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Product Management System

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Introduction

1. Project Description

This is a project for course "programming techniques". The project is about products management that can be useful for many places like (supermarket, malls, stores,…etc). Taking supermarket as an example:

   "Supermarket is the place where customers come to purchase their daily using products and pay for that. So, there is a need to calculate how many products are sold and to generate the bill for the customer"

2. Objective of the Project

   The **Product management system** aims at developing into software that can be used at many places to ease maneuver the daily tasks of taking the order, calculating the bill etc. The main advantage of this project is that it converts all the manual work which is time consuming and error prone to fully automated system which helps in eliminating all the paperwork, saves time, improves customer services. It also speeds up various processes such as addition of new items to the menu, deletion of items from the menu, modification of details of items and calculation of bills thus providing convenience to the workers as well as customers".

Program Structure and Operations

1. Program Structure

The program consists of on class named *Product* and the class consists of four data members and two methods. The functional description of our program is shown in Figure 1.

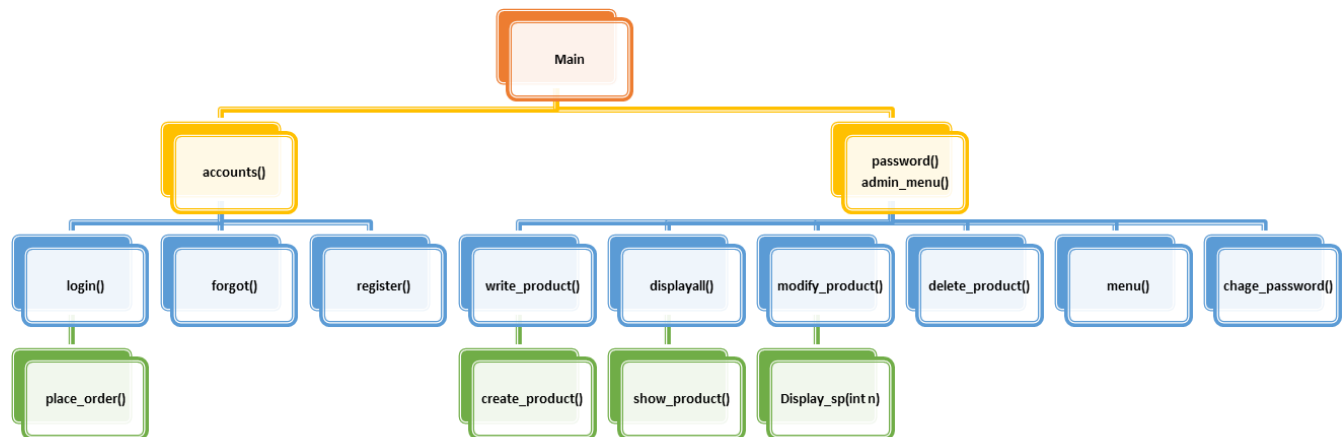**Figure 1: functional description of Product management system.**

2. Data Files

The program creates three data files to store the data about the product, customers and administers. These files named

- product.txt
- database.txt
- password.txt

3. Program Operations

This product management system project mainly consists of three menus:

1. **Customer**
2. **Administrator**
3. **Exit**

3.1. Customer

The customer must have an account to use the program so there is:

1. (Login) if he actually has an account before, by entering his username and password.
2. (Register) if he does not have recently an account, creating a new account (username, password) ,if the user chooses a repeated username the program will notify him to use another username.
3. (Forget password or username) the customer has an opportunity to remember the password by using the username, or remember the username using password.

After login the customer will have the products menu to choose from them the products he wants. After that the customer will have a bill has all details of products he ordered and the total cost. shows product list with Product number, name and price. This menu is used to place order.

