Technical University of Moldova

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DB Laboratory 3

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General purpose:

Learn about Creating Table of DataBase

Tasks:

- Answer Questions at the end of Chapter 4;
- Solve ex. 1, 2 at the end of Chapter 4;
- Create a database which name is "Universitate";
  - Grupe;
  - Discipline;
- Create the following tables on your database;

Answers to Questions:

1. In SQL Server any column in a database table must have at least those properties specified:
   - Name - the name of the selected column.
   - Data Type - the data type for the selected column.
   - Allow Nulls - indicates whether this column allows nulls.
2. Some of the data types used in SQL Server;
   - Exact numerics (bigint, int, smallint, bit, decimal, etc.)
   - Approximate numerics (float, real)
   - Character Strings (char, varchar, text)
   - Date and time (date, datetime, smalldatetime, etc.)
   - Binary strings (binary, varbinary, image)
   - Other data types (cursor, hierarchyid, rowversion, etc.)
   - Unicode character strings (nchar, nvarchar, ntext)
3. Integrity constraints are used to ensure accuracy and consistency of data in a relational database. SQL Server uses following constraints

- Not NULL - disallows the entrance of NULL values into a column
- Unique - value in that column for every row of data in the table must have a unique value.
- Primary Key - identifies one or more columns in a table that make a row of data unique. Foreign Key - references a primary key in the parent table.
- Check - Check (CHK) constraints can be utilized to check the validity of data entered into particular table columns.

4. You cannot delete a column that has a CHECK constraint without deleting the constraint first. Also, it is not possible to delete a column that has PRIMARY KEY or FOREIGN KEY constraints or other dependencies except when using the Table Designer. When using Object Explorer or Transact-SQL, you must first remove all dependencies on the column.
5. Modifying the data type of a column that already contains data can result in the permanent loss of data when the existing data is converted to the new type. In addition, code and applications that depend on the modified column may fail. These include queries, views, stored procedures, user-defined functions, and client applications. Note that these failures will cascade. For example, a stored procedure that calls a user-defined function that depends on the modified column may fail.

Task Realization:

1. Which number can be put in a column with type DECIMAL(4, 1)?
   - 116,2 is answer because it exactly 4 digits with 1 digits after comma.
2. Consider Col1 is INT and Col2 is DECIMAL(2, 1). What type Col3 should be to contain the result of Col1 * Col2?

Col1	Col2	Col3
1	1.0	?
2	1.0	?

Figure 1: Creating The table "Grupe"

In order to save the result of multiplication Col3 must have DECIMAL(2, 1) as type, since DECIMAL has higher precedence than INT

In figure 2 I created the table "Grupe". And i set the data types for each row.

Column Name	Data Type	Allow Nulls
ID_grupa	smallint	☐
Cod_grupa	char(10)	☐
Specialitate	varchar(MAX)	☑
Nume_facultate	varchar(MAX)	☐
		☐

Figure 2: Creating The table "Grupe"

In figure 3 I created the second table: "Discipline". And also i set the data types for each row.

Column Name	Data Type	Allow Nulls
ID_Disciplina	smallint	☐
Disciplina	varchar(MAX)	☐
Nr_ore_plan_disciplina	int	☐
		☐

Figure 3: Creating The table "Discipline"

ID_Disciplina	Disciplina	Nr_ore_plan_disciplina
100	Sisteme de operare	60
101	Programarea Calculatoarelor	60
102	Informatica Aplicata	46
103	Sisteme De Calcul	46
104	Asamblarea si depaarea PC	60
105	Cercetari Operationale	76
106	Programarea Web	46
107	Baze Date	60
108	Structuri de date si algoritmi	76
109	Retele Informationale	46
110	Matematica discreta	60

Figure 4: fulfilling The table "Discipline"

ID_qru	Cod_grupa	Specialitate	Nume_facultate
1	CIB171	Cibernetica	Informatica si cibernetica
2	INF171	Informatica	Informatica si cibernetica
3	TI171	Tehnologii Informati...	Informatica si cibernetica

Figure 5: fulfilling The table "Grupe"

Conclusion

During This lab work i find out how to create tables, name the table rows, set primary keys, and set the data types of columns in that table. Also i learned how to fulfil the table with data, make some changes in the structure of that tables, etc. [1]

References

[1] SQL Server Management Studio 2017, Tutorials for Lab 3