INDIAN SCHOOL SOHAR

Informatics Practices

(2022-23)

Supermarket Management System

Submitted by,
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Class & Sec: XII A

ACKNOWLEDGEMENT:

First and foremost, I would like to thank the school and the principal for providing me with the opportunity to do this project. Then I would like to thank Ms. Deepa Dinesh for her assistance and guidance throughout the duration of making this project.

Next, I would like to express my gratefulness towards my parents for their encouragement and unending support.

I would also like to thank my teammates, Akshara Sabarish Nair and Naba Siddiqua who were cooperative during the making of the project and were generous with their valuable comments and constructive criticism.

INDIAN SCHOOL SOHAR

CERTIFICATE

This is to certify that **Sharon Sujan** of class **XII A** has carried out the project entitled "**Supermarket Management System**" as per the syllabus prescribed by the Central Board of Secondary Education, India for the subject **Informatics Practices (065)** during the academic year **2022-23**.

Signature of the Guide

Signature of the External Examiner

Signature of the Principal

Date: _____

Place: ISS, Sohar

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Introduction to Python:

Python is a widely-used, interactive, high-level, powerful yet easy-to-learn programming language. It was created by Guido van Rossum and was first released on February 20, 1991.

Python renders numerous useful features which makes it more valuable and popular from the rest of the programming languages;

- Python has a very user-friendly and simple syntax thereby reducing the rate of program maintenance.
- Prototyping can be very quick since code can be executed as soon as it is written.
- More functions can be developed using less coding.
- Due to its extensive framework, modules and libraries, Python encourages code reuse and program modularity.
- Python is efficient and reliable and can be utilized in many diversities of environments like desktop applications, mobile applications, hardware programming, and web app development.

- The high-level inbuilt data constructions, united with dynamic binding and dynamic typing, make it attractive for rapid application development.
- This language gives the developers a chance to try something innovative thus being flexible.
- The Garbage collection(GC) feature in Python is a memory recovery feature by which it automatically frees up memory space that has been allocated to objects no longer needed by the program.

Feasibility study

The feasibility study is the important step in any software development process. This is because it makes analysis of different aspects like - cost required for developing and executing the system, the time required for each phase of the system and so on. If these important factors are not analyzed then definitely it would have impact on the organization & the development and the system would be a total failure.

The purpose of a feasibility study is not to solve the problem, but to determine whether the problem is worth solving. By making analysis this way it would be possible to make a report of identified area of problem. By making a detailed analysis in this area a detailed document or report is prepared in this phase which has details like project plan or schedule of the project, the cost estimated for developing and executing the system, target dates for each phase of delivery of system developed and so on. This phase is the base of software development process since further steps taken in software development life cycle would be based on the analysis made on this phase and so careful analysis has to be made in this phase.

The feasibility study concentrates on the following area (TELOS):
Technology and system feasibility

- Economic feasibility
- Legal feasibility
- Operational feasibility
- Schedule feasibility

Technology and system feasibility

The assessment is based on an outline design of system requirements, to determine whether the company has the technical expertise to handle completion of the project.

Economic feasibility (Cost/Benefit Analysis)

The economic feasibility study evaluates the cost of the software development against the ultimate income or benefits expected from the developed system. It includes identifying cost and benefit factors like—Development costs and Operating costs. There must be scopes for profit after the successful completion of the project.

Legal feasibility

It determines whether the proposed system conflicts with legal requirements, e.g. a data processing system must comply with the local Data Protection Acts.

Operational feasibility

Operational feasibility is a measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development.

Schedule feasibility

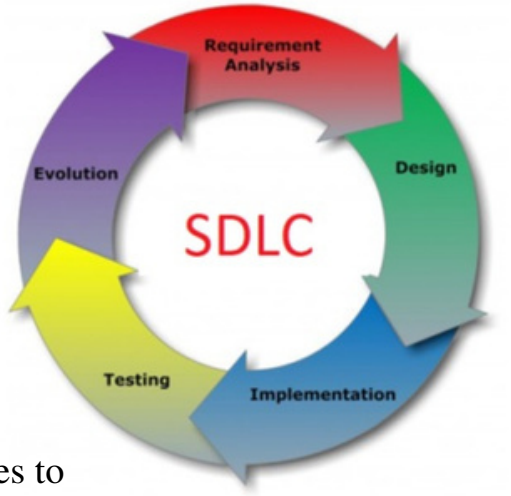
A project will fail if it takes too long to be completed before it is useful. Typically this means estimating how long the system will take to develop, and if it can be completed in a given time period using some methods like payback period. Schedule feasibility is a measure of how reasonable the project timetable.

