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60% Individual Coursework

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1. Introduction

1.1 About this project

This application project uses the Python language as a programming language. In this assignment, a laptop Shop management system is made which allows to buy and sell laptops from the manufacturers and customers respectively. This program also allows users to manage the data of the available laptops, gives the receipt and invoice for transactions, and updates stocks. The functionalities of this project are inventory management, transaction details and order placement.

This system acts as a medium for interaction between manufacturers and consumers of laptops. This allows to see the available laptops and place orders accordingly. It can place orders from manufacturers and add laptops to the inventory. It also keeps a record of the laptop’s information like name, brand, price, quantity, processor details and graphic card specifications.

The user can add laptops to the inventory after placing an order and the customers can view the product and the available quantity of the laptops and buy laptops. After the availability of the laptop, an order can be placed for the laptops that are to be purchased. When an order is placed the system changes (which is the quantity of the laptop decreases from the inventory) the quantity in the inventory according to the laptops ordered by the user. It gives a receipt to the customer for the amount to be paid according to the quantity ordered by the customer and gives an invoice to the manufacturer for the placement of the order.

The receipt/ invoice is made every time a purchase is done or an order is placed for the customer or the manufacturer. The receipt for the customer consists of the customer’s name, the name of the customer, the number of the customer, laptop brand, brand, date and time of purchase, amount with/without shipping, total amount. Similarly in the receipt of the manufacturer’s name, manufacturer’s number, date and time of purchase, brand, laptop name, and amount without vat (13%), the total amount including the vat is printed. For the selling receipt shipping cost is added if the user chooses the option to include shipping cost.

1.2 Tools Used

1.2.1 Python

Python is an object-oriented, high-level programming language which is interpreted and includes dynamic semantics. It incorporates built-in high-level data structures, combined with dynamic typing and dynamic binding, which makes it a great choice for Rapid Application Development and as a scripting or integration language. Python is straightforward and uses easy-to-understand syntax which prioritizes readability, thus it reduces program maintenance costs. The language promotes modules and packages that reuse code through support. The programming language is free to use and is available for all major platforms.

Python programming language was developed by Guido van Rossum in the 1990s. The programming language contains various components like statements, comments, expressions, functions, blocks etc. It supports dynamic typing i.e. a variable can hold values of different types at different times. (Python, 2020)

1.2.2 MS Word

Microsoft Word also known as MS Word is a very popular word-processing software application that is included in the Microsoft Office package. It provides a user-friendly and intuitive interface, which makes it approachable to all kinds of users beginners and experienced both. It provides various features like creating, editing and formatting text documents of different types. This program supports various file formats which makes it compatible with other such word-processing software applications. Documents can be saved and shared in .docx, .pdf, .rtf and .txt formats. This software application is used for creating the document for this assignment. It is a versatile application providing an efficient and reliable solution for word processing needs. (Microsoft, 2023)

1.2 Goals and Objectives

1.2.1 Goals

- Maintains all the laptops in a text file
- Develops a program that can read and update the text file after selling and buying.
- It should be able to display all the required information about laptops.
- The program should be designed in such a way that the stock updates/changes after every transaction.
- A receipt/invoice should be generated after every transaction for sale or order

1.2.2 Objectives

- The objective of this assignment is to make a fully functional and dynamic program that gets values from a text file and appends it to make required changes like updating the stock.
- The program should resemble a store management system where it buys from manufacturers and sells it to customers.

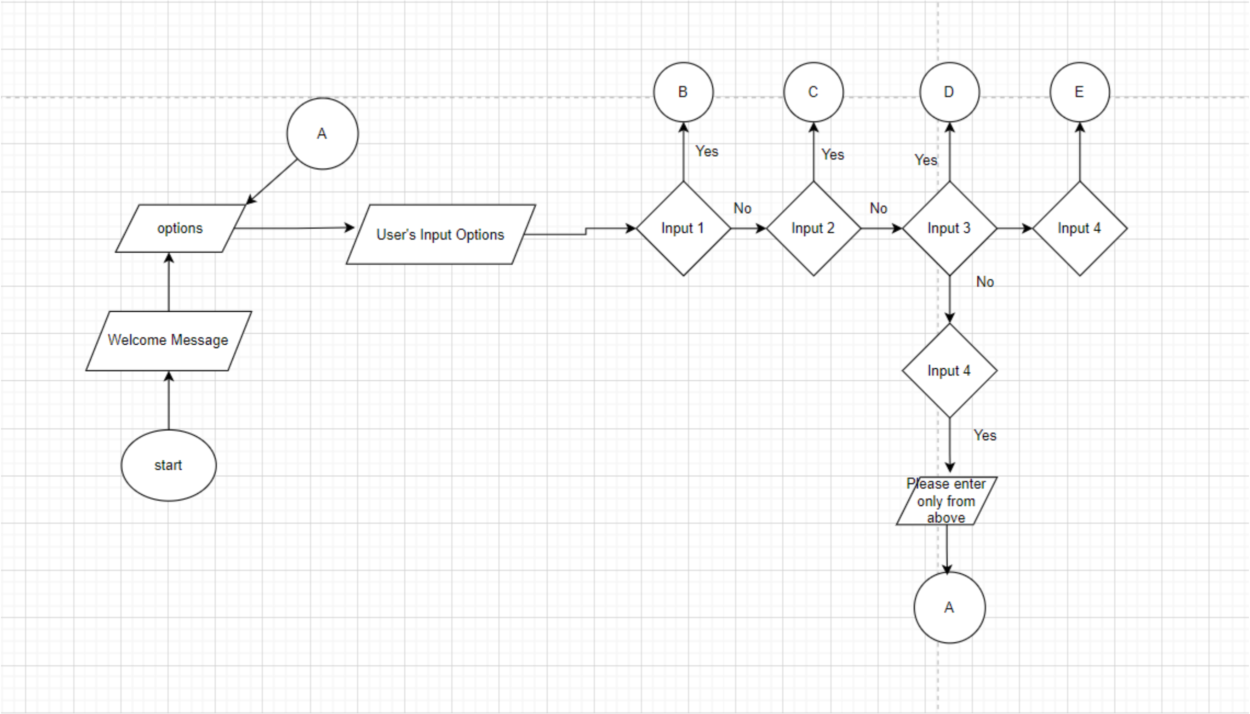
2. Discussion and Analysis

2.1 Algorithm

```
Step 1: Start
Step 2: Display a welcome message
Step 3: Display the Options
Step 4: Ask for input from 1 to 4
Step 5: If an input is 1 Go to Step 5.1 else Go to Step 6
        Step 5.1: Display laptop_details with their details from " laptopfile.txt”
        Step 5.2:Ask for Name and Phone number
        Step 5.3: Ask for a valid id and show an error when valid id is wrong
        Step 5.4: Ask for  valid quantity and show an error when invalid quantity is given
        Step 5.5: Update the quantity
        Step 5.6: Ask whether to buy another Laptop
        Step 5.7: If user input is "Yes" go to Step 5.2 else go to Step 5.8
        Step 5.8: Print order details in the Shell and a txt file
        Step 5.9: Go to Step 3
Step 6: If the input is 2 Go to Step 6.1 else Go to Step 7
        Step 6.1 :Display laptops with their details from " laptopfile.txt”
        Step 6.2: Ask for Name and Phone number
        Step 6.3 : Ask for a valid id and show an error if an invalid id is given
        Step 6.4: Ask for a valid quantity and show an error if an invalid quantity is given
        Step 6.5: Update the stock in " laptopfile.txt*
        Step 6.6: Ask whether to sell another Laptop
        Step 6.7: If user input is "Yes" go to Step 6.3 else go to Step 6.8
        Step 6.8:Ask the user for shipping cost
        Step 6.9:If user input is “Yes” Go to Step 6.9.1 else fo to Step 6.9.2
        Step 6.9.1:Print order details in the Shell and a txt file including shipping details
        Step 6.9.2: Print order details in the Shell and a txt file
    Step 6.10: Go to Step 3.
Step 7: If the input is 3 Go to Step 7.1 else Go to Step 8
    Step 7.1: Display laptop_details with their details from " laptopfile.txt”
Step 8: If the input is 4
    Step 8.1: Terminate the program
    Step 8.2: Stop
```

2.2 Flowchart

Flowchart if the main program.



2.3 PseudoCode

2.3.1 Main.py

```
IMPORT all from Read
IMPORT all from Operation
IMPORT all from Write

INITIALIZE  continueLoop as True
CALL wel_message function
WHILE continueLoop is True
   CALL Options function
   TRY:
    ASK user to input from Option
     IF userInput is “1”:
         INITIALIZE laptop_ordered to list
         VALIDATE laptops  as Read_txt_file function
         CALL laptop_details function
         ASK user order_name by inputName_buy function
         ASK order_num by inputPhNumber_buy function
         SET length to length of laptops
         VALIDATE LaptopID by validId_buy function
         VALIDATE Quantity by verify_qty_buy function
         VALIDATE total_cost by Cal_cost function
         CALL add_order function
         OUTPUT (f"Your total cost for this purchase with laptop Id {LaptopID} is
         ${total_cost}")
         GET laptop_name from the list using index
         GET laptop_brand from the list using index
         GET laptop_price from the list using index

         APPEND laptop_name, laptop_brand, Quantity, laptop_price, total_cost in
         laptop_ordered list

         INITIALIZE buy_more as True
         WHILE buy_more is True:
            ASK user to input more_laptop
            IF user inputs more_laptop as "YES":
                    VALIDATE laptops  as Read_txt_file function
                    CALL laptop_details function
                    VALIDATE LaptopID by validId_buy function
                    VALIDATE Quantity by verify_qty_buy function
                    VALIDATE total_cost by Cal_cost function
                    CALL add_order function
                    OUTPUT (f"Your total cost for this purchase with laptop Id
                    {LaptopID} is ${total_cost}")

                    GET laptop_name from the list using index
                    GET laptop_brand from the list using index
                    GET laptop_price from the list using index

                    APPEND laptop_name, laptop_brand, Quantity, laptop_price,
                    total_cost in laptop_ordered list
            ELIF more_laptop as "NO":
                    INITIALIZE buy_more as False
                    CALL order_invoice function
                    CALL order_invoice_txtFile function
            ELSE:
```

```
                OUTPUT print a line
                OUTPUT(Please write from the above given options!)
                OUTPUT print a line

    ELIF userInput is 2:
            INITIALIZE laptop_sold to list
            VALIDATE laptops  as Read_txt_file function
            CALL laptop_details function
            ASK user sell_name by inputName_sell function
            ASK sell_num by inputPhNumber_sell function
            SET length to length of laptops
            VALIDATE LaptopID by validId_sell function
            VALIDATE Quantity by verify_qty_sell function
            VALIDATE total_amt_sold by Cal_cost function
            CALL sub_sold function
            OUTPUT (f"Your total amount for this purchase with laptop Id {LaptopID}
            is ${total_amt_sold}")
            GET laptop_name from the list using index
            GET laptop_brand from the list using index
            GET laptop_price from the list using index

            APPEND laptop_name, laptop_brand, Quantity, laptop_price, total_cost in
            laptop_sold list

            VALIDATE sell_more as True
            WHILE sell_more is True:
                ASK user sell_laptop which input("Do you want to sell more laptops
                Yes/No: ")
                IF sell_laptop is "YES":
```

```
        VALIDATE laptops  as Read_txt_file function
        CALL laptop_details function
        VALIDATE LaptopID by validId_sell function
        VALIDATE Quantity by verify_qty_sell function
        VALIDATE total_amt_sold by Cal_cost function
        CALL sub_sold function
        OUTPUT (f"Your total amount for this purchase with laptop
        Id {LaptopID} is ${total_amt_sold}")
        GET laptop_name from the list using index
        GET laptop_brand from the list using index
        GET laptop_price from the list using index

        APPEND laptop_name, laptop_brand, Quantity,
        laptop_price, total_cost in laptop_sold list

    ELIF sell_laptop is "NO":
        SET sell_more as False
        ASK shippingcost to the user
        IF shippingcost is "YES":
            CALL sell_recepit_SP function
            CALL sell_recepit_SP_txtFile function
        ELIF shippingcost is "NO":
            CALL sell_recepit function
            CALL sell_recepit_txtFile function
        ELSE:
            OUTPUT("\t\t***Please enter Yes or No!***")
    ELSE:
        OUTPUT print a line
      OUTPUT("\t\t***Please write from the above given options!***")
```

```
                  OUTPUT print a line


        ELIF userInput is 3:
          CALL laptop_details function
        ELIF userInput is 4:
          SET continueLoop as False
        ELSE:
          OUTPUT print a line
          OUTPUT('*****Please enter only from the Options given!*****')
          OUTPUT print a line
      EXCEPT:
        OUTPUT print a line
        OUTPUT("*****Please input NUMBERS only!*****")
        OUTPUT print a line
```

2.3.2 Operation.py

```
DEFINE function inputName_buy
   INITIALIZE name = str(input("Enter the Manufacturer's name: "))
   RETURN  name

DEFINE function inputPhNumber_buy
   SET Loop as True
   WHILE Loop is True:
      TRY:
         INITIALIZE phoneNum = int(input("Enter the Manufacturer's Phone Number: "))
         SET Loop as False
         RETURN phoneNum
      EXCEPT:
         OUTPUT("\t\t***Please enter a vaild Phone Number!***")

DEFINE function validId_buy(length)
   SET loop as True
   WHILE loop is True:
      TRY:
         INITIALIZE valid_id = int(input("Please Provide the ID of the laptop you want to Buy: "))
         SET loop as False
      EXCEPT:
         OUTPUT("\t\t***Please enter Numbers only!***")
   WHILE valid_id <= 0 or valid_id > length:
      OUTPUT("\t\t***Please provide a valid LAPTOP ID!***")
```

```
        INITIALIZE valid_id = int(input("Please Provide the ID of the laptop you want to Buy: "))
    RETURN valid_id

DEFINE function verify_qty_buy(LaptopID)
    SET loop as True
    WHILE loop:
        TRY:
            INITIALIZE get_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID} you want to buy: "))
            WHILE get_qty <= 0:
                OUTPUT("\t\t***Please order one or more than one Laptops!***")
                OUTPUT("\n")
                INITIALIZE get_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID} you want to buy: "))
            SET loop = False
            RETURN get_qty
        EXCEPT ValueError:
            OUTPUT("\t\t***Please provide a valid Quantity number.***")

DEFINE function Cal_cost(LaptopID, Quantity, laptops)
    INITIALIZE unit_price = int(laptops[LaptopID][2])
    SET tcost = unit_price * Quantity
    RETURN tcost

DEFINE function update_list(laptops)
    WITH open file laptopfile.txt
        FOR values in laptops.values():
```

```
        WRITE in file (str(values[0]) + "," + str(values[1]) + "," + str(values[2]) + "," +
           str(values[3]) + "," + str(values[4]) + "," + str(values[5]))
        WRITE in file ("\n")

 DEFINE function add_order(LaptopID, Quantity, laptops)
   SET laptops[LaptopID][3] = str(int(laptops[LaptopID][3]) + Quantity)
   CALL update_list(laptops)
   RETURN("")

DEFINE function inputName_sell()
   INITIALIZE name = str(input("Enter the Customer's name: "))
   RETURN name

DEFINE function inputPhNumber_sell()
   SET Loop as True
   WHILE Loop is True:
      TRY:
         INITIALIZE phoneNum = int(input("Enter the Customer's Phone Number: "))
         SET Loop = False
         RETURN phoneNum
      EXECPT:
         OUTPUT("\t\t***Please enter a vaild Phone Number!***")

DEFINE function validId_sell(length)
   SET loop as True
   WHILE loop is True:
      TRY:
         INITIALIZE valid_id = int(input("Please Provide the ID of the laptop you want
    to Sell: "))
         SET loop as False
      EXCEPT:
         OUTPUT("\t\t***Please enter Numbers only!***")
   WHILE valid_id <= 0 or valid_id > length:
      OUTPUT("\t\t***Please provide a valid LAPTOP ID!***")
      OUTPUT("\n")
      INITIALIZE valid_id = int(input("Please Provide the ID of the laptop you want to
    Sell: "))
   RETURN valid_id

DEFINE function verify_qty_sell(laptops, LaptopID)
   FOR available_qty in laptops:
      INITIALIZE available_qty = int(laptops[LaptopID][3])
      SET not_available as True
      WHILE not_available is True:
         TRY:
            INITIALIZE get_sell_qty = int(input(f"Please Provide the quantity of laptop
            with ID {LaptopID} you want to Sell: "))
            WHILE get_sell_qty <= 0 or get_sell_qty > available_qty:
               OUTPUT(f"\t\t***We don't have enough quantity of Laptop with ID
                {LaptopID}!***")
               OUTPUT("\t\t***Please write a quantity that is available in the stock***")
               INITIALIZE get_sell_qty = int(input(f"Please Provide the quantity of
                laptop with ID {LaptopID} you want to Sell: "))
            SET not_available as False
            RETURN get_sell_qty
         EXECPT:
            **OUTPUT**("\t\t***Please input numbers only for required quantity.***")

**DEFINE** function Cal_amt(LaptopID, Quantity, laptops)
   **INITIALIZE** unit_price = int(laptops[LaptopID][2])
   **SET** sold_cost = unit_price * Quantity
   **RETURN** sold_cost


**DEFINE** function sub_sold(LaptopID, Quantity, laptops)
   **INITIALIZE** laptops[LaptopID][3] = str(int(laptops[LaptopID][3]) - Quantity)
   **CALL** update_list(laptops)
   **RETURN**("")
```

