
org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil
- Total input paths to process : 1
(1,John)
(2,Jane)
(3,Joe)
(4,Emma)
--------------------------------------------------------------------------------------------------------------------
```

Create udf file an save as uppercase_udf.py

uppercase_udf.py

```
----------------------------------------------------------------------------------------------------
def uppercase(text):
return text.upper()
if__name___== "_main_":
import sys
for line in sys.stdin:
line = line.strip()
result = uppercase(line)
print(result)
----------------------------------------------------------------------------------------------------
```

Create the udfs folder on hadoop

```
hadoop@Ubuntu:~/Documents$ hadoop fs -mkdir /home/hadoop/udfs
```

put the upppercase_udf.py in to the abv folder

```
hadoop@Ubuntu:~/Documents$ hdfs dfs -put uppercase_udf.py /home/hadoop/udfs/
------------------------------------------------------------------------------------------
hadoop@Ubuntu:~/Documents$ nano udf_example.pig
```

copy and paste the below content on udf_example.pig

```
-- Register the Python UDF script
REGISTER 'hdfs:///home/hadoop/udfs/uppercase_udf.py' USING jython AS udf;
-- Load some data
data = LOAD 'hdfs:///home/hadoop/sample.txt' AS (text:chararray);
-- Use the Python UDF
uppercased_data = FOREACH data GENERATE udf.uppercase(text) AS uppercase_text;
-- Store the result
STORE uppercased_data INTO 'hdfs:///home/hadoop/pig_output_data';
-------------------------------------------------------------------------------------------------------------------------
```

place sample.txt file on hadoop

```
hadoop@Ubuntu:~/Documents$ hadoop fs -put sample.txt /home/hadoop/
```

To Run the pig file

hadoop@Ubuntu:~/Documents$ pig -f udf_example.pig

finally u get

Success!

Job Stats (time in seconds):

JobId Maps Reduces MaxMapTimeMinMapTime AvgMapTime MedianMapTime

MaxReduceTime MinReduceTime AvgReduceTime MedianReducetime

Alias Feature Outputs

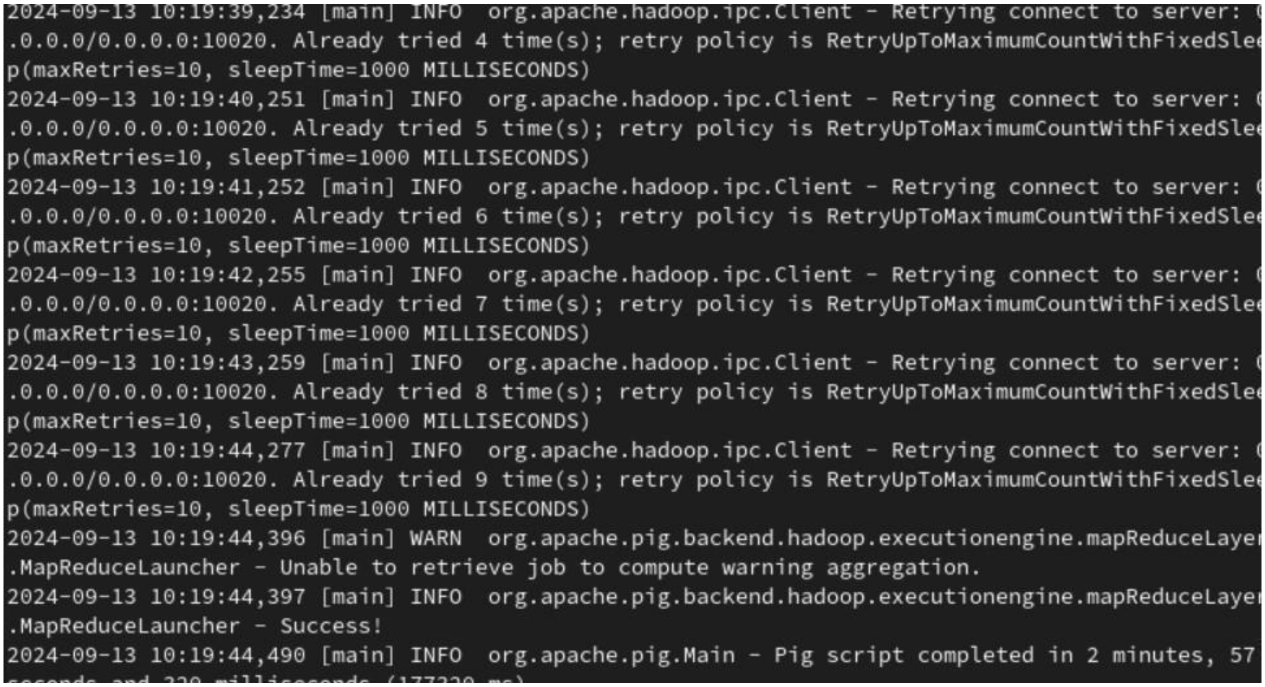
job_local1786848041_0001 1 0 n/a n/a n/a n/a 00 0 0

data,uppercased_data MAP_ONLY hdfs:///home/hadoop/pig_output_data,

Input(s):

Successfully read 4 records (42778068 bytes) from: "hdfs:///home/hadoop/sample.txt"

Output(s):



