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**Design of A Drug Testing Online Portal**

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**Abstract**

The objective of this research was to design a drug testing online portal to be more organized and well structured for the health division in the counseling department at an international private school. Mandatory drug testing at schools was a strong deterrent against school violence and illegal drug possession on school ground. This system can help teachers, students and parents to be aware of the danger of drug that impacts all students. Furthermore, this new online portal design can assist the counseling department to organize the repository much better than before which was used a manual system. There were some methods used to design this system that implemented through people, technology and process. The methods that were used to collect all supporting data involved surveys, observations, and interviews. Phases in the software development life cycle were followed during the online portal creation. The study showed that this drug testing online portal really helped all parties that were part of this system especially the counselors who have access to the historical data that can provide student progress. This progress report can be communicated to the parents in a timely manner.

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## 1. Introduction

The background of this research was in line with the vision of an international private school which is “A world-class community of proud and outstanding achievers.” Efforts were being made by this private school to be the leading school in Jakarta in matter of products and services. The results of these efforts reflected by its increasing number of students enrolled for the academic year 2011 which was about 1,300 students. Specially a very good drug testing system that is run by the health section of the counselling department in which few schools have used this type of services to prevent school violence and illegal drug possession on school ground. In the past few years the school started to implement drug testing for the entire students. This activity has been running until now. The purpose for implementing the drug testing is because drug is a major problem in a school environment. A big wave of illicit drugs has penetrated schools in Jakarta. Many schools are trying to find a solution to these problems. Finally they came out with a solution which was doing the drug testing for students. The first system was using manual system to test the entire students. Although the overall result had a successful outcome, there was no engaged communication with the parents. Other reasons they need to have a drug testing online portal was to keep all historical data organized and make sure new data updated.

Every parent must be concerned with the danger of illegal drugs use, bullying, smoking, gangs, or any popular high-risk situation that spreading among their teenage friends by the time they send their children to middle or high school [1]. This is a huge task for schools to provide the best education and healthy environment for their students. It was mentioned by Herrera, Grossman, Kauh, and McMaken that there was increasing pressure on schools from parents and the public to do a better job in providing children with the skills and best healthy environment that they need to succeed for their children [2]. It is an obligation that a school has to provide a counseling department to support the development of all students [3]. This research had also provided data record during the drug testing. Drug testing is conducted by taking blood, urine, saliva, hair, breath or sweat, and analyzing this sample to determine whether a person has consumed certain substances [4]. Now it is one of the important requirements that every school must have is a system to conduct a drug testing program to students because random drug testing in schools only seeks to occasionally monitor behaviour to apply a consequence or deterrent [5]. Drug testing system usually is used to control doping for the athletes in order to protect their fundamental right to participate in doping-free sport and thus promote health, fairness and equality for athletes worldwide. The athletes usually subject to random call to give their urine samples and being interviewed on the result. The final step is to document the result on the report book [6].

This online portal can be used by staff, students and parents especially in relating with the drug testing information. For the counseling department, this system resulted in an efficient, effective and time saving in conducting drug testing, documenting and reporting.

### 1.1. Statement of Problems

Problems that were discovered in the current system were no data back up and no engaged communications with parents on why and how the school conducting drug testing. There was urgency for the health division of counselling department at this private school to innovate a new system in order to improve the knowledge in the management of their drug testing system. Based on the background that have been explained above, the problems were specifically on the frequent loss of data and the documentation of drug testing records which was not documented at one specific location, as well as in choosing students for drug testing that were based on manual randomization which was not covered the entire student population. Furthermore, there was no database repository to update information on students and parents regarding with drug testing information and schedules. It was a very slow process since it used manual system and many forms had to be printed and filled.

