ELTE | FACULTY OF INFORMATICS

Databases 1.

1. Practice

2024. 09. 12.

Introduction

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  - Microsoft Teams
- Room: D2-503 – South building
- Consultation: Tuesday 14:30-16:00

Requirements

- 2 exams, which must be at least a 2.
  - 1st exam: 2024. 10. 24. – in time of practice
  - 2nd exam: 2024. 12. 12. – in time of practice
- The practical grade is the average of the results of the 2 exams.
- Points:
  - 2: ≥ 40%
  - 3: ≥ 55%
  - 4: ≥ 70%
  - 5: ≥ 85%
- Attendance is compulsory, it will be strictly controlled!
- Reatake exam:
  - If you retake a test then it will overwrite your previous points

Topics of the semester

- We will learn about the role of databases.
- We turn to how to query data efficiently, introducing a query language (relational algebra).
- We will see how these queries work on the computer (SQL)
- Learn how to use a database management system to create, delete, modify and query tables (Oracle SQL) .
- Finally, we will learn a programming language to perform complex operations on our databases (PLSQL).

What is a database?

- A collection of existing information.
- The "first" databases were file managers.
- The demand had been growing: airline reservation systems, banking databases, etc.
- Not to be confused with data warehouses!

Our expectations of the database

- Users can create new databases, they can specify their logical structure in a data definition language.
- Allow data to be queried and modified in an efficient way, using a query language.
- Support the storage of large amounts of data over long periods of time.
- Ensure the durability, i.e. the recoverability of the database in case of various failures and intentional corruption.
- Several users can use it at the same time, and this should not lead to malfunction.

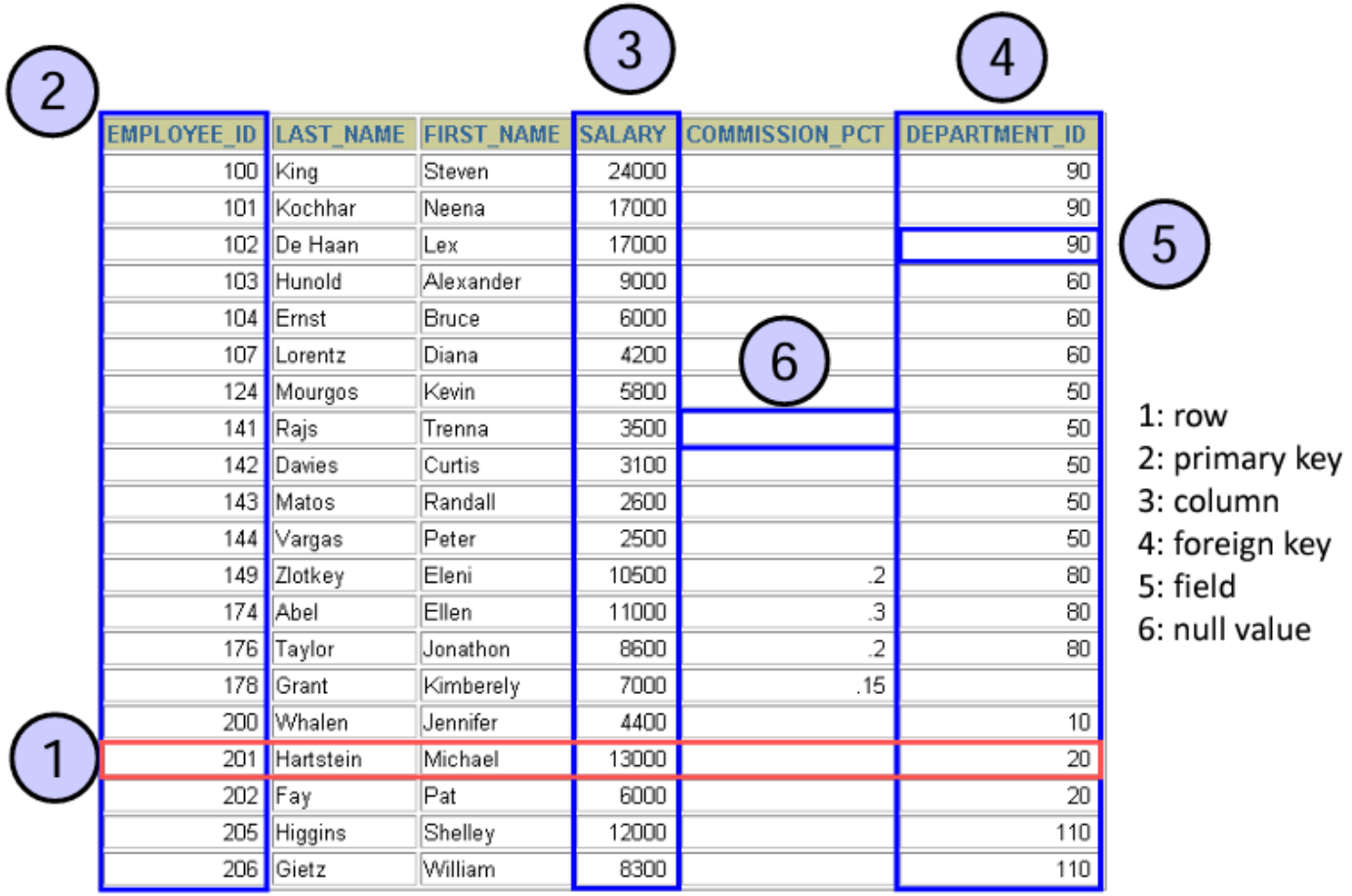
Relational database

- In 1970 it was proposed that data should be stored in two-dimensional tables. These are called relations.
- There are other approaches: graph databases, key-value databases, etc.

