```
nodeID(29) FileScan parquet tpcds_100_parquet.catalog_sales[cs_sold_date_sk#13,cs_bill_customer_sk#16,cs_item_sk#28]
                                                                                                                                                                                   nodeID(32) FileScan parquet tpcds_100_parquet.web_sales[ws_sold_date_sk#47,ws_item_sk#50,ws_bill_customer_sk#51]
                                                                                                                                                                                                                                                                                                                                                                                              nodeID(36) FileScan parquet tpcds_100_parquet.item[i_item_sk#81,i_class#91,i_category#93]
nodeID(28) Filter ((isnotnull(cs_item_sk#28) AND isnotnull(cs_sold_date_sk#13)) AND isnotnull(cs_bill_customer_sk#16))
                                                                                                                                                                                nodeID(31) Filter ((isnotnull(ws_item_sk#50) AND isnotnull(ws_sold_date_sk#47)) AND isnotnull(ws_bill_customer_sk#51))
                                                                                                                                                                                                                                                                                                                                                     nodeID(35) Filter ((((isnotnull(i_category#93) AND isnotnull(i_class#91)) AND (i_category#93 = Women)) AND (i_class#91 = maternity)) AND isnotnull(i_item_sk#81))
nodeID(27) Project [cs_sold_date_sk#13 AS sold_date_sk#2, cs_bill_customer_sk#16 AS customer_sk#3, cs_item_sk#28 AS item_sk#4]
                                                                                                                                                                              nodeID(30) Project [ws_sold_date_sk#47 AS sold_date_sk#5, ws_bill_customer_sk#51 AS customer_sk#6, ws_item_sk#50 AS item_sk#7]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(40) FileScan parquet tpcds_100_parquet.date_dim[d_date_sk#103,d_year#109,d_moy#111]
                                                                                                                                                                                                                                                                                                                                                                                                                         nodeID(34) Project [i_item_sk#81]
                                                                                                                                                                                                                                                                       nodeID(33) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)), false), [plan_id=211] nodeID(39) Filter ((((isnotnull(d_moy#111)AND isnotnull(d_moy#111)AND isnotn
                                                                                                                                                                                                                                                                                                           nodeID(25) BroadcastHashJoin [item_sk#4], [i_item_sk#81], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nodeID(38) Project [d_date_sk#103]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                nodeID(37) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)),false), [plan_id=215] nodeID(43) FileScan parquet tpcds_100_parquet.customer[c_customer_sk#131,c_current_addr_sk#135]
                                                                                                                                                                                                                                                                                                                                                           nodeID(24) Project [sold_date_sk#2, customer_sk#3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nodeID(23) BroadcastHashJoin [sold_date_sk#2], [d_date_sk#103], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(42) Filter (isnotnull(c_customer_sk#131) AND isnotnull(c_current_addr_sk#135))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nodeID(41) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, false] as bigint)),false), [plan_id=219]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(22) Project [customer_sk#3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nodeID(21) BroadcastHashJoin [customer_sk#3], [c_customer_sk#131], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(20) Project [c_customer_sk#131, c_current_addr_sk#135]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nodeID(72) FileScan parquet tpcds_100_parquet.date_dim[d_month_seq#284,d_year#287,d_moy#289]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(19) HashAggregate(keys=[c_customer_sk#131, c_current_addr_sk#135], functions=[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nodeID(64) FileScan parquet tpcds_100_parquet.date_dim[d_month_seq#256,d_year#259,d_moy#261]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nodeID(18) Exchange hashpartitioning(c_customer_sk#131, c_current_addr_sk#135, 200), ENSURE_REQUIREMENTS, [plan_id=224] nodeID(47) FileScan parquet tpcds_100_parquet.store_sales[ss_sold_date_sk#149,ss_customer_sk#152,ss_ext_sales_price#164]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(63) Filter (((isnotnull(d_year#259) AND isnotnull(d_moy#261)) AND (d_year#259 = 1998)) AND (d_moy#261 = 12)) — nodeID(71) Filter (((isnotnull(d_year#287) AND isnotnull(d_moy#289)) AND (d_year#287 = 1998)) AND (d_moy#289 = 12))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nodeID(46) Filter (isnotnull(ss_customer_sk#152) AND isnotnull(ss_sold_date_sk#149))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nodeID(70) Project [(d_month_seq#284 + 3) AS (d_month_seq + 3)#248]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(17) HashAggregate(keys=[c_customer_sk#131, c_current_addr_sk#135], functions=[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nodeID(62) Project [(d_month_seq#256 + 1) AS (d_month_seq + 1)#247]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(16) Exchange hashpartitioning(c_customer_sk#131, 200), ENSURE_REQUIREMENTS, [plan_id=228] nodeID(45) Exchange hashpartitioning(ss_customer_sk#152, 200), ENSURE_REQUIREMENTS, [plan_id=228]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(61) HashAggregate(keys=[(d_month_seq + 1)#247], functions=[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(69) HashAggregate(keys=[(d_month_seq + 3)#248], functions=[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(15) Sort [c_customer_sk#131 ASC NULLS FIRST], false, 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nodeID(44) Sort [ss_customer_sk#152 ASC NULLS FIRST], false, 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(50) FileScan parquet tpcds_100_parquet.customer_address[ca_address_sk#172,ca_county#179,ca_state#180]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nodeID(60) Exchange hashpartitioning((d_month_seq + 1)#247, 200), ENSURE_REQUIREMENTS, [plan_id=168]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(68) Exchange hashpartitioning((d_month_seq + 3)#248, 200), ENSURE_REQUIREMENTS, [plan_id=181]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nodeID(14) SortMergeJoin [c_customer_sk#131], [ss_customer_sk#152], Inner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(49) Filter ((isnotnull(ca_address_sk#172) AND isnotnull(ca_county#179)) AND isnotnull(ca_state#180))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(59) HashAggregate(keys=[(d_month_seq + 1)#247], functions=[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(67) HashAggregate(keys=[(d_month_seq + 3)#248], functions=[])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(58) AdaptiveSparkPlan isFinalPlan=false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(53) FileScan parquet tpcds_100_parquet.store[s_county#208,s_state#209]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(13) Project [c_customer_sk#131, c_current_addr_sk#135, ss_sold_date_sk#149, ss_ext_sales_price#164]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(48) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, false] as bigint)),false), [plan_id=235]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nodeID(66) AdaptiveSparkPlan isFinalPlan=false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nodeID(65) Subquery subquery#10, [id=#183] nodeID(73) FileScan parquet tpcds_100_parquet.date_dim[d_date_sk#214,d_month_seq#217]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(12) BroadcastHashJoin [c_current_addr_sk#135], [ca_address_sk#172], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nodeID(52) Filter (isnotnull(s_county#208) AND isnotnull(s_state#209))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nodeID(57) Subquery subquery#9, [id=#170]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(11) Project [c_customer_sk#131, ss_sold_date_sk#149, ss_ext_sales_price#164, ca_county#179, ca_state#180]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nodeID(51) BroadcastExchange HashedRelationBroadcastMode(List(input[0, string, false], input[1, string, false]),false), [plan_id=239]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(56) Filter (((isnotnull(d_month_seq#217) AND (d_month_seq#217 >= Subquery subquery#9, [id=#170])) AND (d_month_seq#217 <= Subquery subquery#10, [id=#183])) AND isnotnull(d_date_sk#214))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nodeID(10) BroadcastHashJoin [ca_county#179, ca_state#180], [s_county#208, s_state#209], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nodeID(55) Project [d_date_sk#214]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nodeID(54) BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)),false), [plan_id=243]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nodeID(9) Project [c_customer_sk#131, ss_sold_date_sk#149, ss_ext_sales_price#164]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(8) BroadcastHashJoin [ss_sold_date_sk#149], [d_date_sk#214], Inner, BuildRight, false
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(7) Project [c_customer_sk#131, ss_ext_sales_price#164]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nodeID(6) HashAggregate(keys=[c_customer_sk#131], functions=[partial_sum(ss_ext_sales_price#164)])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodeID(5) HashAggregate(keys=[c_customer_sk#131], functions=[sum(ss_ext_sales_price#164)])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nodeID(4) HashAggregate(keys=[segment#11], functions=[partial_count(1)])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nodeID(3) Exchange hashpartitioning(segment#11, 200), ENSURE_REQUIREMENTS, [plan_id=250]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nodeID(2) HashAggregate(keys=[segment#11], functions=[count(1)])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nodeID(1) TakeOrderedAndProject(limit=100, orderBy=[segment#11 ASC NULLS FIRST,num_customers#0L ASC NULLS FIRST], output=[segment#11,num_customers#0L,segment_base#1])
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