

CC72L TOPICOS AVANZADOS EN MANEJO DE DATOS 05 UD

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Requisitos : CC42A / CC55A / Autor

The course will deal with information integration, data warehousing and on-line analytical processing (OLAP). Including the relevant foundations from database theory. Course requirements, besides coming to the lectures, will include a problem set (30% of the mark), a term project (40%), and a presentation in class of a relevant paper from the literature (25%). The remaining 5% is for class participation.

1. Relational Databases and Query Languages

- First-order logic.
- Relational databases; algebra and calculus.
- Recursive queries, DATALOG.
- Expressive power and complexity of query languages.

2. Conjunctive Queries

- Conjunctive queries, query containment.
- Using materialized views in queries.

3. Information Integration

- The mediator/wrapper model.
- Information integration using views.
- Semistructured data, XML.

4. Data Warehousing and OLAP

- Data warehouse design and maintenance
- OLAP vs. OLTP.
- Schema design form OLAP.
- Datacubes and their evaluation.
- Physical data organization for OLAP.

GENERAL REFERENCES:

Abiteboul, S., Hull, R., and Vianu, V., Foundations of Databases, Addison-Wesley, 1995.

Ullman, J.D., Principles of Database and Knowledge-Base Systems, Vol. I, Computer Science Press, 1988, Chapter 3. Vol. II, Computer Science Press, 1989, Chapters 11 and 14.

Ullman, J.D., Principles of Database Systems – Lecture Notes,

<http://www.stanford.edu/class/cs345>.

Kimball, R., The Data Warehouse Toolkit, John Wiley, 1996.

Serge Abiteboul, Peter Buneman and Dan Suciu, Data on the Web, Morgan-Kaufmann, 2000.

Surajit Chaudhuri and Umesh Dayal, “An Overview of Data Warehousing and OLAP Technology”, ACM SIGMOD Record 26(1), March 1997.

<http://www.acm.org/sigmod/record/issues/9703/chaudhuri.ps>

Phillip M. Fernandez and Donovan Schneider, The Ins and Outs (and everything in between) of Data Warehousing. ACM SIGMOD 1996 Tutorial Notes.

<http://www.acm.org/sigmod/dl/SIGMOD96/P541.PDF> (SIGMOD membership required).

Jennifer Widom, “Research Problems in Data Warehousing”, Int’l Conf. on Information and Knowledge Management’95.

<ftp://db.stanford.edu/pub/pepers/warehouse-research.ps>

Daniela Florescu, Alon Levy, Alberto Mendelzon: “Database Techniques for the World-Wide Web: A Survey.” SIGMOD Record 27:3, September 1998, 59-74.

<ftp://ftp.db.toronto.edu/pub/pepers/sigrec.ps>

More references in

<http://www.cs.toronto.edu/~mendel/dwbit.html>