Storing chemical equation, images in database and generating report

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Abstract— In the current industrial world, the use and extend of database is on the rise. Database plays an important role in managing the entire data of the firm. It is always necessary to segregate data properly to be stored in the database. This document focuses on furnishing the storage of data batch wise and in presentable way so that report generation is made easy and provides a way for better user interface. Report generation is done based on the user's requirement. Along with this, the feature of storing chemical equations and images is implemented. Major aim is to store the data in a proper format and batch wise along with storing the chemical equations and images in the database.

Keywords—Database, report generation, chemical equations.

I. INTRODUCTION

The different industrial applications and research experiments are done in many industries. Basically this document aims at dealing with storing the data in the database batch wise and storing images and chemical equations in the database. Also report is generated based on user's requirement. Real time database is used in which real time processing is done. Most of the large and heavy industries make use of chemicals and chemical substances. So it is required to store the chemical formulas of the product for the future references. Also in most of the companies, photographs are required either of the employees, products or samples for which the experiment is performed. If these are stored in database, then this would be advantageous and it will be easier for future use.

We are storing images into the database by converting images into byte code and then storing that byte code in database, along with the images of the product chemical composition of the same is getting stored for better analysis of the product.

This system also provides the feature of generating the report as per the user/operators requirements, which would give the information about his past and current experiments and thereby providing a brief knowledge about respective users activity related to the experiment.

II. STORING CHEMICAL EQUATIONS

Some of the industries perform chemical processing of products for improving their quality, enhancing properties which include mechanical and thermal properties. So before chemical processing of the products, it is required to know

their chemical composition so that based on that composition proper experiment on the product/sample would be performed which would result in satisfactory final product.

In many industries samples are provided by the users so that various operations can be done on it. So before processing if chemical composition of the product being processed is known to the operator then based on that composition he can give the proper dose of the beam to the sample so as to meet user's requirements.

Thereby storing the chemical equation in the database will be beneficial for the operator before chemical processing the sample as well as retrieving it for future references.

The method that can be used to store the chemical equation in the database is by using library functions:

nchar [(**n**)]: Fixed-length Unicode string data. n defines the string length and must be a value from 1 through 4,000. The storage size is two times nbytes. When the collation code page uses double-byte characters, the storage size is still n bytes. Depending on the string, the storage size of n bytes can be less than the value specified for n. The ISO synonyms for nchar are national char and national character [1]

For example nchar (8322) would result in subscript 2, nchar (8323) would result in subscript 3 and so on.

So for storing chemical equation CH_2 , it is required to store the value in equation column as 'CH' + nchar (8322) which would result in value CH_2 and the same will be stored in equation column when executed.



Figure 1: Example of storage in database(mainly for equations and images)-byte format

III.STORING IMAGES

A plan to include graphics within your program and adding images in a database allows your applications to be more flexible and portable.

In this project, we decided to store images in the database and not on the file system because they do not require a separate backup strategy but the images stored in file system do require them. It is also easier to access images that are stored in the database.

The idea behind storing images in this system is, the image that is to be stored is first converted into byte stream and then this byte stream is stored in the database column, provided the image field is of image type instead of any other type like varchar, nchar etc.

Providing images of the sample in the report as well as in the experiments gives a glimpse and a long description of the sample. It also provides sample or product-specific information.



Figure 2: Storing equations and images

IV GRAPHICAL USER INTERFACE

Graphical User interface is an important part of software application. It is used in human computer interaction. The main aim is to enhance the efficiency and ease of use. User can manipulate and control the software and hardware by means of user interface. The software becomes more popular when GUI is attractive, simple to use, responsive in short time, clear to understand and consistent on all interfacing screens. Basic components of GUI are icons, pointer, desktop and pointing device. Our major aim is to create a user friendly GUI.

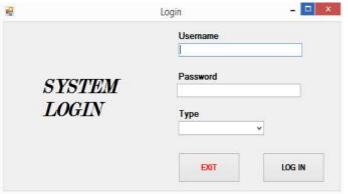


Figure 3: Graphical user interface for login

Main page of our GUI is system login. We have given username; password and type (Admin or user). Admin or user can login with the valid user id, password and type.



Figure 4: Main page

After the admin has logged in, tabs for main page, user, experiment, sample and employee pages are given. Also a facility to search the information according to user id is provided.

The users are already existing clients of the organization then they don't need to enter their details again on their next visit. They can directly search their data just by entering the user id in the textbox space provided in the GUI.

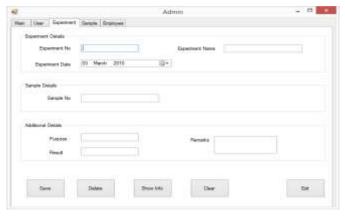


Figure 5: Graphical user interface for sample page

If user or admin wants to store the information regarding experiment like experiment no, name, date, purpose so he can store it. Admin can also delete the existing records which are stored in the database as well as update the information in the database.

V GENERATING REPORT AS PER USER REQUIREMENT

Report generation plays an important role in the project. Report generator is computer program where data is taken from the given database and generate a document in the format which satisfies user requirements such as pdf, MS Word and Excel. The source of data in report generation is database itself. The information is provided to the target user

in a timely, accurate and relevant manner. Report is generated depending on their experiment, samples and users.

VI CONCLUSION

This paper presented gives idea about storing the chemical equation and images in the database. It also provides overview about real time database where real time processing is used to control workloads whose state varies constantly. There are big technological challenges in this field. Moreover the system being a real time system, large amount of data had to be handled efficiently. This project mainly aims at achieving the same.

VII REFERENCES

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