

## **LISTA DE EXERCÍCIOS 3**

### **Bancos de dados Distribuídos**

**Disciplina Bancos de Dados II (INE 5613 – 2006-1)**  
**Curso de Sistemas de Informação**

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Exercícios adaptados de:

Ramakrishnan, R. *Database management systems*, McGraw-Hill, 3rd edition, 2003.

Chapter 21: Parallel and Distributed Databases

1. Defina os termos fragmentação e replicação de dados.
2. Qual a diferença entre replicação síncrona e assíncrona?
3. O que é independência de localização em um sistema de banco de dados distribuído?



Assume that STOCK is a derived fragment based on BOOKSTORE only.

- a. Consider the query:

```
SELECT Book#, Total_stock
```

```
FROM Books
```

```
WHERE $price > 15 and $price < 55;
```

Assume that fragments of BOOKSTORE are non-replicated and assigned based on region. Assume further that BOOKS are allocated as:

EAST: B<sub>1</sub>, B<sub>4</sub>

MIDDLE: B<sub>1</sub>, B<sub>2</sub>

WEST: B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>

Assuming the query was submitted in EAST, what remote subqueries does it generate? (write in SQL).

- b. If the bookprice of B<sub>OOK#</sub>= 1234 is updated from \$45 to \$55 at site MIDDLE, what updates does that generate? Write in English and then in SQL.
- c. Given an example query issued at WEST that will generate a subquery for MIDDLE.
- d. Write a query involving selection and projection on the above relations and show two possible query trees that denote different ways of execution.