2.3.3 Write.py

```
DEFINE function wel_message()
   OUTPUT('\n')
   OUTPUT ("=" * 88)
   OUTPUT ('\t \t \t Welcome to Euphoria Laptop Store')
   OUTPUT ('---------------------------------------------------------------------------------------------------------')
   OUTPUT ('\t \t Address: Kathmandu     Contact: 9930546644')
   OUTPUT ('---------------------------------------------------------------------------------------------------------')

DEFINE function options()
   OUTPUT ("Type 1 to buy from manufacturer")
   OUTPUT ("Type 2 to sell to customer")
   OUTPUT ("Type 3 to Display All Laptops")
   OUTPUT ("Type 4 to exit")
   OUTPUT ("=" * 88)

DEFINE function laptop_details()
   OUTPUT ('\n')
   OUTPUT ("=====================================================================================================")
   OUTPUT ("----------------------------------------------LAPTOP LIST---------------------------------------------")
   OUTPUT ("=====================================================================================================")
   OUTPUT ("S.N. \t Name \t \t Brand \t\t Price \t Quantity  Processor     Graphics ")
   OUTPUT ("---------------------------------------------------------------------------------------------------------")
   OPEN file laptopfile.txt
```

```
    INITIALIZE Laptop_Id = 1
    FOR line in file:
        OUTPUT (Laptop_Id, "\t" + line.replace(",", "\t"))
        INITIALIZE Laptop_Id += 1

OUTPUT("=================================================================================================")
    OUTPUT ("\n")
    CLOSE file
    OUTPUT ("")


DEFINE function order_invoice(order_name, order_num, laptop_ordered)
    INITIALIZE totalp = 0
    INITIALIZE FOR i in laptop_ordered:
        INITIALIZE totalp += int(i[4])
    INITIALIZE vat = 13/100
    SET grand_total = (vat * totalp) + totalp
    INITIALIZE current_time = datetime.now()
    OUTPUT ('\n')
    OUTPUT ("=" * 95)
    OUTPUT ("\t \t \t \t \t The Invoice:  ")
    OUTPUT ("-----------------------------------------------------------------------------------------------------------")
    OUTPUT ("\t \t \t   Address: Kathmandu   Contact: 9823581391")
    OUTPUT ("=" * 95)
    OUTPUT ("\t \t \t \t \t The Details are: ")
    OUTPUT ("-----------------------------------------------------------------------------------------------------------\n")
    OUTPUT ("\t\t\t\tInvoice to the Company: " + str(order_name))
    OUTPUT ("Contact Number: " + str(order_num))
```

```
   OUTPUT ("Date and Time of purchase: " + str(current_time))
   OUTPUT ("-------------------------------------------------------------------------------------------")
   OUTPUT ("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price")
   FOR i in laptop_ordered:
      OUTPUT (i[0], "\t", i[1],"\t\t", i[2], "\t\t\t", "$", i[3], "\t\t", "$", i[4])


   OUTPUT ("-------------------------------------------------------------------------------------------")
   OUTPUT (f"Net Amount is: ${totalp}")
   OUTPUT (f"Gross Amount is: ${grand_total}")
   OUTPUT ("\t\t\t*** 13% Vat is applied in this product ***")
   OUTPUT ("=" * 95)
   OUTPUT ("\n")


DEFINE function order_invoice_txtFile(order_name, order_num, laptop_ordered)
   INITIALIZE totalp = 0
   FOR i in laptop_ordered:
      INITIALIZE totalp += int(i[4])
   INITIALIZE vat = 13/100
   INITIALIZE grand_total = (vat * totalp) + totalp
   INITIALIZE current_time = datetime.now()
   WITH open(str(order_name)+ "_Invoice" + ".txt","w")as file:
      FILE.WRITE('\n')
      FILE.WRITE ("=" * 95 + "\n")
      FILE.WRITE ("\t \t \t \t \t The Invoice:  \n")
      FILE.WRITE ("-------------------------------------------------------------------------------------------\n")
      FILE.WRITE ("\t \t \t   Address: Kathmandu   Contact: 9823581391")
```

```
        FILE.WRITE ("=" * 95 +"\n")
        FILE.WRITE ("\t \t \t \t \t The Details are: \n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("\t\t\t\tInvoice to the Company: " + str(order_name)+"\n")
        FILE.WRITE ("Contact Number: " + str(order_num)+"\n")
        FILE.WRITE ("Date and Time of purchase: " + str(current_time)+"\n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price\n")
        FOR i in laptop_ordered:
            FILE.WRITE (str(i[0]) +"\t"+ str(i[1])+"\t\t" + str(i[2])+"\t\t\t"+"$"+ str(i[3]) + "\t\t"+"$"+ str(i[4])+"\n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("Net Amount is: $"+str(totalp)+"\n")
        FILE.WRITE ("Gross Amount is: $"+str(grand_total)+"\n")
        FILE.WRITE ("\t\t\t*** 13% Vat is applied in this product ***\n")
        FILE.WRITE ("=" * 95 +"\n")


DEFINE function sell_recepit(sell_name, sell_num, laptop_sold)
    INITIALIZE totalp = 0
    FOR i in laptop_sold:
        INITIALIZE totalp += int(i[4])
    INITIALIZE current_time = datetime.now()
    OUTPUT ('\n')
    OUTPUT ("=" * 95)
    OUTPUT ("\t \t \t \t \t The Receipt:  ")
    OUTPUT ("------------------------------------------------------------------------------------------------------------")
    OUTPUT ("\t \t \t   Address: Kathmandu   Contact: 9823581391")
    OUTPUT ("=" * 95)
    OUTPUT ("\t \t \t \t \t The Details are: ")
    OUTPUT ("------------------------------------------------------------------------------------------------------------\n")
    OUTPUT ("\t\t\t\tRecepit to the Customer: " + str(sell_name))
    OUTPUT ("Contact Number: " + str(sell_num))
    OUTPUT ("Date and Time of purchase: " + str(current_time))
    OUTPUT ("------------------------------------------------------------------------------------------------------------")
    OUTPUT ("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price")
    FOR i in laptop_sold:
        OUTPUT (i[0], "\t", i[1],"\t\t", i[2], "\t\t\t", "$", i[3], "\t\t", "$", i[4])


    OUTPUT ("------------------------------------------------------------------------------------------------------------")
    OUTPUT (f"Total Amount is: ${totalp}")
    OUTPUT ("=" * 95)
    OUTPUT ("\n")


DEFINE function sell_recepit_txtFile(sell_name, sell_num, laptop_sold)
    INITIALIZE totalp = 0
    FOR i in laptop_sold:
        INITIALIZE totalp += int(i[4])
    INITIALIZE current_time = datetime.now()
    WITH open(str(sell_name)+ "_Recepit" + ".txt","w")as file:
        FILE.WRITE ('\n')
        FILE.WRITE ("=" * 95 + "\n")
        FILE.WRITE ("\t \t \t \t \t The Receipt:  \n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("\t \t \t   Address: Kathmandu   Contact: 9823581391")
        FILE.WRITE ("=" * 95 +"\n")
        FILE.WRITE ("\t \t \t \t \t The Details are: \n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("\t\t\t\tRecepit to the Customer: " + str(sell_name)+"\n")
        FILE.WRITE ("Contact Number: " + str(sell_num)+"\n")
        FILE.WRITE ("Date and Time of purchase: " + str(current_time)+"\n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price\n")
        FOR i in laptop_sold:
            FILE.WRITE (str(i[0]) +"\t"+ str(i[1])+"\t\t" + str(i[2])+"\t\t\t"+"$"+ str(i[3]) + "\t\t"+"$"+ str(i[4])+"\n")
        FILE.WRITE ("-------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("Total Amount is: $"+str(totalp)+"\n")
        FILE.WRITE ("=" * 95 +"\n")




DEFINE function sell_recepit_SP(sell_name, sell_num, laptop_sold)
    INITIALIZE totalp = 0
    INITIALIZE shipping_p = 200
    INITIALIZE current_time = datetime.now()
    FOR i in laptop_sold:
        INITIALIZE totalp += int(i[4])
    INITIALIZE grand_total = (totalp + shipping_p)
    OUTPUT ('\n')
    OUTPUT ("=" * 95)
    OUTPUT ("\t \t \t \t \t The Receipt:  ")
    OUTPUT ("--------------------------------------------------------------------------------------------")
    OUTPUT ("\t \t \t   Address: Kathmandu   Contact: 9823581391")
    OUTPUT ("=" * 95)
    OUTPUT ("\t \t \t \t \t The Details are: ")
    OUTPUT ("--------------------------------------------------------------------------------------------\n")
    OUTPUT ("\t\t\t\tRecepit to the Customer: " + str(sell_name))
    OUTPUT ("Contact Number: " + str(sell_num))
    OUTPUT ("Date and Time of purchase: " + str(current_time))
    OUTPUT ("--------------------------------------------------------------------------------------------")
    OUTPUT ("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price")
    FOR i in laptop_sold:
        OUTPUT (i[0], "\t", i[1],"\t\t", i[2], "\t\t\t", "$", i[3], "\t\t", "$", i[4])


    OUTPUT ("--------------------------------------------------------------------------------------------")
    OUTPUT (f"Total Amount is: ${totalp}")
    OUTPUT ("The Shipping Price is $200")
    OUTPUT (f"Grand Total(with shipping)is: ${grand_total}")
    OUTPUT ("\t\t\t*** Shipping price is included ***")
    OUTPUT ("=" * 95)
    OUTPUT("\n")
```

```
DEFINE function sell_recepit_SP_txtFile(sell_name, sell_num, laptop_sold)
    INITIALIZE totalp = 0
    INITIALIZE shipping_p = 200
    INITIALIZE current_time = datetime.now()
    FOR i in laptop_sold:
        INITIALIZE totalp += int(i[4])
    INITIALIZE grand_total = (totalp + shipping_p)
    WITH open(str(sell_name)+ "_Recepit" + ".txt","w")as file:
        FILE.WRITE ('\n')
        FILE.WRITE ("=" * 95 + "\n")
        FILE.WRITE ("\t \t \t \t \t The Receipt:  \n")
        FILE.WRITE ("--------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("\t \t \t   Address: Kathmandu   Contact: 9823581391")
        FILE.WRITE ("=" * 95 +"\n")
        FILE.WRITE ("\t \t \t \t \t The Details are: \n")
        file.write("--------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("\t\t\t\t\tRecepit to the Customer: " + str(sell_name)+"\n")
        FILE.WRITE ("Contact Number: " + str(sell_num)+"\n")
        FILE.WRITE ("Date and Time of purchase: " + str(current_time)+"\n")
        FILE.WRITE ("--------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price\n")
        FOR i in laptop_sold:
            FILE.WRITE (str(i[0]) +"\t"+ str(i[1])+"\t\t" + str(i[2])+"\t\t\t"+"$"+ str(i[3]) + "\t\t"+"$"+ str(i[4])+"\n")
        FILE.WRITE ("--------------------------------------------------------------------------------------------------\n")
        FILE.WRITE ("Total Amount is: $"+str(totalp)+"\n")
        FILE.WRITE ("The Shipping Price is $200")
        FILE.WRITE ("Grand Total(with shipping)is: $"+str(grand_total)+"\n")
        FILE.WRITE ("\t\t\t*** Shipping price is included ***\n")
        FILE.WRITE ("=" * 95 +"\n")
```

2.3.4 Read.py

```
DEFINE function Read_txt_file()
  WITH open('laptopfile.txt','r') as file:
    SET laptopID = 1
    INITIALIZE myDict = {}
    FOR line in file:
      SET line = line.replace('\n',")
      SET myDict[laptopID] = (line.split(","))
      INITIALIZE laptopID += 1
    RETURN(myDict)
```

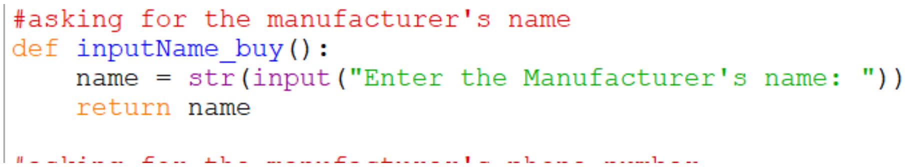
2.4 Data Structures

Data structures are fundamental concepts in computer science and programming that let us store, process and organize data in a way that provides efficient access, manipulation, and recovery. There are different types of basic and complex data structures, which serve the purpose of organizing data for specific task, facilitating, easy access, and manipulation of information as needed. They provide an easy way for individuals to locate and work with the data.

2.4.1 Primitive Data Structures

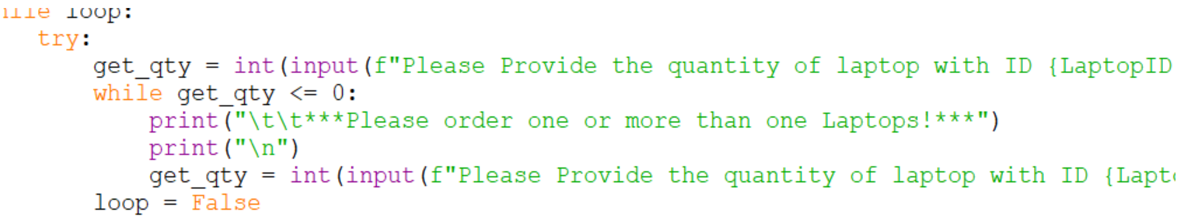
Primitive data types are basic data types that are built in the programming language. A primitive data structure can only store a single value in a single location. They are directly supported by the programming language, and have some pre-defined operations. Characters, integers are some examples of primitive data structures.

1. Characters
   Character data type are those data types that can carry uppercase and lowercase character values, such as q 'A' or 'a'.



```
#asking for the manufacturer's name
def inputName_buy():
    name = str(input("Enter the Manufacturer's name: "))
    return name
```

2. Integers
   Integers are normal representation of whole numbers. It contains whole numbers which can be either positive or negative.



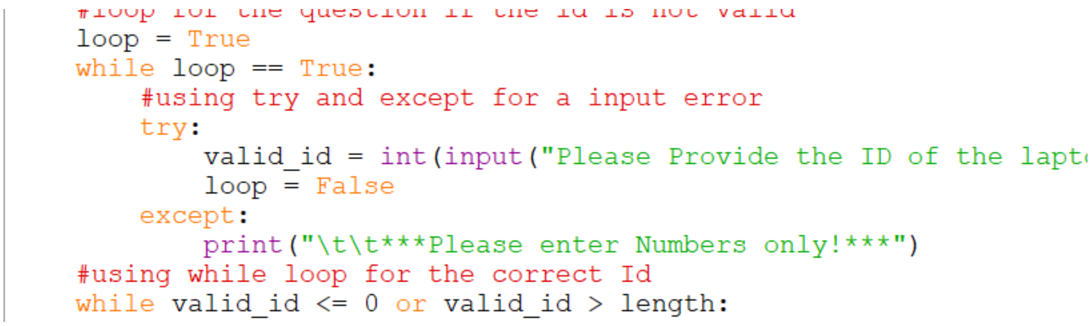
```
ile loop:
  try:
      get_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID
      while get_qty <= 0:
          print("\t\t***Please order one or more than one Laptops!***")
          print("\n")
          get_qty = int(input(f"Please Provide the quantity of laptop with ID {Lapt
      loop = False
```

3. Float

Boolean data type represent truth values false and true. It is used for inspecting different conditions. The Boolean type is a sub type of plane integers.

4. Boolean

In Python float numbers, represent machine level double precision floating point numbers. They are capable of holding decimal values.



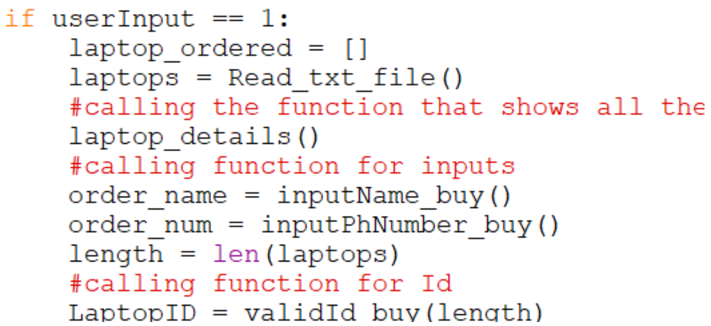
```
#loop for the question if the id is not valid
loop = True
while loop == True:
    #using try and except for a input error
    try:
        valid_id = int(input("Please Provide the ID of the lapt
        loop = False
    except:
        print("\t\t***Please enter Numbers only!***")
#using while loop for the correct Id
while valid_id <= 0 or valid_id > length:
```

2.4.2 Non- Primitive Data Structures

Non-primitive data structures are more complex compared to primitive data structures. They can hold several values in different or random location. These data structures are implemented by using primitive data types. They are not directly supported by the programming language so they are created with the help of primitive data types.

1. Lists

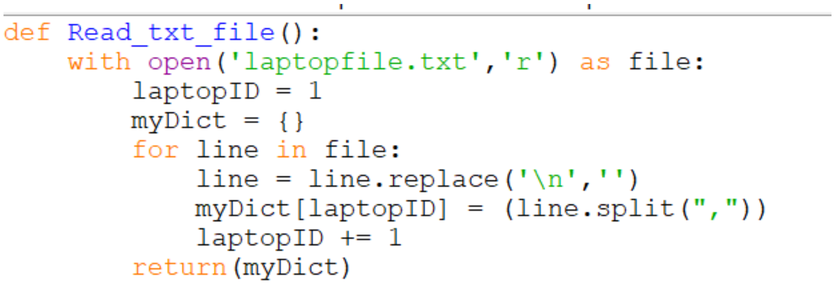
   A list in Python consist of brackets, commas, and has different elements in it. It is a group of comma separated, values of any data type, which is surrounded by square brackets []. A list can have heterogeneous or homogeneous elements. They are flexible so a lot of methods can be used with them like a append() , insert(), pop(), etc.



```
if userInput == 1:
    laptop_ordered = []
    laptops = Read_txt_file()
    #calling the function that shows all the
    laptop_details()
    #calling function for inputs
    order_name = inputName_buy()
    order_num = inputPhNumber_buy()
    length = len(laptops)
    #calling function for Id
    LaptopID = validId_buy(length)
```

2. Dictionaries

   Dictionary is an on ordered set of comma separated, key value pairs which are separated by colon within curly brackets {}. In a dictionary values can be of any data type, but the keys must be unique and no two keys can be the same.



```
def Read_txt_file():
    with open('laptopfile.txt','r') as file:
        laptopID = 1
        myDict = {}
        for line in file:
            line = line.replace('\n','')
            myDict[laptopID] = (line.split(","))
            laptopID += 1
        return(myDict)
```

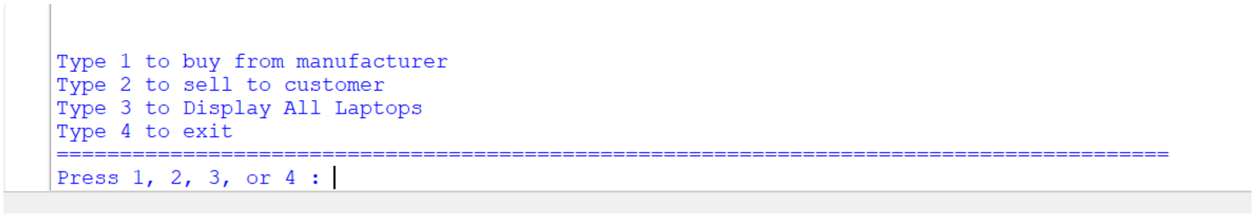
3. Tuples

   In Python, tuples are represented as group of comma separated values of any data type within parenthesis (). They are identical to list, but have different brackets. They are fixed so once defined values cannot be withdrawn, distributed, or changed.

   e.g. p = (1, 2, 3, 4, 5)

