Tomasz Salata*

Possibilities of the Data Interpretation in the Databases Structures

1. The Introduction

The basic question in the data processing is maintenance of their meaning while accumulating, processing and making accessible. The specific interpretation of the data lets in the way minimizing incorrect reading the meaning of the data – making project or administrative decisions.

At now, databases keep the data in various formats:
- basic types: data textual, numerical, date and time;
- data accumulated in separate (or placed in the whole) files: sounds, multimedia, films;
- the bibliographic data, directs to the place in which they are kept.

2. The Preliminary Classification of Data in Systems

To systems keeping the basic types of the data should include all these databases where data is modified not automatic but manually, record after the record. They create the group of systems working locally or globally, but with users who inserted the data or realizing transactions. Transactional relational databases possessing the concretely definite aim of the working are this the most often – e.g. cadastre, the service of transactional systems, GIS.

To the systems witch collecting complete files of the data belong systems the Web in whose internet communities possess the possibility of the interactive co-operation in the range of placed data. Systems these rise the general figure under the thematic regard internet services the most often in which users present the registered by each other packets of the data.

* Department of Rural Areas Planning, Organization and Protection, Agricultural University, Krakow

Bibliographic systems might be classified to the group of the thematic systems, in which accumulated low disc space addresses to the network location of the in the demand data. The result may be discovering basic type of data, textual documents or data in files.

Consider of the possibility of the analysis of the proposed by the author division of data because of their format in the databases, should execute the tests of distinguishing their susceptibility on the possible various ways of their interpretation by users. Basic data in raw textual or numerical format do not establish of complete information. The features of information gather suitably interpreted data, making up the basic unit of knowledge. So now because the way of data interpretation, delivered to the user depend in the main measure the sight of information. Systems keeping data in that format can present them as raw descriptive data or such, which they also possess the spatial character. This sight is purchased by data through qualification of additional attributes possess of geo-oriented character or writing down in the data structure of geographical co-ordinates in the settled earlier basic arrangement of co-ordinates.

Geographical attributes are e.g. data address, which they show in the unambiguous and logical way on the bearings units of the databases describe by basic data. Geographical co-ordinate are characterize however all systems which the specific forces designers of such systems to accumulating data in the settled from the start arrangement of the reference. Geodesy, cartography, the cadastre of real estate, GPS systems designed for many various uses and GIS have an application in the systems of this type.

3. The Identification of the Methods of Data Interpretations

The problems of interpretations descriptive data and data possess the spatial feature this the process which the data aggregates are subjected connected with oneself in the recordsets. Tables in relational databases are related dependences defined as relationships in that databases models or as methods in the object--oriented databases.

The author favors the most at least three ways of the interpretation of geo-data:

1) The internal, behavioral interpretation – designed *a priori* the diagram of the connections between the tables of the records which was worked out on the stage creating the Entity Relationship Diagrams – representing intentions of the designers of the computer system the way of the interpretation of the data by the user.

2) The external interpretation (decision) – the way of reading taken down data *a posteriori*. This way of the interpretation of the data concerns *a priori* data joint. There is a certain factor of the uncertainty (human factor) exists, allowing on the possibility of the different external interpretation than this, in the behavioral model interpretation.

3) The geo-located interpretation (abstract, decision) – the way of the interpretation of the spatial differentiation of the data. The choice weight of this interpretation concentrates on the way of the explanation of the causes of the any spatial distribution of the data, received in the result the connection the descriptive data from data possessing the spatial character. This kind of the interpretation of the data is the most often visible effect of the working of the system, however should not leave behind that he can be moderated in the larger stage by the behavioral interpretation and smaller level on the external level.

In the range of data accumulated as the packets of the data in multimedia formats files kept in the of internet the phenomenon of the various interpretation of the data rather in so the considerable stage, and surely possesses the different character. Might consider the matter of the understanding of content of the delivered by the system material. Presented sound or video file is analyzed by the user on the high level of abstract ness as information or the fragment of the totality of knowledge. The user does not make the interpretation of the data here because their system does not deliver in the simple mould. The fact is emphases that the interpretation of the data is the many-motif process and not excluding. This marks, that one can interpret data on many ways – equivalent what to meaning and value. However the analysis of the content of sound or video data packets relates to the analyses of the content of document, the subjective opinion of the value of the material mainly – what he does not mark data interpretations accumulated in the system.

One in the similar way can classify data in the bibliographic systems which have on the aim the user referral to the place of storage of the other data or documents. Of course – if the database of the basic data is the place of the destination – their interpretation will have key meanings to the opinion of the usefulness of bibliographic database then. This will have the influence on the opinion of database quality indirectly.

