

智能调参模型说明

Twitter

SmallBank

Wikipedia

SEATS

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TPCC

New Order

Payment

Order Status

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Stock Level

Twitter

```
SELECT * FROM TwitterConstants.TABLENAME_TWEETS WHERE id = ? ;
SELECT f2 FROM TwitterConstants.TABLENAME_FOLLOWS WHERE f1 = ? LIMIT ? ;
SELECT * FROM TwitterConstants.TABLENAME_TWEETS WHERE uid IN (?);
SELECT f2 FROM TwitterConstants.TABLENAME_FOLLOWERS WHERE f1 = ? LIMIT ? ;
SELECT uid, name FROM TwitterConstants.TABLENAME_USER WHERE uid IN (?);
SELECT * FROM TwitterConstants.TABLENAME_TWEETS WHERE uid = ? LIMIT ? ;
INSERT INTO TwitterConstants.TABLENAME_ADDED_TWEETS (uid,text,createdate) VALUES
(?, ?, ?) ;
```

SmallBank

```
SELECT * FROM SmallBankConstants.TABLENAME_ACCOUNTS WHERE custid = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_SAVINGS WHERE custid = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_CHECKING WHERE custid = ? ;
UPDATE SmallBankConstants.TABLENAME_SAVINGS SET bal = bal - ? WHERE custid = ? ;
UPDATE SmallBankConstants.TABLENAME_CHECKING SET bal = bal + ? WHERE custid = ? ;
UPDATE SmallBankConstants.TABLENAME_CHECKING SET bal = 0.0 WHERE custid = ? ;
```

```

SELECT * FROM SmallBankConstants.TABLENAME_ACCOUNTS WHERE name = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_SAVINGS WHERE custid = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_CHECKING WHERE custid = ? ;
SELECT * FROM SmallBankConstants.TABLENAME_ACCOUNTS WHERE name = ? ;
UPDATE SmallBankConstants.TABLENAME_CHECKING SET bal = bal + ? WHERE custid = ? ;
SELECT * FROM SmallBankConstants.TABLENAME_ACCOUNTS WHERE custid = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_CHECKING WHERE custid = ? ;
UPDATE SmallBankConstants.TABLENAME_CHECKING SET bal = bal + ? WHERE custid = ? ;
SELECT * FROM SmallBankConstants.TABLENAME_ACCOUNTS WHERE name = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_SAVINGS WHERE custid = ? ;
UPDATE SmallBankConstants.TABLENAME_SAVINGS SET bal = bal - ? WHERE custid = ? ;
SELECT * FROM SmallBankConstants.TABLENAME_ACCOUNTS WHERE name = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_SAVINGS WHERE custid = ? ;
SELECT bal FROM SmallBankConstants.TABLENAME_CHECKING WHERE custid = ? ;
UPDATE SmallBankConstants.TABLENAME_CHECKING SET bal = bal - ? WHERE custid = ? ;
;

```

Wikipedia

```

INSERT INTO WikipediaConstants.TABLENAME_WATCHLIST (wl_user, wl_namespace,wl_title,
wl_notificationtimestamp) VALUES ( ?,?,?,NULL) ;
UPDATE WikipediaConstants.TABLENAME_USER SET user_touched = ? WHERE user_id = ? ;
DELETE FROM WikipediaConstants.TABLENAME_WATCHLIST WHERE wl_user = ?
ANDwl_namespace = ? AND wl_title = ? ;
UPDATE WikipediaConstants.TABLENAME_USER SET user_touched = ? WHERE user_id = ? ;
INSERT INTO WikipediaConstants.TABLENAME_TEXT (old_page,old_text,old_flags) VALUES
(?,?,? );
INSERT INTO WikipediaConstants.TABLENAME_REVISION ( rev_page, rev_text_id,
rev_comment, rev_minor_edit, rev_user, rev_user_text, rev_timestamp, rev_deleted, rev_len,
rev_parent_id) VALUES (?, ?, ?, ?, ?, ?, ?, ?, ? ) ;
UPDATE WikipediaConstants.TABLENAME_PAGE SET page_latest = ?, page_touched = ?,
page_is_new = 0, page_is_redirect = 0, page_len = ? WHERE page_id = ? ;

INSERT INTO WikipediaConstants.TABLENAME_RECENTCHANGES (rc_timestamp,
rc_cur_time, rc_namespace, rc_title, rc_type, rc_minor, rc_cur_id, rc_user, rc_user_text,
rc_comment, rc_this_oldid,
rc_last_oldid, rc_bot, rc_moved_to_ns, rc_moved_to_title, rc_ip, rc_old_len, rc_new_len )
VALUES ( ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ? ) ;
SELECT wl_user FROM WikipediaConstants.TABLENAME_WATCHLIST WHERE wl_title = ?
AND wl_namespace = ? AND wl_user != ? AND wl_notificationtimestamp IS NULL ;

