

# KYLIN-5422 The ceil function exception causes the query to fail to generate codegen code properly

## Description

Spark's org.apache.spark.sql.catalyst.util.DateTimeUtils#ceilTimestamp method parameter exception

## Root Cause

org.apache.spark.sql.catalyst.expressions.CeilDateTime#doGenCode This method and spark's org.apache.spark.sql.catalyst.util.DateTimeUtils# ceilTimestamp type does not match

## Test Evidence:

Before fix

```
2022-12-08T17:28:30,875 WARN [Executor task launch worker for task 0.0 in stage 1.0 (TID 5)] expressions.Predicate : Expr codegen error and falling back to interpreter mode
java.util.concurrent.ExecutionException: org.codehaus.compiler.CompileException: File 'generated.java', Line 86, Column 75: failed to compiler: org.codehaus.commons.compiler.CompileException: File 'generated.java', 1
    at org.sparkproject.guava.util.concurrent.AbstractFuture$Sync.getValue(AbstractFuture.java:306) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.util.concurrent.AbstractFuture$Sync.get(AbstractFuture.java:293) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.util.concurrent.AbstractFuture.get(AbstractFuture.java:116) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.util.concurrent.Uninterruptibles.getUninterruptibly(Uninterruptibles.java:135) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$Segment.getAndRecordStats(LocalCache.java:2410) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$Segment.loadSync(LocalCache.java:2380) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$Segment.lockedGetOrLoad(LocalCache.java:2342) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$Segment.get(LocalCache.java:2257) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache.get(LocalCache.java:4000) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache.getOrLoad(LocalCache.java:4004) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$LocalLoadingCache.get(LocalCache.java:4874) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.codegen.CodeGenerator$.compile(CodeGenerator.scala:1436) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.codegen.GeneratePredicate$.create(GeneratePredicate.scala:75) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.codegen.GeneratePredicate$.generate(GeneratePredicate.scala:33) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.Predicate$.createCodeGeneratedObject(predicates.scala:89) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.Predicate$.createCodeGeneratedObject(predicates.scala:86) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.CodeGeneratorWithInterpretedFallback.createObject(CodeGeneratorWithInterpretedFallback.scala:52) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.Predicate$.create(predicates.scala:102) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.execution.FilterExec.$anonfun$doExecute$2(basicPhysicalOperators.scala:272) ~[spark-sql_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.execution.FilterExec.$anonfun$doExecute$2$adapted(basicPhysicalOperators.scala:271) ~[spark-sql_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.$anonfun$mapPartitionsWithIndexInternal$2(RDD.scala:885) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.$anonfun$mapPartitionsWithIndexInternal$2$adapted(RDD.scala:885) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.MapPartitionsRDD.compute(MapPartitionsRDD.scala:52) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.computeOrReadCheckpoint(RDD.scala:373) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.iterator(RDD.scala:337) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.MapPartitionsRDD.compute(MapPartitionsRDD.scala:52) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.computeOrReadCheckpoint(RDD.scala:373) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.iterator(RDD.scala:337) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.computeOrReadCheckpoint(RDD.scala:373) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.iterator(RDD.scala:337) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.MapPartitionsRDD.compute(MapPartitionsRDD.scala:52) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.computeOrReadCheckpoint(RDD.scala:373) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.rdd.RDD.iterator(RDD.scala:337) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.scheduler.ShuffleMapTask.runTask(ShuffleMapTask.scala:99) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.scheduler.ShuffleMapTask.runTask(ShuffleMapTask.scala:52) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.scheduler.Task.run(Task.scala:131) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.executor.Executor$TaskRunner.run(ThreadPoolExecutor.java:506) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.util.Utils$.tryWithSafeFinally(Utils.scala:1469) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.executor.Executor$TaskRunner.run(Executor.scala:509) ~[spark-core_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1149) ~[?:1.8.0_352]
    at java.lang.Thread.run(Thread.java:750) ~[?:1.8.0_352]
Caused by: org.codehaus.commons.compiler.CompileException: File 'generated.java', Line 86, Column 75: failed to compiler: org.codehaus.commons.compiler.CompileException: File 'generated.java', Line 86, Column 75: No applica
    at org.apache.spark.sql.errors.QueryExecutionErrors.compilerError(QueryExecutionErrors.scala:402) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.codegen.CodeGenerator$.org$spark$spark$sql$catalyst$expressions$codegen$CodeGenerator$doCompile(CodeGenerator.scala:1501) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.codegen.CodeGenerator$.anonfun$load(CodeGenerator.scala:1586) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.apache.spark.sql.catalyst.expressions.codegen.CodeGenerator$.anonfun$load(CodeGenerator.scala:1583) ~[spark-catalyst_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$LoadingValueReference.loadFuture(LocalCache.java:3599) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    at org.sparkproject.guava.cache.LocalCache$Segment.loadSync(LocalCache.java:2379) ~[spark-network-common_2.12-3.2.0-kylin-4.6.2.0.jar:3.2.0-kylin-4.6.2.0]
    ... 38 more
```

