CS4051NI

60% Individual Coursework

2023 Spring

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Assignment Due Date: Friday, May 12, 2023

Assignment Submission Date: Thursday, May 11, 2023

Development Folder Link:-

GOOGLE DRIVE LINK	https://drive.google.com/file/d/1wRbZSyDFdaR1B4sN1kmkAcPZc6vdbZir/view?usp=share_link

Table of Contents

Table of Figures

Table of Tables

1. INTRODUCTION

1.1 BRIEF INTRODUCTION ABOUT THE PROJECT

Python is a popular, high-level programming language known for its simplicity and versatility. It has a large standard library and is used for a wide range of applications, including web development, data analysis, scientific computing, and AI. Its ease of use and cross-platform compatibility make it a popular choice for scripting and automation tasks.

The project aims to develop a program that will assist a laptop rental shop in managing its inventory and transactions. The program will enable the shop to read a text file containing information about available laptops and update the file according to the transactions that occur. The transactions include ordering laptops from manufacturers and selling laptops to customers. The program will also generate notes or invoices for each transaction, including details such as the name of the laptop, brand, customer/distributor, date and time of purchase, and total cost.

The program will have the ability to update the inventory text file with real-time information, reflecting the current stock of each laptop. It will also be able to handle different types of transactions, generating appropriate notes or invoices for each one. The text file will contain columns with information such as the name of the laptop, brand, price, quantity available, processor details, and graphics card details. The program will automatically update the quantity available of each laptop after every transaction.

For each sale, the note or invoice generated by the program will contain details such as the name of the laptop, brand, customer, date and time of purchase, total amount without shipping costs, shipping cost, and total amount to be paid, including the shipping cost. When laptops are ordered from manufacturers, the note or invoice should include the name of the distributor, name of the laptop, brand, date and time of purchase, net amount, VAT amount, and gross amount.

The program will be a useful tool for the laptop rental shop to manage its inventory and keep track of transactions. It will also save time by automatically generating notes or invoices for each transaction. The program will enable the shop to have accurate and up-to-date information about the inventory, which will be useful for forecasting and decision-making. The ease of use of the program will be helpful for the shop's employees and will minimize errors. Overall, the program will make it easier for the laptop rental shop to manage its business and provide quality service to its customers.

1.2 GOALS AND OBJECTIVES

Goals:

- To develop a program that will help the laptop rental shop manage its inventory and transactions efficiently.
- To enable the program to read a text file containing information about available laptops and update it in real-time.
- To create a user-friendly program that can handle different types of transactions, including ordering laptops from manufacturers and selling laptops to customers.
- To generate notes or invoices automatically for each transaction, containing all the necessary details.
- To enable the program to update the inventory text file automatically after every transaction, reflecting the current stock of each laptop.

Objectives:

- Develop a feature that can read and process the data in the text file, ensuring that it is displayed accurately in the program.

- Implement a simple and intuitive user interface for customers to place orders and for the rental shop to manage inventory.

- Create a feature that automatically updates the stock of each laptop after each transaction, ensuring that it is accurate at all times.

- Develop a feature that generates detailed transaction records for each sale and order made in text file.

- Ensure that the program is thoroughly tested and debugged to ensure that it is reliable and can handle a large volume of transactions and operations.

2. DISCUSSION AND ANALYSIS

2.1 ALGORITHM

An algorithm is a step-by-step procedure for solving a problem or achieving a specific objective. It is a set of instructions or rules that define how a program will execute a task. An algorithm typically takes inputs, performs a set of operations, and produces an output

The Algorithm of the program to make laptop managing system for Rental Shop is given below :-

Step 1: START

Step 2: Display the main menu options.

Step 3: Input the user's choice, either 1 or 2.

Step 4: If the choice is 1, go to step 5. If the choice is 2, end the program.

Step 5: Display the task menu options for Display, Sell, Order Back, and Exit.

Step 6: Input the user's option, either 0, 1, 2, or 3.

Step 7: If the option is 0, display all available laptops and go back to step 5.

Step 8: If the option is 1,

> **a)** Display the available laptops.
>
> **b)** Input the product information from the user.
>
> **c)** If the product information is correct and available, decrease the quantity of the product in the text file, print and write the sell invoice, and go back to step 5. Otherwise, print "Item unavailable" and go back to step 5.

Step 9: If the option is 2,

> **a)** Display the available laptops.

b) Input the product information from the user.

c) If the product already exists in the text file, increase the quantity of the product and go to step 10. If the product doesn't exist, add it to the text file and go to step 10.

Step 10: Print and write the order invoice, and go back to step 5.

Step 11: If the option is 3, go back to step 5.

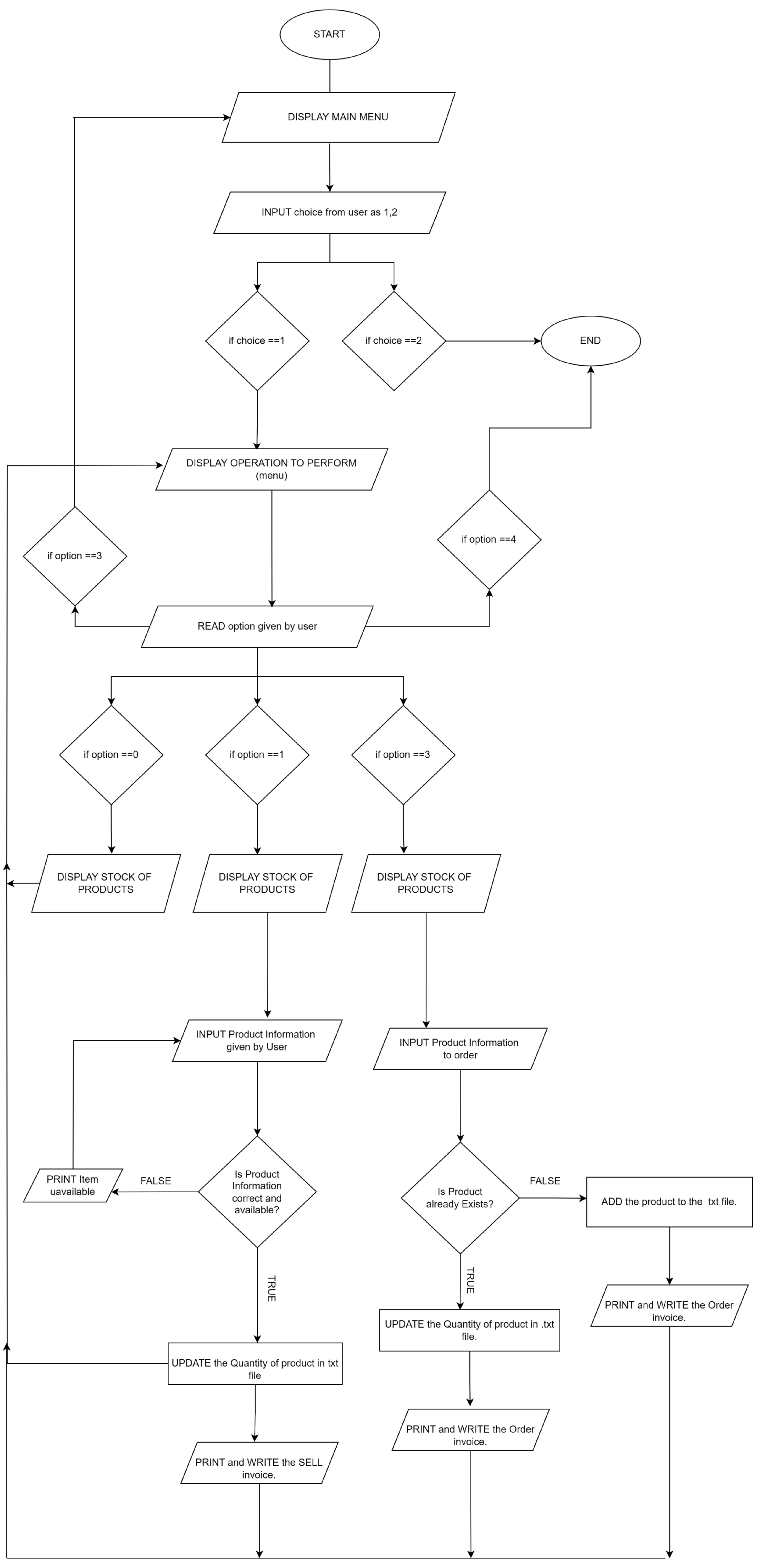
Step 12: If the option is 4, end the program.

In summary, the algorithm first displays a main menu with two options 1 and 2. If the user selects option 2 the program will end and if user select option 1, a task menu is displayed with five options 0 ,1,2,3 and 4. The user then can select an option to display all available laptops, sell a laptop, order a laptop back, or exit the program by giving 0 ,1,2,3 and 4 respectively. The program then prompts the user to input the required information to perform the chosen task. Depending on the user's input, the program will either decrease the quantity of a laptop and print a sell invoice, increase the quantity of a laptop and print an order invoice, display all available laptops, go back or exit the program.

2.2 FLOWCHART

A flowchart is a visual way of illustrating an algorithm, frequently utilized by programmers as a planning tool to solve problems. The symbols in a flowchart are interconnected to demonstrate the flow of information and processing (NishuAggarwal, 2023).

The Flowchart of the program to make laptop managing system for Rental Shop is given below :-



START
DISPLAY MAIN MENU
INPUT choice from user as 1,2
if choice ==1
if choice ==2
END
DISPLAY OPERATION TO PERFORM (menu)
if option ==3
if option ==4
READ option given by user
if option ==0
if option ==1
if option ==3
DISPLAY STOCK OF PRODUCTS
DISPLAY STOCK OF PRODUCTS
DISPLAY STOCK OF PRODUCTS
INPUT Product Information given by User
INPUT Product Information to order
PRINT Item uavailable
FALSE
Is Product Information correct and available?
Is Product already Exists?
FALSE
ADD the product to the txt file.
TRUE
TRUE
PRINT and WRITE the Order invoice.
UPDATE the Quantity of product in .txt file.
UPDATE the Quantity of product in txt file
PRINT and WRITE the Order invoice.
PRINT and WRITE the SELL invoice.

2.3 PSEUDOCODE

2.3.1 PSEUDOCODE FOR MODULE (main.py)

```
IMPORT the required modules

DEFINE a function named “display_menu” that takes no arguments

            PRINT welcome message and shop information

            PRINT main menu options

WHILE True:

    CALL display_menu function

    GET a value from user as 1 or 2 and store it into user_choice

    IF user_choice is '1':

        WHILE TRUE:

                  PRINT a option box for choosing sell/order/back/exit

                  GET a value from user as 1,2,3 or 4 and store it into sell_order_choice

                   IF sell_order_choice is '1':

                             CALL  username function from operation module

                              CALL  display_products function from read module

                              CALL  sell_products function from operation module

                   END IF

                   ELSE IF sell_order_choice is '0':

                                  PRINT “the available laptops in stock are”

                                 CALL  display_products function from read module

                   END IF
                   ELSE IF sell_order_choice is '2':
                       CALL  display_products function from read module
                       CALL  order_products function operation module
                   END IF

                   ELSE IF sell_order_choice is '3':
                              BREAK inner loop
                   END IF
                   ELSE IF sell_order_choice is '4':
                              EXIT PROGRAM
                   END IF

                   ELSE
                              PRINT invalid choice ERROR MESSAGE
        END WHILE
    ELSE IF user_choice is '2':
        EXIT PROGRAM
    END IF

    ELSE
        PRINT invalid choice ERROR MESSAGE
END WHILE
```

2.3.2 PSEUDOCODE FOR MODULE (read.py)

```
DECLARE path as a variable and SET its value to "product_info.txt"
CREATE an empty list named datalist

OPEN file at path in read mode
    FOR each line in file
        STRIP and SPLIT line by ","
        APPEND line to datalist
    END FOR
CLOSE file

DEFINE a function named display_products that takes no arguments
    PRINT a formatted table header with column names for ID, Product, Brand, Price, Quantity, Processor, and Graphics
    FOR each item in datalist
        PRINT a formatted table row with data for ID, Product, Brand, Price, Quantity, Processor, and Graphics
    END FOR
```

2.3.3 PSEUDOCODE FOR MODULE (operation.py)

```
IMPORT the required modules

DEFINE global variables name_, noOfItems, customername_, sell_count, issingleSell,
mul_sell and ship

DEFINE a function named "sell_products" that takes no arguments
    SET multiple_sells to an empty list
    SET sell to True
    WHILE sell is True:
        SET id_ to None
        WHILE True:
            PRINT a message to prompt the user to enter the ID of the laptop they want to
buy
            GET the ID from the user and store it in id
            FOR each laptop_info in datalist of read module:
                        IF id is in laptop_info:
                                    SET id_ to id
                                    BREAK out of the inner loop
                        END IF
                         ELSE:
                              PRINT a message telling that no laptop was found and to enter a
        valid ID
                              CONTINUE to the next iteration of the outer loop
                        BREAK out of the outer loop
            END FOR
        END WHILE
```

```
SET global variable noOfItems
WHILE True:
    TRY:
        SET global variable sell_count
        PRINT a message to prompt the user to enter the number of items they want to sell
        GET the number of items from the user and store it in sell_count
        IF sell_count is greater than 0:
            SET noOfItems to sell_count
            BREAK out of the loop
        END IF
        ELSE:
            PRINT an error message indicating that the user should enter a valid number greater than 0
    EXCEPT ValueError:
        PRINT an error message indicating that the user should enter a numeric value
END WHILE

FOR each block in datalist of module read:
  FOR each inner_element in block:
    IF id_ (in lowercase) is equal to inner_element (in lowercase):
```

```
IF sell_count is greater than total available items or total available items is less than or equal to 0:
    PRINT a message indicating that the item is out of stock
END IF
ELSE:
  PRINT the total number of items available in stock
  SET rem_product as difference of total available items and sell_count
  UPDATE the value of total available items
  SET sold_items to an empty list
  SET sold_items to a copy of block
  APPEND noOfItems to sold_items
  APPEND sold_items to multiple_sells
  SET mul_sell to a copy of multiple_sells
  SET continue_ to True
  WHILE continue_ is True:
     PRINT a message prompting the user to enter whether they want to continue selling or not
    GET the answer from the user and store it in ans
    IF ans (in lowercase) is equal to "n":
       SET sell to False
       SET continue_ to False
    END IF
    ELSE IF ans (in lowercase) is equal to "y":
           SET global variable issingleSell
           SET sin_sell to False
           SET issingleSell to sin_sell
           SET continue_ to False
    END IF
    ELSE:
```

```
                    PRINT an error message indicating that the user should enter either "y" or "n"
                END WHILE
            END IF
        END FOR
    END FOR
WHILE True:
    PRINT a message prompting the user to enter whether they want their item to be shipped or not
    GET the answer from the user and store it in confirm_
    IF confirm_ is equal to "y":
            SET global variable ship
            SET ship_ to True
            SET ship to ship_
            PRINT a thank you message indicating that the stock has been updated and the sell bill has been generated
            BREAK out of the loop
    END IF
    ELSE IF confirm_ is equal to "n":
            SET ship_ to False
            SET ship to ship_
            PRINT a thank you message indicating that the stock has been updated and the sell bill has been generated
            BREAK out of the loop
    END IF
    ELSE:
        PRINT an error message indicating that the user should enter either "y" or "n
```

```
END WHILE
CALL update function from write module
CALL sell_invoice function from write module

INITILIZE productname, brandname, processor, price, graphics, quantity, customername_, issinleOrder and multiple_order
DEFINE function order_products
  INITILIZE order to True
  WHILE order is True
    PRINT prompt for user to enter laptop information

    WHILE True:
      SET global variable productname
      PROMT user for product name and store in Product_name
      IF Product_name is not numeric and not empty
          SET productname to Product_name
          BREAK out of inner while loop
      END IF
      ELSE:
        PRINT error message for invalid input
   END WHILE

   WHILE True:
    SET global variable brandname
    PROMT user for brand name and store in Brand_name
    SET brandname to Brand_name
    IF Brand_name is not numeric and not empty:
            SET brandname to Brand_name
            BREAK out of while loop
        ELSE:
            PRINT error message for invalid input
        END IF
END WHILE
WHILE True:
    SET global variable processor
    PROMT user for processor details and store in PROCESSOR
    IF PROCESSOR is not numeric and not empty:
        SET processor to PROCESSOR
        BREAK out of while loop
    END IF
    ELSE:
        PRINT error message for invalid input
END WHILE

WHILE True
    TRY
        SET global variable price
        PRINT a blank line
        PRINT a line separator
        PROMT user for product price and store in PRICE as an integer
        PRINT a line separator and a blank line
        IF PRICE is greater than 0:
            SET price to PRICE
            BREAK out of while loop
        END IF
        ELSE:
            PRINT error message for invalid input
    EXCEPT ValueError:
        PRINT error message for invalid input
END WHILE

WHILE True
    SET global variable graphics
    PRINT a blank line
    PROMPT user for graphics details and store in GRAPHICS
    IF GRAPHICS is not numeric and not empty:
        SET graphics to GRAPHICS
        BREAK out of while loop
    END IF
    ELSE:
        PRINT error message for invalid input
END WHILE

WHILE True
    TRY
        SET global variable quantity
        PROMPT user for quantity and store in Quantity as an integer
        IF Quantity is greater than 0:
            SET quantity to Quantity
            BREAK out of while loop
        END IF
        ELSE
            PRINT error message for invalid input
    EXCEPT ValueError:
        PRINT error message for invalid input
END WHILE

SET order_items to list containing productname, brandname, price, quantity, processor
and graphics
APPEND order_items to multiple_order
SET continue_ to True
WHILE continue_ is True
    PROMPT user for continuation and store in ans
    IF ans is "n"
        SET order to False
        SET continue_ to False
        PRINT confirmation message for order placement
    END IF
    ELSE IF ans is "y"
        SET global variable issinleOrder to False
        SET continue_ to False
        CALL udpate_order function from write module
    END IF
    ELSE
        PRINT error message for invalid input
 END WHILE
CALL order_invoice function from write object
CALL udpate_order function from write object
```

```
DEFINE function username
    WHILE True
        PROMPT user for customer name and store in customername
        IF customername is not numeric and not empty
            SET global variable customername_ to customername
            BREAK out of while loop
        END IF
        ELSE
            PRINT error message for invalid input
    END WHILE

DEFINE function screen_display_Sorder
    SET netamt to price times quantity
    SET vatamt to price times 0.13 times quantity
    SET grossamt to  sum of netamt and vatamt
    SET head1, data1 and foot1 to information required to display in bill
    PRINT head1
    PRINT data1
    PRINT foot1

DEFINE function screen_display_Morder

    SET header to formatted string containing line separator
    SET table_header to formatted string containing table column headers
    SET name to formatted string containing distributor name
    SET address to formatted string containing distributor address
    SET cont to formatted string containing distributor contact information
    SET space to formatted string containing blank line separator
    SET dots to formatted string containing dotted line separator
    SET rdots to formatted string containing dotted line separator
    SET distributorname to formatted string containing distributor name
```

```
  SET Date to formatted string containing current date from write module
  SET Time to formatted string containing current time from write module
  SET greet to formatted string containing thank you message
  PRINT header
  PRINT name
  PRINT space
  PRINT address
  PRINT space
  PRINT cont
  PRINT dots
  PRINT distributorname
  PRINT Date
  PRINT Time
  PRINT header
  PRINT table_header
  PRINT header

SET total_amount to 0
SET total_vat to 0
SET amount_with_vat to 0
SET t_items to 0
FOR each item i in multiple_order
  DECLARE variable total_amount  to get total amount of orders
  DECLARE variable total_vat  to store vat amount
  DECLARE variable amount_with_vat  to store total amount with vat
  DECLARE variable t_items to store total items
```

```
    PRINT formatted string containing order details for item i
END FOR
PRINT header
SET total_bar to formatted string containing total amounts and quantity
PRINT total_bar
PRINT rdots
PRINT greet
PRINT header
```

