Fundamentals of Computing

60% Individual Coursework

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1. INTRODUCTION

The following coursework has asked to create a system for a laptop rental shop that buys laptops from manufacturers and sells them to the customer. The system provides three options (buy, sell and exit). If the user wants to buy a laptop, he/she can choose on the buy option where the system asks for the customer name when entered it provides an option of if they would like to buy a laptop or to display the name of the laptops available in the store. If the person wishes to buy laptop, he/she can do it through buy option where if the customer wishes to purchase the laptop shipping cost is added and after the confirmation of the laptop the process is complete the system creates a bill in a txt file where laptop details are added along with name of the customer and date and time of the laptop bought. As for sale, when user or a company wishes to sell use of sell option is done where laptop selling to shop process is done which adds the stock of the laptop. There is also an exit option where if the user wishes to exit from the system they use exit option which then successfully terminates the system.

The coursework is created using python language and is made using the 2D- list data structure. The program is divided into four parts which are main, operations, read and write. The main file contains the code part that displays the base of the system. It displays shops name and location as well as displays the details of the laptop through laptop txt file. In this, the code is created that asks user if they would like to buy, sell or exit from the system. Both buy from shop and sell to shop function are defined in this part that calls buy and sell function from the operations file. The operations file contains the main part of the code that defines the buy and sell function. This part allows the user to process through the system and allows them to buy or sell as needed. It also updates the inventory after every purchase done by the customer. The write part is used to create bill after every transaction whether be buy or sell. This part creates bill in txt file form that shows the name of the customer, laptop details, shipping cost and the total amount with each transaction bill being unique and different. The read file is created which defines the file_data that is used to read the contents of the laptop txt file and data_list that converts the contents of the txt file into list of lists. Each file are connected using import.

The objective of the system is to handle the data of buying and selling of laptops for the shop. Removing of laptop upon purchase by customer and adding of inventory when company sells the laptops to the shop. The system updates the data as per the need and also creates the bill in txt format.

There were various tools used during the process of this course work which are given below:

MS WORD

Microsoft Word is a widely used commercial word processor designed by Microsoft. Microsoft Word is a component of the Microsoft Office suite of productivity software, but can also be purchased as a stand-alone product. (Rouse, 10 August, 2022)

DRAW.IO

Draw.io is proprietary software for making various types of diagrams and charts. This software lets you choose from an automatic layout function and create a custom layout. (Computer Hope, 06/02/2020)

Visual Studio code

Visual studio code is a free open source text editor by Microsoft. It supports a wide array of programming laguages from java, C++ and Python to CSS and allows user to add on and even create new extentions includingcode liners and cloud and web development support. (Mustafeez, 2020-10-09)

2. DISCUSSION AND ANALYSIS

2.1. ALGORITHM

1. Import all the necessary files as they can connect o each other(operations.py, read.py, write. py)
2. Open the laptop.txt file in order to display the details of the laptops available in the store
3. Define a function buy_laptop_from_shop that allows the user to buy laptop from the store
   a. Provide input for user to enter their name
   b. Provide option to users whether they would like to buy laptop or to display list of available laptop
   c. If first option is clicked call buy function from the operations file
   d. If display option is clicked call display function from the operations file
4. Define a function sell_laptop_to_shop that allows the user to sell laptop to the store
   a. Provide input for user/company to enter their name
   b. Provide option to users whether they would like to sell laptop or to display list of available laptop
   c. f first option is clicked call sell function from the operations file
   d. If display option is clicked call display function from the operations file
5. Ask the user if they want to buy, sell or exit the system creating a while loop
   a. If user chooses buy call buy_laptop_from_shop function
   b. If user chooses sell call sell_laptop_to_shop function
   c. Is user chooses exit terminate the program
6. Define the function file _data to read the contents of the laptop txt file
7. Define the function data_list to convert the contents of laptop txt file into list of list that can be changed in the program
8. Define the function display() to display the names of the laptops that are available in the store
9. Define the function buy() that is used to run the process of buying the laptop and to update the laptop txt file and to call the buy_bill function

10. Define the function buy_bill that handles the process of creating of bills upon purchasing of laptop by the seller
11. Define the function sell() that is used to run the process of selling the laptop and to update the laptop txt file and to call the sell_bill function
12. Define sell_order bill that handles the process of creating of bills upon selling of laptop to the store
13. Implement the main () function to handle the overall flow of the program
14. Call the main() function to run the program

2.2. FLOWCHART

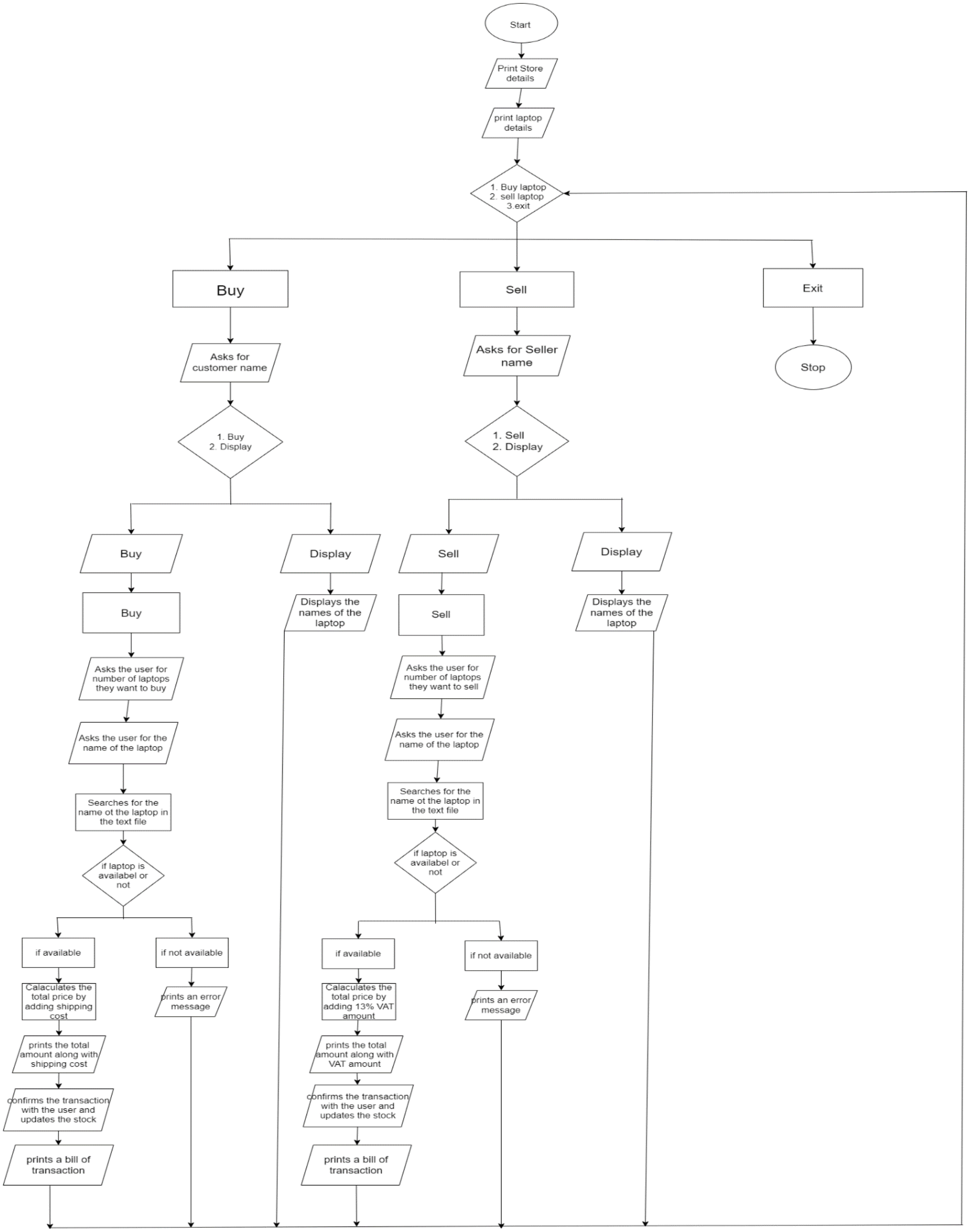

Start
Print Store details
print laptop details
1. Buy laptop
2. sell laptop
3.exit
Buy
Sell
Exit
Stop
Asks for customer name
Asks for Seller name
1. Buy
2. Display
1. Sell
2. Display
Buy
Display
Sell
Display
Buy
Displays the names of the laptop
Sell
Displays the names of the laptop
Asks the user for number of laptops they want to buy
Asks the user for number of laptops they want to sell
Asks the user for the name of the laptop
Asks the user for the name of the laptop
Searches for the name ot the laptop in the text file
Searches for the name ot the laptop in the text file
if laptop is availabel or not
if laptop is availabel or not
if available
if not available
if available
if not available
Calaculates the total price by adding shipping cost
prints an error message
Calaculates the total price by adding 13% VAT amount
prints an error message
prints the total amount along with shipping cost
prints the total amount along with VAT amount
confirms the transaction with the user and updates the stock
confirms the transaction with the user and updates the stock
prints a bill of transaction
prints a bill of transaction

Figure 1 image of flowchart

2.3. PSEUDOCODE

2.3.1. Pseudocode for main.py

```
PRINT "Blue Technologies"
PRINT "Jawalakhel, Lalitpur"
PRINT "\n"
PRINT"----------Welcome to the store---------"
PRINT "\n"
PRINT "\n"
OPEN "laptop.txt.txt file as read mode file
PRINT "--------------------------------------------"
PRINT "S.No, Name of the laptop, laptop brand, Price,
        Quantity, Processor Details, Graphic Card"
PRINT "---------------------------------------------"
SET i =1
FOR each line in file
    SET laptop_setails to line.strip().split(",")
    PRINT "{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}"
    formatted as i, laptop_details[0], laptop_details[1],
    laptop_details[2], laptop_details[3], laptop_details[4],
    laptop_details[5]
    INCREMENT i by 1
END FOR
PRINT"---------------------------------------------"
PRINT "\n"
```

```
SET start to 0
FUNCTION buy_laptop_from_the_shop()
    INPUT customer_name
    PRINT ””
    PRINT ”What would you like to do:”
    PRINT “1. Buy laptop”
    PRINT “2. Display available laptop”

    SET valid_option to false
    WHILE valid_option is equal to false
        TRY
            INPUT option as integer
            IF option is equal to 1 or option is equal to 2
                SET valid option = true
            ELSE IF option is less than 1 or option is greater
            than 2
                PRINT ” The following option is not
                available,please try again”
            END IF
        END TRY
        EXCEPT
            PRINT ”Invalid input. Please choose from the
            given option
        END EXCEPT
        IF option is equal to 1
            CALL buy(Customer_name)
        ELIF option is equal to 2
            SET laptop_file to file_data(“laptop.txt.txt)
            SET data to data_list(laptop_file)
            CALL display(data)
            RETURN
        END IF
END FUNCTION




FUNCTION sell_laptop_to_shop()
    INPUT Seller_name
    PRINT ””
    PRINT ”What would you like to do:”
    PRINT “1. Sell laptop”
    PRINT “2. Display laptops in shop”

    SET valid_option to false
    WHILE valid_option is equal to false
        TRY
            INPUT option as integer
            IF option is equal to 1 or option is equal to 2
                SET valid option = true
            ELSE IF option is less than 1 or option is greater
            than 2
```

```
                PRINT ” The following option is not
                available,please try again”
            END IF
        END TRY
        EXCEPT
            PRINT ”Invalid input. Please choose from the
            given option
        END EXCEPT
        IF option is equal to 1
            CALL sell(Seller_name)
        ELIF option is equal to 2
            SET laptop_file to file_data(“laptop.txt.txt)
            SET data to data_list(laptop_file)
            CALL display(data)
            RETURN
        END IF
END FUNCTION
```

```
WHILE start is equal to 0
    PRINT ”What would you like to do:”
    PRINT “Press 1 to buy laptop”
    PRINT “Press 2 to sell laptop”
    PRINT “Press 3 to exit from the System
    INPUT select as integer
```

```
        IF select is equal to 1
            CALL buy_laptop_from_the_shop()
        IF select is equal to 2
            CALL sell_laptop_to_shop()
        IF select is equal to 3
            PRINT “Thank you please visit again”
            SET start to 0
            BREAK
    END WHILE
```

2.3.2. Pseudocode for operations.py

```
IMPORT all from read


FUNCTION display(data)
    FOR i in range(length of data)
            PRINT (data[i][0])
END FUNCTION


FUNCTION buy(Customer_name)
            SET filedate to file_data("laptop.txt.txt")
            SET data to data_list(filedata)


            FOR i in range(length of data)
                    FOR j in range(2,4)
                            SET date[i][j] to data[i][j] as integer
                    END FOR
            END FOR


            PRINT "laptop list"
            PRINT ("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}" formatted
            as "S.No", "Name of the Laptop", "Laptop Brand", "Price",
            "Quantity", "Processor Details", "Graphic Card")
            FOR i =1 to length of data
                    SET  laptop_name, laptop_brand, price_laptop, quantity,
                    processor, graphics_card to row
```

```
        PRINT  ("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}”
        formatted as i, laptop_name, laptop_brand, price_laptop,
        quantity,processor, graphics_card
        END FOR
    PRINT “”

    SET buy to empty dictionary

    IMPORT datetime from datetime
    SET Buy_Date to current date and time
    SET Buy_Date to string in year-month-day format
    SET Buy_time to string in hour-minute-string format

    SET buy[”Name”] to the value of Customer_name
    SET buy[“Date bought”] to the value of Buy_date_str
    SET  buy[“Time Bought”] to the value of Buy_Date_str

    SET count to 0
    WHILE count equals to 0
            TRY
                INPUT numberOflaptop as integer
                IF numberOflaptop is greater than 0
                    SET count to 1
                ELIF numberOflaptop is less or equal to 0
                    PRINT ”please enter a valid number”
                ENDIF
            END TRY
            EXCEPT
                PRINT “you have entered an invalid input,
                please try again
            END EXCEPT
    PRINT ””

    SET laptop_available to false
    SET total amount to 0
    SET laptop to 0
    WHILE laptop is less than numberOflaptop
            INCREMENT laptop by 1
            FOR i in range (length of data)
                FOR j in range (i)
                    IF nameOflaptop is equal to data[i][j]
                    and data[i][3] is greater than 0
                        SET price to data[i][2]
                        SET buy[data[i][0] to price
                        SET total_amount by adding price
                        SET stock to data[i][3] by
                        decreasing 1
                        SET data[i][3] to stock
                        SET laptop_available to true
                    END IF
                END FOR
            END FOR
    END WHILE

    IF laptop_available is equal to false
        PRINT “nameOflaptop, is not available”
        RETURN
    END IF

    SET shipping_cost to 200
    ADD  shipping cost to total_amount

    INPUT confirm_purchase
    IF confirmation_purchase is equal to “no”
        PRINT “your order has been cancelled”
        RETURN

    SET buy[shipping Cost] to 200
    SET buy[Total amount] to the value of total_amount

    IMPORT os
    SET transaction_ID to “Customer_name”
    WHILE file named Transaction{transaction_ID.txt” exists:
        SET tansaction_ID part to transaction_ID split by _
        SET current_number to part of transaction_Id as int
        SET new_number as current_number added by 1
        SET transaction_ID part to new_number as string
        SET transactiom_ID  to transaction_ID part joined by _
```

```
        END WHILE
        SET buy[“Transaction ID”] to the value of transaction_ID

        CALL order_bill(transaction_ID,data,laptop_available,
        nameOflaptop, buy)

        PRINT “ Thank you for purchasing your laptop from the store”
    END FUNCTION

    FUNCTION sell(Seller_name)
        SET filedate to file_data(“laptop.txt.txt”)
        SET data to data_list(filedata)

        FOR I in range(length of data)
            FOR j in range(2,4)
                SET date[i][j] to data[i][j] as integer
            END FOR
        END FOR

        PRINT ”laptop list”
        PRINT ("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}” formatted
        as "S.No", "Name of the Laptop", "Laptop Brand", "Price",
        "Quantity", "Processor Details", "Graphic Card”)
```

```
FOR i =1 to length of data
    SET  laptop_name, laptop_brand, price_laptop, quantity,
    processor, graphics_card to row
    PRINT  ("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}”
    formatted as i, laptop_name, laptop_brand, price_laptop,
    quantity,processor, graphics_card
    END FOR
PRINT “”

SET sell to empty dictionary

IMPORT datetime from datetime
SET Sell_Date to current date and time
SET Sell_Date to string in year-month-day format
SET Sell_time to string in hour-minute-string format

SET sell[”Name”] to the value of Customer_name
SET sell[“Date sold”] to the value of Sell_date_str
SET sell[“Time sold”] to the value of Sell_Date_str

SET count to 0
WHILE count equals to 0
        TRY
            INPUT numberOflaptop as integer
            IF numberOflaptop is greater than 0
                SET count to 1
```

```
                    ELIF numberOflaptop is less or equal to 0
                        PRINT ”please enter a valid number”
                    ENDIF
                END TRY
                EXCEPT
                    PRINT “you have entered an invalid input,
                    please try again
                END EXCEPT
        PRINT ””

        SET laptop_available to false
        SET total amount to 0
        SET laptop to 0
        WHILE laptop is less than numberOflaptop
                INCREMENT laptop by 1
                FOR i in range (length of data)
                    FOR j in range (i)
                        IF nameOflaptop is equal to data[i][j]
                        and data[i][3] is greater than 0
                            SET price to data[i][2]
                            SET buy[data[i][0] to price
                            SET total_amount by adding price
                            SET stock to data[i][3] by
                            decreasing 1
                            SET data[i][3] to stock
                            SET laptop_available to true
                        END IF
                    END FOR
                END FOR
        END WHILE

        IF laptop_available is equal to false
            PRINT "nameOflaptop, is not available"
            RETURN
        END IF

        SET VAT_Amount to 13% of total_amount
        ADD  VAT_Amount to total_amount

        INPUT confirm_sale
        IF confirm_sale is equal to "no"
            PRINT "your order has been cancelled"
            RETURN

        SET sell[VAT Amount] to 13% of total_amount
        SET sell[Total amount] to the value of total_amount

        IMPORT os
        SET transaction_ID to "Seller_name"
        WHILE file named Transaction{transaction_ID.txt" exists:
            SET tansaction_ID part to transaction_ID split by _
            SET current_number to part of transaction_Id as int
            SET new_number as current_number added by 1
            SET transaction_ID part to new_number as string
            SET transactiom_ID  to transaction_ID part joined by _
        END WHILE
        SET sell["Transaction ID"] to the value of transaction_ID


        CALL sell_bill(transaction_ID,data,laptop_available,
        nameOflaptop,sell)


        PRINT  "Thank you for selling laptop to our store"
    END FUNCTION
```

