LONDON METROPOLITAN UNIVERSITY

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60% Individual Coursework

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Student Name: Amish Thapa Magar

London Met ID: 22066971

College ID: E.g. NP01MM0474747

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I confirm that I understand my coursework needs to be submitted online via MySecondTeacher under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a marks of zero will be awarded.

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Introduction

In the present world there is no time for people to waste. Now imagine a busy laptop shop full of innovative devices where both buyers and sellers come together. How can this complicated network of transactions be effectively handled to ensure fast order placement and efficient distribution? By using Python programming language.

This coursework requires us to create a program for laptop a shop which has the function to buy and sell laptops. In this project we used tools such as Integrated Development and Learning Environment(IDLE), Draw.io and Microsoft Word.

IDLE

IDLE is a software application that allows programmers to write, edit, execute the code of Python. By the help of shell, we can enter the commands of Python and view the outcomes of those commands straight away. To make writing code more productive, IDLE offers syntax highlighting, code indentation, and code completion. The application that I developed can read the text file to display all the laptops available and make changes to the text file according to the nature of the transaction.

Draw.io

Draw.io is proprietary software for making diagrams and charts. The program gives you the option to design a custom layout or use the automated layout feature. They provide a wide variety of shapes and several graphic components to help you create a unique diagram or chart. The drag-and-drop feature makes it simple to create a great looking diagram or chart.

Microsoft Word

Microsoft Word is word processor made by Microsoft. It is one of the Microsoft workplace suite's tools for workplace productivity.

You may use Microsoft Word to generate papers, reports, letters, and resumes of a professional caliber. Microsoft Word provides capabilities such as spell check, grammar check, text and font formatting, HTML support, picture support, complex page layout, and more, in contrast to a simple text editor.

The aim of this project is to create a program that manages the buying and selling of laptops with various quantities and qualities. The program will read and alter the text file. A note/invoice should generate for each transaction. When a laptop is sold to a customer, a note/invoice generates (as a .txt file) which contain the name of the laptop, name of the brand, name of the customer, date and time of purchase, total amount without the shipping cost, the shipping cost itself and the total amount to be paid for the laptops which includes the shipping cost. In this software, testing will be done to demonstrate how try except has been implemented. Using Python's built-in features, the software performs a range of transactions with simplicity, assuring accurate record-keeping and efficient stock management. The program also provides error-handling features to validate user input, prevent inaccurate data entry, and maintain data integrity.

The name of the distributor, the laptop's name, the brand, the date and time of the purchase, the net amount (the total cost without VAT), the VAT amount that applies, which is 13% of the entire amount, and the gross amount (the total amount with VAT) are all listed on the note or invoice that is generated when laptops are to be bought.

Algorithm

Step 1 : Import datetime from date time module

Step 2 : Import Read file

Step 3 : Import Operation file

Step 4 : Import Write file

Step 5 : Print Arts Electronics as header

Step 6 : From Read file call filled() function assigned to VA variable

Step 7 : Print Welcome to Arts Electronics (Line break) Please enter the service you would like.

Step 8 : Set the loop condition to true

Step 9 : Set the while loop condition to true

Inside a while loop

Print 1. Sell Laptop as an option to sell laptop

Print 2. Purchase Purchase as an option to purchase laptop

Print 3. 3. Exit

Declare the variable v to False

Set the while loop while v is false

Using try exception to convert the input of option to an integer. And, if the exception occurs covert the variable option and set variable V to true

If the other exception occurs than print Please enter a valid option.

Set a If statement where option is 1

call the buyoperate() function from Operation file and set Va as a argument

Set a Elif statement where option is 2

call the selloperate() fucntion from Operation file and set Va as a argument

Set MoreProducts to false

Set a Elif statement where option is 3

Set loop to false

Print Thank you foe visiting

Print Please do visit again.

Set else statement where none of the option is entered or a valid option is entered.

Print the typed option is noton the list (line change) PLease type a valid option!

Step 1 : Import Read file

Step 2 : Import Write file

Step 3 : Define the function buyoperator(d)

Set a empty list LaptopSold

Set MoreProducts to true

Print PLease fill up the following details.

