

STORE MANAGEMENT SYSTEM

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1.Project Definition

Store Management System is a software created using the integration of Python and MySQL. Python is used as the front end and MySQL is the backend.

The store management software is designed so as to ease the work of maintaining records of transactions and the products in a store.

It can be used by a wide variety of sellers (retailers and wholesalers) to automate the process of manually maintaining records.

The software helps in keeping track of all the products in the shop. Moreover the flexible and adaptive software is suited to shops or stores of any size. This means that from a small retail shop that sells mainly groceries to a large supermarket where everything we need is available, this software can be utilized.

This software is very cost efficient as it has minimum hardware and software requirements. Added to this, maintaining and using this software is extremely easy and requires no formal training. On the whole it is a user friendly and tangible software.

2.Project Analysis

The Store Management Software has been made so as to cater to the needs of both the customer and the retailer.

2.1 Customer Module

When one enters the software as a customer they can view the entire list of products available in the store (this is extracted from the MySQL table in the backend) and place orders.

The software asks the customer to input details like the quantity of item chosen. Now if this quantity is greater than the stock available at the store a message is displayed on screen asking the customer to reduce the quantity inputted.

Once a given product is ordered the software asks the customer if he wants to buy more products. If the customer chooses to buy more than he can again go through the cycle of placing the order. If not he can proceed to the payment screen.

When the customer buys more than one product the total cost is calculated by the software and displayed to the customer.

The customer is then asked for his card details and can pay the amount using net banking.

2.2 Admin Module

Apart from this as a retailer, one can store details like the name and email id of the admins who have access to the store's transactions.

The authentication of the admin is done through an auto generated OTP that is sent to their registered email id. The admin is asked for his registered name. This is cross referenced in the backend (MySQL) and the OTP is sent to the registered email id.

2.3 Adding new products

Once the admin enters the software he can add new products to the table. He is asked for various inputs like the product name, product description, Quantity, Reorder Quantity (ROQ) and Reorder Level (ROL).

If any contradicting data is inserted (eg: ROQ<ROL or Quantity<ROL) then the program intimates the admin about this and urges him to change the data inserted.

Once the proper data is inserted the software updates the table in the Backend.

2.4 Replenishing Stocks

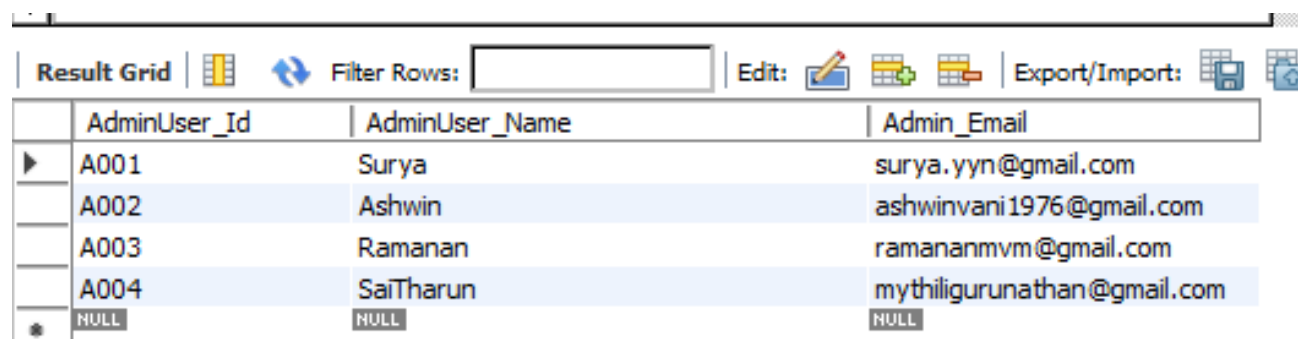
Another feature of the customer module is replenishing stocks. The customer can choose the option where the software displays the list of products that have reached their Reorder Level (ROL).

Then the admin can reorder the products after which the changes can be seen in the backend table.

