



Development of Software Tool for Effective Data Security

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Abstract: Data security software tools have been widely employed by different companies and institutions of various sizes to secure their respective data. Since data security is no small matter, an effective and efficient means of securing data is an indispensable act that takes place in every organization that their data / information is considered important. This study is therefore aimed at employing strong user authentication and encryption features to secure data. Research has shown that no one software tool is generic means of securing data in the world. This simply means that every data security software tool was built to secure data/information in a targeted setting. The envisioned software was developed as standalone software through which strong user authentication and encryption features will be used to secure data. This study presents multi-user desktop application which can be implemented in any academic institution to record and manage all sort of permanent and day-to-day statistical data of staff in the universities. Other than this data, the study also presents the computerized solution to save all the necessary documents/letters/certificates in the database through multi-page high speed scanning system. This process also helps to reduce the fatigue of physical handling and storing the documents in the files and piling up all this documents in a store of an institution. Such areas are salary information, staff information, study leave details and more. It helps to retrieve and view the personal data, very quickly from SQLite Database management system. The methodology used in this work is the Object Oriented Analysis and Design Methodology. This methodology was adopted because it models the development of a system based on objects and classes. The proposed system will be of great benefit to the Institution because it has provided a platform for computerized documents of activities, in each sector of the school. The integrated development Environment (IDE) and programming language used for the implementation of this project work is the NetBeans IDE and java J2SE programming language.

Keywords: Computer, Encryption, Security, Data.

1. INTRODUCTION

Data security is about keeping data safe and secure. Many individuals, small businesses and major companies rely heavily on their computer systems. Data security means protecting data, such as a database, from destructive forces, and from the unwanted actions of unauthorized users. Nonetheless, Data Security has a related concept known as Data Integrity which refers to maintaining and assuring the accuracy and consistency of data over its entire life-cycle, and it is a critical aspect to the design, implementation and usage of any system which stores, processes, or retrieves data. The term data integrity is broad in scope and may have widely different meanings depending on the specific context – even under the same general umbrella of computing. The overall intent of any data integrity technique is the same: ensure data is recorded exactly as intended (such as a database correctly rejecting mutually exclusive possibilities,) and upon later retrieval, ensure the data is the same as it was when it was originally recorded. In short, data integrity aims to prevent unintentional changes to information. Data integrity is not to be confused with data security, the discipline of protecting data from unauthorized parties. Unintended changes to data as the result of a storage, retrieval or processing operation, including malicious intent, unexpected hardware failure, and human error, is failure of data integrity. If the changes are the result of unauthorized access, it may also be a failure of data security. Data Security Requirements and the procedures to meet them are categorized into 4 basic groups viz:

- ❖ Authentication Validate users are who they say they are
- ❖ Authorization identifies the right individuals and grants them the right privileges to specific, appropriate views of data
- ❖ Access Enable these individuals and their privileges in a timely manner.
- ❖ Audit Review security actions and user activity to ensure compliance with regulations and conformance with policy and standards.

Depending on the data involved this could manifest itself as benign as a single pixel in an image appearing in a different color than was originally recorded, to the loss of vacation pictures or a business-critical database, to even catastrophic loss of human life in a life-critical system. Data security also protects data from corruption. Data security is the main priority for organizations of every size and genre. Every organization should be concerned about protecting data against intruders, for the organizations ability to survive depends on the availability, comprehensiveness and reliability of its financial and organizational data. Security has become more complicated with the expanded use of personal computers. At present, the location networks and the connection between the large and small computers are such that each of them takes part in the application. The application as a whole appears to be located at the user's computer, but in fact each user and each application has access to and sometimes even control over, organizational data on various computers and storage facilities. Obviously, such openness invites unauthorized use and requires data security coordination and management. Unfortunately, many organizations do not deal with data security problems until there is a crack in the network. Data is most vulnerable when it is stored on portable devices such as USB keys. Should the key be lost the data is at the hands of whoever finds it and that information may be sensitive or personal. To protect vital information, the organization must develop a software tool for effective data security. This involves identification of the security risks, applying sufficient means of security and teaching the users data security awareness.

Statement of the Problem

Data security software tools have been widely employed by different companies of various sizes to secure their respective data. Since data security is no small matter, an effective and efficient means of securing data is an indispensable act that takes place in every organization that their data / information is considered important. This study is therefore aimed at employing strong user authentication and encryption features to secure data.

Research has shown that no one software tool is generic means of securing data in the world. This simply means that every data security software tool was built to secure data/information in a targeted setting. The envisioned software was developed as standalone software through which strong user authentication and encryption features will be used to secure data. The system is very useful as it provides means of hashing, encrypting, inserting, editing and deleting of records of data where necessary. The system has an administrator that will be the only one eligible to view the decrypted records in the system.

Specific Objectives of the study

The aim of this study is to develop a software tool for effective data security. In order to achieve this aim the following objectives were considered.

- To investigate the principles and practice of data security
- To investigate conventional methods used in securing data
- To develop a computer based model for data security
- To develop a software in order to demonstrate the effectiveness of data security

Scope of the Study

This study is limited to data security and effective user authentication software tool for educational institutions. Other features and applications of software are outside the scope of the study.