3. About Programming

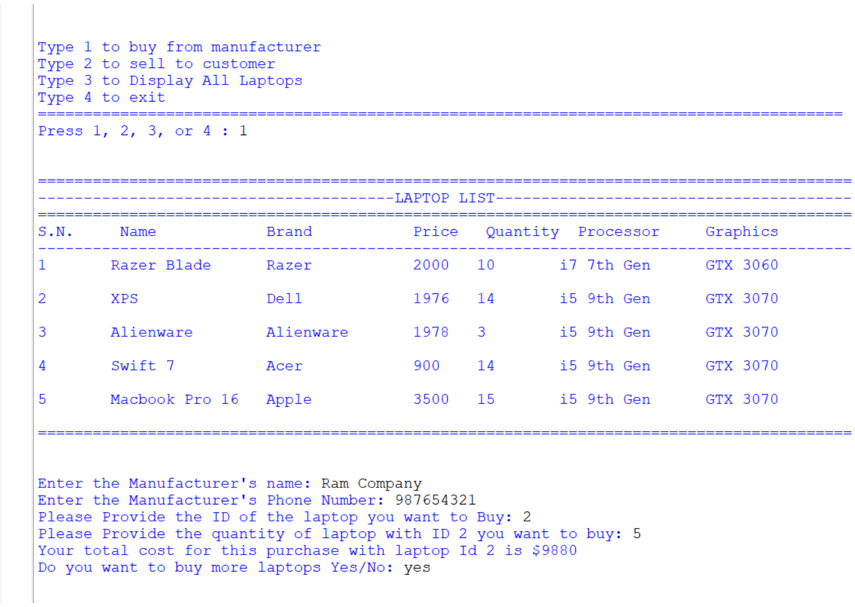
This program is done on python. The program is management system for selling and buying for laptops. There are 4 options in th program. One to buy , one to sell , one to show the system containg all Laptops and one to exit out of the system.



```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=====================================================================================
Press 1, 2, 3, or 4 :
```

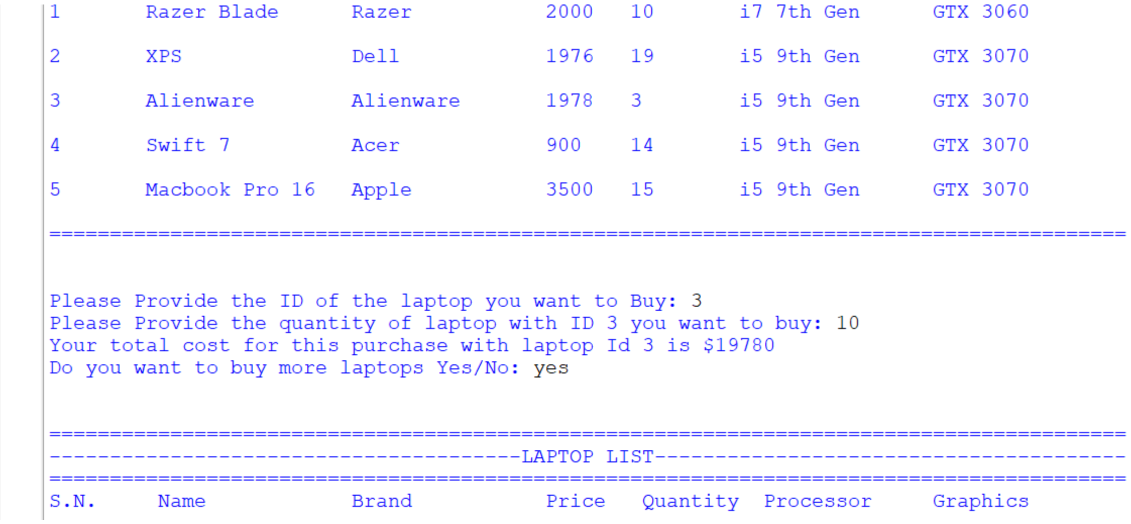
Input 1

When Option 1 is runned, you can buy the laptops All the Values from the list are displayed. The quantity varies after every Transaction. Then the program will ask you to enter name and number of the manufacturer. After verifying both of those things then It will ask you to enter laptop ID that you want to order. It verifies the laptop ID and if the ID is not valid than it will show an error. Once a valid laptop ID is entered, the quantity of the order you want to place will be asked.



```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
===========================================================================================
Press 1, 2, 3, or 4 : 1


============================================================================================
---------------------------------------LAPTOP LIST------------------------------------------
============================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
--------------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000    10        i7 7th Gen    GTX 3060

2       XPS              Dell            1976    14        i5 9th Gen    GTX 3070

3       Alienware        Alienware       1978    3         i5 9th Gen    GTX 3070

4       Swift 7          Acer            900     14        i5 9th Gen    GTX 3070

5       Macbook Pro 16   Apple           3500    15        i5 9th Gen    GTX 3070

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


Enter the Manufacturer's name: Ram Company
Enter the Manufacturer's Phone Number: 987654321
Please Provide the ID of the laptop you want to Buy: 2
Please Provide the quantity of laptop with ID 2 you want to buy: 5
Your total cost for this purchase with laptop Id 2 is $9880
Do you want to buy more laptops Yes/No: yes
```

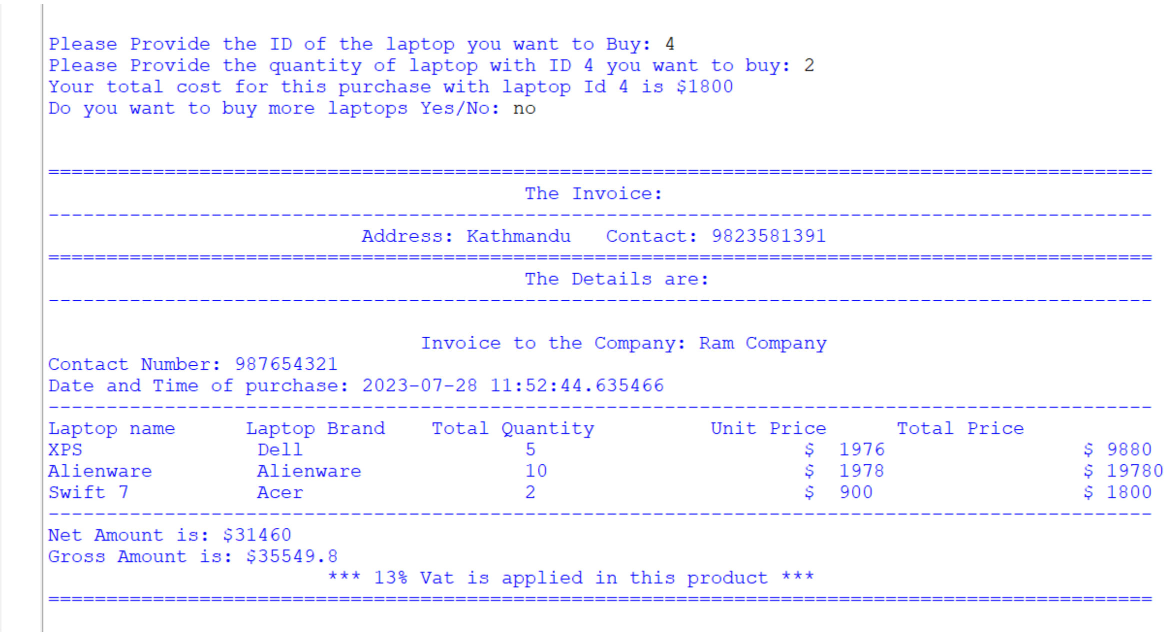
It will check for any data type error if none then “would you like to order more” will be asked. If yes then the list of laptop will be shown again. laptop ID and quantity will be asked again and checked if their vaild or not.



```
1       Razer Blade      Razer           2000   10       i7 7th Gen      GTX 3060

2       XPS              Dell            1976   19       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900    14       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500   15       i5 9th Gen      GTX 3070

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


Please Provide the ID of the laptop you want to Buy: 3
Please Provide the quantity of laptop with ID 3 you want to buy: 10
Your total cost for this purchase with laptop Id 3 is $19780
Do you want to buy more laptops Yes/No: yes


=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
```

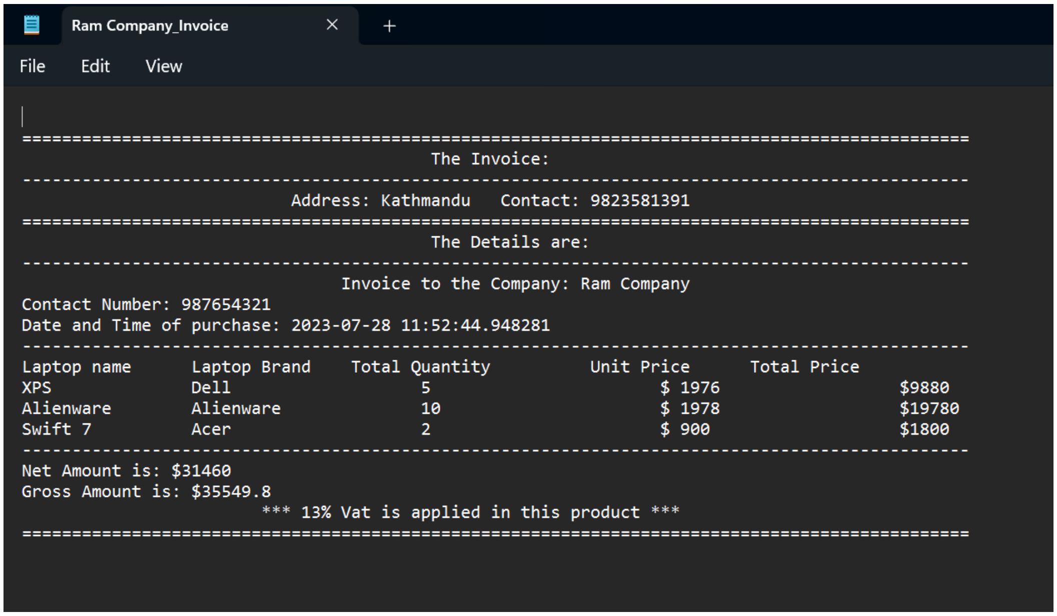
If you don’t want to order more laptops then an Invoice is shown in the python shell and a txt file is generated with the Invoice.

Invoice in the python shell:



```
Please Provide the ID of the laptop you want to Buy: 4
Please Provide the quantity of laptop with ID 4 you want to buy: 2
Your total cost for this purchase with laptop Id 4 is $1800
Do you want to buy more laptops Yes/No: no


===============================================================================================
                                         The Invoice:
-----------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
===============================================================================================
                                         The Details are:
-----------------------------------------------------------------------------------------------

                                Invoice to the Company: Ram Company
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:52:44.635466
-----------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity          Unit Price      Total Price
XPS               Dell                   5                       $  1976                 $ 9880
Alienware         Alienware              10                      $  1978                 $ 19780
Swift 7           Acer                   2                       $  900                  $ 1800
-----------------------------------------------------------------------------------------------
Net Amount is: $31460
Gross Amount is: $35549.8
                        *** 13% Vat is applied in this product ***
===============================================================================================
```

A txt file with the Invoice:

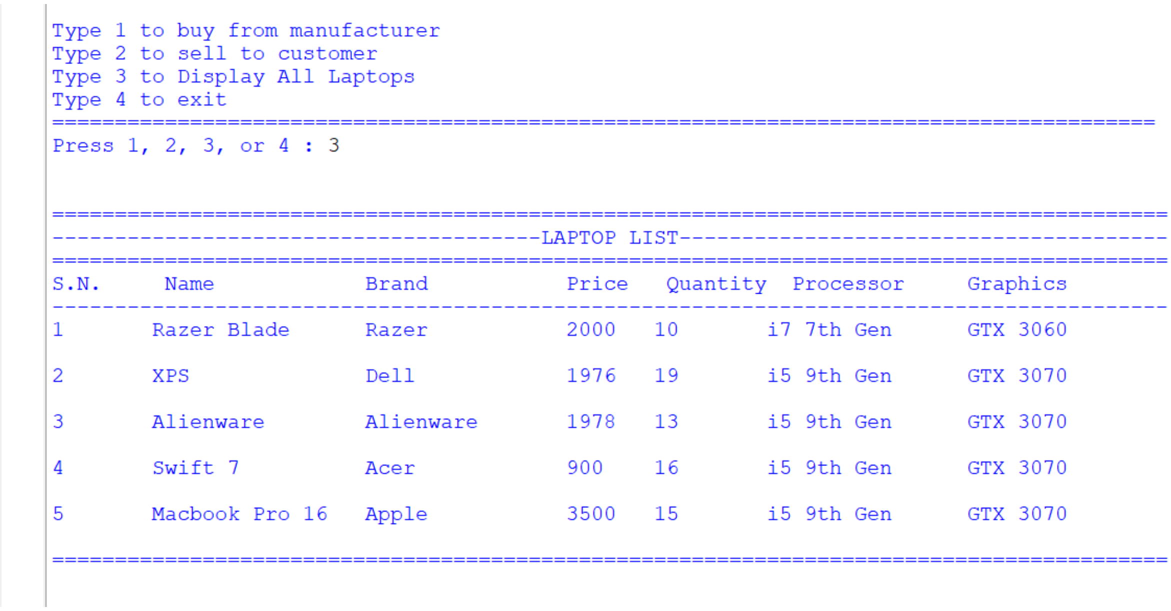


Ram Company_Invoice

File Edit View

```

===============================================================================================
                                         The Invoice:
-----------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
===============================================================================================
                                         The Details are:
-----------------------------------------------------------------------------------------------
                                Invoice to the Company: Ram Company
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:52:44.948281
-----------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity          Unit Price      Total Price
XPS              Dell                   5                       $ 1976                  $9880
Alienware        Alienware              10                      $ 1978                  $19780
Swift 7          Acer                   2                       $ 900                   $1800
-----------------------------------------------------------------------------------------------
Net Amount is: $31460
Gross Amount is: $35549.8
                        *** 13% Vat is applied in this product ***
===============================================================================================
```

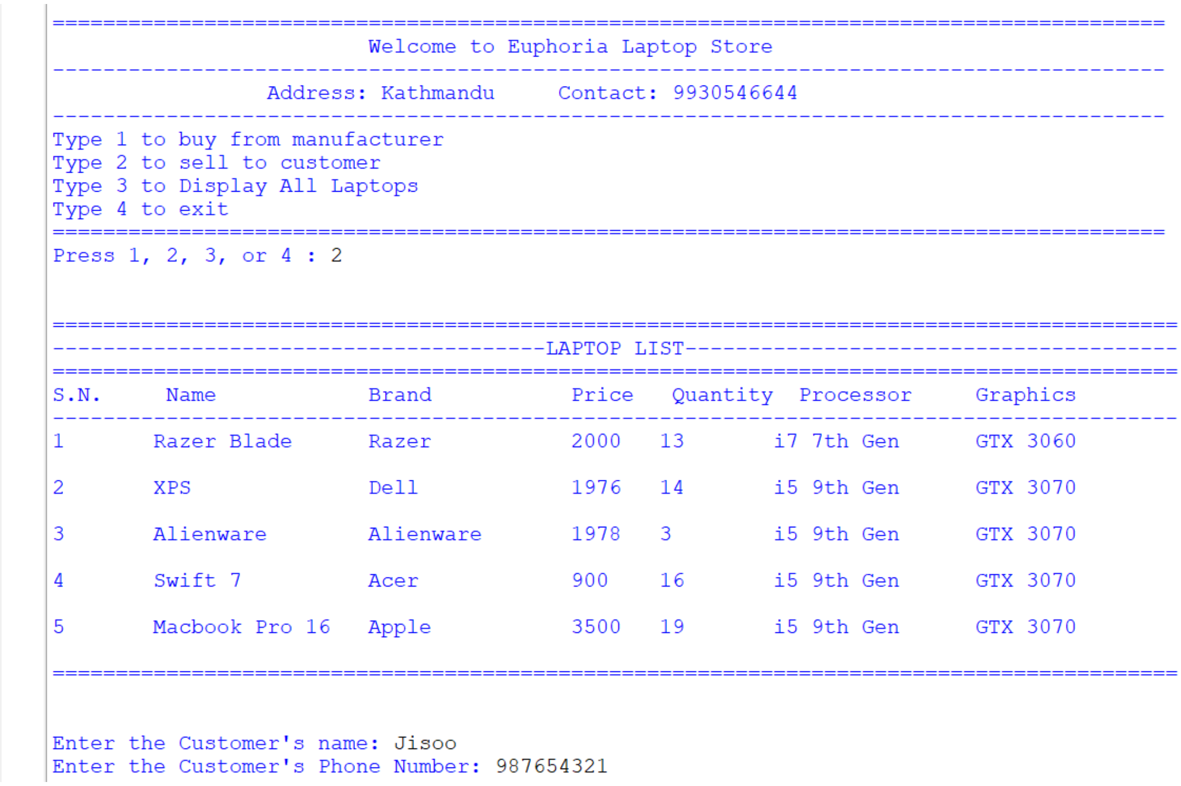
The updated list after placing an order:



```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : 3


==========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
==========================================================================================
S.N.     Name             Brand            Price    Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer            2000    10        i7 7th Gen      GTX 3060

2       XPS              Dell             1976    19        i5 9th Gen      GTX 3070

3       Alienware        Alienware        1978    13        i5 9th Gen      GTX 3070

4       Swift 7          Acer             900     16        i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple            3500    15        i5 9th Gen      GTX 3070

==========================================================================================
```

Input 2

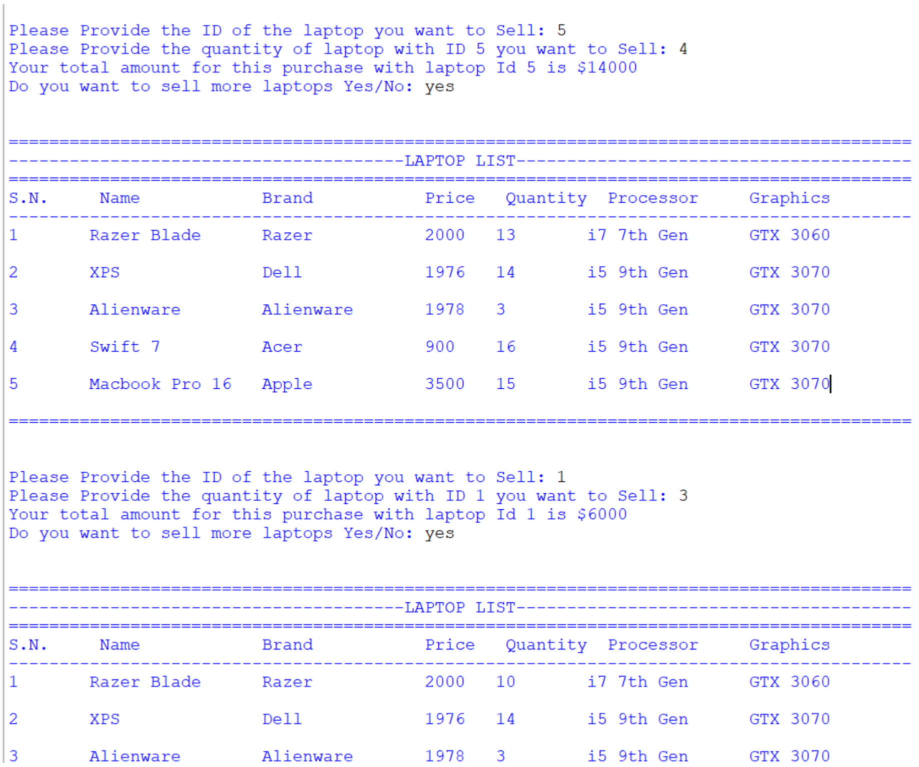
When Option 2 is runned, you can sell the laptops to a customer. All the Values from the list are displayed. The quantity again varies after every Transaction. Then the program will ask you to enter name and number of the customer.



```
=========================================================================================
                         Welcome to Euphoria Laptop Store
-----------------------------------------------------------------------------------------
                 Address: Kathmandu     Contact: 9930546644
-----------------------------------------------------------------------------------------
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : 2


==========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
==========================================================================================
S.N.     Name             Brand            Price   Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer            2000    13       i7 7th Gen     GTX 3060

2       XPS              Dell             1976    14       i5 9th Gen     GTX 3070

3       Alienware        Alienware        1978    3        i5 9th Gen     GTX 3070

4       Swift 7          Acer             900     16       i5 9th Gen     GTX 3070

5       Macbook Pro 16   Apple            3500    19       i5 9th Gen     GTX 3070

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


Enter the Customer's name: Jisoo
Enter the Customer's Phone Number: 987654321
```

After verifying both of those things then It will ask you to enter laptop ID that you want to sell. It verifies the laptop ID and if the ID is not valid than it will show an error. Once a valid laptop ID is entered, the quantity of the order you want to place will be asked. It will then check if the system has enough Laptops with that id, if not insufficient message will be shown.