2.3.3. Pseudocode of write.py

```
FUNCTION order_bill(transaction_ID,data,laptop_available,
nameOflaptop ,buy)
    IF laptop_available is equal to true
            OPEN transaction_{transaction_ID}.txt file
            WRITE “buy transaction:” to the file
            PRINT “”
            PRINT “laptop details”
            FOR each key, value in buy.items()
                    SET transaction_details to the link of key,”:” ,
                    (value) as string
                    WRITE transaction_details to the file
                    WRITE \n
                    PRINT transaction_details
            END FOR
            CLOSE file

            FOR i in range (length of data)
                    FOR j in range(2,4)
                            SET data[i][j] to data[i][j] as string
                    END FOR
            END FOR

            OPEN laptop.txt.txt as main_file
            FOR items in data
```

```
                **UPDATE** data and join items by ”,”
                **WRITE** update data to the main_file
            **END FOR**
            **CLOSE** main file
**END FUNCTION**



**FUNCTION** sell_bill(transaction_ID,data,laptop_available,
nameOflaptop,sell)
  **IF** laptop_available is equal to true

            **OPEN** transaction_{transaction_ID}.txt file
            **WRITE** “Selling transaction:” to the file
            **PRINT** “”
            **PRINT** “laptop details”
            **FOR** each key, value in sell.items()
                **SET** transaction_details to the link of key,”:” ,
                (value) as string
                **WRITE** transaction_details to the file
                **WRITE** \n
                **PRINT** transaction_details
            **END FOR**
            **CLOSE** file

            **FOR** i in range (length of data)
                **FOR** j in range(2,4)
            SET data[i][j] to data[i][j] as string
        END FOR
    END FOR

    OPEN laptop.txt.txt as main_file
    FOR items in data
        UPDATE data and join items by ”,”
        WRITE update data to the main_file
    END FOR
    CLOSE main file
END FUNCTION
```

2.3.4. Pseudocode of read.py

```
FUNCTION file_data(file_name)
        OPEN file_name as read mode file
        READ all the lines of file and store them in data
        CLOSE file
        RETURN data
END FUNCTION

FUNCTION data_list(file)
        SET data as an empty list
        FOR  each in file
             APPEND the resulting list to the data list
        END FOR
         RETURN data
END FUNCTION
```

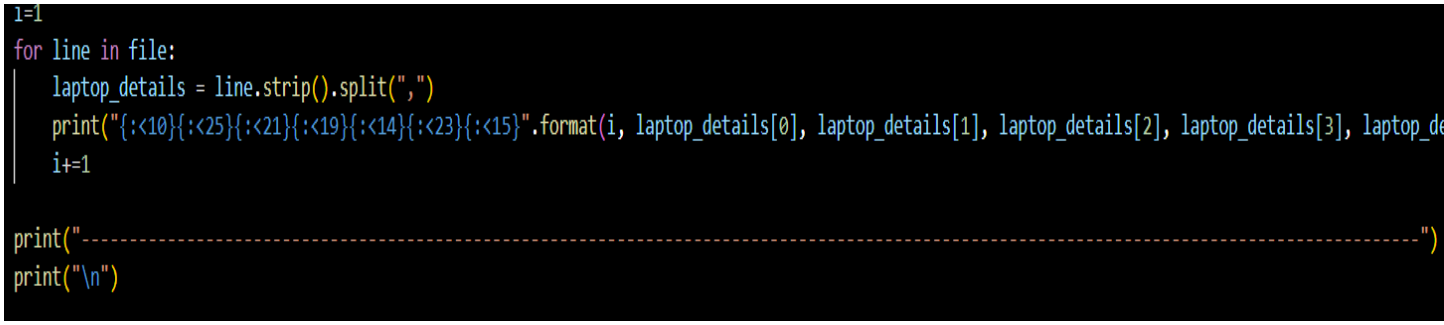
2.4. DATA STRUCTURES

The code uses two different data structures. The data structures are 2D list and dictionary. These data structures are used for the code to run properly. The use of the structure are described below along with screenshots of places the data structures are used.

2D list:

A 2D list is a two dimensional-data structure used for storing data generally in a tabular format. It has rows and columns and thus it also represents a matrix. It allows to access any element of array independently. (Pandey, 19 Jan 2022)

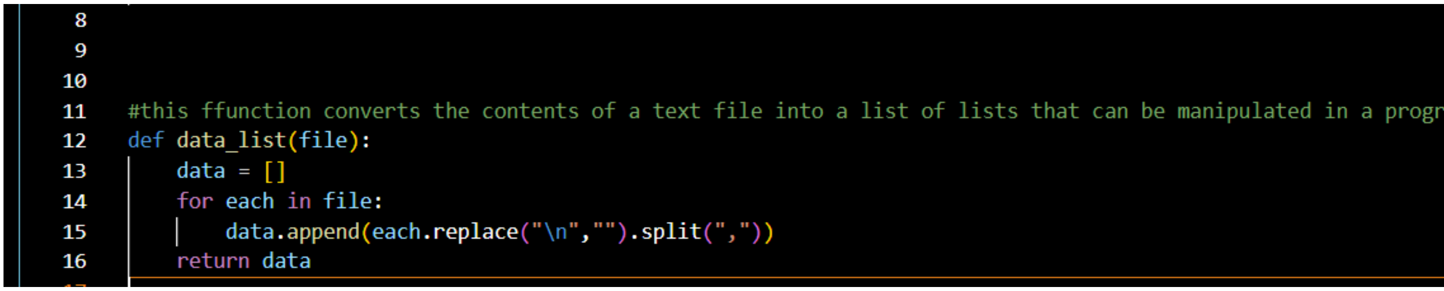
Use of 2D list in the code



```
i=1
for line in file:
    laptop_details = line.strip().split(",")
    print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format(i, laptop_details[0], laptop_details[1], laptop_details[2], laptop_details[3], laptop_de
    i+=1

print("------------------------------------------------------------------------------------------------------------------------")
print("\n")
```

Figure 2screenshot of use of 2d list

The use of 2D list is done here as the laptop_details is a list that contains the details about a single laptop such as laptop name , brand of the laptop, price , quantity,processor and the graphics card. The list is created by splitting each line of the file using the split() method which causes a list of lists which is used to display the laptops that are available in the store.



```


#this ffunction converts the contents of a text file into a list of lists that can be manipulated in a progr
def data_list(file):
    data = []
    for each in file:
        data.append(each.replace("\n","").split(","))
    return data
```

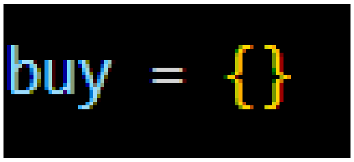
Figure 3screenshot of implementation of 2d list

In the above code, the data is a 2D list. It is declared as an empty list which is later filled with lists of varo=ious values which is done by splitting the input strings by using comma which is done by using split(",") method used in the code. Due to this all the value obtained represents a row of data in the 2D list.

Dictionary :

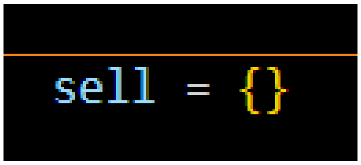
Dictionary are python's implementarion of adat structure that is more generally known as an associative array. A dictionary consists of a collection of key value pairs with each key value pair connects to the key it has been to its associated value. (Mealus, 05:40)

Use of dictionary in code:



```
buy = {}
```

Figure 4 Screenshot of use of dictionary in buy



```
sell = {}
```

Figure 5screenshot of use dictionary in sell

The above parts are where the dictionary is used. buy() is used to record the number of laptops a customer wants to buy, customers name and the laptop they want to buy. It is used to store the customer information. sell() is used to record the number of laptops a seller or manufacturer wants to sell to the store. It keeps the record of the number lptops to be sold, names of the laptop and the name of the seller or company and keeps tracks of those records.

Other types of data structures

Tuples:

A tuple is collection of objects which are immutable as well as ordered. They are just like lists but the only difference is that the lists use brackets and tuple uses parentheses. (tutorialspoint)

For example

```
tuple = (“bike”, “car”, “cycle”, “car”)
print(tuple)
```

Sets:

Sets are used to store multiple items in a single variable. It is a collection which is unordered, unchangeable and unindexed. (W3 schools)

For example

```
thisset = {“car”, “bike”, ”cycle”,}
      print(thisset)
```

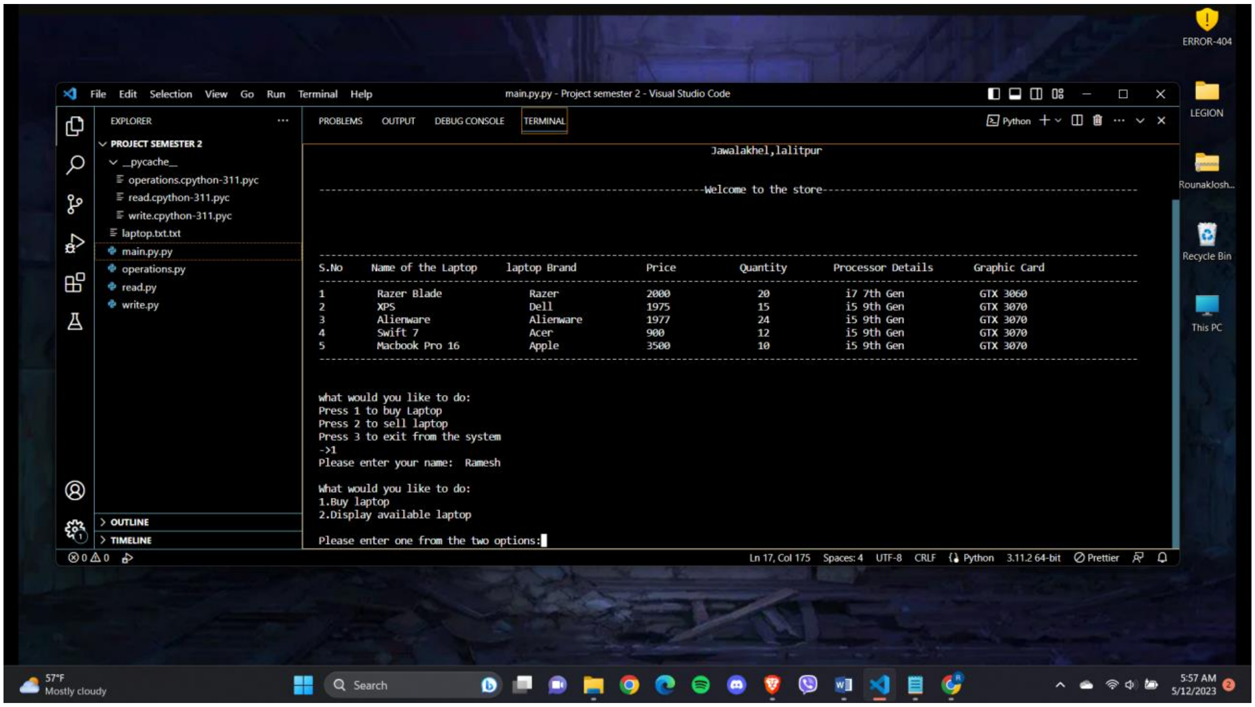
3. PROGRAM

Implementation of the program-

The program is a system that is used by a laptop shops which can perform the function of buying and selling of laptop. The code has been divided into four different parts. Main, operations, read, and write. with each file havings its own part to fulfill. All the codes are connected through using import from one file to another. Main.py is used to implement the whole code an from which the code can be run. In this file the the code is created that prints the name and location of the shop as well as details of laptops available in the store. It is done by calling the laptop.txt file that has the information of the laptop and its details. It asks the user of what they would like to do. If they would like to buy, it calls the created function buy_laptop_from_shop which asks the user for their name and if they would like to buy laptop or to display the laptop names. When the user chooses buy laptop it calls buy function from the operations file. The same way sell option works. The program calls for sell_laptop_to_shop where name of the company is asked and the sell() function is called when sell option is clecked. The operations file runs buy() and sell() function as well as display function which desplays the laptop names which can be done by calling file_data function on the read file that reads the txt file. The system asks for the number of laptops to be bought or sold as per required. When the user inputs the number of laptop they would like to purchase or sell , the system asks for the names of the laptop as per the number entered. When the names are entered, if the user wishes to buy , a shipping cost of 200 is added and the total amount is shown,whereas if the user wishes to sell , 13% VAT amount is added to the total amount. The system then aske for a confirmation of transaction. After confirmation the system displays the transaction deatials and prints a bill in txt file form of the done transaction through order_bill or sell_bill function in write file. If the user is satisfied they can exit the system using the exit option that terminates the program successfully.

Show the purchase and sale of the laptop

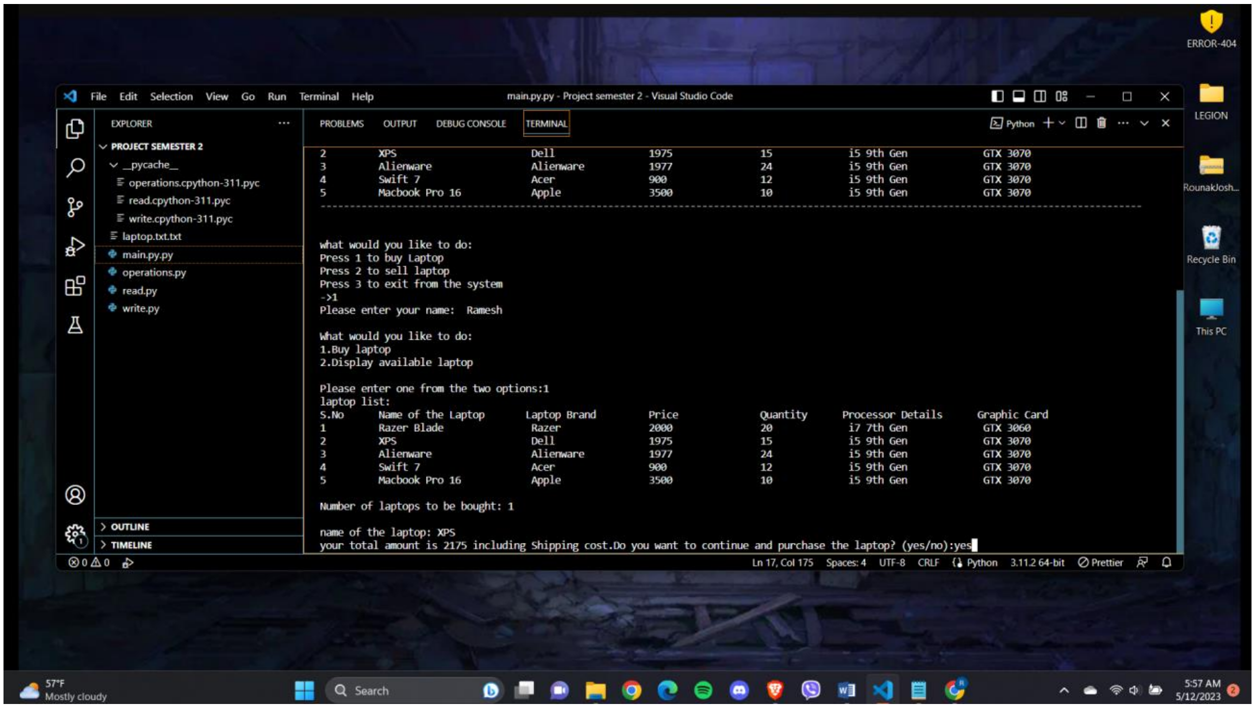
Purchase of laptop:



```
                                              Jawalakhel,lalitpur


-------------------------------------------------------------Welcome to the store-------------------------------------------------------------



-----------------------------------------------------------------------------------------------------------------------------------------------
S.No     Name of the Laptop     laptop Brand           Price           Quantity        Processor Details      Graphic Card
-----------------------------------------------------------------------------------------------------------------------------------------------
1         Razer Blade             Razer                2000              20              i7 7th Gen           GTX 3060
2         XPS                     Dell                 1975              15              i5 9th Gen           GTX 3070
3         Alienware               Alienware            1977              24              i5 9th Gen           GTX 3070
4         Swift 7                 Acer                 900               12              i5 9th Gen           GTX 3070
5         Macbook Pro 16          Apple                3500              10              i5 9th Gen           GTX 3070
-----------------------------------------------------------------------------------------------------------------------------------------------


what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->1
Please enter your name:  Ramesh

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:
```