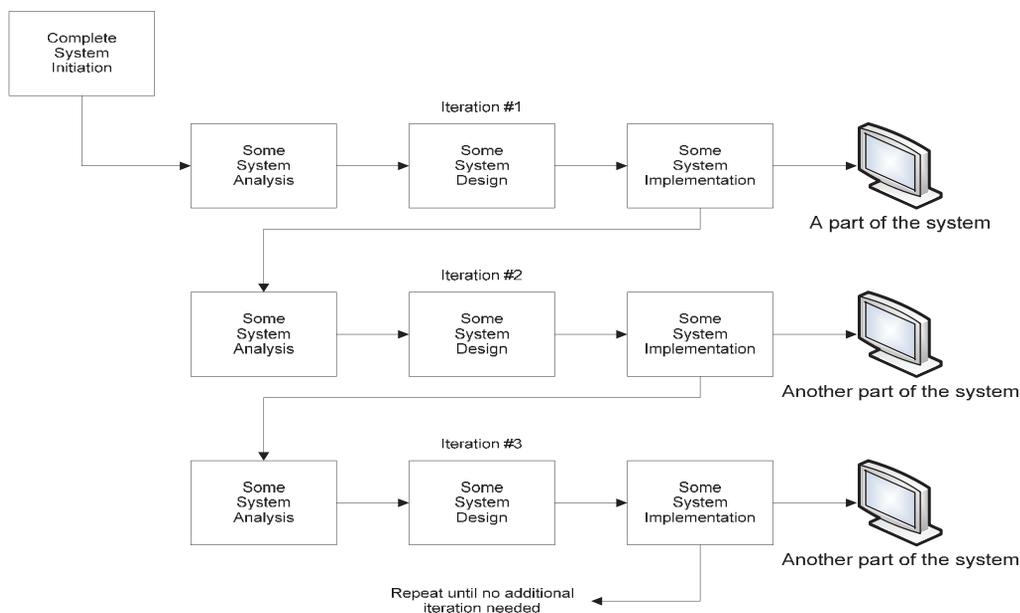


Figure 1. Incremental Model Concept [7]

**2. Methodology**

The methodology used a qualitative research, since qualitative focus on study questions and how the study design can be answered as the solution. It focused into the specific research design, implementation of this design to the school especially in the health division in counseling department.

The system was designed based on the dimensions of system dependability which consisted of availability, reliability, safety, and security. The result was expected to have a dependable system characteristics and features that are displayed on the drug testing online portal's information system that runs well in providing information in accordance with user's requirements without accompanied by the system failure and most importantly can solve the existing problems.

This drug testing online portal for the counselor department was designed using the concept of System Development Lifecycle (SDLC) with an incremental model based on Whitten and Bentley [7]. This model is an approach to analysis and design of systems consisting of several iterations until the system is fully completed. It is suitable with the design of the drug testing online portal which was based on the module as shown in figure 1. The design contained modules and forms. These modules were developed from start to finish in the first phase and subsequent development was continuously developed in the subsequent development phase. The modules themselves were consisted of six main modules which were Drug Information, Regulations and Forms, Drug Sharing Communities, Contacts, Drug Tests, and Report and File. The last two modules have restricted access since they have confidential information, only counseling staff and principal who may access this page. As it can be seen in figure 2, the system design was based on modules concept.

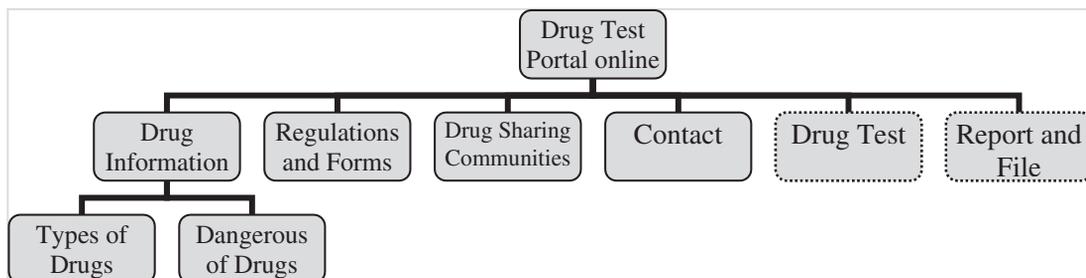


Figure 2. System Design of Modules Concept

### 3. Result

The drug testing online portal design contained modules and forms. These modules were developed from start to finish at the first phase. The subsequent phase was developed periodically and continuously as can seen in figure 3 and figure 4.

