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# Data and Databases

**Relational Databases Basics** 



#### Information vs Data

### Information

Ivanov and Petrov are working in our department, and Petrov's phone was changed recently: it was 123-44-55, and now it is 999-87-32. And Sidorov will return next month, but it will be difficult to get through to him, because he doesn't often answer at 333-55-66 (usually there's another Sidorov at this number, but he is from another department).

#### Data

## employee

pass	name	department	phone
178	Ivanov I.I.	Dep-1	NULL
223	Petrov P.P.	Dep-1	999-87-32
243	Sidorov S.S.	Dep-1	333-55-66
318	Sidorov S.S.	Dep-2	333-55-66

Data

## Read and remember!

**Data** – reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing.

## Formalized manner and reinterpretability

#### employee

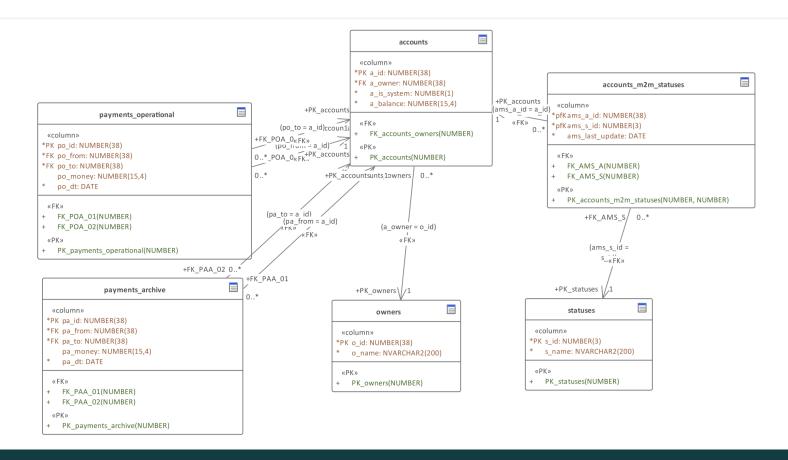
pass	name	department	phone
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- an employee's badge number;
- a field with a unique value;
- a number;
- a natural primary key of a relationship;
- a clustered index of a table;
- etc.

## Read and remember!

**Database** – collection of data organized according to a conceptual structure describing the characteristics of these data and the relation-ships among their corresponding entities, supporting one or more application areas.

#### Database



## Read and remember!

**Database Management System** – system, based on hardware and software, for defining, creating, manipulating, controlling, managing, and using databases.

## Database Management System (DBMS)









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