3.2. Administrator

The administrator must enter the password to go on options. These options consists of the following:

1. Create Product
2. Display all product
3. Query
4. Modify product
5. Delete product
6. View product menu
7. Change password
8. Back to menu

Appendix A: Program Functions

In this appendix, a description of the functions used product management software system

Function name	Description
Create_Product( )	This function is used to create new product, with name, price, discount
Show_product( )	This function is used to see the product list, with description and price
Write_product()	This function is used to open & write in the product.txt file by calling create_product function that take date from user
Display_product()	This function is used to display all record from product.txt file by reading it from file and calling show_product funcion
Display_sp(int n)	Function to read specific record from file by taking the number of records from user
Modify_product()	Function to modify record of the file
ModifyByDelete()	Function to make new file after modify it
Delete_product()	Function to delete record of the file
Menu()	Display all product price list
Place_order()	Function to place order and generating bill for Product
Intro()	Introduction function
Admin_menu()	Administrator menu function
Login()	Function to enter the customers that have an account
Registr()	Function to make account for new customers
Forgot()	Function to return account back if customer forget his password
Accounts()	Function to record customer's accounts
Password()	Record the password for admin
Change_Password()	Change the admin's password
Main()	Main function of program

Appendix B: Output

In this appendix, a description of the functions used product management software system

Figure 2: This is the main window

Figure 3: This is the main menu

```
****************************************************************

                    Welcome To Login Page

*****************        MENU        **************************

1. LOGIN
2. REGISTER
3. FORGOT PASSWORD (or) USERNAME
4. Exit

Enter your choice :1
```

Figure 4: This is the login page

```
Hello    amal
<LOGIN SUCCESSFUL>
Thanks For Logging In..
Press any key to continue . . .  _
```

Figure 5: This is account is found in database.

```
                    PRODUCT MENU
================================================================
P. NO.              NAME            PRICE           Discount
================================================================
1                   milk            18LE            1%
2                   juice           24LE            7%
3                   bread           6LE             1%
4                   meat            130LE           10%
5                   seafood         90LE            0%
6                   pasta           20LE            2%
7                   cereals         30LE            9%
8                   rice            15LE            4%




================================================
-->>PLACE YOUR ORDER<<--
================================================

Enter The No. Of The Product : 1

Quantity in number : 2

Do You Want To Order Another Product ? (y/n)n_
```

Figure 6: This is products menu

```
                  ***Thank You For Placing The Order***
*********************************INVOICE*********************************
Pr No.   Pr Name Quantity       Price    Amount   Amount after discount
5        seafood 2              90       180      180
3        bread   8              6        48       47.52
8        rice    2              15       30       28.8
                                         TOTAL = 256.32
```

Figure 7:This is invoice after placing order.

C:\Users\Amal El-Telbany\Downloads\Amal_Telbany\ConsoleApplication5\x64\Debug\ConsoleApplication5.exe

```
Please Enter Your Password
PASSWORD :maha
```

Figure 8: The administrator password.

C:\Users\Amal El-Telbany\Downloads\Amal_Telbany\ConsoleApplication5\x64\Debug\ConsoleApplication5.exe

```
ADMINISTRATION MENU
_____

1:CREATE PRODUCT

2:DISPLAY ALL PRODUCTS

3:QUERY

4:MODIFY PRODUCT

5:DELETE PRODUCT

6:VIEW PRODUCT MENU

7:Change Password

8:BACK TO MAIN MENU

Please Enter Your Choice (1-8)
```

Figure 9: The administrator menu

```
C:\Users\Amal El-Telbany\Downloads\Amal_Telbany\ConsoleApplication5\x64\Debug\ConsoleApplication5.exe

                    DISPLAY ALL RECORD !!!


The Name of The Product : milk
The Product No. of The Product : 1
The Price of The Product : 18LE
Discount : 1%

==================================

The Name of The Product : juice
The Product No. of The Product : 2
The Price of The Product : 24LE
Discount : 7%

==================================

The Name of The Product : bread
The Product No. of The Product : 3
The Price of The Product : 6LE
Discount : 1%

==================================

The Name of The Product : meat
The Product No. of The Product : 4
```