Advantages of making Feasibility study:

- As the initial step of software development life cycle, feasibility study has all the analysis part in it, which helps in analyzing the system requirements completely.
- Helps in identifying the risk factors involved in developing and deploying the system.
- It helps in making cost/benefit analysis which helps the organization and system to run efficiently.
- It is a report which could be used by the senior or top persons in the organization. This is because, based on the report the organization decides about cost estimation, funding, and other important decisions which is very essential for an organization to run profitably and for the system to run stable.

Software Development Life Cycle

The Systems Development Life Cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project from an initial feasibility study through maintenance of the completed application.



The following are the activities of the SDLC

- Software requirement analysis
- Systems analysis and design
- Design/Code generation
- Testing
- Development and Maintenance

A Systems Development Life Cycle (SDLC) adheres to important phases that are essential for developers, such as planning, analysis, design, and implementation. A number of system development life cycle (SDLC) models have been created such as waterfall, fountain, spiral etc.

Requirement Analysis/Investigation

The 1st stage of SDLC is the investigation phase. During this stage, business opportunities and problems are identified, and information technology solutions are discussed. Multiple alternative projects may be suggested and their feasibility analyzed. The results of the feasibility study can then be compiled into a report, along with preliminary specifications. When the investigation stage ends, a decision whether or not to move forward with the project should be made.

System Analysis

The goal of system analysis is to determine where the problem is, in an attempt to fix the system. It analyzes the requirement for the proposed system. To understand the nature of the program to build, the system engineer must understand the information domain for the software, as well as required functions, performance and the interfacing. This step involves breaking down the system in different pieces to analyze the situation, analyzing project goals,breaking down what needs to be created.

From the available information the system engineer develops a list of system level requirement for the project.

Design

Systems design describes screen layouts, business rules, process diagrams, a complete entity-relationship diagram with a full data dictionary and other documentation. It defines specifically how the software is to be written including an object model, the client/server technology, a detailed database design etc. These design elements are intended to describe the software in sufficient detail that skilled programmers may develop the software with minimal additional input design. Analysis and design are very important in the whole development cycle. Any glitch in the design could be very expensive to solve in the later stage of the software development.The design must be translated into a machine readable form.

Testing

In this stage, all the pieces of software are brought together into a special testing environment and then are checked for errors, bugs and interoperability. Unit, system and user acceptance testing is often performed.

Deployment and Maintenance

Deployment is the final stage of initial development. It involves installation, initial training and may involve hardware and network upgrades. Software will definitely undergo change once it is delivered to the customer. There may be many reasons for the change. Change could be due to some unexpected input values into the system. The software should be developed to accommodate changes that could take place during the post implementation period. Maintaining the system is also an important aspect of SDLC.

About the Project

The project titled ‘Supermarket Management System’ uses python.CSV (Comma Separated Values) to transfer the data stored in spreadsheet files into dataframes. It is an easy and efficient way of organising the various functions of a supermarket like generating a bill, viewing the employee’s data, the inventory and the graphs outlining the total sales in each month and the quantities initially ordered and the quantities sold in a year.

Promotional emails that are generated and sent to the customers enables the company to advertise products and offers at a minimum cost beneficial to the customers. This also helps the company in building up and maintaining a customer database that can be used for purposes like market research at any point in the future. The program helps in maintaining the Human resources department of the mart in processes like employee training and development, compensation, job delegation. The code also gives an insight into the performance of products in the mart. This in turn helps reduce loss - due to wastage (in case of perishable items) and expired goods. It aides in deciding when and whether to replenish an item or discontinue it and/or bring in competitor products.Through the promotional email that is generated and sent for the customer after every purchase indirect marketing is done.

It provides an overall better experience for the cashier, the customer and the supermarket staff and has clear cut instructions that can be easily followed. The data captured in the inventory table under ‘Quantity initially ordered’, ‘Quantity sold’ and ‘Quantity available’ helps in fixing the ROL(reorder level) of each item in the store.

