



**Enjabulweni Independent School  
Grade 12  
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IT PAT  
Project Specifications Document**



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# **Project Summary**

The project will be a school management and discipline system as well as a system used to track offences of students at Enjabulweni school in preparation for the termly parent-teacher consultations. The system will be used to store the information of all students attending school at Enjabulweni, the information regarding said students’ parents, the types of offences that can be committed at the school and all offences committed by the student will be recorded and shown to the student’s parents in the case that an audience is requested with them. The system will be able to display all the above-described information in a variety of orders and can be filtered according to the user’s desire.

The purpose of the system is to provide a way to efficiently store information regarding all the students at the school as well as any offences they commit so as to show their parents in the event that a parent claims the school did not inform them of their child’s offence. The user will be able to store, delete and update any information regarding the student and their parents in the system. This system will be used by teachers as they will enter the student, parent and offence information and can also be used by the prefects of the school for the purposes of updating information upon request from the student.

# **Motivation and Research**

This project serves the purpose of providing a useful system that the school will use efficiently. The system aims to be a method for efficient storage of all data regarding pupils of the high school. This system’s main function will be to track the offences that a student commits while at Enjabulweni. Some parents have a tendency to either blame teachers for poor performances and claim that their children have done all work or attended all lessons or they claim that they were not informed of a certain offence that their child committed after the sanction has been carried out. This system serves as a purpose to ensure none of these accusations stand as all data regarding any offence a student has committed and whether or not the parents were told will be stored thus making parent-teacher consultations easier for the teachers.

The following projects – by: 1BestCsharpBlog-- are similar to this system as they all share the same ability to insert, update and delete records from a database, they share the ability to login as a user for security purposes as well however, this project differs from them as it has many different forms to it and does not only serve the purpose of merely showing the functionalities of java but provides a useful way to store as well as track data, it also provides an amazing user experience to the user:

* Inventory Management System – <http://bit.ly/Java_Inventory>
* Java Project For Beginners – <https://youtu.be/vtTUKLE_SWE>
* Students Information System - <http://bit.ly/Students_System>
* Contacts Management System - <http://bit.ly/Contact_Project>
* Hotel Management System - <http://bit.ly/JavaHotelSystem>
* Real Estate Management System - <https://bit.ly/Java__RealEstate>
* Library Management System - <https://bit.ly/Java_Library>

# **Specification of Program Function**

## **Login Page**

* The login page will appear when the program is run.
* There will be a text field and a password field available for the user to enter their login details.
* There will be three buttons, namely ‘Login’, ‘Exit’ and ‘Create New Account’ as well as two labels, namely ‘Forgot Password’ and ‘Help’ available on the screen.
* The user will be able to login using the login button or create a new account using the ‘Create New Account’ button.
* If the user has an account but has forgotten their password, they may reset it upon pressing the ‘Forgot Password’ label and a different screen will be opened.
* The user will be able to end the program using the ‘Exit’ button.
* If the information entered by the user is not found or does not match any data in the database then the page will inform them and they will have to retype the information.

## **New Account Screen**

* This screen will appear if the user clicks the ‘Create New Account’ button on the Login Page and said page will close as well.
* The user will be presented with various data capturing structures that will allow him/her to enter their details.
* There will be two buttons on the page namely, ‘Create’ and ‘Return’.
* Once the user has entered their data, they can click ‘Create’ and will be asked to enter a security question and an answer. If the data entered by the user is not valid then the program will inform the user and s/he will have to correct the error.
* Upon the creation of the account, the screen will close and reopen the login page.

## **Forgot Password Screen**

* This will appear when the user clicks the ‘Forgot Password’ label on the login page and said page will close as well.
* The user will be presented with text fields that will allow them to enter their username, the answer to their security question and their new desired password. Certain fields will be disabled so as to direct the user and to avoid conflict in the program
* There will be three buttons available on the screen namely ‘Search’, ‘Enter’ and ‘Return’ and a ‘Help’ label as well.
* The user will only enter their username and click ‘Search’ so that the program searches for their security question. If it is not found, the user will be informed and will have to retype their username.
* Upon the security question being found, the username field and the ‘Search’ button will be disabled and the field to enter the answer as well as the ‘Enter’ button will be enabled. The user will be shown their security question and will be required to enter it and click ‘Enter’.
* Upon entering the correct answer, the answer field will be disabled and the password fields will be enabled. The user will then be able to enter their new desired password and click ‘Enter’.
* The screen will be closed and the login page will be opened again.