Figure 10: Displaying products

Appendix C: Source Code

Appendix C, contains the source code listing for product management software system

```cpp
#include<string>
#include <iomanip>
#include <cstdlib>
#include <iostream>
#include<conio.h>
#include<stdio.h>
#include<process.h>
#include<fstream.>
using namespace std;
class product {
public:
        int pno;
        string name;
        float price, qty, dis;
        void create_product()
        {
            cout << "Please Enter The Name of The Product :";
            cin >> name;
            cout << "Please Enter The Product No. of The Product :";
            cin >> pno;
            cout << "Please Enter The Price of The Product : ";
            cin >> price;
            cout << "Please Enter The Discount (%) : ";
            cin >> dis;
        }
        void show_product()
        {
            cout << "\nThe Name of The Product : " << name;
            cout << "\nThe Product No. of The Product : " << pno;
            cout << "\nThe Price of The Product : " << price << "LE";
            cout << "\nDiscount : " << dis << "%";
        }
        int retpno()
```

```cpp
        {
            return pno;
        }
        float retprice()
        {
            return price;
        }
        string retname()
        {
            return name;
        }
        int retdis()
        {
            return dis;
        }
};
void main();
void login();
void registr();
void forgot();
void place_order();
void admin_menu();
void accounts()
{
        int choice;
        cout << "**************************************************************************\n\n";
        cout << "                    Welcome To Login Page                        \n\n";
        cout << "******************     MENU     ******************************\n\n";
        cout << "1.LOGIN" << endl;
        cout << "2.REGISTER" << endl;
        cout << "3.FORGOT PASSWORD (or) USERNAME" << endl;
        cout << "4.Exit" << endl;
        cout << "\nEnter your choice :";
        cin >> choice;
        cout << endl;
        switch (choice)
        {
        case 1:
            login();
            break;
```

```cpp
            case 2:
                registr();
                break;
            case 3:
                forgot();
                break;
            case 4:
                cout << "Thanks For Using This Program.\n\n";
                exit(0);
                break;
            default:
                system("cls");
                cout << "You've Made a Mistake , Try Again..\n" << endl;
                accounts();
        }

}

void password() {

        string p, pass;
        int count = {};
        cout << "Please Enter Your Password" << endl;
        cout << "PASSWORD :";
        cin >> pass;
        ifstream input("password.txt");
        while (input >> p)
        {
            if (p == pass)
            {
                    count++;
                    system("cls");
            }
        }
        input.close();
        if (count == 1)
        {
            cout << "\nHello :)\t";
            system("pause");
        }
```

```cpp
            if (count != 1)
            {
                cout << "\nPlease Check Your Password\n";
                system("pause");
                password();
            }
}

void change_password() {
            string no;
            cout << "\n\n\tTo change password ";
            cout << "\n\n\t******Please Enter The old password******\n";
            password();
            cout << "\nPlease Enter The New password:" << endl;
            ifstream intf("password.txt");
            cin >> no;
            intf.close();
            cout << "\n\nThe New Password Has Been updated ";
            ofstream outf("password.txt");
            outf << no;
            outf.close();

}
void login()
{
            int count = {};
            string user, pass, u, p;
            system("cls");
            cout << "Please Enter The Following Details" << endl;
            cout << "USERNAME :";
            cin >> user;
            cout << "PASSWORD :";
            cin >> pass;

            ifstream input("database.txt");
            while (input >> u >> p)
            {
                if (u == user && p == pass)
                {
                        count++;
```

```cpp
                    system("cls");
            }
        }
        input.close();