Figure 6 screenshot of purchase laptop process

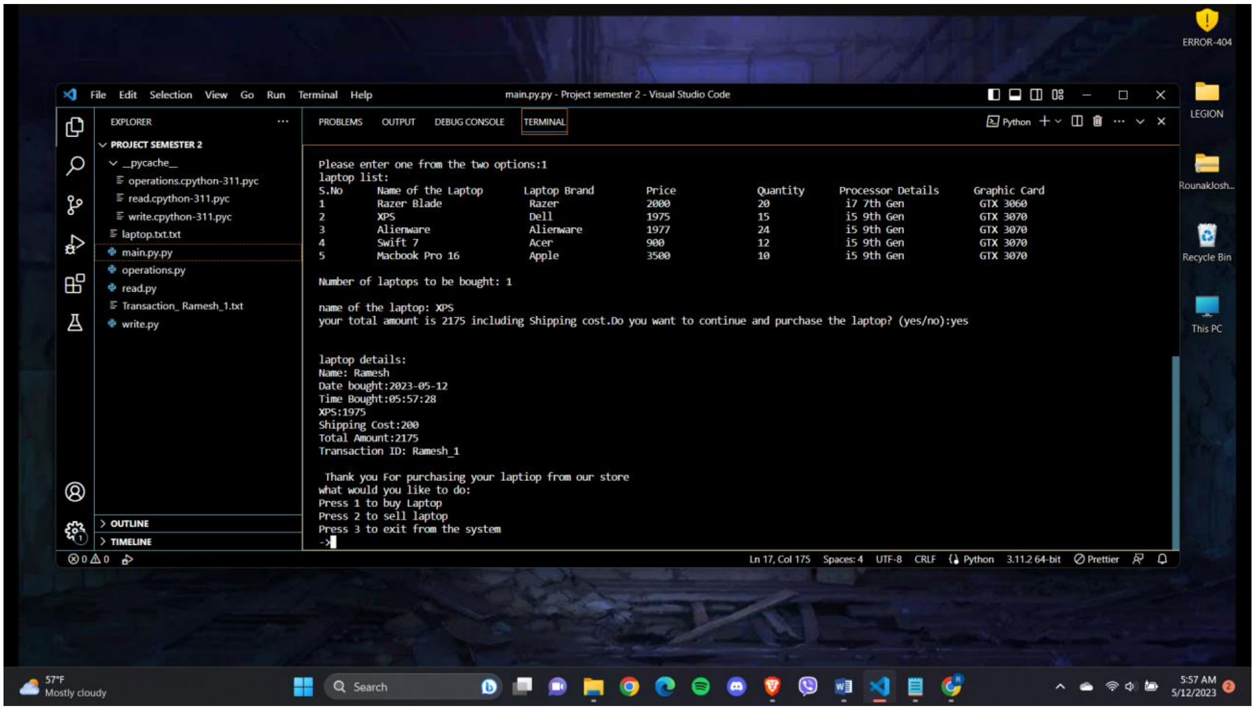
In the beginning the system displays the name and location of the store and also prints a welcome message. The details of the laptop available in the store to be purchased. The system provides three options of if they would like to buy or sell laptop or exit the system. When buy option is clicked, the system asks for the customer name. after the customer name is entered the system asks if the they would like to buy laptop or to display the laptops available in the store, when buy laptop is entered, the system asks for the number of laptops to be bought.



```
2       XPS                 Dell          1975          15          i5 9th Gen      GTX 3070
3       Alienware           Alienware     1977          24          i5 9th Gen      GTX 3070
4       Swift 7             Acer          900           12          i5 9th Gen      GTX 3070
5       Macbook Pro 16      Apple         3500          10          i5 9th Gen      GTX 3070
---------------------------------------------------------------------------------------------------------


what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->1
Please enter your name:  Ramesh

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:1
laptop list:
S.No    Name of the Laptop    Laptop Brand     Price         Quantity    Processor Details    Graphic Card
1       Razer Blade            Razer           2000          20           i7 7th Gen           GTX 3060
2       XPS                    Dell            1975          15           i5 9th Gen           GTX 3070
3       Alienware              Alienware       1977          24           i5 9th Gen           GTX 3070
4       Swift 7                Acer            900           12           i5 9th Gen           GTX 3070
5       Macbook Pro 16         Apple           3500          10           i5 9th Gen           GTX 3070

Number of laptops to be bought: 1

name of the laptop: XPS
your total amount is 2175 including Shipping cost.Do you want to continue and purchase the laptop? (yes/no):yes
```

Figure 7screenshot of confirmation of laptop purchase

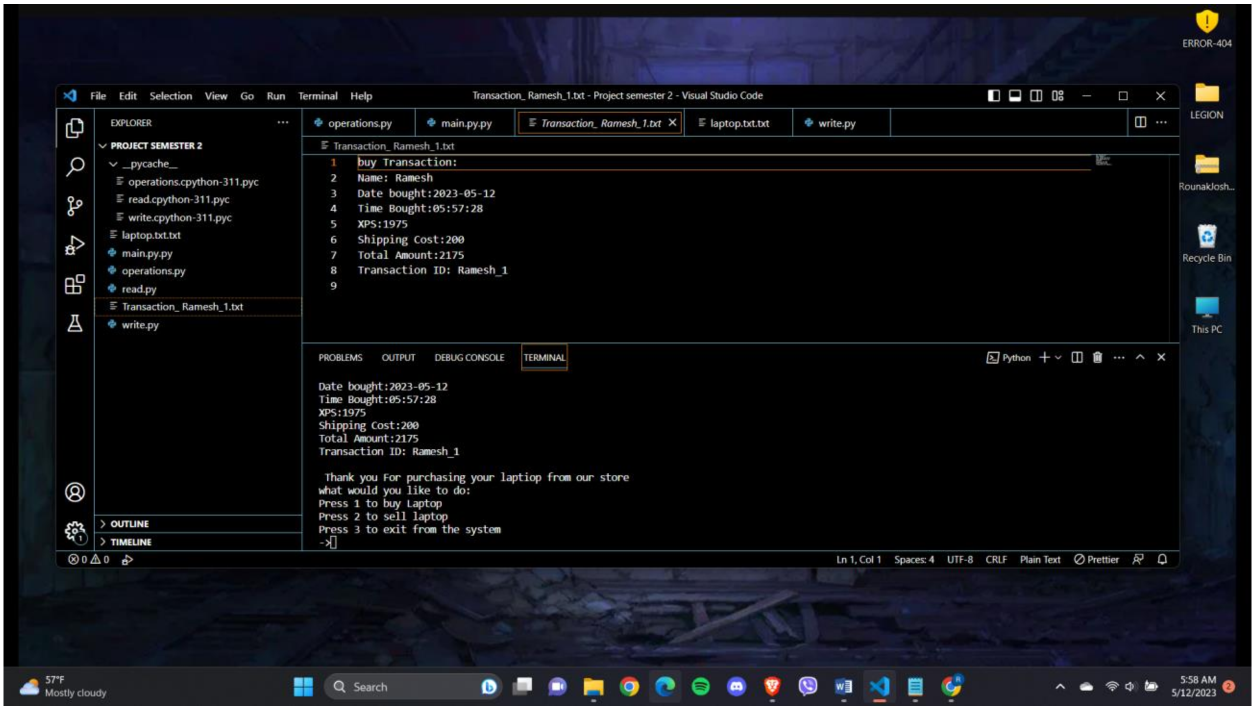
After the customer enters the name of the laptop, it prints the total amount to be paid and asks confirmation of if they would like to continue. If pressed no the system cancels the order and returns to the main option.



```
Please enter one from the two options:1
laptop list:
S.No    Name of the Laptop    Laptop Brand     Price         Quantity    Processor Details    Graphic Card
1       Razer Blade            Razer           2000          20           i7 7th Gen           GTX 3060
2       XPS                    Dell            1975          15           i5 9th Gen           GTX 3070
3       Alienware              Alienware       1977          24           i5 9th Gen           GTX 3070
4       Swift 7                Acer            900           12           i5 9th Gen           GTX 3070
5       Macbook Pro 16         Apple           3500          10           i5 9th Gen           GTX 3070

Number of laptops to be bought: 1

name of the laptop: XPS
your total amount is 2175 including Shipping cost.Do you want to continue and purchase the laptop? (yes/no):yes


laptop details:
Name: Ramesh
Date bought:2023-05-12
Time Bought:05:57:28
XPS:1975
Shipping Cost:200
Total Amount:2175
Transaction ID: Ramesh_1

 Thank you For purchasing your laptiop from our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 8 screenshot laptop purchase from store complete

If the user chooses to continue it completes the transaction and prints the details of the customer along with date and time bought and price and the transaction details. It also creates a new text file which as seen is named as transaction and customer name which is the bill created for the transaction.



```
buy Transaction:
Name: Ramesh
Date bought:2023-05-12
Time Bought:05:57:28
XPS:1975
Shipping Cost:200
Total Amount:2175
Transaction ID: Ramesh_1
```

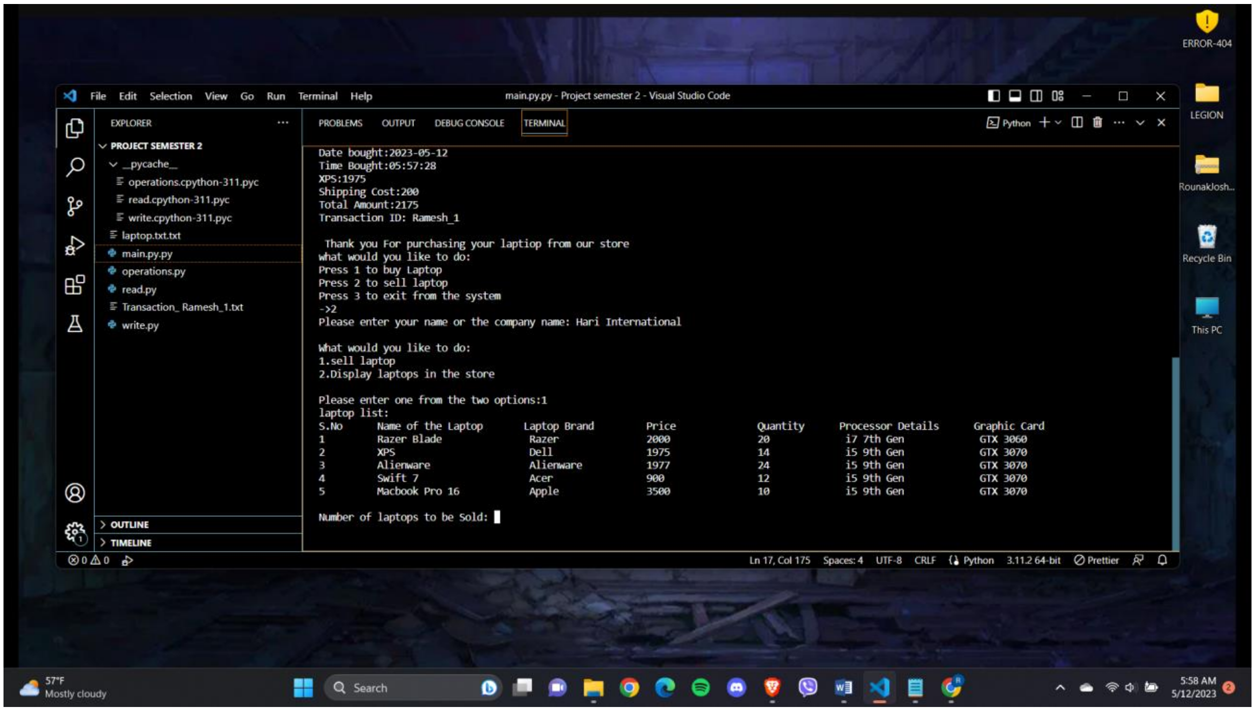
```
Date bought:2023-05-12
Time Bought:05:57:28
XPS:1975
Shipping Cost:200
Total Amount:2175
Transaction ID: Ramesh_1

 Thank you For purchasing your laptiop from our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 9screenshot of bill created after purchase

The above image is the bill created for the laptop purchased by the customer. The bill shows the name of the customer, laptop name along with price, shipping cost and date and time of purchase. Each bill has its own unique transaction ID

This is the full process of how the system works for the buy process.

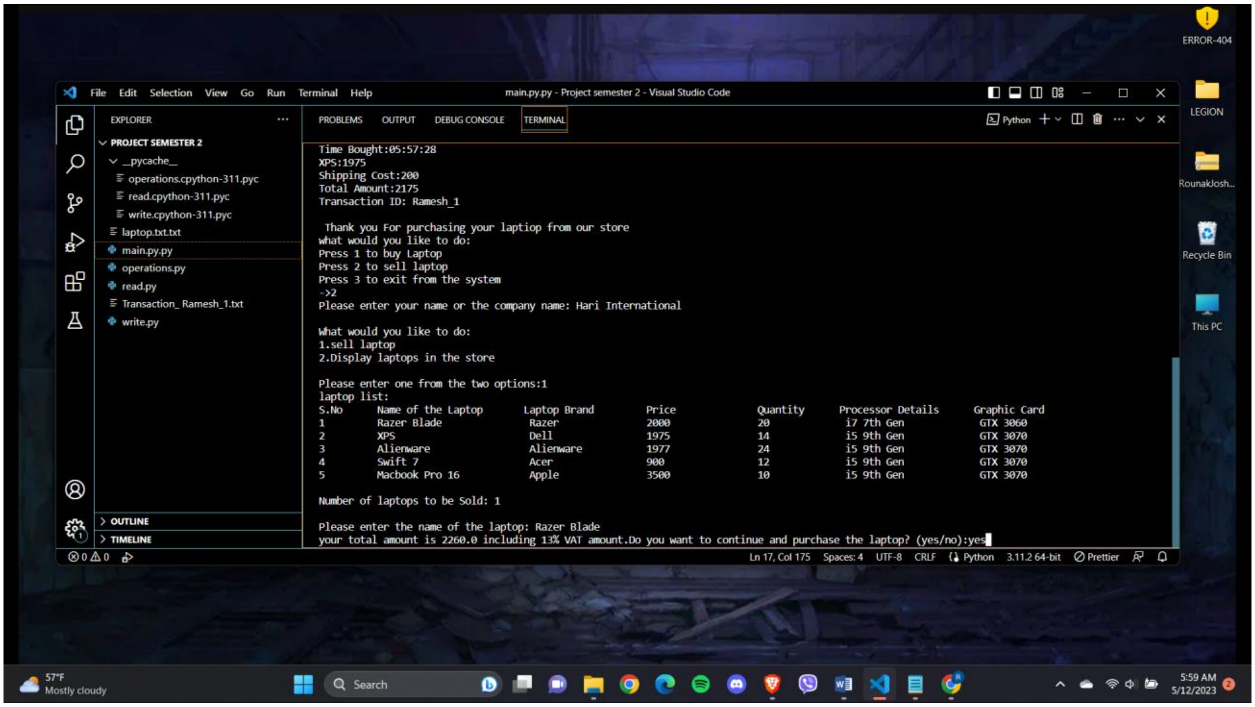
Sale of laptop



```
Date bought:2023-05-12
Time Bought:05:57:28
XPS:1975
Shipping Cost:200
Total Amount:2175
Transaction ID: Ramesh_1

 Thank you For purchasing your laptiop from our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->2
Please enter your name or the company name: Hari International

What would you like to do:
1.sell laptop
2.Display laptops in the store

Please enter one from the two options:1
laptop list:
S.No     Name of the Laptop      Laptop Brand        Price              Quantity      Processor Details      Graphic Card
1        Razer Blade              Razer              2000               20             i7 7th Gen             GTX 3060
2        XPS                      Dell               1975               14             i5 9th Gen             GTX 3070
3        Alienware                Alienware          1977               24             i5 9th Gen             GTX 3070
4        Swift 7                  Acer               900                12             i5 9th Gen             GTX 3070
5        Macbook Pro 16           Apple              3500               10             i5 9th Gen             GTX 3070

Number of laptops to be Sold: 
```

