

# **KENDRIYA VIDYALAYA**

## **NO. 1**



**INVESTIGATORY PROJECT ON:**

**“LIBRARY BILL MANAGEMENT”**

**SUBMITTED BY: OM SHUKLA &**

**“SARTHAK SHARMA”**

**CLASS: XII B**

**ROLL.NO:22 & 25 RESPECTIVELY**

# **CERTIFICATE**

This is to certify that Investigatory Project is successfully completed by Om Shukla AND Sarthak Sharma of Class: XII B Roll no. :22 and 25 for the academic year 2020-2021 in the partial fulfillment of the Computer science practical examination conducted by CBSE.

Signature of examiner

signature of subject teacher

# **Acknowledgement**

*We Om Shukla and Sarthak sharma of class XIIth- B would like to express my sincere gratitude to my computer science teacher MR. RAJU LAL MEENA PGT COMPUTER SCIENCE, for his vital support, guidance and encouragement – without which this project would not have come forth.*

*I would also like to express my gratitude to my school KENDRIYA VIDYALAYA no-1 BATHINDA CANTT for letting me use the school computer laboratory.*

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# **BRIEF OVERVIEW**

Bill management system is developed using python. While using this bill management system we can easily calculate total bill of the customer. Moreover, the total bill is calculated including service charge and state tax.

All you have to do is to just fill the questions asked by the computer with item and quantities .The program will display your total bill with number of items purchased.

There is no error and warning content in this project. This design is so simple that user won't find it difficult to use and navigate

## **INPUT DATA AND VALIDATION OF PROJECT**

- ❖ All the fields such as sales payments discounts are validated and do not take invalid values.
- ❖ Each form of sales, discounts, stock cannot accept the blank values.
- ❖ Avoiding errors in data.
- ❖ Controlling amount of given data.

## **SOFTWARE AND HARDWARE REQUIREMENTS**

**Data file handling:** has been effectively used in the program. The database is a collection of interrelated data to serve multiple applications. That is database programs create files of information. So we see that files are worked with most, inside the program.

**DBMS:** The software required for the management of data is called as DBMS. It has 3 models:

Relation model

- ❖ Hierarchical model
- ❖ Network model

**RELATIONAL MODEL:** It's based on the concept on relation. Relation is the table that consists of rows and columns. The rows of the table are called tuple and the columns of the table are called attribute. Numbers of rows in the table is called as cardinality. Number of columns in the table is called as degree.

**HIERARCHICAL MODEL:** In this type of model, we have multiple records for each record. A particular record has one parent record. No child record can exist without parent record. In this, the records are organized in tree.

### **CHARACTERISTICS OF DBMS**

- ❖ It reduces the redundancy
- ❖ Reduction of data inconsistency
- ❖ Data sharing
- ❖ Data standardization

### **DIFFERENT TYPES OF FILES: -BASED ON ACCESS**

- ❖ Sequential file
  - ❖ Serial file
  - ❖ Random file
- BASED ON STORAGE:-**
- ❖ Text file
  - ❖ Binary File

# **Need of computerization**

Bill management is a python based project and we have developed bill management system using mysql and mysql connector. It is easy to operate and understand by users. The calculations of bills is done in a short period of time and it's not time consuming. It ensures accurate records and minimizes the inevitable and costly errors with manual data enter.

This accurate data helps to provide accurate performance and payroll data. Most bill management system is built around highly secure system and highly reliable and secure and can help prevent time theft and administrative costs stemming. With just few clicks we can generate accurate reports on hours worked.

Software programs constantly evolve. A program used today may be obsolete within several years. Being trained on today's software does not guarantee it will be used when you are ready to go out into the field. Understanding calculations is timeless, as is computer competency. Software, however, shifts rapidly.

# **Merits**

- ❖ It generates the report on the number of items purchased by customer.
- ❖ Provides filter report on payments, inventory and products.
- ❖ We can easily export PDF on products sold.
- ❖ Applications can also provide excel export for sales and discounts.
- ❖ It deals with monitoring the information and transaction of products.
- ❖ It increases the efficiency of managing sales and discount.
- ❖ It has higher efficiency of editing, adding and updating of records.
- ❖ Provides the searching facilities on various factors

# **Demerits**

- ❖ Excel export has not been developed for products sold.
- ❖ The transactions are executed in offline mode only.
- ❖ Online transactions for sales, discounts, or other data modifications are not possible.
- ❖ Offline reports of sales, products, discounts and stocks cannot be generated due to batch mode execution



## QUERY TO CREATE DATABASE :

C:\Program Files (x86)\MySQL\MySQL Server 5.1\bin\mysql.exe

Enter password:

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 18

Server version: 5.1.33-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> create database library;

Query OK, 1 row affected (0.05 sec)

mysql> use library;