2.3.4 PSEUDOCODE FOR MODULE (write.py)

```
IMPORT all the required libraries
GET current date and time and store in variable now
DEFINE function sell_invoice
    CONVERT year, month, day, hour, minute and second to strings
    CONCATENATE date and time strings and store in variable date_and_time_st
    CREATE base filename using customer name and date and time strings
    DEFINE path to save invoice file
    OPEN invoice file for writing
    IF single sell:
        FOR each block in datalist
            FOR each inner element in block
                IF id matches with inner element:
                    SET invoice info list to block
                    IF ship is true:
                        CALCULATE shipping amount as 25% of price times number of items
                        CALCULATE total amount with shipping as shipping amount plus price times number of items
                    END IF
                    ELSE IF ship is false:
                        SET shipping amount to 0
                        CALCULATE total amount with shipping as shipping amount plus price times number of items
                    END IF
                    SET head to formatted string with shop information
                    SET data to formatted string with customer and laptop information
                    SET foot to formatted string with thank you message
                WRITE head to invoice file
                WRITE data to invoice file
                WRITE foot to invoice file
                PRINT head
                PRINT data
                PRINT foot
              END IF
            END FOR
          END FOR
        END IF
        ELSE:
       SET header to formatted string with equal signs
       SET table_header to formatted string with column headers
       SET name to formatted string with shop name
       SET address to formatted string with shop address
       SET space to formatted string with spaces
       SET cont to formatted string with shop contact number
       SET dots to formatted string with dashes
       SET rdots to formatted string with dots
       SET Customername to formatted string with customer name
       SET Date to formatted string with date of purchase
       SET Time to formatted string with time of purchase
       SET greet to formatted string with thank you message

      WRITE header to invoice file
     WRITE name to invoice file
     WRITE space to invoice file
```

```
WRITE address to invoice file
WRITE space to invoice file
WRITE cont to invoice file
WRITE space to invoice file
WRITE dots to invoice file
WRITE Customername to invoice file
WRITE Date to invoice file
WRITE Time to invoice file
WRITE header to invoice file
WRITE table_header to invoice file
WRITE header to invoice file
WRITE header to invoice file

PRINT header, name, space, address, space, cont, space, dots, Customername, Date,
Time, header,  table_header, header respectively

SET total_amount to 0
SET total_shipping to 0
SET amount_with_shipping to 0
SET t_items to 0
FOR each item in mul_sell
    ADD price times quantity to total_amount
    ADD 25% of price times quantity to total_shipping
    IF ship is true:
        ADD price plus 25% of price times quantity to amount_with_shipping
    END IF
    ELSE IF ship is false:
        **ADD** price times quantity to amount_with_shipping
    **END IF**

    **ADD** quantity to t_items
    **IF** ship is true:
        **WRITE** formatted string with item information to invoice file
        **PRINT** formatted string with item information
    **END IF**
    **ELSE IF** ship is false:
        **WRITE** formatted string with item information to invoice file
        **PRINT** formatted string with item information
    **END IF**
**END FOR**
**WRITE** header to invoice file
**IF** ship is true:
    **SET** total_bar to formatted string with total amounts and quantity
**END IF**
**ELSE IF** ship is false:
    **SET** total_bar to formatted string with total amounts and quantity
**END IF**
**WRITE** total_bar to invoice file
**WRITE** rdots to invoice file
**WRITE** greet to invoice file
**WRITE** header to invoice file

**PRINT** header, total_bar, rdots, greet, header respectively
```

```
DEFINE function update
    OPEN file specified by path from read module for writing
    FOR each block in datalist of read module
        JOIN elements of block with comma separator
        WRITE joined elements to file followed by newline
    END FOR
    CLOSE file
DEFINE function order_invoice
    CONVERT year, month, day, hour, minute and second to strings
    CONCATENATE date and time strings and store in variable date_and_time_str
    CREATE base filename using product name and date and time strings
    DEFINE path to save order invoice file

    CALCULATE net amount as price times quantity
    CALCULATE vat amount as 13% of price times quantity
    CALCULATE gross amount as net amount plus vat amount
    OPEN order invoice file for writing
      IF single order:
        SET head1 to formatted string with shop information
        SET data1 to formatted string with distributor and laptop information
        SET foot1 to formatted string with thank you message
        WRITE head1 to order invoice file
        WRITE data1 to order invoice file
        WRITE foot1 to order invoice file
        CALL screen_display_Sorder function from op module
      END IF
      DEFINE Header as a string of "+" and"=" characters
      DEFINE Table_header as a formatted string with column titles
      DEFINE Name, address, and cont as formatted strings with shop information
      DEFINE Space as a string of "+" and " "
      DEFINE Dots as a string of "+" and "-" characters
      DEFINE Distributorname, Date, and Time as formatted strings with distributor and purchase information
      DEFINE Greet as a formatted string with a thank you message
    WRITE Header, Name, Space, Address, Space, Cont, Dots, Distributorname, Date, Time, Header to orderInvoice file in that order
    INITIALIZE total_amount, total_vat, amount_with_vat, and t_items to 0
    FOR each item in op.multiple_order:
        UPDATE total_amount by adding the product of the item's price and quantity
        UPDATE total_vat by adding 13% of the product of the item's price and quantity
        UPDATE amount_with_vat by adding the product of the item's price, quantity, and 1.13
        UPDATE t_items by adding the item's quantity
        WRITE a formatted string with item information to orderInvoice file
    END FOR
    WRITE header to orderInvoice file
    DEFINE total_bar as a formatted string with total_amount, total_vat, amount_with_vat, and t_items
    WRITE total_bar to orderInvoice file
    WRITE rdots, greet, and header to orderInvoice file in that order
    CALL screen_display_Morder() function from operation module
```

```
DEFINE udpate_order function
GET ID_num from the last element of the last list in datalist
INCREMENT id_num by 1
FOR each list in datalist:
   IF productname, brandname, processor, and graphics are in the list:
      UPDATE upd_noofitems by adding quantity to existing no of items
      UPDATE the existing no of items with upd_noofitems
      CALL update() function
      BREAK out of the loop
   END IF
END FOR
ELSE:
   DEFINE new_orderitem as a list with productname, brandname, price, quantity,
processor, graphics, and id_num
   OPEN path file in append mode
      WRITE new_orderitem as a comma-separated string to file
INITIALIZE datalist as an empty list
OPEN path file in read mode
        FOR each line in file:
           STRIP and split line by ","
           APPEND line to datalist
        END FOR
```

2.4 DATA STRUCTURES

Data structures are a means of arranging data in a manner that allows for more efficient access depending on the circumstances. They serve as the foundational building blocks of programming languages, upon which programs are constructed. Python simplifies the process of learning these fundamental data structures compared to other programming languages (geeksforgeeks, 2023).

The DataStructures which is mostly used in python are:-

Lists:

A list is a built-in data structure in Python that represents an ordered collection of elements. Lists can contain elements of different types, including integers, floats, strings, and other objects. Lists are mutable, which means that their elements can be added, removed, or modified after creation. Lists are enclosed in square brackets [] and elements are separated by commas. Lists support many useful methods, such as append, extend, insert, remove, and sort, which make it easy to work with them.

Example:

myList = [1, 2, 3, "four", 5.0]

This list contains integers, a string, and a floating-point number.

Tuples:

A tuple is another built-in data structure in Python that represents an ordered, immutable collection of elements. Tuples can contain elements of different types, including integers, floats, strings, and other objects. Tuples are similar to lists, but they cannot be modified after creation. Tuples are enclosed in parentheses () and elements are separated by commas. Tuples are useful when you need to store a fixed set of values that should not be changed during program execution.

Example:

myTuple = (1, 2, 3, "four", 5.0)

This tuple contains integers, a string, and a floating-point number.

Sets:

A set is a built-in data structure in Python that represents an unordered collection of unique elements. Sets can contain elements of different types, including integers, floats, strings, and other objects. Sets are enclosed in curly braces {} or can be created using the set() constructor. Sets support many useful methods, such as add, remove, union, intersection, and difference, which make it easy to work with them. Sets are useful when you need to store a collection of unique values and perform set operations on them.

Example:

mySet = {1, 2, 3, 4, 5}

This set contains integers and does not allow duplicate elements.

Dictionaries:

A dictionary is a built-in data structure in Python that represents an unordered collection of key-value pairs. Dictionaries can contain elements of different types as keys and values, including integers, floats, strings, and other objects. Dictionaries are enclosed in curly braces {} or can be created using the dict() constructor. Dictionaries support many useful methods, such as get, items, keys, and values, which make it easy to work with them. Dictionaries are useful when you need to store a collection of key-value pairs and access them using their keys.

Example:

myDict = {"name": "John", "age": 30, "city": "New York"}

This dictionary contains key-value pairs, where the keys are strings and the values can be any data type.

Strings:

A string is a built-in data type in Python that represents an ordered sequence of characters. Strings can contain any printable ASCII character or Unicode character, including letters, digits, symbols, and whitespace. Strings are enclosed in either single quotes '' or double quotes "", and triple quotes """ """ can be used to create multi-line strings. Strings are immutable, which means that their contents cannot be changed after creation. Strings support many useful methods, such as lower, upper, replace, and split, which make it easy to work with them. Strings are useful when you need to store and manipulate text or character data.

Example:

myString = "Hello, World!"

This string contains the characters "Hello, World!".

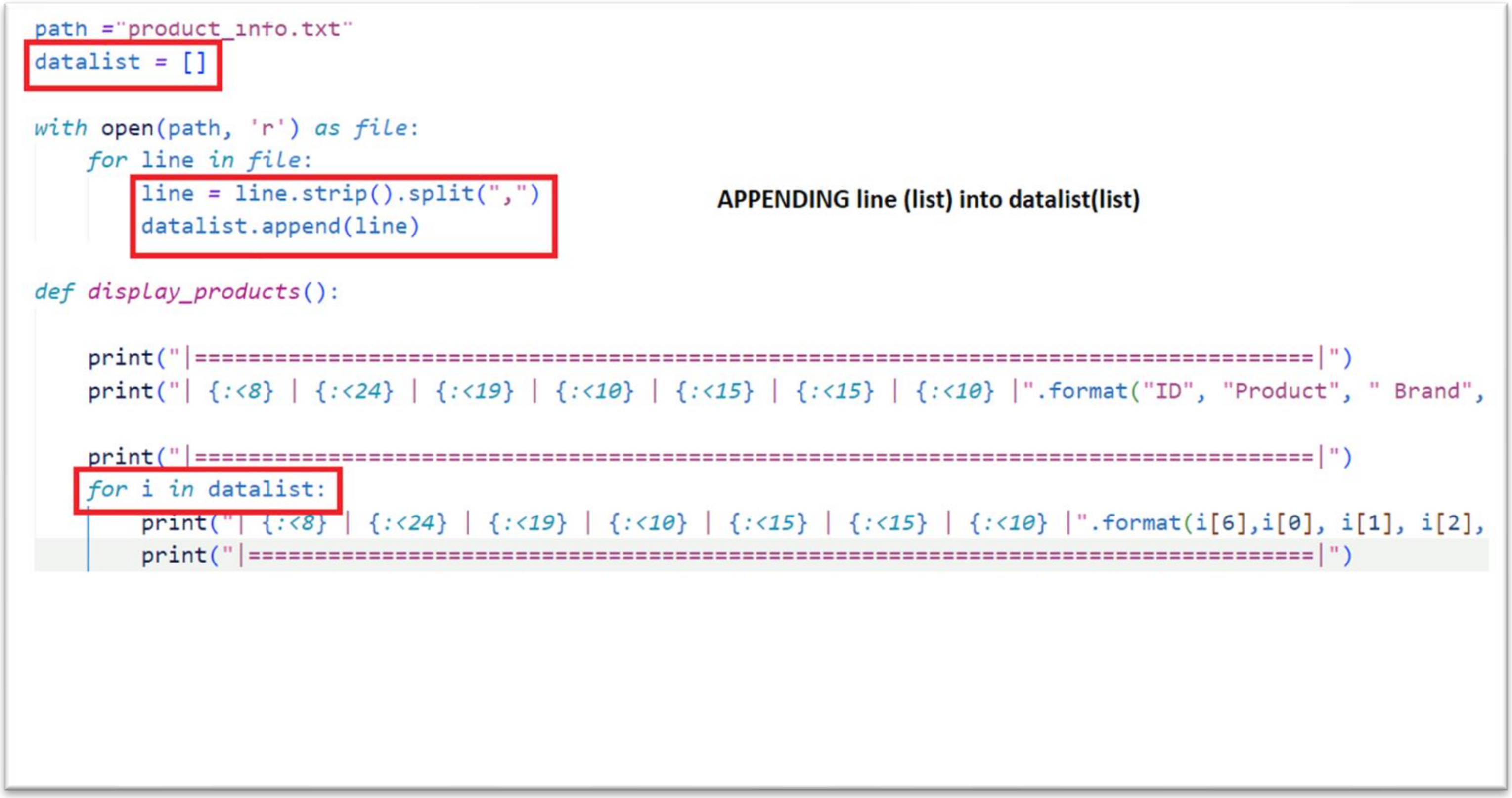
2.4.1 DATA STRUCTURES I USED IN MY PROJECT

In my project, I used lists and strings as a way to organize data. The use of lists was particularly useful in maintaining the order of the elements, which was important in organizing the laptop information. Each laptop had multiple values associated with it, including the name, brand, price, processor, graphics, and ID number. A 2D list allowed me to store all of these values for each laptop in a single element of the list, making it easy to access and modify them using index. This was particularly useful when displaying the laptop details to the user on the screen, as I could simply iterate through the list and print out the details for each laptop.

On the other hand, using a dictionary would have required a unique key for each laptop, which could have been more complicated to manage. It would also have been more difficult to maintain the order of the laptops, as dictionaries do not inherently preserve order. While dictionaries can be useful for storing data where the keys are meaningful and need to be referenced frequently, in this case a 2D list was more appropriate.

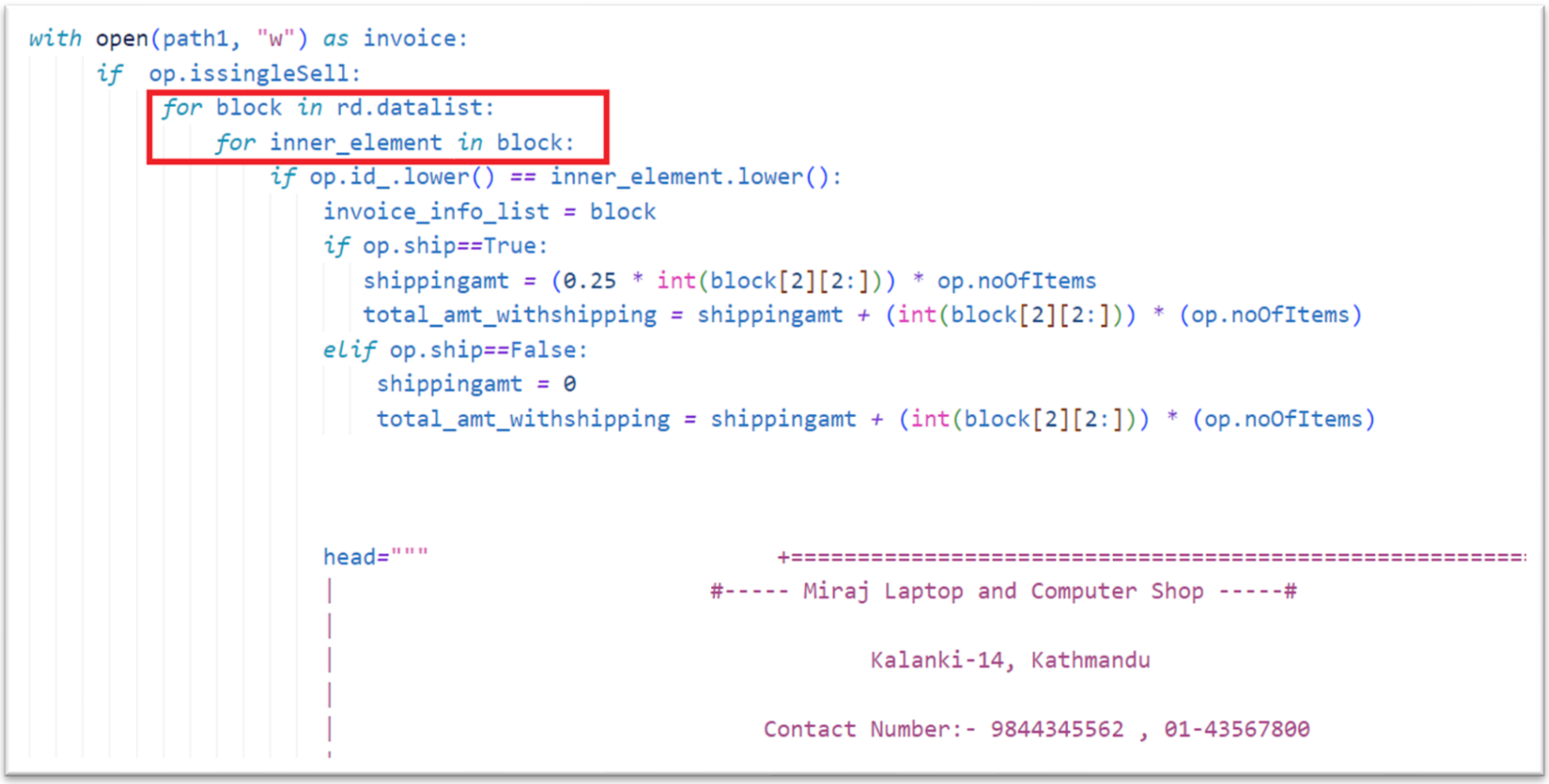
The 2D list also allowed me to easily access the data and facilitate the selling and buying process. When a user requested to purchase a laptop, I could simply retrieve the details from the appropriate element of the list using index and update the relevant fields accordingly. The same approach was used for updating the text file and generating invoices.

Finally, strings were used extensively throughout the project for data manipulation. This was particularly useful when working with user input and file handling, where the ability to perform operations such as slicing, stripping, joining, popping, and replacing was invaluable. Using strings allowed for more flexible and efficient handling of the data, which was particularly important given the dynamic nature of the project.



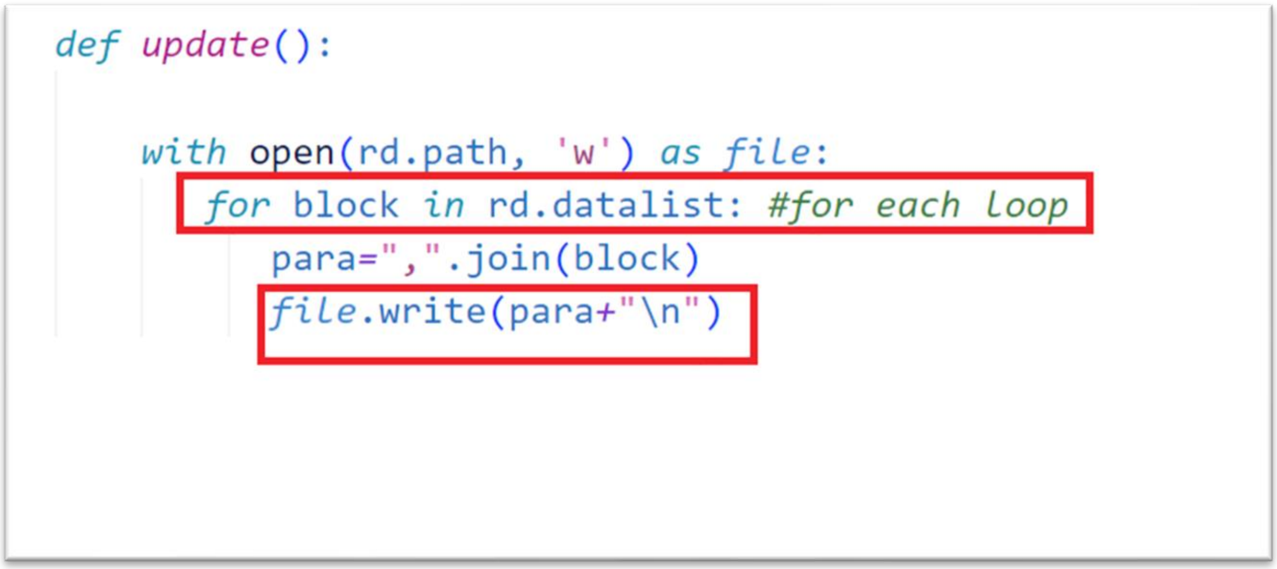
```
path ="product_info.txt"
datalist = []

with open(path, 'r') as file:
    for line in file:
        line = line.strip().split(",")
        datalist.append(line)

def display_products():

    print("|=====================================================================================|")
    print("| {:<8} | {:<24} | {:<19} | {:<10} | {:<15} | {:<15} | {:<10} |".format("ID", "Product", " Brand",

    print("|=====================================================================================|")
    for i in datalist:
        print("| {:<8} | {:<24} | {:<19} | {:<10} | {:<15} | {:<15} | {:<10} |".format(i[6],i[0], i[1], i[2],
        print("|=================================================================================|")
```

Figure 1: using 2d list to get data from txt file and using it for displaying available items on user screen



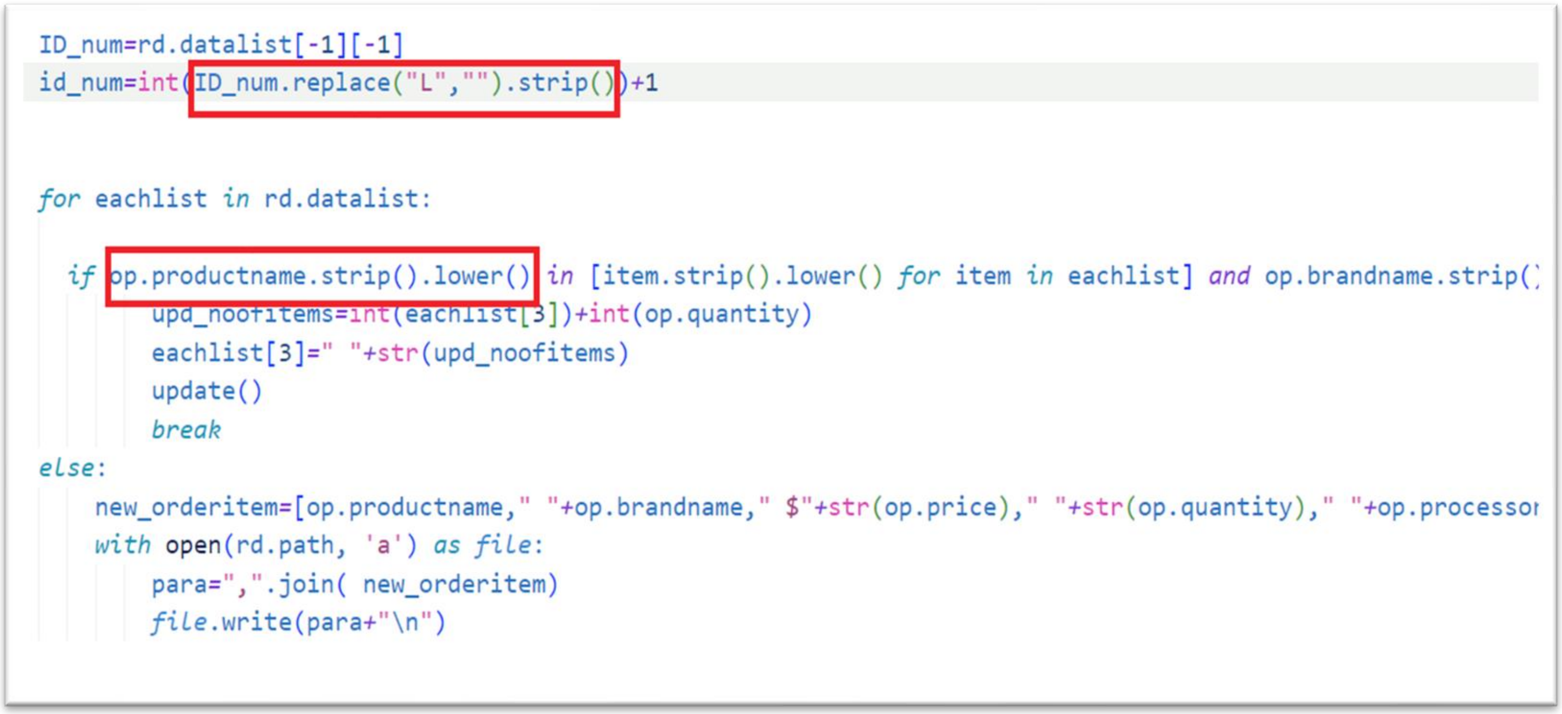
```
with open(path1, "w") as invoice:
    if  op.issingleSell:
        for block in rd.datalist:
            for inner_element in block:
                if op.id_.lower() == inner_element.lower():
                    invoice_info_list = block
                    if op.ship==True:
                       shippingamt = (0.25 * int(block[2][2:])) * op.noOfItems
                       total_amt_withshipping = shippingamt + (int(block[2][2:])) * (op.noOfItems)
                    elif op.ship==False:
                        shippingamt = 0
                        total_amt_withshipping = shippingamt + (int(block[2][2:])) * (op.noOfItems)



                    head="""                                 +==========================================================
                    |                             #----- Miraj Laptop and Computer Shop -----#
                    |
                    |                                          Kalanki-14, Kathmandu
                    |
                    |                                  Contact Number:- 9844345562 , 01-43567800
```

Figure 2: using 2d list to generate the invoice



```
def update():

    with open(rd.path, 'w') as file:
        for block in rd.datalist: #for each loop
            para=",".join(block)
            file.write(para+"\n")
```

Figure 3: using 2d list to update the txt file of laptops after sell and order



```
ID_num=rd.datalist[-1][-1]
id_num=int(ID_num.replace("L","").strip())+1


for eachlist in rd.datalist:

    if op.productname.strip().lower() in [item.strip().lower() for item in eachlist] and op.brandname.strip(
            upd_noofitems=int(eachlist[3])+int(op.quantity)
            eachlist[3]=" "+str(upd_noofitems)
            update()
            break
else:
    new_orderitem=[op.productname," "+op.brandname," $"+str(op.price)," "+str(op.quantity)," "+op.processor
    with open(rd.path, 'a') as file:
        para=",".join( new_orderitem)
        file.write(para+"\n")
```

Figure 4: using String to perform different operation on it (replace,lower,strip)

3. PROGRAM

3.1 Implementation of the program (Overall program with short explanation)

In This Project I designed a program to facilitate the buying and selling of laptops, with a focus on using the file handling concept in Python to manage the data. The program is divided into four modules that work together to provide a smooth and efficient user experience.