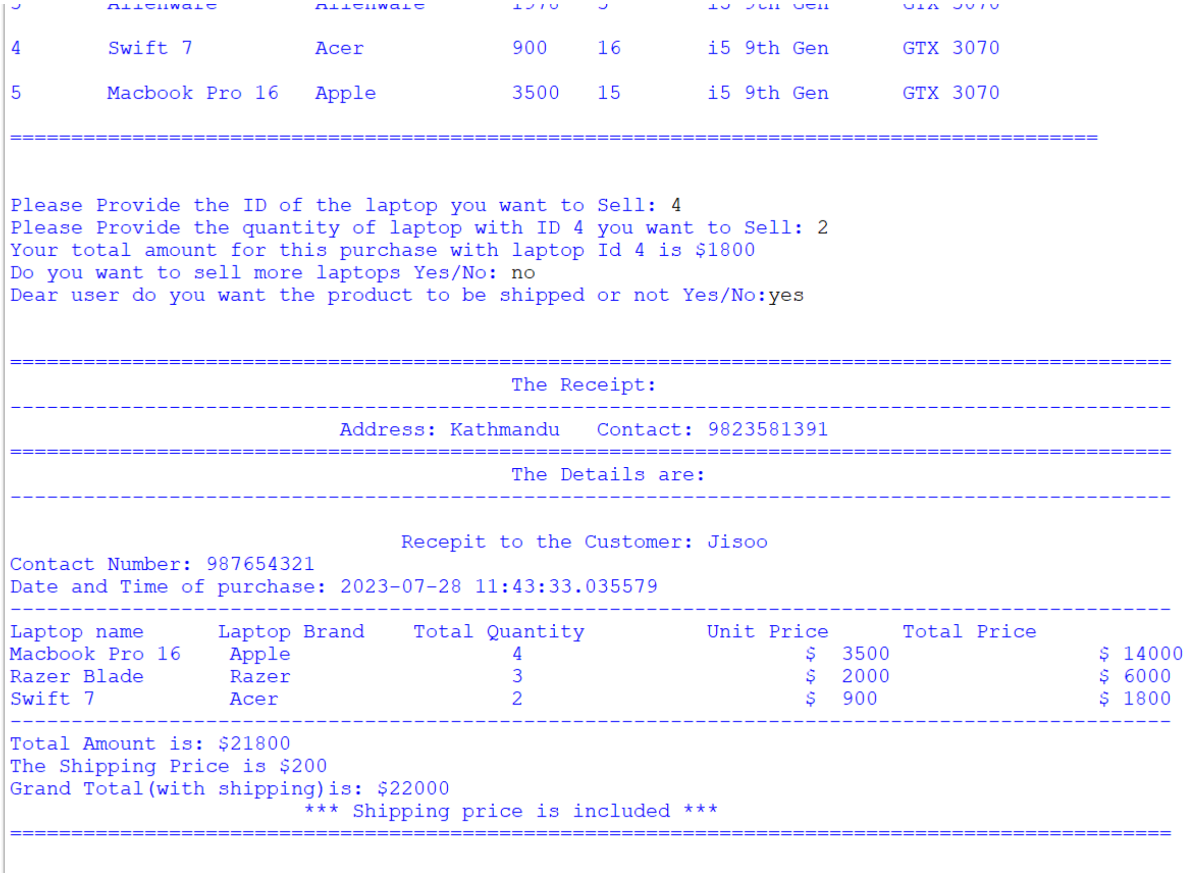
It will check for any data type error if none then “would you like to sell more” will be asked. If yes then the list of laptop will be shown again. laptop ID and quantity will be asked again and checked if their vaild or not. And the quantity of laptops is sufficient will be checked agagin.



```
Please Provide the ID of the laptop you want to Sell: 5
Please Provide the quantity of laptop with ID 5 you want to Sell: 4
Your total amount for this purchase with laptop Id 5 is $14000
Do you want to sell more laptops Yes/No: yes

=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
-----------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   13       i7 7th Gen      GTX 3060

2       XPS              Dell            1976   14       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900    16       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500   15       i5 9th Gen      GTX 3070

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

Please Provide the ID of the laptop you want to Sell: 1
Please Provide the quantity of laptop with ID 1 you want to Sell: 3
Your total amount for this purchase with laptop Id 1 is $6000
Do you want to sell more laptops Yes/No: yes

=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
-----------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   10       i7 7th Gen      GTX 3060

2       XPS              Dell            1976   14       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070
```

If you don’t want to sell more laptops then “would you like to ship your purchase” is asked. If you want the purchase to be shipped then the shipping cost is added to the Receipt. A Receipt is shown in the python shell and a txt file is generated with the Receipt.

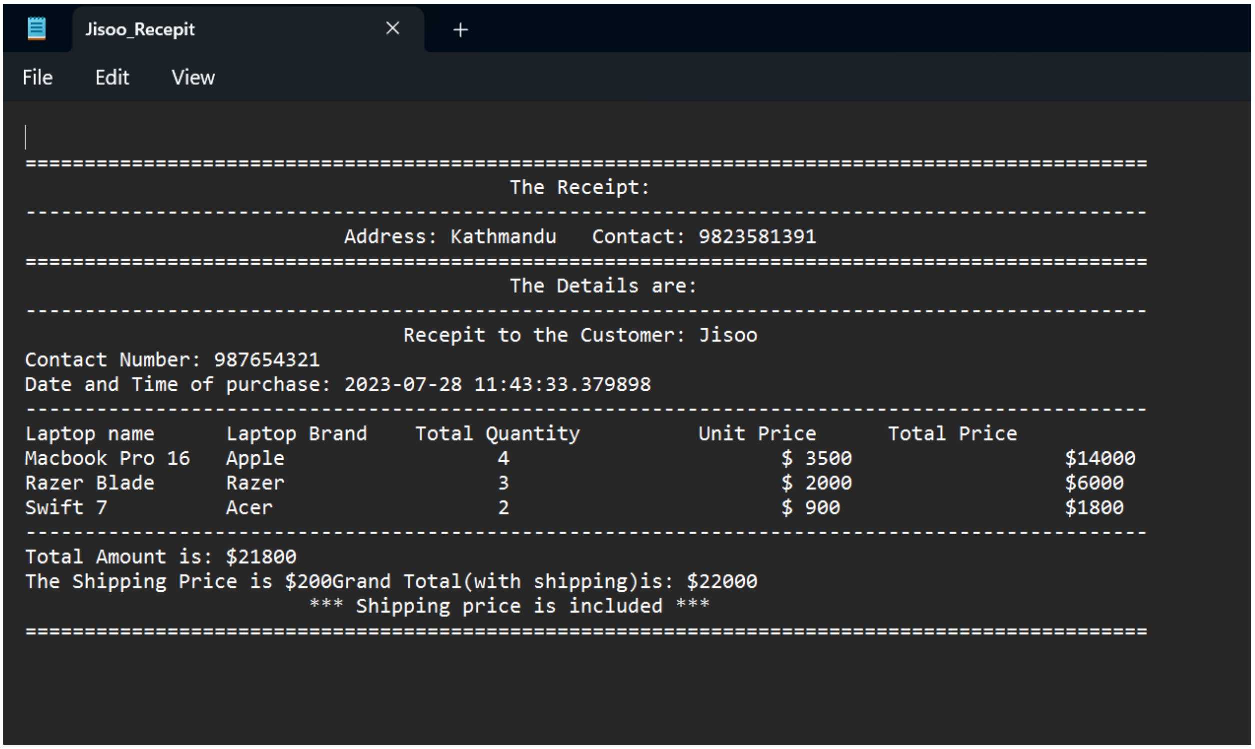
Invoice in the python shell:



```
3       Alienware       Alienware       1970    5       i5 9th Gen      GTX 3070

4       Swift 7         Acer            900     16      i5 9th Gen      GTX 3070

5       Macbook Pro 16  Apple           3500    15      i5 9th Gen      GTX 3070

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


Please Provide the ID of the laptop you want to Sell: 4
Please Provide the quantity of laptop with ID 4 you want to Sell: 2
Your total amount for this purchase with laptop Id 4 is $1800
Do you want to sell more laptops Yes/No: no
Dear user do you want the product to be shipped or not Yes/No:yes


================================================================================================
                                         The Receipt:
------------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
================================================================================================
                                         The Details are:
------------------------------------------------------------------------------------------------

                                Recepit to the Customer: Jisoo
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:43:33.035579
------------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity          Unit Price       Total Price
Macbook Pro 16    Apple               4                   $  3500                 $ 14000
Razer Blade       Razer               3                   $  2000                 $ 6000
Swift 7           Acer                2                   $  900                  $ 1800
------------------------------------------------------------------------------------------------
Total Amount is: $21800
The Shipping Price is $200
Grand Total(with shipping)is: $22000
                        *** Shipping price is included ***
================================================================================================
```

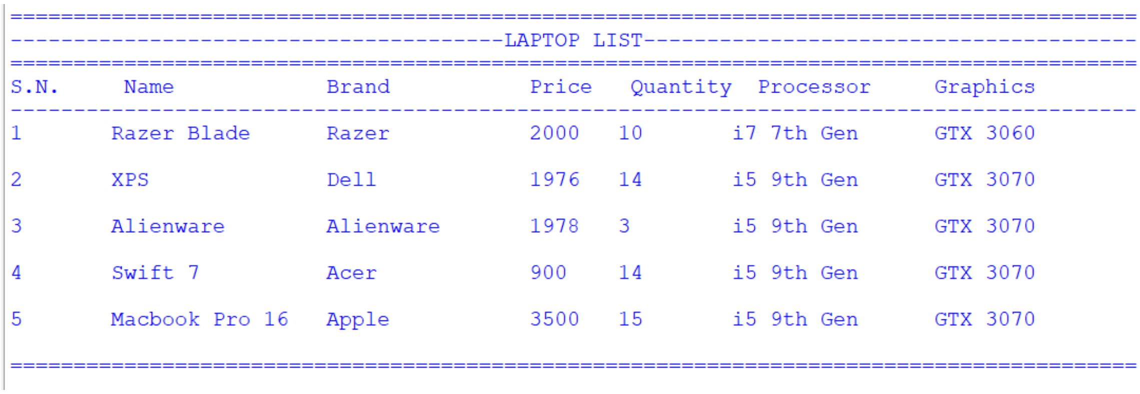
]

A txt file with the Invoice:



```
===============================================================================================
                                         The Receipt:
-----------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
===============================================================================================
                                         The Details are:
-----------------------------------------------------------------------------------------------
                                Recepit to the Customer: Jisoo
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:43:33.379898
-----------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity          Unit Price      Total Price
Macbook Pro 16   Apple                  4                       $ 3500                 $14000
Razer Blade      Razer                  3                       $ 2000                 $6000
Swift 7          Acer                   2                       $ 900                  $1800
-----------------------------------------------------------------------------------------------
Total Amount is: $21800
The Shipping Price is $200Grand Total(with shipping)is: $22000
                        *** Shipping price is included ***
===============================================================================================
```

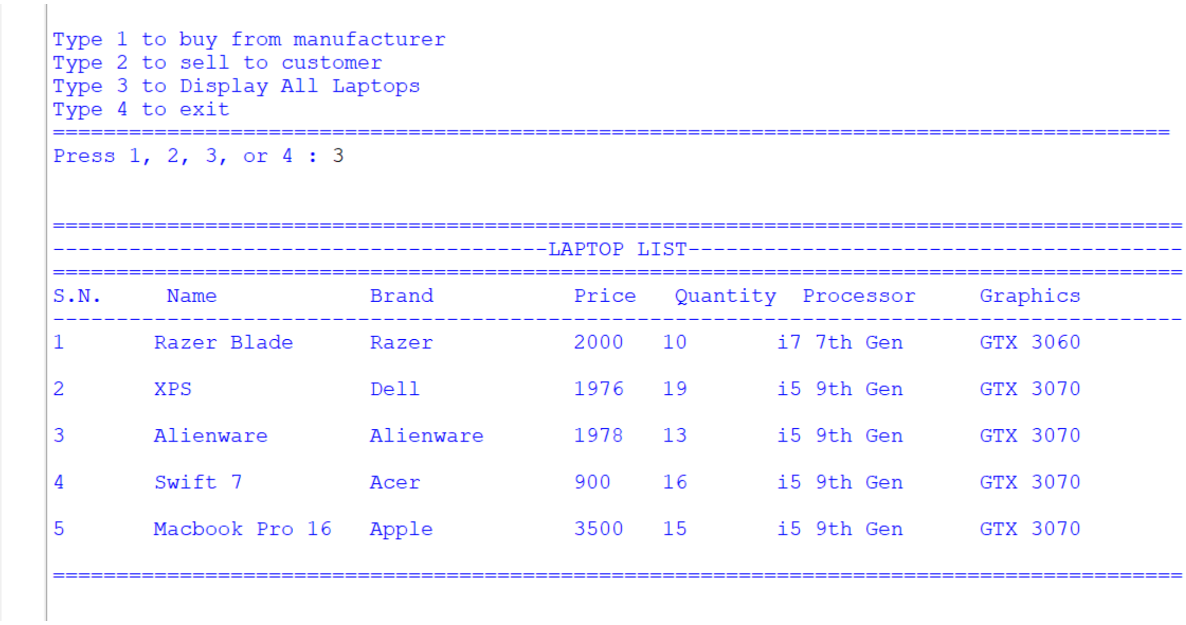
The updated list after placing an order:



```
=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
-----------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   10        i7 7th Gen     GTX 3060

2       XPS              Dell            1976   14        i5 9th Gen     GTX 3070

3       Alienware        Alienware       1978   3         i5 9th Gen     GTX 3070

4       Swift 7          Acer            900    14        i5 9th Gen     GTX 3070

5       Macbook Pro 16   Apple           3500   15        i5 9th Gen     GTX 3070

=========================================================================================
```

Input 3

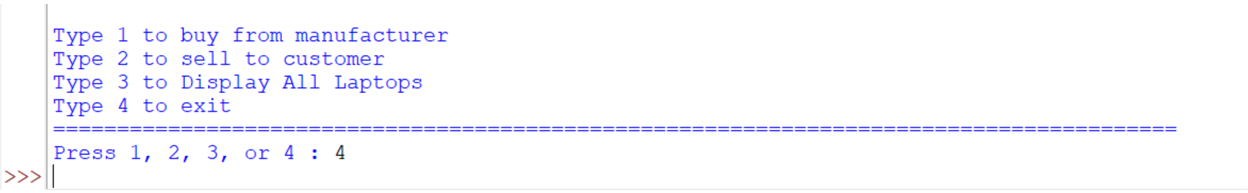
When 3 is runned then the list of laptops will be displayed



```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
==========================================================================================
Press 1, 2, 3, or 4 : 3


==========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
==========================================================================================
S.N.     Name             Brand            Price   Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer            2000    10       i7 7th Gen     GTX 3060

2       XPS              Dell             1976    19       i5 9th Gen     GTX 3070

3       Alienware        Alienware        1978    13       i5 9th Gen     GTX 3070

4       Swift 7          Acer             900     16       i5 9th Gen     GTX 3070

5       Macbook Pro 16   Apple            3500    15       i5 9th Gen     GTX 3070

==========================================================================================
```

Input 4

When 4 is runned then we Exit out of the Laptop Management System



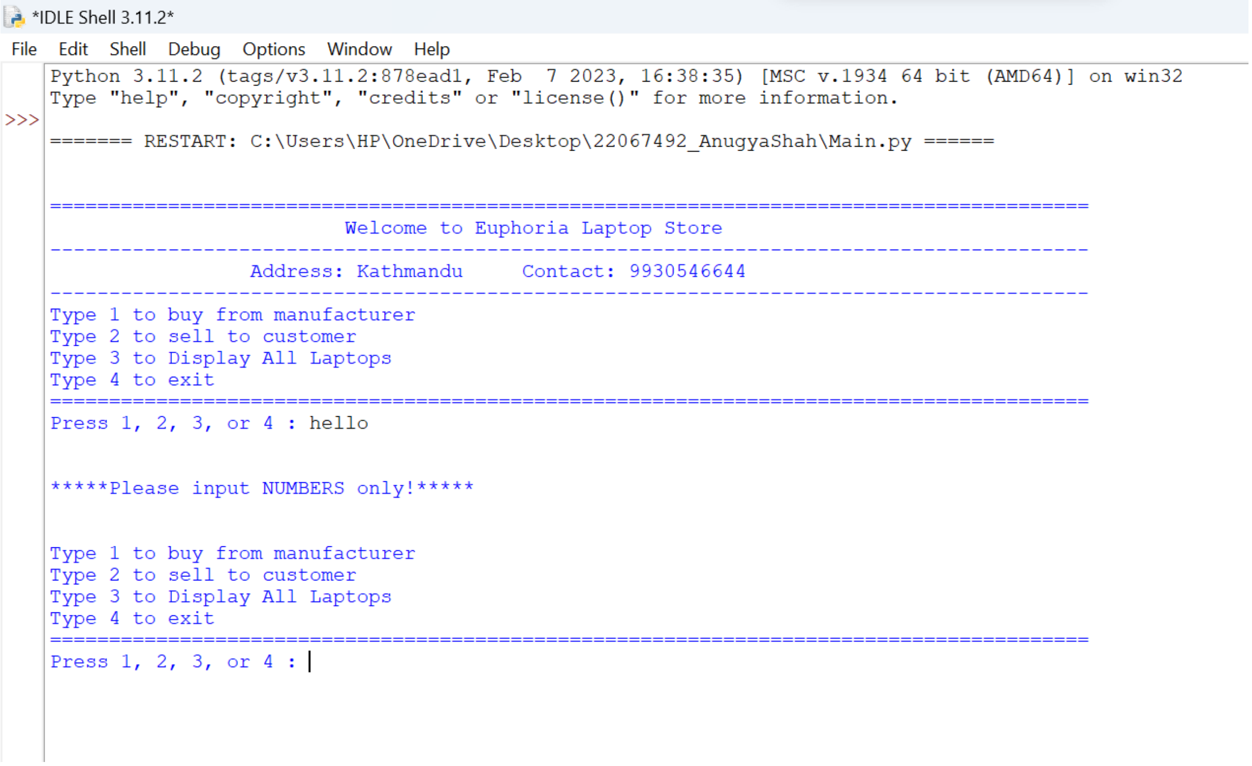
```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
==========================================================================================
Press 1, 2, 3, or 4 : 4
>>>
```