2. RELATED LITERATURE

2.1 Software in Computing

Software refers to one or more computer programs and data held in the storage of the computer for some purposes. Software at its lowest level is called machine language, which is specific to an individual processor. Machine language is a group of binary values which basically run the computer. [1] said that, just as important as a computer's "hardware", i.e the technical components it consist of, is its software-*the program it is running*. Software is really just an order of commands that change the hardware in a certain sequence. Normally software will be written in higher level programming languages, because it's easier for humans, unlike machine language. These higher level languages get compiled into the machine language. Or perhaps the software is written in assembly language, a replica of machine language, but by using the mnemonics [2]. Software is collection of computer programs and related data that provides the instructions for telling a computer what to do and how to do it. Software is an indispensable component that gives the hardware components the intelligence to perform a task systematically, logically and validly, methodically and otherwise. To this end, hardware is the physical electromechanical components of the computer system. Seeing it in this angle, software is the nonphysical components of the system. Software derives the hardware to function effectively, that's why without software the computer is lifeless. [3] opined that *software is designed to exploit and provide the potential of capabilities of the hardware to the intending user*; it is a kind of program written by manufacturer for the user for the workability and functionality of the computer system.

2.2 Software Security Assurance

[4] Defines Software Security Assurance as a process that helps design and implements software that protects the data and resources contained in and controlled by that software. Software is itself a resource and thus must be afforded appropriate security. Since the number of threats specifically targeting software is increasing, the security of our software that we produce or procure must be assured. "Dependence on information technology makes software assurance a key element of business continuity, national security, and homeland security. In line with the light shed from the immediate preceding statement [5] also saw Software Security Assurance (SSA) as the process of ensuring that software is designed to operate at a level of security that is consistent with the potential harm that could result from the loss, inaccuracy, alteration, unavailability, or misuse of the data and resources that it uses, controls, and protects. The software security assurance process begins by identifying and categorizing the information that is to be contained in, or used by, the software. The information should be categorized according to its sensitivity[6]. For example, in the lowest category, the impact of a security violation is minimal (i.e. the impact on the software owner's mission, functions, or reputation is negligible). For a top category, however, the impact may pose a threat to human life; may have an irreparable impact on software owner's missions, functions, image, or reputation; or may result in the loss of significant assets or resources.

Once the information is categorized, security requirements can be developed. The security requirements should address access control, including network access and physical access; data management and data access; environmental controls (power, air conditioning, etc.) and off-line storage; human resource security; and audit trails and usage records.

2.3 Software Data Security Tools

Scrubbing Tools

[7]Opined that the information on devices or media must be erased and not recoverable before they are disposed of, or transferred within or between departments. (You must attach this tracking document to the device, and abide by the disposal of electronic information policy). Use the following tools to 'scrub' the data away:

- KillDisk - A disk eraser software for secure formatting of hard drives without any possibility of following data recovery.

- Dban - Open source boot disk that automatically and completely deletes the contents of any hard disk it can detect.

Spywares Detection / Removal

- Ad-Aware - Scan your memory, registry, hard, removable and optical drives for known data mining, aggressive advertising, and tracking components for removal. There is a free and purchased version.
- Spybot - Scan your memory, registry, hard, removable and optical drives for known data mining, aggressive advertising, and tracking components for removal. Free but donation requested.

Virus Detection / Removal

- McAfee's AVERT Stinger utility - a stand-alone utility used to detect and remove specific viruses. It is not a substitute for full anti-virus protection, but is useful if your computer is already infected.
- Antivirus Software for Vanderbilt Users - Antivirus software is available to the University community at no charge to the individual or department. This is a critical application that all users should download, configure and use.

2.4 Data Security

Data security means protecting data, such as a database, from destructive forces and from the unwanted actions of unauthorized users. Data security deals with the prevention of data corruption through the use of controlled access mechanisms [5]. Data security makes sure that data is accessed by its intended users, thus ensuring the privacy and protection of personal data. Several technologies are used for ensuring data security. OTFE (on-the-fly-encryption) uses cryptographic techniques for encrypting data on hard drives. Hardware based security solutions prevent unauthorized read/write access to data and thus provides stronger protection compared to software based security solutions. Because software based solutions may prevent data loss or stealing but cannot prevent intentional corruption (which makes data unrecoverable/unusable) by a hacker. Hardware based two factor authorization schemes are highly secure because the attacker needs physical access to the equipment and site. But, the dongles can be stolen and be used by almost anybody else. Backing up data is also used as a mechanism against loss of data [2]. Data masking is another method used for data security by which data is obscured. This is done to maintain the security and sensitivity of personal data against unauthorized access. Data erasure is the method of overwriting of data to ensure that data is not leaked after its life time has passed.

2.5 Causes of Software Security Problems

Non-conformance, or a failure to satisfy requirements

A non-conformance may be simple—the most common is a coding error or defect—or more complex (i.e., a subtle timing error or input validation error). The important point about non-conformance is that verification and validation techniques are designed to detect them and security assurance techniques are designed to prevent them. Improvements in these methods, through a software security assurance program, can improve the security of software [2].