The **first module, main.py**, is the user interface for the program. It is the most interactive module and allows users to select from several options, including selling laptops, buying laptops, or exiting the program. The module consists of a menu that is displayed on the user's screen, and it is responsible for controlling all other modules in the program. One of the key features of this module is the infinite loop that runs until the user selects the "exit" option.

The **second module, read.py**, is responsible for retrieving data from the text file containing laptop information. It reads the data and filters it, then stores it into a 2D list. The data is then used to display the current stock of laptops on the user's screen. This module provides a convenient way for users to view the available laptops and their quantities, helping them make informed decisions about buying and selling.

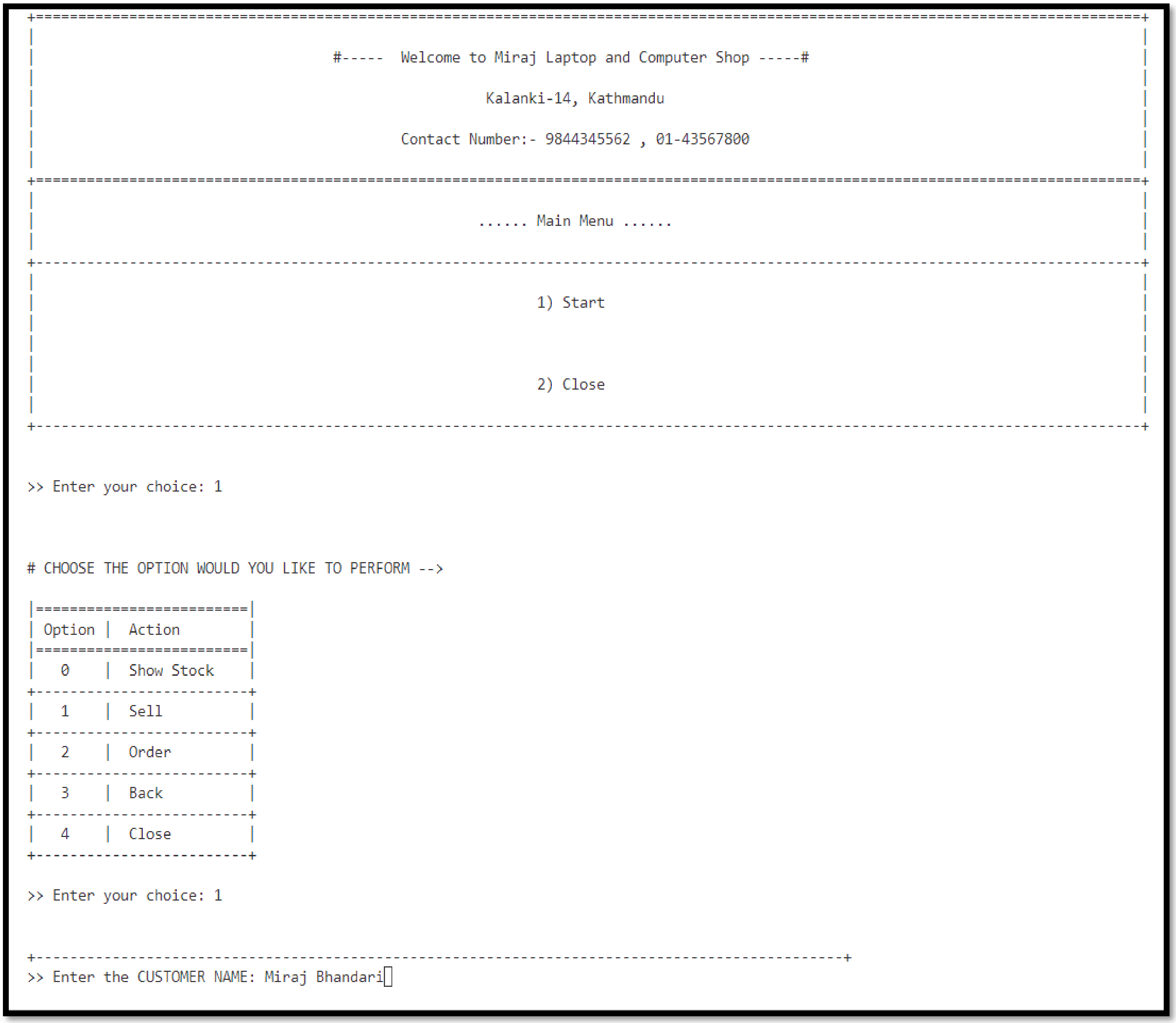
The **third module, operation.py**, handles the logic of the program. It prompts the user for input values, such as the laptop name, quantity, and customer name, and checks the validity of the input. Based on the user's input, the module performs further operations to sell or purchase laptops. For example, if a user wants to sell a laptop, the module will check if the laptop is in stock, and if so, it will deduct the sold quantity from the current stock. On the other hand, if a user wants to buy a laptop, the module will add the purchased quantity to the stock.

The **fourth and final module, write.py**, handles the write operations on the text file. It generates an invoice after every sale, which includes details such as the customer name, laptop name, quantity, and price. It also updates the laptop details text file after every transaction to reflect the current stock of laptops. This module ensures that the data is always accurate and up-to-date, providing users with reliable information for making informed decisions.

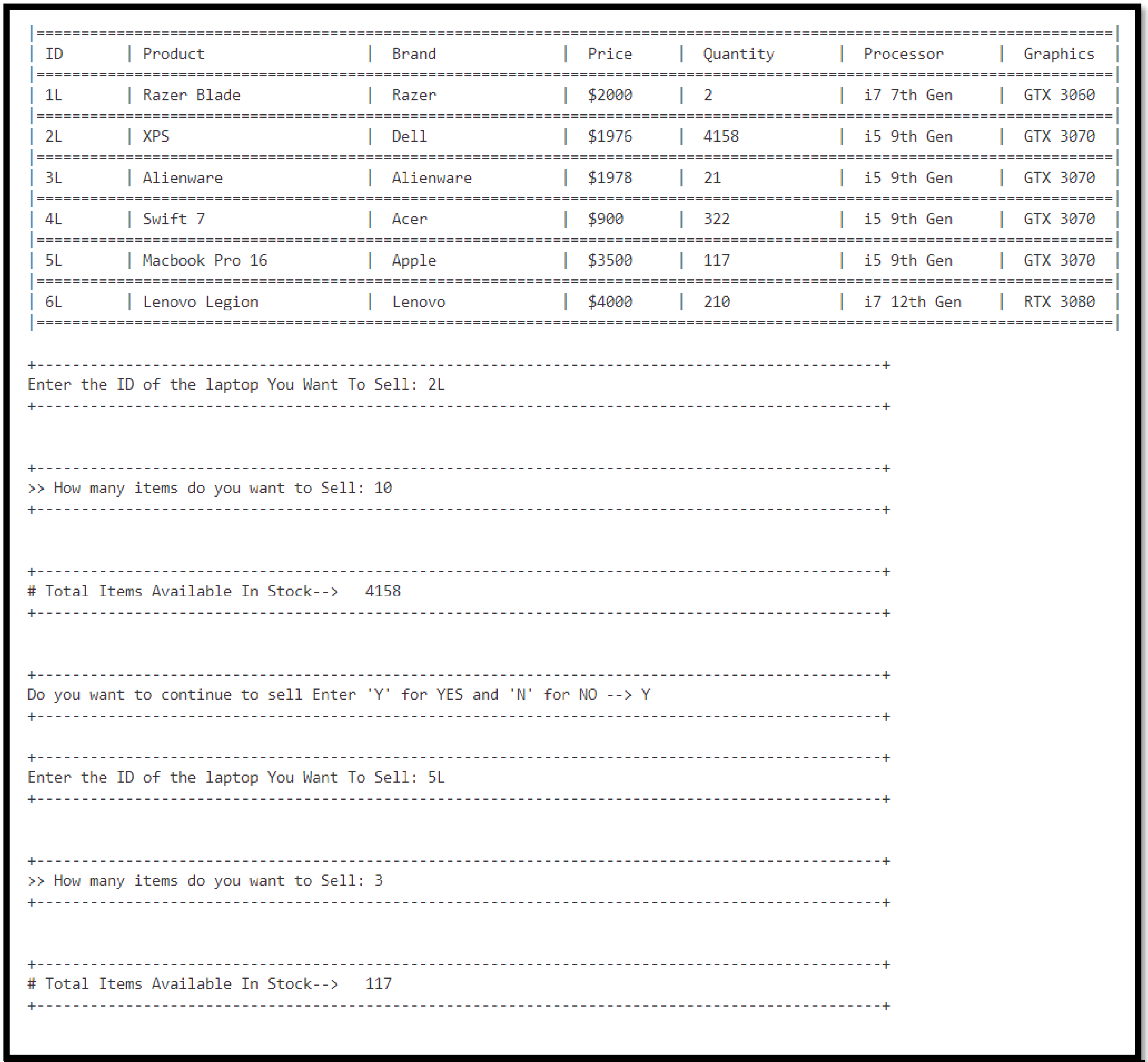
In **conclusion,** this program is a valuable tool for managing laptop transactions, providing users with a user-friendly interface, up-to-date stock information, and accurate sales and purchase data. By leveraging the file handling concept in Python, this program offers a powerful solution for businesses and individuals looking to streamline their laptop buying and selling processes.

3.2 Showing the complete process for the purchase and sale of the laptops

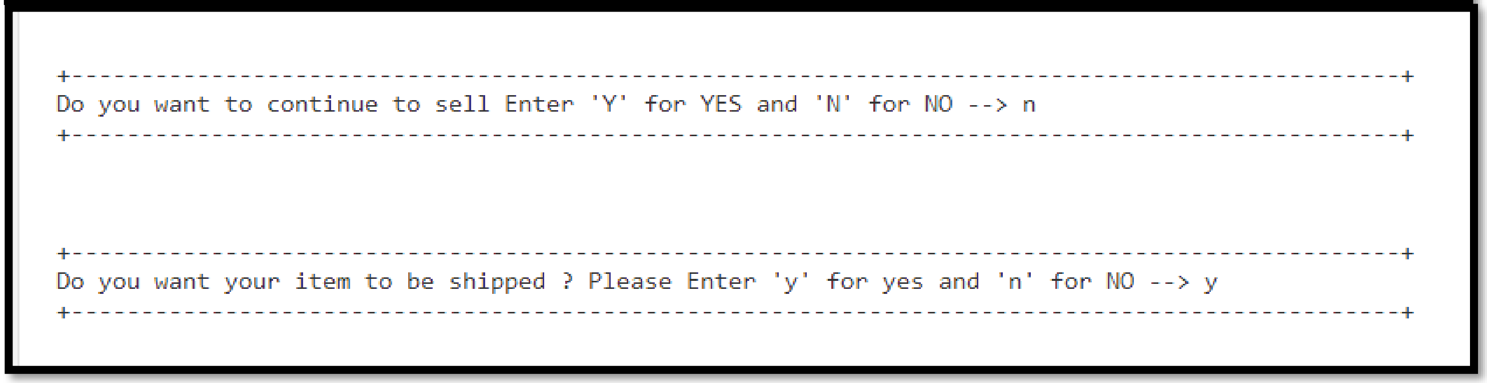
FOR SELLING OF LAPTOPS



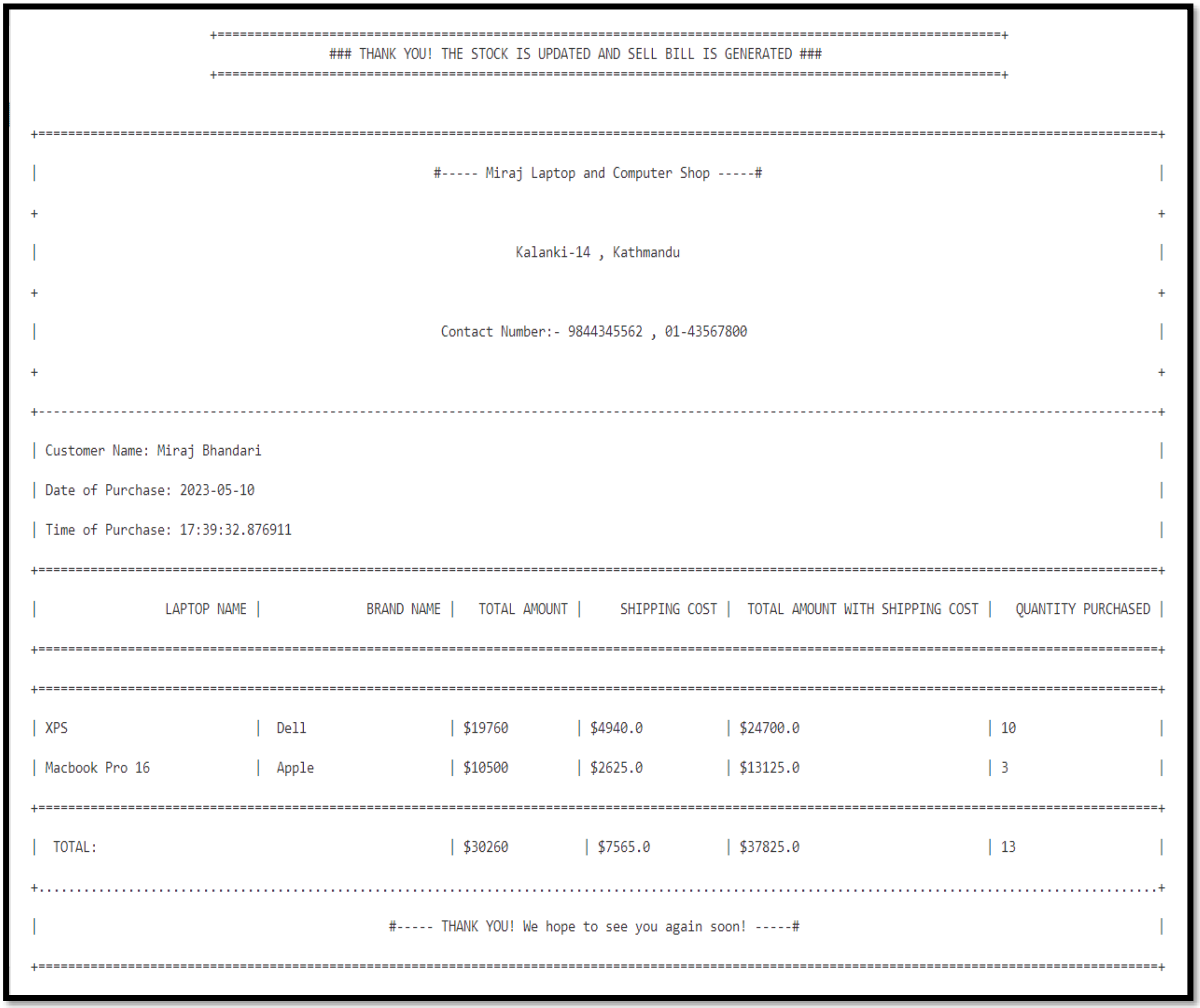
```
+======================================================================================================+
|
|                         #-----  Welcome to Miraj Laptop and Computer Shop -----#                     |
|
|                                      Kalanki-14, Kathmandu                                           |
|
|                          Contact Number:- 9844345562 , 01-43567800                                   |
|
+======================================================================================================+
|
|                                       ...... Main Menu ......                                        |
|
+------------------------------------------------------------------------------------------------------+
|
|                                            1) Start                                                  |
|
|
|
|                                            2) Close                                                  |
|
+------------------------------------------------------------------------------------------------------+


>> Enter your choice: 1



# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|========================|
| Option |  Action       |
|========================|
|   0    |  Show Stock   |
+------------------------+
|   1    |  Sell         |
+------------------------+
|   2    |  Order        |
+------------------------+
|   3    |  Back         |
+------------------------+
|   4    |  Close        |
+------------------------+

>> Enter your choice: 1


+----------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
```



```
|=================================================================================================================|
| ID       | Product                  | Brand               | Price      | Quantity        | Processor       | Graphics  |
|=================================================================================================================|
| 1L       | Razer Blade              | Razer               | $2000      | 2               | i7 7th Gen      | GTX 3060  |
|=================================================================================================================|
| 2L       | XPS                      | Dell                | $1976      | 4158            | i5 9th Gen      | GTX 3070  |
|=================================================================================================================|
| 3L       | Alienware                | Alienware           | $1978      | 21              | i5 9th Gen      | GTX 3070  |
|=================================================================================================================|
| 4L       | Swift 7                  | Acer                | $900       | 322             | i5 9th Gen      | GTX 3070  |
|=================================================================================================================|
| 5L       | Macbook Pro 16           | Apple               | $3500      | 117             | i5 9th Gen      | GTX 3070  |
|=================================================================================================================|
| 6L       | Lenovo Legion            | Lenovo              | $4000      | 210             | i7 12th Gen     | RTX 3080  |
|=================================================================================================================|

+-------------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 2L
+-------------------------------------------------------------------------------------------------+


+-------------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: 10
+-------------------------------------------------------------------------------------------------+


+-------------------------------------------------------------------------------------------------+
# Total Items Available In Stock-->   4158
+-------------------------------------------------------------------------------------------------+


+-------------------------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> Y
+-------------------------------------------------------------------------------------------------+

+-------------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 5L
+-------------------------------------------------------------------------------------------------+


+-------------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: 3
+-------------------------------------------------------------------------------------------------+


+-------------------------------------------------------------------------------------------------+
# Total Items Available In Stock-->   117
+-------------------------------------------------------------------------------------------------+
```