Hardware and Software used

Hardware used:

Device: MacBook Air

Processor: 1.1GHz dual-core Intel Core i3,Turbo Boost up to 3.2GHz

System type: 32-bit operating system, x64-based processor

Edition: M1, 2020

Software used: Python 3.8.10

Microsoft word for project documentation

Microsoft excel for csv.

Source Code

```
import pandas as pd
import numpy as np
#Options
print(('*'*15),('WELCOME TO SUNSHINE MART'),('*'*15),'\n')
print('1.BILL GENERATION\n')
print('2.EMPLOYEE DETAILS\n')
print('3.INVENTORY\n')
print('4.GRAPHS\n')
#Importing employee data dataframe
f=pd.read_csv("//Users//sharo2//Desktop//emp det.csv",skiprows=1)
#Importing inventory dataframe
l=pd.read_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
#Setting itemno. as index
l.set_index('Itemno.',inplace=True)
x=input('Select your option: ')
#Bill Generation
if x=='1':
    j=[]  #j is price list
    quantity=[]
    item=[] #item name list
    print(l.iloc[:,0:3]) #printing inventory dataframe
    p=int(input('Enter number of items to be purchased: '))
    for i in range(p):
        u=input('Enter item number you want to purchase: ')
#Entering items to be purchased
        if u=='1':
            e=int(input('Enter quantity: '))
            print()
            h=l.iloc[0,2] #h is price.
            o=l.iloc[0,1] #o is item name
```

```
     print("Price for",o,'is:',h*e,'Rs')
    j.append(h*e) #Total price calculation for 1 product
    item.append(o) #Adding item to item list
    quantity.append(e) #Adding quantity to quantity list
    b=l.iloc[0,5]
    a=b-e
    l.iloc[0,5]=a
    l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
elif u=='2':
     e=int(input('Enter quantity:'))
     print()
     h=l.iloc[1,2]
     o=l.iloc[1,1]
     print("Price for",o,'is:',h*e,'Rs')
     j.append(h*e)
     item.append(o)
     quantity.append(e)
     b=l.iloc[0,5]
     a=b-e
     l.iloc[0,5]=a
     l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')

elif u=='3':
     e=int(input('Enter quantity:'))
     print()
     h=l.iloc[3,2]
     o=l.iloc[2,1]
     print("Price for",o,'is:',h*e,'Rs')
     j.append(h*e)
     item.append(o)
     quantity.append(e)
     b=l.iloc[0,5]
     a=b-e
     l.iloc[0,5]=a
     l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
```

```
elif u=='4':
    e=int(input('Enter quantity: '))
    print()
    h=l.iloc[3,2]
    o=l.iloc[3,1]
    print("Price for",o,'is:',h*e,'Rs')
    j.append(h*e)
    item.append(o)
    quantity.append(e)
    b=l.iloc[0,5]
    a=b-e
    l.iloc[0,5]=a
    l.to_csv("//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv")
elif u=='5':
    e=int(input('Enter quantity: '))
    print()
    h=l.iloc[4,2]
    o=l.iloc[4,1]
    print("Price for",o,'is:',h*e,'Rs')
   j.append(h*e)
   item.append(o)
   quantity.append(e)
   b=l.iloc[0,5]
   a=b-e
   l.iloc[0,5]=a
   l.to_csv("//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv")
elif u=='6':
   e=int(input('Enter quantity: '))
   print()
   h=l.iloc[5,2]
   o=l.iloc[5,1]
   print("Price for",o,'is:',h*e,'Rs')
   j.append(h*e)
   item.append(o)
   quantity.append(e)
```

```
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='7':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[6,2]
        o=l.iloc[6,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='8':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[7,2]
        o=l.iloc[7,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='9':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[8,2]
        o=l.iloc[8,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
```

```
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='10':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[9,2]
        o=l.iloc[9,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='11':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[10,2]
        o=l.iloc[10,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='12':
        e=int(input('Enter quantity: ')) print()
        h=l.iloc[11,2]
        o=l.iloc[11,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
```

```
        quantity.append(e)
         b=l.iloc[0,5]
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='13':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[12,2]
        o=l.iloc[12,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='14':
        e=int(input('Enter quantity: '))
        print()
        h=l.iloc[13,2]
        o=l.iloc[13,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
        a=b-e
        l.iloc[0,5]=a
        l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
    elif u=='15':
        e=int(input('Enter quantity: ')) print()
        h=l.iloc[14,2]
        o=l.iloc[14,1]
        print("Price for",o,'is:',h*e,'Rs')
        j.append(h*e)
        item.append(o)
        quantity.append(e)
        b=l.iloc[0,5]
```

```
            a=b-e
             l.iloc[0,5]=a
            l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
        else:
            print('Item number does not exist!\n') #For item numbers out of range
print(('*'*15),('WELCOME TO SUNSHINE MART'),('*'*15))
import datetime as dt
print(dt.datetime.now(),'\n') #Adding date and time to bill
print('='*15,'\n')
jk=pd.DataFrame(j,item,columns=['price']) #Creating dataframe of price
                                          # and item
jk["quantity"]=quantity #adding column quantity to dataframe
print(jk,'\n')
print('='*20)
print('Total price: ',sum(j)) #cumulative price
print('*'*20,'\n')
print('VAT IS 5%')
print('VAT =',round(sum(j)*0.05)) #tax=cumulative price*0.05
#VAT + Cumulative price
print('amount to be paid =',(round(sum(j)*0.05))+sum(j))
print('*'*20)
#SENDING PROMOTIONAL EMAILS TO CUSTOMERS
from email.message import EmailMessage
import ssl
import smtplib
sender='ipproject12a@gmail.com'
password='furcpltgfqzeyixn'
l=input("Enter customer's Gmail account: ")
receiver=l
subject='Promotional Email'
body='''
 NEW DISCOUNTS AND OFFERS
Sunshine mart is offering a new Sunny card. :)))
Fulfill your love of the sea & get the chance to explore the marine life at Oman
Aquarium with 25% off the tickets for Sunny card members!
Shop for Maxine latest Winter Collection now in-stores or shop online
with our card!!
```

```
    Shop for OMR 50 & get OMR 25 Gift voucher. Valid only on skincare
    products in our stores and many more discounts!!
     Avail at your nearest store!
     '''
    em=EmailMessage()
    em["From"]=sender
    em["To"]=receiver
    em["Subject"]=subject
    em.set_content(body)
    context=ssl.create_default_context()
    with smtplib.SMTP_SSL('smtp.gmail.com',465, context=context) as smtp:
          smtp.login(sender,password)
          smtp.sendmail(sender,receiver,em.as_string())
    print('Email sent successfully')
```