In the outputs and screenshots shown below the store is named as SHUDDA ORGANIC STORE.

The backend contains two tables:

Admin Users:



AdminUser_Id	AdminUser_Name	Admin_Email
A001	Surya	surya.yyn@gmail.com
A002	Ashwin	ashwinvani1976@gmail.com
A003	Ramanan	ramananmvm@gmail.com
A004	SaiTharun	mythiligurunathan@gmail.com
NULL	NULL	NULL

Product Master:

Result Grid

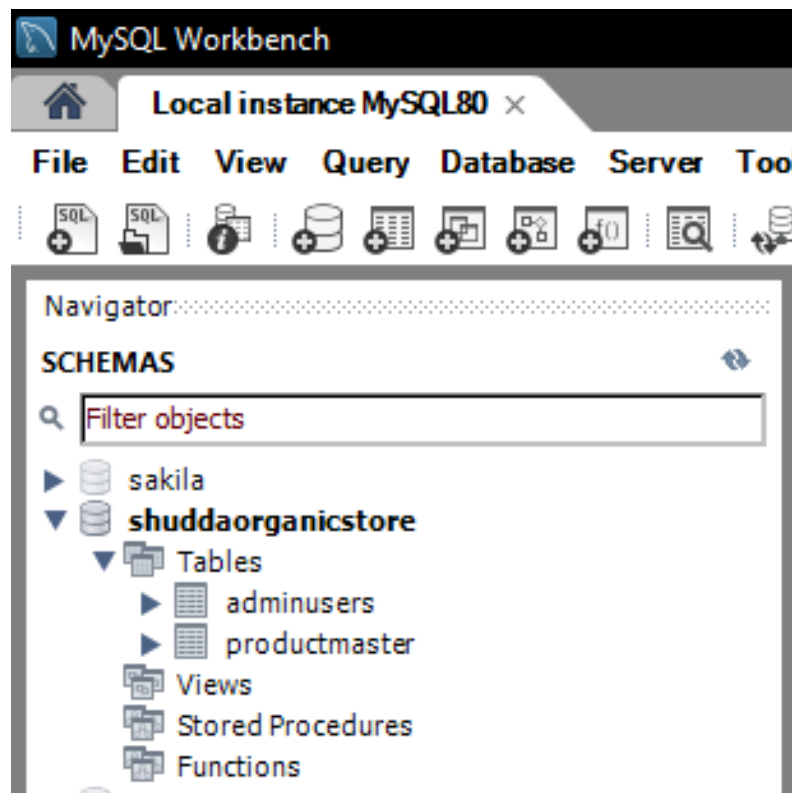
Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

	Product_Id	Prod_Name	Prod_Desc	Prod_Qty	Prod_Cost	Product_ROL	Product_ROQ
	P001	Cane Sugar	Organic Cane Sugar	103	120	25	100
	P002	Raw Rice	Organic Raw Rice	149	50	25	125
	P003	Whole Wheat	Punjab Wheat	150	45	20	75
	P004	Coconut Oil	Chekku Coconut Oil	99	150	10	30
	P005	Groundnut Oil	Chekku Groundnut Oil	30	180	5	25
	P006	Till Oil	Chekku Till Oil	75	250	10	30
	P007	Ghee	Straight from farm Ghee	50	100	10	30
	P008	Brown Rice	Healthy and Tasty brown rice	90	100	25	70
	P009	Ragi	Ragi	80	50	10	50
	P010	Idli Rice	Idli rice	97	70	20	70
	P011	Rice	Punjab rice	100	50	20	75
	P012	Jaggery	Country Jaggery	90	20	20	80
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL



3. MIND-MAP

Admin:

- Add items:
For the admin to add an item he should give the details of name, description of product and quantity.
- Re-order:
If any item is less, then the admin can re-order the item.

Customer:

- Order:
The customer should enter the product-id and quantity (in Liter or kg).
- Shop more:
The customer will be given another chance for ordering the item after seeing the bill amount.
- Total cost:
After ordering the product the total amount will come to the customer.
- Payment:
Payment through card is available.

