2.8 The Stock-Level Transaction

The Stock-Level business transaction determines the number of recently sold items that have a stock level below a specified threshold. It represents a heavy read-only database transaction with a low frequency of execution, a relaxed response time requirement, and relaxed consistency requirements.

2.8.1 Input Data Generation

2.8.1.1 Each terminal must use a unique value of (W_ID, D_ID) that is constant over the whole measurement, i.e., D_IDs cannot be re-used within a warehouse.

2.8.1.2 The threshold of minimum quantity in stock (threshold) is selected at random within [10 .. 20].

2.8.2 Transaction Profile

2.8.2.1 Examining the level of stock for items on the last 20 orders is done in one or more database transactions with the following steps:

1. Examine the next available order number, comprised of:

   1 row selection with data retrieval.

2. Examine all items on the last 20 orders (average items-per-order = 10) for the district, comprised of:

   (20 * items-per-order) row selections with data retrieval.

3. Examine, for each distinct item selected, if the level of stock available at the home warehouse is below the threshold, comprised of:

   At most (20 * items-per-order) row selections with data retrieval.

Note: The above summary is provided for information only. The actual requirement is defined by the detailed transaction profile below.

2.8.2.2 For a given warehouse number (W_ID), district number (D_W_ID , D_ID), and stock level threshold (*threshold*):

- The input data (see Clause 2.8.3.2) are communicated to the SUT.

- A database transaction is started.

- The row in the DISTRICT table with matching D_W_ID and D_ID is selected and D_NEXT_O_ID is retrieved.

- All rows in the ORDER-LINE table with matching OL_W_ID (equals W_ID), OL_D_ID (equals D_ID), and OL_O_ID (lower than D_NEXT_O_ID and greater than or equal to D_NEXT_O_ID minus 20) are selected. They are the items for 20 recent orders of the district.

- All rows in the STOCK table with matching S_I_ID (equals OL_I_ID) and S_W_ID (equals W_ID) from the list of distinct item numbers and with S_QUANTITY lower than *threshold* are counted (giving *low_stock*).

  Comment: Stocks must be counted only for distinct items. Thus, items that have been ordered more than once in the 20 selected orders must be aggregated into a single summary count for that item.

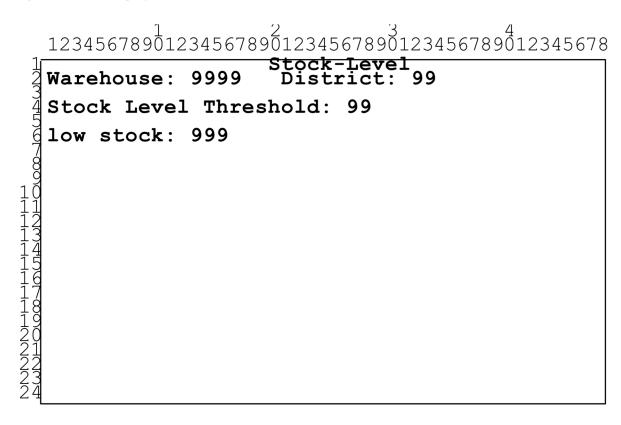- The current database transaction is committed.

  Comment: A commit is not needed as long as all the required ACID properties are satisfied (see Clause 2.8.2.3).

- The output data (see Clause 2.8.3.3) are communicated to the terminal.

2.8.2.3   Full serializability and repeatable reads are not required for the Stock-Level business transaction. All data read must be committed and no older than the most recently committed data prior to the time this business transaction was initiated. All other ACID properties must be maintained.

Comment: This clause allows the business transaction to be broken down into more than one database transaction.

2.8.3   Terminal I/O

2.8.3.1   For each transaction the originating terminal must display the following input/ output screen with all input and output fields cleared (with either spaces or zeros) except for the Warehouse and District fields which have not changed and must display the fixed W_ID and D_ID values associated with that terminal.

```
                   1          2          3          4
 12345678901234567890123456789012345678901234567
1                        Stock-Level
2  Warehouse: 9999    District: 99
3
4  Stock Level Threshold: 99
5
6  low stock: 999
7
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```

2.8.3.2   The emulated user must enter, in the appropriate field of the input/ output screen, the required input data which is organized as the distinct field: *threshold.*

2.8.3.3   The emulated terminal must display, in the appropriate field of the input/ output screen, all input data and the output data which results from the execution of the transaction. The following fields are displayed: W_ID, D_ID, *threshold*, and *low_stock.*

2.8.3.4   The following table summarizes the terminal I/O requirements for the Stock-Level transaction:

	Enter	Display Row/Column	Coordinates
Non-repeating Group		W_ID	2/ 12
		D_ID	2/ 29
	threshold	*threshold*	4/ 24
		low_stock	6/ 12

2.8.3.5   For general terminal I/O requirements, see Clause 2.2.