Errors or omissions in software requirements

The most serious security problems with software-based systems are those that develop when the software requirements are incorrect, inappropriate, or incomplete for the system situation. Unfortunately, errors or omissions in requirements are more difficult to identify. For example, the software may perform exactly as required under normal use, but the requirements may not correctly deal with some system state [8]. When the system enters this problem state, unexpected and undesirable behavior may result. This type of problem cannot be handled within the software discipline; it results from a failure of the system and software engineering processes which developed and allocated the system requirements to the software.

2.6 Data Security Technologies

Disk encryption

Disk encryption refers to encryption technology that encrypts data on a hard disk drive. Disk encryption typically takes form in either software (see disk encryption software) or hardware (see disk encryption hardware). Disk encryption is often referred to as on-the-fly encryption (OTFE) or transparent encryption [2]

Software-based security solutions encrypt the data to protect it from theft. However, a malicious program or a hacker could corrupt the data in order to make it unrecoverable, making the system unusable. Hardware-based security solutions can prevent read and write access to data and hence offer very strong protection against tampering and unauthorized access.

Hardware-based or assisted computer security offers an alternative to software-only computer security. Security tokens such as those using PKCS#11 may be more secure due to the physical access required in order to be compromised. Access is enabled only when the token is connected and correct PIN is entered (see two-factor authentication). However, dongles can be used by anyone who can gain physical access to it. Newer technologies in hardware-based security solve this problem offering fool proof security for data [9].

Working of hardware-based security: A hardware device allows a user to log in, log out and set different privilege levels by doing manual actions. The device uses biometric technology to prevent malicious users from logging in, logging out, and changing privilege levels. The current state of a user of the device is read by controllers in peripheral devices such as hard disks. Illegal access by a malicious user or a malicious program is interrupted based on the current state of a user by hard disk and DVD controllers making illegal access to data impossible. Hardware-based access control is more secure than protection provided by the operating systems as operating systems are vulnerable to malicious attacks by viruses and hackers. The data on hard disks can be corrupted after a malicious access is obtained[4]. With hardware-based protection, software cannot manipulate the user privilege levels. It is impossible for a hacker or a malicious program to gain access to secure data protected by hardware or performs unauthorized privileged operations. This assumption is broken only if the hardware itself is malicious or contains a backdoor. The hardware protects the operating system image and file system privileges from being tampered. Therefore, a completely secure system can be created using a combination of hardware-based security and secure system administration policies [5].

Backups

Backups are used to ensure data which is lost can be recovered and nowadays it's very important to keep a backup of any data.

Data masking

Masking of structured data is the process of obscuring (masking) specific data within a database table or cell to ensure that data security is maintained and sensitive information is not exposed to unauthorized personnel. This may include masking the data from users (for example so banking customer representatives can only see the last 4 digits of a customer's national identity number), developers (who need real production data to test new software releases but should not be able to see sensitive financial data), outsourcing vendors, etc[9].

Data erasure

Data erasure is a method of software-based overwriting that completely destroys all electronic data residing on a hard drive or other digital media to ensure that no sensitive data is leaked when an asset is retired or reused [4].

2.7 Importance of Data Security

No matter how large or small your company is, you need to have a plan to ensure the security of your information assets. Such a plan is called a security program by information security professionals. Whether yours is five or 200 pages long, the process of creating a security program will make you think holistically about your organization's security [10]. A security program provides the framework for keeping your company at a desired security level by

assessing the risks you face, deciding how you will mitigate them, and planning for how you keep the program and your security practices up to date. Software is everywhere: in laptops and desktops, mobile phones, the power grid even our cars and thermostats. Software is increasingly the vehicle that drives our economy and our personal lives. But software's pervasiveness, and its importance, makes it a target: at the root of many security compromises is vulnerable software [2]. As organizations worldwide increase their reliance on software controls to protect their computing environments and data, the topic of Software Security Assurance grows in importance. The tremendous potential costs associated with security incidents, the emergence of increasingly complex regulations, and the continued operational costs associated with staying up to date with security patches all require that organizations give careful consideration to how they address software security [6]. Once you draw up a plan and assess your risks, it is time to put your data security system into action. Since data can be compromised in many ways, the best security against misuse or theft involves a combination of technical measures, physical security and a well-educated staff. You should implement clearly defined policies into your infrastructure and effectively present them to the staff. Here are things that you may do:

- ❖ Protect your office or data center with alarms and monitoring systems
- ❖ Keep computers and associated components out of public view
- ❖ Enforce restrictions on internet access
- ❖ Ensure that your anti-malware solution is up to date
- ❖ Ensure that your operating system is up to date
- ❖ Fight off hacking attacks with intrusion detection technology
- ❖ Utilize a protected power supply and backup energy sources
- ❖ Retrieved from <http://www.oracle.com/us/support/assurance/overview/index.html>

2.8 Data Integrity

Data integrity refers to maintaining and assuring the accuracy and consistency of data over its entire cycle, and is a critical aspect to the design, implementation and usage of any system which stores, processes, or retrieves data. The term data integrity is broad in scope and may have widely different meanings depending on the specific context even under the same general umbrella of computing [10]. This article provides only a broad overview of some of the different types and concerns of data integrity. Data integrity is the opposite of data corruption, which is a form of data loss. The accuracy and consistency of stored data, indicated by an absence of any alteration in data between two updates of a data record. Data integrity is imposed within a database at its design stage through the use of standard rules and procedures, and is maintained through the use of error checking and validation routines[11].