Title	Year	Length	Type
Interstellar	2014	169	Sci-fi
Inception	2012	148	Action
Fight Club	1999	149	Drama

Movies(title, year, length, type)

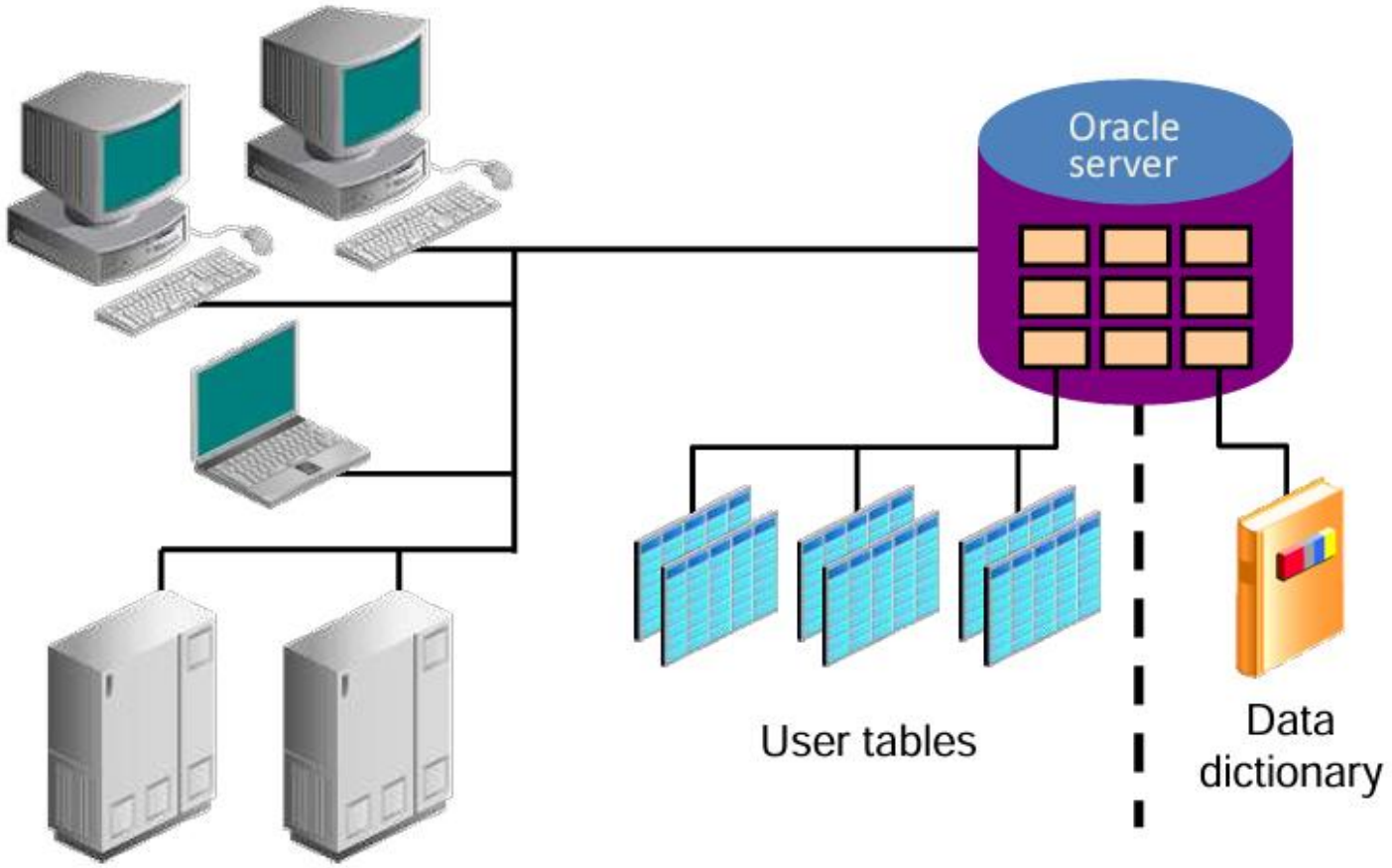
Reláció



EMPLOYEE_ID	LAST_NAME	FIRST_NAME	SALARY	COMMISSION_PCT	DEPARTMENT_ID
100	King	Steven	24000		90
101	Kochhar	Neena	17000		90
102	De Haan	Lex	17000		90
103	Hunold	Alexander	9000		60
104	Ernst	Bruce	6000		60
107	Lorentz	Diana	4200		60
124	Mourgos	Kevin	5800		50
141	Rajs	Trenna	3500		50
142	Davies	Curtis	3100		50
143	Matos	Randall	2600		50
144	Vargas	Peter	2500		50
149	Zlotkey	Eleni	10500	.2	80
174	Abel	Ellen	11000	.3	80
176	Taylor	Jonathon	8600	.2	80
178	Grant	Kimberely	7000	.15	
200	Whalen	Jennifer	4400		10
201	Hartstein	Michael	13000		20
202	Fay	Pat	6000		20
205	Higgins	Shelley	12000		110
206	Gietz	William	8300		110

1: row
2: primary key
3: column
4: foreign key
5: field
6: null value

Oracle’s Relational Database Management System



Tasks

- Connection to the database.
  - SQL Developer installation and configuration
- Create a table.