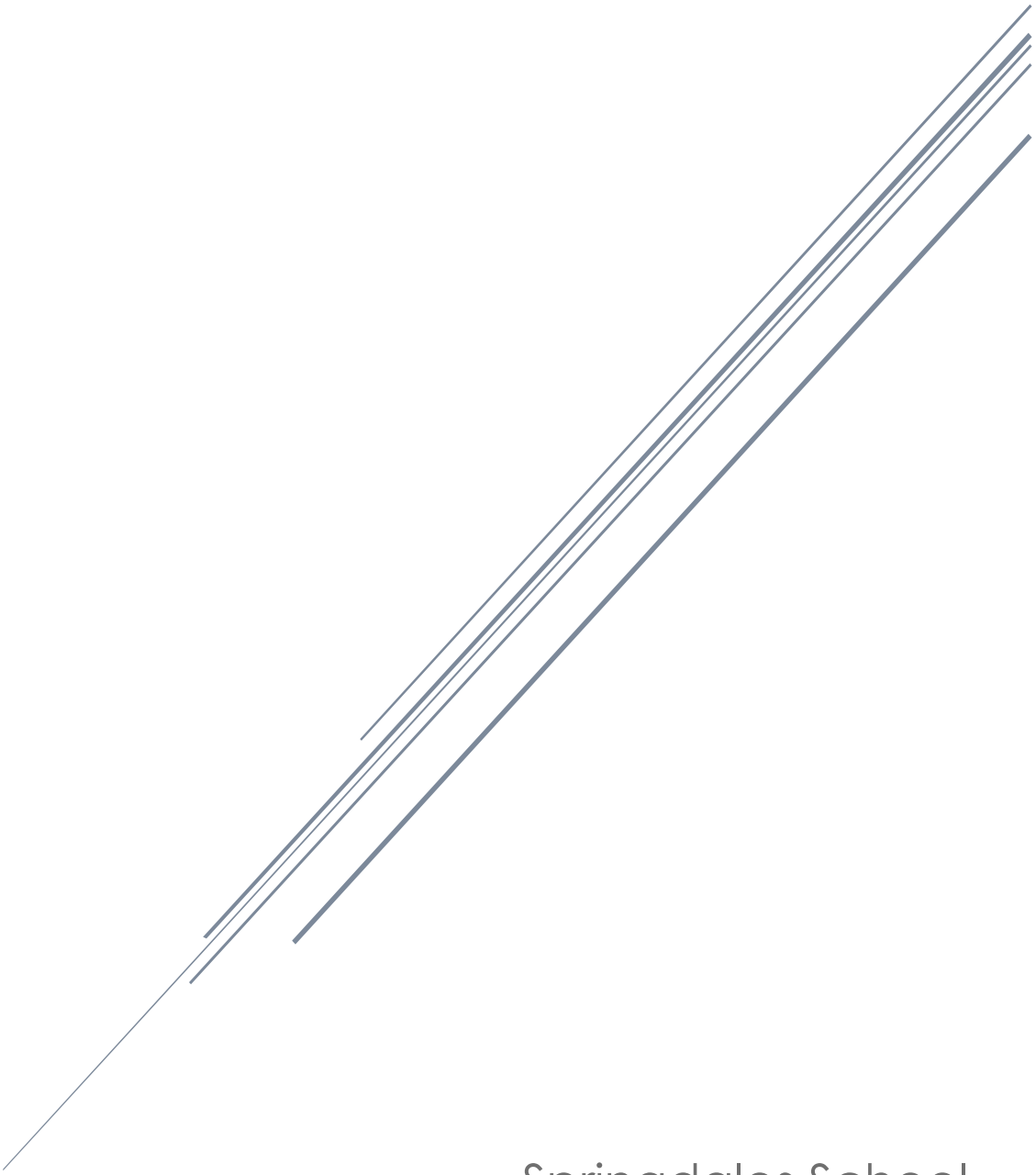
COMPUTER SCIENCE PROJECT

POS Cash Register Software



Springdales School
Pusa Road

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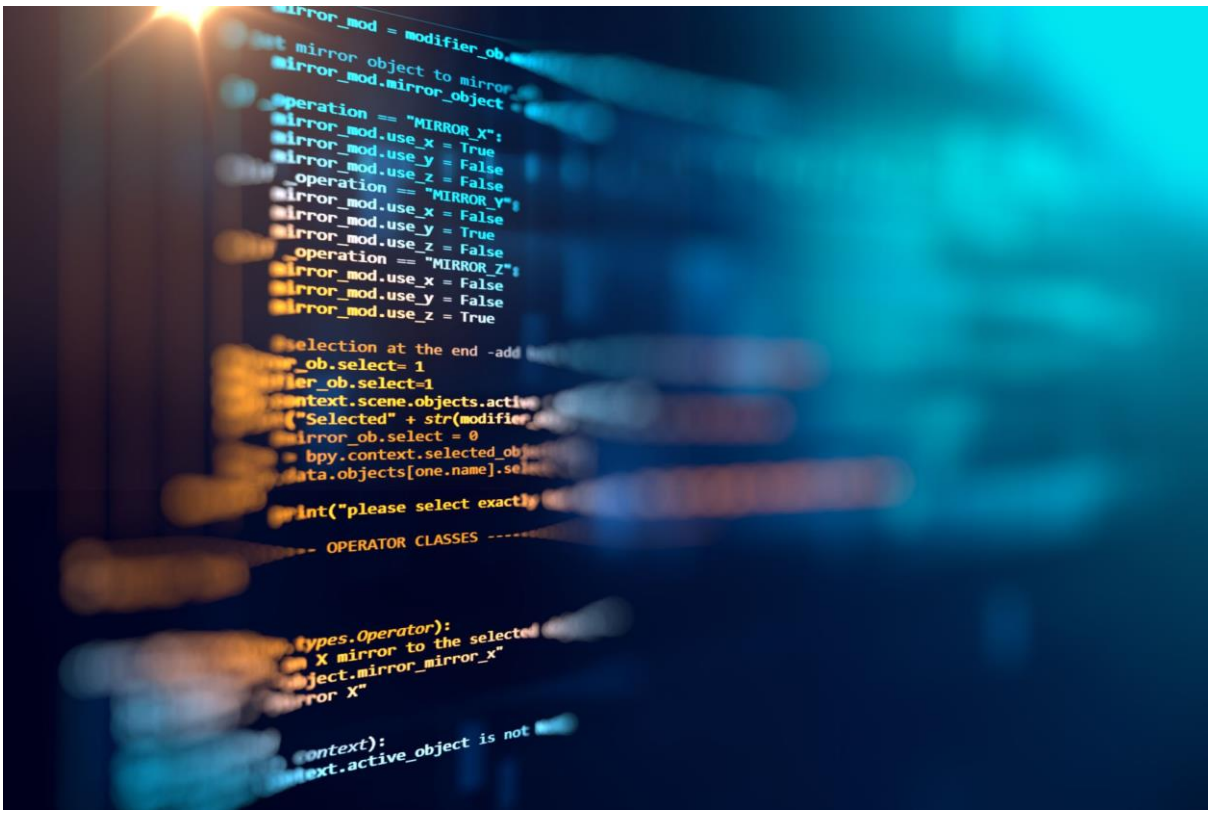


CERTIFICATE

This is to certify that Kushagra Kumar, Board roll no._____submitted a project entitled "POS Cash Register Software" as a partial fulfilment for the practicall examination conducted by the Central Board Of Secondary Education under my supervision.

Mrs.Bela Diwan

Senior Computer Teacher

Springdales School

Pusa Road

New Delhi

ACKNOWLEDGEMENT

I take extreme pleasure in expressing my profound gratitude towards my computer science teacher, Mrs.Bela Diwan, for giving me invaluable guidance and constant support throughout the course of the my project work.

Kushagra Kumar

Class XII A

POS Cash Register Software

Proposed System:

Proposed system is such a system which is automated using computers in every manner. Computerized systems are not just simple machines but they are capable of doing much complex, tedious and cumbersome tasks.

Manual System:

Manual system means a system which does it's work itself, not by help of any technology.

*Processing of data by hand is satisfactory only when the amount of data to be processed is small and also the manual processing is slow, monotonous and often subject to error.

Project Idea and Concept

The main objective of the Cash Register Software is to manage the details of Payments and Salary. It manages all the information about the organization.

- Managing orders of customers.
- Calculation Profits after every sale.
- Having a record of all the stock available.
- Show the performance of the brand over time for various logistics.
- Calculating Receipt
- A Menu display for easy accessibility
- Efficient and less time consuming.
- Keeping track of deliveries.

