

Jobs (/history/application\_1519504339627\_0191/jobs/)

Stages (/history/application\_1519504339627\_0191/stages/)

Storage (/history/application\_1519504339627\_0191/storage/)

Environment (/history/application\_1519504339627\_0191/environment/)

Executors (/history/application\_1519504339627\_0191/executors/)

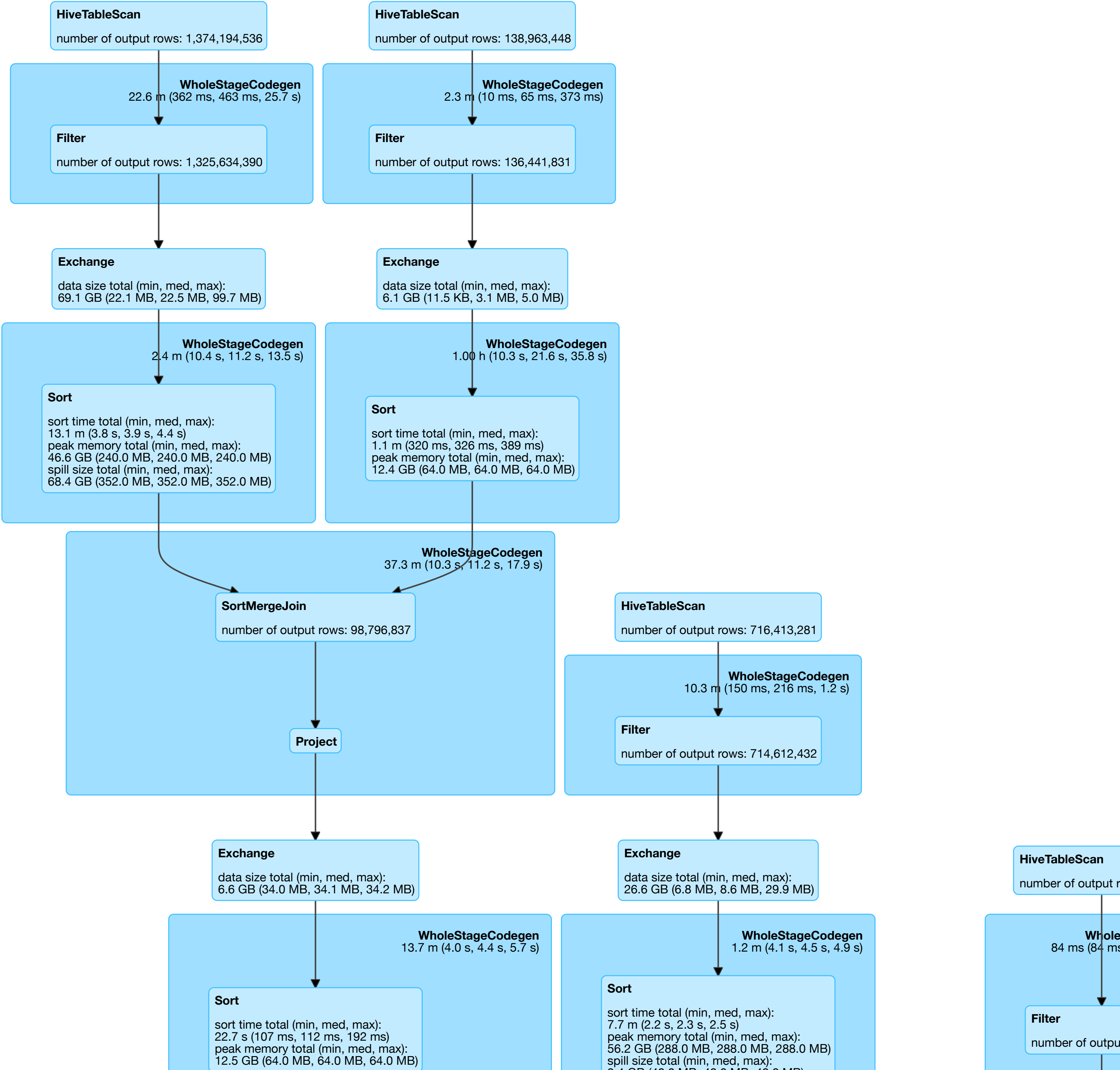
SQL (/history/application\_1519504339627\_0191/SQL/)

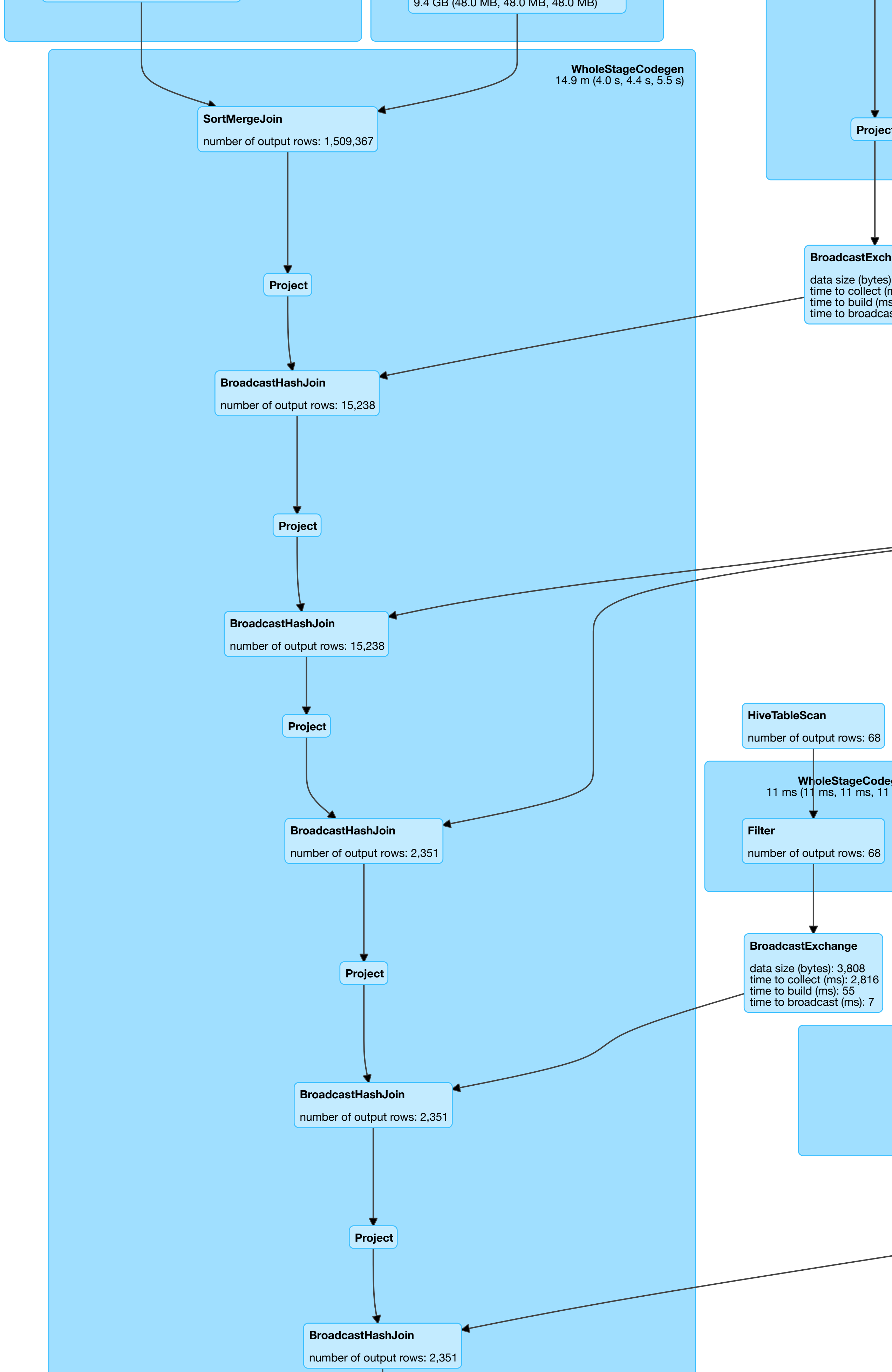
## Details for Query 1

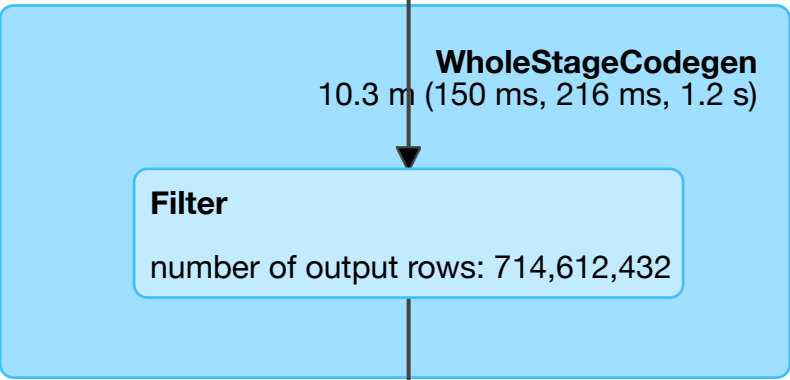
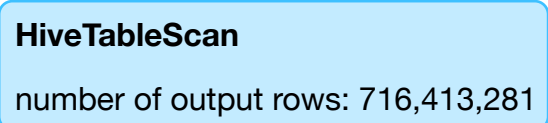
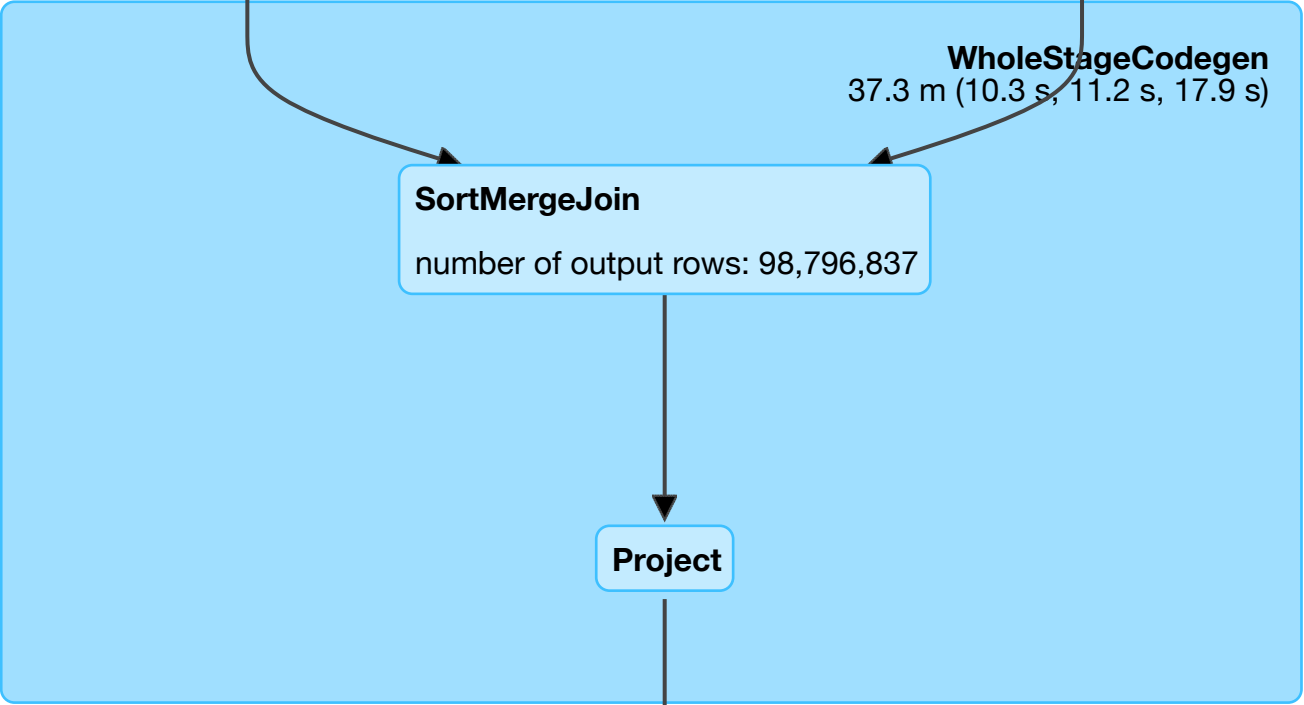
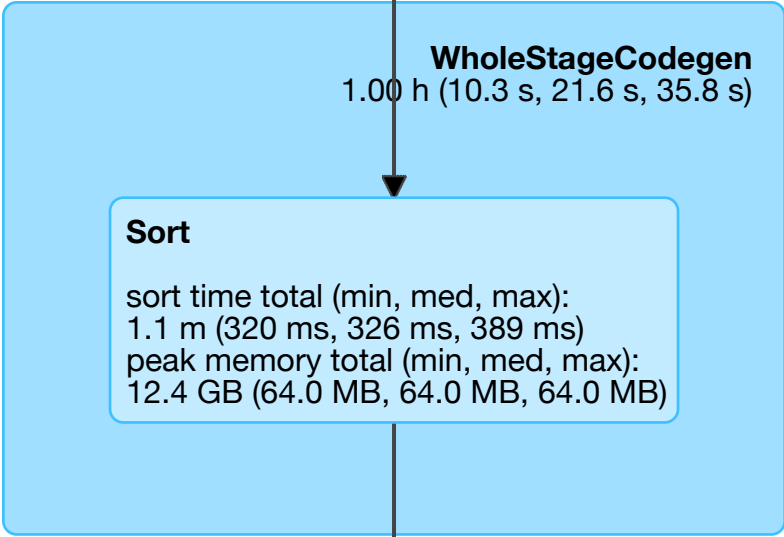
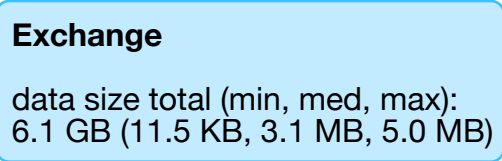
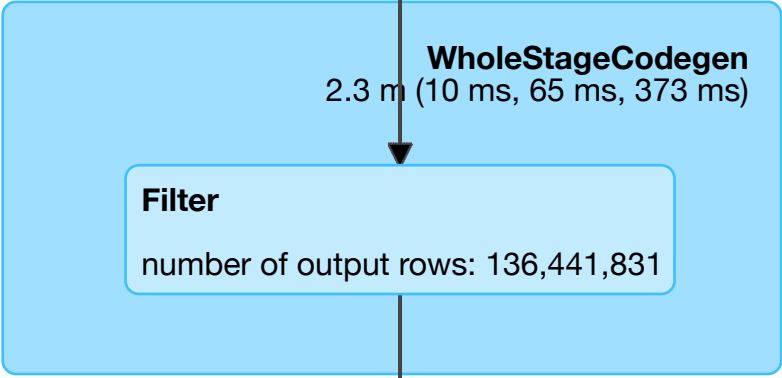
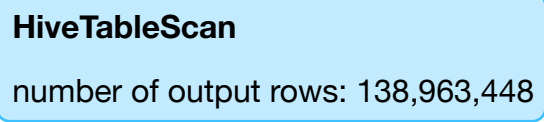
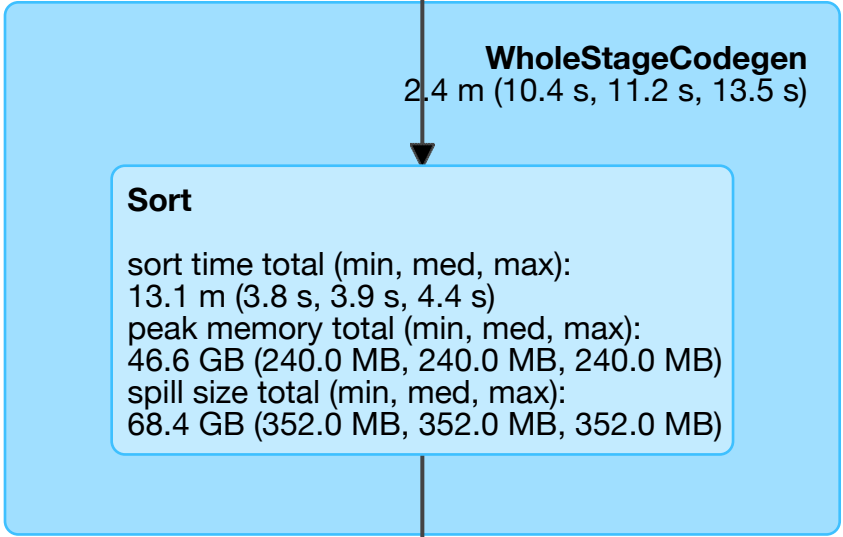
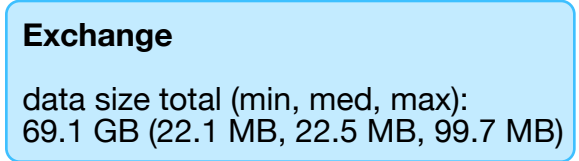
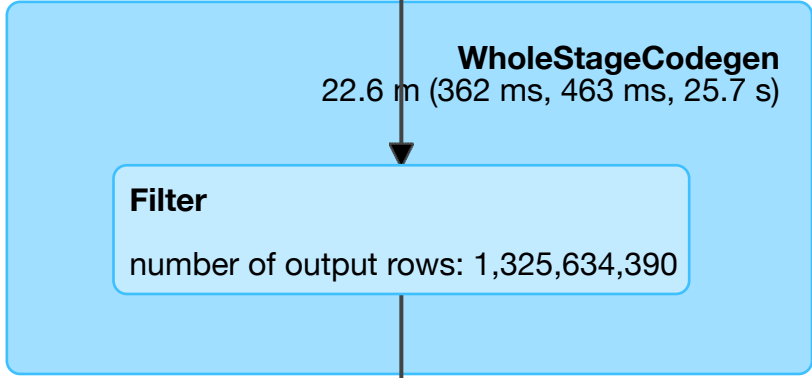
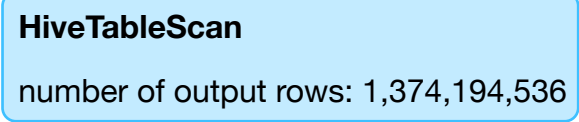
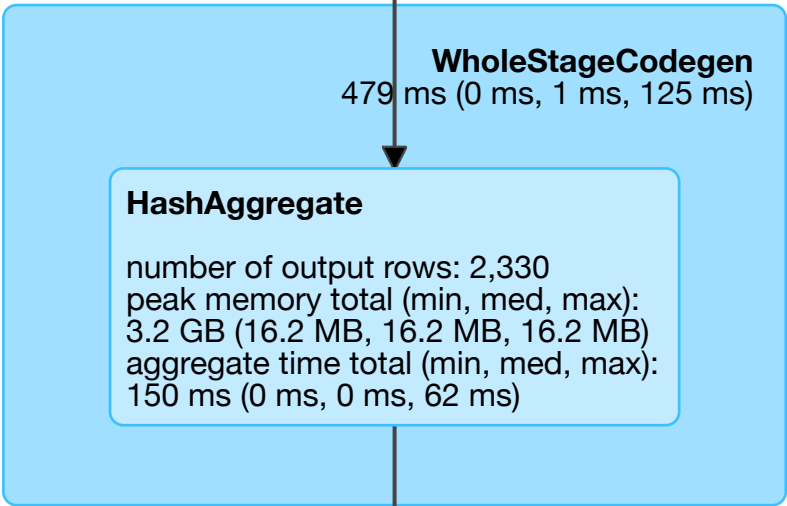
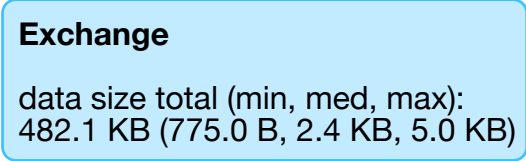
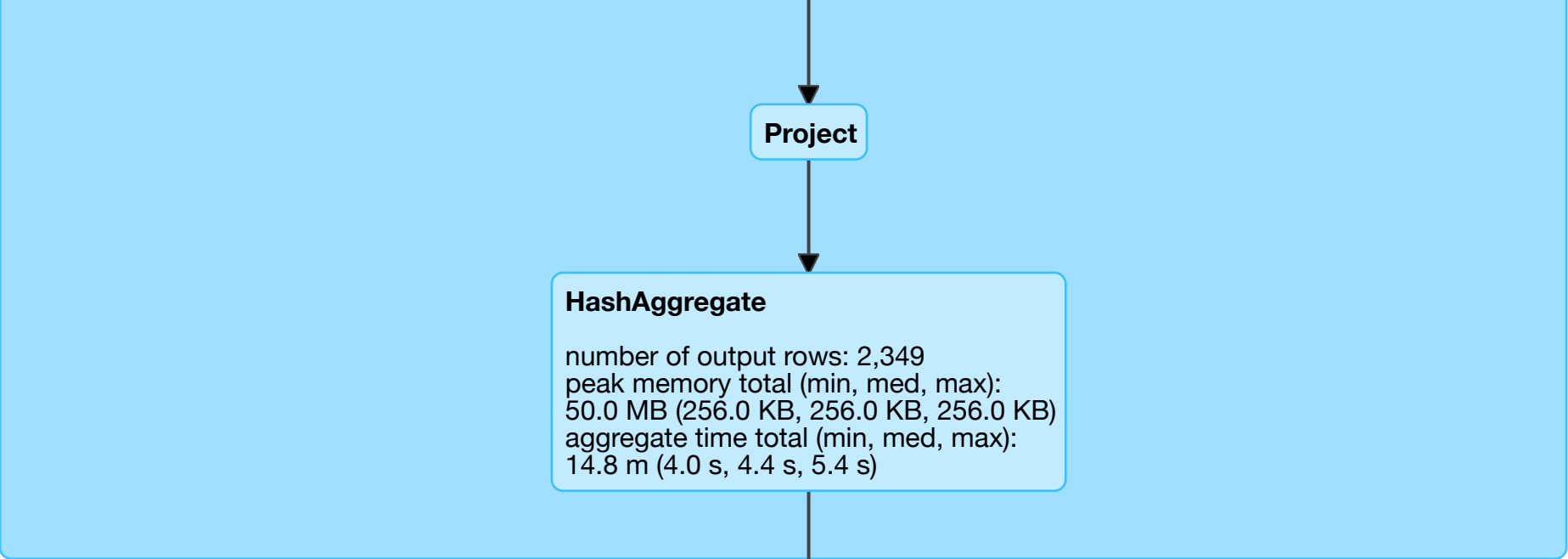
Submitted Time: 2018/02/26 11:32:20

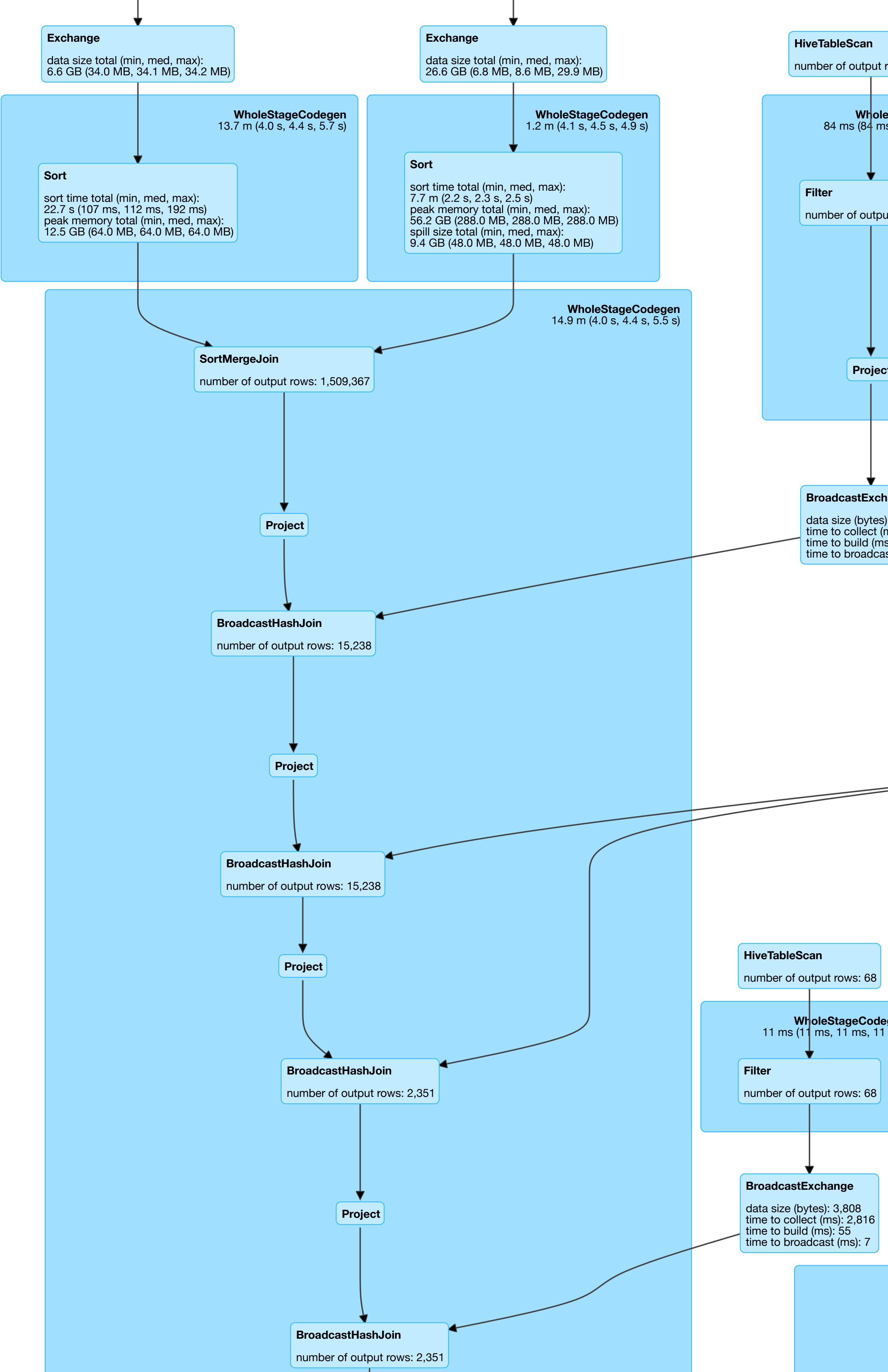
Duration: 57 min

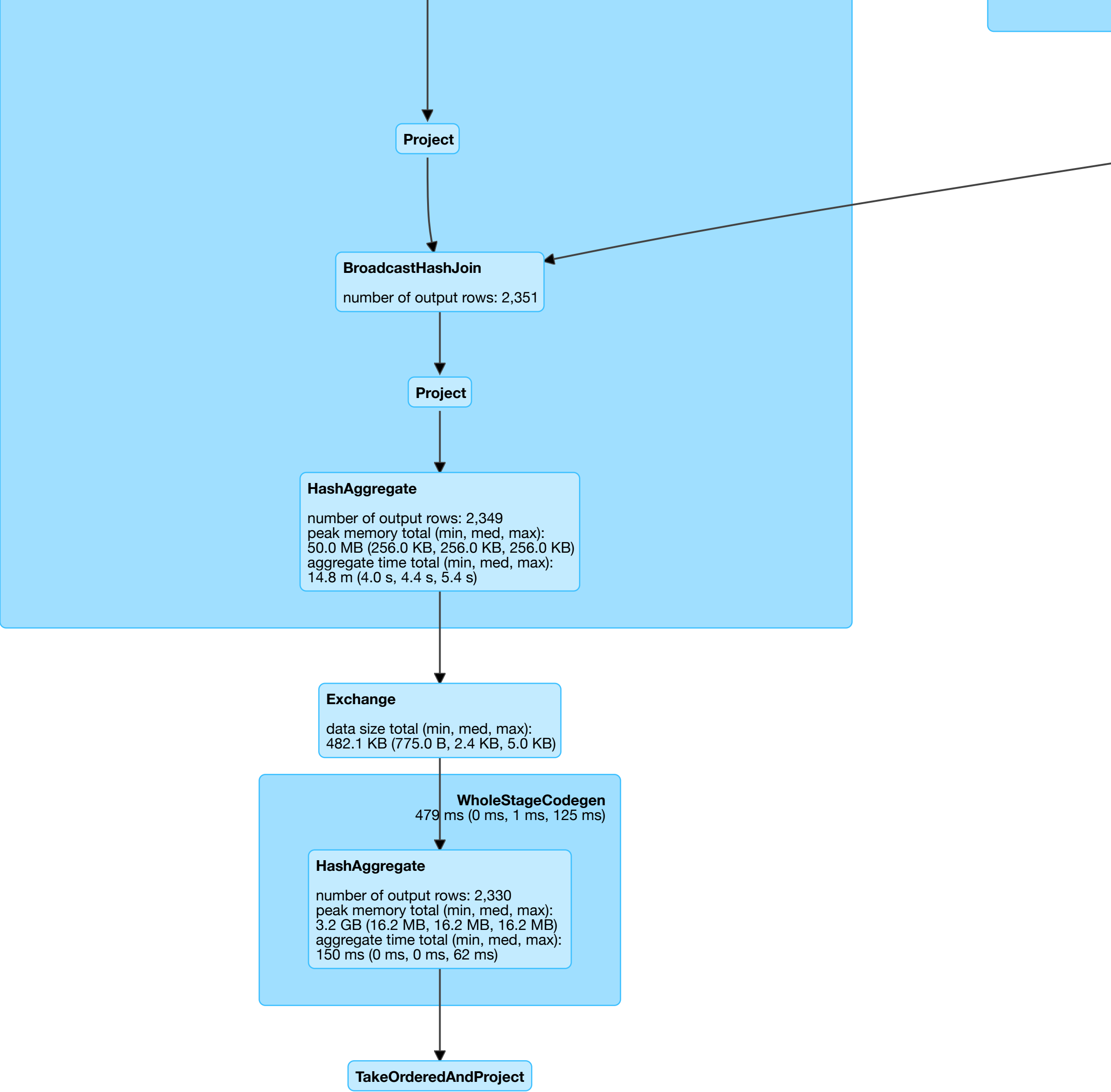
Succeeded Jobs: 0 (/history/application\_1519504339627\_0191/jobs/job?id=0) 1 (/history/application\_1519504339627\_0191/jobs/job?id=1) 2 (/history/application\_1519504339627\_0191/jobs/job?id=2) 3 (/history/application\_1519504339627\_0191/jobs/job?id=3) 4 (/history/application\_1519504339627\_0191/jobs/job?id=4)











▼ Details

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== Parsed Logical Plan ==
GlobalLimit 21
+- LocalLimit 21
  +- GlobalLimit 100
    +- LocalLimit 100
      +- Project [i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172, store_sales_profit#3, store_returns_loss#4,
catalog_sales_profit#5]
        +- Sort [i_item_id#197 ASC NULLS FIRST, i_item_desc#200 ASC NULLS FIRST, s_store_id#168 ASC NULLS FIRST, s_store_name#172 ASC NULLS FIRST],
true
          +- Aggregate [i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172], [i_item_id#197, i_item_desc#200, s_store_id#168,
s_store_name#172, sum(cast(ss_net_profit#27 as double)) AS store_sales_profit#3, sum(cast(sr_net_loss#47 as double)) AS store_returns_loss#4,
sum(cast(cs_net_profit#81 as double)) AS catalog_sales_profit#5]
            +- Filter (((((d_moy#91 = 4) && (d_year#89 = 1998)) && ((d_date_sk#83 = ss_sold_date_sk#28) && (i_item_sk#196 = ss_item_sk#7)))) &&
(((s_store_sk#167 = ss_store_sk#12) && (ss_customer_sk#8 = sr_customer_sk#31)) && ((ss_item_sk#7 = sr_item_sk#30) && (ss_ticket_number#14L =
sr_ticket_number#37L)))) && (((sr_returned_date_sk#48 = d_date_sk#111) && ((d_moy#119 >= 4) && (d_moy#119 <= 10)))) && ((d_year#117 = 1998) &&
(sr_customer_sk#31 = cs_bill_customer_sk#51))) && (((sr_item_sk#30 = cs_item_sk#63) && (cs_sold_date_sk#82 = d_date_sk#139)) && (((d_moy#147 >= 4) &&
(d_moy#147 <= 10)) && (d_year#145 = 1998))))))
              +- Join Inner
                :- Join Inner
                : :- Join Inner
                : : :- Join Inner
                : : : :- Join Inner
                : : : : :- Join Inner
                : : : : : :- Join Inner
                : : : : : : :- SubqueryAlias store_sales
                : : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_sales`,
org.apache.hadoop.hive ql.io.orc.OrcSerde, [ss_sold_time_sk#6, ss_item_sk#7, ss_customer_sk#8, ss_demo_sk#9, ss_demo_sk#10, ss_addr_sk#11,
ss_store_sk#12, ss_promo_sk#13, ss_ticket_number#14L, ss_quantity#15, ss_wholesale_cost#16, ss_list_price#17, ss_sales_price#18, ss_ext_discount_amt#19,
ss_ext_sales_price#20, ss_ext_wholesale_cost#21, ss_ext_list_price#22, ss_ext_tax#23, ss_coupon_amt#24, ss_net_paid#25, ss_net_paid_inc_tax#26,
```

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ss_net_profit#27], [ss_sold_date_sk#28]
      : : : : : : +- SubqueryAlias store_returns
      : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_returns`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [sr_return_time_sk#29, sr_item_sk#30, sr_customer_sk#31, sr_demo_sk#32, sr_hdemo_sk#33, sr_addr_sk#34,
sr_store_sk#35, sr_reason_sk#36, sr_ticket_number#37L, sr_return_quantity#38, sr_return_amt#39, sr_return_tax#40, sr_return_amt_inc_tax#41, sr_fee#42,
sr_return_ship_cost#43, sr_refunded_cash#44, sr_reversed_charge#45, sr_store_credit#46, sr_net_loss#47], [sr_returned_date_sk#48]
      : : : : : +- SubqueryAlias catalog_sales
      : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`catalog_sales`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[cs_sold_time_sk#49, cs_ship_date_sk#50, cs_bill_customer_sk#51, cs_bill_demo_sk#52, cs_bill_hdemo_sk#53, cs_bill_addr_sk#54, cs_ship_customer_sk#55,
cs_ship_demo_sk#56, cs_ship_hdemo_sk#57, cs_ship_addr_sk#58, cs_call_center_sk#59, cs_catalog_page_sk#60, cs_ship_mode_sk#61, cs_warehouse_sk#62,
cs_item_sk#63, cs_promo_sk#64, cs_order_number#65L, cs_quantity#66, cs_wholesale_cost#67, cs_list_price#68, cs_sales_price#69, cs_ext_discount_amt#70,
cs_ext_sales_price#71, cs_ext_wholesale_cost#72, ... 9 more fields], [cs_sold_date_sk#82]
      : : : : +- SubqueryAlias d1
      : : : : +- SubqueryAlias date_dim
      : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#83, d_date_id#84, d_date#85, d_month_seq#86, d_week_seq#87, d_quarter_seq#88, d_year#89, d_dow#90, d_moy#91, d_dom#92, d_qoy#93,
d_fy_year#94, d_fy_quarter_seq#95, d_fy_week_seq#96, d_day_name#97, d_quarter_name#98, d_holiday#99, d_weekend#100, d_following_holiday#101,
d_first_dom#102, d_last_dom#103, d_same_day_ly#104, d_same_day_lq#105, d_current_day#106, ... 4 more fields]
      : : : +- SubqueryAlias d2
      : : : +- SubqueryAlias date_dim
      : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#111, d_date_id#112, d_date#113, d_month_seq#114, d_week_seq#115, d_quarter_seq#116, d_year#117, d_dow#118, d_moy#119, d_dom#120, d_qoy#121,
d_fy_year#122, d_fy_quarter_seq#123, d_fy_week_seq#124, d_day_name#125, d_quarter_name#126, d_holiday#127, d_weekend#128, d_following_holiday#129,
d_first_dom#130, d_last_dom#131, d_same_day_ly#132, d_same_day_lq#133, d_current_day#134, ... 4 more fields]
      : : +- SubqueryAlias d3
      : : +- SubqueryAlias date_dim
      : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#139, d_date_id#140, d_date#141, d_month_seq#142, d_week_seq#143, d_quarter_seq#144, d_year#145, d_dow#146, d_moy#147, d_dom#148, d_qoy#149,
d_fy_year#150, d_fy_quarter_seq#151, d_fy_week_seq#152, d_day_name#153, d_quarter_name#154, d_holiday#155, d_weekend#156, d_following_holiday#157,
d_first_dom#158, d_last_dom#159, d_same_day_ly#160, d_same_day_lq#161, d_current_day#162, ... 4 more fields]
      : +- SubqueryAlias store
      : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [s_store_sk#167,
s_store_id#168, s_rec_start_date#169, s_rec_end_date#170, s_closed_date_sk#171, s_store_name#172, s_number_employees#173, s_floor_space#174,
s_hours#175, s_manager#176, s_market_id#177, s_geography_class#178, s_market_desc#179, s_market_manager#180, s_division_id#181, s_division_name#182,
s_company_id#183, s_company_name#184, s_street_number#185, s_street_name#186, s_street_type#187, s_suite_number#188, s_city#189, s_county#190, ... 5
more fields]
      +- SubqueryAlias item
      +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`item`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [i_item_sk#196,
i_item_id#197, i_rec_start_date#198, i_rec_end_date#199, i_item_desc#200, i_current_price#201, i_wholesale_cost#202, i_brand_id#203, i_brand#204,
i_class_id#205, i_class#206, i_category_id#207, i_category#208, i_manufact_id#209, i_manufact#210, i_size#211, i_formulation#212, i_color#213,
i_units#214, i_container#215, i_manager_id#216, i_product_name#217]

== Analyzed Logical Plan ==
i_item_id: string, i_item_desc: string, s_store_id: string, s_store_name: string, store_sales_profit: double, store_returns_loss: double,
catalog_sales_profit: double
GlobalLimit 21
+- LocalLimit 21
  +- GlobalLimit 100
