Database systems

Databases. Main definitions.

- **This are resources** to which the users having the corresponding access rights have to have access.

- **The database** is the coordinated (consistent) data set which is falling into to a specific objective (tasks) together with logical communications between data.

- **Logical communications (schemes)** define how one data correspond to others according to the DB logical model. In it the main difference of a DB from the file of data in which data are organized on physical sign in the form of a serial set of records consists.

- **The database management system** represents a set of tools, and is more often - the realized programs intended for storage of the database, change of its contents, ensuring its safety and interaction with the user.

Databases. Trial functions.

- Providing quick access to a DB.
- Protection of a wholeness of a DB at hardware failures and program mistakes.
- Differentiation of access rights and protection against unauthorized access to a DB.
- Support of collaboration of several users from the common DB.

- Data management in external memory;
- Control of buffers of random access memory;
- Management of transactions (operating sequences over a DB);
- Journalizing and restoration of a DB after failures;
- Maintaining of the DB languages.

Logical organization of databases.

The logical organization of databases is the logical model of subject domain reflecting three types of information about objects of subject domain:
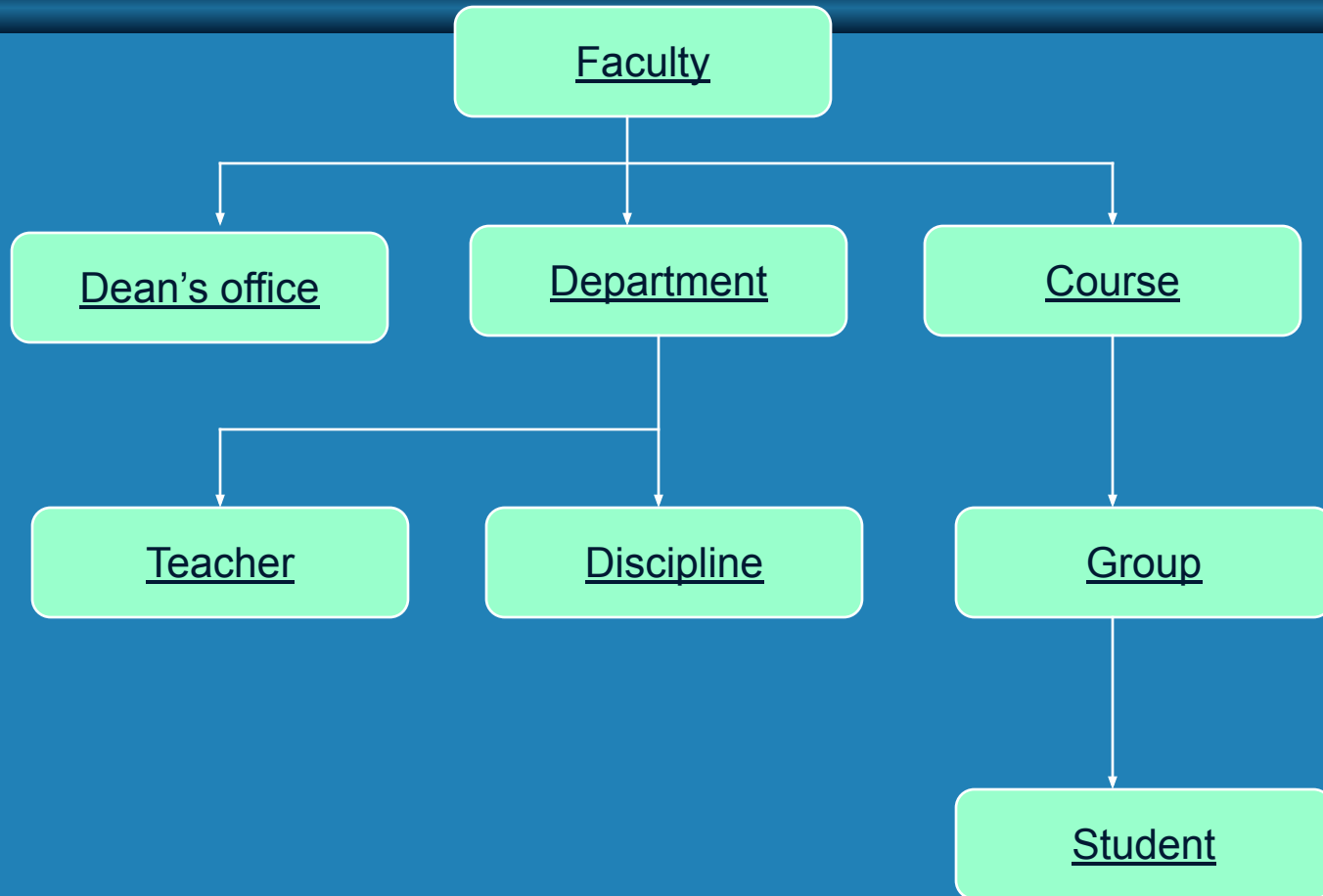
- data on objects of subject domain;
- their properties;
- their relations.