Testing

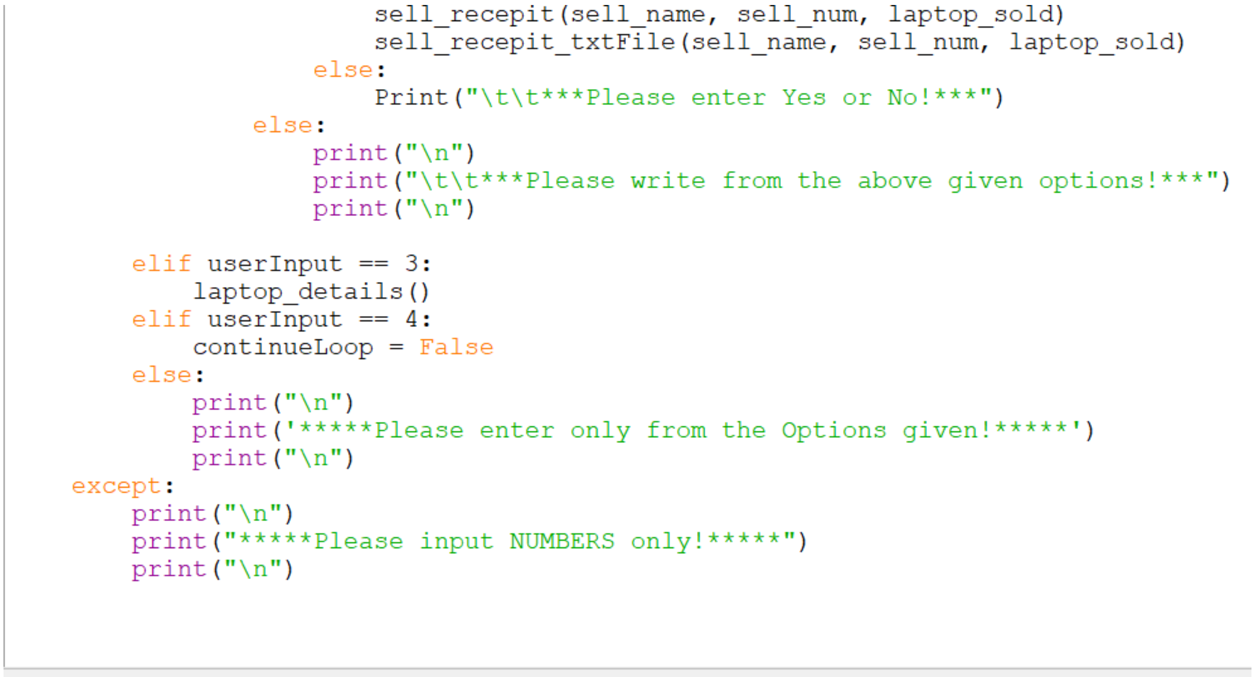
Test 1

Implementation of try and except:

Test 1	1
Objective	To provide invalid input and show the message
Action	To provide an invalid input
Expected Result	Error message displayed input a value that is a interger.
Actual Result	Error message displayed input a value that is a interger.
Conclusion	Test successful



```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb  7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> 
======= RESTART: C:\Users\HP\OneDrive\Desktop\22067492_AnugyaShah\Main.py ======


=========================================================================================
                         Welcome to Euphoria Laptop Store
-----------------------------------------------------------------------------------------
                 Address: Kathmandu     Contact: 9930546644
-----------------------------------------------------------------------------------------
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : hello


*****Please input NUMBERS only!*****


Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : 
```



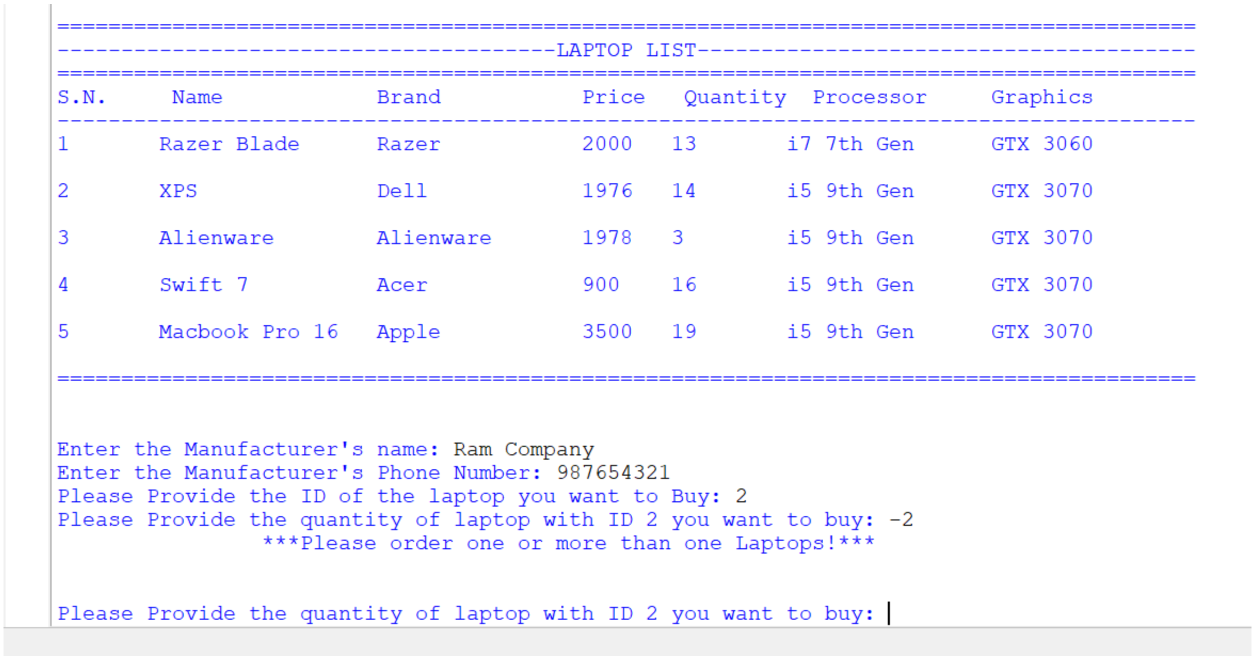
```
                    sell_recepit(sell_name, sell_num, laptop_sold)
                    sell_recepit_txtFile(sell_name, sell_num, laptop_sold)
                else:
                    Print("\t\t***Please enter Yes or No!***")
            else:
                print("\n")
                print("\t\t***Please write from the above given options!***")
                print("\n")

    elif userInput == 3:
        laptop_details()
    elif userInput == 4:
        continueLoop = False
    else:
        print("\n")
        print('*****Please enter only from the Options given!*****')
        print("\n")
except:
    print("\n")
    print("*****Please input NUMBERS only!*****")
    print("\n")
```

Test 2

Selection purchase and sale of laptops:

1. Negative value input while ordering laptops

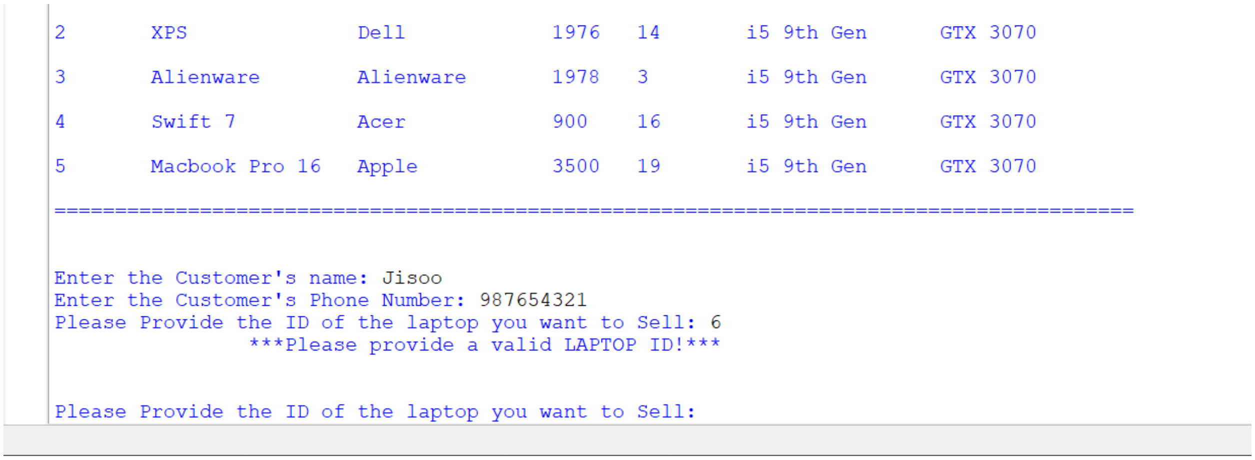
Test 2	1
Objective	To Provide the negative value as input
Action	A negative number is entered when ordering or selling.
Expected Result	Error message displayed the that the quantity is incorrect
Actual Result	Error message displayed the that the quantity is incorrect
Conclusion	Test successful



```
=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
-----------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   13       i7 7th Gen      GTX 3060

2       XPS              Dell            1976   14       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900    16       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500   19       i5 9th Gen      GTX 3070

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


Enter the Manufacturer's name: Ram Company
Enter the Manufacturer's Phone Number: 987654321
Please Provide the ID of the laptop you want to Buy: 2
Please Provide the quantity of laptop with ID 2 you want to buy: -2
                ***Please order one or more than one Laptops!***


Please Provide the quantity of laptop with ID 2 you want to buy: 
```

2. Non existed value input while selling laptops

Test 2	2
Objective	To Provide the non existed value as input
Action	An invaild is entered when ordering or selling.
Expected Result	Error message displayed the id is incorrect.
Actual Result	Error message displayed the id is incorrect.
Conclusion	Test successful

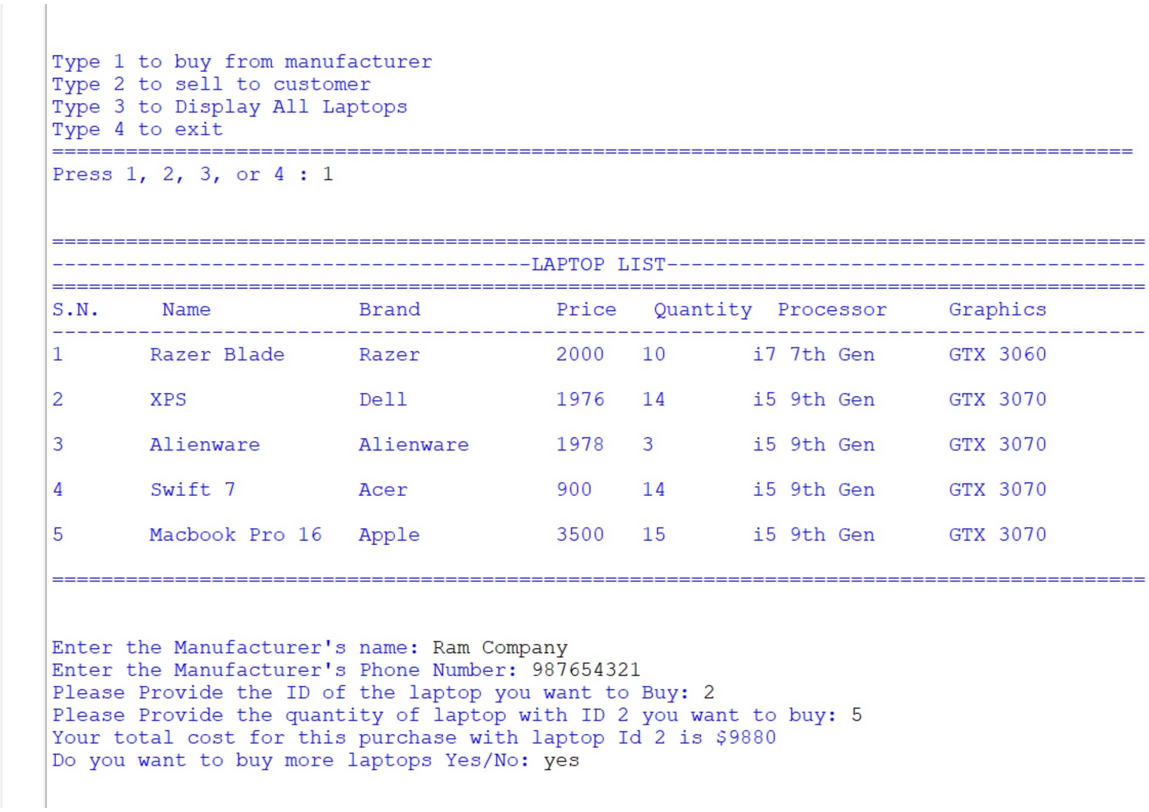


```
2       XPS              Dell            1976   14       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900    16       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500   19       i5 9th Gen      GTX 3070

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


Enter the Customer's name: Jisoo
Enter the Customer's Phone Number: 987654321
Please Provide the ID of the laptop you want to Sell: 6
                ***Please provide a valid LAPTOP ID!***


Please Provide the ID of the laptop you want to Sell:
```

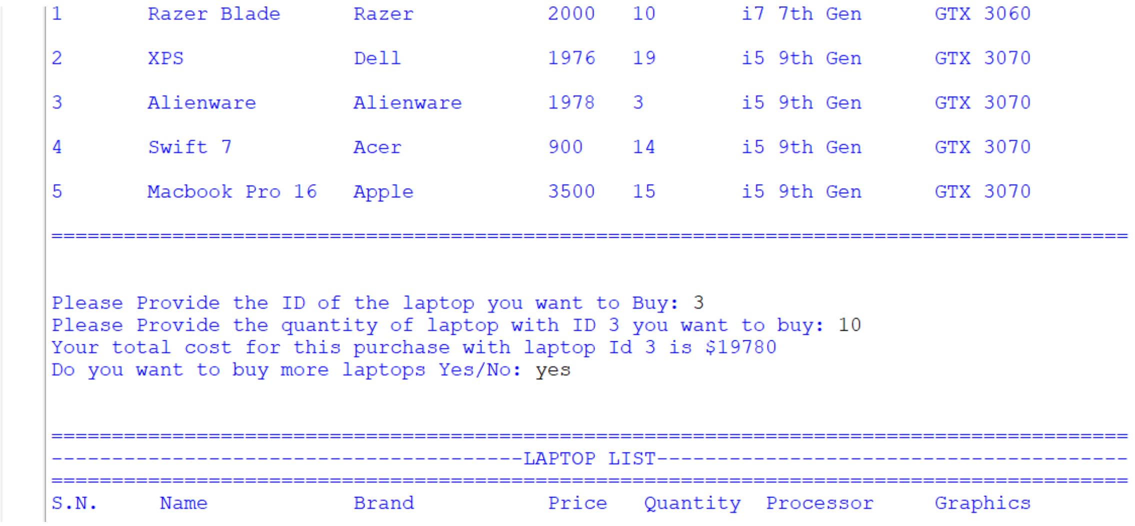
Test 3

File generation of purchase of laptop(s) :

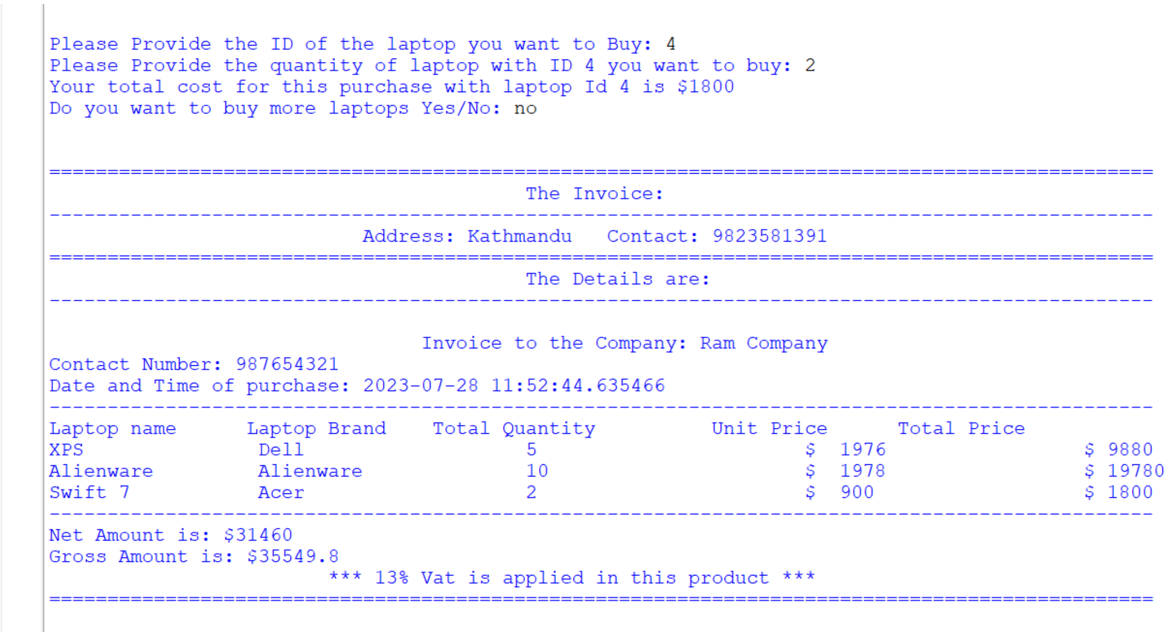
Test 3	1
Objective	To show complete purchase process To show output in the shell To show the purchased laptops details in a text file
Action	The Buy laptops option is chosen and done accordingly
Expected Result	The complete process runs smoothly Receipt is shown in the shell as well as a text file is generated.
Actual Result	The complete process runs smoothly Receipt is shown in the shell as well as a text file is generated.
Conclusion	Test successful