Database changed

mysql> create table customer (name varchar(110),address varchar(500),city char(30),state char(30),mob\_number int(200));

Query OK, 0 rows affected (0.08 sec)

mysql> desc customer;

Field	Type	Null	Key	Default	Extra
name	varchar(110)	YES		NULL	
address	varchar(500)	YES		NULL	
city	char(30)	YES		NULL	
state	char(30)	YES		NULL	
mob_number	int(200)	YES		NULL	

5 rows in set (0.03 sec)

mysql> create table item (serial\_no int(10),item\_name char(200),price int(50),quantity int(50));

Query OK, 0 rows affected (0.07 sec)

mysql> desc item;

Field	Type	Null	Key	Default	Extra
serial_no	int(10)	YES		NULL	
item_name	char(200)	YES		NULL	
price	int(50)	YES		NULL	
quantity	int(50)	YES		NULL	

4 rows in set (0.02 sec)

mysql>

## INPUT PYTHON CODING :

```
sarthak & om project.py - C:\Users\hp\Downloads\sarthak & om project.py (3.9.1)
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import mysql.connector
conn=mysql.connector.connect(user='root',password='root',host='localhost',databa
myc=conn.cursor()
#details given by manager
o="y"
while(o=="y" or o=="Y"):
    m="""          BOOKS SHOPPING
                *SARTHAK & OM Mart*
        shop no. 3 basant bagh enclave
        PIN CODE: 151001
        mobile number-8421468850"""
    print(m)
    print('''press N for BUYING NOVELS
press T for BUYING TEXTBOOKS
press G for BUYING GUIDE''')
    print("type X if you DON'T want to buy anything")
    c=str(input("enter your choice(N\T\G\X):"))
    #press N for BUYING NOVELS
    #press T for BUYING TEXTBOOKS
    #press G for BUYING GUIDE
    #press X to exit from program
    if(c=="N" or c=="n"):
        print("~~~NOVEL'S~~~")
        impt=int(input("no. of item purchase:"))
        for a in range(1,impt+1):
            print(a)
            date=input("invoice date:")
            print("details of customer")
            customer=str(input("customer's name:"))
            address=str(input("customer's address:"))
            city=str(input("customer's city:"))
            state=str(input("customer's state:"))
            mobilenumber=int(input("customer's mobile number:"))
            sql1="insert into customer (name,address,city,state,mob_number) values('{)
            myc.execute(sql1)
            conn.commit()

            total=0
            maxitem=50 # maximum number of items can be purchased at a time |
            if(impt<=maxitem):
```

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```
total=0
maxitem=50 # maximum number of items can be purchased at a time |
if(impt<=maxitem):
    for a in range(1,impt+1):
        print("serial no:",a)
        i=str(input("item name:"))
        rate=float(input("price of item in rupees:"))
        qty=int(input("quantity of item purchased:"))
        value=qty*rate # total price of product with no. of quantity
        print("Total price:",value) # total amount of particular product
        total=total+value # total amount of all products
        sql2="insert into item (serial_no,item_name,price,quantity) values(("
        myc.execute(sql2)
        conn.commit()
    print("Items Purchased Till Now:")
    myc.execute('select * from item')
    data=myc.fetchall()
    for row in data:
        print(row)
    print("Total Amount:",total)
    gst=28/100
    gtax=total*gst #gst taxed amount
    price=total+gtax # total amount of all products after adding gst
    if(total<100):
        print("Final price:",price)
    elif(total>=100 and total<=800):
        discount=5/100
        dprice=total*discount # discount amount
        print("Final price:",price-dprice)
    elif(total>800 and total<=5000):
        discount=15/100
        dprice=total*discount
        print("Final price:",price-dprice)
    elif(total>5000 and total<=14000):
        discount=20/100
        dprice=total*discount
        print("Final price:",price-dprice)
    elif(total>14000):
        discount=25/100
        dprice=total*discount
```

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```
dprice=total*discount
print("Final price:",price-dprice)
elif(total>14000):
    discount=25/100
    dprice=total*discount
    print("Final price:",price-dprice)
else:
    print(" Sorry You Can Only Buy 41 Items At A Time")
print("NOVEL'S BILL")
elif(c=="T" or c=="t"):
    print("~~TEXTBOOK'S~~")
    date=input("invoice date:")
    impt=int(input("no. of item purchase:"))
    print("details of customer")
    customer=str(input("customer's name:Mr./Miss:"))
    adress=str(input("customer's adress:"))
    city=str(input("customer's city:"))
    state=str(input("customer's state:"))
    mobilenumber=int(input("customer's mobile number:"))
    sql1="insert into customer (name,address,city,state,mob_number) values('{}'
myc.execute(sql1)
conn.commit()

total=0
maxitem=41 # maximum number of items can be purchased at a time
if(impt<=maxitem):
    for a in range(1,impt+1):
        print("serial no:",a)
        i=str(input("item name:"))
        rate=float(input("price of item in rupees:"))
        qty=int(input("quantity of item purchased:"))
        value=qty*rate # total price of product with no. of quantity
        print("Total price:",value) # total amount of particular product
        total=total+value # total amount of all products
        sql="insert into item (serial_no,item_name,price,quantity) values('{}'
myc.execute(sql)
conn.commit()
print("Items Purchased Till Now:")
myc.execute('select * from item')
data=myc.fetchall()
```