INTRODUCTION

1. The proposed project "POS Cash Register Software" has been developed to overcome the problems faced in the practicing of manual system.
2. This Cash Register Software is a software which can be used to manage all the employee, product, financial data of a small company or brand in a simple and automated fashion.
3. It is fully computerized Utility Program which is used to store all types of data in tables using Python-MySQL Connectivity accessed using a Menu Interface.

MODULES USED

mysql-connector-python: It enables Python progams to access MySQL databases, using an API Specification.

datetime: Python Datetime Module supplies classes to work with date and time.

numpy: NumPy is a python library used for working with arrays.

Matplotlib: Matplotlib is an amazing visualization library in Python for 2D plots of arrays.

tabulate: Tabulate is an open source Python package/module which is used to print tabular data in nicely formatted tables.

csv: The csv module implements classes to read and write tabular data in CSV format.

Source Code

```
#main.py


import mysql.connector


import AdminOperator
import CashierOperator
import PurchasesOperator
import RegisterOperator
import StatisticsOperator
import SalesOperator


#Python-MySQL Connection

db =
mysql.connector.connect(host="localhost",user="root",passwd="Cheetah1",auth
_plugin='caching_sha2_password',database='POS')

if db.is_connected()==True:
    print("CONNECTED")
mycursor = db.cursor()


#Creating the required database

mycursor.execute("CREATE TABLE Stock(Description varchar(30), Code
varchar(10) PRIMARY KEY, Reserved_Stock int, Available_Stock int, Price
int, Category varchar(20), Main_Supplier varchar(20), Bought datetime NOT
NULL")
mycursor.execute("CREATE TABLE Employee(Name varchar(20), EmpID varchar(10)
PRIMARY KEY, Age smallint,Position varchar(20), Salary float, Address
varchar(50), Created datetime, Gender ENUM('M','F','O')")
mycursor.execute("CREATE TABLE Receipt(Name varchar(20), Qty smallint,
Description varchar(30) PRIMARY KEY, Category varchar(30), Brand
varchar(20), Unit_Price(Rs) float, Amount")
mycursor.execute("CREATE TABLE Purchases(ProductID varchar(10) PRIMARY
KEY,Product varchar(20),Brand varchar(20)")




#menu

print('                                POS Cash Register Software')

print('Modes:')
print('''
      1.Admin
      2.Cashier
```

```
      3.Sales
      4.Purchases
      5.Statistics
      6.Register
      7.Stop
      ''')

Mode=int(input(">>>"))
while True:
    if Mode==1:
        AdminOperator.Admin()
        print('-----------------------------------------------------------------')
        inp=input('Do you want to search more?(Y/N) >>>')
        if inp in ['N','n']:
            break

    elif Mode==2:
        CashierOperator.Cashier()
        print('-----------------------------------------------------------------')
        inp = input('Do you want to search more?(Y/N) >>>')
        if inp in ['N', 'n']:
            break

    elif Mode==3:
        SalesOperator.Sales()
        print('-----------------------------------------------------------------')
        inp = input('Do you want to search more?(Y/N) >>>')
        if inp in ['N', 'n']:
            break

    elif Mode==4:
        PurchasesOperator.Purchases()
        print('-----------------------------------------------------------------')
        inp = input('Do you want to search more?(Y/N) >>>')
        if inp in ['N', 'n']:
            break

    elif Mode==5:
        StatisticsOperator.Statistics()
        print('-----------------------------------------------------------------')
        inp = input('Do you want to search more?(Y/N) >>>')
        if inp in ['N', 'n']:
            break

    elif Mode==6:
        RegisterOperator.Register()
        print('-----------------------------------------------------------------')
        inp = input('Do you want to search more?(Y/N) >>>')
        if inp in ['N', 'n']:
            break

    elif Mode==7:
        break

    else:
        print('No Operator. Try Again')
        print('-----------------------------------------------------------------')
```