Entering the program (Admin):

- Admin should give their name and the one-time password will be sent to the registered email by which admin can login into store management.
- After a certain quantity of amount the program will cite the unavailability of the product, so that the item can be re-ordered by the admin.
- For customers options will be given as required. The program is user-friendly. The program will route the customer according to his needs.
- Several modules have been used for this program. Smtip is an extra module that has been used here that is not in the syllabus.

4. Modules Used in the Program

Python Modules

A module is a Python object with arbitrarily named attributes that you can bind and reference. Simply, a module is a file consisting of Python code. A module can define functions, classes and variables.

Modules used in program:

1. Random
2. mysql.connector
3. smtplib

Detailed look on modules used:

1. Random:
Python offers a random module that can generate random numbers.

Built-in functions for Generating Random Numbers in Python



2. mysql.connector:
MySQL Connector/Python enables Python programs to access MySQL databases, using an API that is compliant with the Python Database API Specification v2.0 (PEP 249). It is written in pure Python

and does not have any dependencies except for the Python Standard Library.

3. SMTP Library:

The `smtplib` module defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon. For details of SMTP and ESMTP operation, consult RFC 821 (Simple Mail Transfer Protocol) and RFC 1869 (SMTP Service Extensions).

An SMTP instance encapsulates an SMTP connection. It has methods that support a full repertoire of SMTP and ESMTP operations. If the optional host and port parameters are given, the `SMTP.connect()` method is called with those parameters during initialization.

5. Hardware and Software Requirements:

OS - Microsoft Windows 10

System type - X86-64 bit based processor

Processor - Intel(R) core(TM) i5-8250U

CPU - 2.4 GHz

Memory (RAM) - 8.00 GB

Front End - Python 3.7 (64 bit)

Back End - MySQL Version 8.0

6. Output Screenshots

6.1 Enter Screen:

```
WELCOME TO SHUDDHA ORGANIC STORE
Are you a customer or admin?
If you are a customer enter 1 or if you are an admin enter 2:1
Welcome
```

6.2 Customer Module:

6.2.1 Displaying the products:

```
If you are a customer enter 1 or if you are an admin enter 2:1
Welcome
('P001', 'Cane Sugar', 'Organic Cane Sugar')
('P002', 'Raw Rice', 'Organic Raw Rice')
('P003', 'Whole Wheat', 'Punjab Wheat')
('P004', 'Coconut Oil', 'Chekku Coconut Oil')
('P005', 'Groundnut Oil', 'Chekku Groundnut Oil')
('P006', 'Till Oil', 'Chekku Till Oil')
('P007', 'Ghee', 'Straight from farm Ghee')
('P008', 'Brown Rice', 'Healthy and Tasty brown rice ')
('P009', 'Ragi', 'Ragi')
('P010', 'Idli Rice', 'Idli rice')
('P011', 'Rice', 'Punjab rice')
Please enter the product id of the item you want to purchase:P001
```

6.2.2 Getting information from customer:

```
Please enter the product id of the item you want to purchase:P001
Please enter the quantity of the item you need in kg/litres:1
If you want to shop more press 1
Else if you want to stop shopping press 2
Enter your choice2
```


6.2.3 Finishing the transaction:

```
If you want to shop more press 1
Else if you want to stop shopping press 2
Enter your choice2
Your order has been placed successfully
The cost of your purchase is 120.0
Please enter your card number1234567891012344
Payment made successfully
Thank you for shopping with us
>>> |
```