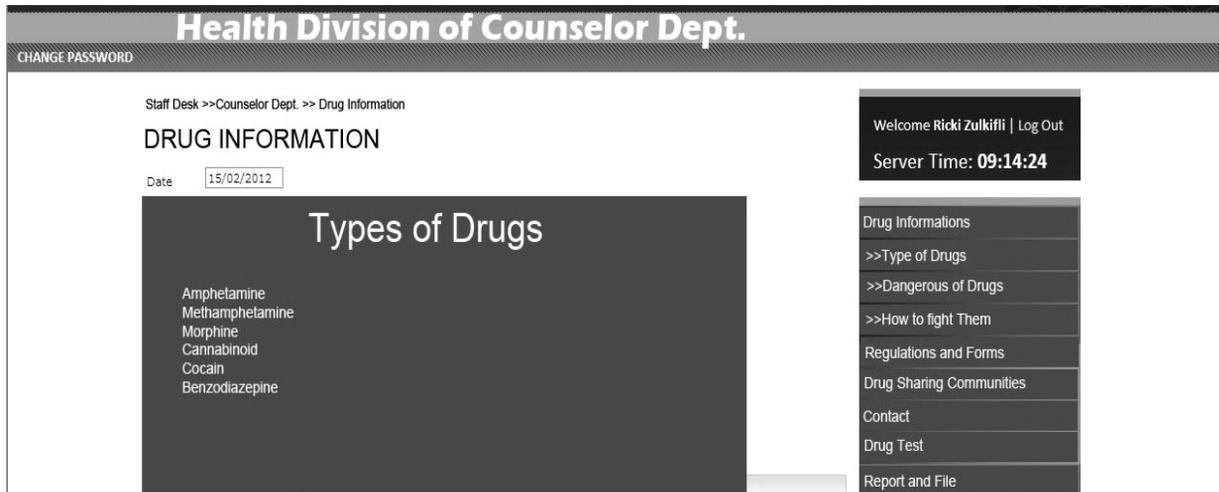


Figure 3. Drug Testing Online Portal

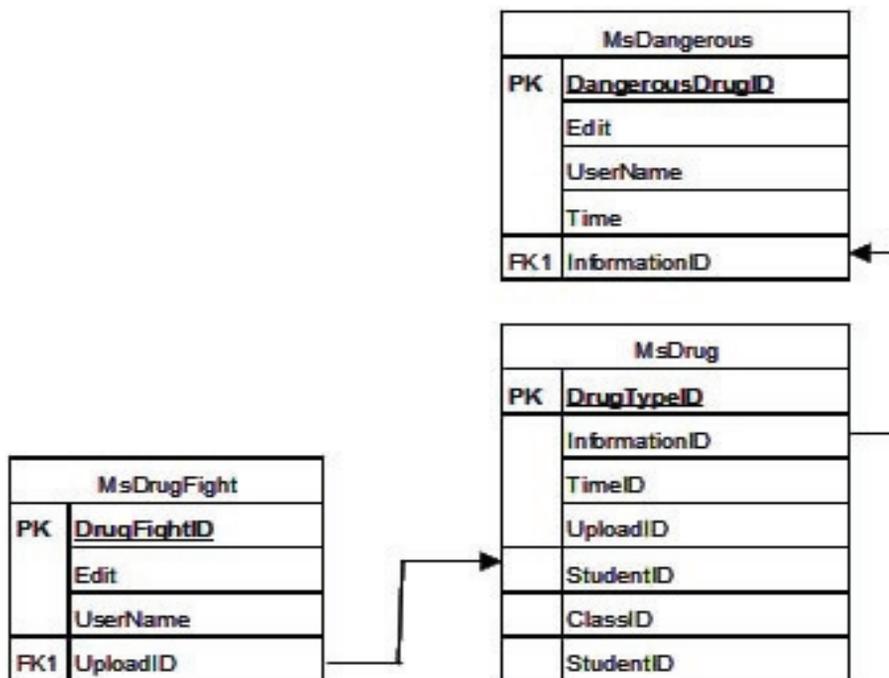


Figure 4. ERD for Drug Testing Online Portal

The drug online portal was based on 6 main modules that included Drug information, Regulations and Forms, Drug Sharing Communities, Contacts, Drug Tests, and Report and File. These modules were able to be accessed by teachers, students and parents. But there are 2 modules that are confidential namely Drug Test and Report. These

modules can be accessed only by the counselors and the principal only. The reason for making those modules restricted because those are the main system of the drug testing. The information that is provided inside these modules were based on class, updated drug history, student's information regarding drug's allergic reactions as shown in figure 5 and figure 6.

