

Realisation of multiuser access to School Management System(SMS)

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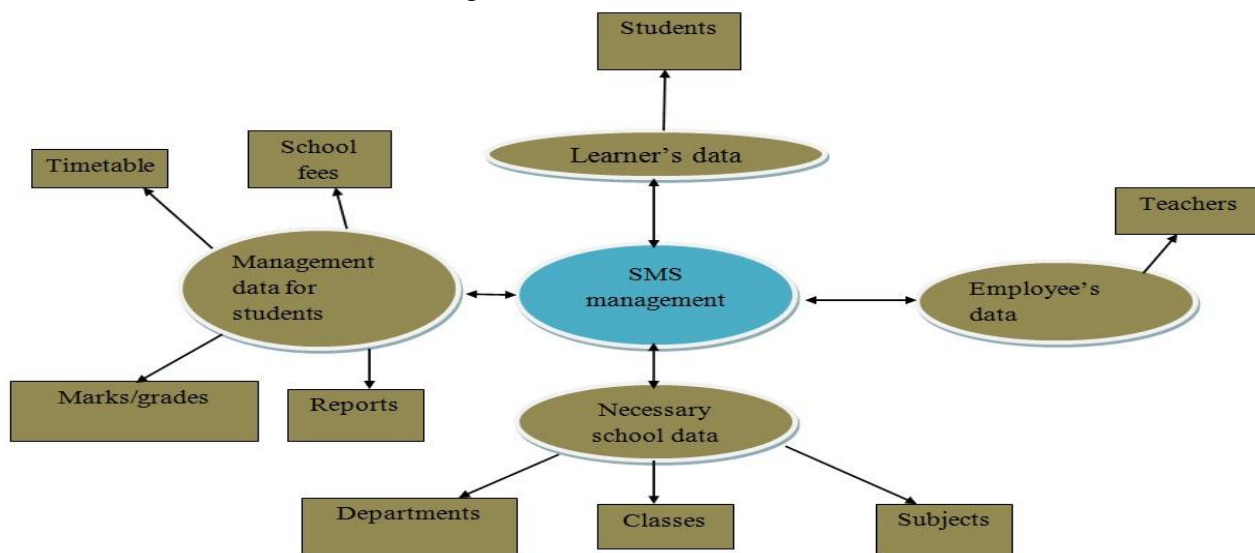
The purpose of the research was to realize multiuser access to the School Management System which will provides authorization to available data in the system and those data will be only accessed to intended users.

INTRODUCTION

Schools have to manage many different sets of data: schedule, students' information (personal data, achievements), staffs' information (teachers' personal data, learning materials), administration data (school fees, financial records, resources) etc. School data are used by different users for different purposes: by school administration – for the management and

control resources and results; by teachers – for planning, storage education materials and information about students' achievement, by students – to get schedule and view the achievements, by parents – to get information about their children's academic achievement [1].

To give the different groups of user access to SMS conceptual model it is needed to help understanding how data flow and users roles. The below scheme (picture 1) describes how the system will be manage the school data. The data is divided in two parts: employees data (teachers, staff) and students data.



Picture 1 - Conceptual model of the School Management System

DATABASE OF SCHOOL INFORMATION

System administrator has full access to the system (to add, delete, and change the data). He also manages user access to the SMS. School administration gets rights to add, change and view the employees' and students' data, schedule and classes. Teachers are able to add and change the information about their courses,

view some other information like teacher's personal information, curriculum, schedule and student grades.

Students could view the schedule and their respective grades performances. Parents are able to see schedule and the performance grades of their children. This opportunity helps the

engagement of the parents in the education process.

School Management system should offer different limited system access and possibility to make changes to the system due to the type of user accessing the system.

USE CASE DIAGRAM

Use Case Diagrams was used to describe the functionality of a system in a horizontal way[2]. It has next elements: the actors (which in the case of School Management System are represented by system users) interacts with system, the use cases, or services (which is the exactly task which allowed users will perform), that the system knows how to perform, and the relationships between these elements (represented by arrow line). The fig.2 represents the task of administrator.

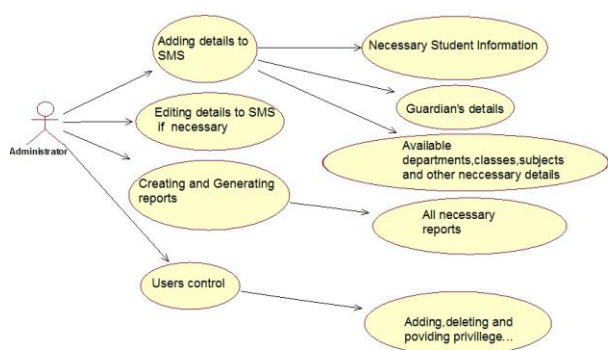


Figure 2 - Administrator Use Case Diagram

THE REALIZATION OF MULTIUSER ACCESS

A system-defined privilege usually granted only by administrator's. These privileges allows users to perform specific database operations. Privileges and roles can be granted to other users by users who have been granted the privilege to do so. It is important to develop a security policy for every database.

The security policy establishes methods for protecting your database from accidental or malicious destruction of data or damage to the database infrastructure [3]. Each database can have an administrator, referred to as the security administrator, who is responsible for implementing and maintaining the database security policy [4].

Due to the availability of grouped users depending to their tasks they are performing, School Management System will provide login form for users to submit their username and password which will provide access to the system.

After login to the system the users are able to operate due to the given privilege. The fig.3 shows how the application form of administrator looks after administrator logged in.

| Other Class Details | | Class Name |
|---------------------|---|------------|
| ⊖ | This is science class. Chemistry, Biology and Geography are subjects in this class. | CBG |
| ⊖ | This is Economics class. Economics, Geography and Mathematics are subjects in this class. | EGM |
| ⊖ | This is science class and Physics, Chemistry and Biology are subjects in this class. | PCB |
| ⊖ | This is science class And Physics, Chemistry and Mathematics are subjects in this class. | PCM |
| ⊖ | This is science class And Physics, Geography and Mathematics are subjects in this class. | PGM |

Figure 3 – Administrator form

CONCLUTIONS

The SMS has three groups of user which have different access to system. For realization multiuser access was created three different levels of privilege.

To access the system user should use special login form which will require username and password for that specific group. After group have access to their group they will be able to access all privileged provided to that group by administrator. However, if the database system is large, a designated person or group of people may have sole responsibility as security administrator.

REFERENCES

- [1] Teachingexpertise. <http://www.teachingexpertise.com/articles/how-to-gather-and-manage-personal-data-in-your-school-2538>
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- [3] Oracle® Database Security Guide 10g Release 2 (10.2). http://docs.oracle.com/cd/B19306_01/network.102/b14266/policies.htm#DBSEG7000
- [4] Oracle Database 10g Rd Edition. <http://www.ling.helsinki.fi/kit/2004k/ctl257/JDBC/Oracle-ch01-Intro.pdf>