

S.Seifullin Kazakh AgroTechnical University

Department of of the ICT

Discipline: Information and communication technologies

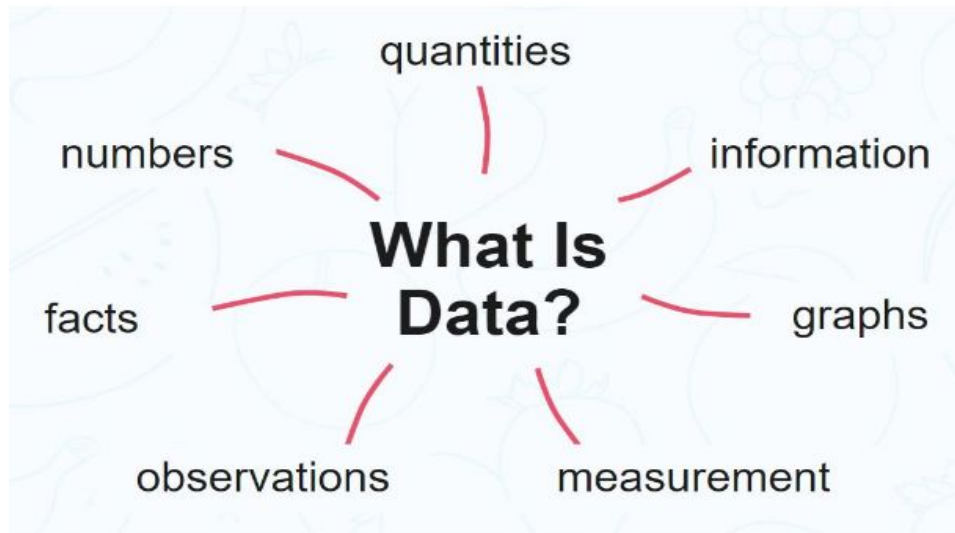
## Lecture 6

**Theme:** Data analysis bases. Methods of collection, classification and prediction.  
Database system MS Access



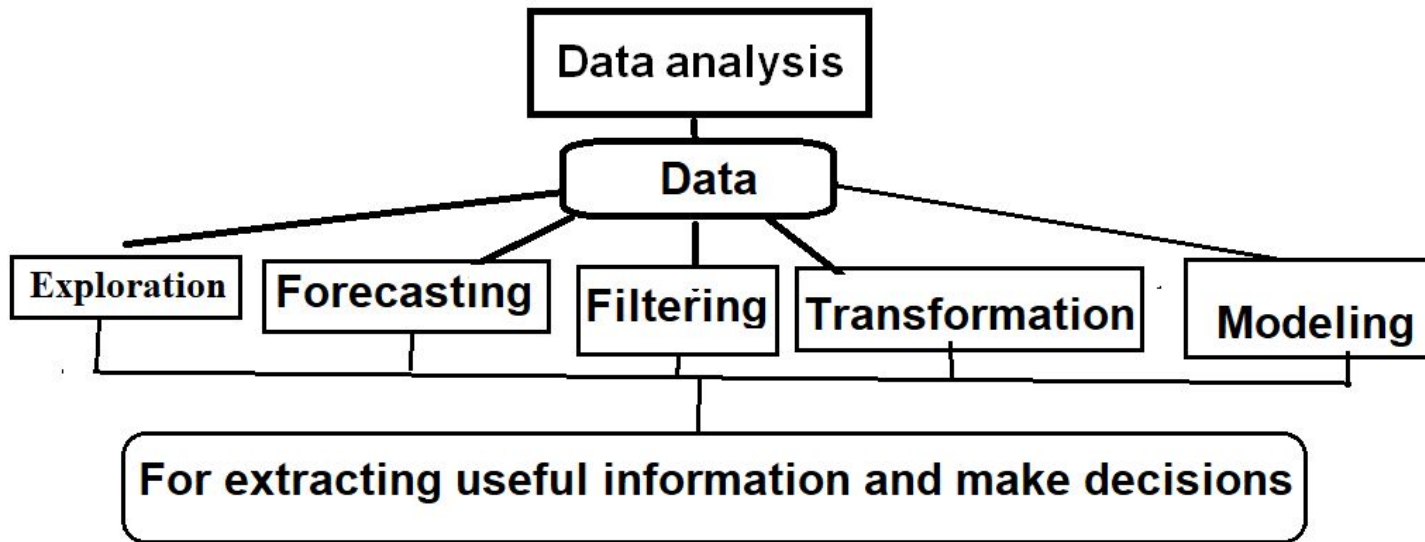
*Senior teacher Koxegen A. E.*

**Data - information obtained by measurement, observation, logical or arithmetic operations and presented in a form suitable for permanent storage, transmission and (automated) processing.**



