Implementation to convert Data along with Entire Structure of a Discrete Table between ORACLE to MS-Excel

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ABSTRACT: To begin this project, I will try to Migrate table from Oracle platform to MS Excel platform for the initial process of the project. My goal is to keep the main structure of the table in intact format, means I will get the original database structure with its original data and as well as its primary key too (if there is any primary key present in table) after data migration process is over. This whole process is called as data migration between two different databases in my project. And in my project I will get the tables in MS Excel Platform as it was in the Oracle Platform.

KEYWORDS: Databases**,** Migrate, Table, Goal, Oracle, MS Excel, Sheets, Intact, Conversion.

I. INTRODUCTION

Here, I will work and find out how data will be migrated from Oracle to MS Excel platform keeping the entire structure of the database intact.

As my work progressed, I found out how the details of the table structure can be fetched from Oracle, which means Oracle itself is allowing copying its table's structure. If I was unable to collect these data about the structure through SQL, then I had to think about how to break the security of the DBA part of the Oracle in an ethical manner.

II. RELATED WORKS

•**Discussion of Actual Work:**

Here, I am discussing about my actual work to convert the database from Oracle to MS Excel. Section [1] discusses the establishing the connection. While section [2] gives the idea about the data conversion from database to an excel file. And [3] is an entire example of the conversion process.

1. Establishing the connection between database and excel file:

❖ I have implemented my concept of migrating data from Oracle to MS Excel in Visual Basic (6.0) to develop the software which will be able to convert the database from Oracle to MS Excel.

❖ All necessary actions required for connecting the Oracle database and MS Excel through Visual Basic was done.

❖ The SQL commands were written in VB properly so that they could be fired in proper database and the output were kept in record sets. Here, at first, SQL commands were fired through VB, the output were temporarily stored in record sets provided by VB. From the record set, each record were taken tuple wise and they were stored one by one in MS Excel keeping the format of each fields intact.

2. Required information about Oracle database and implementation in MS Excel:

2.1 Creation of table structure in MS Excel as Sheet:

To migrate the table, at first I had to get the details about the structure of the table which was to be migrated. If multiple tables were related with each other, means more than one table was joined with reference keys, and then I had to get the details of every table's structure and so on. This information about the tables was used later to create the same tables with similar relations to other tables in MS Excel.

To get the actual structure of a table in Oracle I use "desc <table name>" command. But as I was working with VB and using SQL so I had to find the equivalent command of "desc" in SQL. I can get the structure from the table in oracle named "all_tab_columns". All required fields were taken from "all_tab_columns" using the proper SQL command.

Here, the tables are created as individual sheets in MS-Excel with the same name and same data and other information along with the constraints of the selected table for migration process, have been also kept into the that particular sheet.

The required fields to be fetched from "all_tab_columns" table were the column name, data type, data length, constraint name, and constraint (CON). This information was later used to define or create the main structure of the table in MS Excel.

COLUMN_NAME	DATA_TYPE	DATA_LENGTH	CONSTRAINT_NAME	CON
B	VARCHAR2	10	SYS_C005561	P
C	VARCHAR2	10	SYS_C005561	P

Fig. 2.1
The output of "desc" equivalent SQL command for a particular table having 2 foreign keys- B, C

2.2 Getting information from table user_constraint:

In the following fig 2.2 constraint name, constraint type and r_constraint name from user_constraint table are shown:

CONSTRAINT_NAME	CON	R_CONSTRAINT_NAME
SYS_C005561	P	

Fig. 2.2
Output of SQL command with constraint name and their type

2.3 Finding the primary key in the table:

Primary key is the important part of any table, as it can uniquely identify any tuple from other tuples. It cannot be null. It also has vital role at the time of inserting any data tuple wise in a table. So, to fetch the information about primary key of any table and store it in a variable is very important. This will be used during the creation of the sheet in MS Excel of a particular file. So, I had to use the SQL command to find the primary key in the table.

The following fig 2.3 shows the primary key present in a particular table. It provides the information about column name, constraint name, r_constraint name and constraint (CON).

TABLE_NAME	COLUMN_NAME	CON	CONSTRAINT_NAME	R_CONSTRAINT_NAME
P1111	B	P	SYS_C005561	

Fig. 2.3
Information about Primary key

In the above figure 2.3 column_name is the field which is the primary key of that table and "P" in the column of "CON" means the corresponding field is primary key.

This command is also capable of finding the composite key (when more than one field together uniquely identifies the tuple, it is called composite key).