#EMPLOYEE DATA TABLE

```
elif x=='2':
      Y=input("Enter password:")
       if Y=='Dolphin':
          print('The employee details:')
          print(f)
       else:
            print('\nWrong Password!')
            print('ACCESS DENIED!\n')
# only displaying EID,ENAME,JOB for wrong password
            print (f[['EID','ENAME','JOB']])
```

#INVENTORY DATA TABLE

```
elif x=='3':
    print('select :')
    print('1. Add new item to inventory')
    print('2. Deleting existing item')
    print('3. Display inventory\n')
    y=input('Select your option:')
    if y=='1':
        a=int(input('Enter number of items to be added:'))
```

```
        for i in range(a):
            q=input('Enter item name:')
            p=input('Enter Department name:')
            o=float(input('Enter the cost:'))
            s=int(input('Available quantity:'))
            a=len(l.index)
            print(a)
            l.loc[a+1]=[p,q,o,np.nan,np.nan,s]
            l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
            print(l)
  elif y=='2':
      print(l)
      t=int(input('enter number of items to be deleted:'))
      for i in range (t):
                r=int(input('Enter item number:'))
                print(l.drop([r],inplace=True))
       l.to_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
       print(l)
  elif y=='3':
        print(l)
  else:
     print('number out of range!')
#Graph
elif x=='4':
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
    print('Select :')
    print('1. Monthly sales Chart')
    print('2. Item Sales Chart(initially ordered and amount sold in a year')
    a=input('Select your option:')
#Monthly Sales - Pie Chart
     if a=='1':
#importing dataframe sales
         df = pd.read_csv('//Users//sharo2//Desktop//Sales.csv',skiprows=2)
```

```
        colors = ["#1f77b4", "#ff7f0e", "#2ca02c", "#d62728", "#8c564b"]
        x=df['Total'] #extracting values from total column
        b=df['Month_Name'] #extracting month name from dataframe
        plt.pie(x,labels=b, colors=colors,autopct='%1.1f%%', shadow=True)
#autopct -> for calculating percentage, shadow->gives shadow effect to chart
         plt.title('Monthly sales made by employees')
         plt.show()
 #Item Sales - Horizontal Bar Chart
    elif a=='2':
        df=pd.read_csv('//Users//sharo2//Desktop//Inventory - Sheet1 (1).csv')
        l=pd.DataFrame(df)
        initial=l['Quantity initially ordered']
        sold=l['Quantity sold (in a year)']
        items=l['Item_name']
        x=np.arange(len(items))
        plt.title('Item Sales')
        plt.xlabel('Number of items')
        plt.ylabel('Items')
        plt.legend(loc=1)
        plt.barh(x,initial,0.25,label='ordered',color='k')
        plt.barh(x+0.25,sold,0.25,label='sold',color='c')
        plt.yticks(x,items)
        plt.legend(loc=1)
        plt.show()
    else:
        print('No chart displayed')

#IF ANY NUMBER OTHER THAN 1,2,3,4 IS CHOSEN
else:
      print('number shows no output')
```