    +- LocalLimit 100
      +- Project [i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172, store_sales_profit#3, store_returns_loss#4,
catalog_sales_profit#5]
        +- Sort [i_item_id#197 ASC NULLS FIRST, i_item_desc#200 ASC NULLS FIRST, s_store_id#168 ASC NULLS FIRST, s_store_name#172 ASC NULLS FIRST],
true
          +- Aggregate [i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172], [i_item_id#197, i_item_desc#200, s_store_id#168,
s_store_name#172, sum(cast(ss_net_profit#27 as double)) AS store_sales_profit#3, sum(cast(sr_net_loss#47 as double)) AS store_returns_loss#4,
sum(cast(cs_net_profit#81 as double)) AS catalog_sales_profit#5]
            +- Filter (((((d_moy#91 = 4) && (d_year#89 = 1998)) && ((d_date_sk#83 = ss_sold_date_sk#28) && (i_item_sk#196 = ss_item_sk#7)))) &&
(((s_store_sk#167 = ss_store_sk#12) && (ss_customer_sk#8 = sr_customer_sk#31)) && ((ss_item_sk#7 = sr_item_sk#30) && (ss_ticket_number#14L =
sr_ticket_number#37L)))) && (((sr_returned_date_sk#48 = d_date_sk#111) && ((d_moy#119 >= 4) && (d_moy#119 <= 10)))) && ((d_year#117 = 1998) &&
(sr_customer_sk#31 = cs_bill_customer_sk#51))) && (((sr_item_sk#30 = cs_item_sk#63) && (cs_sold_date_sk#82 = d_date_sk#139)) && (((d_moy#147 >= 4) &&
(d_moy#147 <= 10)) && (d_year#145 = 1998)))))
              +- Join Inner
                :- Join Inner
                : :- Join Inner
                : : :- Join Inner
                : : : :- Join Inner
                : : : : :- Join Inner
                : : : : : :- Join Inner
                : : : : : :- SubqueryAlias store_sales
                : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_sales`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [ss_sold_time_sk#6, ss_item_sk#7, ss_customer_sk#8, ss_demo_sk#9, ss_hdemo_sk#10, ss_addr_sk#11,
ss_store_sk#12, ss_promo_sk#13, ss_ticket_number#14L, ss_quantity#15, ss_wholesale_cost#16, ss_list_price#17, ss_sales_price#18, ss_ext_discount_amt#19,
ss_ext_sales_price#20, ss_ext_wholesale_cost#21, ss_ext_list_price#22, ss_ext_tax#23, ss_coupon_amt#24, ss_net_paid#25, ss_net_paid_inc_tax#26,
ss_net_profit#27], [ss_sold_date_sk#28]
                : : : : : : +- SubqueryAlias store_returns
                : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_returns`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [sr_return_time_sk#29, sr_item_sk#30, sr_customer_sk#31, sr_demo_sk#32, sr_hdemo_sk#33, sr_addr_sk#34,
sr_store_sk#35, sr_reason_sk#36, sr_ticket_number#37L, sr_return_quantity#38, sr_return_amt#39, sr_return_tax#40, sr_return_amt_inc_tax#41, sr_fee#42,
sr_return_ship_cost#43, sr_refunded_cash#44, sr_reversed_charge#45, sr_store_credit#46, sr_net_loss#47], [sr_returned_date_sk#48]
                : : : : : +- SubqueryAlias catalog_sales
                : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`catalog_sales`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
```



```
[cs_sold_time_sk#49, cs_ship_date_sk#50, cs_bill_customer_sk#51, cs_bill_cdemo_sk#52, cs_bill_hdemo_sk#53, cs_bill_addr_sk#54, cs_ship_customer_sk#55,
cs_ship_cdemo_sk#56, cs_ship_hdemo_sk#57, cs_ship_addr_sk#58, cs_call_center_sk#59, cs_catalog_page_sk#60, cs_ship_mode_sk#61, cs_warehouse_sk#62,
cs_item_sk#63, cs_promo_sk#64, cs_order_number#65L, cs_quantity#66, cs_wholesale_cost#67, cs_list_price#68, cs_sales_price#69, cs_ext_discount_amt#70,
cs_ext_sales_price#71, cs_ext_wholesale_cost#72, ... 9 more fields], [cs_sold_date_sk#82]
      : : : : +- SubqueryAlias d1
      : : : : +- SubqueryAlias date_dim
      : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#83, d_date_id#84, d_date#85, d_month_seq#86, d_week_seq#87, d_quarter_seq#88, d_year#89, d_dow#90, d_moy#91, d_dom#92, d_qoy#93,
d_fy_year#94, d_fy_quarter_seq#95, d_fy_week_seq#96, d_day_name#97, d_quarter_name#98, d_holiday#99, d_weekend#100, d_following_holiday#101,
d_first_dom#102, d_last_dom#103, d_same_day_ly#104, d_same_day_lq#105, d_current_day#106, ... 4 more fields]
      : : : +- SubqueryAlias d2
