Introduction to SQL in DBMS & Integrity Constraints

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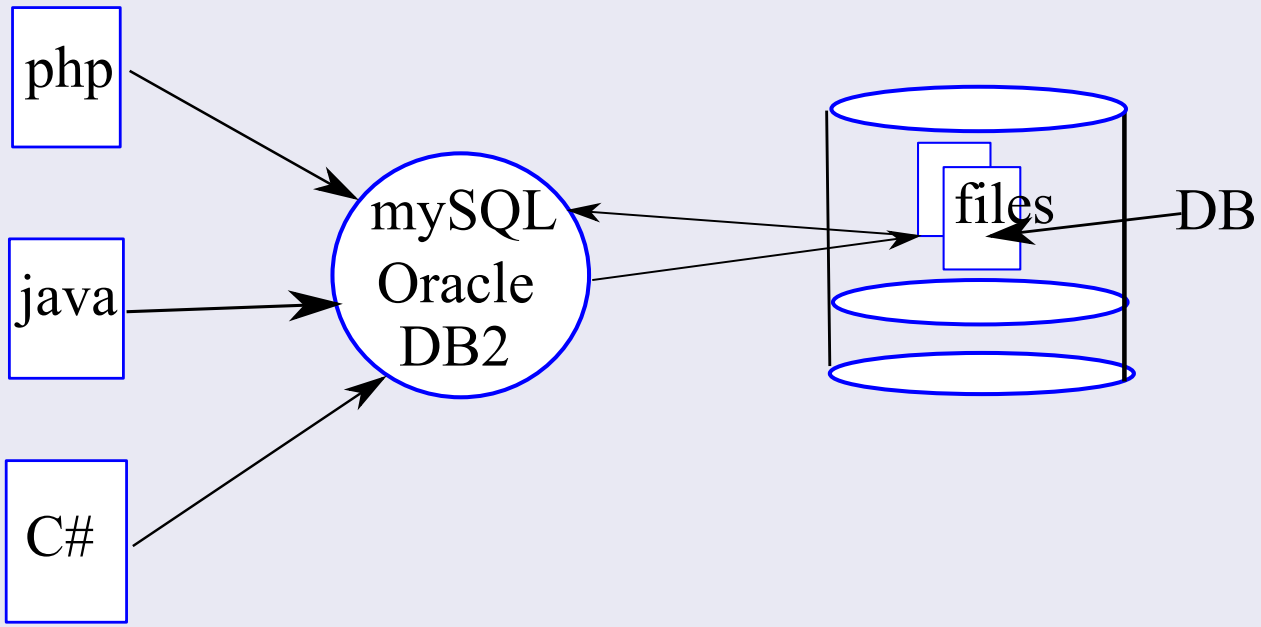
Introduction

What is SQL?

- SQL stands for Structure Query Language
- Standard Language (ANSI standard) for dealing with all Relational Database. E.g. Oracle, MySQL, MS SQL, Sybase....



History

About SQL?

- Initially developed by IBM
- Initial name was SEQUEL (Structure English Query Language)
- Al-through most database system use SQL, most of them also have their own additional proprietary extensions that are usually only used on their system

Types of SQL commands

DDL

- Data Definition Language
- Commands to create, drop, truncate, and alter table are DDL commands

DML

- Data Manipulation Language
- DML commands are insertion of data into table, updating and deleting data from the table.
- Extracting data without removing data from the table

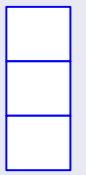
Integrity Constrainsts in DBMS

Integrity

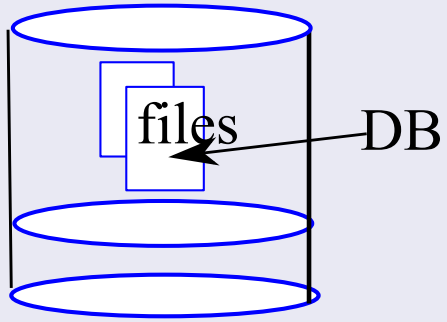
- Integrity Constraints provides a way of ensuring that changes made to the database by authorized users do not result in a loss of data consistency.
- Integrity means something like 'be right' and consistent

Integrity = Completeness

Constrainst =Check points



Authentication



Types of Integrity

Integrity

1. Domain integrity
2. Entity integrity
3. Referential integrity
4. Foreign key integrity

Domain Integrity

Integrity

- Domain integrity means the definition of a valid set of values for an attributes. you define.
  1. Data type
  2. Length or size
  3. Is null value allowed
  4. Is the value unique
  5. Default value
  6. Range of values