3. MATERIAL and METHODOLOGY

The rapid application development methodology was explored in this work. The method allows the various platform components of the system to be well aligned and fully integrated in the interest of archiving the required security demand of data and data devices.

Architectural platform of the Study

The Architecture of the system design is in three (3) phases. The phases are presentation phase, middle phase and data phase. The presentation phase is the user interfaces and it is designed using java swing framework, the framework is for swing applications with a graphical user interface (GUI) in computer software. It defines infrastructure common to the application. The middle phase is the java codes and JDBC. The java codes are the

code that enables the user interface design to become functional; it programs the interphases on how to work. The JDBC creates a connection string between the software and the database management system. The data phase is simply the database management system that is connected with the JDBC and Java codes which is the SQLite database.

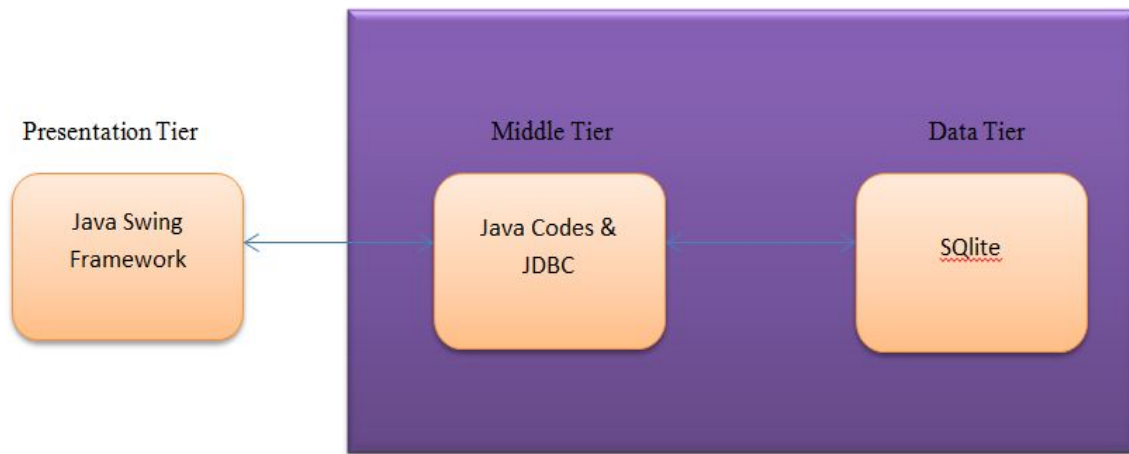


Figure. 1: Architectural Platform of the Study

Input and Output Designs of the Study

Input Design: The input design consists of forms where users of the system enter data into required fields. The data is processed and the results are displayed to the user telling him/her of the next action to take.

Output Design: The output design consists of forms where saved information are displayed in the system. The results of the processed data are displayed to the user telling him/her the outcome of the action taken.

Process Design:

The use case diagram consists of the roles of the users in the proposed system. Hence, in this proposed system there are two use-case diagrams that will clearly describe the process procedures of the proposed system.

