**A blue and red checkout system

Description automatically generatedSUPERVISION CERTIFICATE**

A PROJECT REPORT SUBMITTED TO CENTRAL BOARD OF SECONDARY EDUCATION FOR THE PARTIAL FULFILLMENT OF INFORMATICS PRACTICES PROJECT WORK.

DEPARTMENT OF COMPUTER SCIENCE

ARMY PUBLIC SCHOOL, AMRITSAR

PUNJAB-143107

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This Is to Certify That Work Presented in The Project Entitled "StockSIM" Submitted for The Partial Fulfilment of CBSE INFORMATICS PRACTICES Exam To The CBSE New Delhi Is A Bona fide Project Work Carried Out By YUVRAJ, ISHAAN Students of Class 12, Army Public School, Amritsar, Punjab Under My Guidance And Supervision.

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Army Public School Amritsar

***PROJECT SYNOPSIS***

**PROJECT DEFINITION**

To Design a project to allow user to create bills and manage inventory in a business.

**TEAM MEMBERS:**

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**REASON FOR CHOOSING THE TOPIC:**

A billing system automates the creation of bills, reducing time spent manually creating them by hand. Thus, ensures that bills are generated quickly and accurately in shop-like scenario.

**OBJECTIVE:**

* To let user create and edit an inventory of items, their prices, stock and discounts.
* To graphically show the sales data of a business.
* To create bills for customer and retrieve the latest one made.
* To automate totalling in bills.
* To automate changes in inventory after each transaction.

**HARDWARE REQUIREMENT:**

* A computer/laptop
* Operating System – Windows 10 or above
* 4 GB RAM
* 512 MB of free disk space

**LIMITATIONS:**

* It is not a web-based project
* UI can be more responsive
* More functionality can be added as per requirements

**REFERENCES:**

* Online Python Documentation
* Textbook – Class XI and XII – INFORMATICS PRACTICES as per NCERT
* Google.com

**TreeMap of Project:**

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|-- main.py

`-- data/

|-- db.csv

`-- lastbill.csv

**main.py**

**#Help text and imports**

a = """

Commands:

viewitems

add <icode> <cat> <name> <istock> <iprice> <discount>

remove <icode>

stock <icode> <change>

edit <icode> <field> <value>

newbill

viewsales

viewlastbill

savedb

exit

bill commands:

cancel

addedit <icode> <qty>

remove <icode> <qty>

use \"-\" instead of spaces in between of entries

"""

import matplotlib.pyplot as plt

import numpy as np

import datetime

import pandas as pd

import os

fields = ['icode','category','name','istock','iprice',"idiscount","isold"]

store = pd.read\_csv("./data/db.csv", header=None, index\_col=0,

names=['icode','category','name','istock','iprice',"idiscount","isold","netsales"], dtype={"istock":int,"iprice":float,"idiscount":float,"isold":float,"netsales":float})

last\_bill = pd.read\_csv("./data/lastbill.csv",header=None,index\_col=0,

names=['name','qty','price',"discount","amt"])

def parse\_bill(inp: str):

    y = inp.strip().split(" ")

    y[1] = y[1].upper()

    if y[0].upper() == "ADDEDIT":

        try:

            aoe\_bill(y[1],int(y[2]))

        except  IndexError:

            print("Invalid input")

    elif y[0].upper() == "REMOVE":

        try:

            rem\_bill\_item(y[1])

        except AttributeError:

            print("Item not in bill")

    else:

        print("Invalid command")

def parse\_menu(inp: str):

    x = inp.strip().split(" ")

    try:

        x[1] = x[1].upper()

    except:

        pass

    if x[0].upper() == "EXPORT":

        export\_data(store)

    elif x[0].upper() == "ADD":

        add\_item(x[1],x[2].replace("-"," "),x[3].replace("-"," "),

int(x[4]),float(x[5]),float(x[6]),int(x[7]),int(x[8]))

        print("New Item added!")

    elif x[0].upper() == "REMOVE":

        rem\_item(x[1])

        print("Item removed!")

    elif x[0].upper() == "STOCK":

        stock(x[1],int(x[2]))

        print("Stock updated!")

    elif x[0].upper() == "EDIT":

        edit(x[1],x[2],x[3].replace("-"," "))

        print("Data edited!")

    elif x[0].upper() == "HELP":

        print(a)

    elif x[0].upper() == "VIEWITEMS":

        print(store)

    elif x[0].upper() == "NEWBILL":

        makebill()

    elif x[0].upper() == "CLS":

        os.system("cls")

    elif x[0].upper() == "EXIT":

        z = input("Do you want to save changes? (y/n): ")

        if z == "y":

            export\_data(store)

            exit()

        else:

            exit()

    elif x[0].upper() == "SAVEDB":

        export\_data(store)

    elif x[0].upper() == "VIEWSALES":

        viewsales()

    elif x[0].upper() == "VIEWLASTBILL":

        print(last\_bill)

    else:

        print("no such command as", x[0], "try \"help\"")