As discussed in section 2.2, that information was used to get the primary key.

2.4 Selecting the table to be migrated:

After login in with the user name and password in the database of Oracle, I have to select the table which will be migrated to the MS Excel. So, I have to show all the tables available under that user, so that the user can select the table. This list of tables is shown by the data grid in my software, user will select the table and the table will be migrated to the MS Excel platform keeping its main structure, relation with other table and data types of every field intact.

All tables available under a particular user are shown from where particular table can be chosen for migration. In the following Fig. 2.4 I can get the list of tables available for a particular user:

TNAME	TABTYPE	CLUSTERID
P1222	TABLE	
P1223	TABLE	
P121	TABLE	
P211	TABLE	
P13	TABLE	
P111	TABLE	
P122	TABLE	
P21	TABLE	
P11	TABLE	
P12	TABLE	
P2	TABLE	
P1	TABLE	
C1	TABLE	
P1112	TABLE	
P1111	TABLE	
P1221	TABLE	

Fig. 2.4
Tables available under a particular user

2.5 Selecting the proper location to save the converted EXCEL file:
After proceeding all of the above steps, user need to choose the location to save the Excel file (having extension ".xls") in a particular folder or have to create a new folder in which user wants to copy the entire table with its information, data and structures and as well as its referenced tables too. After this, the migration process will be started and can view the current progress status of the conversion process that which table is migrating currently, and after the completion of the conversion process the completion message will be generated to inform that migration process is completed successfully or not.

III.   SIMULATION RESULTS

To illustrate my work let me consider the following example given in fig. 3.
Here, a table named **P111** has two parent tables – **P1111** and **P1112.**
I want to migrate this P111 table from Oracle to MS Excel. As it have two parent tables,
So parent tables must be migrated first. Only after the migration of all parent tables with the data, then only the child table will be created and data will be inserted, i.e. migration will be completed.
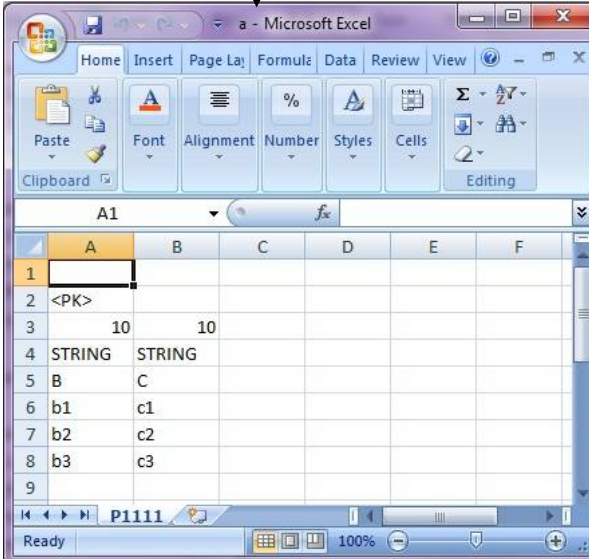
P1111

Fig. 3 - Structure of database in ORACLE to be migrated in MS Excel

Above figures signifies that from ORACLE P1111 table is copied with its data and keeping the information about the structure in MS Excel.

Now, if **P1111** table is to be migrated from ORACLE to MS Excel. Here is the step by step explanation how these tables are migrated from Oracle to MS Excel.

3.1 Creation of structure and data insertion P1111 table:

As P1111 have no foreign key so it starts to construct the structure of P1111 table. Then its primary keys are to be found and collecting the tuples one by one and insert it into the corresponding excel sheet in to the corresponding cell starting from 6th row of that excel sheet.

IV.   CONCLUSION AND FUTURE WORK

As my initial goal was to migrating tables from one database to another different database the software developed by me is successful of migrating tables between ORACLE to MS Excel. Though it has some limitations but I look forward to work out and develop more accurate software.

Above said limitation of my project can be rectified. I will work out about this limitation in future and hopefully will overcome this limitation.

Apart from this, as I am able to migrating tables from Oracle to MS Excel, now I will concentrate on extending my project so that it will be able to migrating the table in some other way, i.e. from some other database to some other database.

Not only that, I wish to carry forward my work and developing the software which will be able to migrating tables between all major databases which follow the CODD's rule (Oracle, MS Excel, My SQL).