Figure 10screenshot of laptop sales to store process

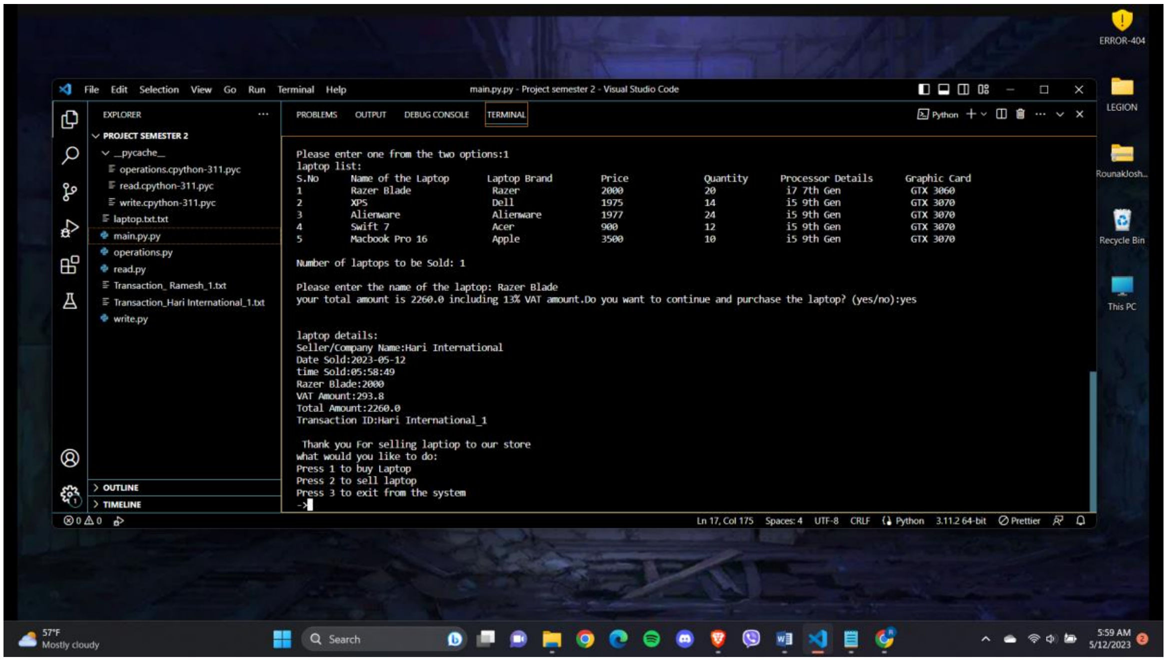
The sale process is very similar to the buy process. The system first asks the user of what they would like to do. When sell laptop option is clicked, the system asks for the name of the seller or the company. After the name has been added the system asks the user if they would want to display the laptop names or to sell laptop. When the seller chooses sell option, they are provided the name and details of the laptop that can be sold to the store. The system then asks for the number of laptops to be sold.



```
Time Bought:05:57:28
XPS:1975
Shipping Cost:200
Total Amount:2175
Transaction ID: Ramesh_1

 Thank you For purchasing your laptiop from our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->2
Please enter your name or the company name: Hari International

What would you like to do:
1.sell laptop
2.Display laptops in the store

Please enter one from the two options:1
laptop list:
S.No     Name of the Laptop      Laptop Brand        Price              Quantity      Processor Details      Graphic Card
1        Razer Blade              Razer              2000               20             i7 7th Gen             GTX 3060
2        XPS                      Dell               1975               14             i5 9th Gen             GTX 3070
3        Alienware                Alienware          1977               24             i5 9th Gen             GTX 3070
4        Swift 7                  Acer               900                12             i5 9th Gen             GTX 3070
5        Macbook Pro 16           Apple              3500               10             i5 9th Gen             GTX 3070

Number of laptops to be Sold: 1

Please enter the name of the laptop: Razer Blade
your total amount is 2260.0 including 13% VAT amount.Do you want to continue and purchase the laptop? (yes/no):yes
```

Figure 11screenshot of confirmation of laptop sales to store

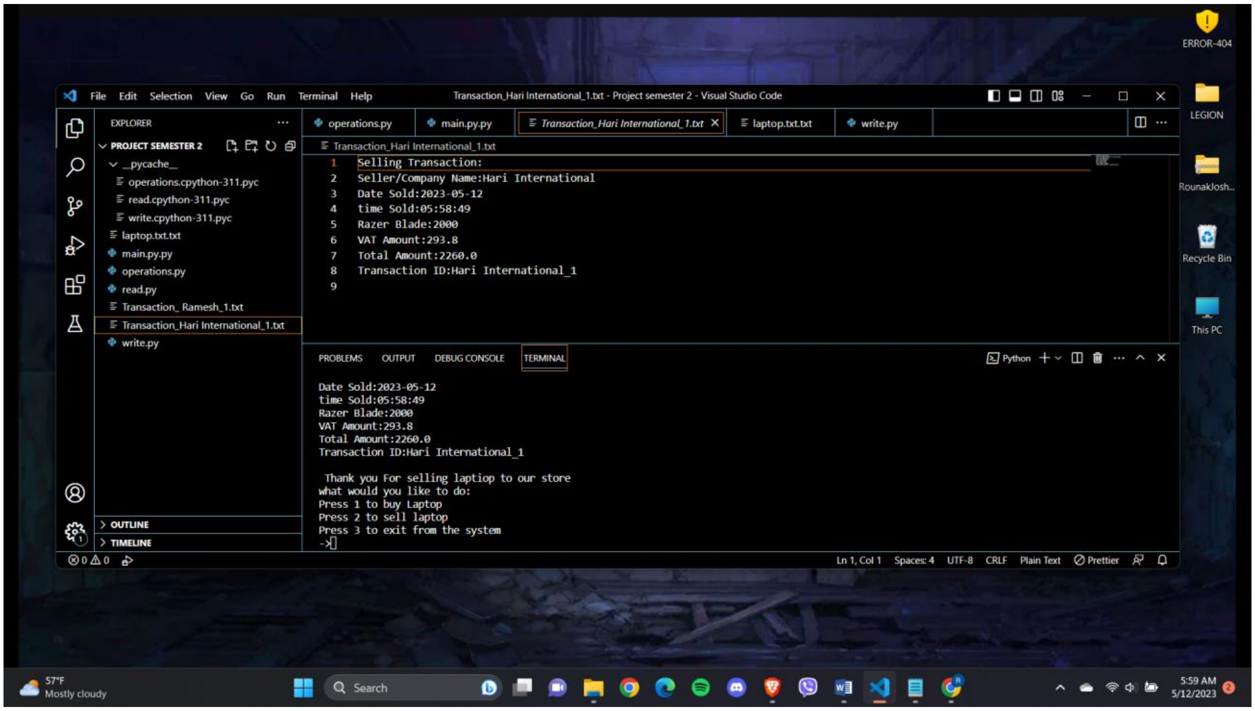
After the user enters the number of laptops they would like to sell, the system asks for the name of the laptop. Once the name has been entered, the system displays the total amount adding the 13% VAT amount and asks if they would like to continue. If entered no the system cancels the transaction and returns to the main option.



```
Please enter one from the two options:1
laptop list:
S.No     Name of the Laptop      Laptop Brand        Price              Quantity      Processor Details      Graphic Card
1        Razer Blade              Razer              2000               20             i7 7th Gen             GTX 3060
2        XPS                      Dell               1975               14             i5 9th Gen             GTX 3070
3        Alienware                Alienware          1977               24             i5 9th Gen             GTX 3070
4        Swift 7                  Acer               900                12             i5 9th Gen             GTX 3070
5        Macbook Pro 16           Apple              3500               10             i5 9th Gen             GTX 3070

Number of laptops to be Sold: 1

Please enter the name of the laptop: Razer Blade
your total amount is 2260.0 including 13% VAT amount.Do you want to continue and purchase the laptop? (yes/no):yes


laptop details:
Seller/Company Name:Hari International
Date Sold:2023-05-12
time Sold:05:58:49
Razer Blade:2000
VAT Amount:293.8
Total Amount:2260.0
Transaction ID:Hari International_1

 Thank you For selling laptiop to our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 12screenshot of laptop sale to store complete

Once they have entered yes, the transaction is complete and the sustem displays the transaction details such as name of the seller, date and time sold, transaction id, total amount vat amount etc.



```
Selling Transaction:
Seller/Company Name:Hari International
Date Sold:2023-05-12
time Sold:05:58:49
Razer Blade:2000
VAT Amount:293.8
Total Amount:2260.0
Transaction ID:Hari International_1
```

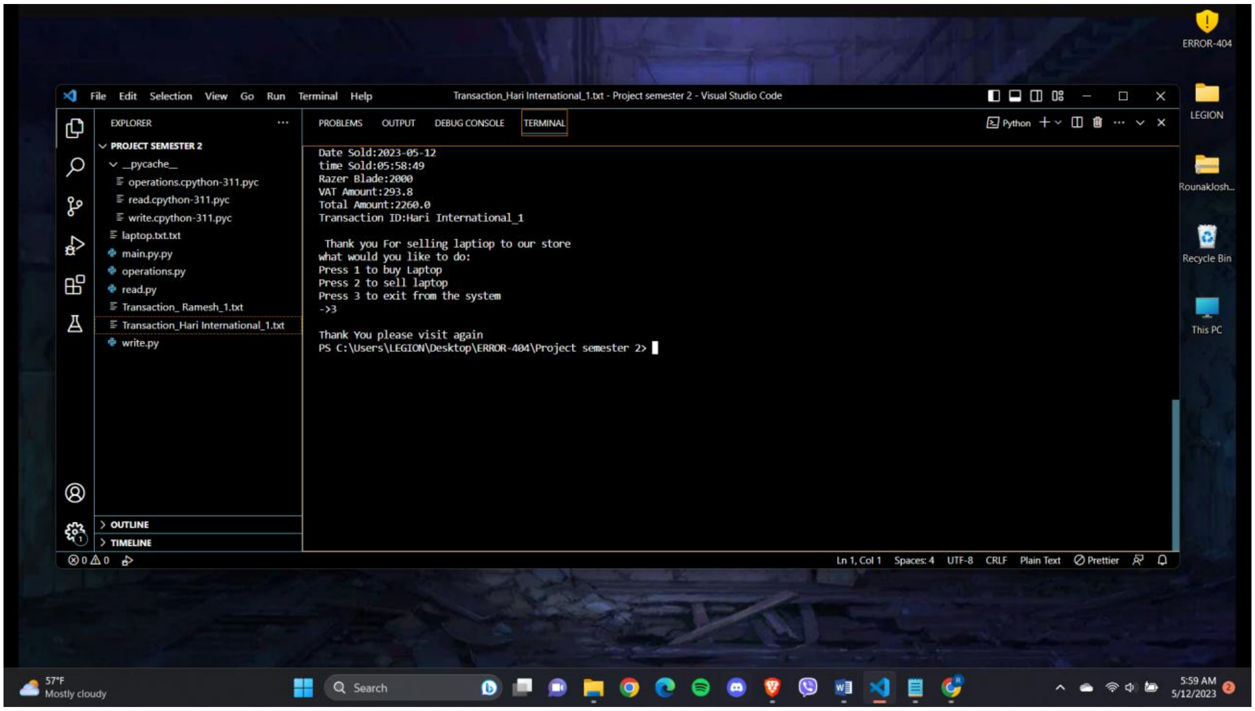
```
Date Sold:2023-05-12
time Sold:05:58:49
Razer Blade:2000
VAT Amount:293.8
Total Amount:2260.0
Transaction ID:Hari International_1

 Thank you For selling laptiop to our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 13screenshot of bill created after laptop sale to store

As the purchase is complete the system then creates a bill for the transaction. The bill shows the name of the seller, laptop name along with price, VAT amount and date and time of sales. Each bill has its own unique transaction ID.

This is the complete process of sales of laptop to the store

When the program is terminated:



File Edit Selection View Go Run Terminal Help
Transaction_Hari International_1.txt - Project semester 2 - Visual Studio Code
EXPLORER
PROJECT SEMESTER 2
__pycache__
operations.cpython-311.pyc
read.cpython-311.pyc
write.cpython-311.pyc
laptop.txt.txt
main.py.py
operations.py
read.py
Transaction_ Ramesh_1.txt
Transaction_Hari International_1.txt
write.py
OUTLINE
TIMELINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Python
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Plain Text Prettier
ERROR-404
LEGION
RounakJosh...
Recycle Bin
This PC
57°F
Mostly cloudy
Search
5:59 AM
5/12/2023

```
Date Sold:2023-05-12
time Sold:05:58:49
Razer Blade:2000
VAT Amount:293.8
Total Amount:2260.0
Transaction ID:Hari International_1

 Thank you For selling laptiop to our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->3

Thank You please visit again
PS C:\Users\LEGION\Desktop\ERROR-404\Project semester 2>
```

Figure 14screenshot of successful termination of the program

After the user have completed the transaction they can use the exit option. When exit option is used ,the system displays a thank you message and successfully terminates the program.

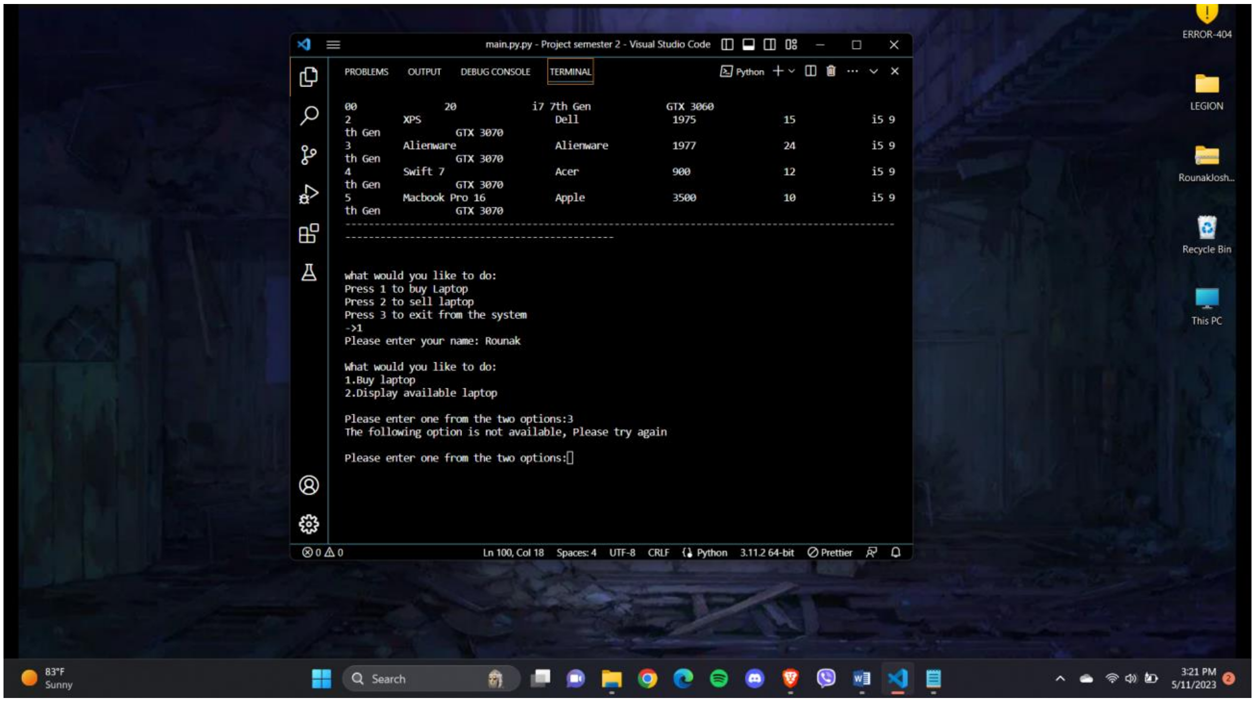
4. TESTING

4.1. TESTING 1
Show implementation of try, except

TEST NO	1
OBJECTIVE	To show the message when Provided invalid input
ACTION	The following arguments are to be done : 1. Entering invalid option amongst the given option 2. Entering laptop name not available or displayed by the store 3. When entering the value of laptop to be bought or sold is entered to 0 4. When string value is added instead integer value in the input
EXPECTED RESULT	To show the message when Provided invalid input
ACTUAL RESULT	Proper message shown when Provided invalid input
CONCLUSION	Test is Successful

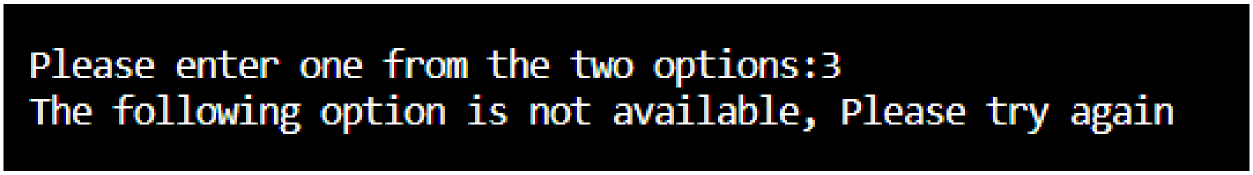
Table 1 table of testing 1

Image Evidence Of the Testing:



```
00          20          i7 7th Gen          GTX 3060
2       XPS                 Dell            1975            15          i5 9
th Gen          GTX 3070
3       Alienware           Alienware       1977            24          i5 9
th Gen          GTX 3070
4       Swift 7             Acer            900             12          i5 9
th Gen          GTX 3070
5       Macbook Pro 16      Apple           3500            10          i5 9
th Gen          GTX 3070
-----------------------------------------------------------------------------------------------
----------------------------------------------


what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->1
Please enter your name: Rounak

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:3
The following option is not available, Please try again

Please enter one from the two options:
```