Going out from the above mentioned analysis, should affirm that the interpretation of the data will relate to mainly basic types by the user, kept mainly relational databases, used as transactional systems. The possibility of the multi-threading of the interpretation will grow for systems about the larger number of thematic layers, however weight of the most accurate opinion of situation pre-

sented by the system using the simple data will be become addicted from the pertinence of the methods of the selection of the reduction of multi-features space or the introduction of the data in spatial systems. The methods of the selection of the reduction of multi-features spaces are tools using statistical methods what inflicts that the process of the interpretation of data in this bevel of the analysis is somewhat limited however the way of the introduction of the data the decidedly larger part in systems not possessing the spatial character here, especially when systems are used by decision individuals.

4. The Possibility of the Interpretation of the Data in Transactional Systems

To consider the possibilities of the preliminary interpretation of the data, named earlier internal should trace the individual stages of the development of the computer project.

In the range of knowledge of the relating methodology of the building of the systems of the databases was used the paper of S. Allen *Modeling data* [1], representing all stages of creating the model of databases and R. Elmasri, S.B. Navathe *Introduction to the systems of the datum features of the data* [4] making up the source of knowledge in the range of mathematical model and the standardization of the database structure. The significant compendium of knowledge relating to the proper meaning and using of the notions from the range of land surveying, geomatics, the publication of J. Gaździcki *Leksykon geomatyczny* [5], the information was ladled about the applied nomenclature.

The theory of the databases, the ways of entity identification and the defining the attributes and their fields was introduced in publications of R. Baker [2] and J.D. Ullman [6], E. Codd [3] and other.

Usually creating notional model being basing on the introduced literature it – is the basic task during the initial project works. It begins from the accumulating of basic information about the object of works, that is the qualification of aim, range, the way of approach relating to the methods of preparing the documentation.

It is the task of notional model as the best meeting of conditions in what the system will be constructed. In view of on the fact, that the concrete object of the study is not exactly specified, should be qualify reigning conditions in the standard or also target object.

Needs to the specify the aims:

– The qualification of the thematic range for transactional systems are not possessing the spatial character as also the area range for the systems, which use or they make accessible spatial data – saying differently – the GIS systems.

– Identification and defining the units of the system, depending in the main measure on the create of notional model for the help formulations of the subject in the direction from the totality to the detail. It is realized through: the choice of the source of the data, the creation of the list of the processes of the made by system and the qualification of the principles of all activity identified units of the system and outlining relationships and dependences stepping out among distinguished entities.

Considering above, mentioned steps of projecting the transactional system – the designers decide about this what data will be placed in the system and as they will be presented to the user. The interpretation of the data happens on these stages of works which there will be present in the system hypothetic, and as they will be joint with themselves.

The interpretation of the data is made by experts from the field of creating computer systems together with interesting persons subject matter essentially. For the simple systems, including little layers and not very transactional difficult, not to came to the simplicity of the real picture of the processed segment of the reality. However large systems are mostly the row of compromises among the stage of compiling the structure of the system (it bets, that they the higher complexity that the reality is presented more faithfully), and functional possibilities (the reduction of multi-features space, the simplicity of relationships). It comes to the interpretation of the meaning data *a priori* on this stage of projecting and adapting the ways of the introduction of the data in the support about the designers experts knowledge. Usually this is the professional interpretation, devoid the loose approach to the subject.

The interpretation of the data is made by users the transactional systems leaning in user prepared on his knowledge essentially case. This usually is knowledge used to undertaking decision actions in the support about data presented by the system. In the case of the service of the system by persons not being the experts in the data field – the interpretation of the data is shallower decidedly and can depend in the main measure on preparing the reports or compositions in the support about programmed earlier functions of the system. Only specialized users, with the large baggage of knowledge and competences in this case of the interpretation, can be able to estimate the presented by the computer system situation using the data in the basic format.

Last the favor way of data interpretations, presented in the graphic way to the user in the arrangement of flat or spatial co-ordinates in the reference to GIS systems, also like on compiled multi-features diagrams, where the space is created from consisting larger than three numbers of dimensions for systems. The users who have the weak relationship with the subject matter, can interpret the data as

such experts in dependence from the way of the compilation of the system. The interpretation of the data by novice users is bases on universally well-known knowledge, however experts can the interpretation make in the support about individual values data presented by the system (similarly how in transactional systems) and to verify one's standpoint in the support about the spatial expansion of the aggregate of the features.

Remaining introduced systems (multimedia and bibliographic banks) because of the delivery of the information in the format of high processed data or prepared documents) they be subject to not so strong influence in the range of the way of the interpretation of the data as the transactional systems.

5.   Conclusions

Decisive part in data interpretations accumulated in computer systems, play the designers of computer systems, because this group of experts makes the decisions, which have meanings in the whole length of the life of the system. Their decisions treating to the way of designing the structure of the data, accumulating and presentation – it causes that the data are already interpreted under the their angle of future usefulness in the considerable stage. The interpretation of the data made by the users of systems, working on the data after initiating the project, is realized on the their plane of the logical meaning what guides to undertaking decision actions.

The internal interpretation is realized on the stage of projecting the computer system once and translates in the significant way on the way of the multiple and repeatability process of interpreting of data by users of the system.

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