## **Main Menu**

* This screen will open after the user logs in.
* There will be five buttons available on the screen namely ‘Student Log’, ‘Offence Reg’, ‘Edit Profile’, ‘Help’, ‘Parent Log’, ‘Offences’ and ‘Log Out’.
* The first six buttons lead to their respective pages in the program and the user can click them to access said screens.
* The user can log out using the ‘Log Out’ button

## **Student Log**

* This screen will be displayed when the user clicks the ‘Student Log’ button on the main menu screen.
* The screen will allow the user to enter the data regarding any student as well as edit or delete said data using the ‘Register’, ‘Update’ and ‘Delete’ buttons.
* Other buttons available on this screen are ‘Clear’ and ‘Return’ buttons.
* Once the user clicks the ‘Update’ or ‘Register’ buttons, the program will validate all the data the user has entered and if some data is invalid, the user will have to correct the issue.
* All student data will be visible from the form and can be sorted or filtered according to the user’s wishes. The user can also search for a student as well.

## **Student Offence Register Screen**

* This screen will appear when the user clicks the ‘Offence Reg’ button on the main menu screen.
* The user will be presented with fields to enter the data and nature of an offence that a student committed.
* The user will only be able to register, update and delete data of a student that is already present in the database. The user can do this using the ‘Register’, ‘Update’ and ‘Delete’ buttons present on the form.
* A ‘Clear’ as well as a ‘Return’ button will also be available on the form
* All the data will be visible on the form and can be sorted and filtered to the user’s liking.

## **Edit Profile**

* This screen will appear when the user clicks the ‘Edit Profile’ button on the main menu screen.
* This screen will display the user’s data upon its display
* The user will be able to edit their data using the fields available and the ‘Update’ button
* The user will also be able to delete their profile and this will then open the login page.

## **Help Screen**

* This screen will appear when the user clicks ‘Help’ on any screen in the program.
* The help screen is available to the user at any point of the program.
* The screen has buttons corresponding to explanations that will appear in the center of the screen once clicked.

## **Offences Screen**

* This screen will be displayed when the user clicks the ‘Offences’ button on the main menu screen.
* The screen will allow the user to enter the data regarding any offences as well as edit or delete said data using the ‘Register’, ‘Update’ and ‘Delete’ buttons.
* Other buttons available on this screen are ‘Clear’ and ‘Return’ buttons.
* Once the user clicks the ‘Update’ or ‘Register’ buttons, the program will validate all the data the user has entered and if some data is invalid, the user will have to correct the issue.
* All offence data will be visible from the form and can be sorted or filtered according to the user’s wishes. The user can also search for a student as well.

## **Parent Log**

* This screen will be displayed when the user clicks the ‘Parent Log’ button on the main menu screen.
* The screen will allow the user to enter the data regarding any parents as well as edit or delete said data using the ‘Register’, ‘Update’ and ‘Delete’ buttons.
* Other buttons available on this screen are ‘Clear’ and ‘Return’ buttons.
* Once the user clicks the ‘Update’ or ‘Register’ buttons, the program will validate all the data the user has entered and if some data is invalid, the user will have to correct the issue.
* All parent data will be visible from the form and can be sorted or filtered according to the user’s wishes. The user can also search for a student as well.

# **Specifications of User Interface**

**Color Scheme**The Login page and Main menu will be designed after the school prospectus. The other forms will have a similar design but with black as the predominant color. Each form will either have yellow fields or blue fields. The forms will use a variety of different fonts. The buttons will be black in color with either white of yellow text.

## **Login Page**

* A GUI will be provided with ‘Login’, ‘Create New Account’, ‘Exit’ and ‘Forgot Password’ buttons.
* The user will be able to enter their username and password using the available text and password fields.

## **New Account Screen**

* A GUI will be provided with ‘Create’ and ‘Return’ buttons
* The user will be able to enter all their data using the available data capturing structures.

## **Forgot Password Screen**

* A GUI will be provided with ‘Search’, ‘Enter’ and ‘Return’ buttons.
* The user will be able to reset their password by answering their security question using text and password fields on the GUI.

## **Main Menu**

* A GUI will be provided with ‘Student Log’, ‘Edit Profile’, ‘Consultations’, ‘Help’ and ‘Log Out’ buttons

## **Student Log**

* A GUI will be provided with ‘Register’, ‘Update’, ‘Delete’, ‘Clear’ and ‘Return’ buttons.
* The user will be able to enter student data using the various data capturing structures provided and will also be able to view said data using the table

## **Student Offence Register Screen**

* A GUI will be provided with ‘Register’, ‘Update’, ‘Delete’, ‘Clear’ and ‘Return’ buttons.
* The user will be able to enter student offence data using the various data capturing structures provided and will also be able to view said data using the table.

## **Edit Profile**

* A GUI will be provided with ‘Update’, ‘Delete’ and ‘Return’ buttons.
* The user will be able to edit their displayed data using the fields present in the GUI

## **Help Screen**

* A GUI will be provided with a text area where the help information will be displayed
* There will be 8 buttons on the form namely ‘Using Help’, ‘Password’, ‘Main Menu’, ‘Your Profile’, ‘Logging in’, ‘New Acc’, ‘Students’, ‘About Us’.