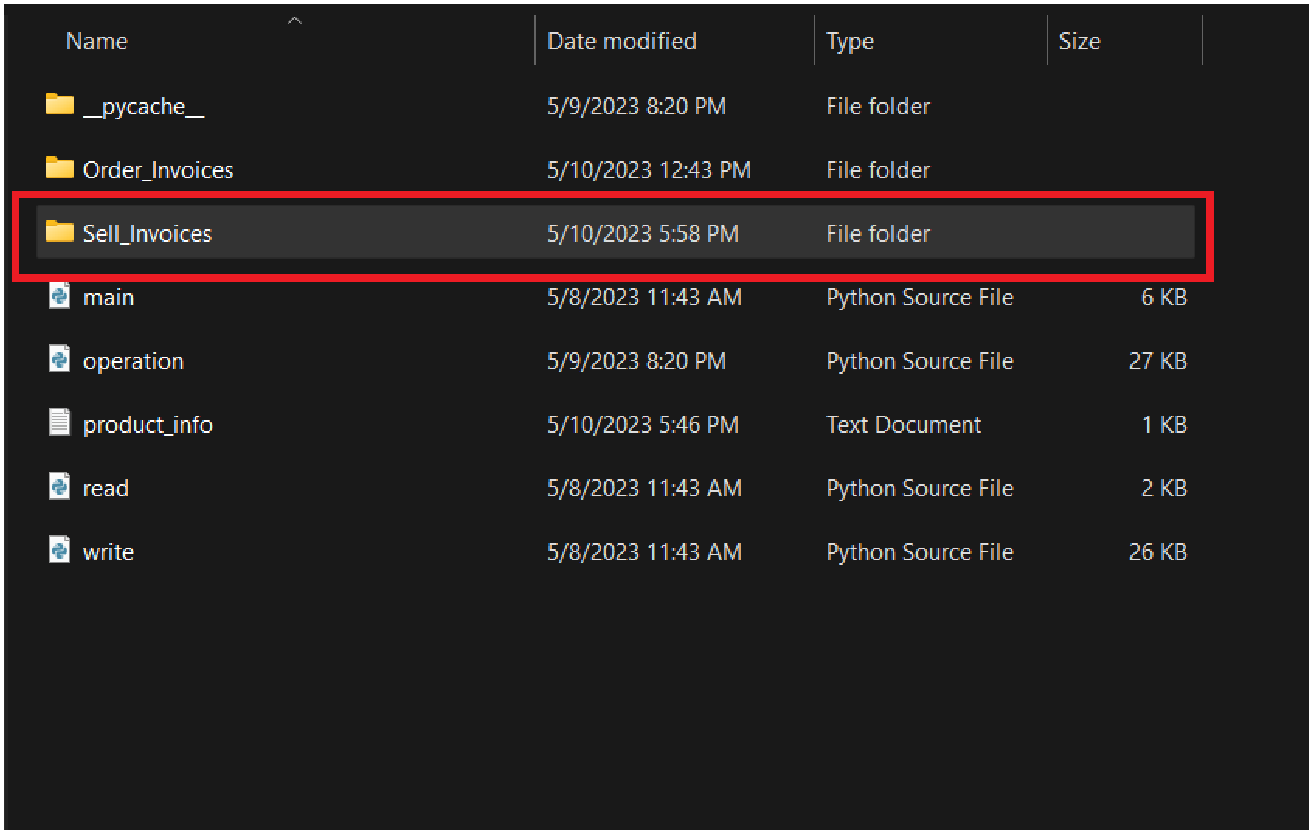


```
+-------------------------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> n
+-------------------------------------------------------------------------------------------------+



+-------------------------------------------------------------------------------------------------+
Do you want your item to be shipped ? Please Enter 'y' for yes and 'n' for NO --> y
+-------------------------------------------------------------------------------------------------+
```

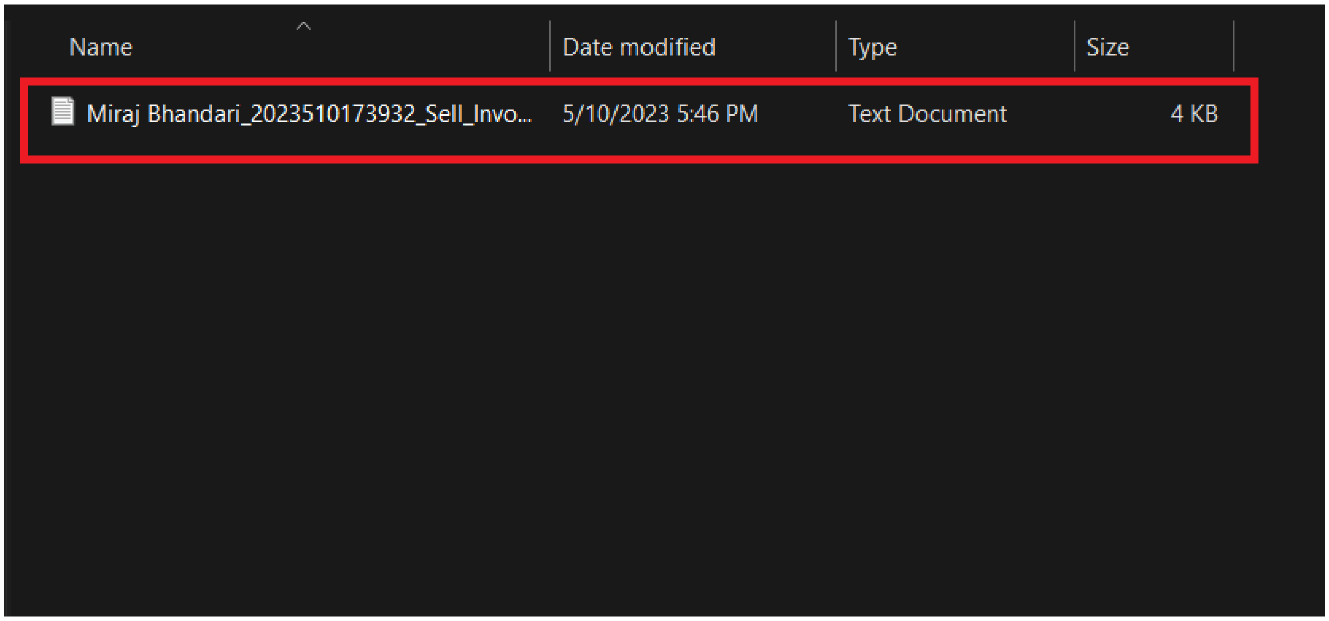


```
          +====================================================================================================+
                      ### THANK YOU! THE STOCK IS UPDATED AND SELL BILL IS GENERATED ###
          +====================================================================================================+

+==================================================================================================================================================+
|                                             #----- Miraj Laptop and Computer Shop -----#                                                          |
+                                                                                                                                                  +
|                                                       Kalanki-14 , Kathmandu                                                                      |
+                                                                                                                                                  +
|                                             Contact Number:- 9844345562 , 01-43567800                                                             |
+                                                                                                                                                  +
+--------------------------------------------------------------------------------------------------------------------------------------------------+
| Customer Name: Miraj Bhandari                                                                                                                    |
| Date of Purchase: 2023-05-10                                                                                                                     |
| Time of Purchase: 17:39:32.876911                                                                                                                |
+==================================================================================================================================================+
|                 LAPTOP NAME |             BRAND NAME |  TOTAL AMOUNT |     SHIPPING COST |  TOTAL AMOUNT WITH SHIPPING COST |  QUANTITY PURCHASED |
+==================================================================================================================================================+
+==================================================================================================================================================+
| XPS                        | Dell                    | $19760         | $4940.0          | $24700.0                          | 10                  |
| Macbook Pro 16             | Apple                   | $10500         | $2625.0          | $13125.0                          | 3                   |
+==================================================================================================================================================+
|  TOTAL:                                              | $30260          | $7565.0         | $37825.0                          | 13                  |
+..................................................................................................................................................+
|                                       #----- THANK YOU! We hope to see you again soon! -----#                                                    |
+==================================================================================================================================================+
```

SHOWING CREATION OF TXT FILE AFTER SELL OF LAPTOPS

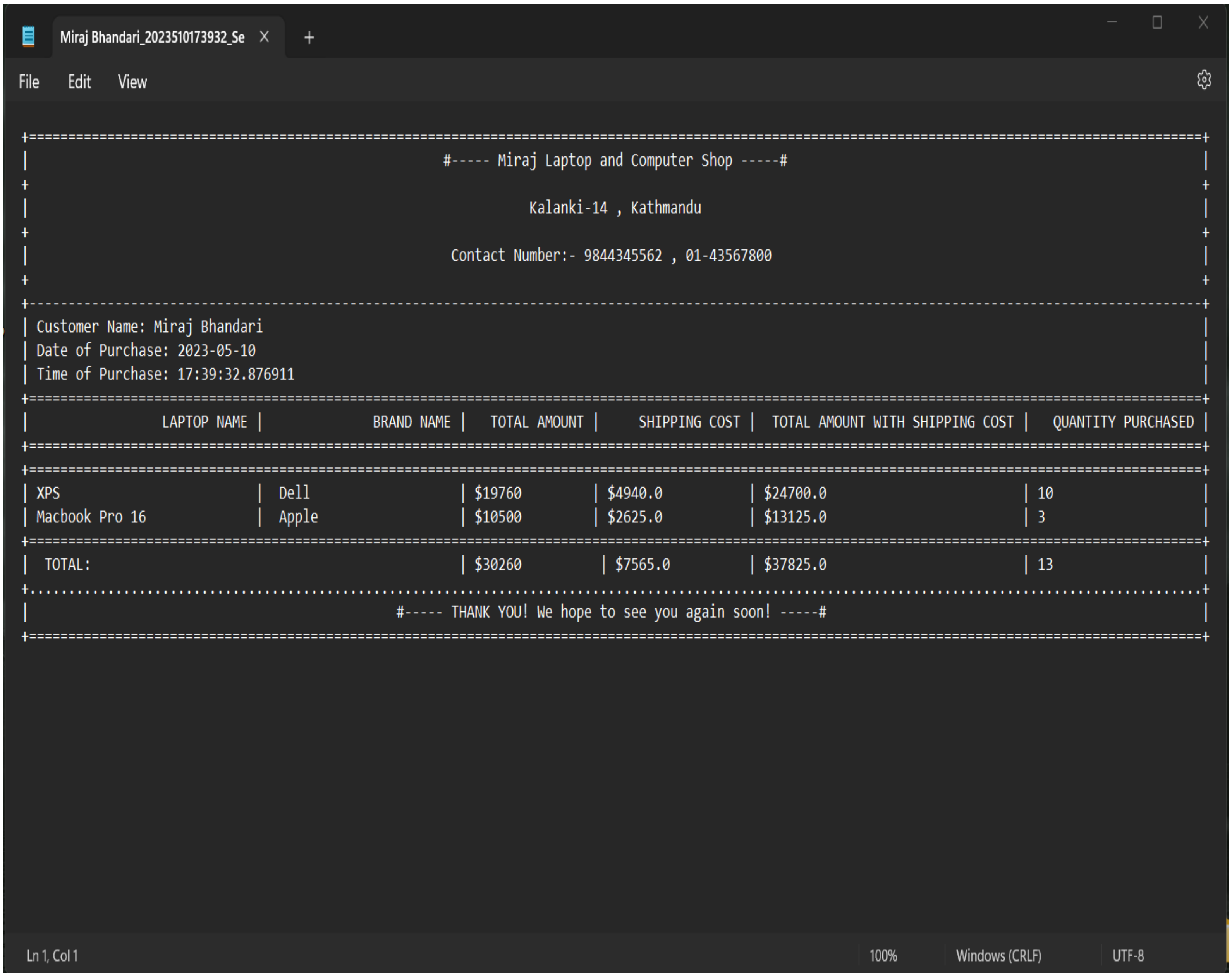


Name	Date modified	Type	Size
__pycache__	5/9/2023 8:20 PM	File folder	
Order_Invoices	5/10/2023 12:43 PM	File folder	
Sell_Invoices	5/10/2023 5:58 PM	File folder	
main	5/8/2023 11:43 AM	Python Source File	6 KB
operation	5/9/2023 8:20 PM	Python Source File	27 KB
product_info	5/10/2023 5:46 PM	Text Document	1 KB
read	5/8/2023 11:43 AM	Python Source File	2 KB
write	5/8/2023 11:43 AM	Python Source File	26 KB



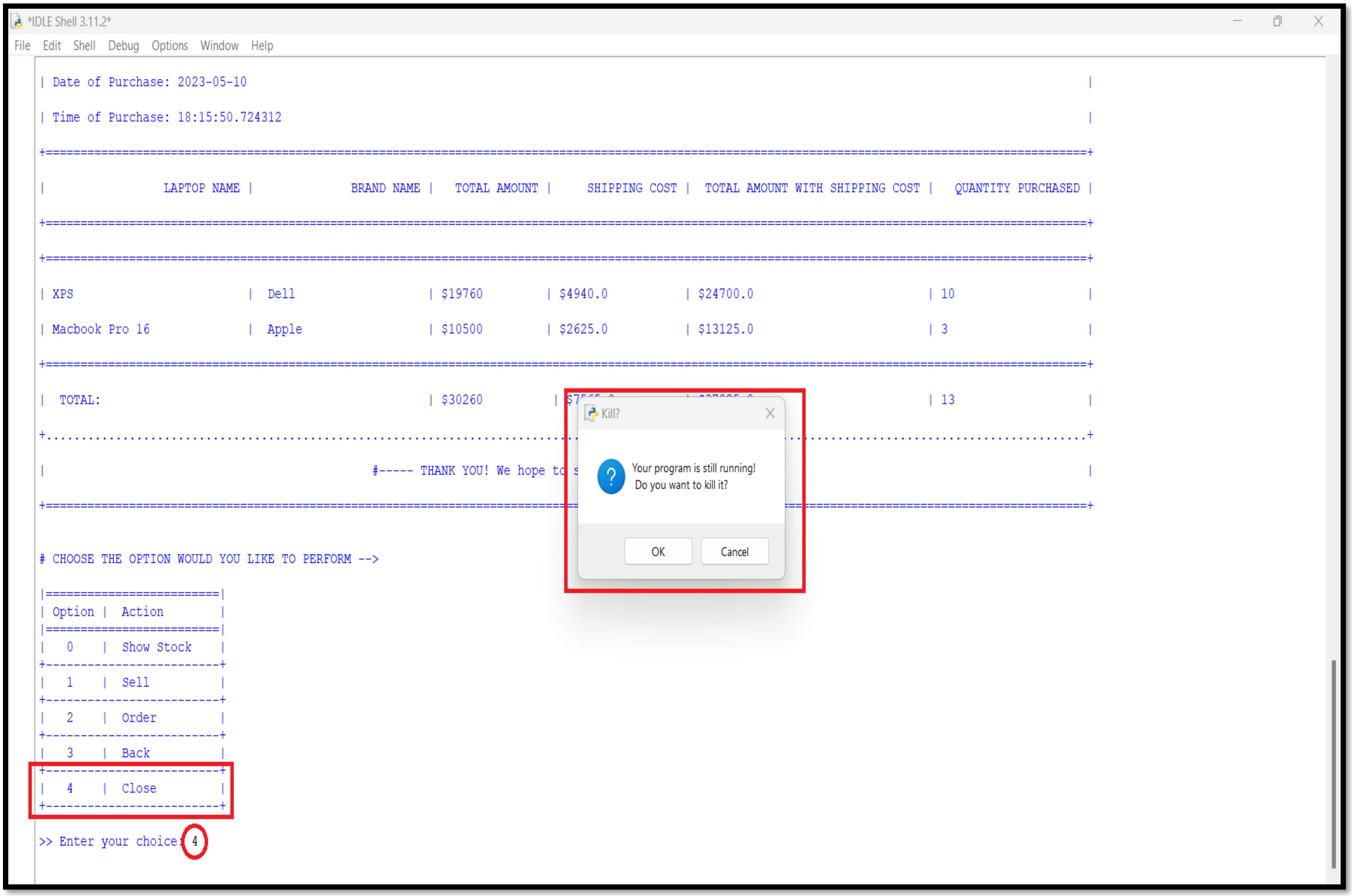
Name	Date modified	Type	Size
Miraj Bhandari_2023510173932_Sell_Invo...	5/10/2023 5:46 PM	Text Document	4 KB

OPENING THE TEXT FILE AND SHOWING THE BILL



```
+==================================================================================================================================+
|                                              #----- Miraj Laptop and Computer Shop -----#                                        |
+                                                                                                                                  +
|                                                     Kalanki-14 , Kathmandu                                                       |
+                                                                                                                                  +
|                                         Contact Number:- 9844345562 , 01-43567800                                                |
+                                                                                                                                  +
+----------------------------------------------------------------------------------------------------------------------------------+
| Customer Name: Miraj Bhandari                                                                                                    |
| Date of Purchase: 2023-05-10                                                                                                     |
| Time of Purchase: 17:39:32.876911                                                                                                |
+==================================================================================================================================+
|               LAPTOP NAME |             BRAND NAME |  TOTAL AMOUNT |    SHIPPING COST |  TOTAL AMOUNT WITH SHIPPING COST |   QUANTITY PURCHASED |
+==================================================================================================================================+
+==================================================================================================================================+
| XPS                       | Dell                    | $19760        | $4940.0          | $24700.0                          | 10                   |
| Macbook Pro 16            | Apple                   | $10500        | $2625.0          | $13125.0                          | 3                    |
+==================================================================================================================================+
|  TOTAL:                                             | $30260         | $7565.0          | $37825.0                          | 13                   |
+..................................................................................................................................+
|                                          #----- THANK YOU! We hope to see you again soon! -----#                                 |
+==================================================================================================================================+
```

SHOWING THE TERMINATION OF THE PROGRAM AFTER SELECTING AN OPTION BY THE USER AFTER SELL

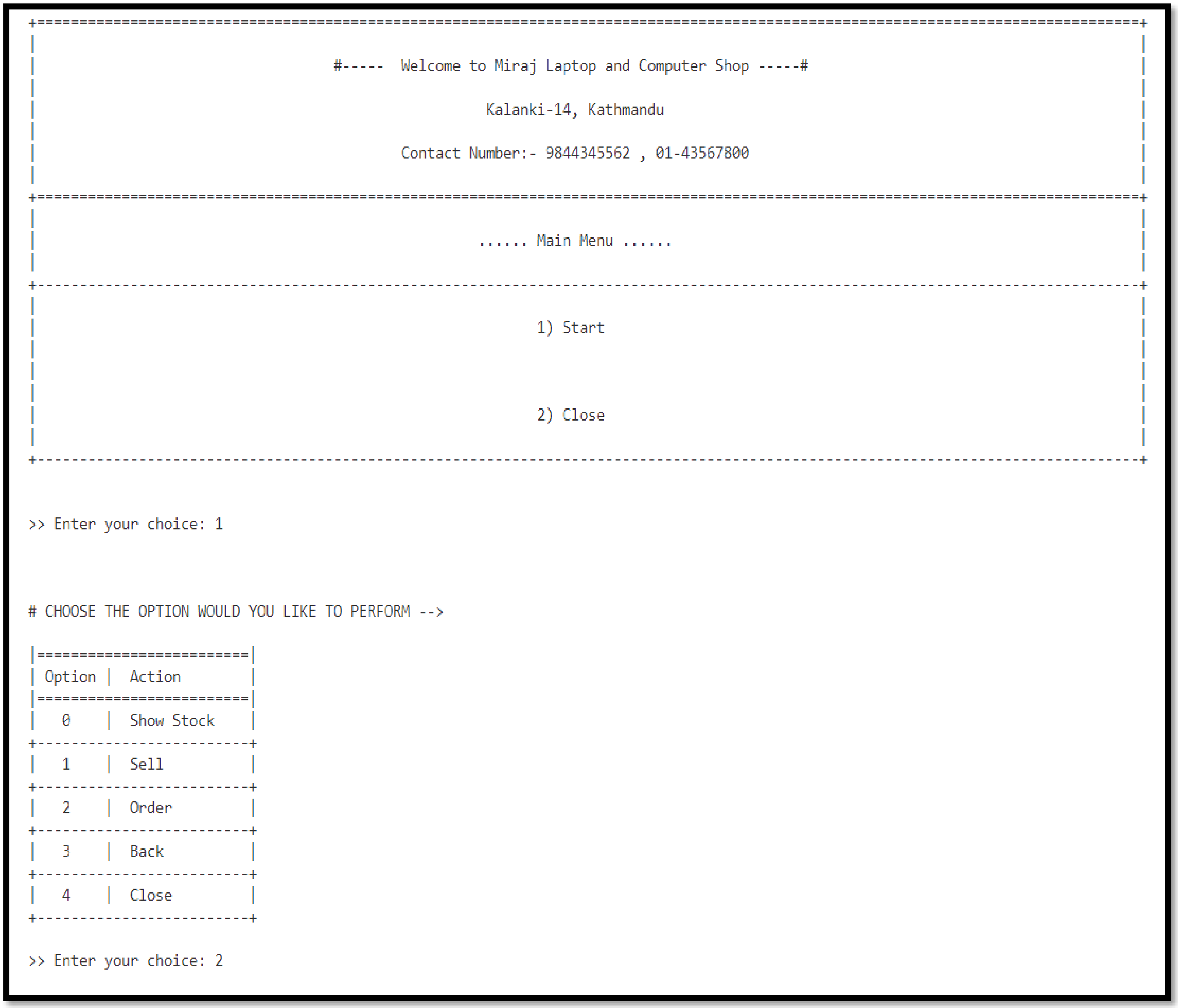


```
| Date of Purchase: 2023-05-10                                                                                                                      |

| Time of Purchase: 18:15:50.724312                                                                                                                 |

+===================================================================================================================================================+

|                 LAPTOP NAME |                   BRAND NAME |   TOTAL AMOUNT |      SHIPPING COST |  TOTAL AMOUNT WITH SHIPPING COST |   QUANTITY PURCHASED |

+===================================================================================================================================================+

+===================================================================================================================================================+

| XPS                         |  Dell                     | $19760          | $4940.0            | $24700.0                          | 10                  |

| Macbook Pro 16              |  Apple                    | $10500          | $2625.0            | $13125.0                          | 3                   |

+===================================================================================================================================================+

|  TOTAL:                                                 | $30260          | $7565.0            | $37825.0                          | 13                  |

+...................................................................................................................................................+

|                                         #----- THANK YOU! We hope to s                                                                            |

+===================================================================================================================================================+


# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action        |
|=========================|
|   0    |  Show Stock    |
+-------------------------+
|   1    |  Sell          |
+-------------------------+
|   2    |  Order         |
+-------------------------+
|   3    |  Back          |
+-------------------------+
|   4    |  Close         |
+-------------------------+

>> Enter your choice: 4
```

