Programming Applications with Databases

Exercise Set 2

In creating below exercises a script *biblioteka.sql* attached to presentation *T-SQL: podstawy* examples will be required.

1. Create a T-SQL function taking as an input a number of days and returning in result a table *(PESEL, specimens_number)* which consists of readers list keeping at least one specimen not shorter that the number of days provided as the input. In the second result column please provide the number of all specimens currently being hold by a reader.
   [2p]

2. Create tables *firstnames(PK id, firstname)*, *lastnames(PK id, lastname)* and *fldata(PK firstname, PK lastname)* where *PK* indicates the columns which should constitute the primary keys. Generate test data into tables *firstnames* and *lastnames*, then create a procedure which takes n as an input and in result (1) removes the current content, (2) inserts n random pairs *(firstname, lastname)* into the table *fldata*. In case n is larger than the number all possible pairs, an appropriate error should be communicate using THROW. Moreover, as primary key is defined on both columns *(firstname,lastname)* generation procedure needs to ensure that each pair is generated only once.
   [3p]

3. Create procedure taking a table *(czytelnik_id)* of readers IDs as an input and returning in result a table *(reader_id,sum_days)* which provides the total sum of number of days a specific reader has borrowed all specimens so far.
   [2p]

4. Using *dynamic SQL* create a procedure (or function) taking Title, Author, Publication year as an input and returning in result the number of specimens defined by provided parameters. During invocation any subset of parameters should be accepted (e.g. Author and Publication year only) and then procedure (or function) should execute the query based only on the provided parameters, not including remaining ones. Please verify whether it is possible to implement that without using *dynamic SQL*.
   [3p]

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