## **Parent Log**

* A GUI will be provided with ‘Register’, ‘Update’, ‘Delete’, ‘Clear’ and ‘Return’ buttons.
* The user will be able to enter the data of any student’s parent(s) using the various data capturing structures provided on the form.

## **Offences Screen**

* A GUI will be provided with ‘Register’, ‘Update’, ‘Delete’, ‘Clear’ and ‘Return’ buttons.
* The user will be able to enter the data of any offence using the various data capturing structures provided on the form.

# **Specifications of Help**

The Help page contains a number of buttons linking to their corresponding explanations. The “Help” button will be available at all times in the program. Each button is linked to an explanation stored in its own text file. When the user clicks on one of these buttons, the program will retrieve the explanation from the corresponding text file and display it in the center of the screen. The following topics will be displayed using buttons:

* Using Help
* Password
* Main Menu
* Your Profile
* Logging in
* Creating a New Account
* Students
* About Us

# **Specifications of Data Storage**

Different tables will be used to store data. A table named “studentlog” will store the information of the students, a table named “accountdetails” will be used to store the user information, i.e., password, username, first name etc., a table named “conlog” will be used to store offence registration data, a table named “security” will be used to store the user security data i.e., security question, answer etc., a table named “parents” will be used to store student parent information, i.e., their name, surname, relationship to student etc. and a table named “offences” will be used to store the information of offences i.e., Offence ID, Description and Level. These tables will all be in one database. Different text fields will be used to store the different help topics provided in the Help screen.

### **User Data**

### **Fields**

* Password
* Username (PK)
* First Name
* Last Name
* Position
* Gender
* Date of Birth

### **When are records created?**

* User records are created by users.

### **When are records accessed?**

* Each user’s record can only be accessed by the user themselves and all user records can be accessed by the programmer.

### **When are records updated?**

* User records can be updated by users.

## **Security Data**

## **Fields**

* Username (PK/FK)
* Security Question
* Answer

### **When are records created?**

* Security records are created by users.

### **When are records accessed?**

* Each user’s record can only be accessed by the user themselves and all user records can be accessed by the programmer.

### **When are records updated?**

* Security records can be updated by users.

### **Student Data**

### **Fields**

* Student ID (PK)
* First Name
* Last Name
* Grade
* Gender
* Date of Birth

### **When are records created?**

* Student Records are created by the user.

### **When are records accessed?**

* Student Records can be accessed by the user (either teacher or ranked higher or a prefect). They will be able to update and delete records

### **When are records updated?**

* The student records can only be updated by teachers and higher ranked personnel.

## **Offence Registration Data**

## **Fields**

* ID (PK)
* Student ID (FK)
* Offence ID (FK)
* Sanction
* Subject
* Parents Told
* Date of Offence

### **When are records created?**

* Offence Reg Records are created by the user if they are a teacher or higher ranked.

### **When are records accessed?**

* Offence Reg records can be accessed by the user. They will be able to update and delete records. Some users will not be able to insert new records as well as update them but they may delete them.

### **When are records updated?**

* The Offence Reg records can only be updated by teachers or HODs.

### **Parent Data**

### **Fields**

* ID (PK)
* Student ID (FK)
* First Name
* Last Name
* Gender
* Relationship
* Cell Number

### **When are records created?**

* Parent Records are created by the user.

### **When are records accessed?**

* Parent Records can be accessed by the user (either teacher or ranked higher or a prefect). They will be able to update and delete records

### **When are records updated?**

* The parent records can only be updated by teachers and higher ranked personnel.

### **Help Data**

### **Fields**

* There are no fields

### **When are records created?**

* The text files are created by the programmer when the program is initially created.

### **When are records accessed?**

* The information in each text file will be accessed by all users, at any time while the program is running.

### **When are the records updated?**

* The content of the text files can be changed by the programmer.

### **Offence Data**

### **Fields**

* Offence ID (PK)
* Description
* Level

### **When are records created?**

* Offence Records are created by a user ranked higher than prefect or head prefect.

### **When are records accessed?**

* Offence Records can be accessed by the user (either teacher or ranked higher or a prefect). They will be able to update and delete records

### **When are records updated?**

* The Offence records can only be updated by teachers and higher ranked personnel.

# **System Requirements**

## **Hardware**

* Intel(R) Core (TM) i3-6006U CPU or later
* 4GB installed RAM or more
* 64-bit Operating System, x64-based processor
* More than 10GB hard drive storage

## **Software**

* mysql-connector-java-8.0.21 or later
* jcalender-1.4
* NetBeans 8.0.21 IDE or later
* jdk-8.0.21\_windows-x64\_bin.exe
* XAMPP
* MySQL 5.2 or later