Module 1

```
#AdminOperator.py


#Functions
import mysql.connector
from datetime import datetime
from tabulate import tabulate
import csv


def ch_emp():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT * FROM Employee")
    records=mycursor.fetchall()
    print('Total Employees are: ',len(records))
    print(tabulate(records, headers=['Name', 'EmpID', 'Age', 'Position',
'Salary', 'Address', 'Created', 'Gender']))




def HF_emp():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    n=input("Employee Name:")
    id=input("Employee ID:")
    ag=input("Age:")
    s=float(input("Salary:"))
    a=input("Address:")
    g=input("Gender('M','F','O':")
    p=input("Position:")
    mycursor.execute("CREATE TABLE Employee(Name varchar(20), EmpID
varchar(10) PRIMARY KEY, Age smallint UNSIGNED, Salary(Rs) float, Address
varchar(50), Created datetime, Gender ENUM('M','F','O')")
    choice=input("1.Hire,2.Fire")
    if choice==1:
        mycursor.execute("INSERT INTO Employee(Name, EmpID, DOB,
Salary,Position, Address, Gender) VALUES
(%s,%s,%s,%s,%s,%s)",(n,id,ag,s,p,a,g))
    else:
        mycursor.execute("DELETE FROM Employee WHERE EmpID=%s",(id,))

    db.commit()


def ch_stock():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT * FROM Stock")
    records=mycursor.fetchall()
    print(tabulate(records,
```

```
headers=['Description','Code','Reserved_Stock','Available_Stock','Price','C
ategory','Main_Supplier','Bought']))
    print("No. of total products=",len(records))
    quest=input("Do you want to enter more?(Y/N)")
    if quest in ['Y','y']:
        d=input("Description:")
        c=input("Code:")
        rs=int(input("Reserved Stock:"))
        As=int(input("Available Stock:"))
        p=float(input("Price:"))
        cat=input("Category:")
        ms=input("Main Supplier:")

        #Adding new stock
        mycursor.execute("INSERT INTO
Stock(Description,Code,Reserved_Stock,Available_Stock,Price,Category,Main_S
upplier) VALUES (%s,&s,%s,%s,%s,%s,%s)",(d,c,rs,As,p,cat,ms))

    db.commit()


def Make_orders():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    item=input("Item:")
    c = input("Code:")
    p = float(input("Price:"))
    cat = input("Category:")
    s = input("Supplier:")

    # Adding new stock
    mycursor.execute("INSERT INTO
Stock(Description,Code,Price,Category,Main_Supplier,Bought) VALUES
(%s,&s,%s,%s,%s,%s)",(item, c, p, cat, s,datetime.now()))

    db.commit()


def csv_file():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT * FROM Employee")
    records = mycursor.fetchall()
    print('Total Employees are: ', len(records))

    with open("Admin.txt","w") as cF:
        try:
            cV=csv.writer(cF, delimiter=',')
            cV.writerows(records)
        except:
            print("ERROR")
    #Reading content from csv file
    try:
        with open('Admin.txt','r') as cF:
            cR=csv.reader(cF)
            for L in cR:
                print(L)
```

```
    except FileNotFoundError:
        print("File not found")



#Input

def Admin():
    print("Menu")
    print('''
    1.Check Employees
    2.Hire/Fire Employees
    3.Check Stock
    4.Make orders for more stock.
    5.Save Employee details in the form of a csv file
    ''')
    while True:
        choice=int(input("Enter your choice:"))
        if choice==1:
            ch_emp()
        elif choice==2:
            HF_emp()
        elif choice==3:
            ch_stock()
        elif choice==4:
            Make_orders()
        elif choice==5:
            csv_file()
        else:
            break
```

Module 2

```
#CashierOperator.py


#Functions
import random
import mysql.connector
from tabulate import tabulate


def custom_orders():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    print("Welcome, what would you like to order?")
    item = input("Item:")
    c = input("Code:")
    p = float(input("Price:"))
    cat = input("Category:")
    brand=input("Brand:")
    Qty=input("Quantity:")
    mycursor.execute("DELETE FROM Stock WHERE Code=%s", (c,))
    db.commit()
```

```
    #RECEIPT
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    print()
    print()
    UP=random.uniform(10.5,2000)
    gst=UP+0.12*UP
    print("Sir, here is your receipt.")
    name=input("Enter your full name:")
    mycursor.execute("INSERT INTO
Receipt(Name,Description,Category,Brand,Unit_Price,Amount) VALUES
(%s,%s,%s,%s,%s,%s)",(name,Qty,item,cat,brand,UP,gst))

    db.commit()

def desc_cashier():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT * FROM EMPLOYEE WHERE Position=Cashier")
    records=mycursor.fetchall()

print(tabulate(records,headers=['Name','EmpID','Age','Position','Salary','A
ddress','Created','Gender']))




#Input

def Cashier():
    print("Menu")
    print('''
    1.Take and Place Customer Orders
    2.Detailed description of each cashier with name, salary, work time etc
    ''')
    while True:
        choice=int(input("Enter your choice:"))
        if choice==1:
            custom_orders()
        elif choice==2:
            desc_cashier()
        else:
            break
```

