

## Exam Principles of Database Management

22/01/2018

Part 1 BART BAESENS

Question 1, 8 points

-Discuss unmappable things in EER model  
-Map EER model to Relational model. Indicate FK, PK, null (not allowed). Discuss semantics (added or lost).

Question 2, 6 points

- Discuss UML Shared Aggregation  
- Discuss 2NF

Question 3, 6 points

Write a query to select all supplier numbers, together with their supplier name and total number of outstanding orders for each supplier. Include all suppliers in the result, even if there are no outstanding orders for that supplier at the moment.

```
SELECT S.SUPNR, S.SUPNAME, COUNT(PO.PONR) AS OUTSTANDING_ORDERS
FROM SUPPLIER AS S LEFT OUTER JOIN PURCHASE_ORDER AS PO
    ON (S.SUPNR = PO.SUPNR)
GROUP BY S.SUPNR
```

Write a correlated SQL query to retrieve the 3 lowest product numbers.

```
SELECT P1.PRODNR
FROM PRODUCT P1
WHERE 3 >
    (SELECT COUNT(*)
     FROM PRODUCT P2
     WHERE P1.PRODNR > P2.PRODNR)
```

Part 2 WILFRIED LEMAHIEU

Question 1

Compare in detail Prepared Statements and Stored Procedures. What are similarities between them? And what are the differences?

Question 2

Discuss Federated Databases and give an example when its use is preferred over Data Warehouses.f

Question 3

Case

- star schema architecture
- RIA
- Pessimistic concurrency

Discuss these 3 concepts and advise a retailer to (not) implement these for its webshop. Requirement: user should not install any applications to shop in the webshop (purely browser based).