

Physical Design

**Read Chapter 9 of Riguzzi et al.
Sistemi Informativi**

Physical Design

- Design of the physical structures of the database
- Last phase of database design
- Input:
 - Database logical schema
 - Information on the load
- Output:
 - Definition of the primary structures of tables
 - Definition of indexes on tables
 - Setting of a number of DBMS specific parameters

Choice of Indexes

- Very important
- Usually one index on the primary key
 - Sometimes compulsory
 - Useful because the primary key is often involved in joins and selections
- Other indexes for easing certain selections and joins
- It is possible to investigate how the indexes are used in queries by the command
 - SHOW PLAN
- If the performances are unsatisfactory, indexes can be added or removed

Index Creation

- Pattern common to different DBMS
 - CREATE [UNIQUE] INDEX *IndexName* ON *TableName(AttributeList)*
 - DROP INDEX *IndexName*
- Syntax details vary widely among DBMS
- UNIQUE: AttributeList is a superkey
- No way to specify the type of index (B+Tree, Hash,...)

Physical Structures

- Primary structures:
 - heap ("unclustered")
 - ordered ("clustered"), also on a pseudokey
 - hash ("clustered"), also on a pseudokey
 - clustering of different tables
- Indexes (primary/secondary)
 - ISAM
 - B+-tree