```

```
UPDATE WikipediaConstants.TABLENAME_WATCHLIST SET wl_notificationtimestamp = ?
WHERE wl_title = ? AND wl_namespace = ? AND wl_user = ? ;
```

```
SELECT * FROM WikipediaConstants.TABLENAME_USER WHERE user_id = ? ;
INSERT INTO WikipediaConstants.TABLENAME_LOGGING (log_type, log_action,
log_timestamp, log_user, log_user_text, log_namespace, log_title, log_page, log_comment,
log_params ) VALUES (
'patrol','patrol',?,?,?,?,'',? );
```

```
UPDATE WikipediaConstants.TABLENAME_USER SET user_editcount=user_editcount1 WHERE
user_id = ? ;
```

```
UPDATE WikipediaConstants.TABLENAME_USER SET user_touched = ? WHERE user_id = ? ;
SELECT * FROM WikipediaConstants.TABLENAME_PAGE WHERE page_namespace = ? AND
page_title = ? LIMIT 1 ;
SELECT * FROM WikipediaConstants.TABLENAME_PAGE_RESTRICTIONS WHERE pr_page = ?
;
SELECT * FROM WikipediaConstants.TABLENAME_IPBLOCKS WHERE ipb_address = ? ;
SELECT * FROM WikipediaConstants.TABLENAME_PAGE a,
WikipediaConstants.TABLENAME_REVISION b
WHERE a.page_id = b.rev_page AND b.rev_page = ? AND a.page_id = ? AND b.rev_id =
a.page_latest LIMIT 1 ;
SELECT old_text, old_flags FROM WikipediaConstants.TABLENAME_TEXT WHERE old_id = ?
LIMIT 1 ;
SELECT * FROM WikipediaConstants.TABLENAME_PAGE WHERE page_namespace = ? AND
page_title = ? LIMIT 1 ;
```

```
SELECT * FROM WikipediaConstants.TABLENAME_PAGE_RESTRICTIONS WHERE pr_page =
? ;
SELECT * FROM WikipediaConstants.TABLENAME_IPBLOCKS WHERE ipb_user = ? ;
SELECT * FROM WikipediaConstants.TABLENAME_USER WHERE user_id = ? LIMIT 1 ;
SELECT ug_group FROM WikipediaConstants.TABLENAME_USER_GROUPS WHERE ug_user =
? ;
```