Set a variable Name to input values to enter the user's name.

set a variable PhoneNumber to input values to enter the user's phone number

Set while loop while MoreProducts is true

Print S.No Products Brand price Quantity Processor Grapics Card to provided details of the products file

Open the products file in a table

Set the variable V to false

Set while loop while V is false

Using try exception set an int input to enter the value of PurchaseITemId to identify the quality of laptop you want to buy

Set while loop while PurchasedItemId is lessthan or equal to 0 or PurchaseItemId is greater than length of the variable d

Print The ID no. you have given is not valid. (line change) Please enter a proper ID no. if the cindition takes place

Using the try exception to again ask the user to input the value in PurcahseItemId

Using the except typeerror exception if a proper value is nont written

Set the variable V to true

Using the except typeError exception to if a valid phone number is not entered by the user

Print Please re-enter your phone number again. (line change) The data written is not valid

Set the value of V to false

Set while loop while V is false

Using try exception to set the quantity

Set the variable QuantityOrder to int input data type to know the user's buying amount

Setting the variable DesiredQuantity to PurchasedItemId and updating the availabe quantity in the variable d

Set while loop while QuanityOrdered is less than or equal to 0 or QuanityOrdered is less than DesiredQuantity

Print The amount of laptop you have ordered is not available at our store at the moment. (line change) Please feel free to order the available amount is the condition takes place Set the variable DerisedQuantity to new valid value if the while condition takes place

Set the updated PurchasedItemId to PurchaseItemId - QuantityOrdered

set the file variable to openProducts.txt

set for loop values in a method returning the value of object d

Using file.values method to write the given data in a file

Using file.close method to close the file object

Set the variable V to true

Using except valueerror to check the validity of the answer

Set the variable ProductName to updated PurchaseItemId

Set the variable SelectedQuantity to QuantityOrdered

Set the variable UnitPrice to Updated PurchasedID

Set the variable SelectedQuantityPrice to updated PurchaseItemId and replace("$", '') to replace rhe first argument $ and second with empty string

Set the variable Total with SelectedQuantityPrice and SelectedQuantity multiplied

Set the variable GraphicsCard with updated PurchaseItemId

Using append to add ProductName, SelectedQuantity, UnitPrice, Total, GraphicsCard

Set CustomerRequest variable to input type to continue the service

Set a while condition if true

If the CustomerRequest is Y then

MoreProducts is true

If the CustomerRequest is N then

Total is 0

ShippingCost = 10

Set for loop in i in LaptopSold

Set the new total by adding i list's index 3

Set the GrandTotal by adding Total and ShippingCost

import datetime from datetime

Set datetime variable to current date and time

Converting variable V into a string and then splits it into a list

Converting variable a to join the elements V

Converting variable d into string manupulation on varable a and assigning it in variable d

printbuy Name, PhoneNumber, datetime, LaptopSold, Total, ShippingCost and GrandTotal

billbuy Name,d,PhoneNumber,datetime,LaptopSold,Total,ShippingCost and GrandTotal

Set MoreProducts to false

Exit the loop

If a valid answer (Y/N) is not given

Print Enter Either Y or N only

Step 4 : Define the function selloperate(va)

Set variable LaptopPurchased as an empty list

Set MoreProducts to true

Set while loop while MoreProducts is true

Print S.N Product name Brand Price Quantity Processor Graphics Card to define purchasing item

Set the file variable to open Products file

Set variable to 1

Set a for loop for line in file

Print the variable a + line.replace

Set the variable a to a + 1

Close file using file.close

Set variable SellIdNo as int input to enter the laptop the user wants to sell

Set while loop while SellIdNo is less than or equal to or SellIdNo is greather than the length of va

Print Please provide a prpper laptop ID No. if the above condition has met

Set variable SellIdNo as int input to re-renter a value as the previous value was invalid

Print Please provide your details for billing:

Set Name to ""

Set PhoneNumber to 9841

Set SellingQuantity as int input data type to enter the quantity of laptop the user wants to purchase

Set the va variable in SellIdNo's index 3 to addition of va[SellinIdNo] and SellingQuantity

Open the file Products using file Variable

Set a for loop for value in va

Set method write to write the values and add the index of 0, 1 ,2, 3, 4, 5

Close the file variable

Set ProductName to variable va[SellIdNo] index 0

Set SelectedQuantity = SellingQuantty

Set UnitPrice to va[SellIdNo] index 2

Set SelectedQuantityPrice to va[SellIdNo] index 2 and $ at first argument

Set Total to Multiplication of SelectedQuantityPrice and SelectedQuantity

Set GraphicsCard to va[SellIdNo] index 5

Add ProductName, SelectedQuantity, UnitPrice, Total, GraphicsCard in LaptopPurchase list

Set OtherRequests as input data type cycle the process if the user wants to continue the service

Set a if statement to check is OtherRequests is Y or other answer

Set MoreProducts to True

Set else to if the user selects N

Set Total to 0

Set ShippingCost to 10

Set for loop for i in LaptopPurchase to find the grand total

Set Total in addition to i variable's index 3

Set GrandTotal to addition of Total and DeliveryCharge

Import date and time from datetime

Set datetime to current date and time

Set variable va to str(datetime).split(" ")

Set variable a to "_".join(va)

Set variable va to str(a.replace(":","_"))

printsell Name, PhoneNumber, datetime, LaptopPurchased, Total, Delivery_Charge, GrandTotal

billsell Name, va, PhoneNumber, datetime, LaptopPurchased, Total, DeliveryCharge, GrandTotal

Set MoreProducts to false

Break the loop

Step 1 : Define function filled()

Open varible file to open Products.txt file

Create an empty dictionary l_d to store the product information

Set l_d to 1

Set for loop for line in file

Remove the newline character from the line using the replace() method

Update the product details to the dictionary l_d with the key as list_id.