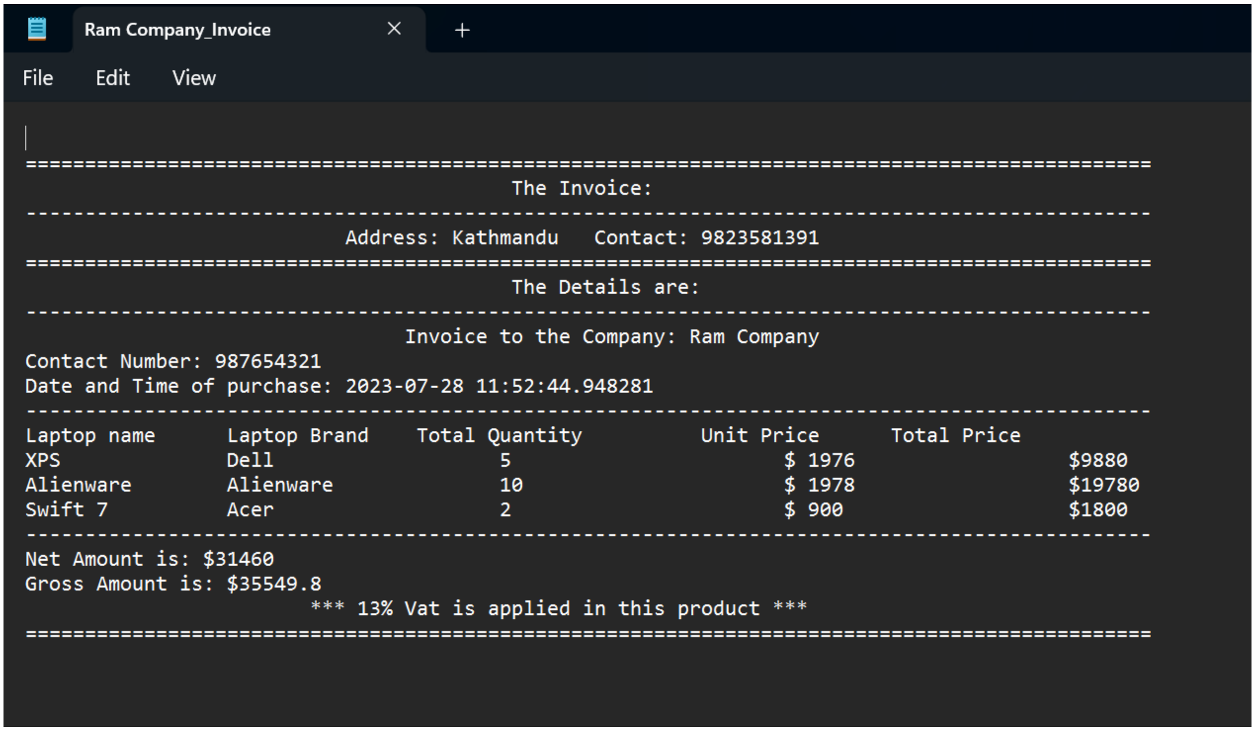
```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : 1


==========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
==========================================================================================
S.N.     Name             Brand            Price    Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer            2000    10        i7 7th Gen     GTX 3060

2       XPS              Dell             1976    14        i5 9th Gen     GTX 3070

3       Alienware        Alienware        1978    3         i5 9th Gen     GTX 3070

4       Swift 7          Acer             900     14        i5 9th Gen     GTX 3070

5       Macbook Pro 16   Apple            3500    15        i5 9th Gen     GTX 3070

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


Enter the Manufacturer's name: Ram Company
Enter the Manufacturer's Phone Number: 987654321
Please Provide the ID of the laptop you want to Buy: 2
Please Provide the quantity of laptop with ID 2 you want to buy: 5
Your total cost for this purchase with laptop Id 2 is $9880
Do you want to buy more laptops Yes/No: yes
```



```
1       Razer Blade      Razer           2000    10       i7 7th Gen      GTX 3060

2       XPS              Dell            1976    19       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978    3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900     14       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500    15       i5 9th Gen      GTX 3070

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


Please Provide the ID of the laptop you want to Buy: 3
Please Provide the quantity of laptop with ID 3 you want to buy: 10
Your total cost for this purchase with laptop Id 3 is $19780
Do you want to buy more laptops Yes/No: yes


==========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
==========================================================================================
S.N.     Name            Brand           Price    Quantity  Processor     Graphics
```



```
Please Provide the ID of the laptop you want to Buy: 4
Please Provide the quantity of laptop with ID 4 you want to buy: 2
Your total cost for this purchase with laptop Id 4 is $1800
Do you want to buy more laptops Yes/No: no


===============================================================================================
                                         The Invoice:
-----------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
===============================================================================================
                                         The Details are:
-----------------------------------------------------------------------------------------------

                                Invoice to the Company: Ram Company
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:52:44.635466
-----------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity        Unit Price      Total Price
XPS               Dell                  5                   $  1976                   $ 9880
Alienware         Alienware             10                  $  1978                   $ 19780
Swift 7           Acer                  2                   $  900                    $ 1800
-----------------------------------------------------------------------------------------------
Net Amount is: $31460
Gross Amount is: $35549.8
                        *** 13% Vat is applied in this product ***
===============================================================================================
```

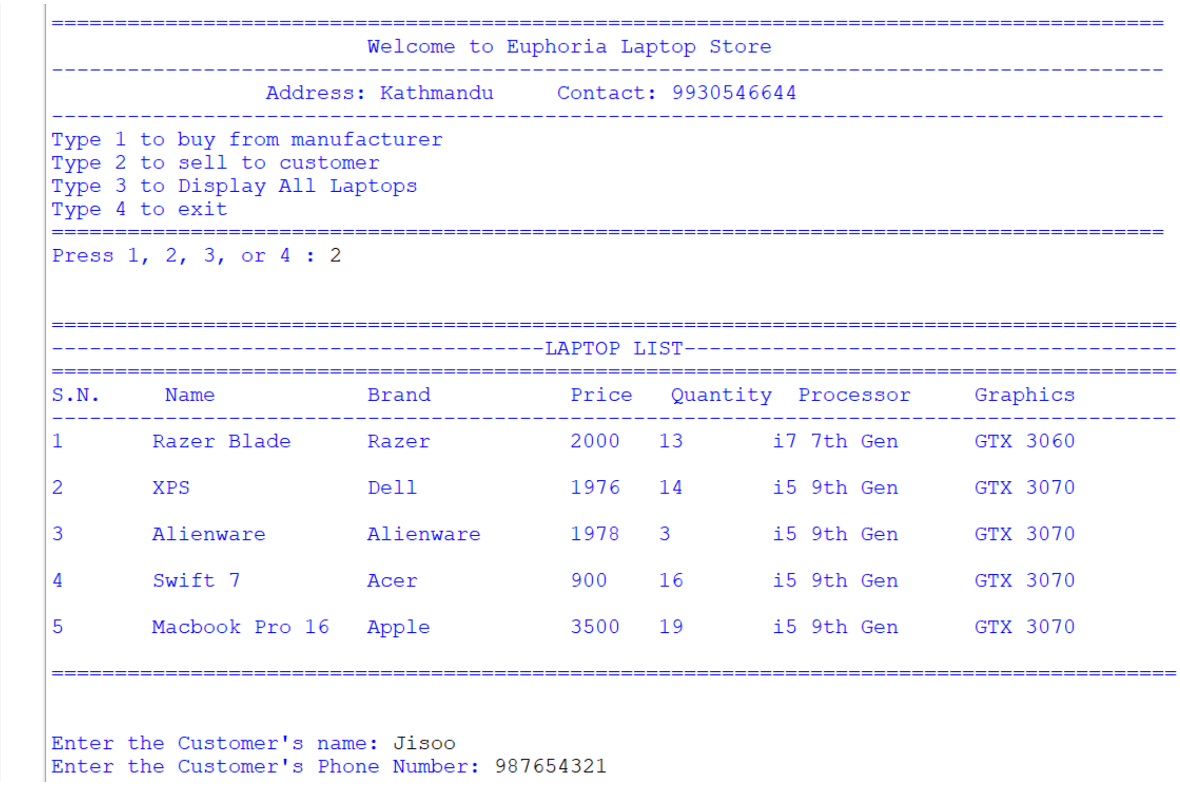


```

===============================================================================================
                                         The Invoice:
-----------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
===============================================================================================
                                         The Details are:
-----------------------------------------------------------------------------------------------
                                  Invoice to the Company: Ram Company
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:52:44.948281
-----------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity          Unit Price      Total Price
XPS              Dell                   5                       $ 1976                  $9880
Alienware        Alienware              10                      $ 1978                  $19780
Swift 7          Acer                   2                       $ 900                   $1800
-----------------------------------------------------------------------------------------------
Net Amount is: $31460
Gross Amount is: $35549.8
                        *** 13% Vat is applied in this product ***
===============================================================================================
```

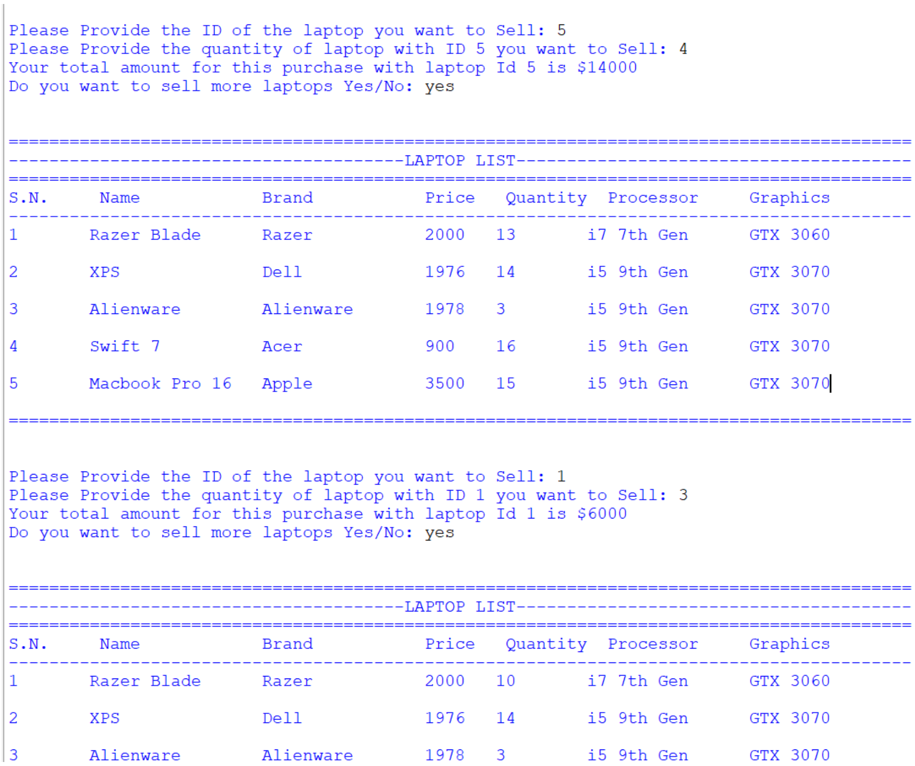
Test 4

File generation of sales process of laptop(s):

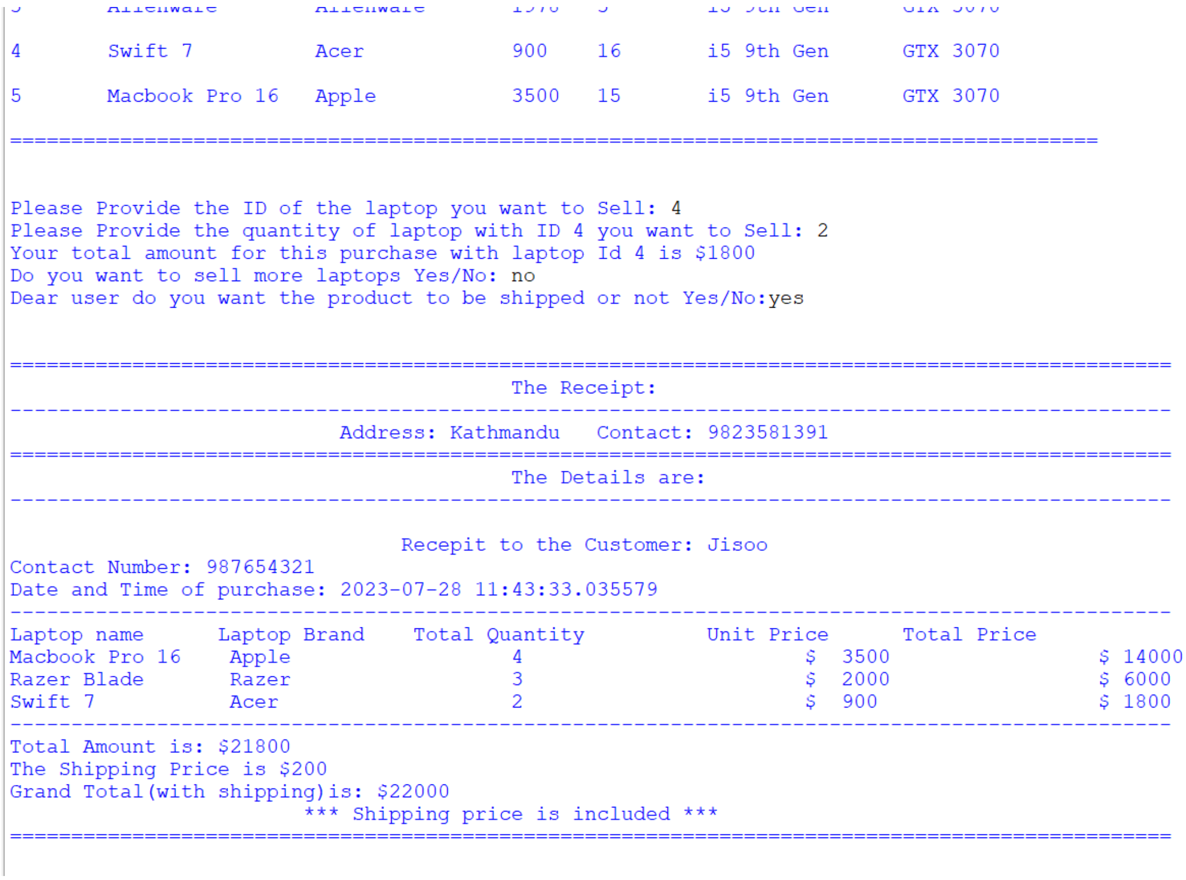
Test 4	1
Objective	To show complete purchase process To show output in the shell as well To show the purchased laptops details in a text file
Action	The sell laptops option is chosen and done accordingly
Expected Result	The complete process runs smoothly Receipt is shown in the shell as well as a text file is generated.
Actual Result	The complete process runs smoothly Receipt is shown in the shell as well as a text file is generated.
Conclusion	Test successful



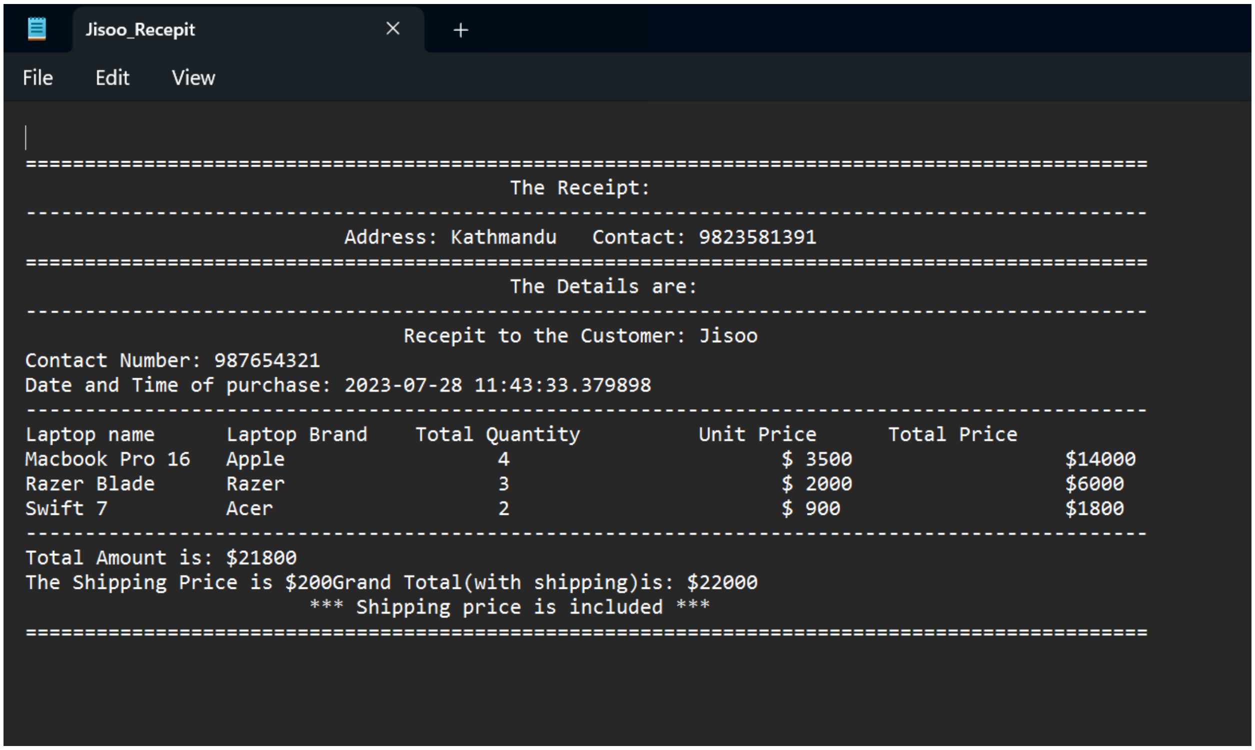
```
=========================================================================================
                         Welcome to Euphoria Laptop Store
-----------------------------------------------------------------------------------------
                 Address: Kathmandu     Contact: 9930546644
-----------------------------------------------------------------------------------------
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : 2


==========================================================================================
---------------------------------------LAPTOP LIST----------------------------------------
==========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000    13        i7 7th Gen    GTX 3060

2       XPS              Dell            1976    14        i5 9th Gen    GTX 3070

3       Alienware        Alienware       1978    3         i5 9th Gen    GTX 3070

4       Swift 7          Acer            900     16        i5 9th Gen    GTX 3070

5       Macbook Pro 16   Apple           3500    19        i5 9th Gen    GTX 3070

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


Enter the Customer's name: Jisoo
Enter the Customer's Phone Number: 987654321
```



```
Please Provide the ID of the laptop you want to Sell: 5
Please Provide the quantity of laptop with ID 5 you want to Sell: 4
Your total amount for this purchase with laptop Id 5 is $14000
Do you want to sell more laptops Yes/No: yes

==========================================================================================
---------------------------------------LAPTOP LIST----------------------------------------
==========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   13        i7 7th Gen     GTX 3060

2       XPS              Dell            1976   14        i5 9th Gen     GTX 3070

3       Alienware        Alienware       1978   3         i5 9th Gen     GTX 3070

4       Swift 7          Acer            900    16        i5 9th Gen     GTX 3070

5       Macbook Pro 16   Apple           3500   15        i5 9th Gen     GTX 3070

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

Please Provide the ID of the laptop you want to Sell: 1
Please Provide the quantity of laptop with ID 1 you want to Sell: 3
Your total amount for this purchase with laptop Id 1 is $6000
Do you want to sell more laptops Yes/No: yes

==========================================================================================
---------------------------------------LAPTOP LIST----------------------------------------
==========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   10        i7 7th Gen     GTX 3060

2       XPS              Dell            1976   14        i5 9th Gen     GTX 3070

3       Alienware        Alienware       1978   3         i5 9th Gen     GTX 3070
```



```
3       Alienware        Alienware       1978   3         i5 9th Gen     GTX 3070

4       Swift 7          Acer            900    16        i5 9th Gen     GTX 3070

5       Macbook Pro 16   Apple           3500   15        i5 9th Gen     GTX 3070

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


Please Provide the ID of the laptop you want to Sell: 4
Please Provide the quantity of laptop with ID 4 you want to Sell: 2
Your total amount for this purchase with laptop Id 4 is $1800
Do you want to sell more laptops Yes/No: no
Dear user do you want the product to be shipped or not Yes/No:yes


================================================================================================
                                        The Receipt:
------------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
================================================================================================
                                        The Details are:
------------------------------------------------------------------------------------------------

                                Recepit to the Customer: Jisoo
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:43:33.035579
------------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity         Unit Price      Total Price
Macbook Pro 16    Apple                  4                       $  3500                $ 14000
Razer Blade       Razer                  3                       $  2000                $ 6000
Swift 7           Acer                   2                       $  900                 $ 1800
------------------------------------------------------------------------------------------------
Total Amount is: $21800
The Shipping Price is $200
Grand Total(with shipping)is: $22000
                        *** Shipping price is included ***
================================================================================================
```



