SR ARMS AND AMMO

PROJECT MEMBERS:

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The main algorithms and coding done by Saim Akhtar.

Areeba Seher helped and guided in the GUI of the project

INTRODUCTION

The project is based on the store of ammunition and arms which contains stocks of firearms, ammunitions, parts of various firearms and magazines. The store contains 4 different type of guns, which are list below:

1. Handguns
2. Airguns
3. Rifles
4. Shotguns

The guns types are further classified on the basis of either their gun type or action.

There are 2 access available in this project:

- Customer side
- Admin side

The functioning and authorities of both the access are discussed later.

TECHNOLOGIES USED FOR PROJECT:

The project is coded in Python programming language. The backend database SQL is used for the storage of data and managing the data. SQL is connected to Python using the connector pymysql and it is then used for adding data into and retrieving data from the main database named "sr_arms_and_ammo"

Python library TKINTER is used for the GUI of the project. The whole layout and frames created are all due to the use and coding of Tkinter

SR ARMS AND AMMO is completely coded on the idle of python 3.7 latest version

FILES IN PROJECT FOLDER:

Three main files are provided in the project folder

1->Database creating file:

This file is used to access the class named "Database_access" which is used to create the database for the project. The database contains the tables which are required for storing the data. In case if the database base already exists then program will show the message that the database named "sr_arms_and_ammo" already exists

2->Samples Adding File:

This file consists of functions which add samples to the database only if the tables are not filled with any data and are completely empty. Otherwise it

will display the message that the desired table is not empty and can't add samples.

The main purpose of adding samples is to either try and check for the test run or to add more samples if you want to add

3->SR arms and ammo main file:

This is the main file of the project which contains all the functionality and GUI coding. A person will access the project by using this file

CLASSES IN THE PROJECT

There are total 8 main classes (besides their subclasses) created in the project:

- Database_access
- Title_display
- SR_arms
- Person(Admin, Client)
- FireArms(HandGuns, AirGuns, ShotGuns, Rifles)
- Ammunition(Handguns_ammo,Shotguns_ammo, Rifles_ammo,Airguns_ammo)
- Parts(Handguns_parts,Shotguns_parts,Rifles_parts)
- Magazines(Handguns_mag,Shotguns_mag,Rifles_mag)

TABLES IN THE DATABASE

Database contains total 9 tables for the storage of the data accordingly in the project:

- Admins
- Clients
- Airguns
- Shotguns
- Handguns
- Rifles
- Ammunition
- Magazines
- Parts

ADMIN AND CLIENT ACCESS

There are two different frames used for the main display.

One is used for the clients by which they can access the list of stocks and purchase items and get bills, while the second one is merely use for admin display and secured with passwords and usernames to access

Client side:

The class used for the client access in the project is named as “Client”. All the data and records of clients are saved in the “clients” table

While purchasing, the clients are asked to enter their data to be stored in the clients table. The clients able consists of :

- Name
- Email

- ContacNo
- Purchased Items(Assigned by the cardlist)
- Bill Amount (Calculated by the algorithms)
- Date Of Purchase (automatically assigned)
- Time (automatically assigned)

Clients contains the following possible functions:

- Client side is available only for the checking items and purchasing purpose.
- A client who want to purchase any weapon or ammo will be able to only view t he display for customer side in which there are options given for purchasing and displaying the lists of arms, ammo, magazines, and parts of weapons.
- In the main a cardlist option will be given to check the items he/she has intended to purchase and then buy all he desired items after entering the data asked to enter in the data.
- Client has been also provided the feature of editing the cardlist and change the orders
- A client is asked to enter the name, email and contact number while purchasing in order to add data in the client list for future records
- When all purchases are done, a bill will be displayed in another window to the client

Admin side

The class used for the admin access in the is named as “Admin”. The records and list of admins is stored in the table named “admins”

Admins will be asked to enter the features that are stored in the admins table. The admins table contains:

- Name
- AdminCode(Provided by the system)
- UserName(Provided by the system)
- Password
- Date Of Joining(automatically assigned)

There are functionalities of the admins described below:

- It can only be displayed when an authorized user enters the login requirements. If a person is authorized then he/she will be able to view the admin display.
- Admin has the authority to add delete update and check stocks. There are also features for the admin to check the clients list who have purchases and their details with the date and time.
- Also there is a feature to check their own detail but can only check the names of other admins and their date of joining but not their other private data
- There is option provided to create an admin account which is limited. There can be only 3 admins maximum and 1 minimum

FIREARMS

Adding, updating, deleting etc is handled by admin and firearms purchased by clients

There are four types of firearms available in the store.