SEATS

```
"SELECT C_ID " +
" FROM " + SEATSCONSTANTS.TABLENAME_CUSTOMER +
```

```

" WHERE C_ID_STR = ?"
"SELECT C_ID, FF_AL_ID " +
" FROM " + SEATSConstants.TABLENAME_CUSTOMER + ", " +
SEATSConstants.TABLENAME_FREQUENT_FLYER +
" WHERE FF_C_ID_STR = ? AND FF_C_ID = C_ID"
"SELECT C_SATTR00, C_SATTR02, C_SATTR04, " +
" C_IATTR00, C_IATTR02, C_IATTR04, C_IATTR06, " +
" F_SEATS_LEFT, " +
" R_ID, R_SEAT, R_PRICE, R_IATTR00 " +
" FROM " + SEATSConstants.TABLENAME_CUSTOMER + ", " +
SEATSConstants.TABLENAME_FLIGHT + ", " +
SEATSConstants.TABLENAME_RESERVATION +
" WHERE C_ID = ? AND C_ID = R_C_ID " +
" AND F_ID = ? AND F_ID = R_F_ID "
"DELETE FROM " + SEATSConstants.TABLENAME_RESERVATION +
" WHERE R_ID = ? AND R_C_ID = ? AND R_F_ID = ?"
"UPDATE " + SEATSConstants.TABLENAME_FLIGHT +
" SET F_SEATS_LEFT = F_SEATS_LEFT + 1 " +
" WHERE F_ID = ? "
"UPDATE " + SEATSConstants.TABLENAME_CUSTOMER +
" SET C_BALANCE = C_BALANCE + ?, " +
" C_IATTR00 = ?, " +
" C_IATTR10 = C_IATTR10 - 1, " +
" C_IATTR11 = C_IATTR10 - 1 " +
" WHERE C_ID = ? "
"UPDATE " + SEATSConstants.TABLENAME_FREQUENT_FLYER +
" SET FF_IATTR10 = FF_IATTR10 - 1 " +
" WHERE FF_C_ID = ? " +
" AND FF_AL_ID = ?"

```

```

"SELECT * " +
" FROM " + SEATSConstants.TABLENAME_AIRPORT_DISTANCE +
" WHERE D_AP_ID0 = ? " +
" AND D_DISTANCE <= ? " +
" ORDER BY D_DISTANCE ASC "
"SELECT AP_CODE, AP_NAME, AP_CITY, AP_LONGITUDE, AP_LATITUDE, " +
" CO_ID, CO_NAME, CO_CODE_2, CO_CODE_3 " +
" FROM " + SEATSConstants.TABLENAME_AIRPORT + ", " +
SEATSConstants.TABLENAME_COUNTRY +
" WHERE AP_ID = ? AND AP_CO_ID = CO_ID "

```

```

"SELECT F_ID, F_AL_ID, F_SEATS_LEFT, " +
" F_DEPART_AP_ID, F_DEPART_TIME, F_ARRIVE_AP_ID, F_ARRIVE_TIME, " +
" AL_NAME, AL_IATTR00, AL_IATTR01 " +
" FROM " + SEATSConstants.TABLENAME_FLIGHT + ", " +
" SEATSConstants.TABLENAME_AIRLINE +
" WHERE F_DEPART_AP_ID = ? " +
" AND F_DEPART_TIME >= ? AND F_DEPART_TIME <= ? " +
" AND F_AL_ID = AL_ID " +
" AND F_ARRIVE_AP_ID IN (??)"

```

```

"SELECT F_STATUS, F_BASE_PRICE, F_SEATS_TOTAL, F_SEATS_LEFT, " +
" (F_BASE_PRICE + (F_BASE_PRICE * (1 - (F_SEATS_LEFT / F_SEATS_TOTAL))))
AS F_PRICE " +
" FROM " + SEATSConstants.TABLENAME_FLIGHT +
" WHERE F_ID = ?"
"SELECT R_ID, R_F_ID, R_SEAT " +
" FROM " + SEATSConstants.TABLENAME_RESERVATION +
" WHERE R_F_ID = ?"