Add increment by 1 to list_d

Close the file variable

Return the dictionary l_d

Step 2 : Define function table()

Open varible file to open Products.txt file

Set variable a to 0

Set for loop for line in file

Print a+1 + line.replace

Set variable a as its increment by 1

Set If statement to check if a is 5 or not

If not continue till variable a's value is 5

Break loop

Close the file variable

Step 1 : Define the fuction printbut with parameters Name, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost, and GrandTotal

Print the Arts Electronics, Address and Contact Info

Print the Customer's Name, Contact number, and purchase date and time

Print the purchase details header

Print the product details for each laptop sold

Print the total amount, shipping cost, and grand total

Step 2 : Define the function billbuy with parameters Name, y, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost, and GrandTotal

Open a file with the name Name in write mode and assign it to the variable file.

Write the Arts Electronics, Address and Contact Info

Write the Customer's Name, Contact number, and purchase date and time

Write the purchase details header

Write the product details for each laptop sold

Write the total amount, shipping cost, and grand total

Close the file

Step 3 : Define the function printsell with parameter Name, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost, and Grandtotal

Print the Arts Electronics, Address and Contact Info

Print the Customer's Name, Contact number, and purchase date and time

Print the purchase details header

Print the product details for each laptop sold

Print the total amount, shipping cost, and grand total

Set for loop for i in LaptopSold

Print product details

Print total cost stored in variable Total

Print shipping Cost Stored in Shipping Cost

Print final total price store in GrandTotal

Step 4 : Define the function billsell with parameters Name, y, PhoneNumber, dateandtime, LaptopSold, total, ShippingCost, and GrandTotal

Open file with Name + y + Products.txt

Write the Arts Electronics, Address and Contact Info

Write the Customer's Name, Contact number, and purchase date and time

Write the purchase details header

Write the product details for each laptop sold

Write the total amount, shipping cost, and grand total

Close the file

Pseudocode

```
import datetime
from Read import *
from Operations import *
from Write import *

print("-----------------------------------------------------------------------------------------------------------------")
print(" \t \t \t \t \t \t \t           Arts Electronics")
print("-----------------------------------------------------------------------------------------------------------------")
print ("\n")

Va = filled()

print("\nWelcome to Arts Electronics.\nPlease enter the service you would like.\n\n")
loop = True

while loop is True:
    print("1. Sell Laptop")
    print("2. Purchase Purchase")
    print("3. Exit")
    print("\n")

    V = False

    while V is False:
```

```
    try:
        Option = int(input("Choose the option to continue: "))
        V = True
    except:
        print("Please enter a valid option.")

print("\n")

if Option is 1:
    buyoperate(Va)
elif Option is 2:
    selloperate(Va)
    MoreProducts = False
    print("\n")
elif Option is 3:
    loop = False
    print("Thank you for visiting.\n")
    print("Please do visit again.\n")
    print("\n")
else:
    print(Option, "is not on the list.\nPlease type a valid option!")
```

```
import datetime
from Read import *
from Operations import *
from Write import *

print("-------------------------------------------------------------------------------------------------------------------")
print(" \t \t \t \t \t \t \t           Arts Electronics")
print("-------------------------------------------------------------------------------------------------------------------")
print ("\n")

Va = filled()

print("\nWelcome to Arts Electronics.\nPlease enter the service you would like.\n\n")
loop = True

while loop is True:
    print("1. Sell Laptop")
    print("2. Purchase Purchase")
    print("3. Exit")
    print("\n")

    V = False

    while V is False:
```

```
    try:
        Option = int(input("Choose the option to continue: "))
        V = True
    except:
        print("Please enter a valid option.")

print("\n")

if Option is 1:
    buyoperate(Va)
elif Option is 2:
    selloperate(Va)
    MoreProducts = False
    print("\n")
elif Option is 3:
    loop = False
    print("Thank you for visiting.\n")
    print("Please do visit again.\n")
    print("\n")
else:
    print(Option, "is not on the list.\nPlease type a valid option!")
```

```
function filled():
    l_d <- an empty dictionary
    file <- open file "Products.txt" in read mode

    list_id <- 1
    for each line in file:
        line <- remove newline character from line
        split_line <- split line by comma
        l_d.add(list_id, split_line)
        list_id <- list_id + 1

    close file
    return l_d

function table():
    file <- open file "Products.txt" in read mode
    a <- 0
    for each line in file:
        print a+1, "\t\t" + line with commas replaced by tabs
        a <- a + 1
        if a == 5:
            break

    close file
```