OUTPUT

```
*************** WELCOME TO SUNSHINE MART ***************

1.BILL GENERATION

2.EMPLOYEE DETAILS

3.INVENTORY

4.GRAPHS

Select your option:
```

If the wrong number is entered:

```
Select your option: 5
number shows no output
```

1.Bill Generation

```
Select your option: 1
        Department                      Item_name  Cost(in rupees)
Itemno.
1          Skincare                       Facewash           150.0
2          Skincare                          Scrub           220.0
3          Skincare                          Serum           149.0
4          Skincare                     Moisturiser           199.0
5          Skincare                      Face mask            49.0
6              Food          Cooking Oil (1L bottle)           189.0
7              Food           Wheat (1kg per packet)            45.7
8              Food            Rice (1kg per packet)            65.0
9              Food              Onions (1kg per bag)            30.0
10             Food  Turmeric Powder (1kg per bag)            80.0
11       Stationary                         Erasers             5.0
12       Stationary               Pencils (set of 5)             5.5
13       Stationary                 Books (set of 2)            10.0
14       Stationary               Labels(set of 10)            15.0
15       Stationary          Sketch Pens (set of 10)            25.0
```

If item number is out of range :

```
Enter number of items to be purchased: 2
Enter item number you want to purchase: 30
Item number does not exist!
```

Choosing the item and quantity:

```
Enter number of items to be purchased: 2
Enter item number you want to purchase: 1
Enter quantity: 2

Price for Facewash is: 300.0 Rs
Enter item number you want to purchase: 2
Enter quantity:3
Price for Scrub is: 660.0 Rs
```

Bill:

```
*************** WELCOME TO SUNSHINE MART ***************
2022-11-11 19:22:59.193064

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

          price  quantity
Facewash  300.0         2
Scrub     660.0         3

====================
Total price:  960.0
********************

VAT IS 5%
VAT = 48
amount to be paid = 1008.0
********************
```

To get promotional emails:

```
Enter customer's Gmail account:[redacted]
Email sent successfully
```

NEW DISCOUNTS AND OFFERS
Sunshine mart is offering a new Sunny card. :)))
Fulfill your love of the sea & get the chance to explore the marine life at Oman Aquarium
with 25% off the tickets for Sunny card members!

Shop for Maxine latest Winter Collection now in-stores or shop online with our card!!
Shop for OMR 50 & get OMR 25 Gift voucher. Valid only on skincare products in our stores and many more discounts!!
Avail at your nearest store!

2. Employee data

For higher management:

```
Enter password:Dolphin
The employee details:
     EID   ENAME              JOB  ... Phone Number  Salary (monthly)  Gender
0  S1001   Rishi            Sales  ...   6541515865             10000       F
1  S1002   Mohan          Marketer  ...   5465486489             12000       M
2  S1003    Rema           Cashier  ...   8484511232              9000       F
3  S1004   Kamal  Customer Service  ...   8446133103             14000       M
4  S1005    Diya         Marketing  ...   9647638653             12000       F
5  S1006  Mahesh           Cashier  ...   9236578972              9000       M
6  S1007  Anupam     Customer Care  ...   9011236547             15000       M
7  S1008  Deepti           Manager  ...   9474108520             20000       F
8  S1009  Vihaan     Customer Care  ...   9378094564             15000       M
9  S1010    Tara  Customer Service  ...   9052098765             14000       F
```