**Данные (data) – сведения, полученные путем измерения, наблюдения, логических или арифметических операций и представленные в форме, пригодной для постоянного хранения, передачи и (автоматизированной) обработки**

## Data analysis is one of the main areas in ICT.



Data analysis covers different methods in various fields of science, economics and other human activities/

Анализ данных это одна из основных областей в ИКТ. Анализ данных это исследование, прогнозирование, фильтрации, преобразования и моделирование данных с целью извлечения полезной информации и принятия решений. Анализ данных охватывает разные методы в различных областях науки, экономики и в других деятельности человека.

There are two forms of data analysis – **Classification and Prediction:**

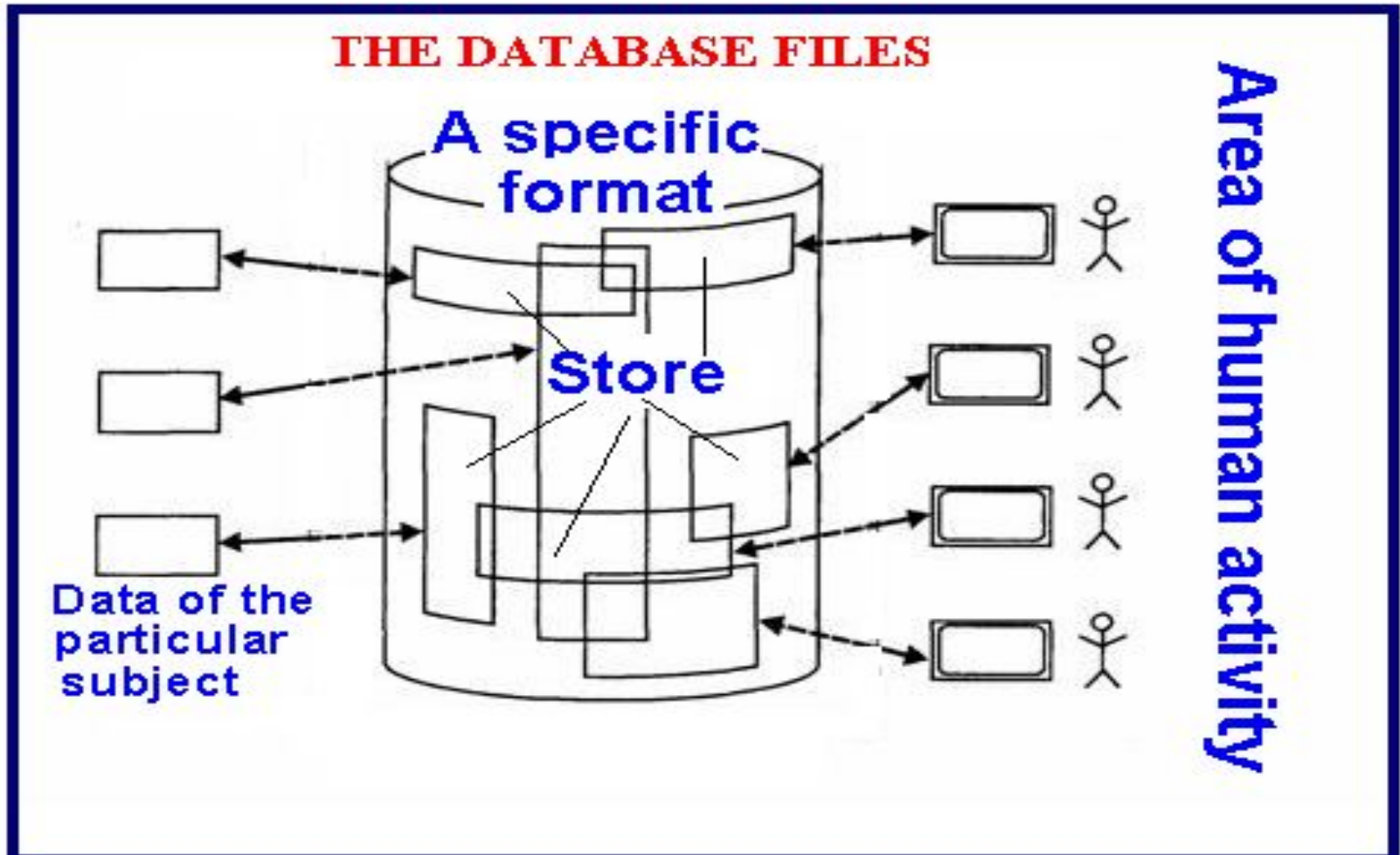
- ✓ **Classification** is an analysis that constructs categories and classifications from data;
- ✓ **Prediction** is an analysis that predicts continuous functions.

