```
nodeID(24) FileScan parquet tpcds_100_parquet.store_sales[ss_sold_date_sk#3,ss_item_sk#5,ss_customer_sk#6,ss_store_sk#10,ss_ticket_number#12L,ss_net_profit#25]
                                                                                                                                                                                                                                                                                                                                                                                                                                    nodeID(28) FileScan parquet tpcds_100_parquet.store_returns[sr_returned_date_sk#26,sr_item_sk#28,sr_customer_sk#29,sr_ticket_number#35L,sr_net_loss#45]
nodeID(23) Filter ((((isnotnull(sr_customer_sk#29) AND isnotnull(sr_ticket_number#35L)) and isnotnull(sr_ticket_number#35L
                                                          nodeID(22) Exchange hashpartitioning(ss_customer_sk#6, ss_item_sk#5, ss_ticket_number#12L, 200), ENSURE_REQUIREMENTS, [plan_id=151]
                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(26) Exchange hashpartitioning(sr_customer_sk#29, sr_item_sk#28, sr_ticket_number#35L, 200), ENSURE_REQUIREMENTS, [plan_id=152]
                                                            nodeID(21) Sort [ss_customer_sk#6 ASC NULLS FIRST, ss_item_sk#5 ASC NULLS FIRST, ss_ticket_number#12L ASC NULLS FIRST], false, 0
                                                                                                                                                                                                                                                                                                                                                                                                                   nodeID(25) Sort [sr_customer_sk#29 ASC NULLS FIRST, sr_item_sk#28 ASC NULLS FIRST, sr_ticket_number#35L ASC NULLS FIRST], false, 0
                                                                                                                                                                                                                                nodeID(20) SortMergeJoin [ss_customer_sk#6, ss_item_sk#5, ss_item_sk#49,cs_item_sk#29, sr_item_sk#29, sr_item_s
                                                                                                                                                                                                                           nodeID(19) Project [ss_sold_date_sk#3, ss_item_sk#5, ss_store_sk#49) AND isnotnull(cs_item_sk#26, sr_item_sk#26, sr_item_sk#26, sr_item_sk#26) and isnotnull(cs_item_sk#26, sr_item_sk#26, sr_item_sk#26) and isnotnull(cs_item_sk#26, sr_item_sk#26, sr_item_sk#26) and isnotnull(cs_item_sk#26, sr_item_sk#26) and isnotnull(cs_item_sk#26, sr_item_sk#26, sr_ite
                                                                                                                                                                                                                                                        nodeID(18) Exchange hashpartitioning(sr_customer_sk#29, sr_item_sk#29, sr_item_sk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(36) FileScan parquet tpcds_100_parquet.date_dim[d_date_sk#80,d_year#86,d_moy#88]
                                                                                                                                                                                                                                                                                                       nodeID(17) Sort [sr_customer_sk#29 ASC NULLS FIRST, sr_item_sk#28 ASC NULLS FIRST], false, 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nodeID(29) Sort [cs_bill_customer_sk#49 ASC NULLS FIRST, cs_item_sk#61 ASC NULLS FIRST], false, 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(35) Filter ((((isnotnull(d_moy#88) AND isnotnull(d_year#86)) AND (d_moy#88 = 4)) AND (d_year#86 = 2001)) AND isnotnull(d_date_sk#80))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nodeID(40) FileScan parquet tpcds_100_parquet.date_dim[d_date_sk#159,d_year#165,d_moy#167]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(16) SortMergeJoin [sr_customer_sk#29, sr_item_sk#28], [cs_bill_customer_sk#49, cs_item_sk#61], Inner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(34) Project [d_date_sk#80]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nodeID(39) Filter (((((isnotnull(d_moy#167) AND isnotnull(d_year#165)) AND (d_moy#167 >= 4)) AND (d_moy#167 <= 10)) AND (d_year#165 = 2001)) AND isnotnull(d_date_sk#159))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nodeID(15) Project [ss_sold_date_sk#3, ss_item_sk#5, ss_store_sk#10, ss_net_profit#25, sr_returned_date_sk#26, sr_net_loss#45, cs_sold_date_sk#46, cs_net_profit#79]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nodeID(33) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)),false), [plan_id=166]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(14) BroadcastHashJoin [ss_sold_date_sk#3], [d_date_sk#80], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nodeID(44) FileScan parquet tpcds_100_parquet.date_dim[d_date_sk#187,d_year#193,d_moy#195]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(38) Project [d_date_sk#159]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(13) Project [ss_item_sk#5, ss_store_sk#10, ss_net_profit#25, sr_returned_date_sk#26, sr_net_loss#45, cs_sold_date_sk#46, cs_net_profit#79]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nodeID(43) Filter (((((isnotnull(d_moy#195) AND isnotnull(d_year#193)) AND (d_moy#195 >= 4)) AND (d_moy#195 <= 10)) AND (d_year#193 = 2001)) AND isnotnull(d_date_sk#187))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nodeID(37) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)),false), [plan_id=170]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(12) BroadcastHashJoin [sr_returned_date_sk#26], [d_date_sk#159], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nodeID(42) Project [d_date_sk#187]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nodeID(11) Project [ss_item_sk#5, ss_store_sk#10, ss_net_profit#25, sr_net_loss#45, cs_sold_date_sk#46, cs_net_profit#79]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nodeID(41) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)),false), [plan_id=174] nodeID(47) FileScan parquet tpcds_100_parquet.store[s_store_sk#108,s_store_id#109,s_store_name#113]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nodeID(10) BroadcastHashJoin [cs_sold_date_sk#46], [d_date_sk#187], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nodeID(46) Filter isnotnull(s_store_sk#108)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(9) Project [ss_item_sk#5, ss_store_sk#10, ss_net_profit#25, sr_net_loss#45, cs_net_profit#79] nodeID(45) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, false] as bigint)),false), [plan_id=178]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nodeID(50) FileScan parquet tpcds_100_parquet.item[i_item_sk#137,i_item_id#138,i_item_desc#141]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(8) BroadcastHashJoin [ss_store_sk#10], [s_store_sk#108], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(49) Filter isnotnull(i_item_sk#137)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(7) Project [ss_item_sk#5, ss_net_profit#25, sr_net_loss#45, cs_net_profit#79, s_store_id#109, s_store_name#113] nodeID(48) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, false] as bigint)),false), [plan_id=182]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nodeID(6) BroadcastHashJoin [ss_item_sk#5], [i_item_sk#137], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(5) Project [ss_net_profit#25, sr_net_loss#45, cs_net_profit#79, s_store_id#109, s_store_name#113, i_item_id#138, i_item_desc#141]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nodeID(4) HashAggregate(keys=[i_item_id#138, i_item_desc#141, s_store_id#109, s_store_name#113], functions=[partial_sum(ss_net_profit#25), partial_sum(sr_net_loss#45), partial_sum(cs_net_profit#79)])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nodeID(3) Exchange hashpartitioning(i_item_id#138, i_item_desc#141, s_store_id#109, s_store_name#113, 200), ENSURE_REQUIREMENTS, [plan_id=187]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nodeID(2) HashAggregate(keys=[i_item_id#138, i_item_desc#141, s_store_id#109, s_store_name#113], functions=[sum(ss_net_profit#25), sum(sr_net_loss#45), sum(cs_net_profit#79)])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(1) TakeOrderedAndProject(limit=100, orderBy=[i_item_id#138 ASC NULLS FIRST,i_item_desc#141 ASC NULLS FIRST,i_item_desc#141 ASC NULLS FIRST,i_item_desc#141,s_store_id#109,s_store_name#113,store_sales_profit#0,store_returns_loss#1,catalog_sales_profit#2])
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