For lower management:

```
Enter password:d

Wrong Password!
ACCESS DENIED!

     EID   ENAME              JOB
0  S1001   Rishi            Sales
1  S1002   Mohan          Marketer
2  S1003    Rema           Cashier
3  S1004   Kamal  Customer Service
4  S1005    Diya         Marketing
5  S1006  Mahesh           Cashier
6  S1007  Anupam     Customer Care
7  S1008  Deepti           Manager
8  S1009  Vihaan     Customer Care
9  S1010    Tara  Customer Service
```

3. Inventory

```
select :
1. Add new item to inventory
2. Deleting existing item
3. Display inventory
```

Adding a new item to inventory:

```
Enter number of items to be added:2
Enter item name:Cholocate
Enter Department name:Food
Enter the cost:40
Available quantity:100
```

```
Enter item name:Nylon Sev
Enter Department name:Food
Enter the cost:70
Available quantity:50
```

Itemno.	Department	...	Quantity Available
1	Skincare	...	61
2	Skincare	...	190
3	Skincare	...	35
4	Skincare	...	110
5	Skincare	...	64
6	Food	...	150
7	Food	...	90
8	Food	...	122
9	Food	...	60
10	Food	...	40
11	Stationary	...	60
12	Stationary	...	53
13	Stationary	...	40
14	Stationary	...	40
15	Stationary	...	42
16	Food	...	100
17	Food	...	50

Deleting items from inventory:

```
enter number of items to be deleted:1
Enter item number:17
None
          Department  ... Quantity Available
Itemno.               ...
1           Skincare  ...                 61
2           Skincare  ...                190
3           Skincare  ...                 35
4           Skincare  ...                110
5           Skincare  ...                 64
6               Food  ...                150
7               Food  ...                 90
8               Food  ...                122
9               Food  ...                 60
10              Food  ...                 40
11        Stationary  ...                 60
12        Stationary  ...                 53
13        Stationary  ...                 40
14        Stationary  ...                 40
15        Stationary  ...                 42
16              Food  ...                100
```

To display inventory:

```
select your option:3
          Department  ... Quantity Available
Itemno.               ...
1           Skincare  ...                 72
2           Skincare  ...                190
3           Skincare  ...                 35
4           Skincare  ...                110
5           Skincare  ...                 64
6               Food  ...                150
7               Food  ...                 90
8               Food  ...                122
9               Food  ...                 60
10              Food  ...                 40
11        Stationary  ...                 60
12        Stationary  ...                 53
13        Stationary  ...                 40
14        Stationary  ...                 40
15        Stationary  ...                 42
```