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```
print("Items Purchased Till Now:")
myc.execute('select * from item')
data=myc.fetchall()
for row in data:
    print(row)
print("Total Amount:",total)
gst=8/100
gtax=total*gst #gst taxed amount
price=total+gtax # total amount of all products after adding gst
if(total<800):
    print("Final price:",price)
elif(total>=800 and total<=6000):
    discount=5/100
    dprice=total*discount # discount amount
    print("Final price:",price-dprice)
elif(total>6000 and total<=11000):
    discount=15/100
    dprice=total*discount
    print("Final price:",price-dprice)
elif(total>11000 and total<=15000):
    discount=20/100
    dprice=total*discount
    print("Final price:",price-dprice)
elif(total>15000):
    discount=25/100
    dprice=total*discount
    print("Final price:",price-dprice)
else:
    print(" Sorry You Can Only Buy 41 Items At A Time")
print("TEXTBOOK'S BILL")

elif(c=="G" or c=="g"):
    print("~~GUIDES~~")
    date=input("invoice date:")
    impt=int(input("no. of item purchase:"))
    print("details of customer")
    customer=str(input("customer's name:Mr./Miss:"))
    address=str(input("customer's adress:"))
    city=str(input("customer's city:"))
    state=str(input("customer's state:"))
```

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```
state=str(input("customer's state:"))
mobilenumber=int(input("customer's mobile number:"))
sql1="insert into customer (name,address,city,state,mob_number) values('{}'
myc.execute(sql1)
conn.commit()

total=0
maxitem=41 # maximum number of items can be purchased at a time
if(impt<=maxitem):
    for a in range(1,impt+1):
        print("serial no:",a)
        i=str(input("item name:"))
        rate=float(input("price of item in rupees:"))
        qty=int(input("quantity of item purchased:"))
        value=qty*rate # total price of product with no. of quantity
        print("Total price:",value) # total amount of particular product
        total=total+value # total amount of all products
        sql="insert into item (serial_no,item_name,price,quantity) values('{}'
        myc.execute(sql)
        conn.commit()
    print("Items Purchased Till Now:")
    myc.execute('select * from item')
    data=myc.fetchall()
    for row in data:
        print(row)
    print("Total Amount:",total)
    gst=4/100
    gtax=total*gst #gst taxed amount
    price=total+gtax # total amount of all products after adding gst
    if(total<200):
        print("Final price",price)
    elif(total>=200 and total<=500):
        discount=5/100
        dprice=total*discount # discount amount
        print("Final price:",price-dprice)
    elif(total>500 and total<=900):
        discount=15/100
        dprice=total*discount
        print("Final price:",price-dprice)
    elif(total>900 and total<=15000):
```

```
for row in data:
    print(row)
print("Total Amount:",total)
gst=4/100
gtax=total*gst #gst taxed amount
price=total+gtax # total amount of all products after adding gst
if(total<200):
    print("Final price",price)
elif(total>=200 and total<=500):
    discount=5/100
    dprice=total*discount # discount amount
    print("Final price:",price-dprice)
elif(total>500 and total<=900):
    discount=15/100
    dprice=total*discount
    print("Final price:",price-dprice)
elif(total>900 and total<=15000):
    discount=20/100
    dprice=total*discount
    print("Final price:",price-dprice)
elif(total>15000):
    discount=25/100
    dprice=total*discount
    print("Final price:",price-dprice)#final price is calculated after a
else:
    print(" Sorry You Can Only Buy 41 Items At A Time")
print("~~~GUIDES~~~")
elif(c=="x" or c=="X"):
    exit()
else:
    print("PLEASE ENTER A VALID PRODUCT CATEGORY")
    print("  N for NOVEL'S")
    print("  T for TEXTBOOKS ")
    print("  G for GUIDE'S")
t="""      *****THANK YOU*****
      ***VISIT US AGAIN***
      **ARMart@modernworld.in*****
print(t)
o=input("want to run again y/n or Y/N")
```