Objects on the scheme are defined by types of records, properties of objects - fields of records, the relations - define communications between types of records and fields.
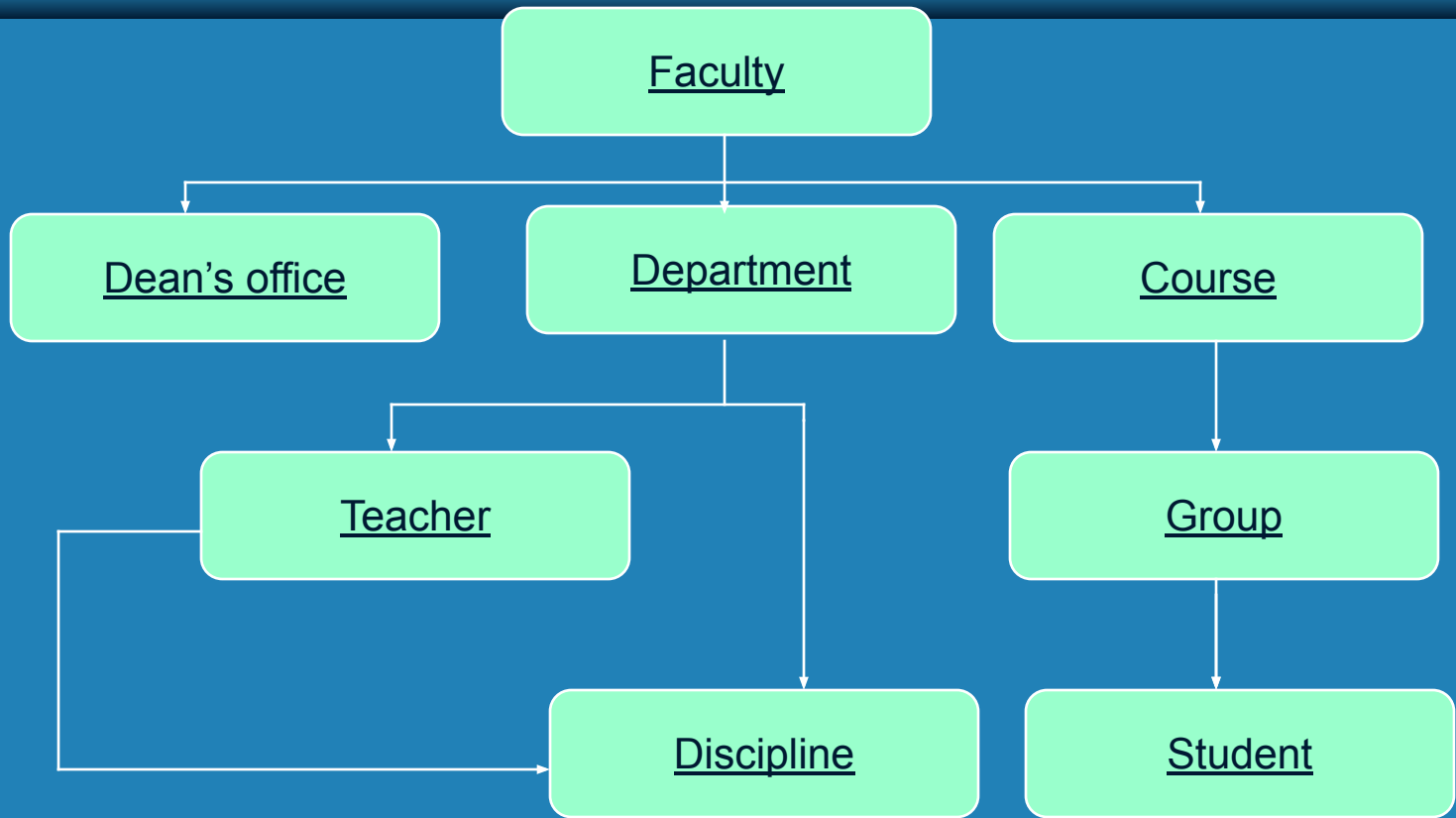
Types of the DB logical models:

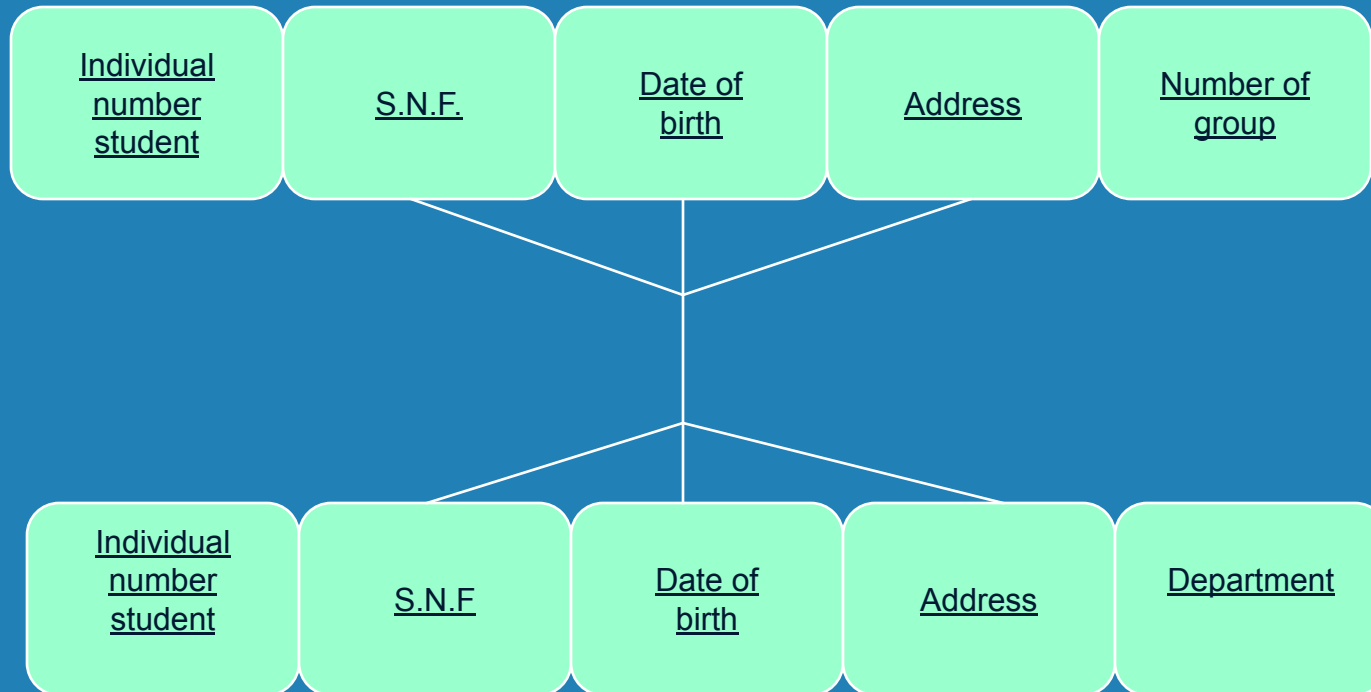- hierarchical;
- network;
- relational.

Hierarchical model

Main informational units: base given, a segment and the field.

Network model of data

Relation data model

Individual number student	S.N.F.	Date of birth	Address	Number of group

Individual number student	S.N.F	Date of birth	Address	Department

Modules DataBlade

- Text DataBlade-full text searching.
- Informix - Video Foundation DataBlade - work with video files.
- Visual Information DataBlade - the system of a pattern recognition.
- Time Series Analysis DataBlade - serves for work with time series.
- DataBlade "Russian Tekht" - full text searching taking into account features of Russian.

- Financial, geoinformational, scientific data, systems for a CAD and design, base of multimedia data demand DBMS SHOUTING.