```

```

"SELECT F_AL_ID, F_SEATS_LEFT, " +
" SEATSConstants.TABLENAME_AIRLINE + ".* " +
" FROM " + SEATSConstants.TABLENAME_FLIGHT + ", " +
" SEATSConstants.TABLENAME_AIRLINE +
" WHERE F_ID = ? AND F_AL_ID = AL_ID"
"SELECT C_BASE_AP_ID, C_BALANCE, C_SATTR00 " +
" FROM " + SEATSConstants.TABLENAME_CUSTOMER +
" WHERE C_ID = ? "
"SELECT R_ID " +
" FROM " + SEATSConstants.TABLENAME_RESERVATION +
" WHERE R_F_ID = ? and R_SEAT = ?"
"SELECT R_ID " +
" FROM " + SEATSConstants.TABLENAME_RESERVATION +
" WHERE R_F_ID = ? AND R_C_ID = ?"
"UPDATE " + SEATSConstants.TABLENAME_FLIGHT +
" SET F_SEATS_LEFT = F_SEATS_LEFT - 1 " +
" WHERE F_ID = ? "
"UPDATE " + SEATSConstants.TABLENAME_CUSTOMER +
" SET C_IATTR10 = C_IATTR10 + 1, " +
" C_IATTR11 = C_IATTR11 + 1, " +
" C_IATTR12 = ?, " +
" C_IATTR13 = ?, " +

```

```

"      C_IATTR14 = ?, " +
"      C_IATTR15 = ? " +
" WHERE C_ID = ? "
"UPDATE " + SEATSConstants.TABLENAME_FREQUENT_FLYER +
"      SET FF_IATTR10 = FF_IATTR10 + 1, " +
"      FF_IATTR11 = ?, " +
"      FF_IATTR12 = ?, " +
"      FF_IATTR13 = ?, " +
"      FF_IATTR14 = ? " +
" WHERE FF_C_ID = ? " +
"      AND FF_AL_ID = ?"
"INSERT INTO " + SEATSConstants.TABLENAME_RESERVATION + " (" +
"      R_ID, " +
"      R_C_ID, " +
"      R_F_ID, " +
"      R_SEAT, " +
"      R_PRICE, " +
"      R_IATTR00, " +
"      R_IATTR01, " +
"      R_IATTR02, " +
"      R_IATTR03, " +
"      R_IATTR04, " +
"      R_IATTR05, " +
"      R_IATTR06, " +
"      R_IATTR07, " +
"      R_IATTR08 " +
") VALUES (" +
"      ?, " + // R_ID
"      ?, " + // R_C_ID
"      ?, " + // R_F_ID
"      ?, " + // R_SEAT
"      ?, " + // R_PRICE
"      ?, " + // R_ATTR00
"      ?, " + // R_ATTR01
"      ?, " + // R_ATTR02
"      ?, " + // R_ATTR03
"      ?, " + // R_ATTR04
"      ?, " + // R_ATTR05
"      ?, " + // R_ATTR06
"      ?, " + // R_ATTR07

```

```
" ? " + // R_ATTR08  
    ")"
```

```
"SELECT C_ID " +  
" FROM " + SEATSConstants.TABLENAME_CUSTOMER +  
" WHERE C_ID_STR = ? "  
"SELECT * " +  
" FROM " + SEATSConstants.TABLENAME_CUSTOMER +  
" WHERE C_ID = ? "  
"SELECT * " +  
" FROM " + SEATSConstants.TABLENAME_AIRPORT + ", " +  
SEATSConstants.TABLENAME_COUNTRY +  
" WHERE AP_ID = ? AND AP_CO_ID = CO_ID "  
"UPDATE " + SEATSConstants.TABLENAME_CUSTOMER +  
" SET C_IATTR00 = ?, " +  
" C_IATTR01 = ? " +  
" WHERE C_ID = ?"  
"SELECT * FROM " + SEATSConstants.TABLENAME_FREQUENT_FLYER +  
" WHERE FF_C_ID = ?"  
"UPDATE " + SEATSConstants.TABLENAME_FREQUENT_FLYER +  
" SET FF_IATTR00 = ?, " +  
" FF_IATTR01 = ? " +  
" WHERE FF_C_ID = ? " +  
" AND FF_AL_ID = ? "
```

```
"SELECT R_ID " +  
" FROM " + SEATSConstants.TABLENAME_RESERVATION +  
" WHERE R_F_ID = ? and R_SEAT = ?"  
"SELECT R_ID " +  
" FROM " + SEATSConstants.TABLENAME_RESERVATION +  
" WHERE R_F_ID = ? AND R_C_ID = ?"  
"UPDATE " + SEATSConstants.TABLENAME_RESERVATION +  
" SET R_SEAT = ?, %s = ? " +  
" WHERE R_ID = ? AND R_C_ID = ? AND R_F_ID = ?"
```