## **Output :**

```
IDLE Shell 3.9.1
File Edit Shell Debug Options Window Help
Python 3.9.1 (tags/v3.9.1:1e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\hp\Downloads\sarthak & om project.py =====
    BOOKS SHOPPING
        *SARTHAK & OM Mart*
        shop no. 3 basant bagh enclave
        PIN CODE: 151001
        mobile number-8421468850
press N for BUYING NOVELS
press T for BUYING TEXTBOOKS
press G for BUYING GUIDE
type X if you DON'T want to buy anything
enter your choice (N\T\G\X):n
~~NOVEL'S~~
no. of item purchase:1
1
invoice date:02/02/2021
details of customer
customer's name:sarthak sharma
customer's address:bibi wala chowk
customer's city:bathinda
customer's state:punjab
customer's mobile number:784597648
serial no: 1
item name:journey to busan
price of item in rupees:450
quantity of item purchased:2
Total price: 900.0
Items Purchased Till Now:
(1, 'journey to busan', 450, 2)
Total Amount: 900.0
Final price: 1017.0
NOVEL'S BILL
    *****THANK YOU*****
        ***VISIT US AGAIN***
            **ARMart@modernworld.in**
want to run again y/n or Y/Nn
>>> |
```

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```
***VISIT US AGAIN***
**ARMart@modernworld.in**
want to run again y/n or Y/Nn
>>>
===== RESTART: C:\Users\hp\Downloads\sarthak & om project.py =====
BOOKS SHOPPING
    *SARTHAK & OM Mart*
    shop no. 3 basant bagh enclave
    PIN CODE: 151001
    mobile number-8421468850
press N for BUYING NOVELS
press T for BUYING TEXTBOOKS
press G for BUYING GUIDE
type X if you DON'T want to buy anything
enter your choice (N\T\G\X):g
~~GUIDES~~
invoice date:03/02/2021
no. of item purchase:1
details of customer
customer's name:Mr./Miss:om shukla
customer's adress:basant bagh
customer's city:batinda
customer's state:punjab
customer's mobile number:978456859
serial no: 1
item name:full marks mathematics
price of item in rupees:150
quantity of item purchased:2
Total price: 300.0
Items Purchased Till Now:
(1, 'journey to busan', 450, 2)
(1, 'full marks mathematics', 150, 2)
Total Amount: 300.0
Final price: 297.0
~~GUIDES~~
*****THANK YOU*****
***VISIT US AGAIN***
**ARMart@modernworld.in**
want to run again y/n or Y/Nn
>>> |
```

## ❖ Database stored in sql:

### For first output:-

```
C:\Program Files (x86)\MySQL\MySQL Server 5.1\bin\mysql.exe
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 22
Server version: 5.1.33-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> use library;
Database changed
mysql> select*from customer;
+-----+-----+-----+-----+-----+
| name          | address          | city    | state  | mob_number |
+-----+-----+-----+-----+-----+
| sarthak sharma | bibi wala chowk  | bathinda | punjab | 784597648 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select*from item;
+-----+-----+-----+-----+
| serial_no | item_name          | price | quantity |
+-----+-----+-----+-----+
| 1         | journey to busan   | 450   | 2         |
+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql>
```

### For second output:-

```
C:\Program Files (x86)\MySQL\MySQL Server 5.1\bin\mysql.exe

+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select*from item;
+-----+-----+-----+-----+
| serial_no | item_name          | price | quantity |
+-----+-----+-----+-----+
| 1         | journey to busan   | 450   | 2         |
+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select*from customer;
+-----+-----+-----+-----+-----+
| name          | address          | city    | state  | mob_number |
+-----+-----+-----+-----+-----+
| sarthak sharma | bibi wala chowk  | bathinda | punjab | 784597648 |
| om shukla      | basant bagh      | batinda  | punjab | 978456859 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> select*from item;
+-----+-----+-----+-----+
| serial_no | item_name          | price | quantity |
+-----+-----+-----+-----+
| 1         | journey to busan   | 450   | 2         |
| 1         | full marks mathematics | 150   | 2         |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

# **Future enhancements**

1. The process of gathering information, diagnosing the problems, then interpreting facts is known as System analysis. It also includes recommending system improvements needed, based on the same data.
2. The system is observed as a whole; the inputs need to be identified firstly before turning them and then the system is subjected to study as a whole to identify the problem areas.
3. Although tunings any system as a whole is a complex procedure, but tuning individual statements is not the best as something that is correct for one input may hurt another inputs performance.
4. The solutions are given as a proposal. The suggestion is revised on user request and optimal changes are made. This loop terminates as soon as the user is gratified with the proposal.
5. So on the whole, system analysis is done to improve the system performance by monitoring it and obtaining the best throughput possible from it. Therefore system analysis plays a crucial role in designing any system.

# **Bibliography**

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- ❖ <https://www.python.org>
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