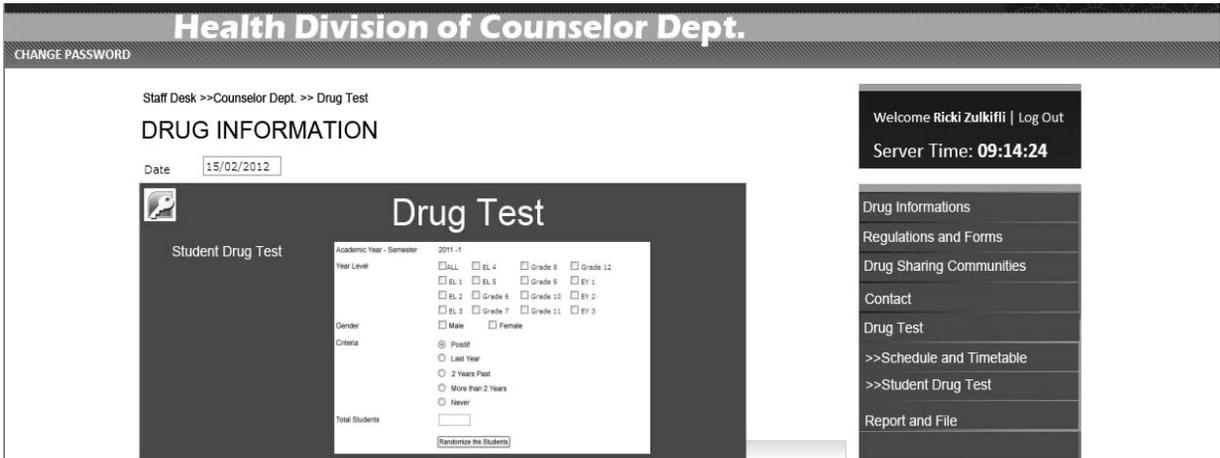


Figure 5. Student's Drug Testing Module

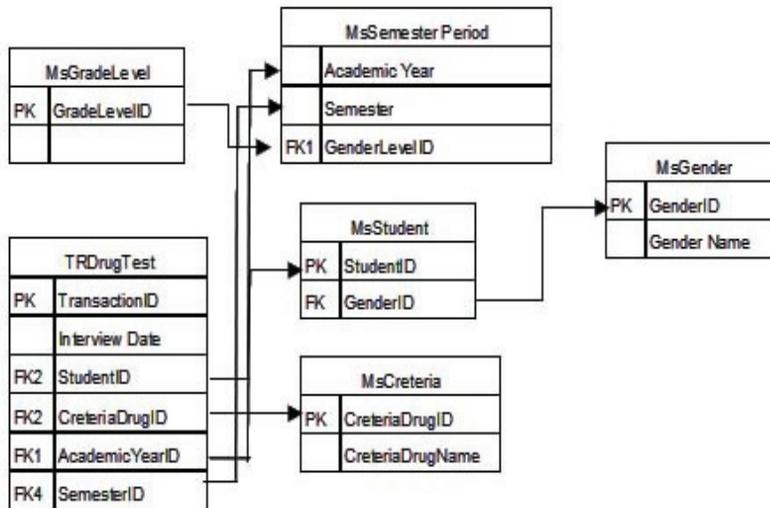


Figure 6. ERD for Student's Drug Testing

The other module that is also restricted for users is Report and File module. Only the counseling staff and principal may view this page. This page contained student's history drug test activities and issues as seen in figure 7 and figure 8.