Tatp

```
"SELECT s_id FROM " + TATPConstants.TABLENAME_SUBSCRIBER + " WHERE sub_nbr =
```

<pre> ?" "DELETE FROM " + TATPConstants.TABLENAME_CALL_FORWARDING + " WHERE s_id = ? AND sf_type = ? AND start_time = ?" </pre>
<pre> "SELECT data1, data2, data3, data4 FROM " + TATPConstants.TABLENAME_ACCESS_INFO + " WHERE s_id = ? AND ai_type = ?" </pre>
<pre> "SELECT cf.numberx " + " FROM " + TATPConstants.TABLENAME_SPECIAL_FACILITY + " sf, " + " " + TATPConstants.TABLENAME_CALL_FORWARDING + " cf " + " WHERE sf.s_id = ? " + " AND sf.sf_type = ? " + " AND sf.is_active = 1 " + " AND cf.s_id = sf.s_id " + " AND cf.sf_type = sf.sf_type " + " AND cf.start_time <= ? " + " AND cf.end_time > ?" </pre>
<pre> "SELECT * FROM " + TATPConstants.TABLENAME_SUBSCRIBER + " WHERE s_id = ?" </pre>
<pre> "SELECT s_id FROM " + TATPConstants.TABLENAME_SUBSCRIBER + " WHERE sub_nbr = ?" "SELECT sf_type FROM " + TATPConstants.TABLENAME_SPECIAL_FACILITY + " WHERE s_id = ?" "INSERT INTO " + TATPConstants.TABLENAME_CALL_FORWARDING + " VALUES (?, ?, ?, ?, ?)" </pre>
<pre> "SELECT s_id FROM " + TATPConstants.TABLENAME_SUBSCRIBER + " WHERE sub_nbr = ?" "UPDATE " + TATPConstants.TABLENAME_SUBSCRIBER + " SET vlr_location = ? WHERE s_id = ?" </pre>
<pre> "UPDATE " + TATPConstants.TABLENAME_SUBSCRIBER + " SET bit_1 = ? WHERE s_id = ?" "UPDATE " + TATPConstants.TABLENAME_SPECIAL_FACILITY + " SET data_a = ? WHERE s_id = ? AND sf_type = ?" </pre>

YCSB

<pre> "SELECT * FROM USERTABLE WHERE YCSB_KEY=?" </pre>
<pre> "INSERT INTO USERTABLE VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?, ?)" </pre>

"SELECT * FROM USERTABLE WHERE YCSB_KEY>? AND YCSB_KEY<?"

"UPDATE USERTABLE SET FIELD1=?,FIELD2=?,FIELD3=?,FIELD4=?,FIELD5=?," +
"FIELD6=?,FIELD7=?,FIELD8=?,FIELD9=?,FIELD10=? WHERE YCSB_KEY=?"

"DELETE FROM USERTABLE where YCSB_KEY=?"

"SELECT * FROM USERTABLE where YCSB_KEY=? FOR UPDATE"

"UPDATE USERTABLE SET FIELD1=?,FIELD2=?,FIELD3=?,FIELD4=?,FIELD5=?," +
"FIELD6=?,FIELD7=?,FIELD8=?,FIELD9=?,FIELD10=? WHERE YCSB_KEY=?"