```
2024-09-13 10:19:39,234 [main] INFO  org.apache.hadoop.ipc.Client - Retrying connect to server: 
.0.0.0/0.0.0.0:10020. Already tried 4 time(s); retry policy is RetryUpToMaximumCountWithFixedSlee
p(maxRetries=10, sleepTime=1000 MILLISECONDS)
2024-09-13 10:19:40,251 [main] INFO  org.apache.hadoop.ipc.Client - Retrying connect to server: 
.0.0.0/0.0.0.0:10020. Already tried 5 time(s); retry policy is RetryUpToMaximumCountWithFixedSlee
p(maxRetries=10, sleepTime=1000 MILLISECONDS)
2024-09-13 10:19:41,252 [main] INFO  org.apache.hadoop.ipc.Client - Retrying connect to server: 
.0.0.0/0.0.0.0:10020. Already tried 6 time(s); retry policy is RetryUpToMaximumCountWithFixedSlee
p(maxRetries=10, sleepTime=1000 MILLISECONDS)
2024-09-13 10:19:42,255 [main] INFO  org.apache.hadoop.ipc.Client - Retrying connect to server: 
.0.0.0/0.0.0.0:10020. Already tried 7 time(s); retry policy is RetryUpToMaximumCountWithFixedSlee
p(maxRetries=10, sleepTime=1000 MILLISECONDS)
2024-09-13 10:19:43,259 [main] INFO  org.apache.hadoop.ipc.Client - Retrying connect to server: 
.0.0.0/0.0.0.0:10020. Already tried 8 time(s); retry policy is RetryUpToMaximumCountWithFixedSlee
p(maxRetries=10, sleepTime=1000 MILLISECONDS)
2024-09-13 10:19:44,277 [main] INFO  org.apache.hadoop.ipc.Client - Retrying connect to server: 
.0.0.0/0.0.0.0:10020. Already tried 9 time(s); retry policy is RetryUpToMaximumCountWithFixedSlee
p(maxRetries=10, sleepTime=1000 MILLISECONDS)
2024-09-13 10:19:44,396 [main] WARN  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer
.MapReduceLauncher - Unable to retrieve job to compute warning aggregation.
2024-09-13 10:19:44,397 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer
.MapReduceLauncher - Success!
2024-09-13 10:19:44,490 [main] INFO  org.apache.pig.Main - Pig script completed in 2 minutes, 57
seconds and 320 milliseconds (177320 ms)
```

Successfully stored 4 records (42777870 bytes) in: "hdfs:///home/hadoop/pig_output_data"

Counters:

Total records written : 4

Total bytes written : 42777870

Spillable Memory Manager spill count : 0

```
Total bags proactively spilled: 0
Total records proactively spilled: 0
Job DAG:
job_local1786848041_0001
2024-08-07 13:33:04,631 [main] WARN
org.apache.hadoop.metrics2.impl.MetricsSystemImpl -
JobTracker metrics system already initialized!
2024-08-07 13:33:04,639 [main] WARN
org.apache.hadoop.metrics2.impl.MetricsSystemImpl -
JobTracker metrics system already initialized!
2024-08-07 13:33:04,644 [main] WARN
org.apache.hadoop.metrics2.impl.MetricsSystemImpl -
JobTracker metrics system already initialized!
2024-08-07 13:33:04,667 [main] INFO
org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher -
Success!
```

Note :

If any error check jython package is installed and check the path specified on the above steps are give correctly

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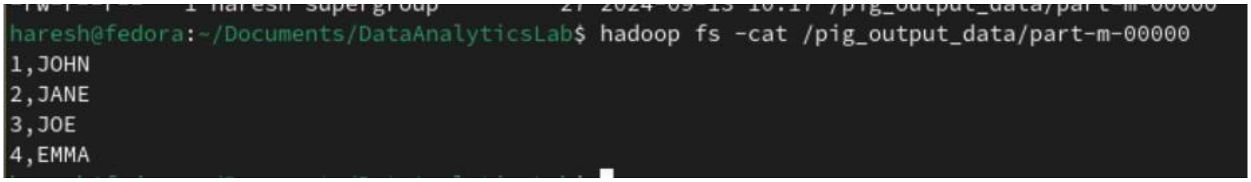
To check the output file is created

```
hadoop@Ubuntu:~/Documents$ hdfs dfs -ls /home/hadoop/pig_output_data
Found 2 items
```

If you need to examine the files in the output folder, use:

To view the output

```
hadoop@Ubuntu:~/Documents$ hdfs dfs -cat /home/hadoop/pig_output_data/part-m00000
1,JOHN
2,JANE
3,JOE
4,EMMA
```



```
-rw-r--r--   1 haresh supergroup          27 2024-09-13 10:17 /pig_output_data/part-m-00000
haresh@fedora:~/Documents/DataAnalyticsLab$ hadoop fs -cat /pig_output_data/part-m-00000
1,JOHN
2,JANE
3,JOE
4,EMMA
```

Result:

Thus, the program is executed successfully