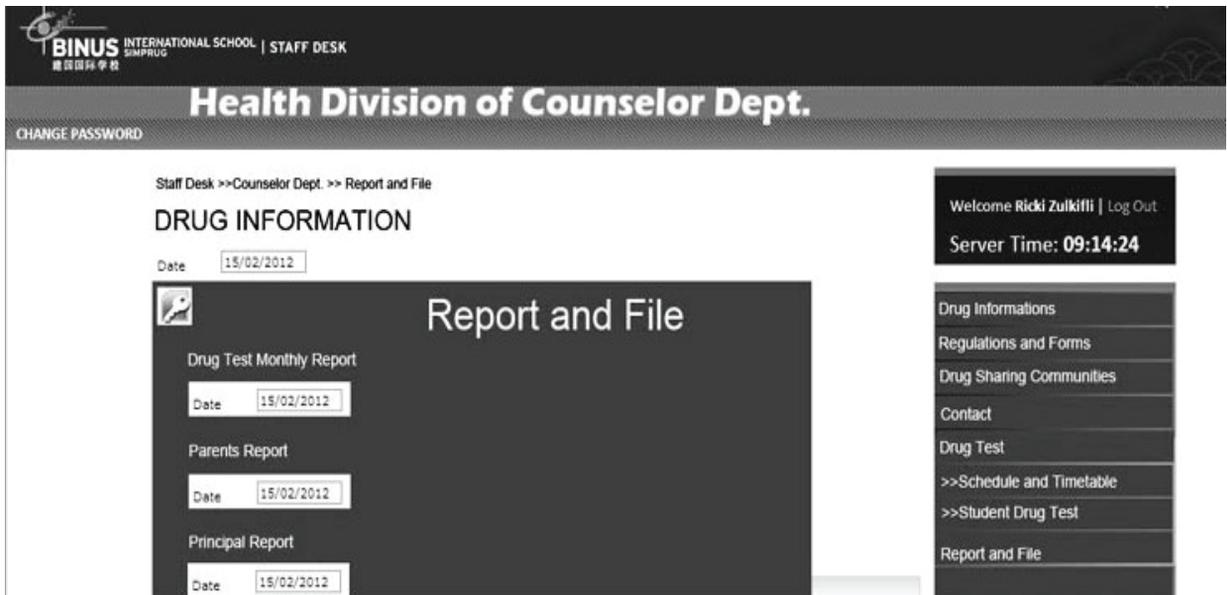


Figure 7. Report and File Module

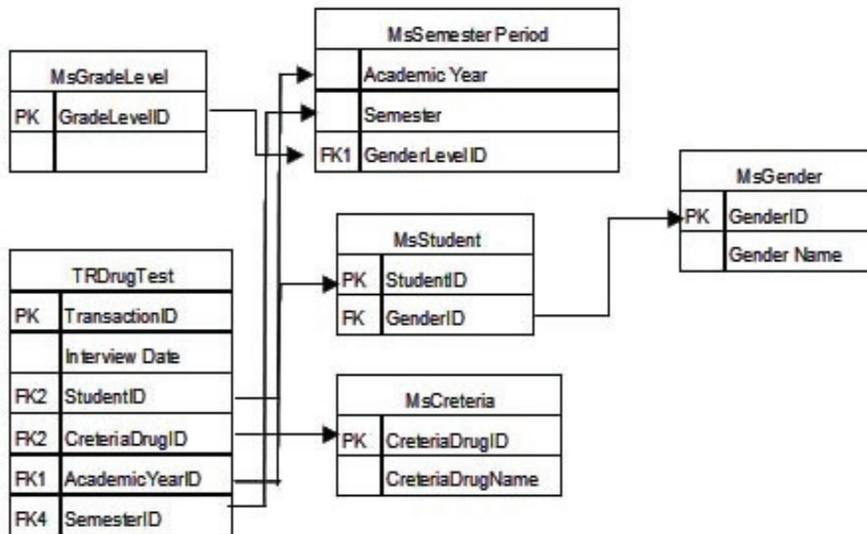


Figure 8. ERD for Report and File Module

By the time it started to test the system, it had to make sure every supporting infrastructures worked properly and ready to use such as hardware, software and network support. The study used alpha and beta testing method. Alpha testing was final testing before the software is released to the general public. First, and this was called the first phase of alpha testing, the software was tested by in-house developers. Meanwhile beta testing was a test that was performed by users which were staff, students and parents. They were chosen by a selection process to test the application. They were trained how to use the application. This beta testing gave inputs for the development of the application.

#### 4. Conclusion

The study has helped and has supported the staff at the health division to make their job more efficient, effective, and to save time in the drug testing process. The school communities that include teachers, students and parents have involved and engaged to create an e-learning environment against the drug use. The school has maintained the system to make sure the system always runs well and creating a positive environment that excited its community to be involved in it.

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