REFERENCES

[1] Kevin Loney and George Koch, Oracle 9i, The Complete Reference, sixteenth reprint, 2005, Oracle Press.
[2] Silberschatz, Korth and Sudarshan, Database System Concepts, fourth edition, McGraw-Hill International Edition.
[3] Ivan Bayross, SQL, PL/SQL: The Programming Language Of Oracle, 4th Revised Edition.
[4] https://www.google.co.in/
[5] http://stackoverflow.com/
[6] https://www.wikipedia.org/
[7] Yahoo.com
[8] https://community.oracle.com
[9] https://oracle.com
[10] www.blocks.oracle.com
[11] Kibria Dastagir Dafadar, Chalorme Roy Mukhopadhyay, Prof. Dr Pranam Paul; "Implementation of Data Migration between Two Different Databases for discrete table"; Paper ID: V40202104; Accepted and Published in "International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)"; ISSN No: 2320-9801 (Online), 2320-9798 (Print); Vol. 4, Issue: 1; Feb 2016; pp 2144 – 2147.
[12] Chalorme Roy Mukhopadhyay,Kibria Dastagir Dafadar, Prof. Dr Pranam Paul; "Implementation of Data Migration between Two Different Databases for inter connected tables"; Paper ID: V40202106; Accepted for Publication in "International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)"; ISSN No: 2320-9801 (Online), 2320-9798 (Print)); Vol. 4, Issue: 1; Feb 2016; pp 2148 – 2154.
[13]Chalorme Roy Mukhopadhyay, Prof. Dr Pranam Paul; "Conversion of Entire Structure of Database from SQL SERVER to MS Access"; Paper ID: V40505138; Accepted for Publication in "International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)"; ISSN No: 2320-9801 (Online), 2320-9798 (Print); Vol 4, Issue: 5; May 2016; pp 9179 - 9185
[14]Chalorme Roy Mukhopadhyay, Prof. Dr Pranam Paul; "Data Migrating with Foreign Key Concept from ORACLE to SQL SERVER"; Paper ID: V40505138A; Accepted for Publication in "International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)"; ISSN No: 2320-9801 (Online), 2320-9798 (Print); Vol 4, Issue: 5; May 2016; pp 9179 - 9185
[15] Chalorme Roy Mukhopadhyay, Prof. Dr Pranam Paul; "Implementation of Data Migration between SQL Server to ORACLE"; Paper ID: V40505138B; Accepted for Publication in "International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)"; ISSN No: 2320-9801 (Online), 2320-9798 (Print); Vol 4, Issue: 5; May 2016; pp 9186 – 9192

BIOGRAPHY

Chalorme Roy Mukhopadhyay, Final Year Student of MCA at Narula Institute of Technology, Agarpara, Westbengal, India. She completed her BCA degree from George College (Kolkata), under the West Bengal University of Technology.
Achievements:
1. Got 431st Rank on NEST(Nationwide Education And Scholarship Test) Aptitude Test 2013,
2. Scored among the top 24 %(76 percentile) on NIIT 8th National IT Aptitude Test 2012.
3. Five papers accepted and published in an International Journal.

Prof. Dr Pranam Paul, Assistant Professor and Departmental Head, CA Department, Narula Institute of Technology (NIT), Agarpara had completed MCA in 2005. Then my carrier had been started as an academician from MCKV Institute of Technology, Liluah. Parallely, at the same time, I continued my research work. At October, 2006, National Institute of Technology (NIT), Durgapur had agreed to enroll my name as a registered Ph.D. scholar. Then I had joined Bengal College of Engineering and Technology, Durgapur. After that Dr. B. C. Roy Engineering College hired me in the MCA department at 2007. At the age of 30, I had got Ph.D. from National Institute of Technology, Durgapur, WestBengal. I had submitted my Ph.D. thesis only within 2 Years and 5 Months. After completing the Ph.D., I had joined Narula Institute of Technology in Computer Application Department. Parallely I continue my research work. For that, I have 39 International Journal Publications among 54 accepted papers in different areas. I am also reviewer of International Journal of Network Security (IJNS), Taiwan and International Journal of Computer Science Issue (IJCSI); Republic of Mauritius.

Achievement:

1. Accepted my name for publication in "Who's Who Science and Engineering, 2011 – 2012" published by "Marquis Who's Who", USA on 31st Dec 2010
2. Selected my name as "Top 100 Engineers' 2011", by "International Biographical Centre", Cambridge, England
3. Selected my name as "Outstanding 2000 Intellectuals of the 21st Century, 2012", by "International Biographical Centre", Cambridge, England