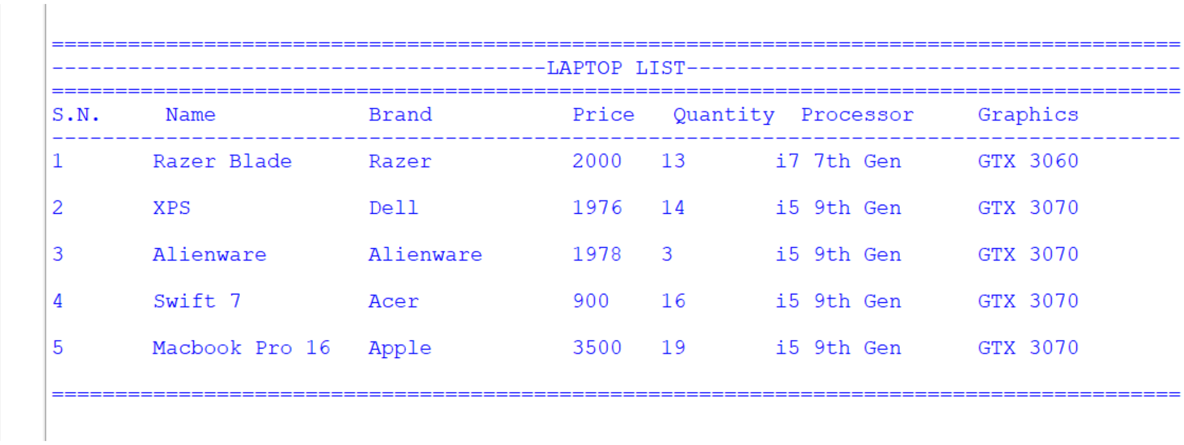
```

===============================================================================================
                                         The Receipt:
-----------------------------------------------------------------------------------------------
                           Address: Kathmandu   Contact: 9823581391
===============================================================================================
                                         The Details are:
-----------------------------------------------------------------------------------------------
                                Recepit to the Customer: Jisoo
Contact Number: 987654321
Date and Time of purchase: 2023-07-28 11:43:33.379898
-----------------------------------------------------------------------------------------------
Laptop name      Laptop Brand    Total Quantity          Unit Price      Total Price
Macbook Pro 16   Apple                  4                       $ 3500                  $14000
Razer Blade      Razer                  3                       $ 2000                  $6000
Swift 7          Acer                   2                       $ 900                   $1800
-----------------------------------------------------------------------------------------------
Total Amount is: $21800
The Shipping Price is $200Grand Total(with shipping)is: $22000
                        *** Shipping price is included ***
===============================================================================================
```

Test 5

Show the update in stock of laptop(s):

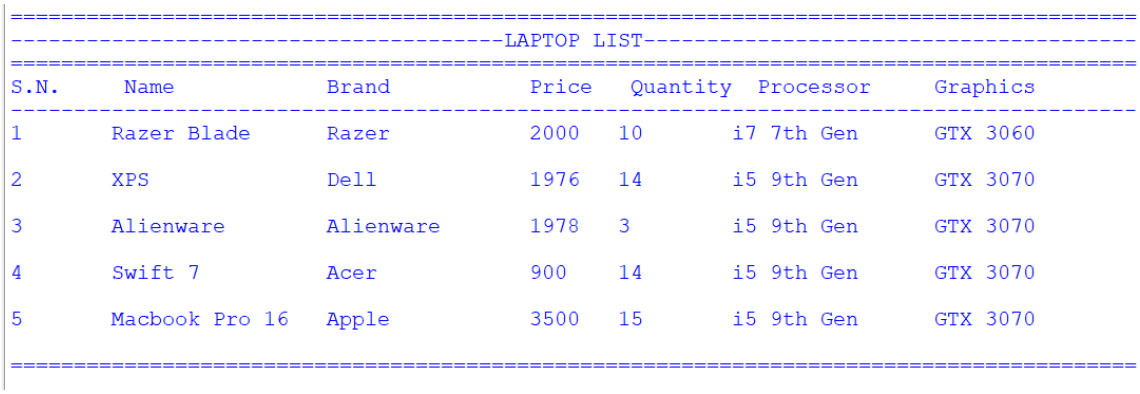
Test 5	1
Objective	To show the quantity being added while purchasing the laptop (Update should be reflected in a .txt file as well) To show the quantity being deducted while selling the laptop (Update should be reflected in a .txt file as well)
Action	After transaction the list is checked.
Expected Result	The quantity of the bought Laptops should increase. The quantity of the sold Laptops should decrease.
Actual Result	The quantity of the bought Laptops should increase. The quantity of the sold Laptops should decrease.
Conclusion	Test successful

Before Selling to Customer:

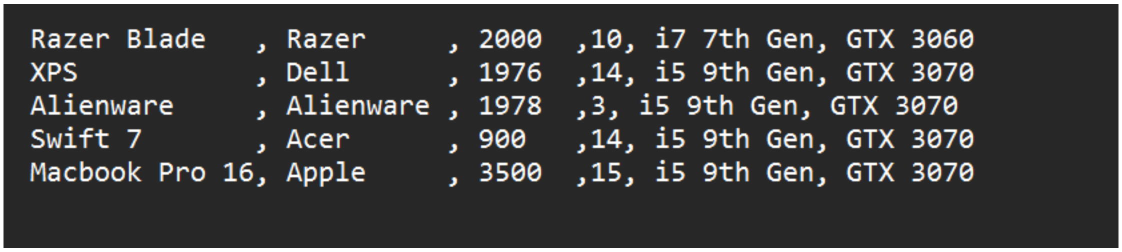


```
=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
-----------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   13       i7 7th Gen      GTX 3060

2       XPS              Dell            1976   14       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900    16       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500   19       i5 9th Gen      GTX 3070

=========================================================================================
```

After Selling to Customer:

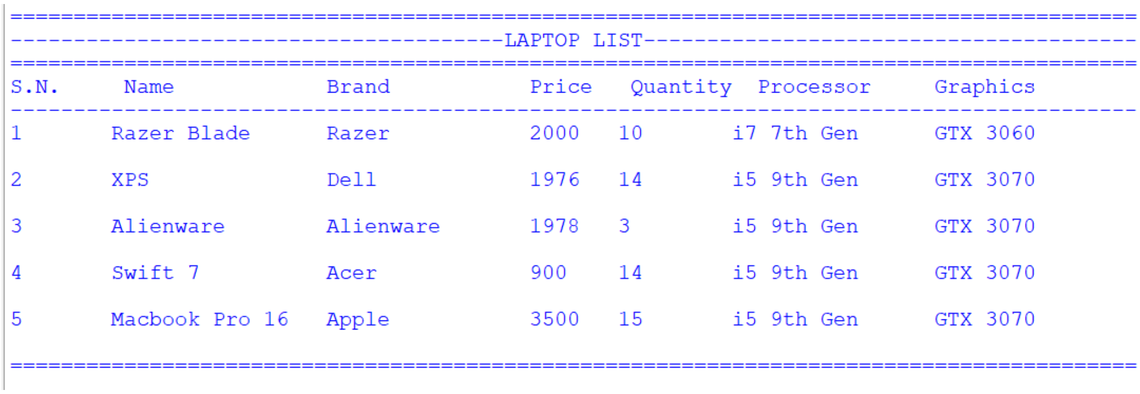


```
=========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
=========================================================================================
S.N.     Name            Brand           Price   Quantity  Processor     Graphics
-----------------------------------------------------------------------------------------
1       Razer Blade      Razer           2000   10       i7 7th Gen      GTX 3060

2       XPS              Dell            1976   14       i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978   3        i5 9th Gen      GTX 3070

4       Swift 7          Acer            900    14       i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500   15       i5 9th Gen      GTX 3070

=========================================================================================
```

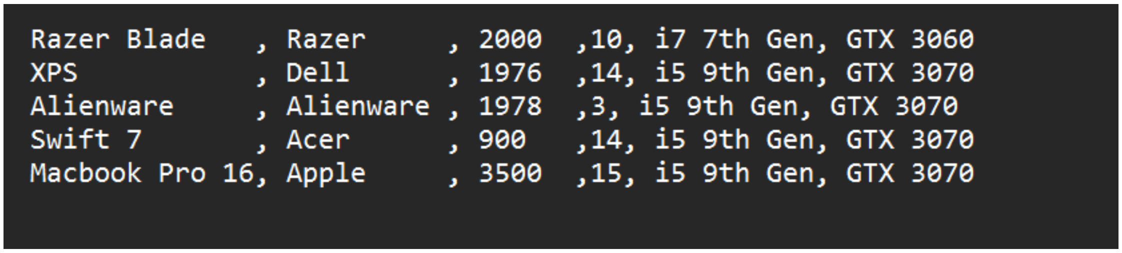


```
Razer Blade    , Razer     , 2000  ,10, i7 7th Gen, GTX 3060
XPS            , Dell      , 1976  ,14, i5 9th Gen, GTX 3070
Alienware      , Alienware , 1978  ,3, i5 9th Gen, GTX 3070
Swift 7        , Acer      , 900   ,14, i5 9th Gen, GTX 3070
Macbook Pro 16, Apple      , 3500  ,15, i5 9th Gen, GTX 3070
```

Before Ordering from the Manufacturer:

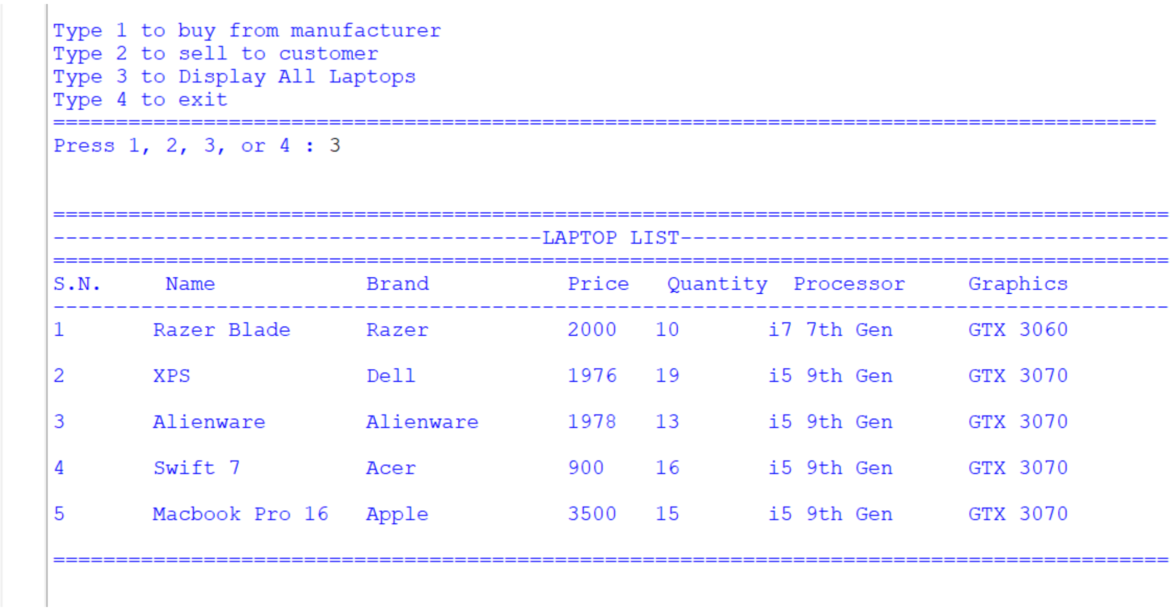


```
=================================================================================
-----------------------------------LAPTOP LIST-----------------------------------
=================================================================================
S.N.     Name            Brand           Price    Quantity  Processor     Graphics
---------------------------------------------------------------------------------
1       Razer Blade      Razer           2000    10        i7 7th Gen      GTX 3060

2       XPS              Dell            1976    14        i5 9th Gen      GTX 3070

3       Alienware        Alienware       1978    3         i5 9th Gen      GTX 3070

4       Swift 7          Acer            900     14        i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple           3500    15        i5 9th Gen      GTX 3070

=================================================================================
```

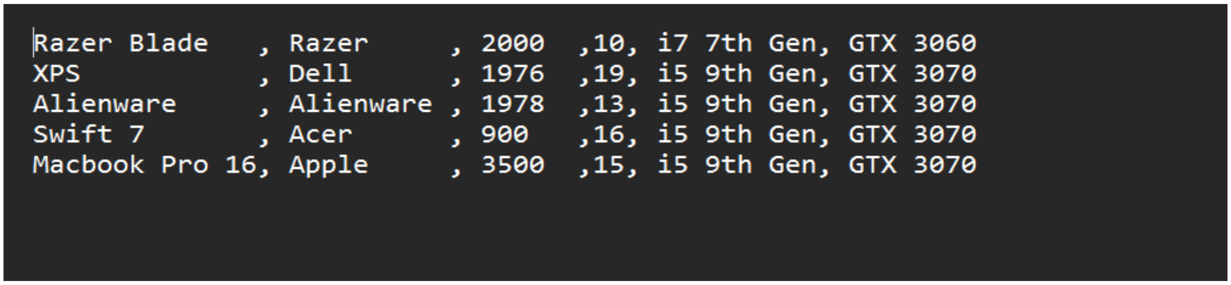


```
Razer Blade    , Razer     , 2000  ,10, i7 7th Gen, GTX 3060
XPS            , Dell      , 1976  ,14, i5 9th Gen, GTX 3070
Alienware      , Alienware , 1978  ,3, i5 9th Gen, GTX 3070
Swift 7        , Acer      , 900   ,14, i5 9th Gen, GTX 3070
Macbook Pro 16, Apple      , 3500  ,15, i5 9th Gen, GTX 3070
```

After Ordering from the Manufacturer:



```
Type 1 to buy from manufacturer
Type 2 to sell to customer
Type 3 to Display All Laptops
Type 4 to exit
=========================================================================================
Press 1, 2, 3, or 4 : 3


==========================================================================================
---------------------------------------LAPTOP LIST---------------------------------------
==========================================================================================
S.N.     Name             Brand            Price    Quantity  Processor     Graphics
------------------------------------------------------------------------------------------
1       Razer Blade      Razer            2000    10        i7 7th Gen      GTX 3060

2       XPS              Dell             1976    19        i5 9th Gen      GTX 3070

3       Alienware        Alienware        1978    13        i5 9th Gen      GTX 3070

4       Swift 7          Acer             900     16        i5 9th Gen      GTX 3070

5       Macbook Pro 16   Apple            3500    15        i5 9th Gen      GTX 3070

==========================================================================================
```



```
Razer Blade    , Razer     , 2000  ,10, i7 7th Gen, GTX 3060
XPS            , Dell      , 1976  ,19, i5 9th Gen, GTX 3070
Alienware      , Alienware , 1978  ,13, i5 9th Gen, GTX 3070
Swift 7        , Acer      , 900   ,16, i5 9th Gen, GTX 3070
Macbook Pro 16, Apple      , 3500  ,15, i5 9th Gen, GTX 3070
```

Conclusion

In conclusion, the development of our Python program for the laptop shop has been a fruitful journey that has showcased the power and flexibility of this programming language. The program has successfully achieved the objective of creating an efficient system that could handle all transactions, from purchasing laptops from manufacturers to selling them to customers, while accurately updating the inventory in real time. Through this project, I got to understand deeply about various aspects of Python, honing my programming skills and problem-solving abilities. Numerous challenges were encountered along the way, from designing the logic of the program to handling errors and validating user inputs. Each obstacle presented an opportunity for growth and accomplished solving the problems with determination and perseverance.