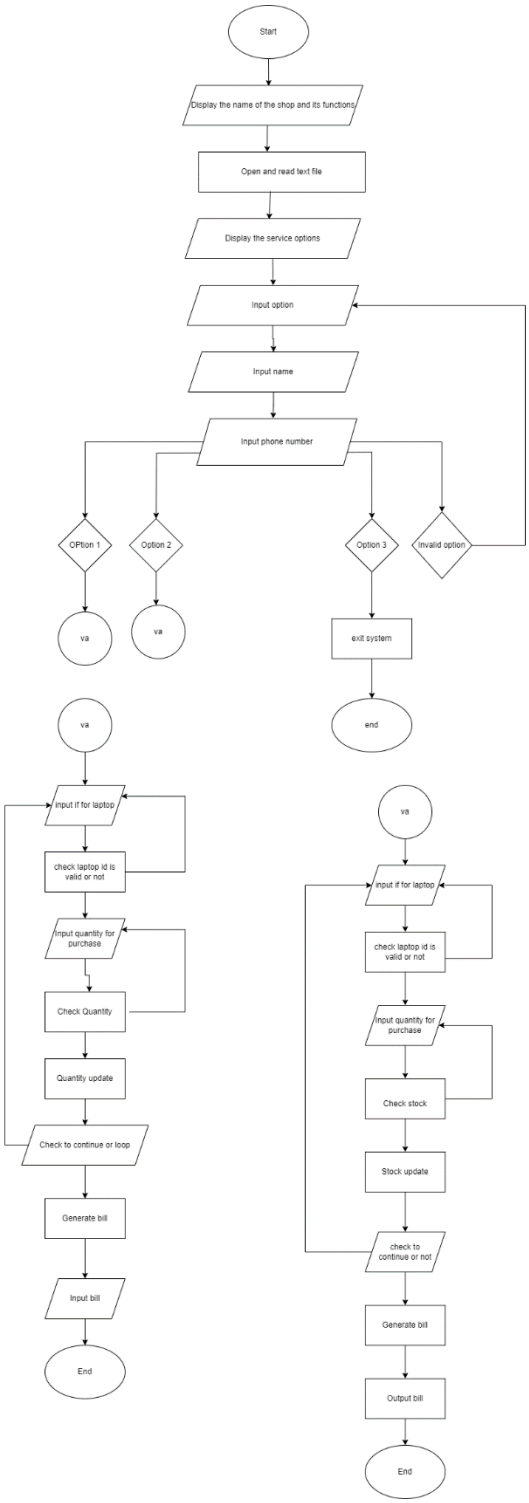
```
function printbuy(Name, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost, GrandTotal):
    print("\n")
    print("\t\t\t\t\t\t\t\t Arc Electronics")
    print("\n")
    print("\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
    print("\n")
    print("\t\t\t\t\t\t\t\t Your Bill\n\n")
    print("\nCustomer's Name: " + str(Name))
    print("\nContact number: " + str(PhoneNumber))
    print("\nPurchased on " + str(dateandtime))
    print("\n\nPurchase Details are: ")
    print("\n----------------------------------------------------------------------------------------------------------------\n")
    print("\n\nProduct Name \t\t\t Total Quantity \t\t Price(per piece) \t\t\t Total")
    print("\n----------------------------------------------------------------------------------------------------------------\n")
    for i in LaptopSold:
        print(i[0], "\t\t\t", i[1], "\t\t\t ", i[2], "\t\t\t ", "$", i[3])
    print("\n----------------------------------------------------------------------------------------------------------------\n")
    print("\nYour total is: $" + str(Total))
    print("\nYour Shipping cost is: $", ShippingCost)
    print("\nGrand Total: $" + str(GrandTotal))
    print("\n")
```

```
function billbuy(Name, y, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost, GrandTotal):
    file = open(str(Name) + "_" + str(y) + ".txt", "w")
    file.write("\n")
    file.write("\t\t\t\t\t\t\t\t Arc Electronics")
    file.write("\n")
    file.write("\t\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
    file.write("\n")
    file.write("\t\t\t\t\t\t\t\t Your Bill\n\n")
    file.write("Customer's Name: " + str(Name))
    file.write("\nContact number: " + str(PhoneNumber))
    file.write("\nDate and time of purchase: " + str(dateandtime))
    file.write("\n")
    file.write("Purchase Details are: ")
    file.write("\n----------------------------------------------------------------------------------------------------\n")
    file.write("\n\nProduct Name \t\t\t Total Quantity \t\t Price(per piece) \t\t\t Total")
    file.write("\n---------------------------------------------------------------------------------------------------- \n")
    for i in LaptopSold:
        file.write(str(i[0]) + "\t\t\t " + str(i[1]) + "\t\t\t\t\t\t " + str(i[2]) + "\t\t\t\t\t\t\t" + "$" + str(i[3]) + "\n")
    file.write("\n----------------------------------------------------------------------------------------------------\n")
    file.write("\nYour total is: $" + str(Total))
    file.write("\nYour Shipping charge is: $ " + "" + str(ShippingCost) + "\n")
    file.write("\nGrand Total: $" + str(GrandTotal))
```

```
    file.write("\n")
    file.close()


function printsell(Name, PhoneNumber, dateandtime, LaptopSold, Total,
ShippingCost, Grandtotal):
    print("\n")
    print("\t\t\t\t\t\t\t Arc Electronics")
    print("\n")
    print("\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
    print("\n")
    print("\t\t\t\t\t\t\t Your Bill\n\n")
    print("Customer's Name: " + str(Name
```