      : : : +- SubqueryAlias date_dim
      : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#111, d_date_id#112, d_date#113, d_month_seq#114, d_week_seq#115, d_quarter_seq#116, d_year#117, d_dow#118, d_moy#119, d_dom#120, d_qoy#121,
d_fy_year#122, d_fy_quarter_seq#123, d_fy_week_seq#124, d_day_name#125, d_quarter_name#126, d_holiday#127, d_weekend#128, d_following_holiday#129,
d_first_dom#130, d_last_dom#131, d_same_day_ly#132, d_same_day_lq#133, d_current_day#134, ... 4 more fields]
      : : +- SubqueryAlias d3
      : : +- SubqueryAlias date_dim
      : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#139, d_date_id#140, d_date#141, d_month_seq#142, d_week_seq#143, d_quarter_seq#144, d_year#145, d_dow#146, d_moy#147, d_dom#148, d_qoy#149,
d_fy_year#150, d_fy_quarter_seq#151, d_fy_week_seq#152, d_day_name#153, d_quarter_name#154, d_holiday#155, d_weekend#156, d_following_holiday#157,
d_first_dom#158, d_last_dom#159, d_same_day_ly#160, d_same_day_lq#161, d_current_day#162, ... 4 more fields]
      : +- SubqueryAlias store
      : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [s_store_sk#167,
s_store_id#168, s_rec_start_date#169, s_rec_end_date#170, s_closed_date_sk#171, s_store_name#172, s_number_employees#173, s_floor_space#174,
s_hours#175, s_manager#176, s_market_id#177, s_geography_class#178, s_market_desc#179, s_market_manager#180, s_division_id#181, s_division_name#182,
s_company_id#183, s_company_name#184, s_street_number#185, s_street_name#186, s_street_type#187, s_suite_number#188, s_city#189, s_county#190, ... 5
more fields]
      +- SubqueryAlias item
      +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`item`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [i_item_sk#196,
i_item_id#197, i_rec_start_date#198, i_rec_end_date#199, i_item_desc#200, i_current_price#201, i_wholesale_cost#202, i_brand_id#203, i_brand#204,
i_class_id#205, i_class#206, i_category_id#207, i_category#208, i_manufact_id#209, i_manufact#210, i_size#211, i_formulation#212, i_color#213,
i_units#214, i_container#215, i_manager_id#216, i_product_name#217]

== Optimized Logical Plan ==
GlobalLimit 21
+- LocalLimit 21
  +- Sort [i_item_id#197 ASC NULLS FIRST, i_item_desc#200 ASC NULLS FIRST, s_store_id#168 ASC NULLS FIRST, s_store_name#172 ASC NULLS FIRST], true
    +- Aggregate [i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172], [i_item_id#197, i_item_desc#200, s_store_id#168,
s_store_name#172, sum(cast(ss_net_profit#27 as double)) AS store_sales_profit#3, sum(cast(sr_net_loss#47 as double)) AS store_returns_loss#4,
sum(cast(cs_net_profit#81 as double)) AS catalog_sales_profit#5]
      +- Project [ss_net_profit#27, sr_net_loss#47, cs_net_profit#81, s_store_id#168, s_store_name#172, i_item_id#197, i_item_desc#200]
        +- Join Inner, (i_item_sk#196 = ss_item_sk#7)
          :- Project [ss_item_sk#7, ss_net_profit#27, sr_net_loss#47, cs_net_profit#81, s_store_id#168, s_store_name#172]
          : +- Join Inner, (s_store_sk#167 = ss_store_sk#12)
          : :- Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, sr_net_loss#47, cs_net_profit#81]
          : : +- Join Inner, (cs_sold_date_sk#82 = d_date_sk#139)
          : : :- Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, sr_net_loss#47, cs_net_profit#81, cs_sold_date_sk#82]
          : : : +- Join Inner, (sr_returned_date_sk#48 = d_date_sk#111)
          : : : :- Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, sr_net_loss#47, sr_returned_date_sk#48, cs_net_profit#81,
cs_sold_date_sk#82]
          : : : : +- Join Inner, (d_date_sk#83 = ss_sold_date_sk#28)
          : : : : :- Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, ss_sold_date_sk#28, sr_net_loss#47,
sr_returned_date_sk#48, cs_net_profit#81, cs_sold_date_sk#82]
          : : : : : +- Join Inner, ((sr_customer_sk#31 = cs_bill_customer_sk#51) && (sr_item_sk#30 = cs_item_sk#63))
          : : : : : :- Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, ss_sold_date_sk#28, sr_item_sk#30,