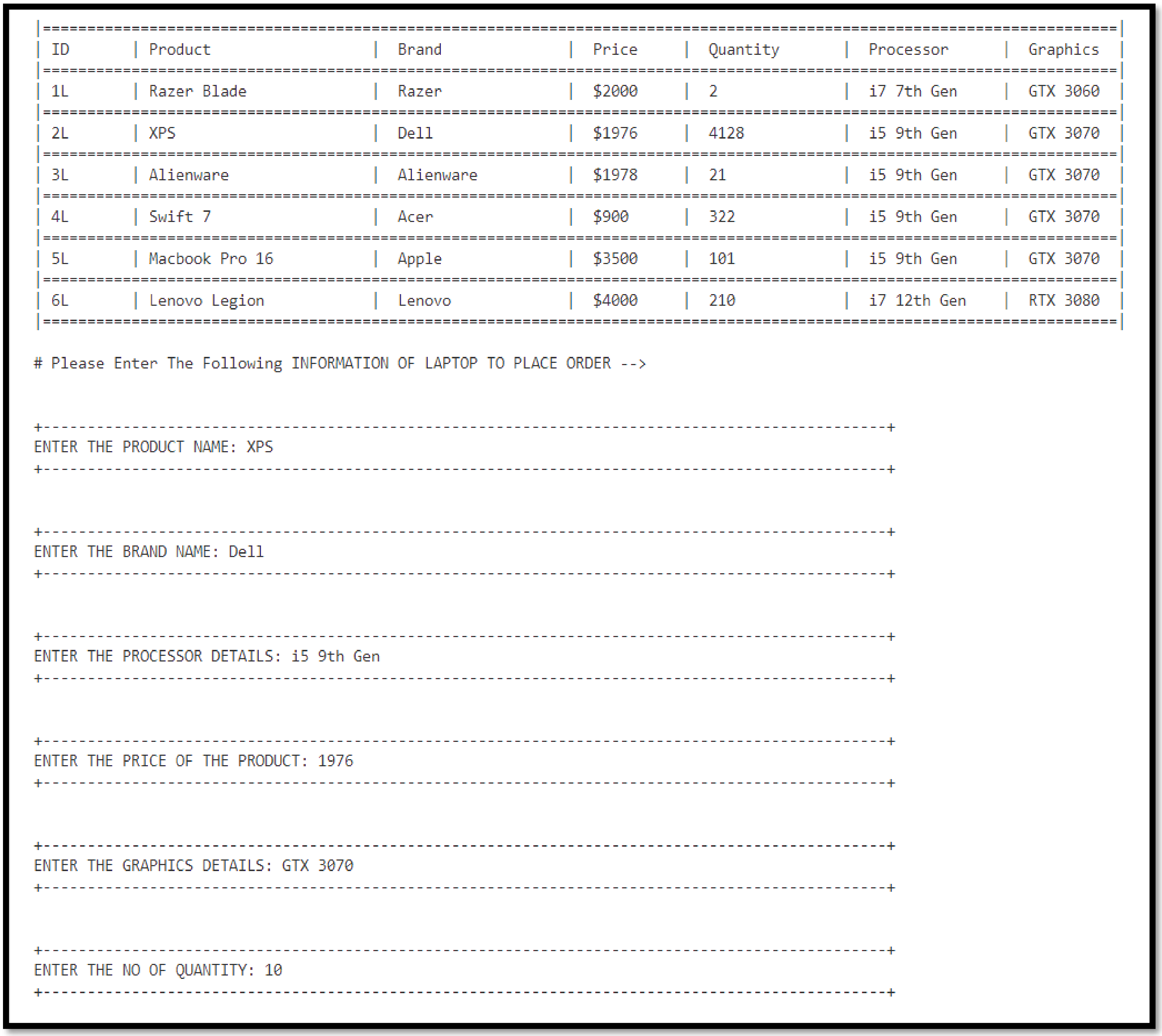
Kill?

Your program is still running!
Do you want to kill it?

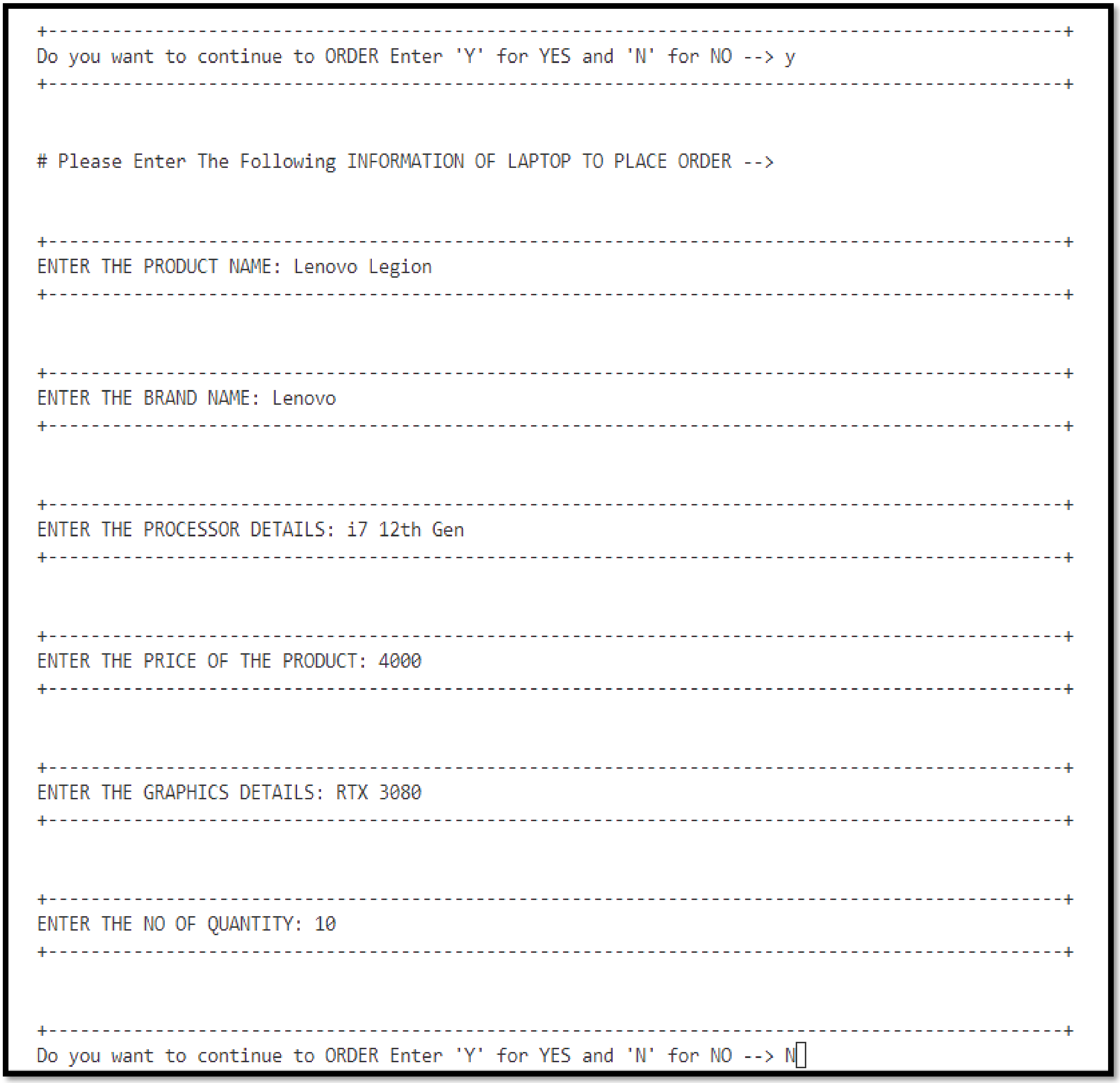
FOR PURCHASE OF LAPTOPS



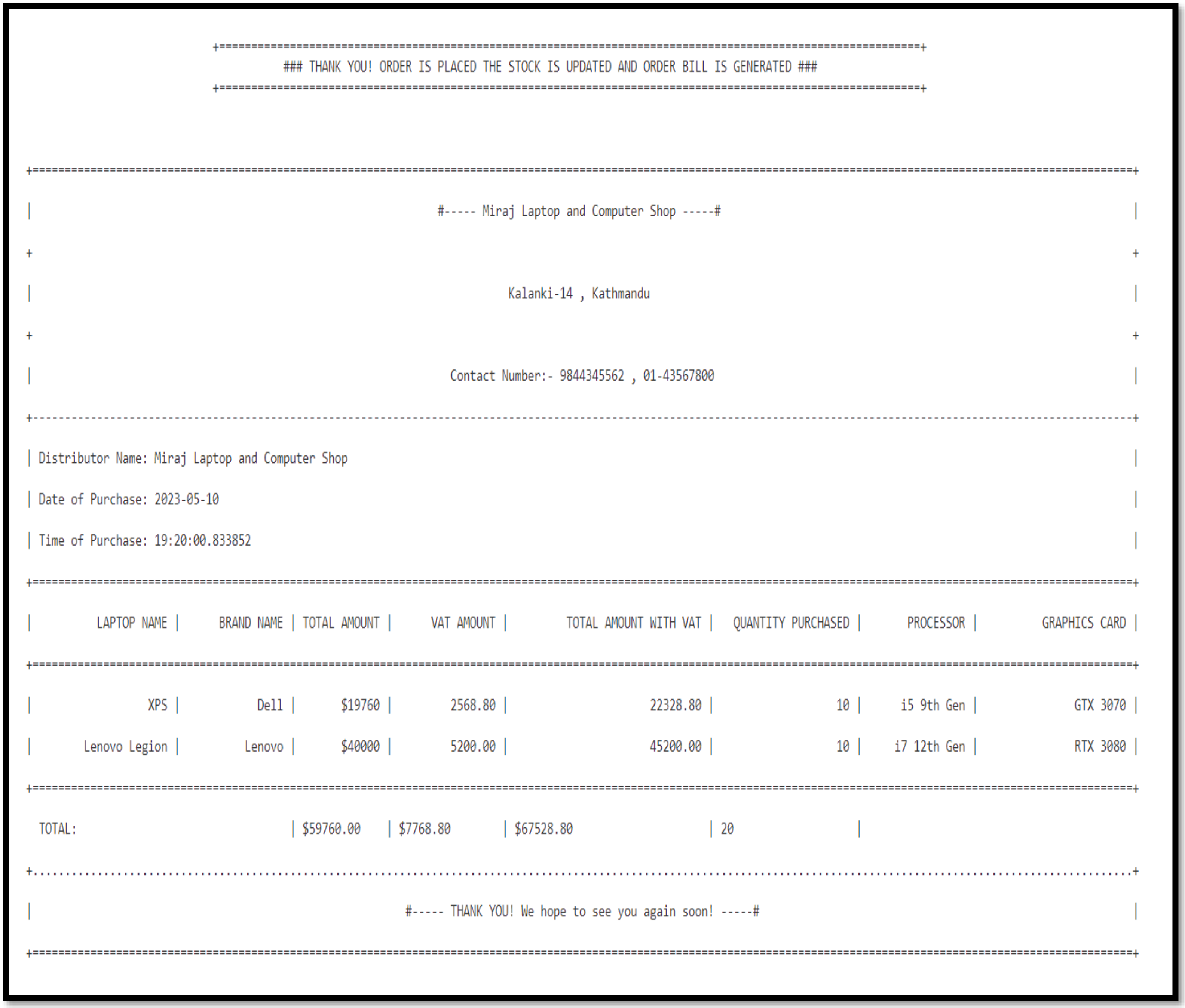
```
+==================================================================================================================================+
|                                                                                                                                  |
|                                 #-----  Welcome to Miraj Laptop and Computer Shop -----#                                        |
|                                                                                                                                  |
|                                               Kalanki-14, Kathmandu                                                              |
|                                                                                                                                  |
|                                        Contact Number:- 9844345562 , 01-43567800                                                 |
|                                                                                                                                  |
+==================================================================================================================================+
|                                                                                                                                  |
|                                               ...... Main Menu ......                                                            |
|                                                                                                                                  |
+----------------------------------------------------------------------------------------------------------------------------------+
|                                                                                                                                  |
|                                                   1) Start                                                                       |
|                                                                                                                                  |
|                                                                                                                                  |
|                                                                                                                                  |
|                                                   2) Close                                                                       |
|                                                                                                                                  |
+----------------------------------------------------------------------------------------------------------------------------------+


>> Enter your choice: 1



# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action         |
|=========================|
|   0    |  Show Stock     |
+--------------------------+
|   1    |  Sell           |
+--------------------------+
|   2    |  Order          |
+--------------------------+
|   3    |  Back           |
+--------------------------+
|   4    |  Close          |
+--------------------------+

>> Enter your choice: 2
```



```
|==================================================================================================================|
| ID        | Product                   | Brand                | Price      | Quantity        | Processor       | Graphics   |
|==================================================================================================================|
| 1L        | Razer Blade               | Razer                | $2000      | 2               | i7 7th Gen      | GTX 3060   |
|==================================================================================================================|
| 2L        | XPS                       | Dell                 | $1976      | 4128            | i5 9th Gen      | GTX 3070   |
|==================================================================================================================|
| 3L        | Alienware                 | Alienware            | $1978      | 21              | i5 9th Gen      | GTX 3070   |
|==================================================================================================================|
| 4L        | Swift 7                   | Acer                 | $900       | 322             | i5 9th Gen      | GTX 3070   |
|==================================================================================================================|
| 5L        | Macbook Pro 16            | Apple                | $3500      | 101             | i5 9th Gen      | GTX 3070   |
|==================================================================================================================|
| 6L        | Lenovo Legion             | Lenovo               | $4000      | 210             | i7 12th Gen     | RTX 3080   |
|==================================================================================================================|

# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+-----------------------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: XPS
+-----------------------------------------------------------------------------------------------+



+-----------------------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Dell
+-----------------------------------------------------------------------------------------------+



+-----------------------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i5 9th Gen
+-----------------------------------------------------------------------------------------------+



+-----------------------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 1976
+-----------------------------------------------------------------------------------------------+



+-----------------------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: GTX 3070
+-----------------------------------------------------------------------------------------------+



+-----------------------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 10
+-----------------------------------------------------------------------------------------------+
```

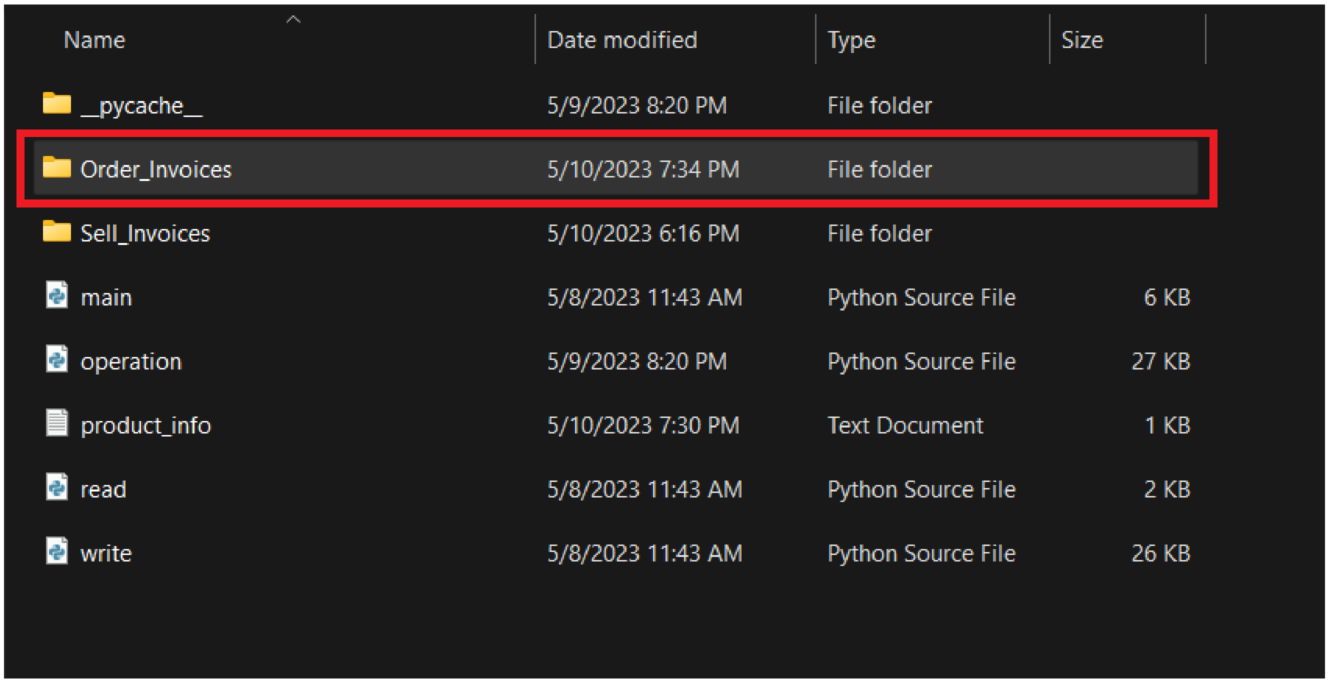


```
+----------------------------------------------------------------------------------------------+
Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> y
+----------------------------------------------------------------------------------------------+


# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+----------------------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: Lenovo Legion
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Lenovo
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i7 12th Gen
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 4000
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: RTX 3080
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 10
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> N
```

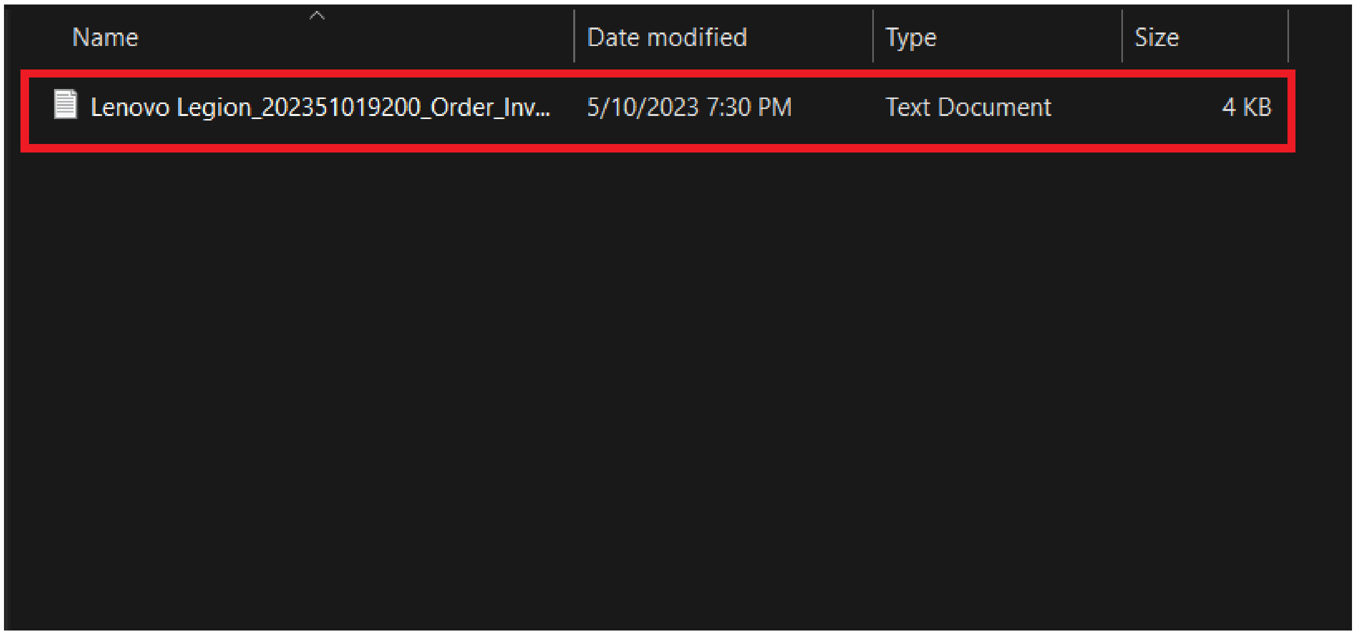


```
                    +==========================================================================================+
                          ### THANK YOU! ORDER IS PLACED THE STOCK IS UPDATED AND ORDER BILL IS GENERATED ###
                    +==========================================================================================+


+==================================================================================================================================================+

|                                                   #----- Miraj Laptop and Computer Shop -----#                                                   |

+                                                                                                                                                  +

|                                                          Kalanki-14 , Kathmandu                                                                  |

+                                                                                                                                                  +

|                                                Contact Number:- 9844345562 , 01-43567800                                                         |

+--------------------------------------------------------------------------------------------------------------------------------------------------+

| Distributor Name: Miraj Laptop and Computer Shop                                                                                                 |

| Date of Purchase: 2023-05-10                                                                                                                     |

| Time of Purchase: 19:20:00.833852                                                                                                                |

+==================================================================================================================================================+

|          LAPTOP NAME |     BRAND NAME | TOTAL AMOUNT |      VAT AMOUNT |        TOTAL AMOUNT WITH VAT | QUANTITY PURCHASED |     PROCESSOR |        GRAPHICS CARD |

+==================================================================================================================================================+

|                  XPS |           Dell |       $19760 |         2568.80 |                     22328.80 |                 10 |    i5 9th Gen |             GTX 3070 |

|        Lenovo Legion |         Lenovo |       $40000 |         5200.00 |                     45200.00 |                 10 |   i7 12th Gen |             RTX 3080 |

+==================================================================================================================================================+

 TOTAL:                                 | $59760.00    | $7768.80        | $67528.80                    | 20                 |

+..................................................................................................................................................+

|                                             #----- THANK YOU! We hope to see you again soon! -----#                                              |

+==================================================================================================================================================+
```

