Constraints & Triggers

Triggers – Demo (Part 1)

Jennifer Widom

Features covered in demo – in two parts

- `Before` and `After`; `Insert`, `Delete`, and `Update`
- `New` and `Old`
- Conditions and actions
- Triggers enforcing constraints
- Trigger chaining
- Self-triggering, cycles
- Conflicts
- Nested trigger invocations

Jennifer Widom

Introduction video used SQL standard

- No DBMS implements exact standard

- Some deviate considerably

  In both syntax and behavior!

Jennifer Widom

Postgres >

- Expressiveness/behavior = full standard
  row-level + statement-level, old/new row & table
- Cumbersome & awkward syntax

SQLite >>

- Row-level only, immediate activation
  $\Rightarrow$ no old/new table

MySQL

- Row-level only, immediate activation
  $\Rightarrow$ no old/new table
- Only one trigger per event type
- Limited trigger chaining

SQLite – row-level triggers, immediate activation

- **`For Each Row`** implicit if not specified

- No **`Old Table`** or **`New Table`**

- No **`Referencing`** clause
  - **`Old`** and **`New`** predefined for **`Old Row`** and **`New Row`**

- Trigger action: SQL statements in **`Begin-End`** block

Features covered in demo: **Part 1**

- `Before` and `After`; `Insert`, `Delete`, and `Update`
- `New` and `Old`
- Conditions and actions
- Triggers enforcing constraints
- Trigger chaining
- Self-triggering, cycles
- Conflicts
- Nested trigger invocations

Jennifer Widom

Simple college admissions database

College(<u>cName</u>,state,enrollment)

Student(<u>sID</u>,sName,GPA,sizeHS)

Apply(<u>sID</u>,<u>cName</u>,<u>major</u>,decision)