TPCC

Transaction	Minimum %	Assumed %	Selects	Updates	Inserts	Deletes	Non-Unique Select	Join
New Order	*	43	23	11	12	0	0	0
Payment	43	44	4.2	3	1	0	0.6	0
Order Status	4	4	11.4	0	0	0	0.6	0
Delivery	4	5	130	120	0	10	0	0
Stock Level	4	4	0	0	0	0	0	1

New Order

```
SELECT c_discount, c_last, c_credit, w_tax  
INTO :c_discount, :c_last, :c_credit, :w_tax  
FROM customer, warehouse  
WHERE w_id = :w_id  
AND c_w_id = w_id  
AND c_d_id = :d_id  
AND c_id = :c_id;
```

```
SELECT d_next_o_id, d_tax INTO :d_next_o_id, :d_tax  
FROM district  
WHERE d_id = :d_id  
AND d_w_id = :w_id  
FOR UPDATE
```

```
UPDATE district SET d_next_o_id = :d_next_o_id + 1  
WHERE d_id = :d_id  
AND d_w_id = :w_id;
```

```
INSERT INTO orders (o_id, o_d_id, o_w_id, o_c_id, o_entry_d, o_ol_cnt, o_all_local)  
VALUES(:o_id, :d_id, :w_id, :c_id, :datetime, :o_ol_cnt, :o_all_local);
```

```
INSERT INTO new_orders (no_o_id, no_d_id, no_w_id)
VALUES (:o_id,:d_id,:w_id);
```

```
SELECT i_price, i_name, i_data
INTO :i_price, :i_name, :i_data
FROM item
WHERE i_id = :ol_i_id;*/
```

```
SELECT s_quantity, s_data, s_dist_01, s_dist_02,
s_dist_03, s_dist_04, s_dist_05, s_dist_06,
s_dist_07, s_dist_08, s_dist_09, s_dist_10
INTO :s_quantity, :s_data, :s_dist_01, :s_dist_02,
:s_dist_03, :s_dist_04, :s_dist_05, :s_dist_06,
:s_dist_07, :s_dist_08, :s_dist_09, :s_dist_10
FROM stock
WHERE s_i_id = :ol_i_id
AND s_w_id = :ol_supply_w_id
FOR UPDATE;*/
```

```
UPDATE stock SET s_quantity = :s_quantity
WHERE s_i_id = :ol_i_id
AND s_w_id = :ol_supply_w_id;*/
```

```
INSERT INTO order_line (ol_o_id, ol_d_id, ol_w_id, ol_number, ol_i_id, ol_supply_w_id,
ol_quantity, ol_amount, ol_dist_info)
VALUES (:o_id, :d_id, :w_id, :ol_number, :ol_i_id, :ol_supply_w_id, :ol_quantity, :ol_amount,
:ol_dist_info);
```

Payment

```
UPDATE warehouse SET w_ytd = w_ytd + :h_amount
WHERE w_id =:w_id
```

```
SELECT w_street_1, w_street_2, w_city, w_state, w_zip, w_name
INTO :w_street_1, :w_street_2, :w_city, :w_state, :w_zip, :w_name
FROM warehouse
WHERE w_id = :w_id;*/
```

```
UPDATE district SET d_ytd = d_ytd + :h_amount
```

```
WHERE d_w_id = :w_id  
AND d_id = :d_id;*/
```

```
SELECT count(c_id)  
FROM customer  
WHERE c_w_id = :c_w_id  
AND c_d_id = :c_d_id  
AND c_last = :c_last;*/
```

```
SELECT c_id  
FROM customer  
WHERE c_w_id = :c_w_id  
AND c_d_id = :c_d_id  
AND c_last = :c_last  
ORDER BY c_first;
```

```
SELECT c_first, c_middle, c_last, c_street_1,  
c_street_2, c_city, c_state, c_zip, c_phone,  
c_credit, c_credit_lim, c_discount, c_balance, c_since  
FROM customer  
WHERE c_w_id = :c_w_id  
AND c_d_id = :c_d_id  
AND c_id = :c_id  
FOR UPDATE;
```

```
SELECT c_data  
INTO :c_data  
FROM customer  
WHERE c_w_id = :c_w_id  
AND c_d_id = :c_d_id  
AND c_id = :c_id; */
```

```
UPDATE customer  
SET c_balance = :c_balance, c_data = :c_new_data  
WHERE c_w_id = :c_w_id  
AND c_d_id = :c_d_id  
AND c_id = :c_id
```

```
INSERT INTO history(h_c_d_id, h_c_w_id, h_c_id, h_d_id, h_w_id, h_date, h_amount, h_data)
```

```
VALUES(:c_d_id, :c_w_id, :c_id, :d_id, :w_id, :datetime, :h_amount, :h_data);
```