SHOWING CREATION OF TXT FILE AFTER PURCHASE OF LAPTOPS

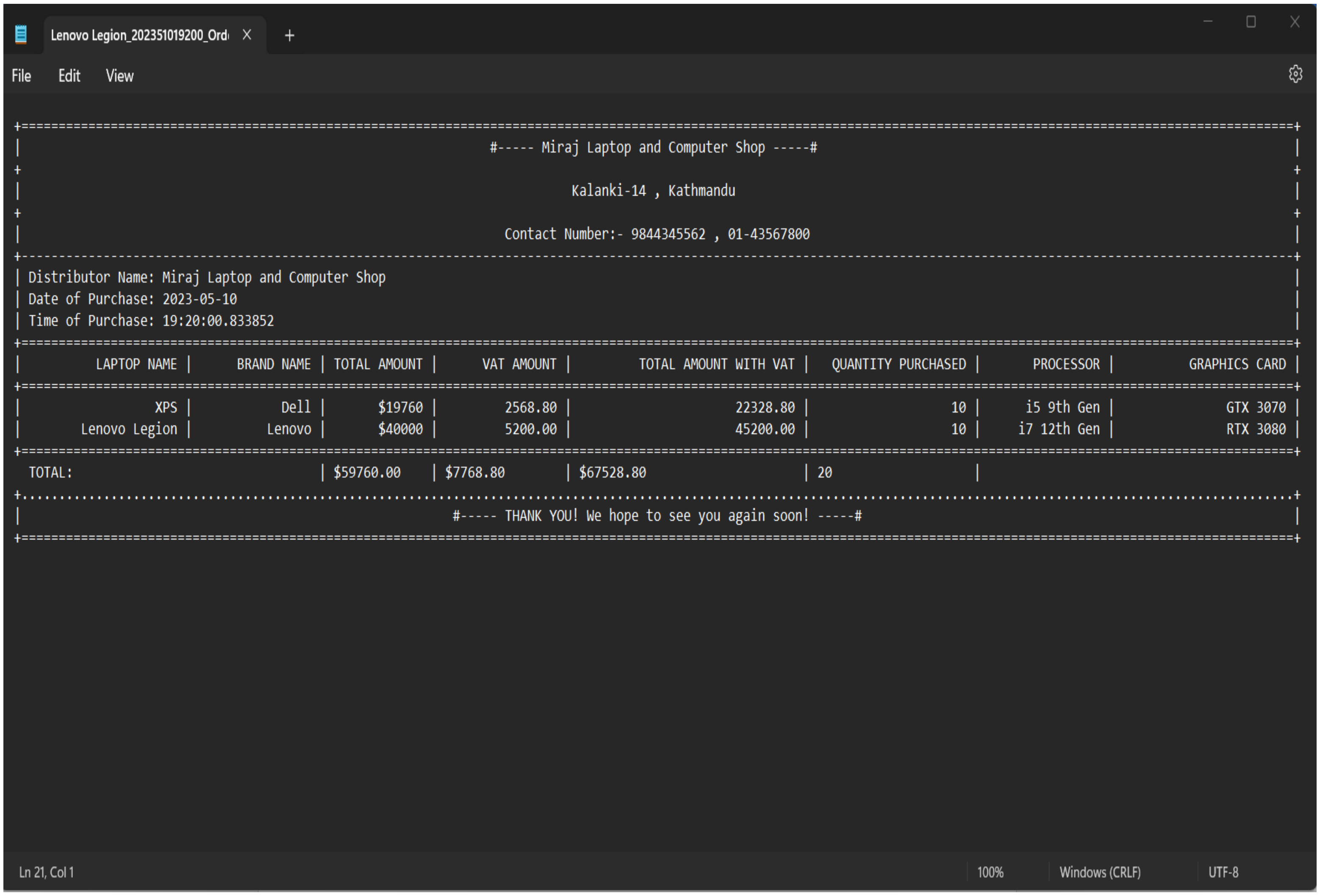


Name	Date modified	Type	Size
__pycache__	5/9/2023 8:20 PM	File folder	
Order_Invoices	5/10/2023 7:34 PM	File folder	
Sell_Invoices	5/10/2023 6:16 PM	File folder	
main	5/8/2023 11:43 AM	Python Source File	6 KB
operation	5/9/2023 8:20 PM	Python Source File	27 KB
product_info	5/10/2023 7:30 PM	Text Document	1 KB
read	5/8/2023 11:43 AM	Python Source File	2 KB
write	5/8/2023 11:43 AM	Python Source File	26 KB



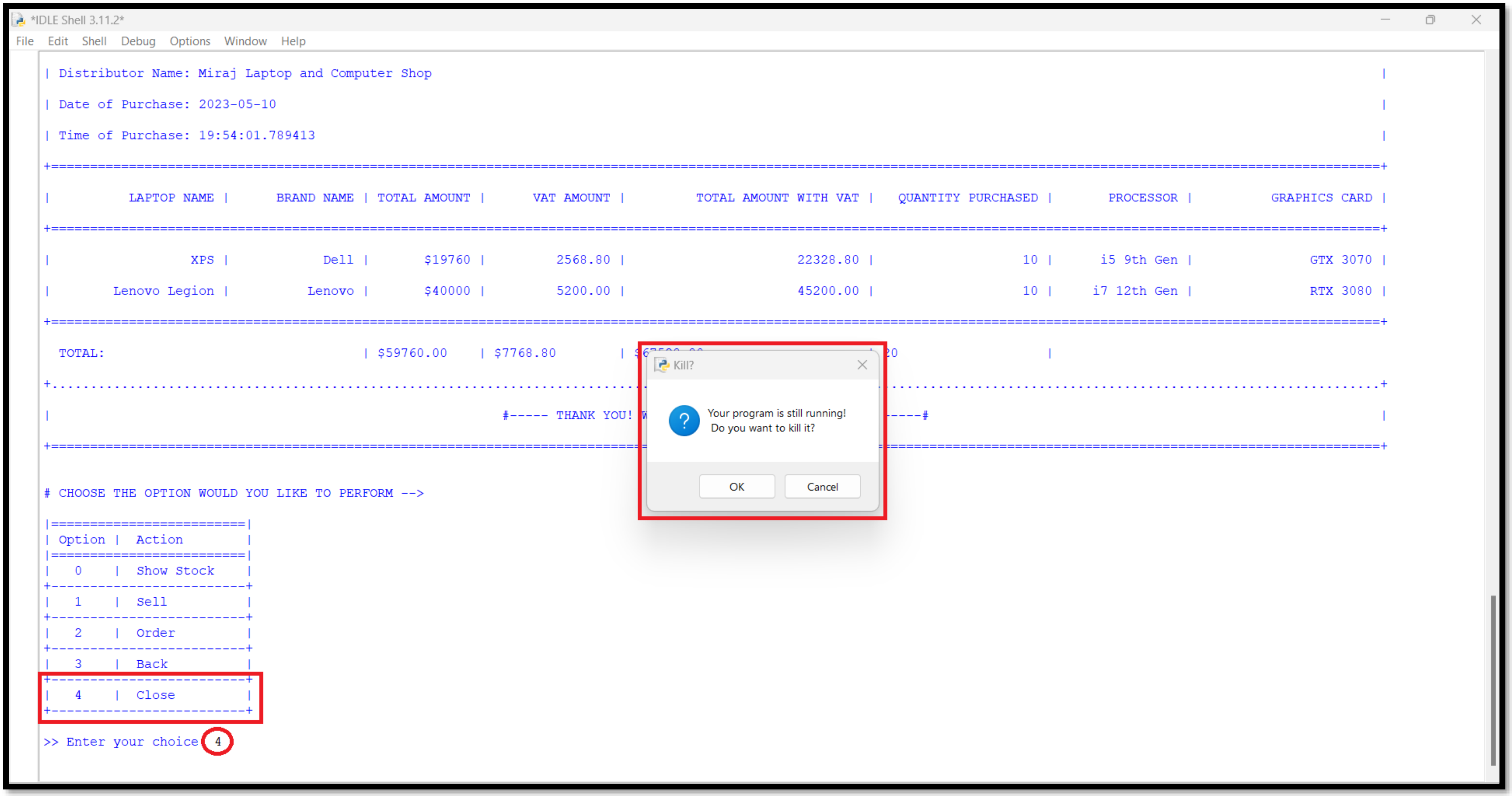
Name	Date modified	Type	Size
Lenovo Legion_202351019200_Order_Inv...	5/10/2023 7:30 PM	Text Document	4 KB

OPENING THE TEXT FILE AND SHOWING THE BILL



```
+===========================================================================================================================================================================+
|                                                               #----- Miraj Laptop and Computer Shop -----#                                                                |
+                                                                                                                                                                           +
|                                                                          Kalanki-14 , Kathmandu                                                                           |
+                                                                                                                                                                           +
|                                                                 Contact Number:- 9844345562 , 01-43567800                                                                 |
+---------------------------------------------------------------------------------------------------------------------------------------------------------------------------+
| Distributor Name: Miraj Laptop and Computer Shop                                                                                                                          |
| Date of Purchase: 2023-05-10                                                                                                                                              |
| Time of Purchase: 19:20:00.833852                                                                                                                                         |
+===========================================================================================================================================================================+
|          LAPTOP NAME |      BRAND NAME | TOTAL AMOUNT |      VAT AMOUNT |          TOTAL AMOUNT WITH VAT |   QUANTITY PURCHASED |       PROCESSOR |           GRAPHICS CARD |
+===========================================================================================================================================================================+
|                  XPS |            Dell |       $19760 |         2568.80 |                       22328.80 |                   10 |      i5 9th Gen |                GTX 3070 |
|        Lenovo Legion |          Lenovo |       $40000 |         5200.00 |                       45200.00 |                   10 |     i7 12th Gen |                RTX 3080 |
+===========================================================================================================================================================================+
  TOTAL:                                  | $59760.00    | $7768.80        | $67528.80                      | 20                   |
+...........................................................................................................................................................................+
|                                                          #----- THANK YOU! We hope to see you again soon! -----#                                                          |
+===========================================================================================================================================================================+
```

SHOWING THE TERMINATION OF THE PROGRAM AFTER SELECTING AN OPTION BY THE USER AFTER PURCHASE



```
| Distributor Name: Miraj Laptop and Computer Shop                                                                                                                    |

| Date of Purchase: 2023-05-10                                                                                                                                        |

| Time of Purchase: 19:54:01.789413                                                                                                                                   |

+=====================================================================================================================================================================+

|          LAPTOP NAME |      BRAND NAME | TOTAL AMOUNT |      VAT AMOUNT |         TOTAL AMOUNT WITH VAT |  QUANTITY PURCHASED |       PROCESSOR |          GRAPHICS CARD |

+=====================================================================================================================================================================+

|                  XPS |            Dell |       $19760 |         2568.80 |                      22328.80 |                  10 |      i5 9th Gen |               GTX 3070 |

|       Lenovo Legion |          Lenovo |       $40000 |         5200.00 |                      45200.00 |                  10 |     i7 12th Gen |               RTX 3080 |

+=====================================================================================================================================================================+

  TOTAL:                                | $59760.00    | $7768.80        | $6                             20                     |

+.....................................................................................................................................................................+

|                                                         #----- THAND YOU! W                        ----#                                                            |

+=====================================================================================================================================================================+


# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action        |
|=========================|
|   0    |  Show Stock    |
+-------------------------+
|   1    |  Sell          |
+-------------------------+
|   2    |  Order         |
+-------------------------+
|   3    |  Back          |
+-------------------------+
|   4    |  Close         |
+-------------------------+

>> Enter your choice 4
```

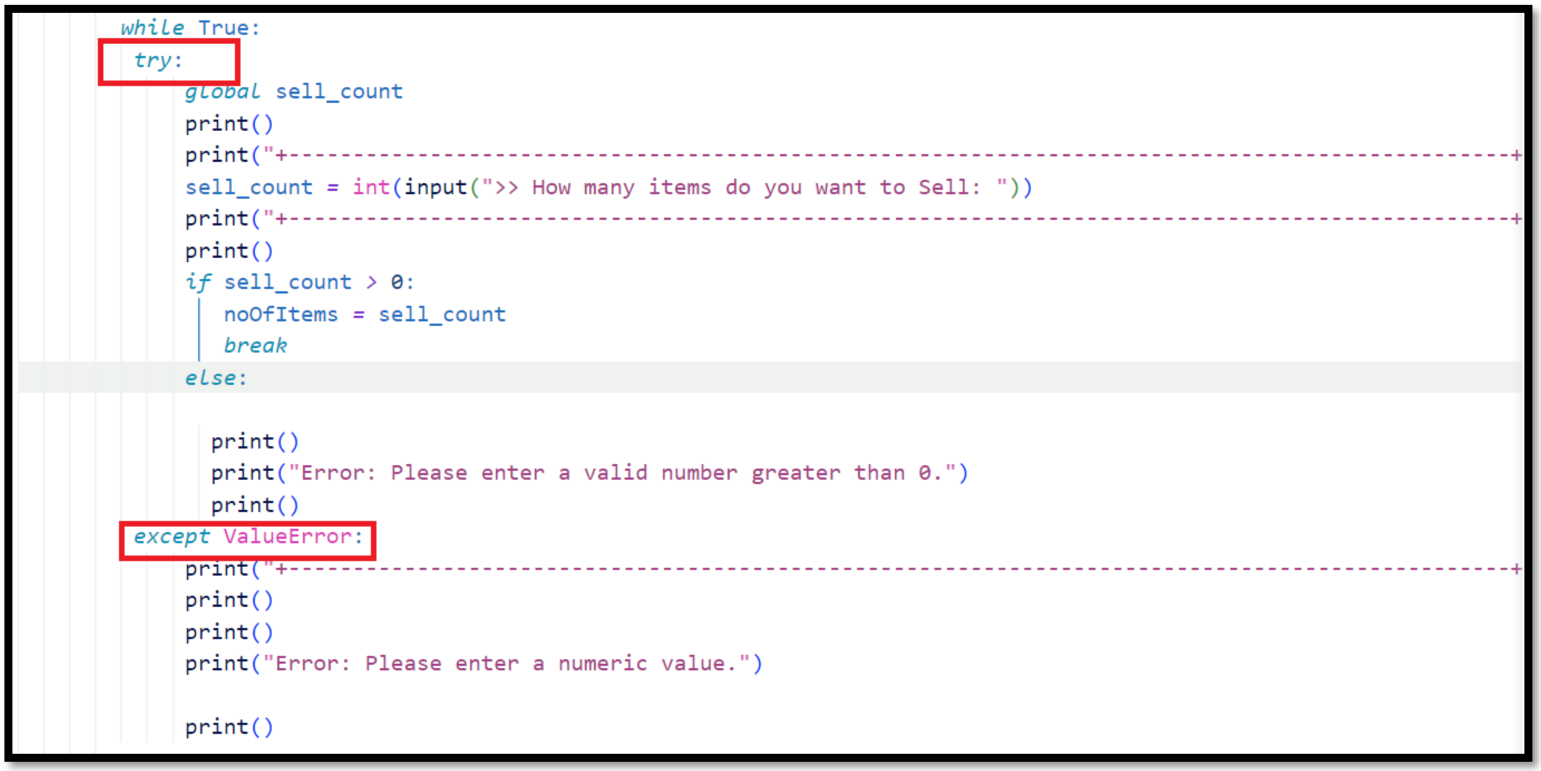
Your program is still running!
Do you want to kill it?

4. Testing(Inspection)

Test 1 – To Show Implementation and Working of try, except

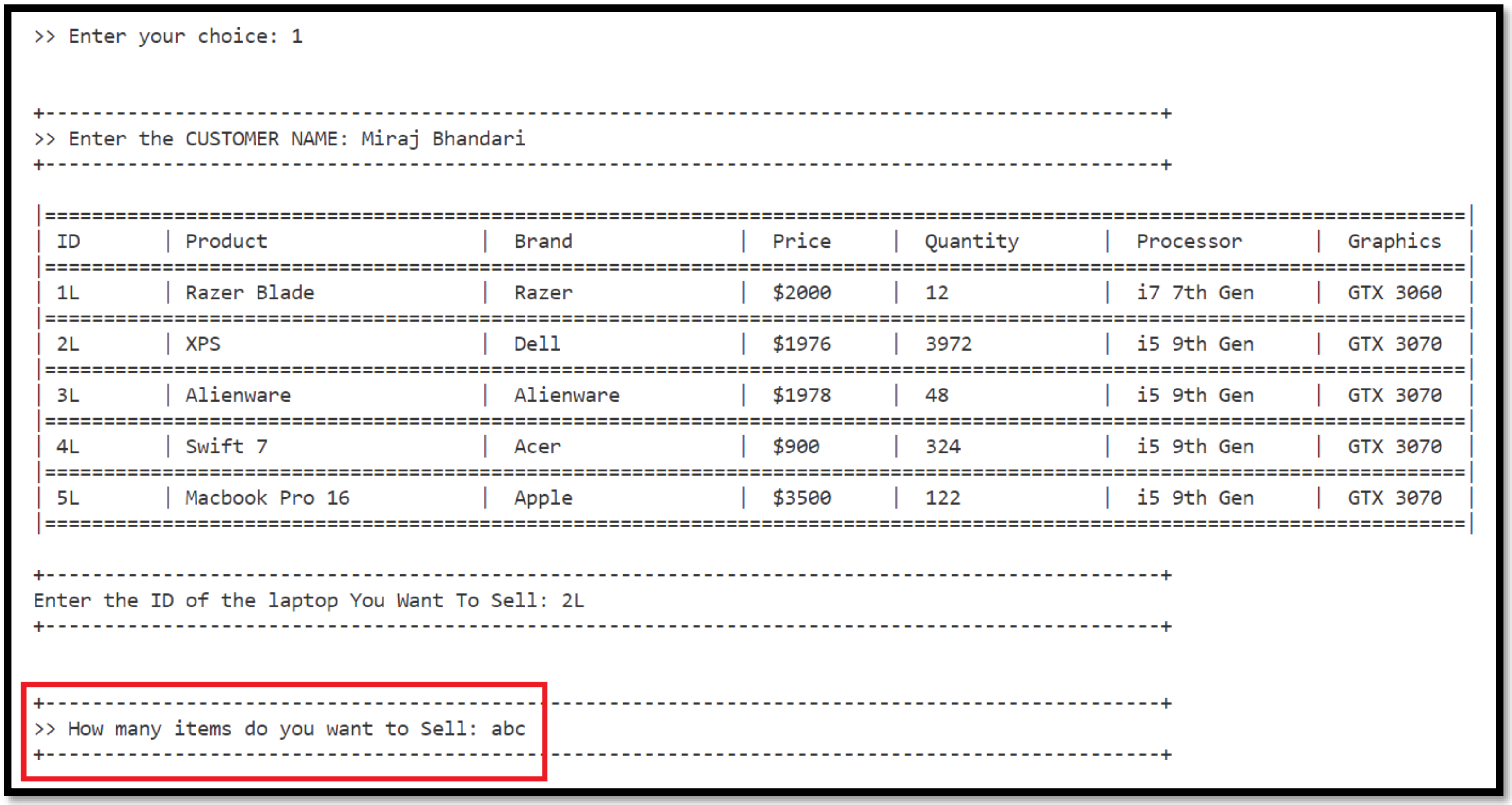
Test NO.	1
Objective:	To Show Implementation and Working of try, except.
Action:	➡ The main module was executed and the sell option was selected by entering “1” as input. ➡ The customer name “Miraj Bhandari” and laptop ID “2L” were entered. ➡ An invalid value “abc” was entered for the number of items to sell.
Expected Result:	The system would display an error message **‘Error: Please enter a numeric value.’** and would prompt the user again to enter a valid numeric value for the number of items to sell.
Actual Result:	The system displayed an error message **‘Error: Please enter a numeric value.’** and prompted the user again to enter a valid numeric value for the number of items to sell.

