CSE 111 – DATABASE SYSTEMS

Lab 10: Triggers

In this lab, you will learn how to work with triggers in SQLite. In order to complete the requirements, you have to implement the following tasks:

1. Create a trigger `t1` that for every new `order` entry automatically fills the `o_orderdate` attribute with the date `2023-12-01`. Insert into `orders` all the orders from `December 1995`, paying close attention on how the `o_orderkey` attribute is set. Write a query that returns the number of orders from `2023`. Put all the three SQL statements in file `test/1.sql`. (**3 points**)

2. Create a trigger `t2` that sets a warning `Negative balance!!!` in the comment attribute of the `customer` table every time `c_acctbal` is updated to a negative value from a positive one. Write a SQL statement that sets the balance to `-100` for all the customers in `AFRICA`. Write a query that returns the number of customers with negative balance from `EGYPT`. Put all the SQL statements in file `test/2.sql`. (**3 points**)

3. Create a trigger `t3` that resets the comment to `Positive balance` if the balance goes back positive from negative. Write a SQL statement that sets the balance to `100` for all the customers in `MOZAMBIQUE`. Write a query that returns the number of customers with negative balance from `AFRICA`. Put all the SQL statements in file `test/3.sql`. (**3 points**)

4. Create triggers that update the attribute `o_orderpriority` to `HIGH` every time a new `lineitem` tuple is added to or deleted from that order. Delete all the line items corresponding to orders from `December 1995`. Write a query that returns the number of `HIGH` priority orders in the interval `September - December 1995`. Put all the SQL statements in file `test/4.sql`. (**3 points**)

5. Create a trigger `t5` that removes all the tuples from `partsupp` and `lineitem` corresponding to a part being deleted. Delete all the parts supplied by suppliers from `KENYA` or `MOROCCO`. Write a query that returns the number of parts supplied by every supplier in `AFRICA` grouped by their country in increasing order. Put all the SQL statements in file `test/5.sql`. (**3 points**)

In order to complete the lab you have to perform the following tasks:

1. Implement the lab requirements in the files under the `test` folder.

2. The format of the expected output for every query is available in `output/x.out`. The included results are only samples. They are not the correct results. So, make sure you match the format, not the exact results.

3. The submission consists of a compressed `zip` file that contains the files in the `test` folder. The name of the file has to be `lab-10.zip`. When you create the file, include the folder `test` into the compression, not every file `test/x.sql` separately.