Module 3

```
#SalesOperator.py
```

```
#Functions
import mysql.connector
from tabulate import tabulate


def cust_cat():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT COUNT(*),Name FROM Receipt GROUP BY Name")
    records=mycursor.fetchall()
    print(tabulate(records, headers=['COUNT(*)','Name']))



def prod_cat():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT COUNT(*),Description FROM Receipt GROUP BY
Description")
    records = mycursor.fetchall()
    print(tabulate(records, headers=['COUNT(*)','Description']))



def brand():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT COUNT(*),Brand FROM Receipt GROUP BY Brand")
    records = mycursor.fetchall()
    print(tabulate(records, headers=['COUNT(*)','Brand']))







#Input

def Sales():
    print("Menu")
    print('''
    1.By Customer and Category.
    2.By Product and Category.
    3.By Brand.
    ''')
    while True:
        choice=int(input("Enter your choice:"))
        if choice==1:
            cust_cat()
        elif choice==2:
            prod_cat()
        elif choice==3:
            brand()
```

```
        else:
            break
```

Module 4

```
#PurchasesOperator.py


#Functions
import mysql.connector
from tabulate import tabulate

def by_prod():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',database='POS')
    mycursor = db.cursor()
    prod=input("Product:")
    id=input("ProductID:")
    mycursor.execute("INSERT INTO Purchases(ProductID,Product) VALUES
(%s,%s)",(id,prod))
    db.commit()
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT * FROM Purchases WHERE Brand IS NULL")
    records=mycursor.fetchall()
    print(tabulate(records, headers=['ProductID','Product','Brand']))



def by_supp():
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    brand = input("Brand:")
    id = input("ProductID:")
    mycursor.execute("INSERT INTO Purchases(ProductID,Brand) VALUES
(%s,%s)", (id, brand))
    db.commit()
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT * FROM Purchases WHERE Product IS NULL")
    records = mycursor.fetchall()
    print(tabulate(records, headers=['ProductID', 'Product', 'Brand']))



#Input

def Purchases():
    print("Menu:")
    print('''
    1.By Product.
    2.By Suppliers.
```

```
    ''')
    while True:
        choice=int(input("Enter your choice:"))
        if choice==1:
            by_prod()
        elif choice==2:
            by_supp()
        else:
            break
```

Module 5

```
#StatisticsOperator.py


#Functions
import matplotlib.pyplot as pl
import mysql.connector
import numpy as np

def brand():
    listb = list()
    item = list()
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',
                                 database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT Qty FROM Receipt")
    records = mycursor.fetchall()
    for x in records:
        for y in x:
            item.append(y)
    mycursor.execute("SELECT Brand FROM Receipt")
    records = mycursor.fetchall()
    for x in records:
        for y in x:
            listb.append(y)
    C = item
    D = listb
    pl.axis('equal')
    pl.pie(C, labels=D)



def common_goods():
    listg=list()
    item=list()
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT DESCRIPTION FROM Receipt")
    records = mycursor.fetchall()
    for x in records:
        for y in x:
            item.append(y)
    mycursor.execute("SELECT Qty FROM Receipt")
    records = mycursor.fetchall()
    for x in records:
```

```
        for y in x:
            listg.append(y)
    C=listg
    D=item
    pl.axis('equal')
    pl.pie(C,labels=D)




def salary():
    listk=list()
    name=list()
    db = mysql.connector.connect(host="localhost", user="root",
passwd="Cheetah1", auth_plugin='caching_sha2_password',database='POS')
    mycursor = db.cursor()
    mycursor.execute("SELECT SALARY FROM Employee")
    records = mycursor.fetchall()
    for x in records:
        for y in x:
            listk.append(y)
    mycursor.execute("SELECT Name FROM Employee")
    records = mycursor.fetchall()
    for z in records:
        for k in x:
            name.append(y)
    a=name
    b=listk
    pl.barh(a,b)



def reputation():
    a=np.linspace(2000,2022,22)
    b=(3,4,10,12,7,6,8,3,2,1,5,7,8,9,7,8,10,9,8,7,6,12)
    pl.plot(a,b,marker='.')
    pl.xlabel('Time Period')
    pl.ylabel('Brand Reputation')
    pl.show()




#Input

def Statistics():
    print('Menu:')
    print('''
    1.Data per Brand.
    2.Quantity of common goods.
    3.Salary of employees.
    4.Brand reputation.
    ''')
    while True:
        choice=int(input("Enter your choice"))
        if choice==1:
            brand()
        elif choice==2:
            common_goods()
```

```
        elif choice==3:
            salary()
        elif choice==4:
            reputation()
        else:
            break
```