sr_customer_sk#31, sr_net_loss#47, sr_returned_date_sk#48]
          : : : : : +- Join Inner, (((ss_customer_sk#8 = sr_customer_sk#31) && (ss_item_sk#7 = sr_item_sk#30)) &&
(ss_ticket_number#14L = sr_ticket_number#37L))
          : : : : : :- Project [ss_item_sk#7, ss_customer_sk#8, ss_store_sk#12, ss_ticket_number#14L, ss_net_profit#27,
ss_sold_date_sk#28]
          : : : : : : +- Filter (((isnotnull(ss_ticket_number#14L) && isnotnull(ss_customer_sk#8)) &&
isnotnull(ss_item_sk#7)) && isnotnull(ss_sold_date_sk#28)) && isnotnull(ss_store_sk#12))
          : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_sales`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [ss_sold_time_sk#6, ss_item_sk#7, ss_customer_sk#8, ss_cdemo_sk#9, ss_hdemo_sk#10, ss_addr_sk#11,
ss_store_sk#12, ss_promo_sk#13, ss_ticket_number#14L, ss_quantity#15, ss_wholesale_cost#16, ss_list_price#17, ss_sales_price#18, ss_ext_discount_amt#19,
ss_ext_sales_price#20, ss_ext_wholesale_cost#21, ss_ext_list_price#22, ss_ext_tax#23, ss_coupon_amt#24, ss_net_paid#25, ss_net_paid_inc_tax#26,
ss_net_profit#27], [ss_sold_date_sk#28]
          : : : : : : +- Project [sr_item_sk#30, sr_customer_sk#31, sr_ticket_number#37L, sr_net_loss#47,
sr_returned_date_sk#48]
          : : : : : : +- Filter (((isnotnull(sr_ticket_number#37L) && isnotnull(sr_customer_sk#31)) &&
isnotnull(sr_item_sk#30)) && isnotnull(sr_returned_date_sk#48))
          : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_returns`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [sr_return_time_sk#29, sr_item_sk#30, sr_customer_sk#31, sr_cdemo_sk#32, sr_hdemo_sk#33, sr_addr_sk#34,
sr_store_sk#35, sr_reason_sk#36, sr_ticket_number#37L, sr_return_quantity#38, sr_return_amt#39, sr_return_tax#40, sr_return_amt_inc_tax#41, sr_fee#42,
sr_return_ship_cost#43, sr_refunded_cash#44, sr_reversed_charge#45, sr_store_credit#46, sr_net_loss#47], [sr_returned_date_sk#48]
          : : : : : : +- Project [cs_bill_customer_sk#51, cs_item_sk#63, cs_net_profit#81, cs_sold_date_sk#82]
          : : : : : : +- Filter ((isnotnull(cs_item_sk#63) && isnotnull(cs_bill_customer_sk#51)) &&
isnotnull(cs_sold_date_sk#82))
          : : : : : : +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`catalog_sales`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [cs_sold_time_sk#49, cs_ship_date_sk#50, cs_bill_customer_sk#51, cs_bill_cdemo_sk#52, cs_bill_hdemo_sk#53,
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cs_bill_addr_sk#54, cs_ship_customer_sk#55, cs_ship_demo_sk#56, cs_ship_hdemo_sk#57, cs_ship_addr_sk#58, cs_call_center_sk#59, cs_catalog_page_sk#60,
cs_ship_mode_sk#61, cs_warehouse_sk#62, cs_item_sk#63, cs_promo_sk#64, cs_order_number#65L, cs_quantity#66, cs_wholesale_cost#67, cs_list_price#68,
cs_sales_price#69, cs_ext_discount_amt#70, cs_ext_sales_price#71, cs_ext_wholesale_cost#72, ... 9 more fields], [cs_sold_date_sk#82]
:      :      :      :      +- Project [d_date_sk#83]
:      :      :      :      +- Filter (((isnotnull(d_moy#91) && isnotnull(d_year#89)) && (d_moy#91 = 4)) && (d_year#89 = 1998)) &&
isnotnull(d_date_sk#83))
:      :      :      :      +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#83, d_date_id#84, d_date#85, d_month_seq#86, d_week_seq#87, d_quarter_seq#88, d_year#89, d_dow#90, d_moy#91, d_dom#92, d_qoy#93,
d_fy_year#94, d_fy_quarter_seq#95, d_fy_week_seq#96, d_day_name#97, d_quarter_name#98, d_holiday#99, d_weekend#100, d_following_holiday#101,
d_first_dom#102, d_last_dom#103, d_same_day_ly#104, d_same_day_lq#105, d_current_day#106, ... 4 more fields]
:      :      :      +- Project [d_date_sk#111]
:      :      :      +- Filter (((((isnotnull(d_year#117) && isnotnull(d_moy#119)) && (d_moy#119 >= 4)) && (d_moy#119 <= 10)) &&
(d_year#117 = 1998)) && isnotnull(d_date_sk#111))
:      :      :      +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#111, d_date_id#112, d_date#113, d_month_seq#114, d_week_seq#115, d_quarter_seq#116, d_year#117, d_dow#118, d_moy#119, d_dom#120, d_qoy#121,