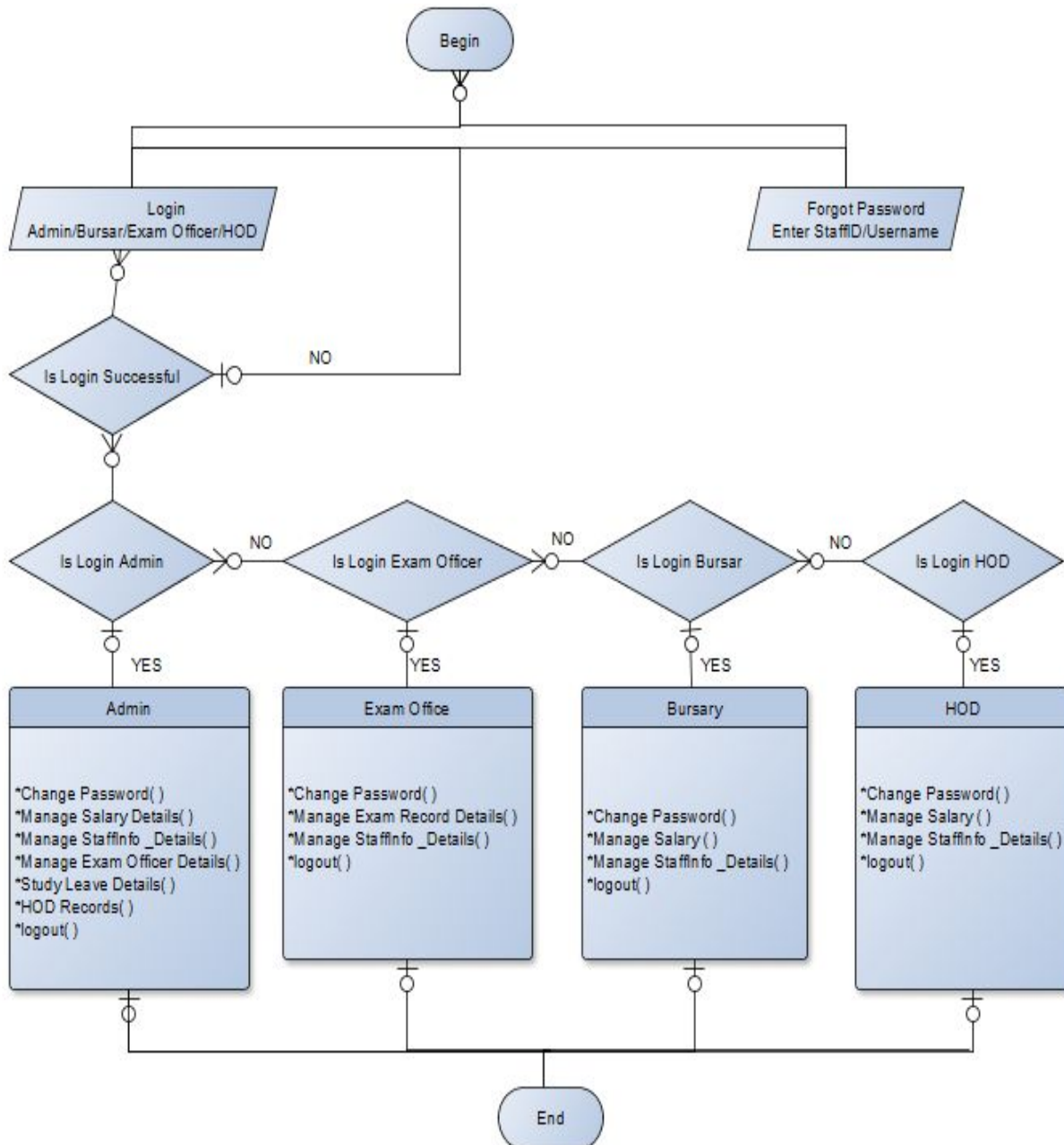


Figure 2: Process Flowchart System.

4. CONCLUSION and DISCUSSION of RESULTS

Login.java: Contains the code that displays a user name and password for authentication. When user enters correct username and password combination, it opens MainForm otherwise displays an error message. Login form contains two buttons login and cancel. The user after filling the username and password text fields clicks the login button to access the application. Clear Button resets the entered information; close button unloads the login form.



Figure 3: login screen

MainForm.java: Contains the code to display the Main Menu and standard toolbar. This class consists of two menu bars and three standard toolbar icons for accessing various modules. The menu bar contains File and Dictionary. And the corresponding standard toolbar includes three different icons such that when you hover the cursor on any of the icons, it will automatically display a Tooltip Text telling you about the function it performs when that icon is clicked.

The **AddStaffForm.java** contains the code to accept the staff login details and store in the file. When Super Admin clicks on the **AddStaffForm**, Add User Information entry form displays which consists of various fields such as Name, Username, Password, Confirm Password, Role, Date and Photo. This form also consists of Save constraint, to save the entries in the file. Cancel, to reset the content of each of the swing controls used during the form design to be containing empty string. Close Button, to close the Add User Information form and which will perform a method called response redirect to the Main Form.

The following figure shows the Add User Information Form.

The screenshot shows a web application design preview titled "Design Preview (AddUsers)". The form is divided into several sections:

- Admin User:** Contains input fields for Name, Username, Password, Confirm Password, Role, and Date. Below these is a **CONTROL PANEL** with buttons for Add, Update, Delete, and Print.
- Advanced Search:** Includes a search input field and a Search button.
- Photo Panel:** Features a large black square for a photo, an Attach Picture button, a Remove button, and a Picture Path input field.
- Table:** A table with 4 columns (Title 1, Title 2, Title 3, Title 4) and 4 rows.

Figure 4: Add User Form

The **ChangePassword.java** class contains the code to accept the staff Change Password details and store in the file. When any user clicks on the **Change Password Form**, Change Password Information entry form displays which consists of various fields such as Username, Old Password, New Password and Confirm New Password.

The screenshot shows a web application design preview titled "Change Password Panel". The form contains the following elements:

- A dropdown menu labeled "--Select User--".
- An input field labeled "Old Password".
- An input field labeled "New Password".
- An input field labeled "Confirm New Password".
- A "Change" button at the bottom.

Fig. 5: Change Password

A software tool for effective data security was developed to provide the foundation concepts required to implement a sound data security plan. The essence is to control who accesses information from a database system, to keep unauthorized personnel from accessing the data in the system, and to prevent attempts to corrupt or modify the data. Effective data security entails that all of the infrastructure used by the database operate in a secure environment, including the network, servers, operating systems and the database management system. The results of the research will ensure integrity, availability, and confidentiality of the system. Finally, it is critical that higher institutions of learning implement an effective disaster recovery plan which is a software tool for effective data security. The software tool developed in this work will ensure efficient security of higher institutions of learning personnel record management system by using separation of concern technique, content based filtering, strong user authentication with role based authorization, and database encryption. Some major design of the system include: Login form, change password form, Salary form, and study leave form.

The login form will have user name and password where strong user authentication and role based authorization was utilized to ensure maximum level of security. If and only if the correct username and corresponding password pairs are provided, then it can grant the user access to the main form of the system.