Flowchart


Start
Display the name of the shop and its functions
Open and read text file
Display the service options
Input option
Input name
Input phone number
OPtion 1
Option 2
Option 3
invalid option
va
va
exit system
end
va
input if for laptop
check laptop id is valid or not
Input quantity for purchase
Check Quantity
Quantity update
Check to continue or loop
Generate bill
Input bill
End
va
input if for laptop
check laptop id is valid or not
Input quantity for purchase
Check stock
Stock update
check to continue or not
Generate bill
Output bill
End

Data Structures

List

In Python, lists are implemented as dynamic mutable arrays that contain an organized group of elements. Arrays are data structures that include a collection of items of the same data types (for example, all elements are integers in many computer languages). Lists in Python, however, can include a variety of objects and data types. For instance, the same list may be used to contain numbers, texts, and even functions. The initial member of a list has the index of 0, and different entries of a list can be accessed by integer indices. Because lists in Python are ordered, they preserve the order in which you add entries to the list, which gives rise to this characteristic.

Dictionary

Python dictionaries are extremely comparable to actual dictionaries. These are mutable data structures that have a number of keys and the corresponding values. They are quite similar to word-definition dictionaries because of their structure. For easy access to specific information linked to a certain key, dictionaries are utilized. Uniqueness is crucial since we need to only access certain information and avoid mixing it up with other entries. When we can connect (or, to put it technically, map) a certain key to data and we need to retrieve that data rapidly (in constant time, regardless of dictionary size), we employ dictionaries. Dictionary values can also be rather complicated.

Testing

Test 1: Implementation of try, except

Objectve	To show the implementation of exception handling.
Action	To enter the user's input in option variable and process the option.
Expected Result	To show the suitable message according to the user's option choice.
Actual Result	Message was displayed according to the user's option.
Conclusion	The test was successful.

```
1. Sell Laptop
2. Purchase Purchase
3. Exit


Choose the option to continue: hjkmg
Please enter a valid option.
Choose the option to continue: 1
```

Test 2: Selection purchase and sale of laptops

Objective	To show the program takes a valid input
Action	- If a valid input is given than ask the user the laptop they want to buy - If an invalid input is given ask the user to enter a proper value
Expected Result	To accept valid input and decline and show re-enter message if invalid input is given
Actual Result	Accepted valid input and decline and displayed re-enter message if invalid input is given
Conclusion	The test was successfull

```
1. Sell Laptop
2. Purchase Purchase
3. Exit


Choose the option to continue: -1


-1 is not on the list.
Please Type a valid option!
1. Sell Laptop
2. Purchase Purchase
3. Exit
```

Test 3: File generation of purchase of laptop

Objective	To show the generation of purchase of laptop
Action	- If option 1 is selected then purchase laptop - Accept the IDs of the laptop user selects to be purchased
Expected Result	To generate bill having customer's details, purchased and sold laptops.
Actual Result	Generated bill having customer's details, purchased and sold laptops.
Conclusion	The test was successful

Test 4: File generation of sales process of laptop

Objective	To show the generate sales bill of laptops
Action	- If option 2 was selected than proceed to purchasing laptop - Select the option and buy laptop
Expected Result	To select the laptop Id and buy it
Actual Result	Selected the laptop Id and buy it
Conclusion	The test was successfull

Test 5: Update in stock of laptops

Objective	To update the quantity of the laptop
Action	Deduct the quantity of laptop that was purchased
Expected Result	The quantity of laptop is to be deducted
Actual Result	Quantity of laptop was deducted
Conclusion	The test was successfull

Conclusion

This assignment was completed creating an application for laptop stores that can read and modify text files. I created the application using Python, IDLE, Microsoft Word, and Draw.io to handle orders quickly and accurately and provide a receipt or invoice once a laptop is acquired.