Module 6

```
#RegisterOperator.py

#Functions

import random

def order_per_day():
    orders=random.randint(20,100)
    print("No.of orders:",orders)



def payment_methods():
    print("Available Payment Methods:")
    print('''
    1.Cash
    2.Checks
    3.Debit Cards
    4.Credit Cards
    5.Electronic Bank Transfers
    6.Mobile Payments
    ''')

#Input

def Register():
    print("Menu")
    print('''
    1.Orders per day.
    2.Payment methods available.
    ''')
    while True:
        choice=int(input("Enter your choice:"))
        if choice==1:
            order_per_day()
        elif choice==2:
            payment_methods()
        else:
            break
```

Sample Output

POS Cash Register Software

Modes:

1.Admin

2.Cashier

3.Sales

4.Purchases

5.Statistics

6.Register

7.Stop

>>>5

Menu:

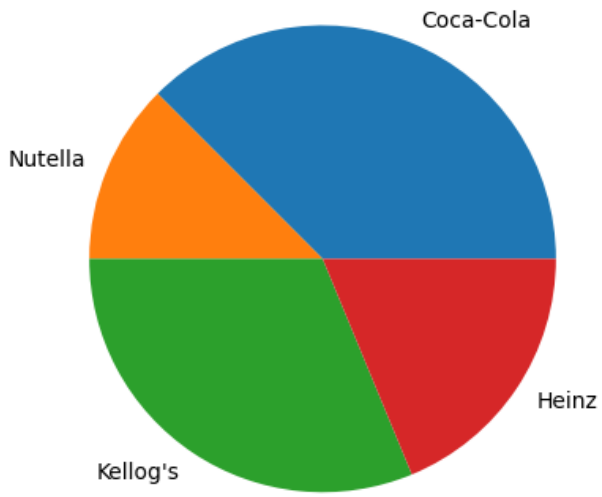
1.Data per Brand.

2.Quantity of common goods.

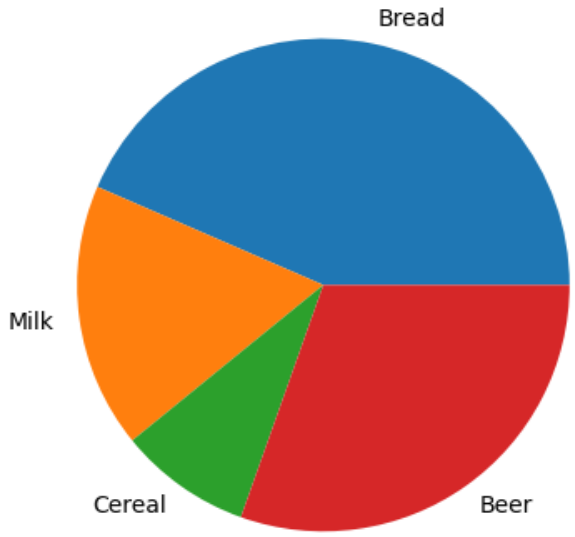
3.Salary of employees.