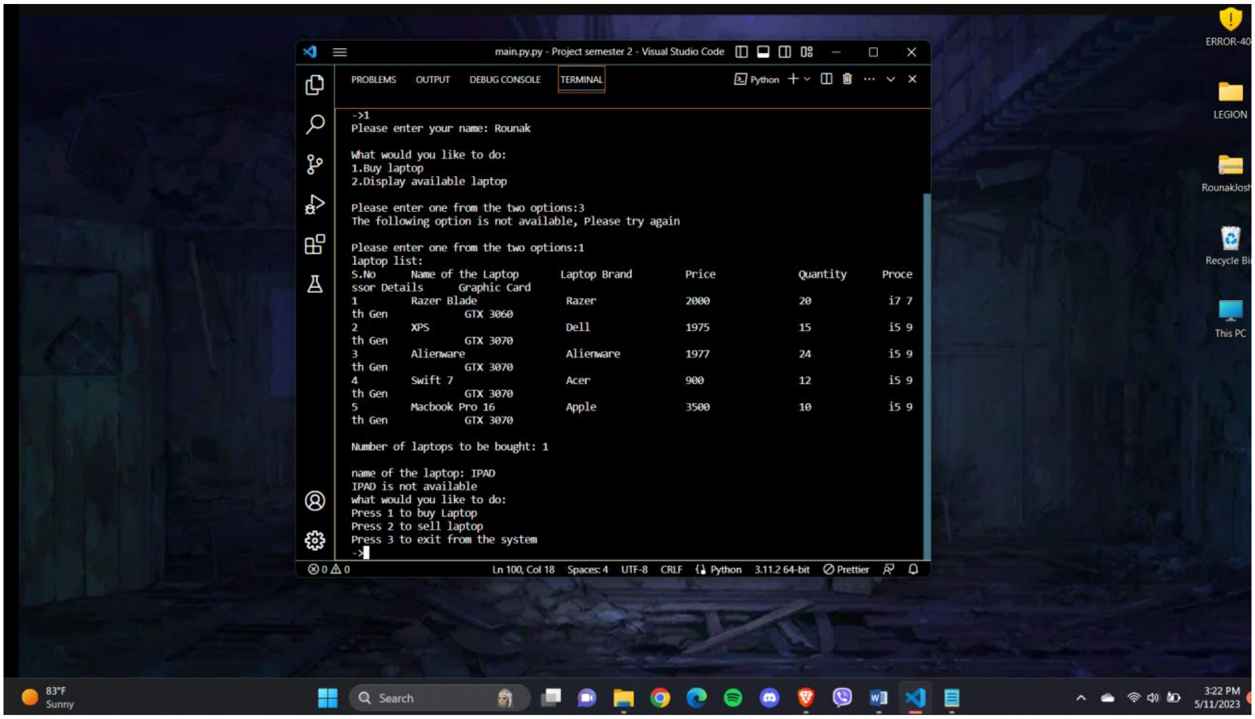
Figure 15Screenshot of entering invalid option



```
Please enter one from the two options:3
The following option is not available, Please try again
```

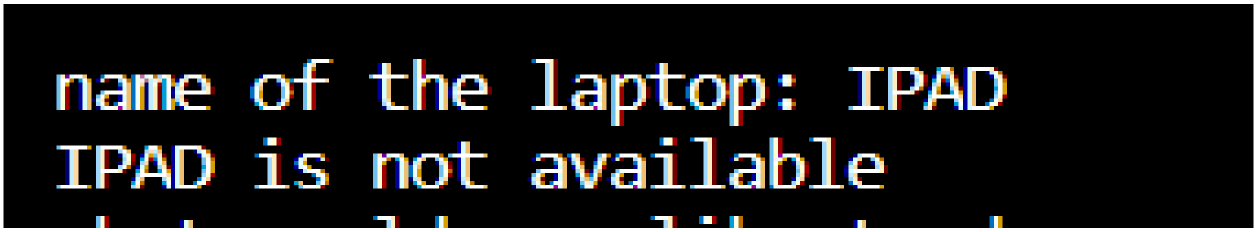
Figure 16Screenshot of error shown when invalid input entered

Image description- the above images show error message when an invalid option is entered in the system which is formed using try except case in the code



```
->1
Please enter your name: Rounak

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:3
The following option is not available, Please try again

Please enter one from the two options:1
laptop list:
S.No      Name of the Laptop       Laptop Brand         Price               Quantity       Proce
ssor Details      Graphic Card
1         Razer Blade               Razer               2000                20              i7 7
th Gen                GTX 3060
2         XPS                       Dell                1975                15              i5 9
th Gen                GTX 3070
3         Alienware                 Alienware           1977                24              i5 9
th Gen                GTX 3070
4         Swift 7                   Acer                900                 12              i5 9
th Gen                GTX 3070
5         Macbook Pro 16            Apple               3500                10              i5 9
th Gen                GTX 3070

Number of laptops to be bought: 1

name of the laptop: IPAD
IPAD is not available
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

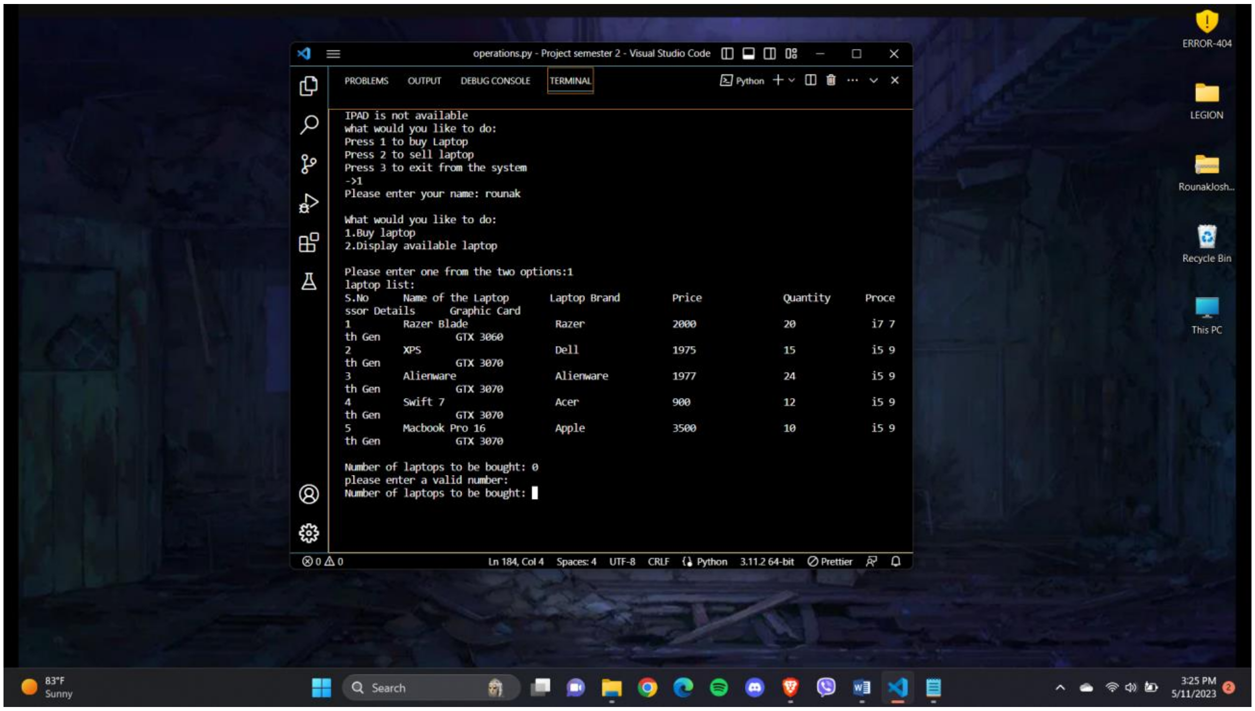
Figure 17Screenshot of typing invalid laptop name



```
name of the laptop: IPAD
IPAD is not available
```

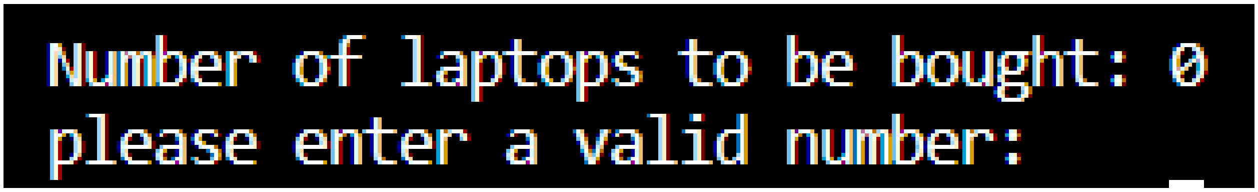
Figure 18screenshot of message shown when invalid name is entered

Image description- the images show an error message when a different name is entered other than names of available laptops



```
IPAD is not available
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->1
Please enter your name: rounak

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:1
laptop list:
S.No     Name of the Laptop      Laptop Brand        Price           Quantity      Proce
ssor Details     Graphic Card
1        Razer Blade              Razer              2000            20             i7 7
th Gen           GTX 3060
2        XPS                      Dell               1975            15             i5 9
th Gen           GTX 3070
3        Alienware                Alienware          1977            24             i5 9
th Gen           GTX 3070
4        Swift 7                  Acer               900             12             i5 9
th Gen           GTX 3070
5        Macbook Pro 16           Apple              3500            10             i5 9
th Gen           GTX 3070

Number of laptops to be bought: 0
please enter a valid number:
Number of laptops to be bought: 
```

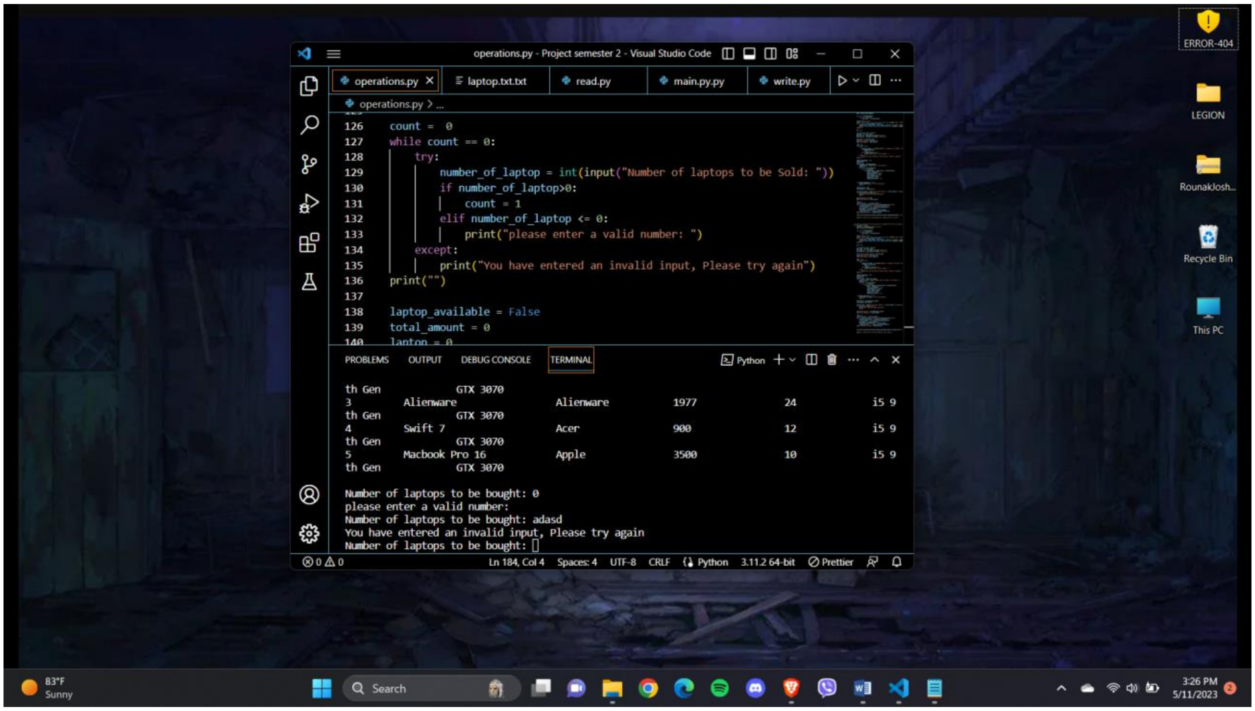
Figure 19 Screenshot of message shown when 0 is entered in the input



```
Number of laptops to be bought: 0
please enter a valid number:
```

Figure 20Screenshot of error message entered 0 is written as input

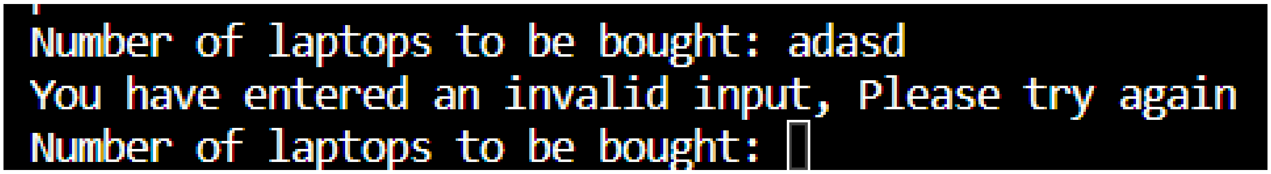
Image description- the above images show message when 0 is entered in number of laptops to be bought .



```python
    count =  0
    while count == 0:
        try:
            number_of_laptop = int(input("Number of laptops to be Sold: "))
            if number_of_laptop>0:
                count = 1
            elif number_of_laptop <= 0:
                print("please enter a valid number: ")
        except:
            print("You have entered an invalid input, Please try again")
    print("")

    laptop_available = False
    total_amount = 0
    lapton = 0
```

```
th Gen          GTX 3070
3       Alienware               Alienware       1977        24          i5 9
th Gen          GTX 3070
4       Swift 7                 Acer            900         12          i5 9
th Gen          GTX 3070
5       Macbook Pro 16          Apple           3500        10          i5 9
th Gen          GTX 3070

Number of laptops to be bought: 0
please enter a valid number:
Number of laptops to be bought: adasd
You have entered an invalid input, Please try again
Number of laptops to be bought: 
```

Figure 21Screeshot of error when string is entered in the integer input



```
Number of laptops to be bought: adasd
You have entered an invalid input, Please try again
Number of laptops to be bought: 
```

Figure 22Screenshot of message shown when string is entered as input instead of int

Image description – the above images show error message shown when string is entered as input instead of in tint he int input

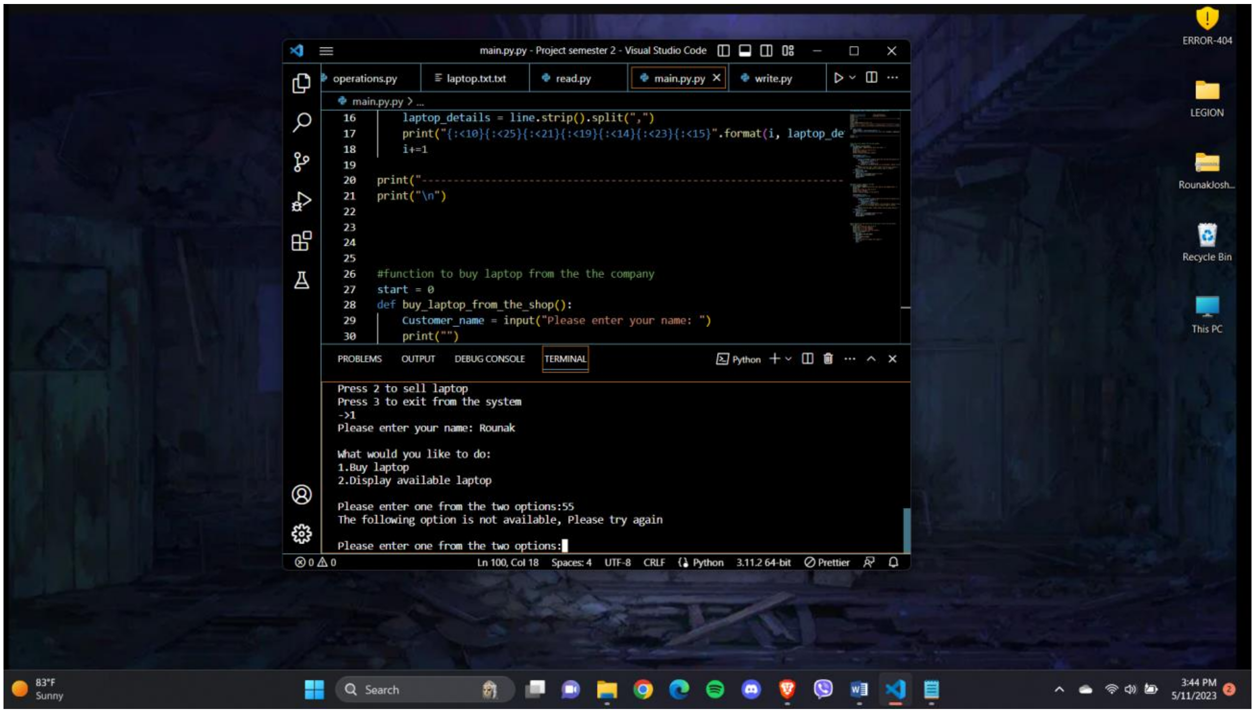
4.2. TESTING 2

Selection purchase and sale of laptops

TEST NO	2
OBJECTIVE	To Provide the negative value as input To Provide the non existed value as input
ACTION	The following actions are done to the argument: • Entering of an invalid option to display an error message • Entering the value in negative to display an erroe message
EXPECTED RESULT	Error message to be shown when invalid input is entered
ACTUAL RESULT	Error message shown when invalid input is entered
CONCLUSION	Test is Successful

Table 2table of testing 2

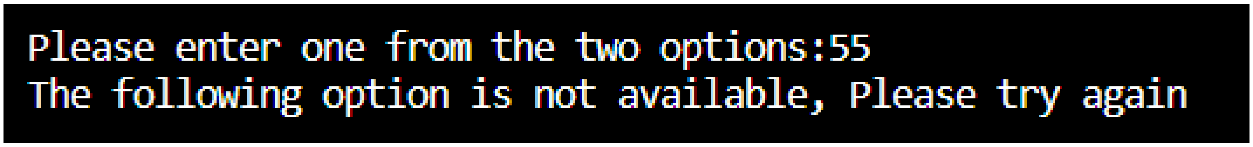
Image Evidence Of the Testing:



```
    laptop_details = line.strip().split(",")
    print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format(i, laptop_de
    i+=1

print("-----------------------------------------------------------------------
print("\n")




#function to buy laptop from the the company
start = 0
def buy_laptop_from_the_shop():
    Customer_name = input("Please enter your name: ")
    print("")
```

```
Press 2 to sell laptop
Press 3 to exit from the system
->1
Please enter your name: Rounak

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:55
The following option is not available, Please try again

Please enter one from the two options:
```

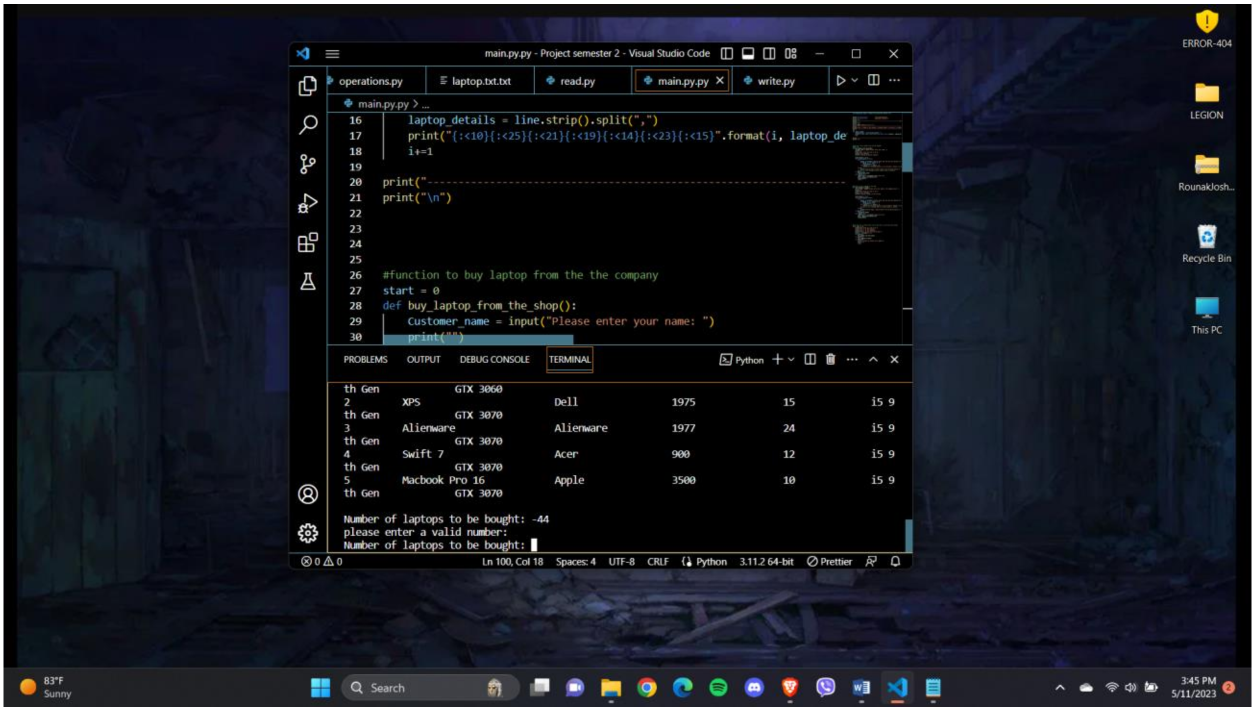
Figure 23Screenshot of error shown when an invalid option is entered



```
Please enter one from the two options:55
The following option is not available, Please try again
```

Figure 24Screenshot of message shown when invalid input is entered

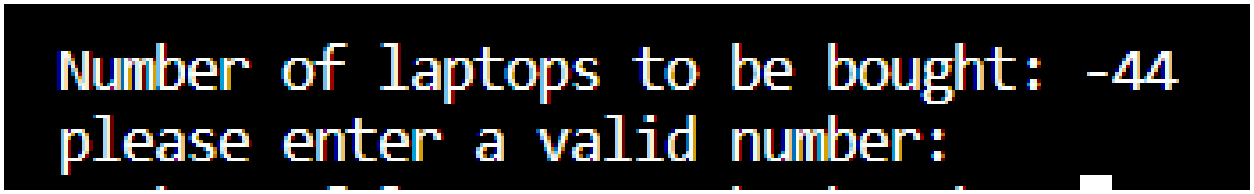
Image description – The above images show an error message shown when an invalid input is entered instead of a valid one



```
        laptop_details = line.strip().split(",")
        print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format(i, laptop_de
        i+=1

    print("-------------------------------------------------------------------
    print("\n")




#function to buy laptop from the the company
start = 0
def buy_laptop_from_the_shop():
    Customer_name = input("Please enter your name: ")
    print("")
```

```
th Gen          GTX 3060
2         XPS                      Dell          1975          15          i5 9
th Gen          GTX 3070
3         Alienware                Alienware     1977          24          i5 9
th Gen          GTX 3070
4         Swift 7                  Acer          900           12          i5 9
th Gen          GTX 3070
5         Macbook Pro 16           Apple         3500          10          i5 9
th Gen          GTX 3070

Number of laptops to be bought: -44
please enter a valid number:
Number of laptops to be bought: █
```

Figure 25screenshot of error shown when negative integer is entered



```
Number of laptops to be bought: -44
please enter a valid number:
```

Figure 26screenshot of message shown when negative value is entered in input

Image description – the above images show an error message shown when a negative value is entered in the input

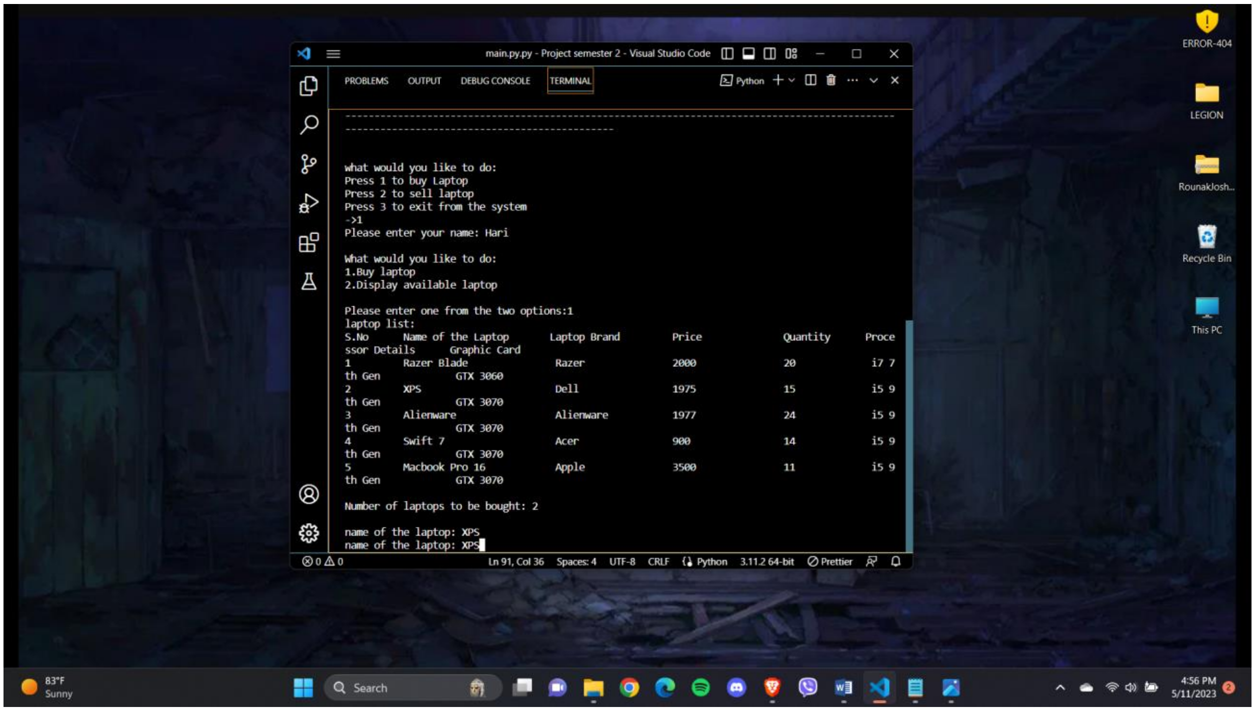
4.3. TESTING 3

File generation of purchase of laptop(s) (Purchasing multiple laptop(s))

TEST NO	3
OBJECTIVE	To Show complete purchase process To Show output in the shell as well To Finally show the purchased laptops details in a text file
ACTION	The following actions are done to the argument: • Selection of buy Laptop option • Enter number laptops to be bought • Enter the names of the laptops to be bought • Confirmation of order after displayed total amount • Open created bill as a text file
EXPECTED RESULT	The buy process to run successfully
ACTUAL RESULT	The buy process has run successfully
CONCLUSION	Test is Successful

Table 3 table of testing 3

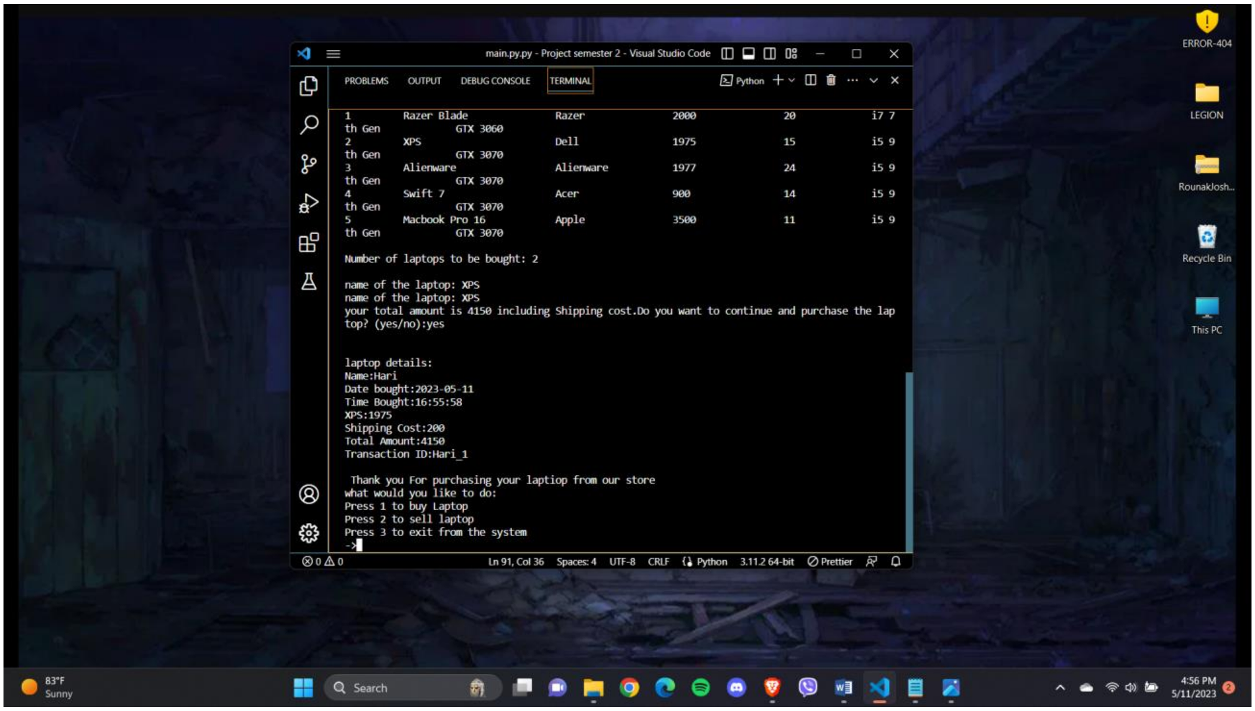
Image Evidence Of the testing:



```
--------------------------------------------------------------------------------------------
---------------------------------------------


what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->1
Please enter your name: Hari

What would you like to do:
1.Buy laptop
2.Display available laptop

Please enter one from the two options:1
laptop list:
S.No      Name of the Laptop      Laptop Brand        Price           Quantity       Proce
ssor Details      Graphic Card
1         Razer Blade              Razer              2000            20              i7 7
th Gen             GTX 3060
2         XPS                      Dell               1975            15              i5 9
th Gen             GTX 3070
3         Alienware                Alienware          1977            24              i5 9
th Gen             GTX 3070
4         Swift 7                  Acer               900             14              i5 9
th Gen             GTX 3070
5         Macbook Pro 16           Apple              3500            11              i5 9
th Gen             GTX 3070

Number of laptops to be bought: 2

name of the laptop: XPS
name of the laptop: XPS
```

Figure 27 image entering input to buy laptop from the store

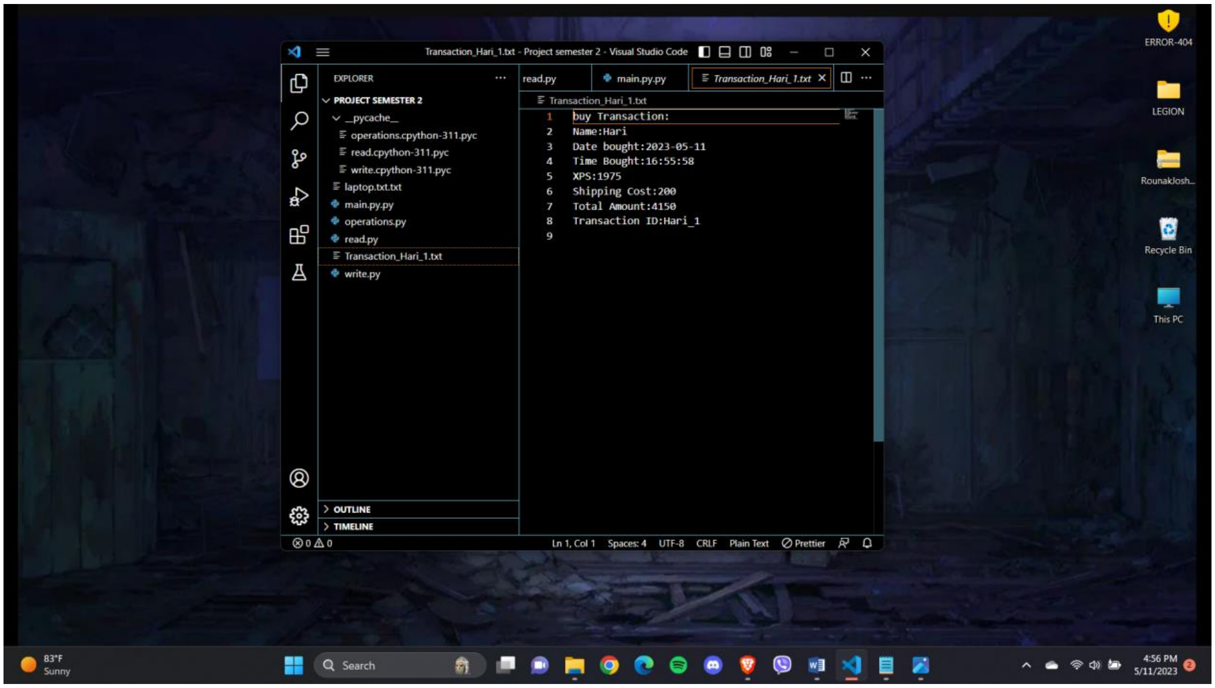
Image description – the above image shows the process of buying laptop from the store where name of the customer, number of laptops to be bought and names of the laptops to be bought are being entered in the input



```
1        Razer Blade              Razer          2000           20            i7 7
th Gen            GTX 3060
2        XPS                      Dell           1975           15            i5 9
th Gen            GTX 3070
3        Alienware                Alienware      1977           24            i5 9
th Gen            GTX 3070
4        Swift 7                  Acer           900            14            i5 9
th Gen            GTX 3070
5        Macbook Pro 16           Apple          3500           11            i5 9
th Gen            GTX 3070