Appendix

```
from datetime import datetime
from Read import *
from Operations import *
from Write import *




print("-------------------------------------------------------------------------------------------------------------------------------------")
print(" \t \t \t \t \t \t \t            Arts Electronics")
print("-------------------------------------------------------------------------------------------------------------------------------------")
print ("\n")



Va=filled()



print("\nWelcome to Arts Electrtonics.\nPlease enter the service you would like.\n\n")
loop = True
while loop == True:
    print("1. Sell Laptop")
    print("2. Purchase Purchase")
    print("3. Exit")
    print("\n")
    V = False
```

```
while V == False:
    try:
        Option = int(input("Choose the option to continue: "))
        V = True
    except:
        print("Please enter a valid option.")

print("\n")

if Option == 1:

 buyoperate(Va)


elif Option == 2:


    selloperate(Va)



    MoreProducts= False

    print("\n")

elif Option == 3:
    loop = False
    print("Thank you for visiting.\n")
```

```
    print("Please do visit again.\n")
    print("\n")
else:
    print(Option, "is not on the list.\nPlease Type a valid option!")
```

```
from Read import *
from Write import *

def buyoperate(d):
    LaptopSold = []
    MoreProducts = True

    print("\n")
    print("Please fill up the following details.")
    print("\n")
    Name = input("Enter your name: ")
    print("\n")
    PhoneNumber = input("Enter your phone number: ")
    print("\n")



    while MoreProducts== True:
        print("-------------------------------------------------------------------------------------------------------------------------------------")
        print("S.N   \t\t Product name                    Brand \t\tPrice \t\t  Quantity  \t\t Processor \t\t Graphics Card")
        print("-------------------------------------------------------------------------------------------------------------------------------------")



        table()

        print("-------------------------------------------------------------------------------------------------------------------------------------" )
```

```
        print("\n")


        V = False
        while V == False:
            try:
                PurcahseItemId = int(input("Enter the ID of laptop you would like to
purchase: "))




            # Valid ID
                while PurcahseItemId <= 0 or PurcahseItemId > len(d):
                    print("The ID no. you have given is not valid.\nPlease enter a proper ID
no.")


                    try:
                        PurcahseItemId = int(input("Enter the ID of laptop you would like to
purchase: "))
                    except TypeError:
                        print("Please enter a proper ID no.\n")




                V = True


            except TypeError:
                print("Please re-enter your phone number again.\nThe data written is not
valid\n")
```

```
        V = False
        while V == False:
            try:
                QuanityOrdered = int(input("Enter the quantity of laptop you want to purchase: "))
                print("\n")
                # Valid Quantity
                # print(d[f"{Purchase_Reference}"])
                DesiredQuantity = d[PurcahseItemId][3]
                while QuanityOrdered <= 0 or QuanityOrdered > int(DesiredQuantity):
                    print("The amount of laptop you have ordered is not available at our store at the moment.\nPlease feel free to order the available amount.\n")
                    DesiredQuantity = int(input("Please re-enter the amount of laptop you would like to purchase: "))




                print("\n")


                    #
                d[PurchasedItemId][3] = int(d[PurcahseItemId][3]) - int(QuanityOrdered)


                file = open("Products.txt", "w")


                for values in d.values():
                        file.write(str(values[0])+ "," +str(values[1])+ "," +str(values[2])+ "," +str(values[3])+ "," +str(values[4]+ "," +str(values[5])))
```

```
                file.write("\n")
            file.close()

            V = True
        except ValueError:
            print("Please enter a valid answer.")

    ProductName = d[PurcahseItemId][0]
    SelectedQuantity = QuanityOrdered
    UnitPrice = d[PurcahseItemId][2]
    Selected_Quantity_Price = d[PurcahseItemId][2].replace("$", '')
    Total = int(Selected_Quantity_Price) * int(SelectedQuantity)
    GraphicsCard = d[PurcahseItemId][5]

    LaptopSold.append([ProductName, SelectedQuantity, UnitPrice, Total,
GraphicsCard])

    CustomerRequest = input("Do you want to continue (Y/N)?").upper()
    print("\n")
    while True:
        if CustomerRequest == "Y":
            MoreProducts = True
            break
        elif CustomerRequest == "N":
            Total = 0
            ShippingCost = 10

            for i in LaptopSold:
                Total += int(i[3])
```

```
                GrandTotal = Total + ShippingCost


                from datetime import datetime