4.Brand reputation

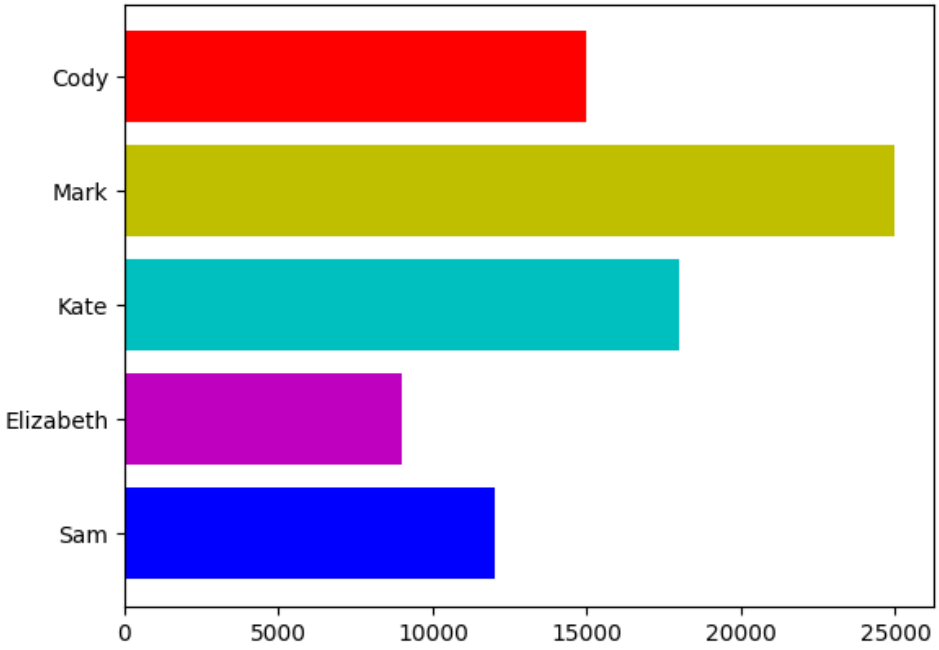
Enter your choice:1



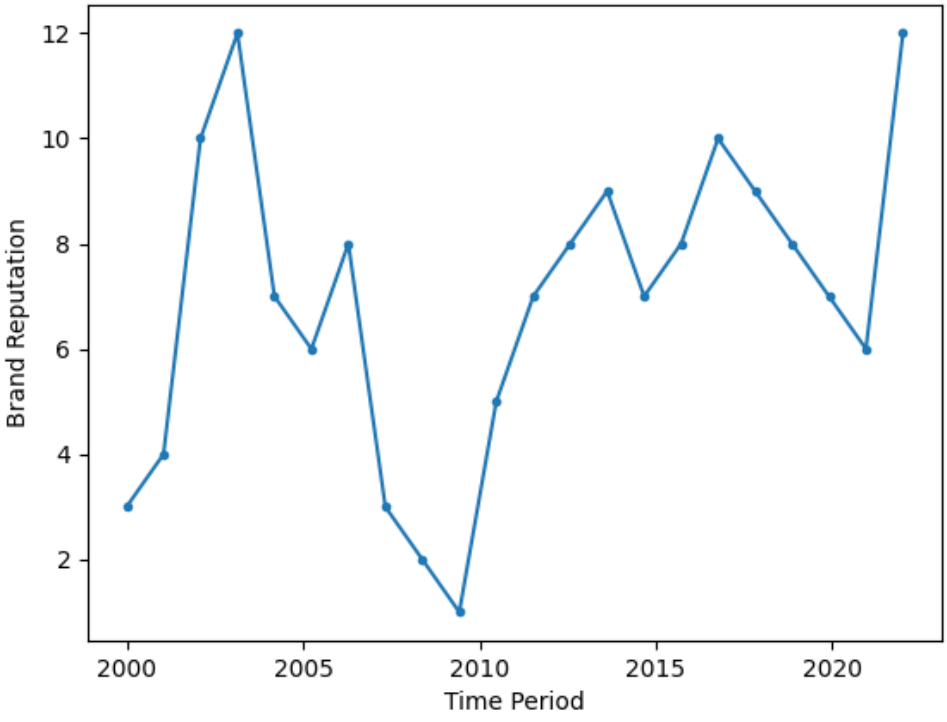
Enter your choice:2



Enter your choice:3



Enter your choice:4



Do you want to search more?(Y/N) >>>N

Process finished with exit code 0

Hardware and Software Specifications

Minimum Hardware:

- Processor: Pentium G2030 @ 3.70GHz
- Processor Speed: 533MHz
- RAM: 2GB
- Hard Disk: 2.00GB

Minimum Software:

- Operating System: Windows 7
- Front End: Python 3.6
- Back End: MySQL server 5.0

CONCLUSION

POS Cash Register Software developed for a company has been designed to achieve maximum efficiency and reduce time taken to handle data management. It is designed to replace an existing manual record system thereby reducing time taken for calculations and for storing data.

References and Inspirations

- NCERT Textbook
- Sumita Arora Computer Science Class 12
- Nextar POS Cash Register Software
- freecodecamp.org
- www.wikipedia.com