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DESIGNING OF THE DATABASE FOR MOBILE APPLICATION

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The goals and principles of database designing for mobile application with different technologies are considered in the paper.

Introduction. It is hard to imagine a good client-server application without a developed database. It allows you to conveniently store large amounts of information not on a user's device, but on a remote server, which can provide these data upon request from the application.

This paper is aimed at describing the database for the developed application and its design methods.

Main section. The purpose of data modeling is to provide the developer with a conceptual database schema in the form of a single model or several local models that can be relatively easily mapped to any database system.

The most common data modeling tool is entity-relationship diagrams (ERDs). With their help, objects (entities) that are important for the subject area, their properties (attributes) and relationships with each other (relationships) are determined. ERDs are directly used to design relational databases.

ERD notation was first introduced by P. Chen and was further developed by Barker. The IDEF1 methodology developed by T. Ramay is based on the approach of P. Chen and allows you to build a data model equivalent to the relational model in the third normal form. Currently, based on the improvement of IDEF1 methodology, a new version has been created - IDEF1X methodology.

An entity is a real or imagined type of object, information which should be stored and accessible. In diagrams, an entity is represented as a rectangle containing the name of the entity. In this case, the name of the entity is the name of the type, and not of a specific instance of this type.

A relationship is an association of two or more entities. This association is always binary and can exist between two different entities or between an entity and itself (a recursive relationship). In any connection, two ends are distinguished (in accordance with the existing pair of connected entities), on each of which the name of the connection end, the degree of connection end (how many instances of this entity are connected), the binding of the connection (i.e. whether any instance of this entity should participate in this regard).

To implement the application, it is necessary to establish all the relationships between the entities: it is necessary to consider the entire information system in aggregate and determine the mutual influence of the entities.

The relational model represents the database in the form of many interrelated relationships (tables) that are used to store information about the objects represented in the database.

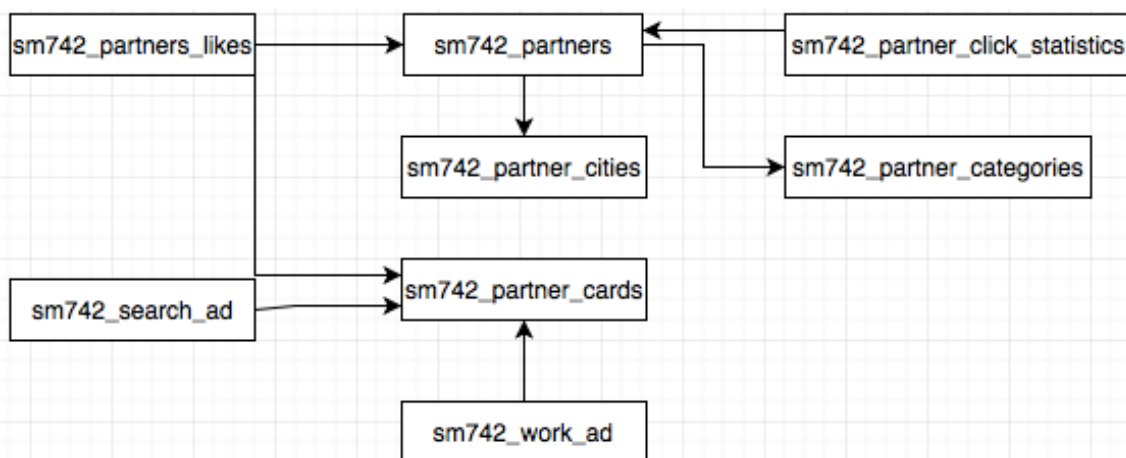


Figure 1. - Example of conceptual database schema

ICT, Electronics, Programming, Geodesy

In accordance with the entities highlighted above, a set of necessary database tables is defined, which is presented in Table 1.

Table 1. – List of database tables

Table name	Description
Partners	List of all partners
Partner_Cities	List of all cities
Partner_Categories	List of all partner's categories
Partner_Click_Statistics	User click statistics on partner pages
Partners_Likes	Partners ratings
Partner_Cards	List of all users
Search_Ad	List of ads from music groups
Work_Ad	List of job vacancies

An important advantage of databases is the ability to store grouped data in different tables and establish relationships between these tables by means of keys and the subsequent combination of these data into a single database. This allows to reduce the redundancy of the data that is stored, to simplify the organization of requests for their receipt.

The primary key serves as an integrity constraint within the same table for identification, since primary key field cannot be repeated or be empty. An important condition is that each table can contain only one primary key.

To organize relationships between two or more tables, secondary keys are used. They serve as constraints on the integrity of the relationships of several tables, because the subordinate table cannot refer to non-existent records of the main table (which allows the construction of integral data models).

There are three connections types between the tables:

- «one-to-many»,
- «one-to-one»,
- «many-to-many».

«One-to-many» connection is the most popular connection type for relational databases. To ensure referential integrity, a foreign key is created in the child table through which a link to the child table is organized. A prerequisite is that the foreign key must match the primary key of the parent table by the composition of the fields.

It is also very important to choose a database management system. There are a lot of different DBMS's:

- MySQL;
- SQL Server;
- SQLight;
- PostgreSQL;
- MongoDB

These databases are different, have their own advantages and disadvantages. It is convenient to use the MySQL DBMS to develop the presented database, since it is open and free, and also supports many types of data required during development.

Conclusion. The paper examined the main goals and principles of modeling the database for mobile application. Besides, the main entities of the designed database were considered.