

LE06: 20/03/2020

Master in Informatics and Computing Engineering
Database and Web Applications Laboratory
Instance: 2019/2020

Lecture #6 :: 20/03/2020

Goals

By the end of this class, the student should be able to:

- Describe how to implement data business rules using SQL
- Describe how to maintain consistency of the database in the presence of concurrent accesses
- Write database user-defined functions

Content

1. SQL integrity constraints (recap)
 - Key Constraints.
 - Foreign key constraints.
 - Attribute constraints.
 - Tuple constraints.
 - SQL-3 Triggers.
2. Constraints in PostgreSQL.
3. Triggers in PostgreSQL.
4. Transactions and recovery
 - Transactions.
 - ACID properties.
 - Atomicity of transactions.
 - PostgreSQL and Multiversion Concurrency Control.
5. Database Store procedures
 - User-defined functions in PostgreSQL.

Bibliography

- R. Ramakrishnan, J. Gehrke. *Database Management Systems*. McGRAW-Hill International Editions, 3rd Edition, 2003, ISBN=0-07-246563-8
- The PostgreSQL Global Development Group. PostgreSQL 9.4 Documentation. 13th February 2020. Online in <http://www.postgresql.org/docs/9.4/static/>, last accessed on March 2020

Materials

- Illustrations presented in class: [Integrity constraints, triggers, transactions and user functions \(A6\)](#)
- Video recording of the class: [Shared Drive da UP](#)
- J. Correia Lopes, Sérgio Nunes. [Database Specification \(EBD\)](#), March 2019
- PostgreSQL. [Constraints](#). [PostgreSQL 9.4.6 Documentation, Section 5.3](#)
- PostgreSQL. [Triggers](#). [PostgreSQL 9.4.6 Documentation, Chapter 36](#)
- PostgreSQL. [Concurrency Control](#). [PostgreSQL 9.4.6 Documentation, Chapter 13](#)
- PostgreSQL. [PL/pgSQL — SQL Procedural Language](#). [PostgreSQL 9.4.6 Documentation, Chapter 40](#)
- PostgreSQL. [User-defined Functions](#). [PostgreSQL 9.4.6 Documentation, Section 35.3](#)

Summary

- Integrity Constraints in SQL, assertions and triggers. Transactions, ACID properties, Concurrency Control. Database stored procedures.¹⁾

— *LBAW, 2019/20*

[« Previous](#) | [Index](#) | [Next »](#)

1)

Implementação de Restrições de integridade em SQL: de chave, referenciais, de domínio, baseadas em atributos e baseadas em tuplos; asserções; gatilhos. Transações, propriedades ACID, controlo de concorrência. Procedimentos na base de dados.

From:
<https://web.fe.up.pt/~jlopes/> - **JCL**

Permanent link:
<https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/lectures/06?rev=1585338365>

Last update: **27/03/2020 19:46**