Table 1: Test 1 – To Show Implementation and Working of try, except



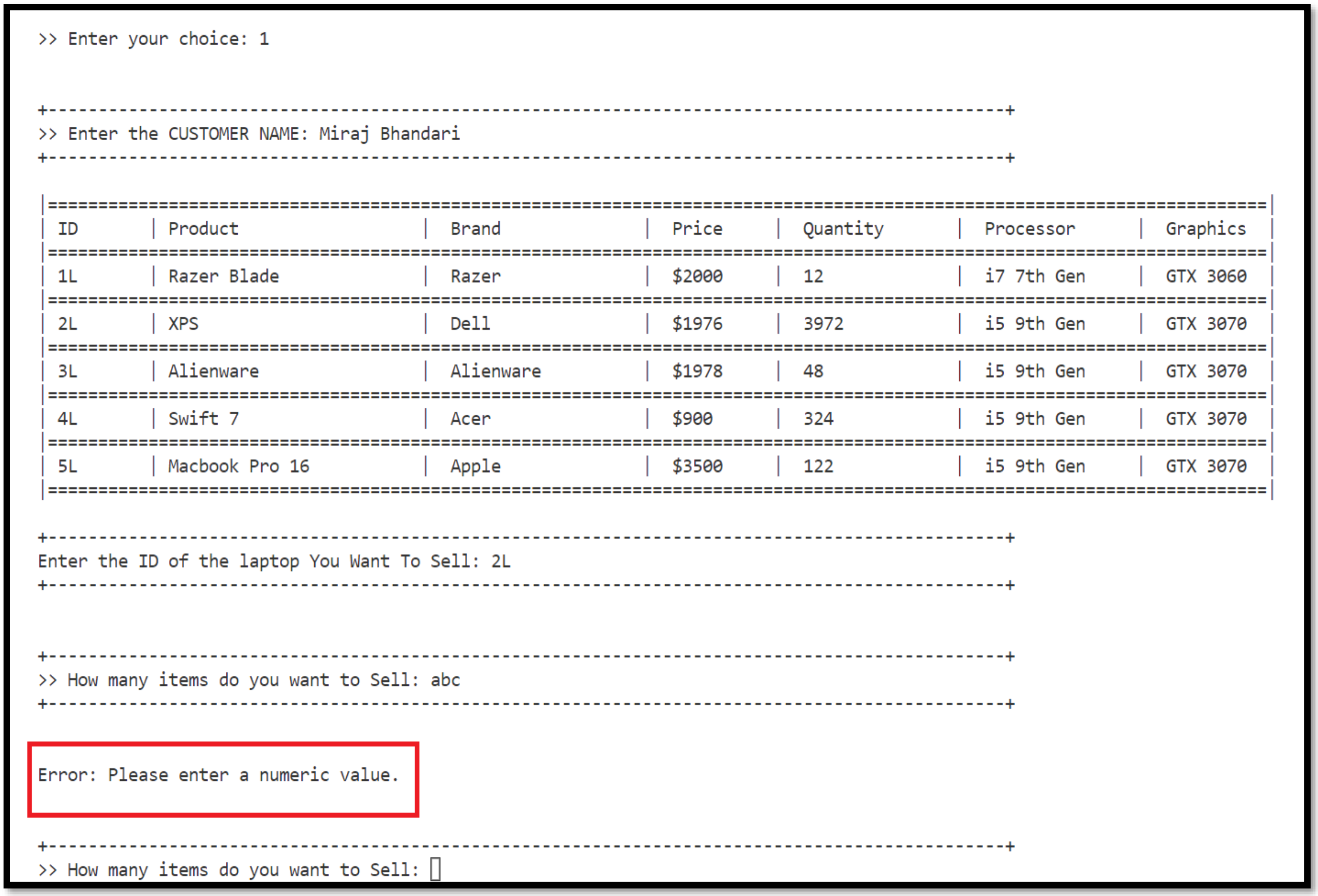
```
        while True:
            try:
                global sell_count
                print()
                print("+-----------------------------------------------------------------------------------------------+
                sell_count = int(input(">> How many items do you want to Sell: "))
                print("+-----------------------------------------------------------------------------------------------+
                print()
                if sell_count > 0:
                    noOfItems = sell_count
                    break
                else:

                    print()
                    print("Error: Please enter a valid number greater than 0.")
                    print()
            except ValueError:
                print("+-----------------------------------------------------------------------------------------------+
                print()
                print()
                print("Error: Please enter a numeric value.")

                print()
```

Figure 5: Screenshot of Implementation of try, except in code



```
>> Enter your choice: 1


+-----------------------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
+-----------------------------------------------------------------------------------------------+

|=======================================================================================================================|
| ID        | Product                    | Brand                | Price       | Quantity         | Processor        | Graphics  |
|=======================================================================================================================|
| 1L        | Razer Blade                | Razer                | $2000       | 12               | i7 7th Gen       | GTX 3060  |
|=======================================================================================================================|
| 2L        | XPS                        | Dell                 | $1976       | 3972             | i5 9th Gen       | GTX 3070  |
|=======================================================================================================================|
| 3L        | Alienware                  | Alienware            | $1978       | 48               | i5 9th Gen       | GTX 3070  |
|=======================================================================================================================|
| 4L        | Swift 7                    | Acer                 | $900        | 324              | i5 9th Gen       | GTX 3070  |
|=======================================================================================================================|
| 5L        | Macbook Pro 16             | Apple                | $3500       | 122              | i5 9th Gen       | GTX 3070  |
|=======================================================================================================================|

+-----------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 2L
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: abc
+-----------------------------------------------------------------------------------------------+
```

Figure 6: Screenshot of giving values for customer name, Laptop ID, and no of items to sell



```
>> Enter your choice: 1


+-----------------------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
+-----------------------------------------------------------------------------------------------+

|========================================================================================================================|
| ID        | Product                    | Brand                | Price       | Quantity         | Processor        | Graphics    |
|========================================================================================================================|
| 1L        | Razer Blade                | Razer                | $2000       | 12               | i7 7th Gen       | GTX 3060    |
|========================================================================================================================|
| 2L        | XPS                        | Dell                 | $1976       | 3972             | i5 9th Gen       | GTX 3070    |
|========================================================================================================================|
| 3L        | Alienware                  | Alienware            | $1978       | 48               | i5 9th Gen       | GTX 3070    |
|========================================================================================================================|
| 4L        | Swift 7                    | Acer                 | $900        | 324              | i5 9th Gen       | GTX 3070    |
|========================================================================================================================|
| 5L        | Macbook Pro 16             | Apple                | $3500       | 122              | i5 9th Gen       | GTX 3070    |
|========================================================================================================================|

+-----------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 2L
+-----------------------------------------------------------------------------------------------+



+-----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: abc
+-----------------------------------------------------------------------------------------------+


Error: Please enter a numeric value.


+-----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell:
```

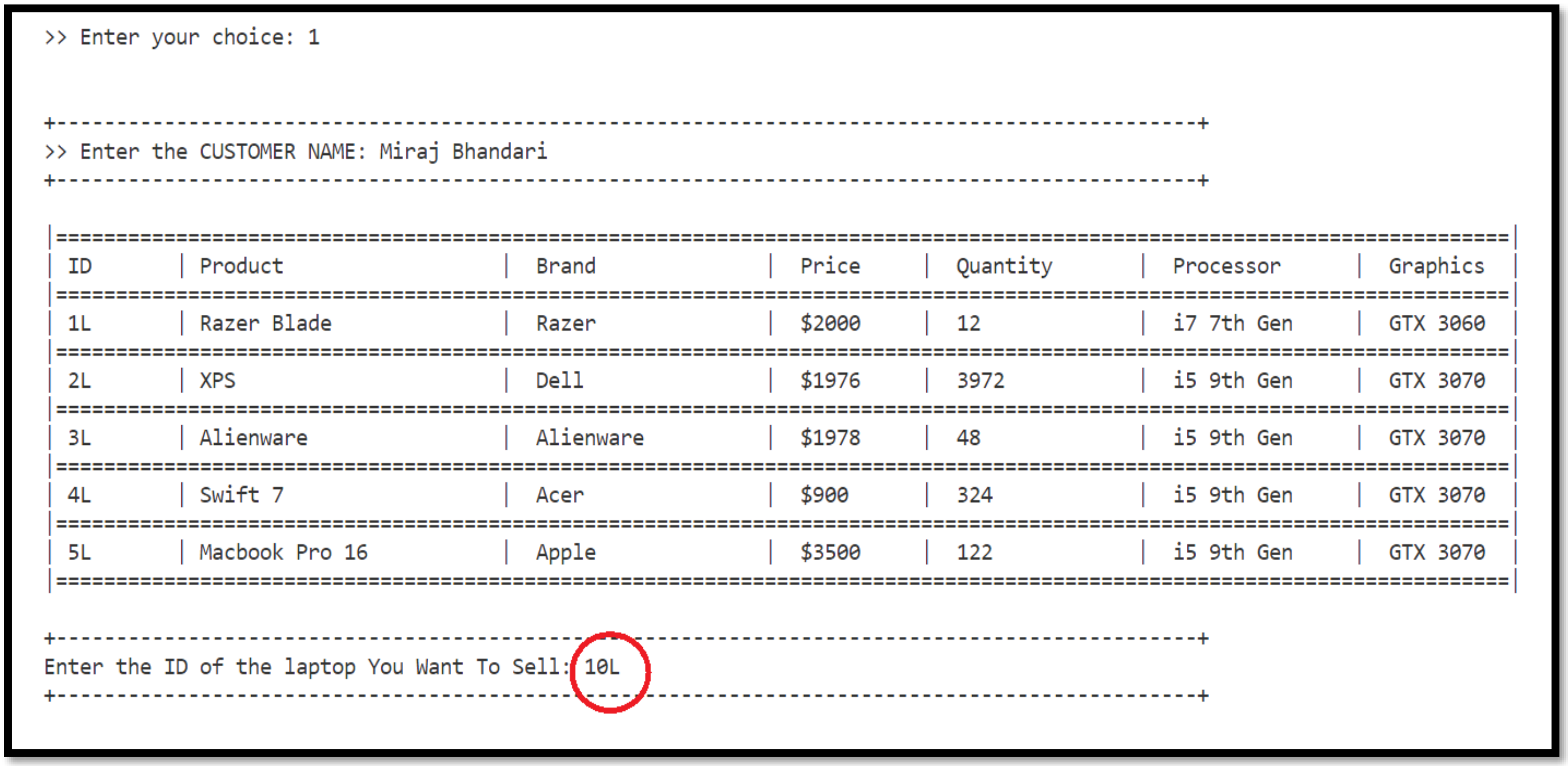
Figure 7: Screenshot of Working of try, catch

Test 2 – To Select Purchase and Sell option for the Laptop

Test 2.1 – To Provide the Non Existed Value as Input for sell of Laptop

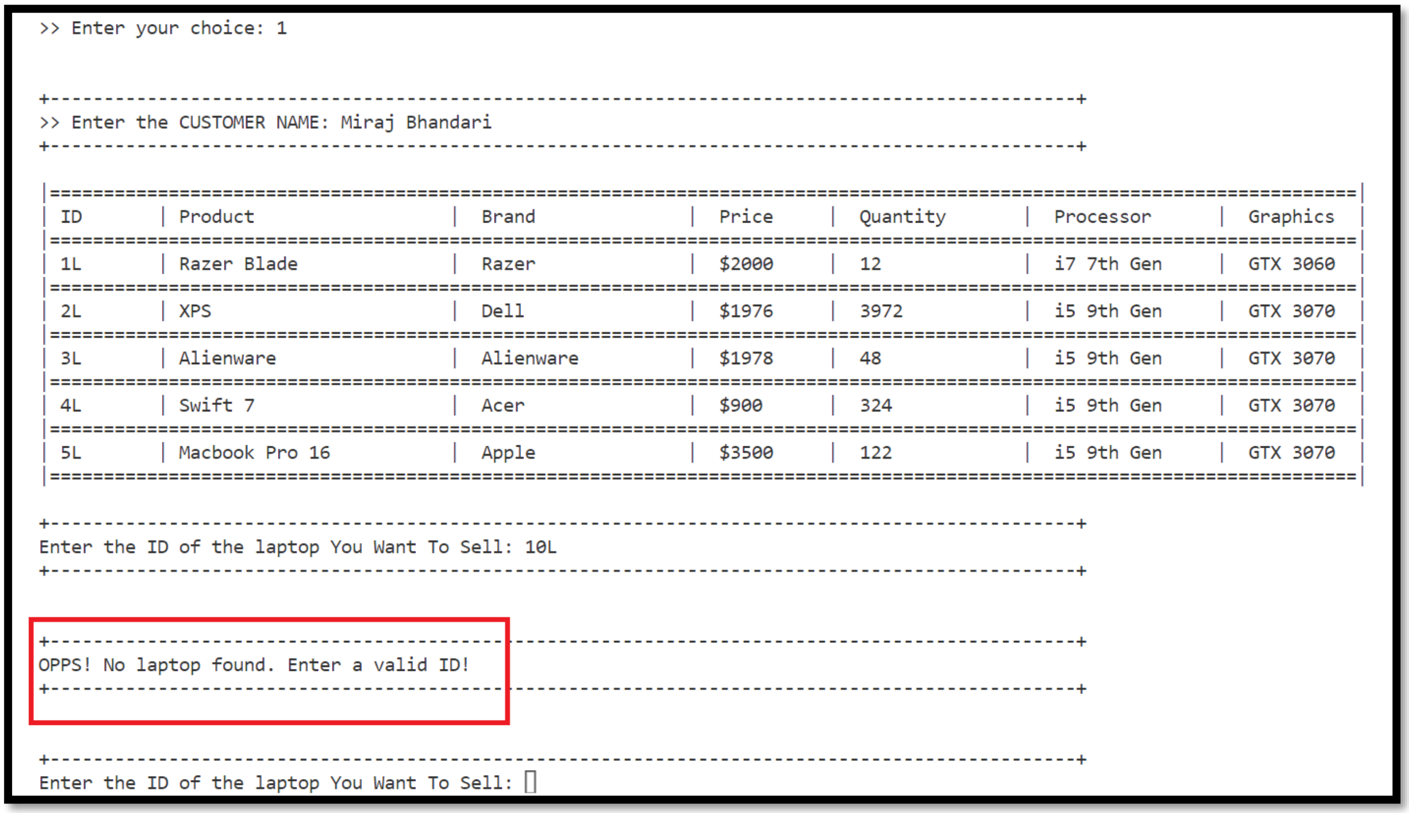
Test NO.	2.1
Objective:	To Provide the Non Existed Value as Input for sell of Laptop
Action:	➡ The main module was executed and the sell option was selected by entering "1" as input. ➡ The customer name "Miraj Bhandari" was entered. ➡ An Invalid non existing ID "10L" was entered for the Laptop ID.
Expected Result:	The system would display an error message **'OPPS! No laptop found. Enter a valid ID!'** and would prompt the user again to enter a valid ID to sell the Laptop
Actual Result:	The system displayed an error message **'OPPS! No laptop found. Enter a valid ID!'** and prompted the user again to enter a valid ID to sell the Laptop.
Conclusion:	The test is successful.

Table 2: Test 2.1 – To Provide the Non Existed Value as Input for sell of Laptop



```
>> Enter your choice: 1


+--------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
+--------------------------------------------------------------------------------+

|=====================================================================================================|
| ID       | Product                | Brand              | Price     | Quantity      | Processor     | Graphics  |
|=====================================================================================================|
| 1L       | Razer Blade            | Razer              | $2000     | 12            | i7 7th Gen    | GTX 3060  |
|=====================================================================================================|
| 2L       | XPS                    | Dell               | $1976     | 3972          | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|
| 3L       | Alienware              | Alienware          | $1978     | 48            | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|
| 4L       | Swift 7                | Acer               | $900      | 324           | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|
| 5L       | Macbook Pro 16         | Apple              | $3500     | 122           | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|

+--------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 10L
+--------------------------------------------------------------------------------+
```

Figure 8: Screenshot of giving non existing Laptop ID as Input



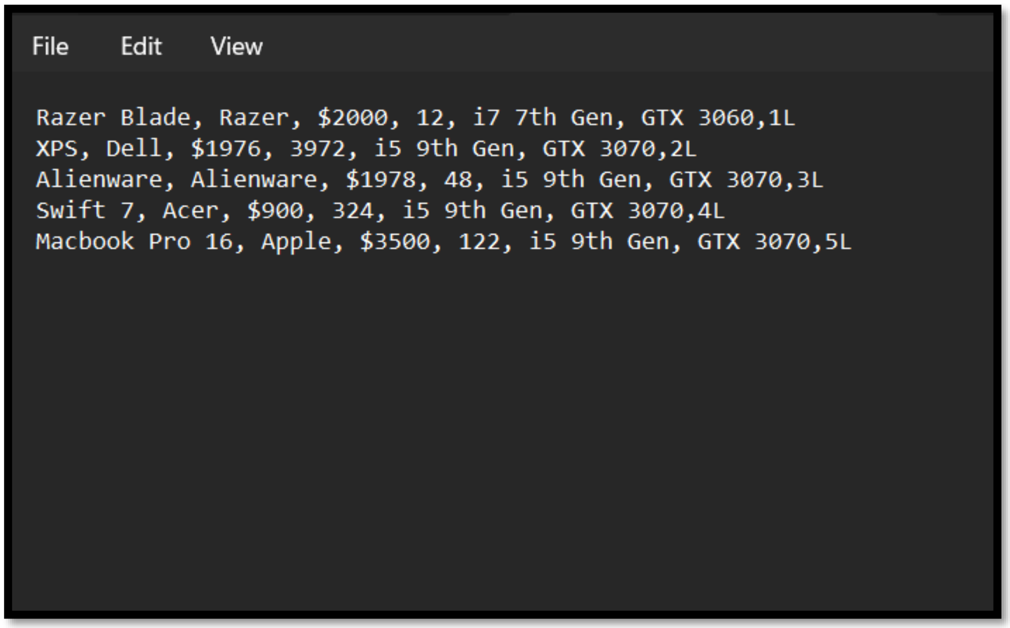
```
>> Enter your choice: 1


+--------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
+--------------------------------------------------------------------------------+

|=====================================================================================================|
| ID       | Product                | Brand              | Price     | Quantity      | Processor     | Graphics  |
|=====================================================================================================|
| 1L       | Razer Blade            | Razer              | $2000     | 12            | i7 7th Gen    | GTX 3060  |
|=====================================================================================================|
| 2L       | XPS                    | Dell               | $1976     | 3972          | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|
| 3L       | Alienware              | Alienware          | $1978     | 48            | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|
| 4L       | Swift 7                | Acer               | $900      | 324           | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|
| 5L       | Macbook Pro 16         | Apple              | $3500     | 122           | i5 9th Gen    | GTX 3070  |
|=====================================================================================================|

+--------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 10L
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
OPPS! No laptop found. Enter a valid ID!
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell:
```

Figure 9: Screenshot of Error when non existing ID is given to sell the Laptop

Test 2.2 – To Provide the Non Existed Value as Input for purchase of Laptop

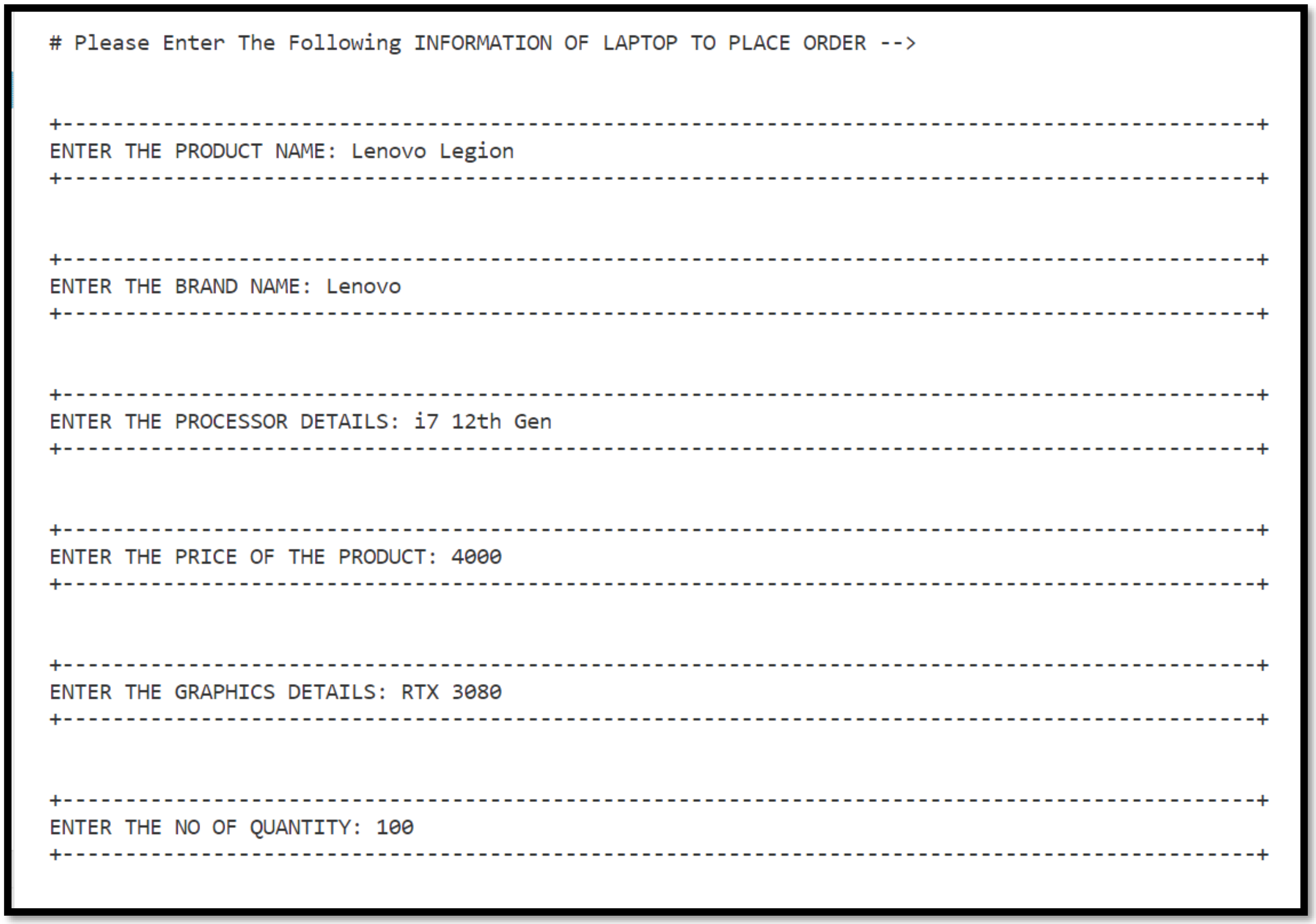
Test NO.	2.2
Objective:	To Provide the Non Existed Value as Input for purchase of Laptop
Action:	➡ The main module was executed and the order option was selected by entering "2" as input. ➡ The Product name "Lenovo Legion", Brand name "Lenovo", Processor "i7 12th Gen", Price "4000", Graphics "RTX 3080" and Quantity "100" were entered.
Expected Result:	The Non Exsisting Laptop will be added to the text file which contains all the details of other Laptops.
Actual Result:	The Non Exsisting Laptop was successfully added to the text file which contains all the details of other Laptops.
Conclusion:	The test is successful.