        if (count == 1)
        {
            cout << "\nHello\t" << user << "\n<LOGIN SUCCESSFUL>\nThanks For
Logging In..\n";

            system("pause");
            place_order();
        }
        if (count != 1)
        {
            cout << "\nLOGIN ERROR\nPlease Check Your Username And Password\n";
            cout << "This Account Is Incorrect";
            accounts();
        }
}
void registr()
{
        int count = {};
        string reguser, regpass, ru, rp, u, p;
        system("cls");
        cout << setw(50) << "***Welcom New Customer***\n";
        cout << "Enter The Username :";
        cin >> reguser;
        cout << "\nEnter The Password :";
        cin >> regpass;

        ifstream input("database.txt");
        while (input >> u)
        {
            if (u == reguser)
            {
                    count++;
            }
        }
        input.close();
        if (count == 1)
```

```cpp
			{
				cout << "\nThere is a user with the same username, please select another
username\n";
				system("pause");
				accounts();
			}
			if (count != 1)
			{
				ofstream reg("database.txt", ios::app);
				reg << reguser << ' ' << regpass << endl;
				system("cls");
				cout << "\nRegistration Sucessful :)\n";
				system("pause");
				system("cls");
				accounts();
			}

}

void forgot()
{
			int ch;
			system("cls");
			cout << "Forgotten ? We're Here For Help\n";
			cout << "1.Search Your Account By Username" << endl;
			cout << "2.Search Your Account By Password" << endl;
			cout << "3.Main Menu" << endl;
			cout << "Enter your choice :";
			cin >> ch;
			switch (ch)
			{
			case 1:
			{
				int count = 0;
				string searchuser, su, sp;
				cout << "\nEnter Your Remembered Username :";
				cin >> searchuser;

				ifstream searchu("database.txt");
				while (searchu >> su >> sp)
```

```cpp
                {
                        if (su == searchuser)
                        {
                                count = 1;
                        }
                }
                searchu.close();
                if (count == 1)
                {
                        cout << "\n\n  Account Found :)\n";
                        cout << "\nYour Password Is " << sp;
                        cin.get();
                        cin.get();
                        system("cls");
                        accounts();
                }
                else
                {
                        cout << "\nSorry, Your Username  Is Not Found In Our Database\n";
                        cout << "\nPlease Contact Your System Administrator For More
Details \n";
                        cin.get();
                        cin.get();
                        accounts();
                }
                break;
        }
        case 2:
        {
            int count = 0;
            string searchpass, su2, sp2;
            cout << "\nEnter The Remembered Password :";
            cin >> searchpass;
            ifstream searchp("database.txt");
            while (searchp >> su2 >> sp2)
            {
                    if (sp2 == searchpass)
                    {
                            count = 1;
                    }
```

```cpp
            }
            searchp.close();
            if (count == 1)
            {
                    cout << "\nYour Password Is Found In The Database \n";
                    cout << "\nYour Username is : " << su2;
                    cin.get();
                    cin.get();
                    system("cls");
                    accounts();
            }
            else
            {
                    cout << "Sorry, We Cannot Found Your Password In Our Database
\n";

                    cout << "\nPlease Contact Your Administrator For More Information\n";
                    cin.get();
                    cin.get();
                    accounts();
            }
            break;
        }
        case 3:
        {
            cin.get();
            main();
        }
        default:
            cout << "Sorry, You Entered Wrong Choice, Please Try Again" << endl;
            forgot();
        }
}
fstream fp;
product pr;
void write_product() {
            fp.open("product.txt", ios::out | ios::app);
            pr.create_product();
            fp.write((char*)&pr, sizeof(product));
            fp.close();
            cout << "The Product Has Been Created ";