Based on **the classification and Prediction** of data, we can build data **analysis models.**

**For example,** we can build a classification model based on the data received to classify bank loan applications as safe or risky. Based on this data, a **forecasting** model is built to predict the dollar spending of potential customers on computer equipment based on their income and occupation.

Например, мы можем построить модель классификации на основе полученных данных, чтобы классифицировать заявки на получение банковских кредитов как безопасные или рискованные. На основе этих данных строится модель прогнозирования для прогнозирования долларовых расходов потенциальных клиентов на компьютерное оборудование на основе их доходов и занятий.

**Classification, Prediction** of data is used in the information system for Creating databases and database objects for automated data processing and analysis.



# Database management systems (DMS)

**process**

**store**



**Database is stored on a computer and processed by special programs - DMS**

# MS Access - a database management system

Database tabular form - relational database

MS Access is a relational database

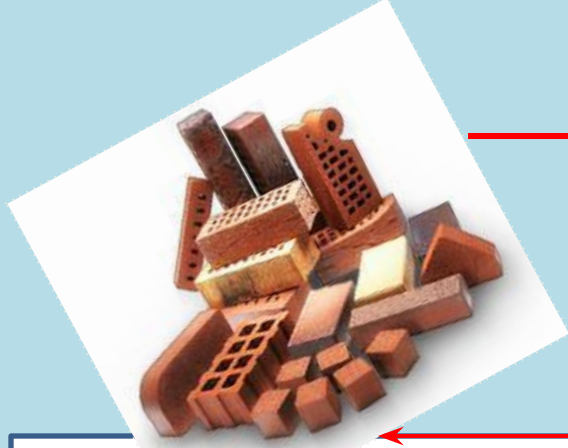


Fields

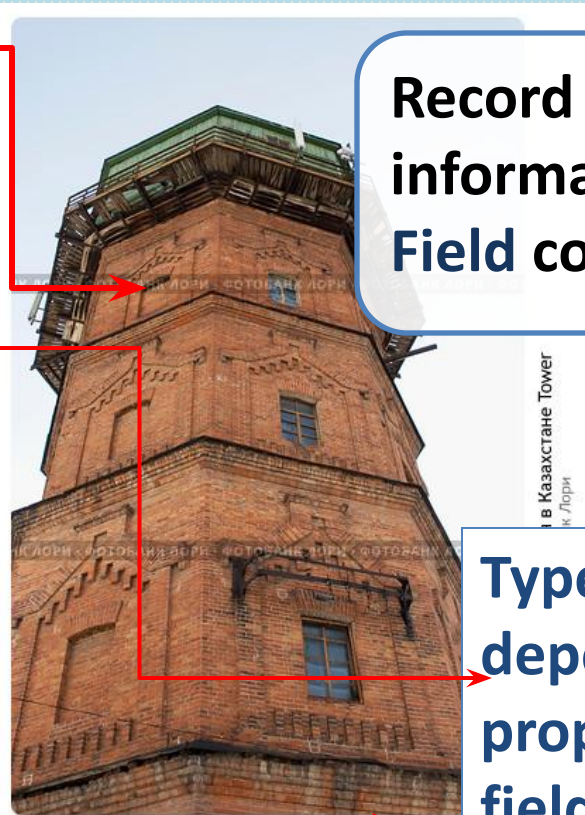
Products : Table		
Product Name	Supplier ID	Units in Stock
Chai	1	39
Chang	1	17
Aniseed Syrup	1	13
Carnarvon Tigers	2	53

Records

Columns - fields  
Rows - records



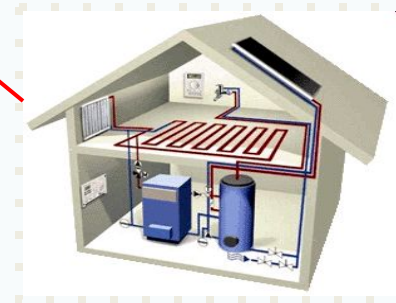
**Field - the main elements of the database structure**



