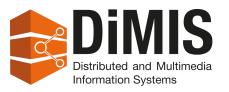
Chair of Distributed Information Systems

Dr. Wiem Fekih Hassen Dr. Armin Gerl Felix Bölz

(Wiem.FekihHassen@uni-passau.de) (Armin.Gerl@uni-passau.de) (Felix.Boelz@uni-passau.de)



Online-Exercises Thu. 10:15 - 11:45 Zoom

Privacy-Preservation Technologies in Information Systems, WS 21/22

Exercise Sheet 07.

Subject: "Information Systems & Data Warehouses, Data Attributes & Types, Anonymization"

Task 1 - Information Systems & Data Warehouses

- a) Which properties classify an Information System? Describe them.
- **b)** Give the properties of a Data Warehouse.
- **c)** Describe an example of a Data Warehouse, which fulfills all properties given in the previous sub-task.
- **d)** What is an Hypercube? Explain the concept and draw one with n = 4.
- **e)** Give examples for Data Models with the Hypercube dimensions n = 1, n = 2, n = 3, n = 4. (Also refer to slide 7-9 of Chapter 3 of the lecture.)

Task 2 - Data Attributes & Types

- a) Give the four Attribute Classifications. Explain each in detail.
- **b)** Explain the four Attribute Types.
- c) What is the difference between Micro- and Macrodata? Explain!
- **d)** Describe how Graph Data can be stored in a data base.

Task 3 - Anonymization

a) Which three underlying basic concepts are used for the most anonymization approaches? Explain and give examples for each concept.

b) Assume, there is a data set which combines number-plates of cars with the names of the owners (Refer to Table 1). Also, this data set includes the sum of the non-payed penalties for false parking. A german number-plate can be described by the following regular expression:

- i Give the Attribute Classifications and Types.
- ii Which anonymization concepts are feasible for each attribute? Explain!
- iii Anonymize each row.
- iv Explain whether it is useful to anonymize each row, or not.

Table. 1: Example of Data set

Name	Number-Plate	Non-payed penalties
Wiem	PA X 293	0€
Armin	DEG L 32	100€
Felix	M XX 002	50 €
Ashish	NU LL OOOO	9,90€