

STORING HETEROGENEOUS TREES IN A RELATIONAL DATABASE

DEMIAN Horia

Oradea

horia_demian@yahoo.com

This paper presents a model for storing homogeneous and heterogeneous trees inside a relational database.

In ERP software systems there is specific situation when we are interested to organize data like trees. For example a product catalogue can be organized like trees. These trees are stored in a relational database. For data representation of a tree, a single table will be necessary, like in figure 1.

idTree	idTreePrec	Node
1	1	A
2	1	B
3	1	C

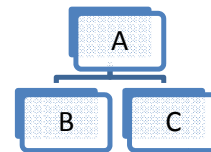


Figure 1.

In the preceding example for a node we have only one attributes named node, which will store the name of the node. The database table has the following fields:

- idTree (int) field is used for uniquely identification of a node (the primary key of the table)
- idTreePrec (int) fields is used for parent reference (a node can have 0 to one parent and 0 to more children)
- Node (string) field stores the name of every nodes of a tree.

This is a classical representation of a tree, which has the limitation of storing only homogeneous trees, in which all the node of a tree are of the same type.

During the lifetime of a product, modification to data attributes can happen. Also, the nodes of the same tree can be of different types. Can we guess all the attributes that will be needed in the future for a particular node of a tree? We cannot.

Heterogeneous tree offer greater flexibility to structure changes during the time.

Implementation of heterogeneous trees can be made by using a special structure based on classes and objects. This structure offers a greater flexibility in time, when unwanted changes to structure will arise. There is a lot of situation in ERP systems when storing trees is very important fact.