The Staff Info Form avail the full potentials of the software. Any user can register via the username and password combination provided. This can be used to get access to the system. The Administrator is provided with username and password in order to be able to manage the information in the database. He also has the right to add or modify the given username and password of the clients. This is done to ensure adequate security of the software.

The study leave form contains input details of all staff that tend to go for study leave either within the country or outside the country, some fields captured here are Qualification, Grade, Title of Activity, Days requested and sponsorship.

The Salary Info Form form contains of the necessary fields required to capture the information concerning staff salary in the institution. The bursar keeps these records. Some details of the form include; staff Id, staff Name, faculty, Department, phone number, mode of payment, Bank, account status and so on.

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APPENDIX A

SAMPLE OUTPUT

View Study Leave Info

STUDY LEAVE FORM

Manage View

Print Load Unencrypted Load Encrypted

name	Faculty	dept	modification	grade	rank	state	lga	email	postal	address	phone	dob	marital	photo		
comp 001 Mr Do...	Science	Compu...	male	Msc	16	progra...	lecture...	Rivers	Stlga	silga@...	17272...	nil	09033...	Oct 7, ...	Married	[B@34...
comp 002 Dr. Na...	Science	Compu...	male	Msc	16	progra...	lecture...	Rivers	Stlga	bat@g...	17272...	nil	09033...	Oct 7, ...	Married	[B@1e...
phy 001 mr. Pe...	Science	Physics	male	Msc	13	electro...	lecture...	Rivers	Emuha	peter...	500001	iaue iw...	07086...	Oct 26...	Married	[B@19...
homec Lilian ...	Social ...	Econo...	female	Bsc	14	food a...	lecturer I	Delta	emuoha	lilian@...	5000001	iwofe ...	09098...	Oct 31...	Married	[B@9b...
bjhb	Select	Compu...		Bsc	0		lecture...	Bayelsa							-----S...	
	Select	Compu...		Bsc	0		lecture...	Bayelsa							-----S...	

View Staff Information

staff_id	name	faculty	dept	sex	qualif...	grade	speci...	rank	state	lga	email	postal	address	phone	dob	marital	photo
comp 001	Mr Do...	Science	Compu...	male	Msc	16	progra...	lecture...	Rivers	Stlga	silga@...	17272...	nil	09033...	Oct 7, ...	Married	[B@34...
comp 002	Dr. Na...	Science	Compu...	male	Msc	16	progra...	lecture...	Rivers	Stlga	bat@g...	17272...	nil	09033...	Oct 7, ...	Married	[B@1e...
phy 001	mr. Pe...	Science	Physics	male	Msc	13	electro...	lecture...	Rivers	Emuha	peter...	500001	iaue iw...	07086...	Oct 26...	Married	[B@19...
homec	Lilian ...	Social ...	Econo...	female	Bsc	14	food a...	lecturer I	Delta	emuoha	lilian@...	5000001	iwofe ...	09098...	Oct 31...	Married	[B@9b...
bjhb		Select	Compu...		Bsc	0		lecture...	Bayelsa							-----S...	
		Select	Compu...		Bsc	0		lecture...	Bayelsa							-----S...	

View Study leave Info

STUDY LEAVE FORM

Manage View

Print Load Unencrypted Load Encrypted

name	faculty	dept	qualification	grade	title	location	Provider	StartDate	ReturnDate	RequestDays	AcqyStudyLeave	Study
Mr Dariuska	Science	Computer Science	Max	16	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v		Without Exemptions	Sal
Mr Dariuska	Science	Computer Science	Max	16	honori	swi	Oct. 8 2015	Oct. 8 2015	20		Without Exemptions	JAUE
Mr Dariuska	Science	Computer Science	Max	16	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017			Without Exemptions	Sal
Dr. Nali aniel	Science	Computer Science	Max	16	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v		Without Exemptions	Sal
Dr. Nali aniel	Science	Computer Science	Max	16	honori	swi	Oct. 8 2015	Oct. 8 2015	20		Without Exemptions	JAUE
Dr. Nali aniel	Science	Computer Science	Max	16	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017			Without Exemptions	Sal
mr. Petars Elke	Science	Physics	Max	13	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v		Without Exemptions	Sal
mr. Petars Elke	Science	Physics	Max	13	honori	swi	Oct. 8 2015	Oct. 8 2015	20		Without Exemptions	JAUE
mr. Petars Elke	Science	Physics	Max	13	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017			Without Exemptions	Sal
LLian Olorie	Social Science	Economics	Bsc	14	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v		Without Exemptions	Sal
LLian Olorie	Social Science	Economics	Bsc	14	honori	swi	Oct. 8 2015	Oct. 8 2015	20		Without Exemptions	JAUE
LLian Olorie	Social Science	Economics	Bsc	14	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017			Without Exemptions	Sal
Safes.I	Computer Science	Bsc	1	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v			Without Exemptions	Sal
Safes.I	Computer Science	Bsc	1	honori	swi	Oct. 8 2015	Oct. 8 2015	20			Without Exemptions	JAUE
Safes.I	Computer Science	Bsc	1	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017				Without Exemptions	Sal
Safes.I	Computer Science	Bsc	1	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v			Without Exemptions	Sal
Safes.I	Computer Science	Bsc	1	honori	swi	Oct. 8 2015	Oct. 8 2015	20			Without Exemptions	JAUE
Safes.I	Computer Science	Bsc	1	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017				Without Exemptions	Sal
Ogjomu Rullifone	Safes.I	Computer Science	Bsc	2	legis	austr	Oct. 5 2015	Oct. 5 2015	2 year v		Without Exemptions	Sal
Ogjomu Rullifone	Safes.I	Computer Science	Bsc	2	honori	swi	Oct. 8 2015	Oct. 8 2015	20		Without Exemptions	JAUE
Ogjomu Rullifone	Safes.I	Computer Science	Bsc	2	united Kingdom	swi	Oct. 20, 2017	Oct. 20, 2017			Without Exemptions	Sal

