GUI IMPLEMENTATION OF MYSQL WORKBENCH FOR SCRIPT GENERATION IN MULTIPLE DATABASES

Akash Jadhav
U.G. Student, Department of Computer Engineering,
Bharati Vidyapeeth’s College of Engineering, Lavale, Pune

Akash Nikam
U.G. Student, Department of Computer Engineering,
Bharati Vidyapeeth’s College of Engineering, Lavale, Pune

Ram Bhongle
U.G. Student, Department of Computer Engineering,
Bharati Vidyapeeth’s College of Engineering, Lavale, Pune

Akash Kumar Arun Ari
U.G. Student, Department of Computer Engineering,
Bharati Vidyapeeth’s College of Engineering, Lavale, Pune

Prof. Kumkum Bala
Professor, Department of Computer Engineering,
Bharati Vidyapeeth’s College of Engineering, Lavale, Pune

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Abstract: A guided user interface application developed in swing framework to build database, table, triggers and audit table for same model on different databases. Databases have been used in a query based format. Database languages like Mysql and Postgres have different workbenches for table operations. The main challenges for today’s frontend developers is struggling through learning of different back-end software. We have implemented a simple interface that allows sql script generation in a text file format for table creation on multiple databases for same mode.

Keywords: Guided user interface; swing; database; workbench;

I. INTRODUCTION

Data in organizations can be compared to life in living organisms. Data runs the industry irrespective of size of company. Data is available in multiple forms depending on various factors such as time period, importance and the application of data. Data, often received in unordered format can be converted into tables if categorized in regular instances. Data loss for an organization is crucial and might incur huge loss in terms of money and time. Thus structuring of data is an important task, regardless of the amount of data. Databases provide an excellent solution to the problem of classification and grouping of data. Databases like MySQL, PostGreSQL etc. work in query based programming, where query is replied by result from the database. Common difficulties occurring in such mannerism arises while creation of tables with multiple tuples. Such difficulties can be eliminated by providing a guided user interface for table creation such as MySql WorkBench.

Even though creation of tables has been made easy, conversion of one database to another database provides difficulties for most of the front-end developers who keep on experimenting with different types of databases. For each database, tables need to be created from scratch which provides a major drawback with increasing tuples in a table. As a solution to this problem, we have created an application which allows generation of query scripts in various databases, similar to workbench without disturbing the characteristics of table.
The generation of these scripts is a text file, which can be run on command prompt of different databases for quick table generation. The text files are automatically stored in a directory previously.

Selected by the user and holds different versions of same table, indexed in terms of time and date. Different versions of tables can be seen in the directory and referenced for future table generation. Along with text files, format of tables remain saved with functionalities like opening a previous table model and editing to create a different versions.

II. DESIGN

(a) Architecture Design

(b) Sequence Flow

(c) Data Flow Model

Figure 1: Architectural design related to processing of the application

III. METHODS

The application is created as a guided user interface using swing framework which provides flexibility to the application’s development and working. Classes like textfields, JComboBox and Buttons are used. The GUI makes it very easy to assign properties to various tuples of a table. A dropdown box is used to select the type of database language in which the query script will be generated. The application allows selection of directory through a "Browse" button. The directory has been created to refer it to a database. All tables generated are by default stored in a folder with same name as that of database. Text Fields have been provided to assign names to database, tables and tuples. A table has been used to display the list of all tuples being added to the database table. This creates an interactive session for the user to easily add and modify the tuples of the database tuple. Check boxes are used to assign properties to the different tuples.

These check boxes have been functioned to remove ambiguity regarding primary key and not null, unique key selection. The display table adds a row for each attribute of database table which include a text field to name the attribute, check boxes to add properties to attribute and a button labeled 'X' to remove the attribute from the database table. A button named as 'Trigger' is used to open up a window which is used to generate triggers. This window allows selection of various types of triggers and has a text field to add code for triggers.
Validation of the created trigger is done by reading the code written for the trigger. This code is then added to the main script during the final code generation. Internal coding is done to prevent ambiguity during selection of various properties of the tuples.

IV. CONCLUSION

The application provides a quick method to create scripts for table generation in various databases for the same structure of a table. The interface is User friendly thus improving efficiency by saving time. Multiple types of code are being generated which helps in migrating databases. The scripts generated can be modified later by selecting the table from directory and modifying the characteristics(properties of tuples) of the table which provides the application a runtime environment. Table is used to display the attributes of the database table which also acts an interactive method to modify the tuples. Generated scripts are displayed in a new window and saved in text files in a specified directory. These text files are stored using table name. Different versions of the same table generated over different period of time are distinguished by naming the text file generated with the help of table name and date and time of the table generation. Different tables can be selected from the directory, for future modification. This also helps in duplicating tables from one database to another. Thus successful creation of this application has improved efficiency for developers by reducing time used for coding SQL scripts and restricting error generation, hence saving time and effort.

V. DISCUSSION

It helps front-end developers to easily create large size tables without the hassle of typing long scripts. Error in table creation is avoided and time efficient solution is being provided with this application. Further versions of this application would help in generating scripts to perform Data Insertion and merging different tables using the concept of foreign keys. Audit table creation and a visual representation of the database can be shown. By reverse engineering, tables can be listed in the application window by reading a SQL script. Warnings can be added to benefit the user in removing ambiguity from codes generated. This application can be used as an input for hibernate framework to implement Object-Relational Model. Hibernate scripts can also be generated by modifying the application to fit the purpose. Security to this application can be provided by generating key-value pairs for each user. Security can be increased by restricting access to modify the text files only using this application. This application can also be embedded in applications using hibernate framework for improving the time taken by Hibernate to access database.

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REFERENCES