The program efficiently stores laptop details, customer information, and transaction records, ensuring easy access and accurate data retrieval. This helped me to become more skilled at handling file operations, which facilitated the generation of well-structured bills containing comprehensive purchase or sale information and customer details. This project has not only expanded my knowledge of Python but has also provided me with valuable insights into software development and the importance of creating solutions that cater to real-world needs. This journey has been a testament to the limitless possibilities of Python and has inspired me to continue the pursuit of excellence in the fascinating world of programming

Appendix

Main.py

```
# importing what we need
from Read import*
from Operation import *
from Write import *

#starting the loop
continueLoop = True
#calling the welcome function
wel_message()
while continueLoop == True:
    #calling this function to show all the options
    options()
    try:
        #asking the user to input desired option
        userInput = int(input('Press 1, 2, 3, or 4 : ' ))

        if userInput == 1:
            laptop_ordered = []
            laptops = Read_txt_file()
            #calling the function that shows all the laptops in text file
            laptop_details()
            #calling function for inputs
            order_name = inputName_buy()
            order_num = inputPhNumber_buy()
            length = len(laptops)
            #calling function for Id
            LaptopID = validId_buy(length)
            #calling function that asks for quantity of laptops and checks the stock
            Quantity = verify_qty_buy(LaptopID)

            total_cost = Cal_cost(LaptopID, Quantity, laptops)
            add_order(LaptopID, Quantity, laptops)
            print(f"Your total cost for this purchase with laptop Id {LaptopID} is ${total_cost}")
            #gettin all the inputs/varibles
            laptop_name = laptops[LaptopID][0]
            laptop_brand = laptops[LaptopID][1]
            laptop_price = laptops[LaptopID][2]

            laptop_ordered.append([laptop_name, laptop_brand, Quantity, laptop_price, total_cost])

            buy_more = True
            while buy_more == True:
                more_laptop = input("Do you want to buy more laptops Yes/No: ")
                if more_laptop.upper() == "YES":
                    laptops = Read_txt_file()
                    laptop_details()
                    LaptopID = validId_buy(length)
                    Quantity = verify_qty_buy(LaptopID)
                    total_cost = Cal_cost(LaptopID, Quantity, laptops)
                    add_order(LaptopID, Quantity, laptops)
                    print(f"Your total cost for this purchase with laptop Id {LaptopID} is ${total_cost}")
```

```
                    #gettin all the inputs/varibles
                    laptop_name = laptops[LaptopID][0]
                    laptop_brand = laptops[LaptopID][1]
                    laptop_price = laptops[LaptopID][2]


                    laptop_ordered.append([laptop_name, laptop_brand, Quantity, laptop_price, total_cost])
                elif more_laptop.upper() == "NO":
                    buy_more = False
                    order_invoice(order_name, order_num, laptop_ordered)
                    order_invoice_txtFile(order_name, order_num, laptop_ordered)
                else:
                    print("\n")
                    print("\t\t***Please write from the above given options!***")
                    print("\n")


        elif userInput == 2:
            laptop_sold = []
            laptops = Read_txt_file()
            #calling the function that shows all the laptops in text file
            laptop_details()
            #calling function for inputs
            sell_name = inputName_sell()
            sell_num = inputPhNumber_sell()
            length = len(laptops)
            #calling function for Id
            LaptopID = validId_sell(length)
            #calling function that asks for quantity of laptops and checks the stock
            Quantity = verify_qty_sell(laptops, LaptopID)
            total_amt_sold = Cal_amt(LaptopID, Quantity, laptops)
            sub_sold(LaptopID, Quantity, laptops)
            print(f"Your total amount for this purchase with laptop Id {LaptopID} is ${total_amt_sold}")
            #gettin all the inputs/varibles
            laptop_name = laptops[LaptopID][0]
            laptop_brand = laptops[LaptopID][1]
            laptop_price = laptops[LaptopID][2]
            laptop_sold.append([laptop_name, laptop_brand, Quantity, laptop_price, total_amt_sold])
            sell_more = True
            while sell_more == True:
                sell_laptop = input("Do you want to sell more laptops Yes/No: ")
                if sell_laptop.upper() == "YES":
                    laptops = Read_txt_file()
                    laptop_details()
                    LaptopID = validId_sell(length)
                    Quantity = verify_qty_sell(laptops, LaptopID)
                    total_amt_sold = Cal_amt(LaptopID, Quantity, laptops)
                    sub_sold(LaptopID, Quantity, laptops)
                    print(f"Your total amount for this purchase with laptop Id {LaptopID} is ${total_amt_sold}")

                    #gettin all the inputs/varibles
                    laptop_name = laptops[LaptopID][0]
                    laptop_brand = laptops[LaptopID][1]
                    laptop_price = laptops[LaptopID][2]

                    laptop_sold.append([laptop_name, laptop_brand, Quantity, laptop_price, total_amt_sold])
                elif sell_laptop.upper() == "NO":
                    sell_more = False
                    shippingcost = input("Dear user do you want the product to be shipped or not Yes/No:")
                    if shippingcost.upper() == "YES":
                        sell_recepit_SP(sell_name, sell_num, laptop_sold)
                        sell_recepit_SP_txtFile(sell_name, sell_num, laptop_sold)
                    elif shippingcost.upper() == "NO":
                        sell_recepit(sell_name, sell_num, laptop_sold)
                        sell_recepit_txtFile(sell_name, sell_num, laptop_sold)
                    else:
                        Print("\t\t***Please enter Yes or No!***")
                else:
                    print("\n")
                    print("\t\t***Please write from the above given options!***")
                    print("\n")

        elif userInput == 3:
            laptop_details()
        elif userInput == 4:
            continueLoop = False
        else:
            print("\n")
            print('*****Please enter only from the Options given!*****')
            print("\n")
    except:
        print("\n")
        print("*****Please input NUMBERS only!*****")
        print("\n")
```

Operations.py

```
#for option 1 Buy:

#asking for the manufacturer's name

def inputName_buy():

    name = str(input("Enter the Manufacturer's name: "))

    return name


#asking for the manufacturer's phone number

def inputPhNumber_buy():

    Loop = True

    while Loop == True:

        try:

            phoneNum = int(input("Enter the Manufacturer's Phone Number: "))

            Loop = False

            return phoneNum

        except:

            print("\t\t***Please enter a vaild Phone Number!***")


#checks for the validity of ID entered by the user

def validId_buy(length):

    #loop for the question if the id is not valid

    loop = True

    while loop == True:

        #using try and except for a input error

        try:

            valid_id = int(input("Please Provide the ID of the laptop you want to Buy: "))

            loop = False
        except:
            print("\t\t***Please enter Numbers only!***")
    #using while loop for the correct Id
    while valid_id <= 0 or valid_id > length:
        print("\t\t***Please provide a valid LAPTOP ID!***")
        valid_id = int(input("Please Provide the ID of the laptop you want to Buy: "))
    return valid_id


#asks for quantity from the user and also the check if it's available in the stock
def verify_qty_buy(LaptopID):
    loop = True
    while loop:
        try:
            get_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID} you want to buy: "))
            while get_qty <= 0:
                print("\t\t***Please order one or more than one Laptops!***")
                print("\n")
                get_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID} you want to buy: "))
            loop = False
            return get_qty
        except ValueError:
            print("\t\t***Please provide a valid Quantity number.***")



def Cal_cost(LaptopID, Quantity, laptops):
    unit_price = int(laptops[LaptopID][2])
    tcost = unit_price * Quantity
    return tcost



#updating the stock
def update_list(laptops):
    with open ('laptopfile.txt','w')as file:
        for values in laptops.values():
            file.write(str(values[0]) + "," + str(values[1]) + "," + str(values[2]) + "," +
str(values[3]) + "," + str(values[4]) + "," + str(values[5]))
            file.write("\n")



#adding the order to the stock
def add_order(LaptopID, Quantity, laptops):
    laptops[LaptopID][3] = str(int(laptops[LaptopID][3]) + Quantity)
    update_list(laptops)
    return("")





#for option 2 Sell:
def inputName_sell():
    name = str(input("Enter the Customer's name: "))
    return name

def inputPhNumber_sell():
    Loop = True
    while Loop == True:
        try:
            phoneNum = int(input("Enter the Customer's Phone Number: "))
            Loop = False
            return phoneNum
        except:
            print("\t\t***Please enter a vaild Phone Number!***")

def validId_sell(length):
    #loop for the question if the id is not valid
    loop = True
    while loop == True:
        #using try and except for a input error
        try:
            valid_id = int(input("Please Provide the ID of the laptop you want to Sell: "))
            loop = False
        except:
            print("\t\t***Please enter Numbers only!***")
    #using while loop for the correct Id
    while valid_id <= 0 or valid_id > length:
        print("\t\t***Please provide a valid LAPTOP ID!***")
        print("\n")
        valid_id = int(input("Please Provide the ID of the laptop you want to Sell: "))
    return valid_id

def verify_qty_sell(laptops, LaptopID):
    for available_qty in laptops:
        available_qty = int(laptops[LaptopID][3])
        not_available = True
        while not_available == True:
            try:
                get_sell_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID} you want to Sell: "))
                while get_sell_qty <= 0 or get_sell_qty > available_qty:
                    print(f"\t\t***We don't have enough quantity of Laptop with ID {LaptopID}!***")
                    print("\t\t***Please write a quantity that is available in the stock***")
                    get_sell_qty = int(input(f"Please Provide the quantity of laptop with ID {LaptopID} you want to Sell: "))
                not_available = False
                return get_sell_qty
            except:
                print("\t\t***Please input numbers only for required quantity.***")


def Cal_amt(LaptopID, Quantity, laptops):
    unit_price = int(laptops[LaptopID][2])
    sold_cost = unit_price * Quantity
    return sold_cost



def sub_sold(LaptopID, Quantity, laptops):
    laptops[LaptopID][3] = str(int(laptops[LaptopID][3]) - Quantity)
    update_list(laptops)
    return("")
```

Write.py

```
from datetime import datetime


def wel_message():
    print('\n')
    print("=" * 88)
    print('\t \t \t Welcome to Euphoria Laptop Store')
    print('------------------------------------------------------------------------------------------')
    print('\t \t Address: Kathmandu     Contact: 9930546644')
    print('------------------------------------------------------------------------------------------')


def options():
    print("Type 1 to buy from manufacturer")
    print("Type 2 to sell to customer")
    print("Type 3 to Display All Laptops")
    print("Type 4 to exit")
    print("=" * 88)


def laptop_details():
    print('\n')

print("================================================================
============================")
    print("----------------------------------------LAPTOP LIST----------------------------------------")

print("================================================================
============================")
    print("S.N. \t Name \t \t Brand \t\t Price \t Quantity  Processor     Graphics ")
    print("--------------------------------------------------------------------------------------------")
    file = open('laptopfile.txt', 'r')
    Laptop_Id = 1
    for line in file:
        print(Laptop_Id, "\t" + line.replace(",", "\t"))
        Laptop_Id += 1

print("====================================================================
===========================")
    print("\n")
    file.close()
    return("")


def order_invoice(order_name, order_num, laptop_ordered):
    totalp = 0
    for i in laptop_ordered:
        totalp += int(i[4])
    vat = 13/100
    grand_total = (vat * totalp) + totalp
    current_time = datetime.now()
    print('\n')
    print("=" * 95)
    print("\t \t \t \t \t The Invoice:  ")
    print("--------------------------------------------------------------------------------------------------------")
    print("\t \t \t   Address: Kathmandu   Contact: 9823581391")
    print("=" * 95)
    print("\t \t \t \t \t The Details are: ")
    print("--------------------------------------------------------------------------------------------------------\n")
    print("\t\t\t\tInvoice to the Company: " + str(order_name))
    print("Contact Number: " + str(order_num))
    print("Date and Time of purchase: " + str(current_time))
    print("------------------------------------------------------------------------------------------")
    print("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price")
    for i in laptop_ordered:
        print(i[0], "\t", i[1],"\t\t", i[2], "\t\t\t", "$", i[3], "\t\t", "$", i[4])

    print("------------------------------------------------------------------------------------------")
    print(f"Net Amount is: ${totalp}")
    print(f"Gross Amount is: ${grand_total}")
    print("\t\t\t*** 13% Vat is applied in this product ***")
    print("=" * 95)
    print("\n")

def order_invoice_txtFile(order_name, order_num, laptop_ordered):
    totalp = 0
    for i in laptop_ordered:
        totalp += int(i[4])
    vat = 13/100
    grand_total = (vat * totalp) + totalp
    current_time = datetime.now()
    with open(str(order_name)+ "_Invoice" + ".txt","w")as file:
        file.write('\n')
        file.write("=" * 95 + "\n")
        file.write("\t \t \t \t \t The Invoice:  \n")
        file.write("------------------------------------------------------------------------------------------
\n")
        file.write("\t \t \t   Address: Kathmandu   Contact: 9823581391")
        file.write("=" * 95 +"\n")
        file.write("\t \t \t \t \t The Details are: \n")
        file.write("-----------------------------------------------------------------------------------------\n")
        file.write("\t\t\t\tInvoice to the Company: " + str(order_name)+"\n")
        file.write("Contact Number: " + str(order_num)+"\n")
        file.write("Date and Time of purchase: " + str(current_time)+"\n")
        file.write("-----------------------------------------------------------------------------------------\n")
        file.write("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price\n")
        for i in laptop_ordered:
            file.write(str(i[0]) +"\t"+ str(i[1])+"\t\t" + str(i[2])+"\t\t\t"+"$"+ str(i[3]) + "\t\t"+"$"+ str(i[4])+"\n")
        file.write("-----------------------------------------------------------------------------------------\n")
        file.write("Net Amount is: $"+str(totalp)+"\n")
        file.write("Gross Amount is: $"+str(grand_total)+"\n")
        file.write("\t\t\t*** 13% Vat is applied in this product ***\n")
        file.write("=" * 95 +"\n")



def sell_recepit(sell_name, sell_num, laptop_sold):
    totalp = 0
    for i in laptop_sold:
        totalp += int(i[4])
    current_time = datetime.now()
    print('\n')
    print("=" * 95)
    print("\t \t \t \t \t The Receipt:  ")
    print("-----------------------------------------------------------------------------------------")
    print("\t \t \t   Address: Kathmandu   Contact: 9823581391")
    print("=" * 95)
    print("\t \t \t \t \t The Details are: ")
    print("----------------------------------------------------------------------------------------------------------------\n")
    print("\t\t\t\tRecepit to the Customer: " + str(sell_name))
    print("Contact Number: " + str(sell_num))
    print("Date and Time of purchase: " + str(current_time))
    print("----------------------------------------------------------------------------------------------------------------")
    print("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price")
    for i in laptop_sold:
        print(i[0], "\t", i[1],"\t\t", i[2], "\t\t\t", "$", i[3], "\t\t", "$", i[4])


    print("----------------------------------------------------------------------------------------------------------------")
    print(f"Total Amount is: ${totalp}")
    print("=" * 95)
    print("\n")


def sell_recepit_txtFile(sell_name, sell_num, laptop_sold):
    totalp = 0
    for i in laptop_sold:
        totalp += int(i[4])
    current_time = datetime.now()
    with open(str(sell_name)+ "_Recepit" + ".txt","w")as file:
        file.write('\n')
        file.write("=" * 95 + "\n")
        file.write("\t \t \t \t \t The Receipt:  \n")
        file.write("----------------------------------------------------------------------------------------------------------------\n")
        file.write("\t \t \t   Address: Kathmandu   Contact: 9823581391")
        file.write("=" * 95 +"\n")
        file.write("\t \t \t \t \t The Details are: \n")
        file.write("-----------------------------------------------------------------------------------------------\n")
        file.write("\t\t\t\tRecepit to the Customer: " + str(sell_name)+"\n")
        file.write("Contact Number: " + str(sell_num)+"\n")
        file.write("Date and Time of purchase: " + str(current_time)+"\n")
        file.write("-----------------------------------------------------------------------------------------------\n")
        file.write("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price\n")
        for i in laptop_sold:
            file.write(str(i[0]) +"\t"+ str(i[1])+"\t\t" + str(i[2])+"\t\t\t"+"$"+ str(i[3]) + "\t\t"+"$"+ str(i[4])+"\n")
        file.write("-----------------------------------------------------------------------------------------------\n")
        file.write("Total Amount is: $"+str(totalp)+"\n")
        file.write("=" * 95 +"\n")




def sell_recepit_SP(sell_name, sell_num, laptop_sold):
    totalp = 0
    shipping_p = 200
    current_time = datetime.now()
    for i in laptop_sold:
        totalp += int(i[4])
    grand_total = (totalp + shipping_p)
    print('\n')
    print("=" * 95)
    print("\t \t \t \t \t The Receipt:  ")
    print("-------------------------------------------------------------------------------------")
    print("\t \t \t   Address: Kathmandu   Contact: 9823581391")
    print("=" * 95)
    print("\t \t \t \t \t The Details are: ")
    print("-------------------------------------------------------------------------------------\n")
    print("\t\t\t\tRecepit to the Customer: " + str(sell_name))
    print("Contact Number: " + str(sell_num))
    print("Date and Time of purchase: " + str(current_time))
    print("-------------------------------------------------------------------------------------")
    print("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price")
    for i in laptop_sold:
        print(i[0], "\t", i[1],"\t\t", i[2], "\t\t\t", "$", i[3], "\t\t", "$", i[4])

    print("-------------------------------------------------------------------------------------")
    print(f"Total Amount is: ${totalp}")
    print("The Shipping Price is $200")
    print(f"Grand Total(with shipping)is: ${grand_total}")
    print("\t\t\t*** Shipping price is included ***")
    print("=" * 95)
    print("\n")

def sell_recepit_SP_txtFile(sell_name, sell_num, laptop_sold):
    totalp = 0
    shipping_p = 200
    current_time = datetime.now()
    for i in laptop_sold:
        totalp += int(i[4])
    grand_total = (totalp + shipping_p)
    with open(str(sell_name)+ "_Recepit" + ".txt","w")as file:
        file.write('\n')
        file.write("=" * 95 + "\n")
        file.write("\t \t \t \t \t The Receipt:  \n")
        file.write("--------------------------------------------------------------------------------------------------\n")
        file.write("\t \t \t   Address: Kathmandu   Contact: 9823581391")
        file.write("=" * 95 +"\n")
        file.write("\t \t \t \t \t The Details are: \n")
        file.write("--------------------------------------------------------------------------------------------------\n")
        file.write("\t\t\t\tRecepit to the Customer: " + str(sell_name)+"\n")
        file.write("Contact Number: " + str(sell_num)+"\n")
        file.write("Date and Time of purchase: " + str(current_time)+"\n")
        file.write("--------------------------------------------------------------------------------------------------\n")
        file.write("Laptop name \t Laptop Brand \t Total Quantity \t Unit Price \t Total Price\n")
        for i in laptop_sold:
            file.write(str(i[0]) +"\t"+ str(i[1])+"\t\t" + str(i[2])+"\t\t\t"+"$"+ str(i[3]) + "\t\t"+"$"+ str(i[4])+"\n")
        file.write("--------------------------------------------------------------------------------------------------\n")
        file.write("Total Amount is: $"+str(totalp)+"\n")
        file.write("The Shipping Price is $200")
        file.write("Grand Total(with shipping)is: $"+str(grand_total)+"\n")
        file.write("\t\t\t*** Shipping price is included ***\n")
        file.write("=" * 95 +"\n")
```

Read.py

```
def Read_txt_file():
    with open('laptopfile.txt','r') as file:
        laptopID = 1
        myDict = {}
        for line in file:
            line = line.replace('\n','')
            myDict[laptopID] = (line.split(","))
            laptopID += 1
        return(myDict)
```