```

```cpp
}

void display_all() {
        system("cls");
        cout << "\n\n\t\tDISPLAY ALL RECORD !!!\n\n";
        fp.open("product.txt", ios::in);
        while (fp.read((char*)&pr, sizeof(product)))
        {
            pr.show_product();
            cout << "\n\n====================================\n";
        }
        fp.close();
}

void delete_product() {
        int no;
        system("cls");
        cout << "\n\n\n\tDelete Record";
        cout << "\n\nPlease Enter The product no. of The Product You Want To Delete:";
        cin >> no;
        fp.open("product.txt", ios::in | ios::out);
        fstream fp2;
        fp2.open("product2.txt", ios::out);
        fp.seekg(0, ios::beg);
        while (fp.read((char*)&pr, sizeof(product)))
        {
            if (pr.retpno() != no)
            {
                    fp2.write((char*)&pr, sizeof(product));
            }
        }
        fp2.close();
        fp.close();
        remove("product.txt");
        rename("product2.txt", "product.txt");
        cout << "\n\tRecord Deleted ..";
}

void display_sp(int n) {
        int flag = 0;
```

```cpp
            fp.open("product.txt", ios::in);
            while (fp.read((char*)&pr, sizeof(product)))
            {
                if (pr.retpno() == n)
                {
                        system("cls");
                        pr.show_product();
                        flag = 1;
                }
            }
            fp.close();
            if (flag == 0)
                cout << "\n\nrecord not exist";
}

void modifyByDelete(int no) {

            fp.open("product.txt", ios::in | ios::out);
            fstream fp2;
            fp2.open("product2.txt", ios::out);
            fp.seekg(0, ios::beg);
            while (fp.read((char*)&pr, sizeof(product)))
            {
                if (pr.retpno() != no)
                {
                        fp2.write((char*)&pr, sizeof(product));
                }
            }
            fp2.close();
            fp.close();
            remove("product.txt");
            rename("product2.txt", "product.txt");
}
void modify_product() {
            int no, found = 0;
            system("cls");
            cout << "\n\n\tTo Modify ";
            cout << "\n\n\tPlease Enter The Product No. of The Product:";
            cin >> no;
            fp.open("product.txt", ios::in | ios::out);
```

```cpp
            while (fp.read((char*)&pr, sizeof(product)) && found == 0)
            {
                if (pr.retpno() == no)
                {
                        fp.close();
                        pr.show_product();
                        cout << "\nPlease Enter The New Details of Product:" << endl;
                        modifyByDelete(no);
                        write_product();
                        int pos = -1 * (int)sizeof(pr);
                        fp.seekp(pos, ios::cur);
                        fp.write((char*)&pr, sizeof(product));
                        cout << "\n\n\t Record Updated";
                        found = 1;
                }
            }
            fp.close();
            if (found == 0)
                cout << "\n\n Record Not Found ";
}
void menu() {
            system("cls");
            fp.open("product.txt", ios::in);
            if (!fp)
            {
                cout << "ERROR!!! FILE COULD NOT BE OPEN\n\n\n Go To Admin Menu to
create File";
                cout << "\n\n\n Program is closing ....";
                exit(0);
            }
            cout << "\n\t\tPRODUCT MENU\n\n";
            cout <<
"==========================================================\n";
            cout << "P.NO.\t\tNAME\t\tPRICE\t\tDiscount\n";
            cout <<
"==========================================================\n";
            while (fp.read((char*)&pr, sizeof(product)))
            {
                cout << pr.retpno() << "\t\t" << pr.retname() << "\t\t" << pr.retprice() << "LE"
<< "\t\t" << pr.retdis() << "%" << endl;
```

```cpp
            }
            fp.close();
}
void intro() {
            system("cls");
            cout << setw(10) << "\n\n\
==========================================\n ";
            cout << setw(40) << ">> PRODUCT  MANAGEMENT SYSTEM<<\n ";
            cout << setw(10) << "========================================= \n";
            cout << "\n\n\n     by   \n";
