

# Implementation of Efficient Data Tranconfiguration Technique for Relational to Object Oriented Database

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**Abstract**—The object oriented database management system used for managing huge amount of data and now a days industries using relational database management software as a standard database management system. The relational database based on relational typical example whereas modern software development technologies interact with relational database management based on object oriented paradigm object-oriented database management system shortened to ODBMS for object database management system), it is a database management system (DBMS) that supports the modeling of data as objects which help in achieving reusability and managing the complexity in querying system The object-oriented data model is assumed to be the central idea of the next generation of database systems. Users want to move from old databases into applying this new technology that provides adaptability in maintenance. This paper presents an extended fictional work to transform a given conventional database into an object oriented database Such a mismatch inspires for migrating relational database to object oriented database and deals with development of single environment which relates a relational schema to an object oriented schema and providing a scenario for successfully transferring data from relational database to object oriented database using data migration algorithm. Object oriented programming has attain as much as possible acceptance in the programming community to sum up for developing typical applications that are easy to represent and promote.

**Keywords**—Algorithm, complexity, management, migration, object-oriented system, querying, relational.

## I. INTRODUCTION

The necessity to meet the requirements of applications beyond data processing applications that were composed of relational database system led to the development of object oriented database system in mid. object oriented database system also known as fifth generation database systems are being used for advanced applications in the field of computer aided design, computer aided manufacturing, software engineering, knowledge based systems and multimedia systems [7]. OODB mainly tries to satisfy the need to perform complex manipulations and querying on existing databases. In object oriented databases, objects and classes form the basis. Object is uniquely identified using object id. The objects with same properties and behaviour are grouped as a class. [4]The object-oriented data model is supposed to be the heart of the next generation of database systems. Due to the exploding number of information stored and shared over Internet, and the introduction of new technologies to capture and transit data, managing imperfect data is an important issue in many applications. Users want to move from old legacy databases into applying this new technology that provides extensibility and flexibility in maintenance.

Approach to transform a given conventional database into an object-oriented database. It is assumed that the necessary characteristics of the conventional database to be re-engineered are known and available. The source of these characteristics might be the data dictionary and or an expert in the given conventional database. The other issues that must be addressed, apart from schema mapping, are data mapping and implementation architecture. Based on this, our approach described in this paper is not limited to just schema translation but addresses the total of a relational database to an object oriented database. It is necessary to develop a complete integrated framework to carry out any conventional relational database into an object-oriented database. Specific techniques to handle schema mapping, data mapping, and choosing appropriate implementation architecture should be developed [1]. A systematic approach for converting a given relational database to an object-oriented database by converting the traditional relational schema to object oriented schema and moving data from traditional database to object oriented database [3]. Although data mapping between the relational and the object-oriented model itself is not new, joining data mapping with an interactively generated schema mapping offers greater profit to the overall goal of migrating relational database data to object-oriented databases is a template developing such a techniques that convert data in relational database to an object-oriented suitable format. Schema mapping is conventional task that is always done for accessing relational database from object-oriented database. Data mapping from relational data to objects is done by schema mapping. Object-oriented access to the data is provided by the schema mapping to data abide in relational database [6]. It will be advantageous if this schema mapping to be involuntary but research establishes that schema mapping from the relational to the object-oriented model can't be fully inevitable. In fact, few commercial systems got a success for the provision from conventional relational database to object-oriented access, the developer must specify the entire schema mapping accurately. The author believes that mapping process can be at least partially automated and for the completion of mapping process interactive tool required but it could be made optional if the relational database could provide information about primary keys and foreign keys

This chapter concentrated on the areas affiliated to research in rendering object oriented access from conventional relational database through extensive literature review. The chapter points on the work in the area of schema mapping such as the Entity-Relationship (ER) model, the Extended Entity Relationship (EER) model and object oriented model

from the relational model. Schema mapping plays an essential role in database reverse engineering. The main idea behind database reverse engineering is development of concrete design of a database from the conventional database structure [6]. With semantic data models like Entity Relationship, Extended Entity Relationship, object oriented, and so on the abstract design is represented. In spite of it, the conventional database structure can be represented in the relational model, hierarchical model, network model and so on.

Most of the work on the re-engineering of relational databases has primarily focused on schema translation from the relational model to some other semantic model such as the entity-relationship (ER) model, the extended ER model and the object oriented model [1].

Jagdev bhogal and Philip moore literature (2014) identifies ontology-based context modelling (OBCM) as the optimal approach to context modelling. Context modelling (CM) requires the storage of contextual information in persistent and in-memory formats with the capability to implement dynamic accessing and updating of the literal values.