6.2.4 If the customer wants to buy more than 1 product:

```
If you want to shop more press 1
Else if you want to stop shopping press 2
Enter your choice1
Your order has been placed successfully
('P001', 'Cane Sugar', 'Organic Cane Sugar')
('P002', 'Raw Rice', 'Organic Raw Rice')
('P003', 'Whole Wheat', 'Punjab Wheat')
('P004', 'Coconut Oil', 'Chekku Coconut Oil')
('P005', 'Groundnut Oil', 'Chekku Groundnut Oil')
('P006', 'Till Oil', 'Chekku Till Oil')
('P007', 'Ghee', 'Straight from farm Ghee')
('P008', 'Brown Rice', 'Healthy and Tasty brown rice ')
('P009', 'Ragi', 'Ragi')
('P010', 'Idli Rice', 'Idli rice')
('P011', 'Rice', 'Punjab rice')
Please enter the product id of the item you want to purchase:p004
Please enter the quantity of the item you need in kg/litres:1
If you want to shop more press 1
Else if you want to stop shopping press 2
Enter your choice2
Your order has been placed successfully
The cost of your purchase is 270.0
Please enter your card number1234567891010101
Payment made successfully
Thank you for shopping with us
>>> |
```



```

Welcome
What do you want to do?
If you want to add an item enter 1
Or if you want to generate the list of items which need to be re-ordered enter 2
Enter your choice1
Enter the name of the item you want to add:Jaggery
Enter the description of item you want to add:Country Jaggery
Enter the quantity of the item(in kg/litre):100
Enter the cost of item:20
Enter the re order quantity of item:80
Enter the re order level of item:20

New item added successfully
>>> |

```

Product_Id	Prod_Name	Prod_Desc	Prod_Qty	Prod_Cost	Product_ROL	Product_ROQ
P009	Ragi	Ragi	80	50	10	50
P010	Idli Rice	Idli rice	97	70	20	70
P011	Rice	Punjab rice	100	50	20	75
P012	Jaggery	Country Jaggery	10	20	20	80
NULL	NULL	NULL	NULL	NULL	NULL	NULL

6.3.3 Getting the list of items that are low on stock and need to be reordered:

```

Welcome
What do you want to do?
If you want to add an item enter 1
Or if you want to generate the list of items which need to be re-ordered enter 2
Enter your choice2
('Jaggery',)
If you want to re order the above items press 1
Or if you want to return to the menu press 2
Enter your choice

```

6.3.4 Reordering the Item:

```

Welcome
What do you want to do?
If you want to add an item enter 1
Or if you want to generate the list of items which need to be re-ordered enter 2
Enter your choice2
('Jaggery',)
If you want to re order the above items press 1
Or if you want to return to the menu press 2
Enter your choice1
Jaggery was re ordered successfully
>>>

```

Result Grid							
Filter Rows:		Edit:		Export/Import:		Wrap Cell Content:	
Product_Id	Prod_Name	Prod_Desc	Prod_Qty	Prod_Cost	Product_ROL	Product_ROQ	
P009	Ragi	Ragi	80	50	10	50	
P010	Idli Rice	Idli rice	97	70	20	70	
P011	Rice	Punjab rice	100	50	20	75	
P012	Jaggery	Country Jaggery	90	20	20	80	
NULL	NULL	NULL	NULL	NULL	NULL	NULL	

productmaster 11 x

7. FUTURE ENHANCEMENT

New functions can be added to the admin module like deleting and updating product details, creating sub-categories of products for better traversing through the product list.

The OTP system at present is such that the OTP is sent to the registered mail id. This can be improved such that the OTP is sent to the registered phone number instead of the mail id as checking the phone is more convenient because of the present technology.

At present the number of admin users are fixed and there are no means of adding new admin profiles. This can be changed to a variable amount of admin user profiles and the process of adding new admins can be made simpler.

Currently the software is such that the user has to type the commands. This can instead be replaced with on screen buttons (GUI) by using python libraries like tkinter or cutiepie.

Reordering of products that have reached reorder level can be automated since now, this has to be done by the admin manually every time.

A system for validating customer's actual payment methods can be added. That is if the customer wants to pay on delivery, he can or he can also pay by net banking or card.

Also in the backend (MySQL) another customer table can be added and maintained. Customers can be asked to register details so that reward points can be given.

8. Bibliography

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