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Research Projects

www.dbgroup.unimo.it/nep4b

www.stasis-project.net

www.sewasie.org

www.dbgroup.unimo.it/wisdom

www.stil-project.org

www.cross-lab.it

www.cerealab.org

DBGroup
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**Università degli Studi
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Dipartimento di Ingegneria
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Presentation

The DataBase Group is the research database group at the Department of Computer Engineering of the University of Modena and Reggio Emilia; it is led by Professor Sonia Bergamaschi and is composed of about 10 researchers. Its research activities focuses on **Intelligent Database Systems** and **Intelligent Information Integration**. An I^3 (Intelligent Information Integration) system, called **MOMIS**, which provides an integrated access to structured and semistructured data sources and permits a user to pose a single query and receive a single unified answer has been proposed. Description Logics plus clustering techniques constitute the theoretical framework and are exploited for constructing a common ontology, i.e. an integrated view of the information in the separate sources, and for query processing and optimization.

The DataBase Group coordinated and participated in several national/international research projects.

The MOMIS System

The MOMIS system (Mediator envirOnment for Multiple Information Sources) is a mediator-based system that extracts and integrates information from heterogeneous distributed data sources and with query management facilities to transparently support queries posed to integrated data sources. The MOMIS framework consists of a language and two main components:
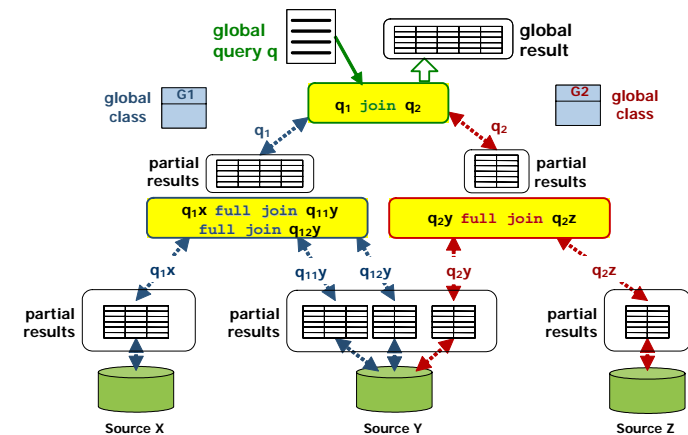
• The **ODL$_{I3}$** language extends the ODL-ODMG object-oriented language, with an underlying Description Logic.

• The **GVV Builder**: data sources integration is performed in a semi-automatic way, by exploiting the knowledge in a Common Thesaurus (defined by the framework) and

ODL$_{I3}$ descriptions of source schemas with a combination of clustering techniques and Description Logics. This integration process gives rise to a virtual global schema of the underlying sources (the Global Virtual View, GVV) for which mapping rules and integrity constraints are specified to handle heterogeneity.

• The **Query Manager** is a coordinated set of functions which takes an incoming query, decomposes the query according to the GAV mappings of the GVV on the local data sources, sends the subqueries to these data sources, collects answers, performs any residual filtering necessary, and finally delivers a unique answer to the user.
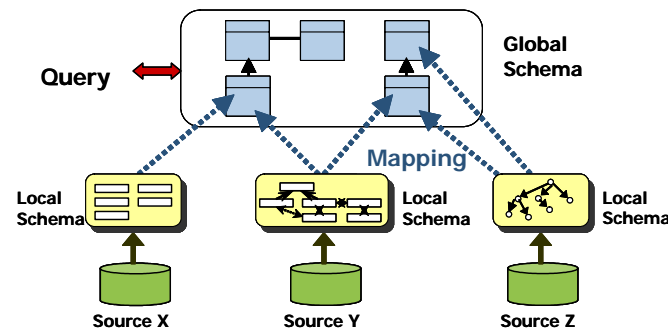
Data integration with MOMIS

Query processing with MOMIS