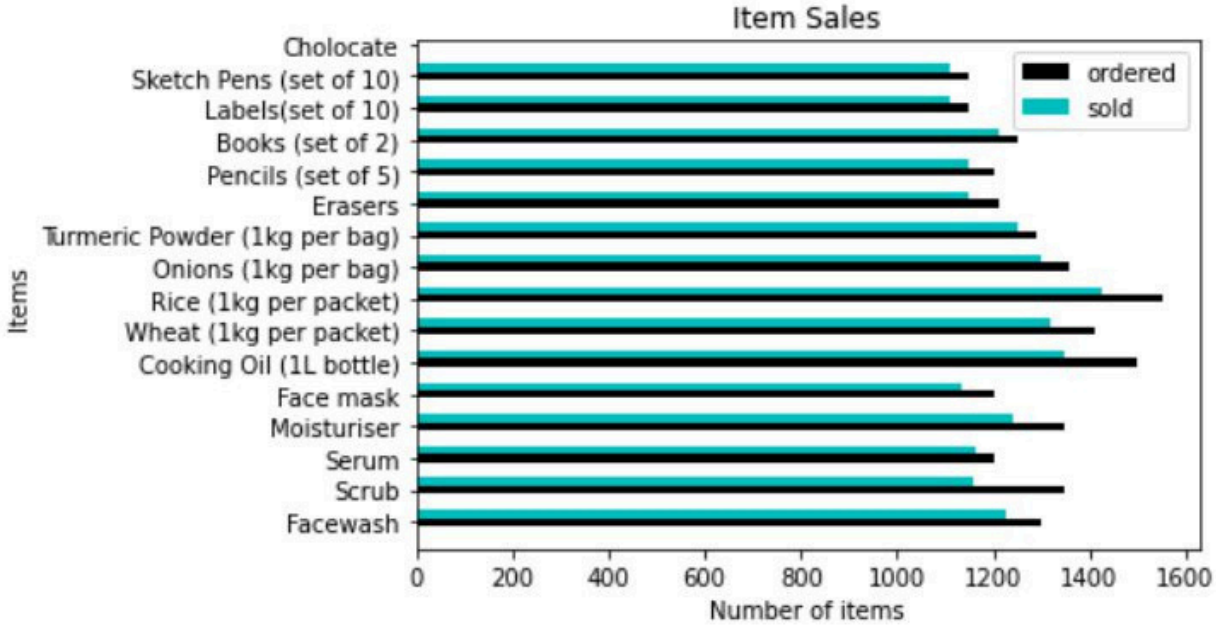
4.Graphs

For Monthly sales chart:

```
Select :
1. Monthly sales Chart
2. Item Sales Chart(initially ordered and amount sold in a year
Select your option:1
```

For Item Sales Chart:

```
Select :
1. Monthly sales Chart
2. Item Sales Chart(initially ordered and amount sold in a year
Select your option:2
```



CSV tables used

1. Inventory

Inventory

Itemno.	Department	Item_name	Cost(in rupees)	Quantity initially ordered	Quantity sold (in a year)	Quantity Available
1	Skincare	Facewash	150	1300	1225	75
2	Skincare	Scrub	220	1350	1160	190
3	Skincare	Serum	149	1200	1165	35
4	Skincare	Moisturiser	199	1350	1240	110
5	Skincare	Face mask	49	1200	1136	64
6	Food	Cooking Oil (1L bottle)	189	1500	1350	150
7	Food	Wheat (1kg per packet)	45.7	1410	1320	90
8	Food	Rice (1kg per packet)	65	1550	1428	122
9	Food	Onions (1kg per bag)	30	1360	1300	60
10	Food	Turmeric Powder (1kg per bag)	80	1290	1250	40
11	Stationary	Erasers	5	1210	1150	60
12	Stationary	Pencils (set of 5)	5.5	1200	1147	53
13	Stationary	Books (set of 2)	10	1250	1210	40
14	Stationary	Labels(set of 10)	15	1150	1110	40
15	Stationary	Sketch Pens (set of 10)	25	1150	1108	42

2. Sales

Sales table

Month_Name	Clay	Jim	Ryan	Kelly	Louis	Pranav	Charles	Dwight	Stanley	Zayn	Carlos	Daniel	Total
Jan	56	40	36	45	56	45	71	80	69	76	34	67	675
Feb	75	50	57	45	46	46	36	56	47	11	33	90	592
Mar	34	20	89	67	45	68	57	35	54	67	89	56	681
Apr	24	30	35	34	24	14	35	45	48	43	45	67	444
May	91	10	65	23	46	46	67	79	65	22	65	54	633
Jun	89	32	66	45	34	47	14	34	68	6	4	89	528
Jul	32	100	89	23	46	28	56	77	65	32	34	100	682
Aug	54	20	23	32	34	34	56	57	87	67	56	35	555
Sept	43	20	45	89	35	98	68	34	20	46	57	56	611
Oct	98	34	67	67	34	70	35	47	65	34	13	30	594
Nov	23	35	45	45	35	46	16	57	27	67	19	45	460
Dec	45	46	67	34	15	36	70	65	67	65	24	90	624

3. Employee's data:

Employee table

EID	ENAME	JOB	ADDRESS	Phone Number	Salary (monthly)	Gender
S1001	Rishi	Sales	JS road	6541515865	10000	F
S1002	Mohan	Marketer	Raj road	5465486489	12000	M
S1003	Rema	Cashier	Gopi road	8484511232	9000	F
S1004	Kamal	Customer Service	Koki road	8446133103	14000	M
S1005	Diya	Marketing	Bhima lane	9647638653	12000	F
S1006	Mahesh	Cashier	GT street	9236578972	9000	M
S1007	Anupam	Customer Care	Tagore street	9011236547	15000	M
S1008	Deepti	Manager	Kaal road	9474108520	20000	F
S1009	Vihaan	Customer Care	Avenue road	9378094564	15000	M
S1010	Tara	Customer Service	MG road	9052098765	14000	F

Bibliography

- Informatics practices textbook for class XII – Sumita Arora
- https://realpython.com
- https://www.youtube.com (How to Automate Emails with Python [New Method 2022])