                dateandtime = datetime.now()
                V = str(dateandtime).split(" ")
                a = "_".join(V)
                d = str(a.replace(":","_"))

                printbuy(Name, PhoneNumber, datetime, LaptopSold, Total, ShippingCost,
GrandTotal)




                billbuy(Name,d,PhoneNumber,datetime,LaptopSold,Total,ShippingCost,
GrandTotal)
                MoreProducts = False
                break
            else:
                print(" Enter Either Y or N only!")



def selloperate(va):
    LaptopPurchased = []
    MoreProducts = True

    while MoreProducts== True:
        print("----------------------------------------------------------------------------------------------------
-----------------------------------------------------")
        print("S.N      \t Product name          \t  Brand \t \t Price \t\t  Quantity  \t\t
Processor \t\t Graphics Card")
```

```
        print("-------------------------------------------------------------------------------------------------------------------------------------------")



        file = open("Products.txt", "r")
        a = 1
        for line in file:
            print(a, "\t\t" + line.replace(",", "\t\t"))
            a = a + 1
        print("-------------------------------------------------------------------------------------------------------------------------------------------" )
        file.close()
        print("\n")

        SellIdNo = int(input("Enter the ID of laptop you would like to sell: "))
        print("\n")

        # Valid ID
        while SellIdNo <= 0 or SellIdNo > len(va):
            print("Please provide a prpper laptop ID No.!")
            print("\n")

            SellIdNo = int(input("Enter the ID of laptop you would like to sell: \n"))

        print("Please provide your details for billing:")
        print("\n")

        Name = ""
        print("\n")
```

```
        PhoneNumber = 9841
        print("\n")



        print("\n")

        SellingQuantity = int(input("Enter the quantity of laptop you would like to sell: "))
        print("\n")
        # Valid Quantity

        DesiredQuantity = va[SellIdNo][3]
        while SellingQuantity <= 0 or SellingQuantity > int(DesiredQuantity):
            print("Dear user, the quantity you've asked for is not available right now.")
            print("\n")
            DesiredQuantity = int(input("Enter the quantity of the laptops you want to
purchase: "))
        print("\n")


            #
        va[SellIdNo][3] = int(va[SellIdNo][3]) + int(SellingQuantity)


        file = open("Products.txt", "w")


        for values in va.values():
                file.write(str(values[0])+ "," +str(values[1])+ "," +str(values[2])+ ","
+str(values[3])+ "," +str(values[4])+ "," +str(values[5]))
                file.write("\n")
        file.close()
```

```
        #
        ProductName = va[SellIdNo][0]
        SelectedQuantity = SellingQuantity
        UnitPrice = va[SellIdNo][2]
        Selected_Quantity_Price = va[SellIdNo][2].replace("$", '')
        Total = int(Selected_Quantity_Price) * int(SelectedQuantity)
        GraphicsCard = va[SellIdNo][5]

        LaptopPurchased.append([ProductName, SelectedQuantity, UnitPrice, Total,
GraphicsCard])

        OtherRequests = input("Do you want to continue (Y/N)?").upper()
        print("\n")

        if OtherRequests == "Y":
            MoreProducts = True
        else:
            Total = 0
            Delivery_Charge = 10

            for i in LaptopPurchased:
                Total += int(i[3])
            GrandTotal = Total + Delivery_Charge
            from datetime import datetime
            datetime = datetime.now()
            va = str(datetime).split(" ")
            a = "_".join(va)
            va = str(a.replace(":","_"))
```

```
            printsell(Name, PhoneNumber, datetime, LaptopPurchased, Total,
Delivery_Charge, GrandTotal)



            billsell(Name,va, PhoneNumber, datetime, LaptopPurchased, Total,
Delivery_Charge, GrandTotal)
            MoreProducts = False
            break
```

```
def filled():
    file = open("Products.txt","r")
    l_d = {}
    list_id = 1
    for line in file:
        line = line.replace("\n", "")
        l_d.update({list_id: line.split(",")})
        list_id = list_id + 1
    file.close()
    return l_d

def table():
    file = open("Products.txt", "r")
    a = 0
    for line in file:
        print(a+1, "\t\t" + line.replace(",", "\t\t"))
        a = a + 1
        if(a == 5):
            break
    file.close()
```

```
def printbuy(Name, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost,
GrandTotal):


        print("\n")
        print("\t\t\t\t\t\t\t\t Arc Electronics")
        print("\n")
        print("\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
        print("\n")
        print("\t\t\t\t\t\t\t\t Your Bill\n\n")
        print("\nCustomer's Name: "+ str(Name))
        print("\nContact number: "+ str(PhoneNumber))
        print("\nPurchased on "+ str(dateandtime))
        print("\n\nPurchase Details are: ")