            cout << "1-Amal Mohammed,\n";
            cout << "2-Tassnem Shahen,\n";
            cout << "3-Rehab Mohammed,\n";
            cout << "4-Maha Mohammed,\n";
            cout << "5-Menna Aymen,\n";
            cout << "6-Mariam Samy.\n";
            cout << "\n\nFaculty of Engineering,Helwan University";
            cout << "\n\nDepartment of Computer Engineering \n\n";
}
char ch2;

void admin_menu()
{
            cout << "\n\n\n\tADMINISTRATION MENU \n";
            cout << "\t_____";
            cout << "\n\n\t1:CREATE PRODUCT";
            cout << "\n\n\t2:DISPLAY ALL PRODUCTS";
            cout << "\n\n\t3:QUERY ";
            cout << "\n\n\t4:MODIFY PRODUCT";
            cout << "\n\n\t5:DELETE PRODUCT";
            cout << "\n\n\t6:VIEW PRODUCT MENU";
            cout << "\n\n\t7:Change Password";
            cout << "\n\n\t8:BACK TO MAIN MENU";
            cout << "\n\n\tPlease Enter Your Choice (1-8) ";
            ch2 = getchar();
            switch (ch2)
            {
            case '1':system("cls");
                write_product();
                break;
```

```cpp
        case '2': display_all(); break;
        case '3':
            int num;
            system("cls");
            cout << "\n\n\tPlease Enter The Product No. ";
            cin >> num;
            display_sp(num);

            break;
        case '4': modify_product(); break;
        case '5': delete_product(); break;
        case '6': menu(); break;
        case'7': system("cls"); change_password(); break;
        case '8': break;
        default:cout << "\a"; system("cls"); admin_menu();
        }
}
void place_order()
{
        int order_arr[50], quan[50], c = 0;
        float amt, damt, total = 0;
        char ch = 'Y';
        menu();
        cout << "\n\n\n\n\n =============================== ";
        cout << "\n -->>PLACE YOUR ORDER<<--";
        cout << "\n =============================== \n";
        do {
            cout << "\n\nEnter The No. Of The Product : ";
            cin >> order_arr[c];
            cout << "\nQuantity in number : ";
            cin >> quan[c];
            c++;
            cout << "\nDo You Want To Order Another Product ? (y/n)";
            cin >> ch;
        } while (ch == 'y' || ch == 'Y');
        system("cls");
        cout << "\n\t\t***Thank You For Placing The Order***\n";
        cout << "\n*******************************INVOICE*****************************\n";
        cout << "\nPr No.\tPr Name\tQuantity \tPrice \tAmount \tAmount after discount\n";
        for (int x = 0; x <= c; x++)
```

```cpp
        {
            fp.open("product.txt", ios::in);
            fp.read((char*)&pr, sizeof(product));
            while (!fp.eof())
            {
                    if (pr.retpno() == order_arr[x])
                    {
                            amt = pr.retprice() * quan[x];
                            damt = amt - (amt * pr.retdis() / 100);
                            cout << "\n" << order_arr[x] << "\t" << pr.retname() << "\t" <<
quan[x] << "\t\t" << pr.retprice() << "\t" << amt << "\t\t" << damt;
                            total += damt;
                    }
                    fp.read((char*)&pr, sizeof(product));
            }
            fp.close();
        }
        cout << "\n\n\t\t\t\t\tTOTAL = " << total;
}

void main()
{
        char ch;
        intro();
        system("pause");
        system("cls");
        do
        {
            cout << "\n\t\t WELCOME TO PRODUCT MANAGEMENT SYSTEM
APPLICATION  \n";
            cout << "\t****************************************************************\n\n";
            cout << "\n\n\n\tMAIN MENU\n";
            cout << "\t_____";
            cout << "\n\n\t1: CUSTOMER";
            cout << "\n\n\t2: ADMINISTRATOR";
            cout << "\n\n\t3: EXIT";
            cout << "\n\n\tPlease Select Your Option ";
            cin >> ch;
            switch (ch)
            {
```

```cpp
            case '1':
                    system("cls");
                    accounts();
                    break;
            case '2':
                    system("cls");
                    password();
                    admin_menu();
                    break;

            case '3':exit(0);

            default:
                    cout << "\a";
                    system("cls");
            }
        } while (ch != '3');
}
```