Publication Management System

Report, The First

October 1, 2015
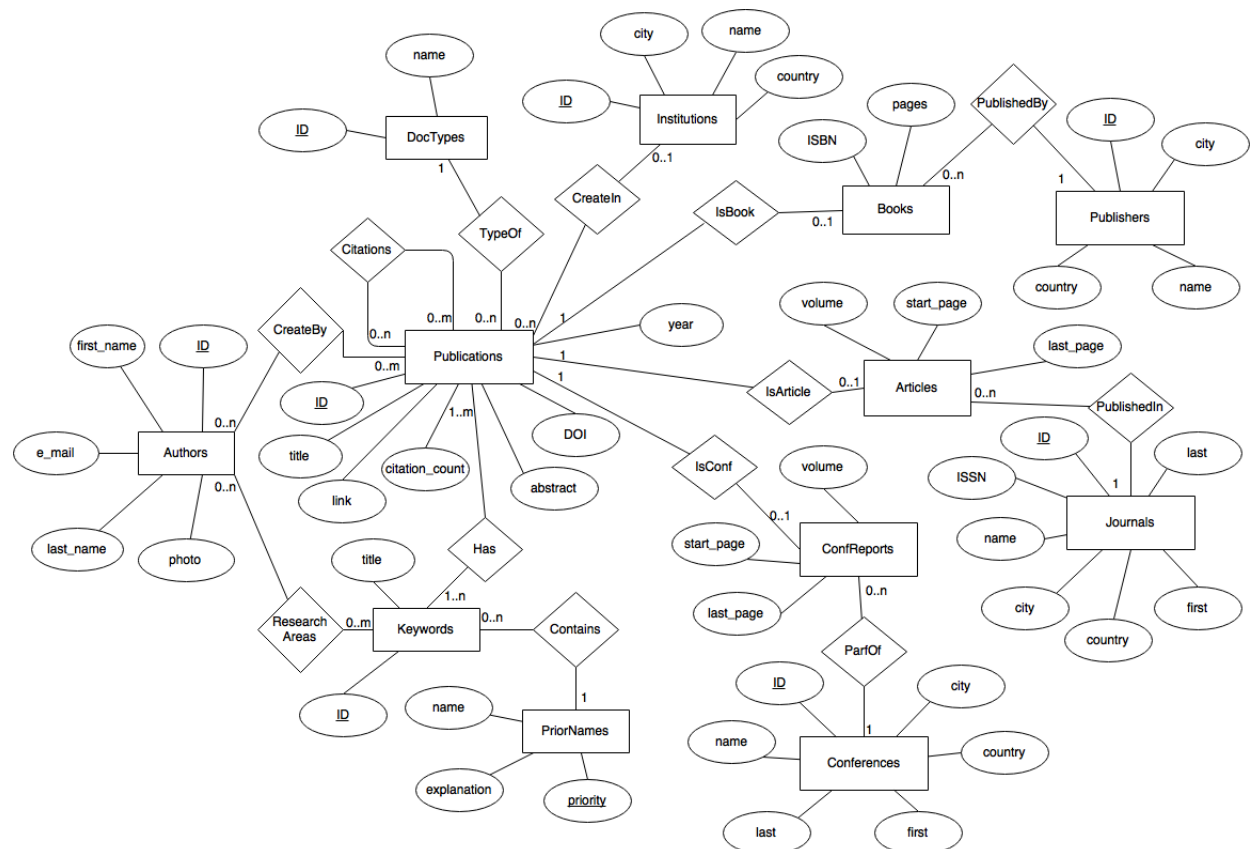
1 The team members

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2 ER - diagram

3 Entities

$Publications(\underline{ID}, title, year, link, DOI, abstract, citation\_count, DocTypes.ID, Institutions.ID)$
$Books(ISBN, pages, Publishers.ID, Publications.ID)$
$ConfReports(Conferences.ID, Publications.ID, volume, start\_page, last\_page)$
$Articles(Publications.ID, Journals.ID, volume, start\_page, last\_page)$
$Publishers(\underline{ID}, city, name, country)$
$Conferences(\underline{ID}, city, country, name, last, first)$
$Journals(\underline{ID}, ISSN, name, city, country, first, last)$
$Authors(\underline{ID}, first\_name, e\_mail, last\_name, photo)$
$Institutions(\underline{ID}, name, city, country)$
$DocType(\underline{ID}, name)$
$Keywords(\underline{ID}, title, PriorNames.priority)$
$PriorNames(\underline{priority}, name, explanation)$

$CreateBy(\underline{Authors.ID}, \underline{Publications.ID})$
$Citations(\underline{Publications.ID})$
$ResearchAreas(\underline{Keywords.ID}, \underline{Authors.ID})$
$Has(\underline{Keywords.ID}, \underline{Publications.ID})$

4 Explanation

The main focus while designing the ER-model was simplifying the writing of queries in the database, but not entering data into it.

Especially for this, the special parameter "Citation_count" was introduced in "Publications". Despite the fact that it is possible to group the table "Citations" according to "publ_id" and calculate the same value, it would be much longer; the parameter is expected to be used frequently.

An analogous situation is merging all publications into one table and creating supplementary successor tables. It allows us not to worry about the type of document and search by author / keyword / institution and only when necessary to seek for the full information about the publication in such a table.

Keywords include "Research areas" and there are 2 options to search by keywords: either duplicate value in two tables, or search in both tables, which is inconvenient. For this purpose it was decided not to follow the forms of normalization and perform an action that helps to search by keyword. There is only a table "Keywords", and "Research areas" is part of "Keywords", separated from others with a special identifier "priority". As a result we have to write triggers to add to the publications and research areas / keywords (a control is necessary as a publication cannot be a book and an article at the same time; author doesn't work in the keyword field, but in the research area). The search performed in this table is very easy and pleasant. 2 small tables PriorNames and DocType are used to identify variations in our tables.