After fix:

```
or] executor.YarnCoarseGrainedExecutorBackend : Got assigned task 5775
ich worker for task 0.0 in stage 36.0 (TID 5775) ] executor.Executor : Running task 0.0 in stage 36.0 (TID 5775)
ich worker for task 0.0 in stage 36.0 (TID 5775) ] spark.MapOutputTrackerWorker : Updating epoch to 15 and clearing cache
ich worker for task 0.0 in stage 36.0 (TID 5775) ] broadcast.TorrentBroadcast : Started reading broadcast variable 56 with 1 pieces (estimated total si
ich worker for task 0.0 in stage 36.0 (TID 5775) ] memory.MemoryStore : Block broadcast_56_piece0 stored as bytes in memory (estimated size 27.1 KiB, fr
ich worker for task 0.0 in stage 36.0 (TID 5775) ] broadcast.TorrentBroadcast : Reading broadcast variable 56 took 16 ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] memory.MemoryStore : Block broadcast_56 stored as values in memory (estimated size 71.1 KiB, free 62
ich worker for task 0.0 in stage 36.0 (TID 5775) ] datasources.FileScanRDD : SAMetrics=File hdfs://kcluster/k_team/mming1118/TPCH_100/parquet/eca9a520-8
ich worker for task 0.0 in stage 36.0 (TID 5775) ] codegen.CodeGenerator : Code generated in 61.856411 ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] codegen.CodeGenerator : Code generated in 11.025778 ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] datasources.FileScanRDD : Reading File path: hdfs://kcluster/k_team/mming1118/TPCH_100/parquet/eca9a5
ich worker for task 0.0 in stage 36.0 (TID 5775) ] broadcast.TorrentBroadcast : Started reading broadcast variable 55 with 1 pieces (estimated total si
ich worker for task 0.0 in stage 36.0 (TID 5775) ] memory.MemoryStore : Block broadcast_55_piece0 stored as bytes in memory (estimated size 32.4 KiB, fr
ich worker for task 0.0 in stage 36.0 (TID 5775) ] broadcast.TorrentBroadcast : Reading broadcast variable 55 took 16 ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] memory.MemoryStore : Block broadcast_55 stored as values in memory (estimated size 446.0 KiB, free 62
ich worker for task 0.0 in stage 36.0 (TID 5775) ] ipc.ProtobufRpcEngine : Call: getFileInfo took 2ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] ipc.ProtobufRpcEngine : Call: getBlockLocations took 2ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : File length 213653
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : reading footer index at 213645
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : read footer length: 2490, footer index: 211155
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : Finished to read all footer bytes.
ich worker for task 0.0 in stage 36.0 (TID 5775) ] compat.FilterCompat : Filtering using predicate: lteq(13, Binary{"1998-09-16"})
ich worker for task 0.0 in stage 36.0 (TID 5775) ] ipc.ProtobufRpcEngine : Call: getFileInfo took 1ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] ipc.ProtobufRpcEngine : Call: getBlockLocations took 0ms
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : File length 213653
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : reading footer index at 213645
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : read footer length: 2490, footer index: 211155
ich worker for task 0.0 in stage 36.0 (TID 5775) ] hadoop.ParquetFileReader : Finished to read all footer bytes.
ich worker for task 0.0 in stage 36.0 (TID 5775) ] compress.CodecPool : Got brand-new decompressor [.snappy]
ich worker for task 0.0 in stage 36.0 (TID 5775) ] executor.Executor : Finished task 0.0 in stage 36.0 (TID 5775). 2865 bytes result sent to driver
```