View Salary Info													
Manage View													
Print Load Unencrypted Load encrypted													
name	faculty	dept	qualification	Model-ayment	bank	basicsalary	hra	allowance	other	tax	expenditure	total	dates
M. Durais	Science	Computer Scie...	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
M. Durais	Science	Computer Scie...	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
M. Durais	Science	Computer Scie...	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Dr. Mathiasel	Science	Computer Scie...	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Dr. Mathiasel	Science	Computer Scie...	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
Dr. Mathiasel	Science	Computer Scie...	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Mr. Peters Eka	Science	Physics	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Mr. Peters Eka	Science	Physics	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
Mr. Peters Eka	Science	Physics	Msc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Julian Utone	social science	economics	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Julian Utone	social science	economics	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
Julian Utone	social science	economics	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
	select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
	select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
	Select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
	select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
	select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
Ogbowu, Ruth I	select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015
Ogbowu, Ruth I	Select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89997	98	88991.089	Oct 7, 2015
Ogbowu, Ruth I	Select	Computer Scie...	bsc	eb49bc2725cb...	77Ca96ba177...	88894	88	98	8	89	98	88991.089	Oct 7, 2015

View Study Leave Info											
STUDY LEAVE FORM											
Manage View											
Print Load Unencrypted Load Encrypted											
Name	Institu	Dep't	Qualification	Grade	Title	Location	Provider	Start Date	Return Date	Request Days	Apply StudyLeave
Mr Donaluk	Science	Computer Science	Msc	16	Ireland	Australia	Onc	Oct 5, 2015	Oct 5, 2015	2 year x	Without Expenses Self
Mr Donaluk	Science	Computer Science	Msc	16	London	Self	Onc	Oct 8, 2015	Oct 8, 2015	20	Without Expenses Self
Mr Donaluk	Science	Computer Science	Msc	16	United Kingdom	Self	Onc	Oct 21, 2017	Oct 21, 2017	20	Without Expenses Self
Dr. Nataniel	Science	Computer Science	Msc	16	Ireland	Australia	Onc	Oct 5, 2015	Oct 5, 2015	2 year x	Without Expenses Self
Dr. Nataniel	Science	Computer Science	Msc	16	London	Self	Onc	Oct 8, 2015	Oct 8, 2015	20	Without Expenses Self
Dr. Nataniel	Science	Computer Science	Msc	16	United Kingdom	Self	Onc	Oct 21, 2017	Oct 21, 2017	20	Without Expenses Self
Mr. Peters Ole	Science	Physics	Msc	13	Ireland	Australia	Onc	Oct 5, 2015	Oct 5, 2015	2 years	Without Expenses Self
Mr. Peters Ole	Science	Physics	Msc	13	London	Self	Onc	Oct 8, 2015	Oct 8, 2015	20	Without Expenses Self
Mr. Peters Ole	Science	Physics	Msc	13	United Kingdom	Self	Onc	Oct 20, 2017	Oct 20, 2017	20	Without Expenses Self
Lillian Clare	Social Science	Economics	Bsc	14	Ireland	Australia	Onc	Oct 5, 2015	Oct 5, 2015	7 years	Without Expenses Self
Lillian Clare	Social Science	Economics	Bsc	14	London	Self	Onc	Oct 8, 2015	Oct 8, 2015	20	Without Expenses Self
Lillian Clare	Social Science	Economics	Bsc	14	United Kingdom	Self	Onc	Oct 20, 2017	Oct 20, 2017	20	Without Expenses Self
Select	Computer Science	Computer Science	Bsc	0	London	Self	Onc	Oct 5, 2015	Oct 5, 2015	7 years	Without Expenses Self
Select	Computer Science	Computer Science	Bsc	0	London	Self	Onc	Oct 20, 2015	Oct 20, 2015	20	Without Expenses Self
Select	Computer Science	Computer Science	Bsc	0	United Kingdom	Self	Onc	Oct 20, 2017	Oct 20, 2017	20	Without Expenses Self
Select	Computer Science	Computer Science	Bsc	0	Ireland	Australia	Onc	Oct 5, 2015	Oct 5, 2015	7 years	Without Expenses Self
Select	Computer Science	Computer Science	Bsc	0	London	Self	Onc	Oct 8, 2015	Oct 8, 2015	20	Without Expenses Self
Select	Computer Science	Computer Science	Bsc	0	United Kingdom	Self	Onc	Oct 20, 2017	Oct 20, 2017	20	Without Expenses Self
Ogumio Ruthlove	Select	Computer Science	Bsc	2	Ireland	Australia	Onc	Oct 5, 2015	Oct 5, 2015	2 years	Without Expenses Self
Ogumio Ruthlove	Select	Computer Science	Bsc	2	London	Self	Onc	Oct 8, 2015	Oct 8, 2015	20	Without Expenses Self
Ogumio Ruthlove	Select	Computer Science	Bsc	2	United Kingdom	Self	Onc	Oct 20, 2017	Oct 20, 2017	20	Without Expenses Self

