

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 than 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.
[1p]
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.
[2p]
3. Create a procedure for introducing a new reader (table *Czytelnik*) ensuring the appropriate list of parameters. The procedure needs to perform the following data validations: PESEL format validity, last name starts with a capital letter and consists of at least 2 letters, birth date is in the correct format. All non-compliances should be reported with invoking *THROW* statement.
[2p]
4. 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.
[1p]
5. Prepare an example showing availability and lifetime of table variables and temporary tables (both local and global ones). By looking at *tempdb.INFORMATION_SCHEMA.tables* the existence of such tables can be confirmed. Availability should be verified from the perspective of two 2 parallel sessions and lifetime should be verified from the perspective of batch execution lifetime and session lifetime.
[2p]
6. Using the table type create a procedure taking a list of product identifiers and a date as input parameters, and as a result in *SalesLT.Product* set *DiscontinuedDate* with a provided value for entries selected by identifiers, but only for ones with the empty field. For the ones with the some value, only an appropriate message should be printed.
Remark: this exercise requires AdventureWorksLT database.
[2p]

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