**Record constitutes information that Field contains.**

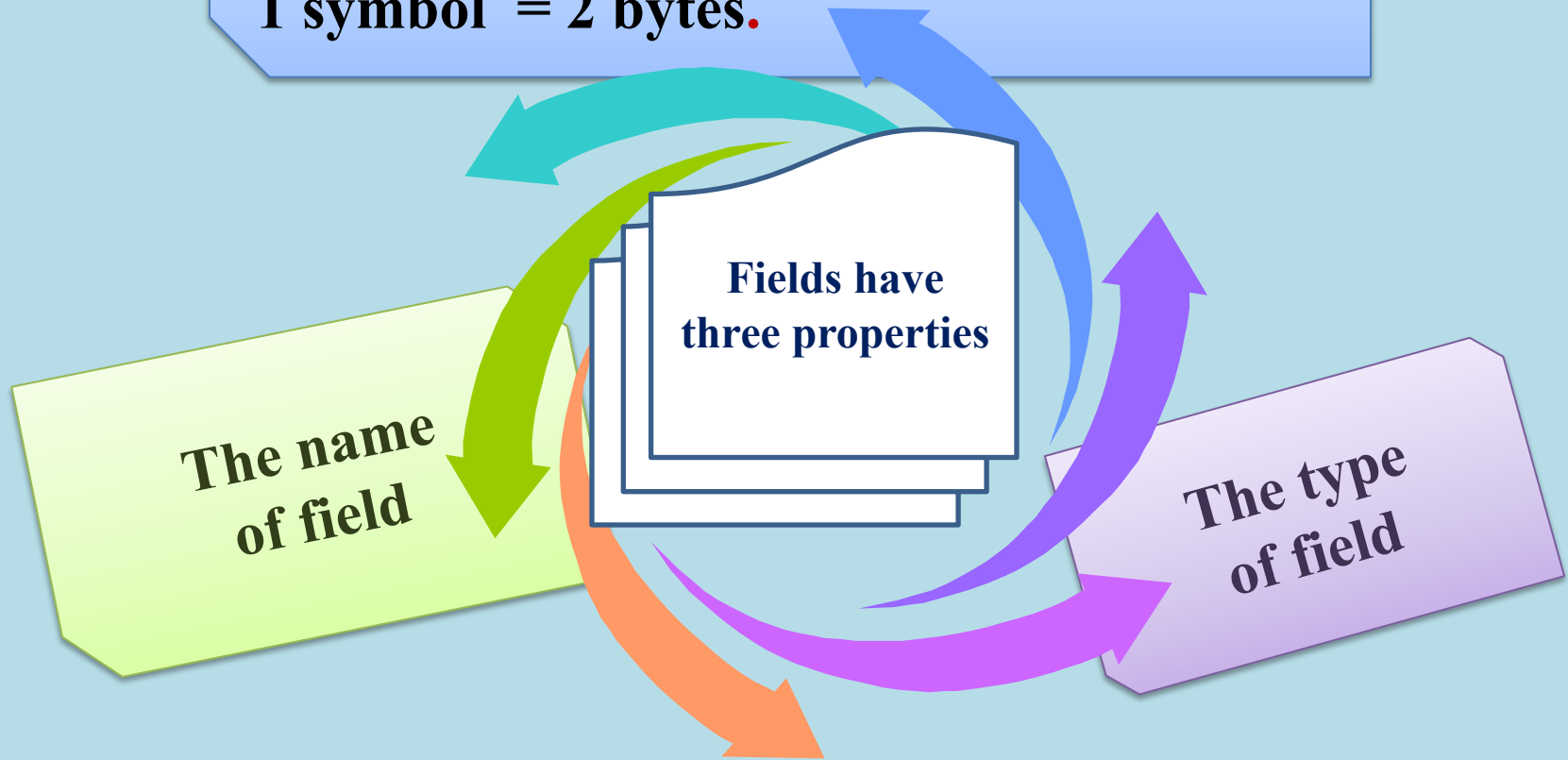
**Types of data depend on the properties of the field.**

**We define by the property field which information can be stored and what can not be**





**The most important property of any field is the length of the field. The field length is determined in the symbols or bytes.  
1 symbol = 2 bytes.**




## Types of fields MS Access

<b>Types</b> <b>ТИПЫ</b>	<b>Characteristics</b> <b>Характеристики</b>	<b>The field length</b> <b>Длина поля</b>
<b>The text</b> <b>ТЕКСТОВЫЙ</b>	<b>Text field is a basic property of fields.</b>	<b>A size is not more than 256 symbols</b> <b>Размер 256 СИМВОЛОВ</b>
<b>The numeric</b> <b>Числовое</b>	<b>The numeric field is used to enter numeric data.</b> <b>Numeric Number format can be:</b> <ul style="list-style-type: none"><li>• <b>a long integer</b></li><li>• <b>integer</b></li><li>• <b>word</b></li><li>• <b>byte</b></li><li>• <b>a real</b></li><li>• <b>exponential</b></li></ul>	<b>A size depends on the number format.</b> <b>The maximum size 19 bytes</b> <b>Максимум 19 байт</b>