d_fy_year#122, d_fy_quarter_seq#123, d_fy_week_seq#124, d_day_name#125, d_quarter_name#126, d_holiday#127, d_weekend#128, d_following_holiday#129,
d_first_dom#130, d_last_dom#131, d_same_day_ly#132, d_same_day_lq#133, d_current_day#134, ... 4 more fields]
:      :      +- Project [d_date_sk#139]
:      :      +- Filter (((((isnotnull(d_year#145) && isnotnull(d_moy#147)) && (d_moy#147 >= 4)) && (d_moy#147 <= 10)) && (d_year#145 =
1998)) && isnotnull(d_date_sk#139))
:      :      +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[d_date_sk#139, d_date_id#140, d_date#141, d_month_seq#142, d_week_seq#143, d_quarter_seq#144, d_year#145, d_dow#146, d_moy#147, d_dom#148, d_qoy#149,
d_fy_year#150, d_fy_quarter_seq#151, d_fy_week_seq#152, d_day_name#153, d_quarter_name#154, d_holiday#155, d_weekend#156, d_following_holiday#157,
d_first_dom#158, d_last_dom#159, d_same_day_ly#160, d_same_day_lq#161, d_current_day#162, ... 4 more fields]
:      +- Project [s_store_sk#167, s_store_id#168, s_store_name#172]
:      +- Filter isnotnull(s_store_sk#167)
:      +- CatalogRelation `tpcds_bin_partitioned_orc_500`.`store`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [s_store_sk#167,
s_store_id#168, s_rec_start_date#169, s_rec_end_date#170, s_closed_date_sk#171, s_store_name#172, s_number_employees#173, s_floor_space#174,
s_hours#175, s_manager#176, s_market_id#177, s_geography_class#178, s_market_desc#179, s_market_manager#180, s_division_id#181, s_division_name#182,
s_company_id#183, s_company_name#184, s_street_number#185, s_street_name#186, s_street_type#187, s_suite_number#188, s_city#189, s_county#190, ... 5
more fields]
+- Project [i_item_sk#196, i_item_id#197, i_item_desc#200]
+- Filter isnotnull(i_item_sk#196)
+- CatalogRelation `tpcds_bin_partitioned_orc_500`.`item`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [i_item_sk#196,
i_item_id#197, i_rec_start_date#198, i_rec_end_date#199, i_item_desc#200, i_current_price#201, i_wholesale_cost#202, i_brand_id#203, i_brand#204,
i_class_id#205, i_class#206, i_category_id#207, i_category#208, i_manufact_id#209, i_manufact#210, i_size#211, i_formulation#212, i_color#213,
i_units#214, i_container#215, i_manager_id#216, i_product_name#217]

== Physical Plan ==
TakeOrderedAndProject(limit=21, orderBy=[i_item_id#197 ASC NULLS FIRST,i_item_desc#200 ASC NULLS FIRST,s_store_id#168 ASC NULLS FIRST,s_store_name#172
ASC NULLS FIRST], output=
[i_item_id#197,i_item_desc#200,s_store_id#168,s_store_name#172,store_sales_profit#3,store_returns_loss#4,catalog_sales_profit#5])
+- *HashAggregate(keys=[i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172], functions=[sum(cast(ss_net_profit#27 as double)),
sum(cast(sr_net_loss#47 as double)), sum(cast(cs_net_profit#81 as double))], output=[i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172,
store_sales_profit#3, store_returns_loss#4, catalog_sales_profit#5])
+- Exchange hashpartitioning(i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172, 200)
+- *HashAggregate(keys=[i_item_id#197, i_item_desc#200, s_store_id#168, s_store_name#172], functions=[partial_sum(cast(ss_net_profit#27 as
double)), partial_sum(cast(sr_net_loss#47 as double)), partial_sum(cast(cs_net_profit#81 as double))], output=[i_item_id#197, i_item_desc#200,
s_store_id#168, s_store_name#172, sum#245, sum#246, sum#247])
+- *Project [ss_net_profit#27, sr_net_loss#47, cs_net_profit#81, s_store_id#168, s_store_name#172, i_item_id#197, i_item_desc#200]
+- *BroadcastHashJoin [ss_item_sk#7], [i_item_sk#196], Inner, BuildRight
:- *Project [ss_item_sk#7, ss_net_profit#27, sr_net_loss#47, cs_net_profit#81, s_store_id#168, s_store_name#172]
: +- *BroadcastHashJoin [ss_store_sk#12], [s_store_sk#167], Inner, BuildRight
: :- *Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, sr_net_loss#47, cs_net_profit#81]
: : +- *BroadcastHashJoin [cs_sold_date_sk#82], [d_date_sk#139], Inner, BuildRight
: : :- *Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, sr_net_loss#47, cs_net_profit#81, cs_sold_date_sk#82]