Entity Integrity

Integrity

- The entity integrity constraints state that primary keys can't be null
- There must be a proper value in the primary key field.
- This is because the primary key value value is used to identify individual rows in a table

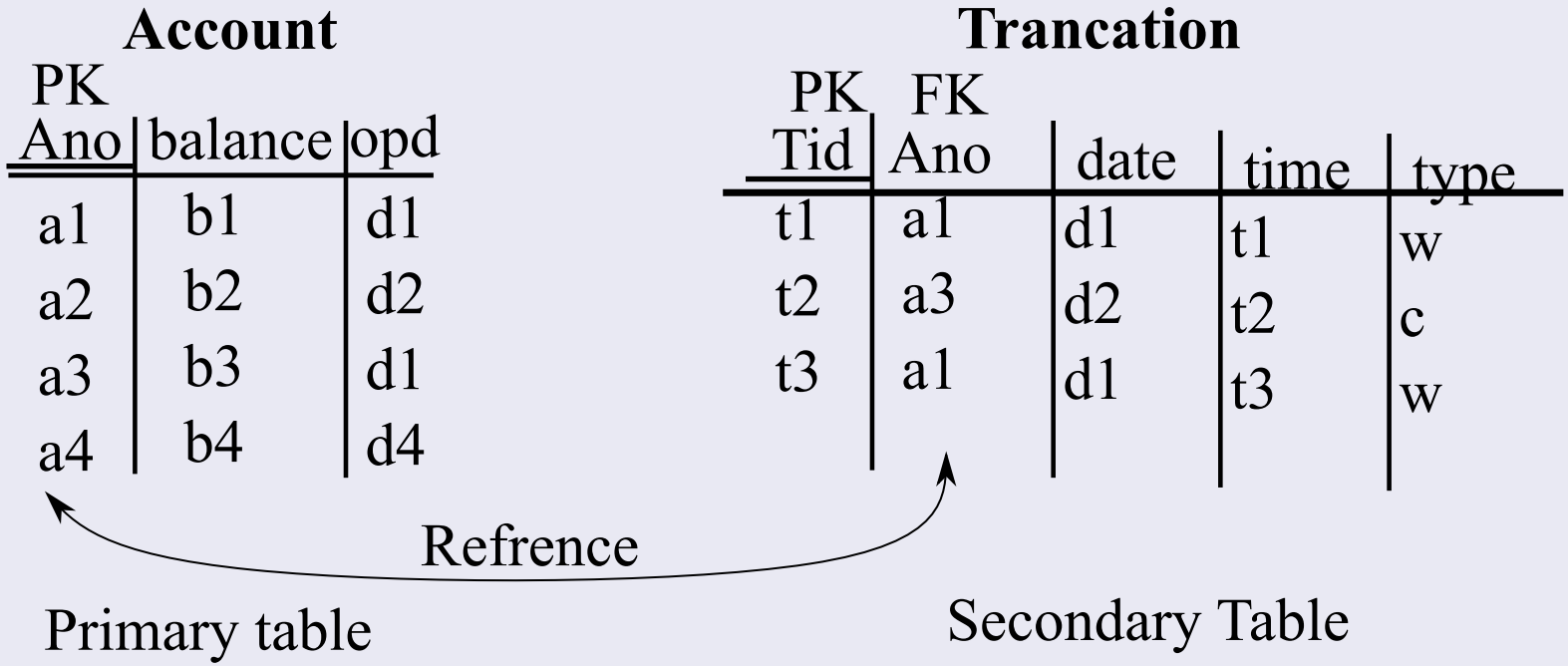
Referential Integrity

Integrity

- The referential integrity constraint is specified between two tables and it is used to maintain the consistency among rows between the two tables.
- Rules:
  1. You can't delete a record from a primary table if matching records exist in a related table
  2. You can't change a primary key value in the primary table if that record has related records
  3. You can't enter a value in the foreign key field of the related table that doesn,t exist in the primary key of the primary table.
  4. However, you can enter a NULL value in the foreign key, specifying that the records are unrelated

Referential Integrity Example

Integrity



Foreign Integrity

Integrity

- There are two foreign key integrity constraint:
- **Cascade update related fields**
- **Cascade delete related rows**

Foreign Integrity

Cascade Update Related Fields

- Any time you change the primary key of a row in the primary table, the foreign key values are updated in the matching rows in the related table.
- This constraints overrules rule 2 in the referential integrity constraint

Cascade Delete Related Rows

- Any time you delete a row in the primary table, the the matching rows are automatically deleted in the related table.
- This constraints overrules rule 1 in the referential integrity constraint