Number of laptops to be bought: 2

name of the laptop: XPS
name of the laptop: XPS
your total amount is 4150 including Shipping cost.Do you want to continue and purchase the lap
top? (yes/no):yes


laptop details:
Name:Hari
Date bought:2023-05-11
Time Bought:16:55:58
XPS:1975
Shipping Cost:200
Total Amount:4150
Transaction ID:Hari_1

 Thank you For purchasing your laptiop from our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 28 Screenshot of entering names of the laptop to be bought

Image description- the above image shows confirmation of the purchase being done along with displaying the details of the transactions shown



```
buy Transaction:
Name:Hari
Date bought:2023-05-11
Time Bought:16:55:58
XPS:1975
Shipping Cost:200
Total Amount:4150
Transaction ID:Hari_1
```

Figure 29 Screenshot of bill being created after purchasing laptops from the store

Image description – the above image shows a bill being created after the laptop is purchased from the store

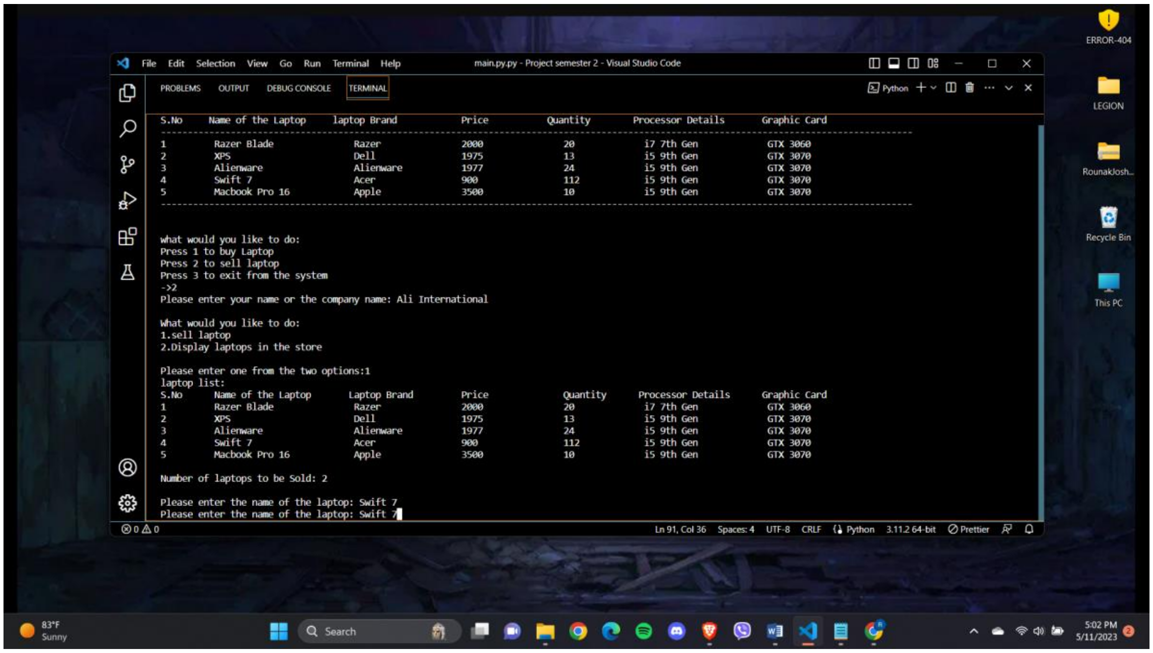
4.4. TESTING 4

File generation of sales process of laptop(s) (Selling multiple laptop(s))

TEST NO	4
OBJECTIVE	Show the complete sales process of the laptop(s) Show output in the shell as well Finally show the sold laptop(s) details in text file
ACTION	The following actions are done to the argument: • Selection of sell Laptop option • Enter number laptops to be sold • Enter the names of the laptops to be sold • Confirmation of order after displayed total amount • Open created bill as a text file
EXPECTED RESULT	The sell process to run successfully
ACTUAL RESULT	The sell process to run successfully
CONCLUSION	Test is Successful

Table 4 table of testing 4

Image Evidence Of the testing:

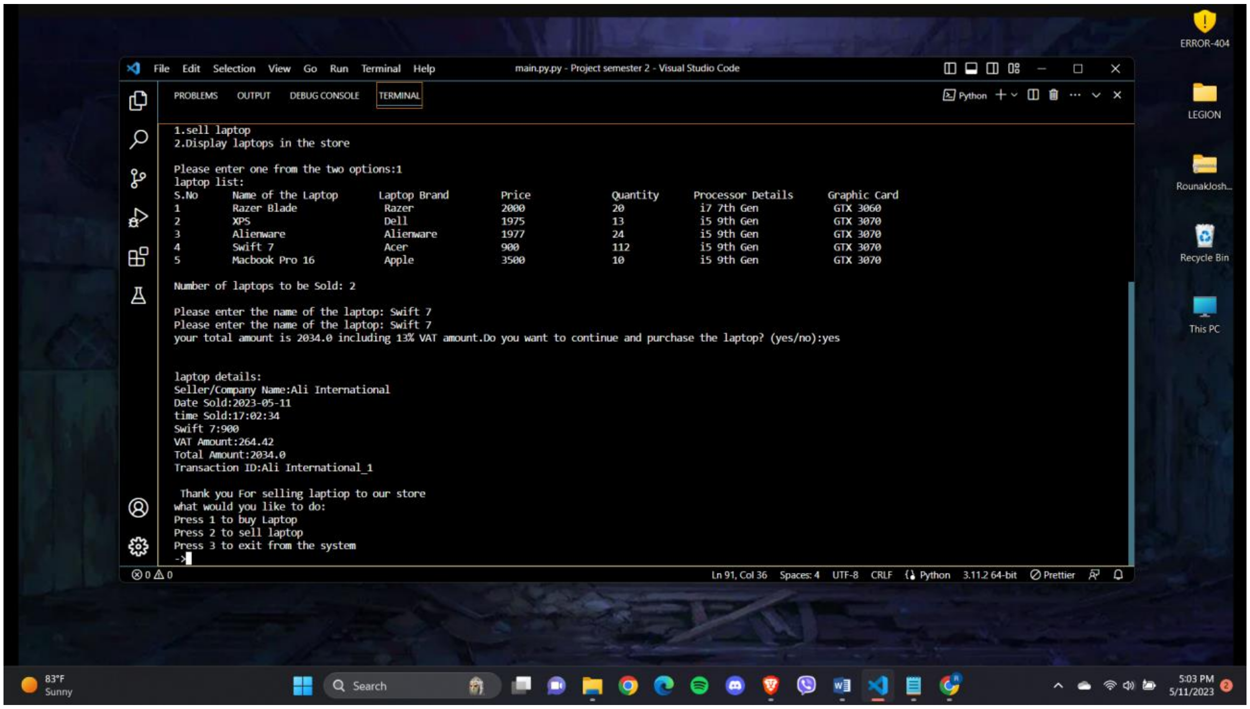


File Edit Selection View Go Run Terminal Help
main.py.py - Project semester 2 - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Python
Ln 91, Col 36 Spaces: 4 UTF-8 CRLF Python 3.11.2 64-bit Prettier
ERROR-404
LEGION
RounakJosh...
Recycle Bin
This PC
83°F
Sunny
Search
5:02 PM
5/11/2023

```
S.No     Name of the Laptop     laptop Brand          Price          Quantity        Processor Details      Graphic Card
------------------------------------------------------------------------------------------------------------------------
1          Razer Blade              Razer             2000             20              i7 7th Gen             GTX 3060
2          XPS                      Dell              1975             13              i5 9th Gen             GTX 3070
3          Alienware                Alienware         1977             24              i5 9th Gen             GTX 3070
4          Swift 7                  Acer              900              112             i5 9th Gen             GTX 3070
5          Macbook Pro 16           Apple             3500             10              i5 9th Gen             GTX 3070
------------------------------------------------------------------------------------------------------------------------


what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->2
Please enter your name or the company name: Ali International

What would you like to do:
1.sell laptop
2.Display laptops in the store

Please enter one from the two options:1
laptop list:
S.No       Name of the Laptop       Laptop Brand         Price              Quantity       Processor Details      Graphic Card
1          Razer Blade               Razer               2000               20              i7 7th Gen             GTX 3060
2          XPS                       Dell                1975               13              i5 9th Gen             GTX 3070
3          Alienware                 Alienware           1977               24              i5 9th Gen             GTX 3070
4          Swift 7                   Acer                900                112             i5 9th Gen             GTX 3070
5          Macbook Pro 16            Apple               3500               10              i5 9th Gen             GTX 3070

Number of laptops to be Sold: 2

Please enter the name of the laptop: Swift 7
Please enter the name of the laptop: Swift 7
```

Figure 30screenshot of entering input for selling the laptop to the shop

Image description- the above image shows the process of inpyutinfg seller name, number of laptops to be sold , and names of the laptops being enteres in the input for the selling process being done

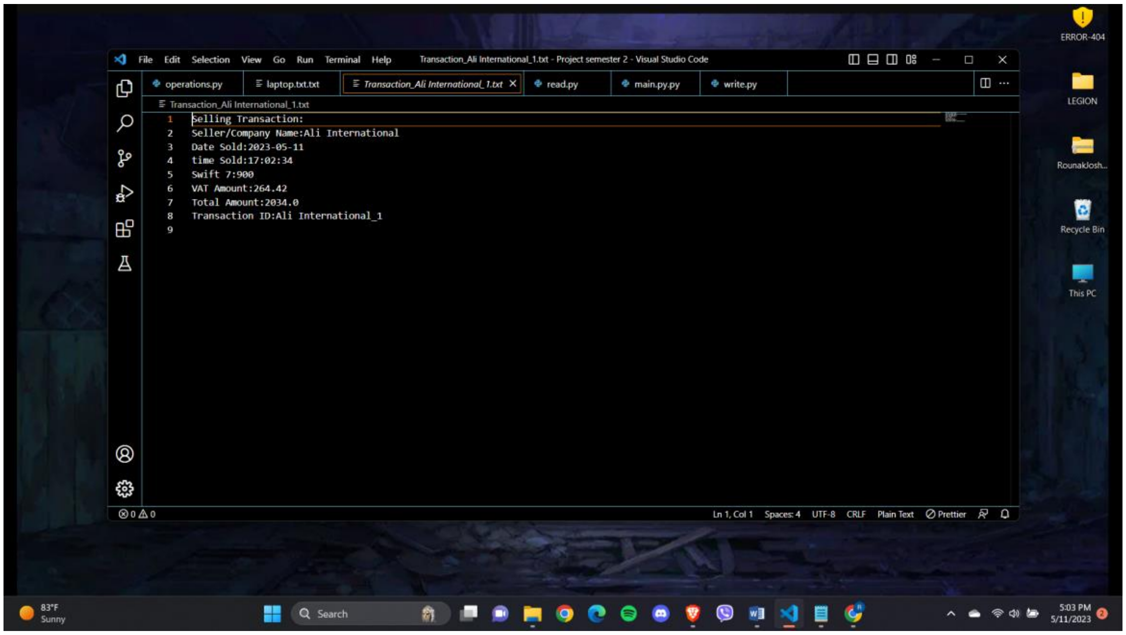


File Edit Selection View Go Run Terminal Help
main.py.py - Project semester 2 - Visual Studio Code
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
Ln 91, Col 36 Spaces: 4 UTF-8 CRLF Python 3.11.2 64-bit Prettier

```
1.sell laptop
2.Display laptops in the store

Please enter one from the two options:1
laptop list:
S.No     Name of the Laptop     Laptop Brand     Price       Quantity    Processor Details    Graphic Card
1        Razer Blade             Razer           2000        20           i7 7th Gen           GTX 3060
2        XPS                     Dell            1975        13           i5 9th Gen           GTX 3070
3        Alienware               Alienware       1977        24           i5 9th Gen           GTX 3070
4        Swift 7                 Acer            900         112          i5 9th Gen           GTX 3070
5        Macbook Pro 16          Apple           3500        10           i5 9th Gen           GTX 3070

Number of laptops to be Sold: 2

Please enter the name of the laptop: Swift 7
Please enter the name of the laptop: Swift 7
your total amount is 2034.0 including 13% VAT amount.Do you want to continue and purchase the laptop? (yes/no):yes


laptop details:
Seller/Company Name:Ali International
Date Sold:2023-05-11
time Sold:17:02:34
Swift 7:900
VAT Amount:264.42
Total Amount:2034.0
Transaction ID:Ali International_1

 Thank you For selling laptiop to our store
what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 31 screenshot of details of transaction being shown

Image description – the above image shows the confirmation of the sellig process along with transaction details being shown after selling process being complete



File Edit Selection View Go Run Terminal Help
Transaction_Ali International_1.txt - Project semester 2 - Visual Studio Code
operations.py
laptop.txt.txt
Transaction_Ali International_1.txt
read.py
main.py.py
write.py
Transaction_Ali International_1.txt
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Plain Text Prettier

```
Selling Transaction:
Seller/Company Name:Ali International
Date Sold:2023-05-11
time Sold:17:02:34
Swift 7:900
VAT Amount:264.42
Total Amount:2034.0
Transaction ID:Ali International_1
```

Figure 32 scrrenshot of bill being created after the selling transaction is done

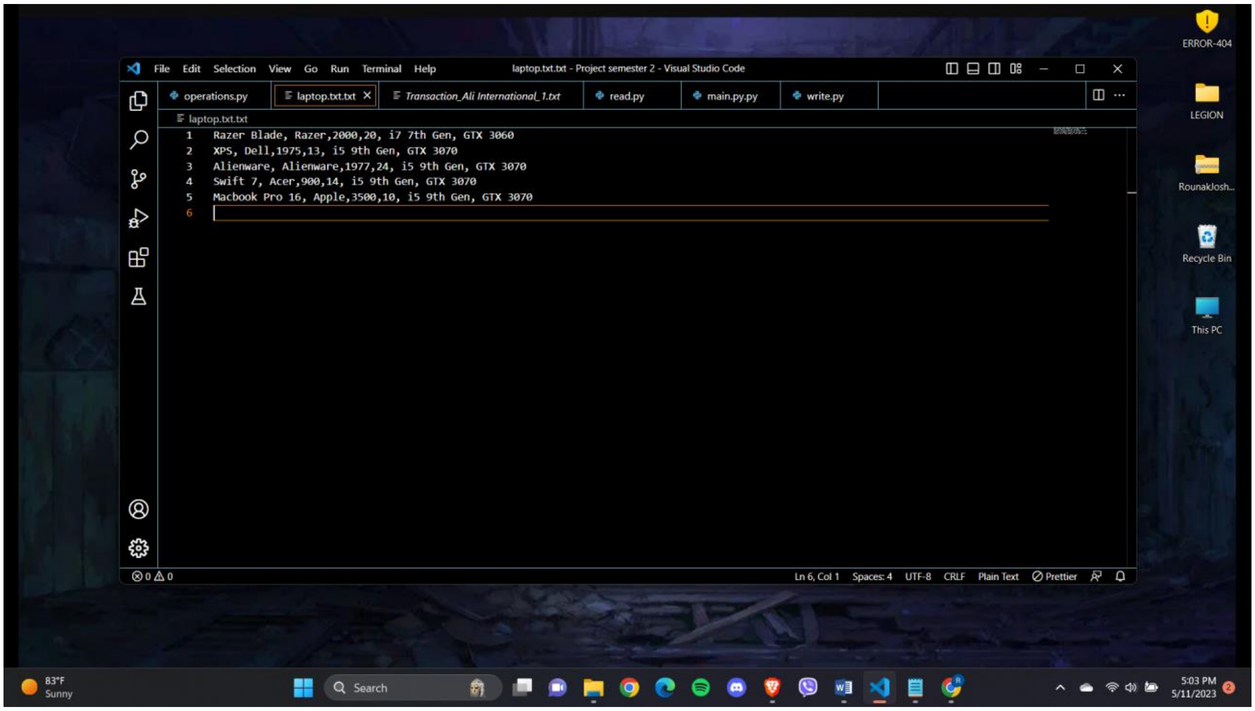
Image description – the above image shows a bill being created in txt file after the sales transaction being done

4.5. TESTING 5
Show the update in stock of laptop(s)

TEST NO	5
OBJECTIVE	to Show the update in stock of laptop
ACTION	The following actions are done to the argument: • Open the text file of the laptop details after completing buying and selling process • Check in the software for update of stock of laptop
EXPECTED RESULT	Laptop stock to be updated
ACTUAL RESULT	Laptop stock updated
CONCLUSION	Test is Successful

Table 5 table of testing 5

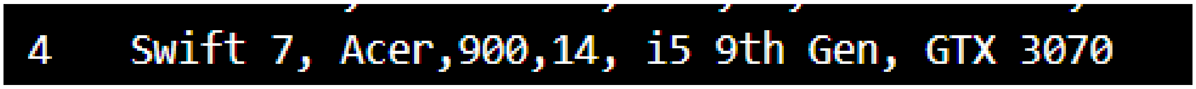
Image Evidence Of the testing:



```
Razer Blade, Razer,2000,20, i7 7th Gen, GTX 3060
XPS, Dell,1975,13, i5 9th Gen, GTX 3070
Alienware, Alienware,1977,24, i5 9th Gen, GTX 3070
Swift 7, Acer,900,14, i5 9th Gen, GTX 3070
Macbook Pro 16, Apple,3500,10, i5 9th Gen, GTX 3070
```

Figure 33 screen shot of the laptop.txt file being updated after buying selling transaction are done

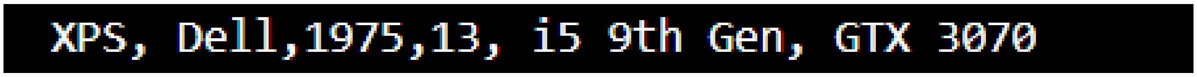
Image description- the above image shows the laptop stock being updated after both buying and selling transactions have been done



```
Swift 7, Acer,900,14, i5 9th Gen, GTX 3070
```

Figure 34screenshot of acer laptop stock being updated

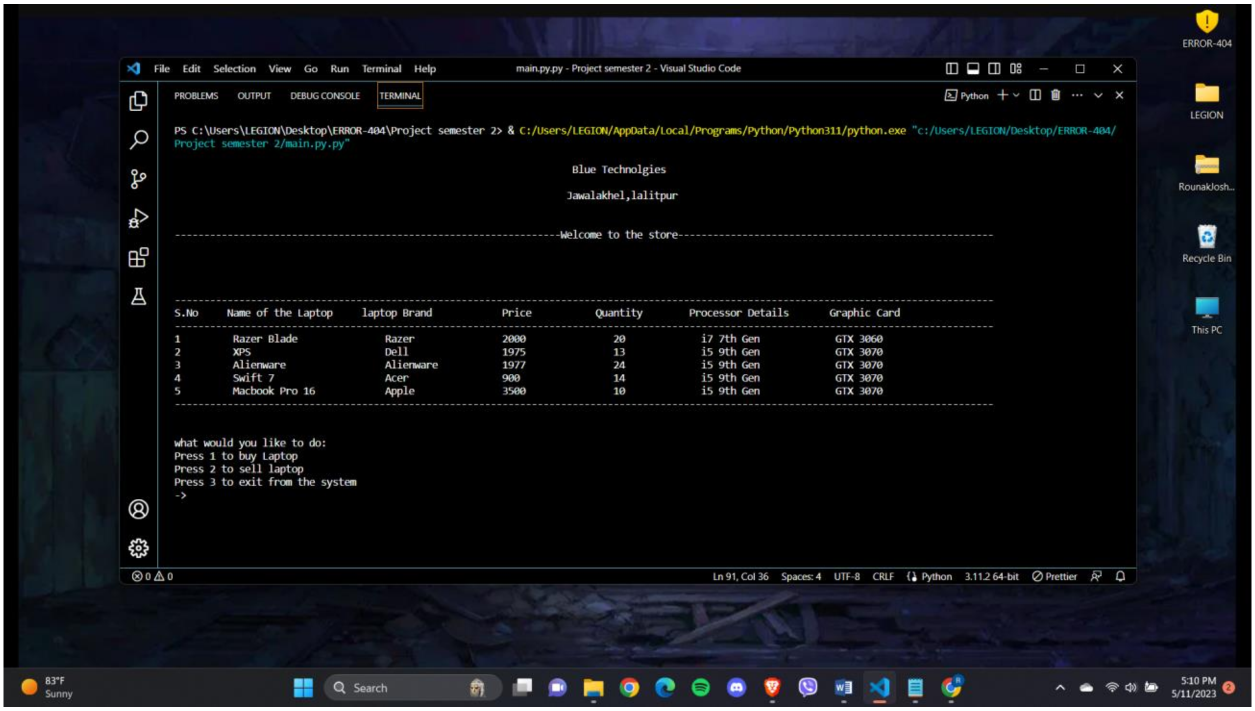
Image description- the above image shows acer laptop stock being updated after 2 laptops were sold to the store by the manufacturers



```
XPS, Dell,1975,13, i5 9th Gen, GTX 3070
```

Figure 35 screenshot of xps laptop stock being updated

Image description- the above image show the image of laptop stock being updated after two xps laptops were sold to the customer


File Edit Selection View Go Run Terminal Help
main.py.py - Project semester 2 - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Python
Ln 91, Col 36 Spaces: 4 UTF-8 CRLF Python 3.11.2 64-bit Prettier
ERROR-404
LEGION
RounakJosh...
Recycle Bin
This PC
83°F
Sunny
Search
5:10 PM
5/11/2023

```
PS C:\Users\LEGION\Desktop\ERROR-404\Project semester 2> & C:/Users/LEGION/AppData/Local/Programs/Python/Python311/python.exe "c:/Users/LEGION/Desktop/ERROR-404/
Project semester 2/main.py.py"

                                              Blue Technolgies

                                             Jawalakhel,lalitpur


----------------------------------------------------------------Welcome to the store-----------------------------------------------------------



---------------------------------------------------------------------------------------------------------------------------------------------
S.No     Name of the Laptop     laptop Brand          Price          Quantity        Processor Details       Graphic Card
---------------------------------------------------------------------------------------------------------------------------------------------
1         Razer Blade            Razer                2000               20               i7 7th Gen              GTX 3060
2         XPS                    Dell                 1975               13               i5 9th Gen              GTX 3070
3         Alienware              Alienware            1977               24               i5 9th Gen              GTX 3070
4         Swift 7                Acer                 900                14               i5 9th Gen              GTX 3070
5         Macbook Pro 16         Apple                3500               10               i5 9th Gen              GTX 3070
---------------------------------------------------------------------------------------------------------------------------------------------


what would you like to do:
Press 1 to buy Laptop
Press 2 to sell laptop
Press 3 to exit from the system
->
```

Figure 36screenshot of stock being updated in the system

Image description – the above image shows the laptop stock being updated in the system of the store

5. References

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6. CONCLUSION

The following coursework has been a very fun as well as hard. The coursework has helped us to learn about various new topics such as different types of data structure used in python, use of functions in the code and about python itself as well. The coursework has helped us to learn a lot about system development, and about the subject itself as well. The function had been quite confusing in the beginning but by the end I learnt a lot about its concepts. The coursework has helped in providing knowledge about lists and dictionary as well as other data structures and their differences. The coursework had been quit confusing but yet was quite interesting. By the end of this coursework I learnt about various concepts and as well as cleared all the confusions I had in the beginning.

Various errors such as syntax error and range index error really made the coursework quite confusing. It took several time to fix the errors which can create a big confusion. In the end the coursework has been fun and yet a hard process.

This is my conclusion on this coursework.

7. APPENDIX

7.1. CODE OF MAIN.PY

```
from operations import * #Importing operations pythone file



print("\n\t\t\t\t\t\t\t            Blue Technolgies")
print("\n\t\t\t\t\t\t\t           Jawalakhel,lalitpur")
print("\n")
print("----------------------------------------------------------------------Welcome to the store---------------
--------------------------------------")
print("\n")
print("\n")
file = open("laptop.txt.txt","r")
print("-------------------------------------------------------------------------------------------------------------------
---------------------------------")
print("S.No","\t Name of the Laptop","\tlaptop Brand","\t\tPrice","\t\tQuantity","\tProcessor
Details","\tGraphic Card")
print("-------------------------------------------------------------------------------------------------------------------
---------------------------------")
i=1
for line in file:
   laptop_details = line.strip().split(",")
   print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format(i, laptop_details[0],
laptop_details[1], laptop_details[2], laptop_details[3], laptop_details[4],
laptop_details[5]))
   i+=1


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

```
print("\n")




#function to buy laptop from the the company
start = 0
def buy_laptop_from_the_shop():
    Customer_name = input("Please enter your name: ")
    print("")
    print("What would you like to do:")
    print("1.Buy laptop")
    print("2.Display available laptop")

    valid_option = False
    while valid_option ==False:
        try:
            option =int(input("\nPlease enter one from the two options:"))
            if option == 1 or option == 2:
                valid_option =True
            elif option < 1 or option > 2:
                print("The following option is not available, Please try again")
        except:
            print("Inavalid Input. Please choose from the given option.")
        #prints an error message when an invalid input is enteres
    if option == 1:
        buy(Customer_name)
    elif option == 2:
        laptop_file = file_data("laptop.txt.txt")
        data = data_list(laptop_file)
        display(data)
        return




#Function to sell laptop to the shop
def sell_laptop_to_shop():
    Seller_name = input("Please enter your name or the company name: ")
    print("")
    print("What would you like to do:")
    print("1.sell laptop")
    print("2.Display laptops in the store")

    valid_option = False
    while valid_option ==False:
        try:
            option =int(input("\nPlease enter one from the two options:"))
            if option == 1 or option == 2:
                valid_option =True
            elif option < 1 or option > 2:
                print("The following option is not available, Please try again")
            #prints an error message when an invalid input is enteres
        except:
            print("Inavalid Input. Please choose from the given option.")
    if option == 1:
        sell(Seller_name)
    elif option == 2:
        laptop_file = file_data("laptop.txt.txt")
        data = data_list(laptop_file)
        display(data)
```

```
#Asks the user if they would like to buy sell or exit from the system
while start == 0:
    print("what would you like to do:")
    print("Press 1 to buy Laptop")
    print("Press 2 to sell laptop")
    print("Press 3 to exit from the system" )
    select = int(input("->"))
    if select==1:
        buy_laptop_from_the_shop()
    if select==2:
        sell_laptop_to_shop()
    if select==3:
        print("\nThank You please visit again",)
        start = 0
        break
```

7.2. CODE OF OPERATIONS.PY

```
from read import * #importing read python file
from write import * #importing write python file



# function created to display names of the laptop from the data
def display(data):
    for i in range(len(data)):
        print(data[i][0])



#function to create process to buy laptop and update txx file after laptop is bought
def buy(Customer_name):
    filedata = file_data("laptop.txt.txt")
    data = data_list(filedata)

    for i in range(len(data)):
        for j in range(2,4):
            data[i][j] = int(data[i][j])

    print("laptop list:")
    print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format("S.No", "Name of the Laptop", "Laptop Brand", "Price", "Quantity", "Processor Details", "Graphic Card"))
    for i, row in enumerate(data, start=1):
        laptop_name, laptop_brand, price_laptop, quantity, processor, graphics_card = row
        print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format(i, laptop_name, laptop_brand, price_laptop, quantity, processor, graphics_card))
    print("")
```

```
buy = {}

from datetime import datetime
Buy_Date = datetime.now()
Buy_Date_str = Buy_Date.strftime("%Y-%m-%d ")
Buy_time_str = Buy_Date.strftime( "%H:%M:%S")

buy["Name"] = Customer_name
buy["Date bought"] = Buy_Date_str
buy["Time Bought"] = Buy_time_str

count = 0
while count == 0:
    try:
        numberOflaptop = int(input("Number of laptops to be bought: "))
        if numberOflaptop>0:
            count = 1
        elif numberOflaptop <= 0:
            print("please enter a valid number: ")
    except:
        print("You have entered an invalid input, Please try again")
print("")

laptop_available = False
total_amount = 0
laptop = 0
while laptop < numberOflaptop:
    nameOflaptop = input("name of the laptop: ")
    laptop+=1
```

```
        for i in range(len(data)):
            for j in range(1):
                if nameOflaptop == data[i][j] and data[i][3]>0:
                    price = data[i][2]
                    buy[data[i][0]] = price
                    total_amount += price
                    stock =data[i][3] - 1
                    data[i][3] = stock
                    laptop_available = True



    if laptop_available == False:
        print(nameOflaptop, "is not available")
        return


    shipping_cost = 200
    total_amount+= shipping_cost


    confirm_purchase = input(f"your total amount is {total_amount} including Shipping cost.Do you want to continue and purchase the laptop? (yes/no):")
    if confirm_purchase.lower()=="no":
        print("your order has been cancelled")
        return


    buy["Shipping Cost"]=200
    buy["Total Amount"]= total_amount


    import os
    transaction_ID = f"{Customer_name}_1"
    while os.path.exists((f"Transaction{transaction_ID}.txt")):
        transaction_ID_parts = transaction_ID.split("_")
        current_number = int(transaction_ID_parts[-1])
        new_number = current_number+ 1
        transaction_ID_parts[-1] = str(new_number)
        transaction_ID = "_".join(transaction_ID_parts)
    buy["Transaction ID"] = transaction_ID

    order_bill(transaction_ID,data,laptop_available,nameOflaptop,buy) # calling the order bill function from write python file

    print("\n Thank you For purchasing your laptiop from our store")





# function to perform the selling process and update stock after selling laptop to the shop
def sell(Seller_name):
    filedata = file_data("laptop.txt.txt")
    data = data_list(filedata)

    for i in range(len(data)):
        for j in range(2,4):
            data[i][j] = int(data[i][j])

    print("laptop list:")
    print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format("S.No", "Name of the Laptop", "Laptop Brand", "Price", "Quantity", "Processor Details", "Graphic Card"))
    for i, row in enumerate(data, start=1):
        laptop_name, laptop_brand, price_laptop, quantity, processor, graphics_card = row
        print("{:<10}{:<25}{:<21}{:<19}{:<14}{:<23}{:<15}".format(i, laptop_name,
laptop_brand, price_laptop, quantity, processor, graphics_card))
    print("")

    sell = {}

    from datetime import datetime
    Sell_Date = datetime.now()
    Sell_Date_str = Sell_Date.strftime("%Y-%m-%d ")
    Sell_time_str = Sell_Date.strftime( "%H:%M:%S")

    sell["Seller/Company Name"] = Seller_name
    sell["Date Sold"] = Sell_Date_str
    sell["time Sold"] = Sell_time_str

    count =  0
    while count == 0:
        try:
            numberOflaptop = int(input("Number of laptops to be Sold: "))
            if numberOflaptop>0:
                count = 1
            elif numberOflaptop <= 0:
                print("please enter a valid number: ")
        except:
            print("You have entered an invalid input, Please try again")
    print("")

    laptop_available = False
    total_amount = 0
    laptop = 0
    while laptop < numberOflaptop:
        nameOflaptop = input("Please enter the name of the laptop: ")
        laptop+=1
        for i in range(len(data)):
            for j in range(1):
                if nameOflaptop == data[i][j] and data[i][3]>0:
                    price = data[i][2]
                    sell[data[i][0]] = price
                    total_amount += price
                    stock = data[i][3]+1
                    data[i][3] = stock
                    laptop_available = True

    if laptop_available == False:
        print(nameOflaptop, "is not available")
        return

    VAT_Amount = (13/100)*total_amount
    total_amount+=VAT_Amount

    confirm_sale = input(f"your total amount is {total_amount} including 13% VAT
amount.Do you want to continue and purchase the laptop? (yes/no):")
    if confirm_sale.lower()=="no":
        print("your order has been cancelled")
        return

    sell["VAT Amount"] = (13/100)*total_amount
    sell["Total Amount"] = total_amount


    import os
    transaction_ID = f"{Seller_name}_1"
    while os.path.exists((f"Transaction{transaction_ID}.txt")):
        transaction_ID_parts = transaction_ID.split("_")
        current_number = int(transaction_ID_parts[-1])
        new_number = current_number+ 1
        transaction_ID_parts[-1] = str(new_number)
        transaction_ID = "_".join(transaction_ID_parts)
    sell["Transaction ID"] = transaction_ID



    sell_bill(transaction_ID,data,laptop_available,nameOflaptop,sell)# calling the function
of sell bill from the write pyhon file.


    print("\n Thank you For selling laptiop to our store")
```

7.3. CODE OF READ.PY

```
# function created that takes a file name as input and returns contents of the filas as a list of strings

def file_data(file_name):

    file = open(file_name, "r")

    data = file.readlines()

    file.close()

    return data




#this ffunction converts the contents of a text file into a list of lists that can be manipulated in a program

def data_list(file):

    data = []

    for each in file:

        data.append(each.replace("\n","").split(","))

    return data
```

7.4. CODE OF WRITE.PY

```
# function creates buy transaction  bill and updates laptop inventory as per the
ntransaction

def order_bill(transaction_ID,data,laptop_available,nameOflaptop,buy):
    if laptop_available == True:


        file = open(f"Transaction_{transaction_ID}.txt","w")
        file.write("buy Transaction:\n")
        print("")
        print("\ntransaction details details:")
        for key, value in buy.items():
            transaction_details = key +":"+str(value)
            file.write(transaction_details)
            file.write("\n")
            print(transaction_details)
        file.close


        for i in range(len(data)):
            for j in range(2,4):
                data[i][j] = str(data[i][j])


        main_file = open("laptop.txt.txt","w")
        for items in data:
            data_update = ",".join(items)
            main_file.write(data_update+"\n")
        main_file.close()
# function creates sell transaction  bill and updates laptop inventory as per the
transaction
```

```
def sell_bill(transaction_ID,data,laptop_available,nameOflaptop,sell):
    if laptop_available == True:

        file = open(f"Transaction_{transaction_ID}.txt","w")
        file.write("Selling Transaction:\n")
        print("")
        print("\transaction details details:")
        for key, value in sell.items():
            transaction_details = key +":"+str(value)
            file.write(transaction_details)
            file.write("\n")
            print(transaction_details)
        file.close

        for i in range(len(data)):
            for j in range(2,4):
                data[i][j] = str(data[i][j])

        main_file = open("laptop.txt.txt","w")
        for items in data:
            data_update = ",".join(items)
            main_file.write(data_update+"\n")
        main_file.close()
```

||THE END ||