: : : +- *BroadcastHashJoin [sr_returned_date_sk#48], [d_date_sk#111], Inner, BuildRight
: : : :- *Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, sr_net_loss#47, sr_returned_date_sk#48, cs_net_profit#81,
cs_sold_date_sk#82]
: : : : +- *BroadcastHashJoin [ss_sold_date_sk#28], [d_date_sk#83], Inner, BuildRight
: : : : :- *Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, ss_sold_date_sk#28, sr_net_loss#47,
sr_returned_date_sk#48, cs_net_profit#81, cs_sold_date_sk#82]
: : : : : +- *SortMergeJoin [sr_customer_sk#31, sr_item_sk#30], [cs_bill_customer_sk#51, cs_item_sk#63], Inner
: : : : : :- *Sort [sr_customer_sk#31 ASC NULLS FIRST, sr_item_sk#30 ASC NULLS FIRST], false, 0
: : : : : +- Exchange hashpartitioning(sr_customer_sk#31, sr_item_sk#30, 200)
: : : : : +- *Project [ss_item_sk#7, ss_store_sk#12, ss_net_profit#27, ss_sold_date_sk#28, sr_item_sk#30,
sr_customer_sk#31, sr_net_loss#47, sr_returned_date_sk#48]
: : : : : : +- *SortMergeJoin [ss_customer_sk#8, ss_item_sk#7, ss_ticket_number#14L], [sr_customer_sk#31,
sr_item_sk#30, sr_ticket_number#37L], Inner
: : : : : : :- *Sort [ss_customer_sk#8 ASC NULLS FIRST, ss_item_sk#7 ASC NULLS FIRST, ss_ticket_number#14L
ASC NULLS FIRST], false, 0
: : : : : : : +- Exchange hashpartitioning(ss_customer_sk#8, ss_item_sk#7, ss_ticket_number#14L, 200)
: : : : : : : +- *Filter (((isnotnull(ss_ticket_number#14L) && isnotnull(ss_customer_sk#8)) &&
isnotnull(ss_item_sk#7)) && isnotnull(ss_store_sk#12))
: : : : : : : +- HiveTableScan [ss_item_sk#7, ss_customer_sk#8, ss_store_sk#12,
ss_ticket_number#14L, ss_net_profit#27, ss_sold_date_sk#28], CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_sales`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [ss_sold_time_sk#6, ss_item_sk#7, ss_customer_sk#8, ss_demo_sk#9, ss_hdemo_sk#10, ss_addr_sk#11,
ss_store_sk#12, ss_promo_sk#13, ss_ticket_number#14L, ss_quantity#15, ss_wholesale_cost#16, ss_list_price#17, ss_sales_price#18, ss_ext_discount_amt#19,
ss_ext_sales_price#20, ss_ext_wholesale_cost#21, ss_ext_list_price#22, ss_ext_tax#23, ss_coupon_amt#24, ss_net_paid#25, ss_net_paid_inc_tax#26,
ss_net_profit#27], [ss_sold_date_sk#28], [isnotnull(ss_sold_date_sk#28)]
: : : : : : : +- *Sort [sr_customer_sk#31 ASC NULLS FIRST, sr_item_sk#30 ASC NULLS FIRST,
```



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sr_ticket_number#37L ASC NULLS FIRST], false, 0
      :      :      :      :      :      :      +- Exchange hashpartitioning(sr_customer_sk#31, sr_item_sk#30, sr_ticket_number#37L, 200)
      :      :      :      :      :      :      +- *Filter ((isnotnull(sr_ticket_number#37L) && isnotnull(sr_customer_sk#31)) &&
isnotnull(sr_item_sk#30))
      :      :      :      :      :      :      +- HiveTableScan [sr_item_sk#30, sr_customer_sk#31, sr_ticket_number#37L,
sr_net_loss#47, sr_returned_date_sk#48], CatalogRelation `tpcds_bin_partitioned_orc_500`.`store_returns`, org.apache.hadoop.hive.ql.io.orc.OrcSerde,
[sr_return_time_sk#29, sr_item_sk#30, sr_customer_sk#31, sr_demo_sk#32, sr_hdemo_sk#33, sr_addr_sk#34, sr_store_sk#35, sr_reason_sk#36,
sr_ticket_number#37L, sr_return_quantity#38, sr_return_amt#39, sr_return_tax#40, sr_return_amt_inc_tax#41, sr_fee#42, sr_return_ship_cost#43,
sr_refunded_cash#44, sr_reversed_charge#45, sr_store_credit#46, sr_net_loss#47], [sr_returned_date_sk#48], [isnotnull(sr_returned_date_sk#48)]
      :      :      :      :      :      +- *Sort [cs_bill_customer_sk#51 ASC NULLS FIRST, cs_item_sk#63 ASC NULLS FIRST], false, 0
      :      :      :      :      :      +- Exchange hashpartitioning(cs_bill_customer_sk#51, cs_item_sk#63, 200)
      :      :      :      :      :      +- *Filter (isnotnull(cs_item_sk#63) && isnotnull(cs_bill_customer_sk#51))
      :      :      :      :      :      +- HiveTableScan [cs_bill_customer_sk#51, cs_item_sk#63, cs_net_profit#81, cs_sold_date_sk#82],
CatalogRelation `tpcds_bin_partitioned_orc_500`.`catalog_sales`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [cs_sold_time_sk#49, cs_ship_date_sk#50,