        print("\n----------------------------------------------------------------------------------------------------
----------\n" )
        print("\n\nProduct Name \t\t\t Total Quantity \t\t Price(per piece) \t\t\t   Total")
        print("\n----------------------------------------------------------------------------------------------------
----------\n" )
        for i in LaptopSold:
            print(i[0], "\t\t\t" ,i[1], "\t\t\t " ,i[2], "\t\t\t " ,"$", i[3] )
        print("\n----------------------------------------------------------------------------------------------------
----------\n" )
        print("\nYour total is : $"+str (Total))
        print("\nYour Shipping cost is : $", ShippingCost)
        print("\nGrand Total : $"+ str(GrandTotal))
        print("\n")


def billbuy(Name, y, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost,
GrandTotal):
    file= open(str(Name)+"_"+str(y)+".txt", "w")
```

```
        file.write("\n")
        file.write("\t\t\t\t\t\t\t\t Arc Electronics")
        file.write("\n")
        file.write("\t\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
        file.write("\n")
        file.write("\t\t\t\t\t\t\t\t Your Bill\n\n")
        file.write("Customer's Name: " + str(Name))
        file.write("\nContact number: " + str(PhoneNumber))
        file.write("\nDate and time of purchase: " + str(dateandtime))
        file.write("\n" )
        file.write("Purchase Details are: ")
        file.write("\n------------------------------------------------------------------------------------------------------------------------\n" )
        file.write("\n\nProduct Name \t\t\t Total Quantity \t\t Price(per piece) \t\t\t   Total")
        file.write("\n------------------------------------------------------------------------------------------------------------------------ \n" )


        for i in LaptopSold:
         file.write(str(i[0])+"\t\t\t "+str(i[1])+"\t\t\t\t\t\t "+str(i[2])+"\t\t\t\t\t\t\t"+"$"+str(i[3]) +"\n")


        file.write("\n------------------------------------------------------------------------------------------------------------------------\n" )
        file.write("\nYour total is : $" + str(Total))
        file.write("\nYour Shipping charge is : $ " +""+ str(ShippingCost) +"\n")
        file.write("\nGrand Total : $" + str(GrandTotal))
        file.write("\n")
        file.close()
```

```
def printsell(Name, PhoneNumber, dateandtime, LaptopSold, Total, ShippingCost, Grandtotal):
    print("\n")
    print("\t\t\t\t\t\t\t\t Arc Electronics")
    print("\n")
    print("\t\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
    print("\n")
    print("\t\t\t\t\t\t\t\t Your Bill\n\n")
    print("Customer's Name: "+ str(Name))
    print("Contact number: "+ str(PhoneNumber))
    print("Date and time of purchase: "+ str(dateandtime))
    print("-")
    print("\n")
    print("Purchase Details are: ")
    print("\n---------------------------------------------------------------------------------------------------------------------\n" )
    print("\n\nProduct Name \t\t\t Total Quantity \t\t Price(per piece) \t\t\t   Total")
    print("\n---------------------------------------------------------------------------------------------------------------------\n" )
    for i in LaptopSold:
        print(i[0], "\t\t\t" ,i[1], "\t\t\t " ,i[2], "\t\t\t " ,"$", i[3] )
    print("\n---------------------------------------------------------------------------------------------------------------------\n" )
    print("Your total is : $"+str (Total))
    print("Your Shipping charge is : $", ShippingCost)
    print("Grand Total : $"+ str(Grandtotal))
    print("\n")
```

```
def billsell(Name,y, PhoneNumber, dateandtime, LaptopSold, total, ShippingCost, GrandTotal):
    file= open(str(Name)+ str(y)+ "Products.txt", "w")
    file.write("\n")
    file.write("\t\t\t\t\t\t\t Arc Electronics")
    file.write("\n")
    file.write("\t\t\t\t\t Kupondole , Laltipur | Phone no: 9841******")
    file.write("\n")
    file.write("\t\t\t\t\t\t\t Your Bill\n\n")
    file.write("\nCustomer's Name: " + str(Name))
    file.write("\nContact number: " + str(PhoneNumber))
    file.write("\nDate and time of purchase: " + str(dateandtime))
    file.write("\n" )
    file.write("\n")
    file.write("Purchase Details are: ")
    file.write("\n--------------------------------------------------------------------------------------------------------\n" )
    file.write("\n\nProduct Name \t\t\t Total Quantity \t\t Price(per piece) \t\t\t   Total")
    file.write("\n--------------------------------------------------------------------------------------------------------\n" )


    for i in LaptopSold:
        file.write(str(i[0])+"\t\t\t "+str(i[1])+"\t\t\t\t\t\t "+str(i[2])+"\t\t\t\t\t\t\t"+"$"+str(i[3])+"\n")


    file.write("-" )
    file.write("\nYour total is : $" + str(total))
    file.write("\nYour Shipping charge is : $ " +""+ str(ShippingCost) +"\n")
```

```
file.write("\nGrand Total : $" + str(GrandTotal))
file.write("\n")
file.close()
```