## Types of fields MS Access

<b>Types</b>	<b>Characteristics</b>	<b>The field length</b>
<b>DATE / TIME</b> <b>Дата/Время</b>	To enter the date and time (DD-MM-YYYY, MM/DD/YY)	<b>8 bytes</b> <b>8 бит</b>
<b>Logical</b> <b>Логический</b>	It is used when entering the logical data. Has two meaning: <ul style="list-style-type: none"><li>• yes or no</li><li>• zero or one</li><li>• true or false</li></ul>	<b>1 byte</b> <b>1 байт</b>

## Types of fields MS Access

<b>Types</b>	<b>Characteristics</b>	<b>The field length</b>
<b>Monetary</b> <b>Денежный</b>	For storing monies. The computer shows the number with monetary units. (\$100, 100p, €100)	<b>8 bytes</b> <b>8 байт</b>
<b>OLE</b> <b>(Object Linking and Embedding-присоединять и устанавливать объекты)</b>	Store: pictures, photos, music videos, audio. 	A size depends on the number format. <b>Размер зависит от формата поля</b>

## Types of fields MS Access

<b>Types</b>	<b>Characteristics</b>	<b>The field length</b>
<b>MEMO</b>	It is used to enter or paste the text which is longer than 256 symbols	Longer than 256 symbols
<b>Counter</b>	Counter field is a numeric field. It has the ability to automatically grow. (1,2,3,4.....n+1)	The maximum size 19 bytes

# KEY FIELD КЛЮЧЕВОЕ ПОЛЕ

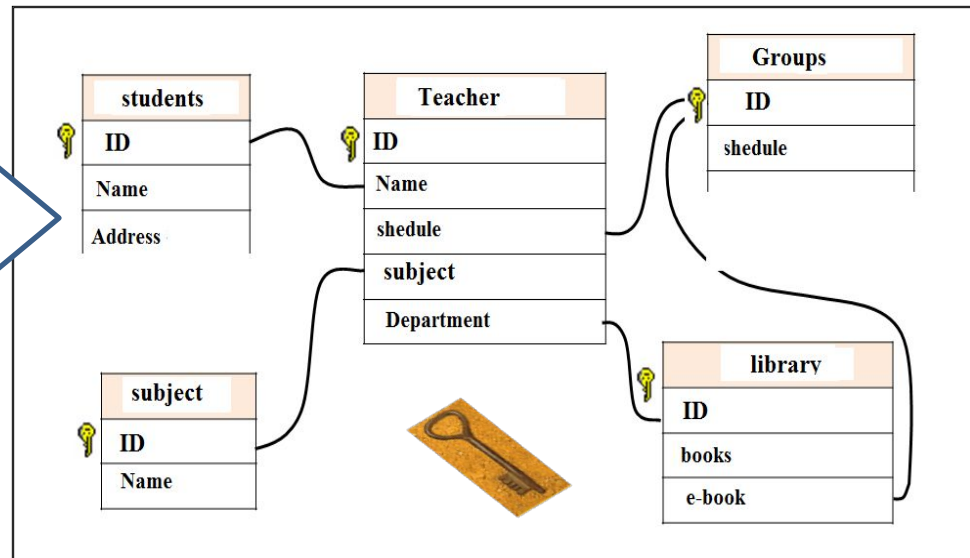


If we have to repeatedly enter some data, we can create a database in several related tables. To establish communication between tables using a key field.

- It helps to records from one table to find records clearly in another table.
- It can only be a unique field.
- It is a field whose data cannot be repeated.

KEY FIELD

If you create a database about students key field can be for instance passport or student ID



# Database management system Microsoft Access

*All data of one  
database is stored  
in  
a single file*

*The file  
extension- **Mdb.***

*This file  
contains  
**the  
database  
objects***

# MS Access main objects

- **Tables** are the basic objects of the database.
- They contain all the data.
- **Queries** are special structures are intended for data processing:  
browse, search, select the data using queries
- **Form** is an object which we can use to enter new data into the database.  
And also we can use the form to view the data existing in the database.
- **Report** is an object database, which we can use to analyze the data and  
print data in a specific format.
- **Macros** are database objects that are used to group frequently performed  
operation in the database. We can assign a macro operation buttons or keys  
on the keyboard.
- **Modules** are software routines written in Visual Basic



# Questions

1. Which is type of Database MS Access belonging?
2. What is the main element in Database MS Access?  
What properties and type have this element?
3. What do we use when created the relationship between tables?
4. What objects has the Database MS Access?