STUDY LEAVE FORM

Search

Staff ID:

Select One

Staff Name:

Faculty:

Department:

Qualification:

Grade:

DECLARATION

Title of Activity:

Location:

Provider:

Starting date:

Returning date:

No. of Days Requested:

I wish to Apply for study leave: (Please tick Appropriately)

☐ With Expenses

☐ Without Expenses

How is the Study Leave being funded

☐ Self

☐ Institution

ATTACHMENTS

id	staff_c	title	location	Provider	StartDate	ReturnDate	RequestDays	ApplyStudyLeave	StudyLeaveFunded
1	comp JJ1	lagos	isoc	Oct 5, 2015	Oct 5, 2015	2 years	20	Without expenses	Self
2	phy 001	london	ehell	Oct 3, 2015	Oct 0, 2015			Without Expenses	TAJIF Institution
3	hnamec	united Kingdom	self	Oct 20, 2017	Oct 20, 2017			Without Expenses	Self

Save

Print

Close

Staff Information

Staff_ID

Department

Qualification

Specialty

State

Email Address

Address

Staff_Name

Sex ☐ male ☐ female

Grade/Level

Rank

L.G.A

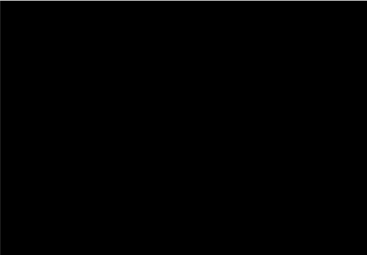
Postal Address

Phone Number

DOB

Marital Status

Faculty



staff...	name	faculty	dept	sex	quali...	grade	spec...	rank	state	lga	email	postal	addr...	phone	dob	marital	photo
comp ...	Mr Do...	Science	Comp...	male	Msc	16	progr...	lectur...	Rivers	Silga	silga...	17272...	nil	09033...	Oct 7...	Married	[B@1...
comp ...	Dr. N...	Science	Comp...	male	Msc	16	progr...	lectur...	Rivers	Silga	bat@...	17272...	nil	09033...	Oct 7...	Married	[B@1...
phy 001	Mr. P...	Science	Physics	male	Msc	13	electr...	lectur...	Rivers	Emuoha	peter...	500001	iaue i...	07086...	Oct 2...	Married	[B@1...
homec	Lilian ...	Social ...	Econo...	female	Bsc	14	food ...	lectur...	Delta	emuoha	lilian@...	5000001	iwofe ...	09098...	Oct 3...	Married	[B@1...
bjhb		Select	Comp...		Bsc	0		lectur...	Bayelsa							-----S...	
		Select	Comp...		Bsc	0		lectur...	Bayelsa							-----S...	

STAFF SALARY DETAILS FORM

Search

Staff ID

Name of Staff

Faculty

Department

Office Phone

Staff Type

Mode of Payment

Bank

Please, Enter Your Address!

Salary Panel

Basic Salary

HRA

Medical Allowance

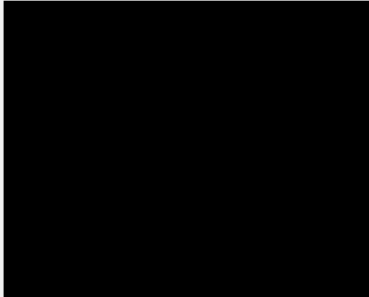
Other Allowance

Tax

Expenditure

Netpay of Staff

Date



id	Staff_Id	ModePayment	Bank	basicSalary	hra	allowance	other	tax	expenditure	total	dates
2	comp 002	Bank	UBA	88801	38	98	8	80	28	89001.089	Oct 7, 2015
3	comp 001	Bank	UBA	88894	38	98	8	89997	58	89901.089	Oct 7, 2015
4	homec	SELECT	SELECT	56.0000							



The image displays a web login interface with a light blue and white color scheme. At the top is a banner featuring the word "LOGIN" in large blue letters, with a globe as the letter 'O' and a computer mouse with a cord. To the right of the text are several small, light blue squares of varying sizes. Below the banner is the "LOGIN PANEL", which contains two input fields: "User Name" and "PASSWORD". To the right of these fields is a blue button with the text "LOGIN to your account" in white. Below the login panel is the "COMMAND PANEL", which contains four buttons: a blue "LOGIN" button, a red "RESET" button, a red "X" button labeled "Close", and a red "HELP" button labeled "Help".

LOGIN

LOGIN PANEL

User Name

PASSWORD

LOGIN
to your account

COMMAND PANEL

LOGIN **RESET** **Close** **Help**