cs_bill_customer_sk#51, cs_bill_demo_sk#52, cs_bill_hdemo_sk#53, cs_bill_addr_sk#54, cs_ship_customer_sk#55, cs_ship_demo_sk#56, cs_ship_hdemo_sk#57,
cs_ship_addr_sk#58, cs_call_center_sk#59, cs_catalog_page_sk#60, cs_ship_mode_sk#61, cs_warehouse_sk#62, cs_item_sk#63, cs_promo_sk#64,
cs_order_number#65L, cs_quantity#66, cs_wholesale_cost#67, cs_list_price#68, cs_sales_price#69, cs_ext_discount_amt#70, cs_ext_sales_price#71,
cs_ext_wholesale_cost#72, ... 9 more fields], [cs_sold_date_sk#82], [isnotnull(cs_sold_date_sk#82)]
      :      :      :      :      +- BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)))
      :      :      :      :      +- *Project [d_date_sk#83]
      :      :      :      :      +- *Filter (((isnotnull(d_moy#91) && isnotnull(d_year#89)) && (d_moy#91 = 4)) && (d_year#89 = 1998)) &&
isnotnull(d_date_sk#83))
      :      :      :      :      +- HiveTableScan [d_date_sk#83, d_moy#91, d_year#89], CatalogRelation
`tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [d_date_sk#83, d_date_id#84, d_date#85, d_month_seq#86,
d_week_seq#87, d_quarter_seq#88, d_year#89, d_dow#90, d_moy#91, d_dom#92, d_qoy#93, d_fy_year#94, d_fy_quarter_seq#95, d_fy_week_seq#96, d_day_name#97,
d_quarter_name#98, d_holiday#99, d_weekend#100, d_following_holiday#101, d_first_dom#102, d_last_dom#103, d_same_day_ly#104, d_same_day_lq#105,
d_current_day#106, ... 4 more fields]
      :      :      :      +- BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)))
      :      :      :      +- *Project [d_date_sk#111]
      :      :      :      +- *Filter ((((((isnotnull(d_year#117) && isnotnull(d_moy#119)) && (d_moy#119 >= 4)) && (d_moy#119 <= 10)) &&
(d_year#117 = 1998)) && isnotnull(d_date_sk#111))
      :      :      :      +- HiveTableScan [d_date_sk#111, d_year#117, d_moy#119], CatalogRelation
`tpcds_bin_partitioned_orc_500`.`date_dim`, org.apache.hadoop.hive.ql.io.orc.OrcSerde, [d_date_sk#111, d_date_id#112, d_date#113, d_month_seq#114,
d_week_seq#115, d_quarter_seq#116, d_year#117, d_dow#118, d_moy#119, d_dom#120, d_qoy#121, d_fy_year#122, d_fy_quarter_seq#123, d_fy_week_seq#124,
d_day_name#125, d_quarter_name#126, d_holiday#127, d_weekend#128, d_following_holiday#129, d_first_dom#130, d_last_dom#131, d_same_day_ly#132,
d_same_day_lq#133, d_current_day#134, ... 4 more fields]
      :      :      +- ReusedExchange [d_date_sk#139], BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, true] as bigint)))
      :      +- BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, false] as bigint)))
      :      +- *Filter isnotnull(s_store_sk#167)
      :      +- HiveTableScan [s_store_sk#167, s_store_id#168, s_store_name#172], CatalogRelation `tpcds_bin_partitioned_orc_500`.`store`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [s_store_sk#167, s_store_id#168, s_rec_start_date#169, s_rec_end_date#170, s_closed_date_sk#171,
s_store_name#172, s_number_employees#173, s_floor_space#174, s_hours#175, s_manager#176, s_market_id#177, s_geography_class#178, s_market_desc#179,
s_market_manager#180, s_division_id#181, s_division_name#182, s_company_id#183, s_company_name#184, s_street_number#185, s_street_name#186,
s_street_type#187, s_suite_number#188, s_city#189, s_county#190, ... 5 more fields]
      +- BroadcastExchange HashedRelationBroadcastMode(List(cast(input[0, int, false] as bigint)))
      +- *Filter isnotnull(i_item_sk#196)
      +- HiveTableScan [i_item_sk#196, i_item_id#197, i_item_desc#200], CatalogRelation `tpcds_bin_partitioned_orc_500`.`item`,
org.apache.hadoop.hive.ql.io.orc.OrcSerde, [i_item_sk#196, i_item_id#197, i_rec_start_date#198, i_rec_end_date#199, i_item_desc#200,
i_current_price#201, i_wholesale_cost#202, i_brand_id#203, i_brand#204, i_class_id#205, i_class#206, i_category_id#207, i_category#208,
i_manufact_id#209, i_manufact#210, i_size#211, i_formulation#212, i_color#213, i_units#214, i_container#215, i_manager_id#216, i_product_name#217]
```