#main function

def main():

    global store

    print("Welcome to CheckOutApp")

    print("Type \"help\" to get to list of all commands")

    while True:

        inx = input("> ")

        try:

            parse\_menu(inx)

        except IndexError:

             print("Missing Arguments, use \"help\"")

#database commands

def stock(icode: str,change:int):

    if store.loc[icode,"istock"]+change >= 0:

        store.loc[icode,'istock'] += change

    else:

        print("Must have atleast 0 stock")

def edit(icode: int, field: str ,value: any):

    store.loc[icode,field]=value

def add\_item(icode: str,cat: str,name: str,istock: int,iprice:float,

discount: float,isold: int, netsales: float):

store.loc[icode]=[cat,name,istock,iprice,discount,isold, netsales]

def rem\_item(icode: str):

    del store.loc[icode]

def export\_data(df:pd.DataFrame):

    df.to\_csv("./data/db.csv",header=False, index\_label="icode")

#bill commands

def aoe\_bill(icode: str,qty: int): # add if not present/ edit if present

    global bill

    if store.loc[icode,"istock"] >= qty:

        bill.loc[icode] = [store.loc[icode,'name'],

qty,store.loc[icode,'iprice'],

store.loc[icode,'idiscount'],0]

        bill.loc[icode,'amt'] = store.loc[icode,'iprice']\*qty\*

(100-store.loc[icode,'idiscount'])/100

    else:

        print("\n")

        print("Not enough stock")

    print("\n")

    print(bill)

    print('\n')

def rem\_bill\_item(icode): # delete item from bill

    try:

        del bill.loc[icode]

    except:

        print("Item not in bill")

    print("\n")

    print(bill)

    print('\n')

def finalize\_bill(): # print bill and save a copy in lastbill.csv

    global now

    print("Bill finalized")

    now = str(datetime.datetime.now().strftime("%Y-%m-%d %H:%M:%S"))

    print("Timestamp: ",now)

    print("Customer Name: ", cname)

    print("Total Amount: ",bill['amt'].sum())

    print(bill)

    for i in bill.index:

        store.loc[i,"istock"] -= bill.loc[i,'qty']

        store.loc[i,"isold"] += bill.loc[i,'qty']

        store.loc[i,"netsales"] += bill.loc[i,'amt']

    bill.to\_csv('./data/lastbill.csv',index\_label=cname+" "+now,header=False)

def makebill(): # billing command line

    global bill

    bill = pd.DataFrame(columns=['name','qty','price',"discount","amt"])

    global cname

    print(store)

    print("Ready for bill generation")

    cname = input("Enter customer name: ")

    while True:

        iny = input(">bill>")

        if iny.upper() == "CANCEL":

            break

        elif iny.upper() == "FINALIZE":

            finalize\_bill()

            break

        parse\_bill(iny)

#sales graph

def viewsales():

    plt.figure(figsize=(10,6))

    plt.subplot(1, 2, 1)

    plt.bar(store.index,store['isold'])

    plt.title("Units sold")

    plt.subplot(1, 2, 2)

    plt.barh(store.index,store['netsales']//1000)

    plt.title("Sales in thousands")

    plt.tight\_layout()

    plt.show()

main()

**db.csv**

FUR1798,Furniture,Bush Somerset Collection Bookcase,17,20999.0,0.0,5.0,104995.0

OFF2365,Office Supplies,Xerox 1967,3,1199.0,0.2,0.0,0.0

EDI1949,Edibles,Apple,50,30.0,0.2,10.0,299.4

TEC1950,Technology,Cisco SPA 501G IP Phone,18,16999.0,0.2,10.0,169650.02

OFF1234,Office Supplies,Paper A4 500 bundle,70,400.0,0.0,5.0,2000.0

OFF1235,Office Supplies,Paper A4 1000 bundle,49,700.0,5.0,1.0,665.0

**lastbill.csv**

FUR1798,Bush Somerset Collection Bookcase,5,20999.0,0.0,104995.0

EDI1949,Apple,10,30.0,0.2,299.4

OFF1234,Paper A4 500 bundle,5,400.0,0.0,2000.0

OFF1235,Paper A4 1000 bundle,1,700.0,5.0,665.0

TEC1950,Cisco SPA 501G IP Phone,10,16999.0,0.2,169650.02

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“viewitems” command

“help” command

**A screenshot of a computer

Description automatically generated**

“add” command

**A screen shot of a computer

Description automatically generated**

“remove” command

**A screenshot of a computer screen

Description automatically generatedA screenshot of a computer screen

Description automatically generated**

“edit” command

**A screenshot of a computer

Description automatically generated**

“addedit” command

“newbill” command

**A screenshot of a computer screen

Description automatically generated**

**A screenshot of a graph

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated**

“finalize” command

“remove” command

“viewsales” command command