1. Handguns
2. Shotguns
3. Airguns
4. Rifles

HANDGUNS:

All the records of the handguns is stored in the table named “handguns” in the database.

Handguns table have the features listed below:

- ModelName
- ProductCode
- Type
- Caliber
- Action
- Capacity
- BarrelLength
- Grips
- Stock
- Price

NOTE: Each handgun has a unique ProductCode

SHOTGUNS:

All the records of the shotguns is stored in the table named “shotguns” in the database.

Shotguns table have the features listed below:

- ModelName

- ProductCode
- Action
- Caliber
- Capacity
- BarrelLength
- OverAllLength
- Weight
- Stock
- Price

NOTE: Each shotgun has a unique ProductCode

AIRGUNS:

All the records of the airguns is stored in the table named “airguns” in the database.

Airguns table have the features listed below:

- ModelName
- ProductCode
- Action
- Caliber
- FrontSight
- RearSight
- BarrelLength
- Safety
- Stock
- Price

NOTE: Each airgun has a unique ProductCode

RIFLES:

All the records of the rifles is stored in the table named “rifles” in the database.

Rifles table have the features listed below:

- **ModelName**
- **ProductCode**
- **Action**
- **Caliber**
- **Capacity**
- **BarrelLength**
- **Weight**
- **Sights**
- **Stock**
- **Price**

NOTE: Each rifle has a unique ProductCode

AMMUNITIONS

Adding, updating, deleting etc is handled by admin and firearm’s ammunitions purchased by clients

There are four types of firearms’ ammunition available in the store.

1. **Handguns ammo**
2. **Shotguns ammo**
3. **Airguns ammo**
4. **Rifles ammo**

All the ammunition's record is saved in a single table named "ammunition". All of them categorized in the table for their identification

Ammunition table has the following features:

- **ModelName**
- **ProductCode**
- **Category**
- **GunType**
- **Stock**
- **Price**

MAGAZINES

Adding, updating, deleting etc is handled by admin and firearms' magazines purchased by clients

There are four types of firearms' magazines available in the store.

1. **Handguns magazines**
2. **Shotguns magazines**
3. **Rifles magazines**

All the magazines' record is saved in a single table named "magazines". All of them categorized in the table for their identification

Magazines table has the following features:

- **ModelName**
- **ProductCode**
- **Category**
- **GunType**
- **Stock**

- **Price**

PARTS

Adding, updating, deleting etc is handled by admin and firearms' parts purchased by clients

There are four types of firearms' parts available in the store.

4. **Handguns parts**
5. **Shotguns parts**
6. **Rifles parts**

All the parts' record is saved in a single table named "parts". All of them categorized in the table for their identification

Parts table has the following features:

- **ModelName**
- **ProductCode**
- **Category**
- **GunType**
- **Stock**
- **Price**

Object Oriented Relationships:

1) Composition is used between the classes in which a class is using the object of another class as a variable in its class and then accesses the functions. There occurs a strong relation between both the classes as working of function of variable object class is performed in the class which contains it.

It is applied between the SR_arms class and the other classes like firearms, ammunition, parts, magazines

2) Inheritance is used as a parent child relationship in which there is a similarity in some places and hence they are categorized in a “is-a” relationship

   It is applied between Person and its subclasses Admin and Client

   Also among FireArms, Ammunition, Parts, Magazines and their respective subclasses

3) Aggregation is used by the class to use only the object of another class and to access the functions for further procedure. There is no string relation between both classes

   Aggregation is used by Title_display to use the class SR_arms

Features of Python Used:

1) Map and lambda :these are used to check a whole list without using a loop and then map performs the function using lambda on each element of the list
2) Time and datetime modules: time is imported to make a delay in between the functions using the function sleep() while datetime module is imported to get the current date and time to enter
3) Random: random module is imported to get the random value of any integer using its function randint(range)

CONCLUSION

There are also many features which can be added to the project and the code. But they all will only be used to enhance the functioning of the code

The code till now can guarantee a huge re-usabilty of the code by just making another database and will work the same as its working for the previous one. The code has been checked and debugged multiple times and resolved each error

So we can conclude that the code can be used for the storage of any store for their data storage and can be more implemented without going into the long procedures due to the flexibility of the code

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Document prepared by Saim Akhtar