Ning LIU and Guan-yu LI,(2015), many problems about consequence discontinuities and consequence sorting dissatisfaction exist in keyword retrieval over relational database. Data community-oriented retrieval method over relational database is proposed in this paper. Based on data graph, this method driven by centre node determines a community through the combination of keyword nodes which the centre node can reach. And optimal results are carried out by comparing overhead between the centre nodes and each keyword node. Analyses of some experimental results show that this method not only can reduce the average delay time of retrieval effectively but also can achieve target information comprehensively, continuously and orderly.

Fatma Ezzahra Bousnin and Mohamed Anis Bach Tobji, (2016), suggest that the exploding number of information stored and shared over Internet, and the introduction of new technologies to capture and transit data, managing imperfect data is an important issue in many applications. An important tool for reasoning with imperfect data is the evidence theory, which is a generalization of the Bayesian inference. We call databases whose data imperfections are processed thanks to the evidence theory, the evidential databases. In this paper, we design the evidential database meta-model using an Oriented-Object modelling language.

## II. PROBLEM FORMULATION

Successful migration of data from relational database to object oriented database carries a great deal of risk while data migration. After discussing several research works some problem areas are found in the traditional approaches which are following:

### A. Aim

This novel approach to transform a given relational database into an object-oriented database by mapping the relational schema to object oriented schema

The primary objectives of this work are as follows;

1. To Study the automatability of the relational-to-OO schema

mapping process.

2. To define an interactive process for mapping an existing relational schema to an object-oriented schema.
3. To develop an interactive system to validate the system

### B. Problem Definition

1. The traditional approach failed to mapped tuples to complex objects. The relational database doesn't support to new data types such as video, audio and images.
2. While migration data couldn't processes for redundancy and irrelevancy. Due to redundancy and irrelevancy results in poor performance of system.
3. While migrating data from one platform to other platform finds a problem of object-relational mismatch. The complex data structures created by application are mismatching with the data types in database system.

## III. PRAPOSED SYSTEM

Data transformation is a process of migrating data from one system to another, from one platform to other. For transforming data from relational form to object oriented different techniques used. Most of the data migration algorithm focuses on transforming data from traditional relational database to object oriented database. In this proposed system, a data migration algorithm along with data cleaning process is introduced which will results in reduction in redundancy and improvements in system performance. Finally the evaluation of performance is calculated by performing number of operations on both databases.

The proposed approach for developing the system consists of three major components.

- The first one deals with mapping the relational schema to an object-oriented schema i.e. schema mapping. In this step schema transformation takes place by transforming relational schema to object oriented schema. The resulted object-oriented schema is created from given relational schema.
- The second one deals with migrating data from relational database to object oriented database using data migration algorithm i.e. data mapping. The data values will assign to the created object schema in this step.
- The third one deals with data cleaning. In this step, removal of data duplicacy takes place and also checks data for irrelevancy. Only the irredundant and relevant data will migrate to object oriented database. So that whole migration successfully takes place and results in better system performance.

### A. Methodology

The solution provided by this it transforming schema into a well- designed and intuitively understandable object oriented schema. Thus in simple words implement a system that builds an understanding of a given conventional database by taking these characteristics as input and produces the corresponding object-oriented database as output. Finally, we handle the migration of data from the conventional database to the constructed object-oriented database.

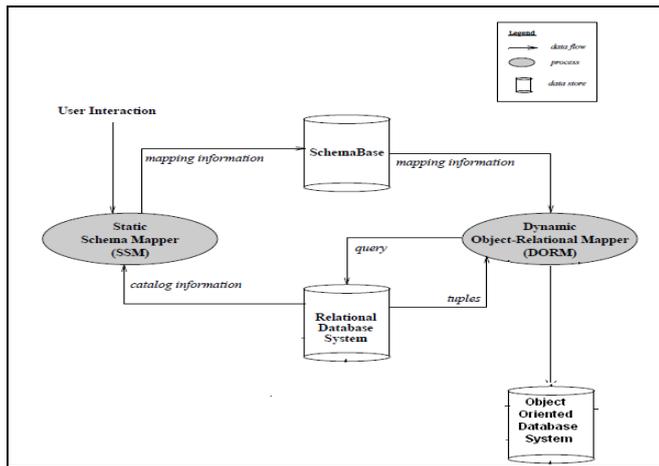


Fig. 1. Overall system architecture.

The solution provided by this is transforming schema into a well- designed and intuitively understandable object oriented schema. Afterwards, the data successfully migrated into an object oriented database management system using data migration algorithm which will work in three simple steps as instance creation, attribute assignment and data cleaning. In instances creation, instances are created from given relational schema, and then data values are assigned to that created instances in attribute assignment phase and at last before migration data checks for redundancy and irrelevancy. Thus only well structured, well-formed data stored in object oriented database. Thus, this chapter summarizes a systematic and a methodological way for successfully migration of data

from relational database to object oriented. It can run on any operating system that supports java or .net. It represents an object-oriented database model. It's main goal is to provide to provide easy and native interface for object oriented programming language. It is an embedded database that can run in application process [5].

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