Order Status

```
EXEC_SQL SELECT count(c_id)
FROM customer
WHERE c_w_id = :c_w_id
AND c_d_id = :c_d_id
AND c_last = :c_last;*/
```

```
SELECT c_balance, c_first, c_middle, c_id
FROM customer
WHERE c_w_id = :c_w_id
AND c_d_id = :c_d_id
AND c_last = :c_last
ORDER BY c_first;
```

```
SELECT c_balance, c_first, c_middle, c_last
FROM customer
WHERE c_w_id = :c_w_id
AND c_d_id = :c_d_id
AND c_id = :c_id;*/
```

```
EXEC SQL SELECT o_id, o_carrier_id, o_entry_d
INTO :o_id, :o_carrier_id, :entdate
FROM orders
ORDER BY o_id DESC;
```

```
SELECT ol_i_id, ol_supply_w_id, ol_quantity, ol_amount, ol_delivery_d
FROM order_line
WHERE ol_w_id = :c_w_id
AND ol_d_id = :c_d_id
AND ol_o_id = :o_id;
```

Delivery

```
SELECT COALESCE(MIN(no_o_id),0) INTO :no_o_id
FROM new_orders
WHERE no_d_id = :d_id AND no_w_id = :w_id;*/
```

```
DELETE FROM new_orders WHERE no_o_id = :no_o_id AND no_d_id = :d_id
AND no_w_id = :w_id;
```

```
SELECT o_c_id INTO :c_id FROM orders
WHERE o_id = :no_o_id AND o_d_id = :d_id
AND o_w_id = :w_id;
```

```
UPDATE orders SET o_carrier_id = :o_carrier_id
WHERE o_id = :no_o_id AND o_d_id = :d_id AND
o_w_id = :w_id;
```

```
UPDATE order_line
SET ol_delivery_d = :datetime
WHERE ol_o_id = :no_o_id AND ol_d_id = :d_id AND
ol_w_id = :w_id;
```

```
SELECT SUM(ol_amount) INTO :ol_total
FROM order_line
WHERE ol_o_id = :no_o_id AND ol_d_id = :d_id
AND ol_w_id = :w_id;
```

```
UPDATE customer SET c_balance = c_balance + :ol_total ,
c_delivery_cnt = c_delivery_cnt + 1
WHERE c_id = :c_id AND c_d_id = :d_id AND
c_w_id = :w_id;
```

Stock Level

```
EXEC_SQL SELECT d_next_o_id
FROM district
WHERE d_id = :d_id
AND d_w_id = :w_id;
```

```
SELECT COUNT(DISTINCT (s_i_id)) INTO :stock_count
FROM order_line, stock
WHERE ol_w_id=:w_id AND ol_d_id=:d_id AND ol_o_id<:o_id AND ol_o_id>=:o_id-20 AND
s_w_id=:w_id AND s_i_id=ol_i_id AND s_quantity < :threshold;
```

```
SELECT DISTINCT ol_i_id
FROM order_line
WHERE ol_w_id = :w_id
AND ol_d_id = :d_id
AND ol_o_id < :d_next_o_id
AND ol_o_id >= (:d_next_o_id - 20);
```

```
SELECT count(*) INTO :i_count
FROM stock
WHERE s_w_id = :w_id
AND s_i_id = :ol_i_id
AND s_quantity < :level;*/
```