Table 3: Test 2.2 – To Provide the Non Existed Value as Input for purchase of Laptop



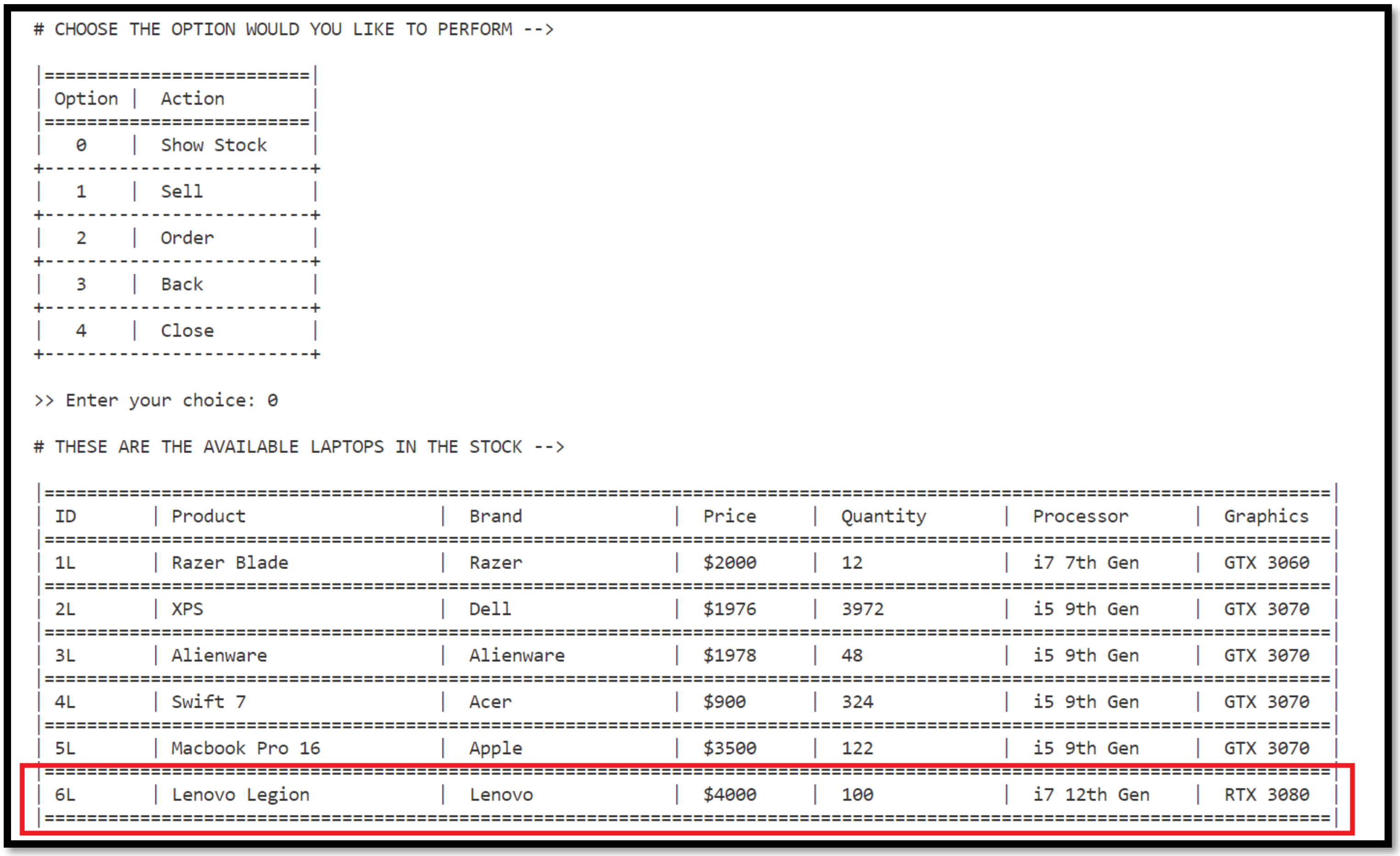
```
Razer Blade, Razer, $2000, 12, i7 7th Gen, GTX 3060,1L
XPS, Dell, $1976, 3972, i5 9th Gen, GTX 3070,2L
Alienware, Alienware, $1978, 48, i5 9th Gen, GTX 3070,3L
Swift 7, Acer, $900, 324, i5 9th Gen, GTX 3070,4L
Macbook Pro 16, Apple, $3500, 122, i5 9th Gen, GTX 3070,5L
```

Figure 10: Screenshot of txt file which contains all Laptop Details (Before)



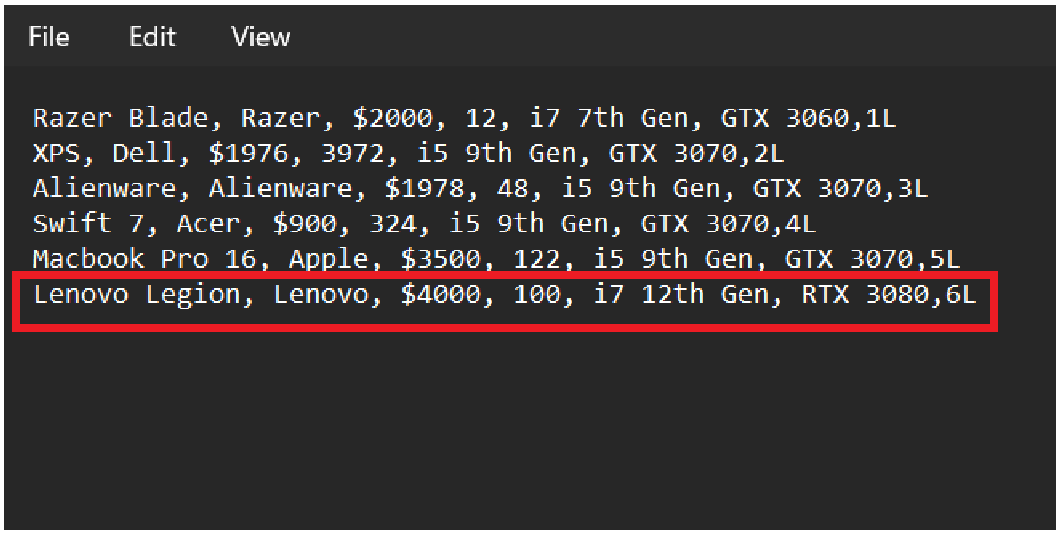
```
# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+------------------------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: Lenovo Legion
+------------------------------------------------------------------------------------------------+


+------------------------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Lenovo
+------------------------------------------------------------------------------------------------+


+------------------------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i7 12th Gen
+------------------------------------------------------------------------------------------------+


+------------------------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 4000
+------------------------------------------------------------------------------------------------+


+------------------------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: RTX 3080
+------------------------------------------------------------------------------------------------+


+------------------------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 100
+------------------------------------------------------------------------------------------------+
```

Figure 11: Screenshot of Giving Input for Purchase Non Existing Laptop



```
# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|========================|
| Option |   Action      |
|========================|
|   0    |  Show Stock   |
+------------------------+
|   1    |  Sell         |
+------------------------+
|   2    |  Order        |
+------------------------+
|   3    |  Back         |
+------------------------+
|   4    |  Close        |
+------------------------+

>> Enter your choice: 0

# THESE ARE THE AVAILABLE LAPTOPS IN THE STOCK -->

|====================================================================================================|
| ID       | Product              | Brand             | Price    | Quantity      | Processor     | Graphics  |
|====================================================================================================|
| 1L       | Razer Blade          | Razer             | $2000    | 12            | i7 7th Gen    | GTX 3060  |
|====================================================================================================|
| 2L       | XPS                  | Dell              | $1976    | 3972          | i5 9th Gen    | GTX 3070  |
|====================================================================================================|
| 3L       | Alienware            | Alienware         | $1978    | 48            | i5 9th Gen    | GTX 3070  |
|====================================================================================================|
| 4L       | Swift 7              | Acer              | $900     | 324           | i5 9th Gen    | GTX 3070  |
|====================================================================================================|
| 5L       | Macbook Pro 16       | Apple             | $3500    | 122           | i5 9th Gen    | GTX 3070  |
|====================================================================================================|
| 6L       | Lenovo Legion        | Lenovo            | $4000    | 100           | i7 12th Gen   | RTX 3080  |
|====================================================================================================|
```

Figure 12: Screenshot of addition of Non Existing Laptop in Stock after purchasing Non Existing Laptop



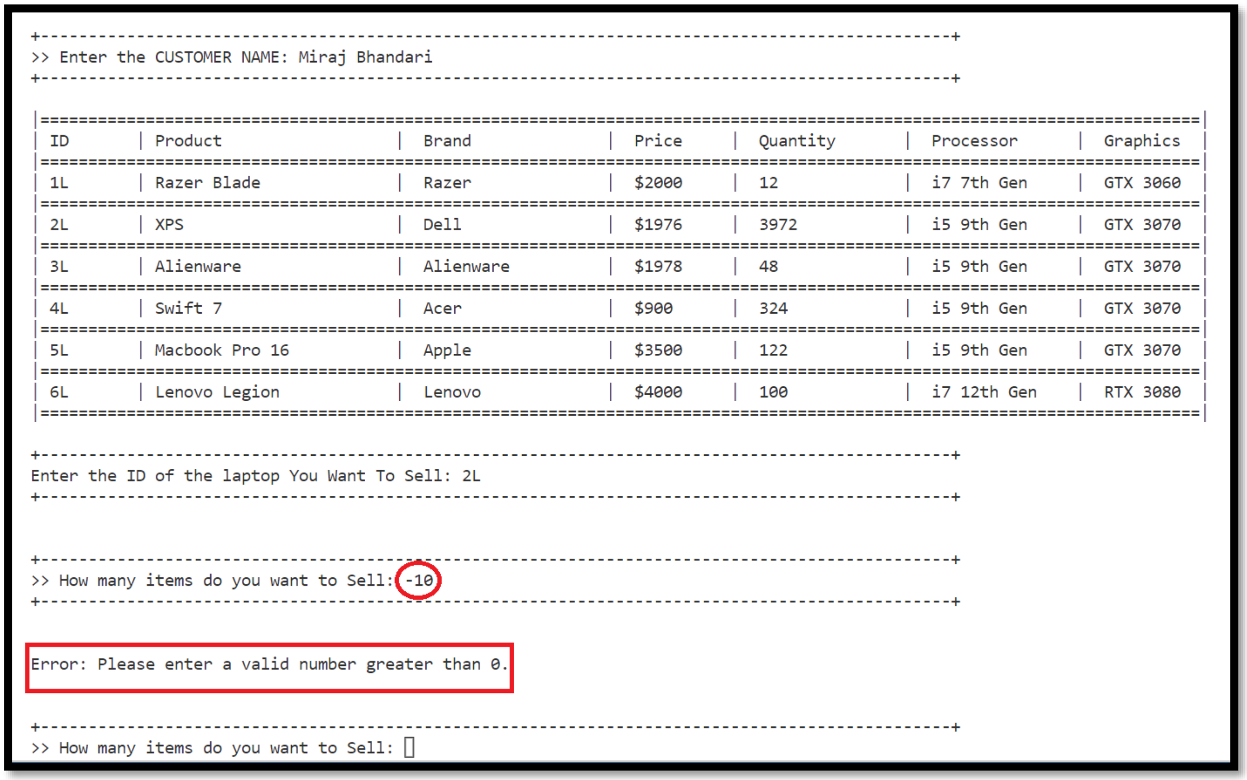
```
Razer Blade, Razer, $2000, 12, i7 7th Gen, GTX 3060,1L
XPS, Dell, $1976, 3972, i5 9th Gen, GTX 3070,2L
Alienware, Alienware, $1978, 48, i5 9th Gen, GTX 3070,3L
Swift 7, Acer, $900, 324, i5 9th Gen, GTX 3070,4L
Macbook Pro 16, Apple, $3500, 122, i5 9th Gen, GTX 3070,5L
Lenovo Legion, Lenovo, $4000, 100, i7 12th Gen, RTX 3080,6L
```

Figure 13: Screenshot of addition of Non Existing Laptop in txt file after purchasing Non Existing Laptop

Test 2.3 – To Provide Negative Value as Input for Sell and purchase of Laptop

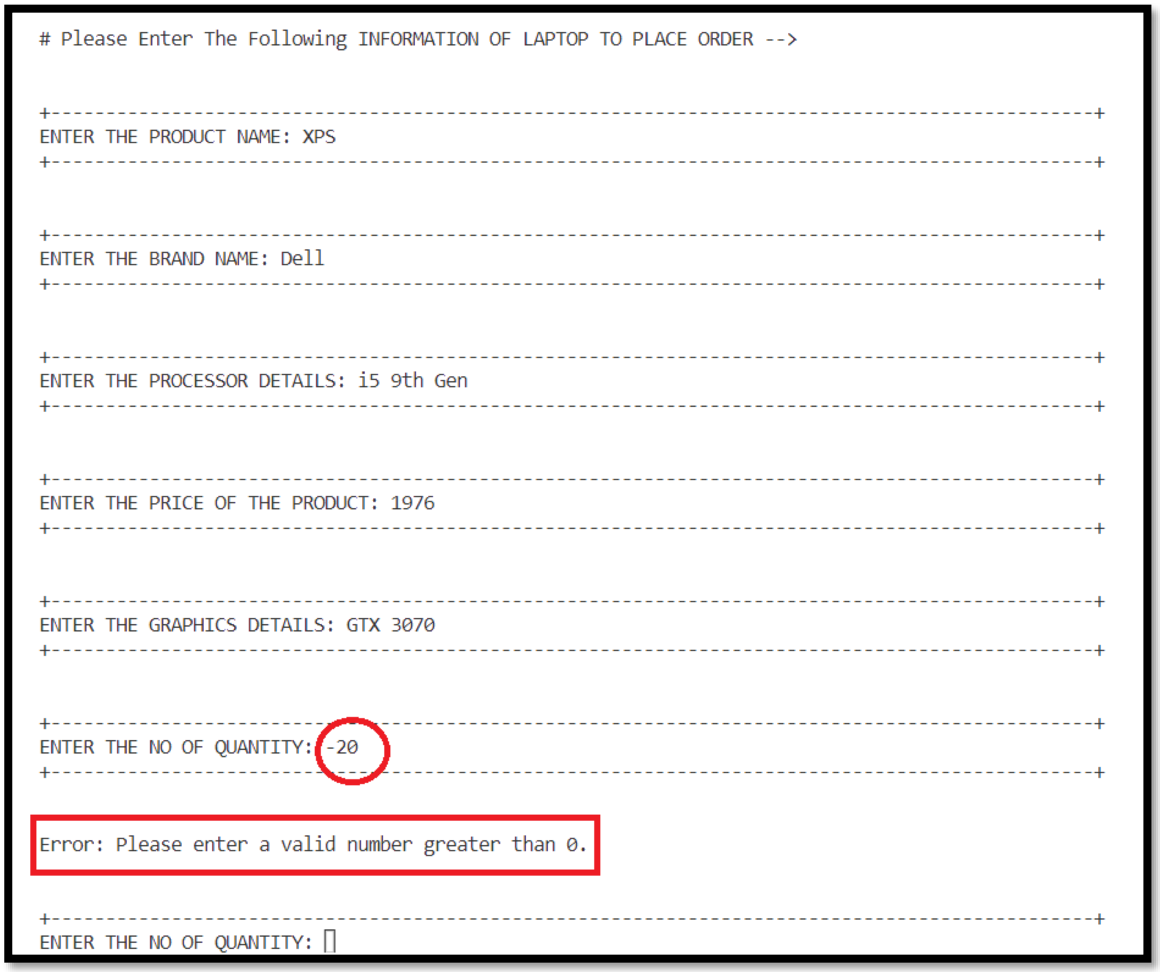
Test NO.	2.3
Objective:	To Provide Negative Value as Input for Sell and purchase of Laptop
Action:	**<u>FOR SELL</u>** ➡ The No of Quantity to Sell was given "-10" as Input. **<u>FOR PURCHASE</u>** ➡ The No of Quantity to Purchase was given "-20" as Input.
Expected Result:	The system would display an error message **'Error: Please enter a valid number greater than 0.'** and would prompt the user again to enter a valid number for Quantity.
Actual Result:	The system displayed an error message **'Error: Please enter a valid number greater than 0.'** and prompted the user again to enter a valid number for Quantity.
Conclusion:	The test is successful.

Table 4: Test 2.3 – To Provide Negative Value as Input for Sell and purchase of Laptop



```
+-----------------------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
+-----------------------------------------------------------------------------------------------+

|======================================================================================================================|
| ID        | Product                  | Brand                | Price       | Quantity        | Processor       | Graphics  |
|======================================================================================================================|
| 1L        | Razer Blade              | Razer                | $2000       | 12              | i7 7th Gen      | GTX 3060  |
|======================================================================================================================|
| 2L        | XPS                      | Dell                 | $1976       | 3972            | i5 9th Gen      | GTX 3070  |
|======================================================================================================================|
| 3L        | Alienware                | Alienware            | $1978       | 48              | i5 9th Gen      | GTX 3070  |
|======================================================================================================================|
| 4L        | Swift 7                  | Acer                 | $900        | 324             | i5 9th Gen      | GTX 3070  |
|======================================================================================================================|
| 5L        | Macbook Pro 16           | Apple                | $3500       | 122             | i5 9th Gen      | GTX 3070  |
|======================================================================================================================|
| 6L        | Lenovo Legion            | Lenovo               | $4000       | 100             | i7 12th Gen     | RTX 3080  |
|======================================================================================================================|

+-----------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 2L
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: -10
+-----------------------------------------------------------------------------------------------+

Error: Please enter a valid number greater than 0.

+-----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: 
```

Figure 14: Screenshot of Error when negative value is given in input for sell



```
# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+-----------------------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: XPS
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Dell
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i5 9th Gen
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 1976
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: GTX 3070
+-----------------------------------------------------------------------------------------------+


+-----------------------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: -20
+-----------------------------------------------------------------------------------------------+

Error: Please enter a valid number greater than 0.

+-----------------------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 
```

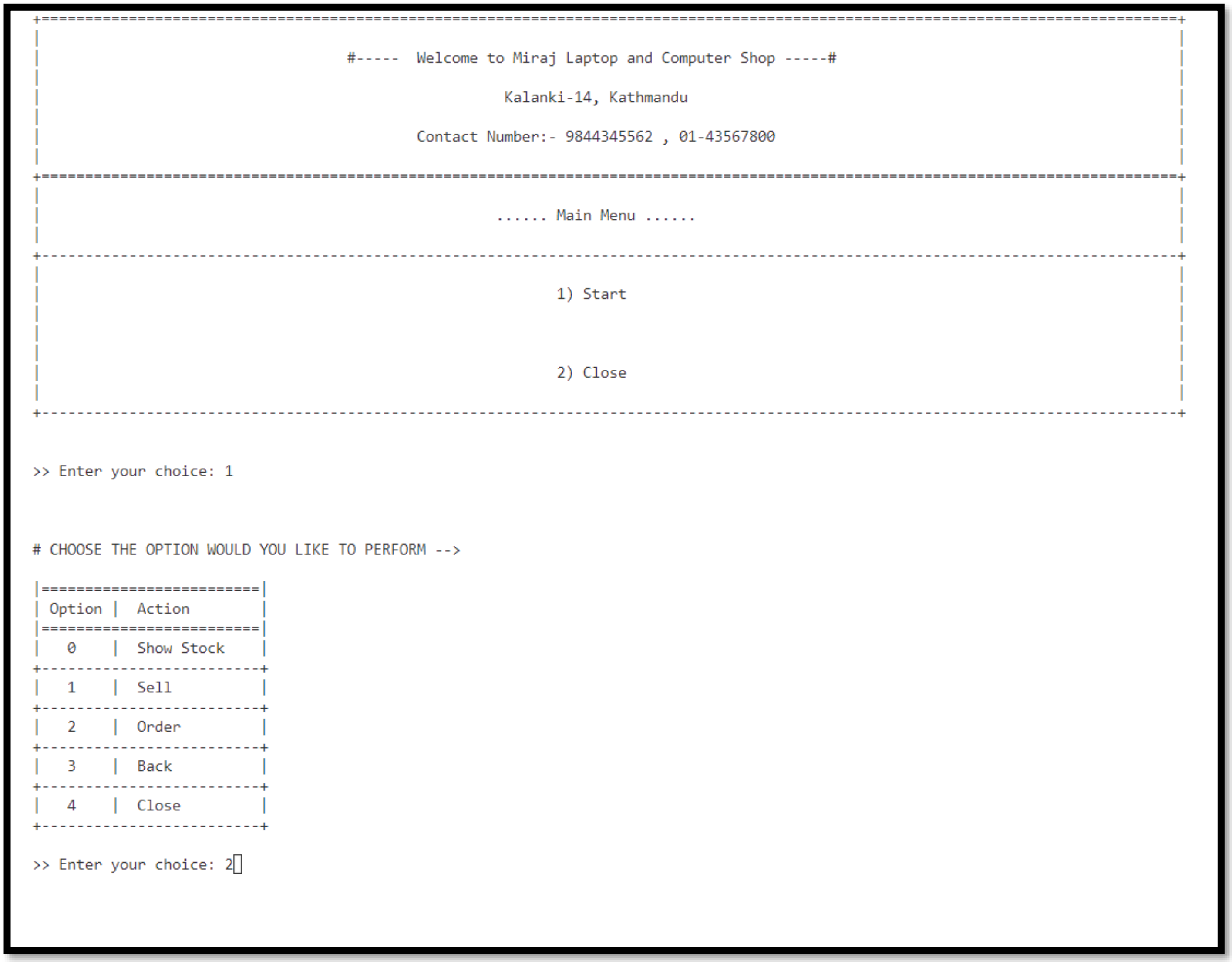
Figure 15: Screenshot of Error when negative value is given in input for purchase

Test 3 – To Show File generation of purchase of laptops (Purchasing multiple laptops)

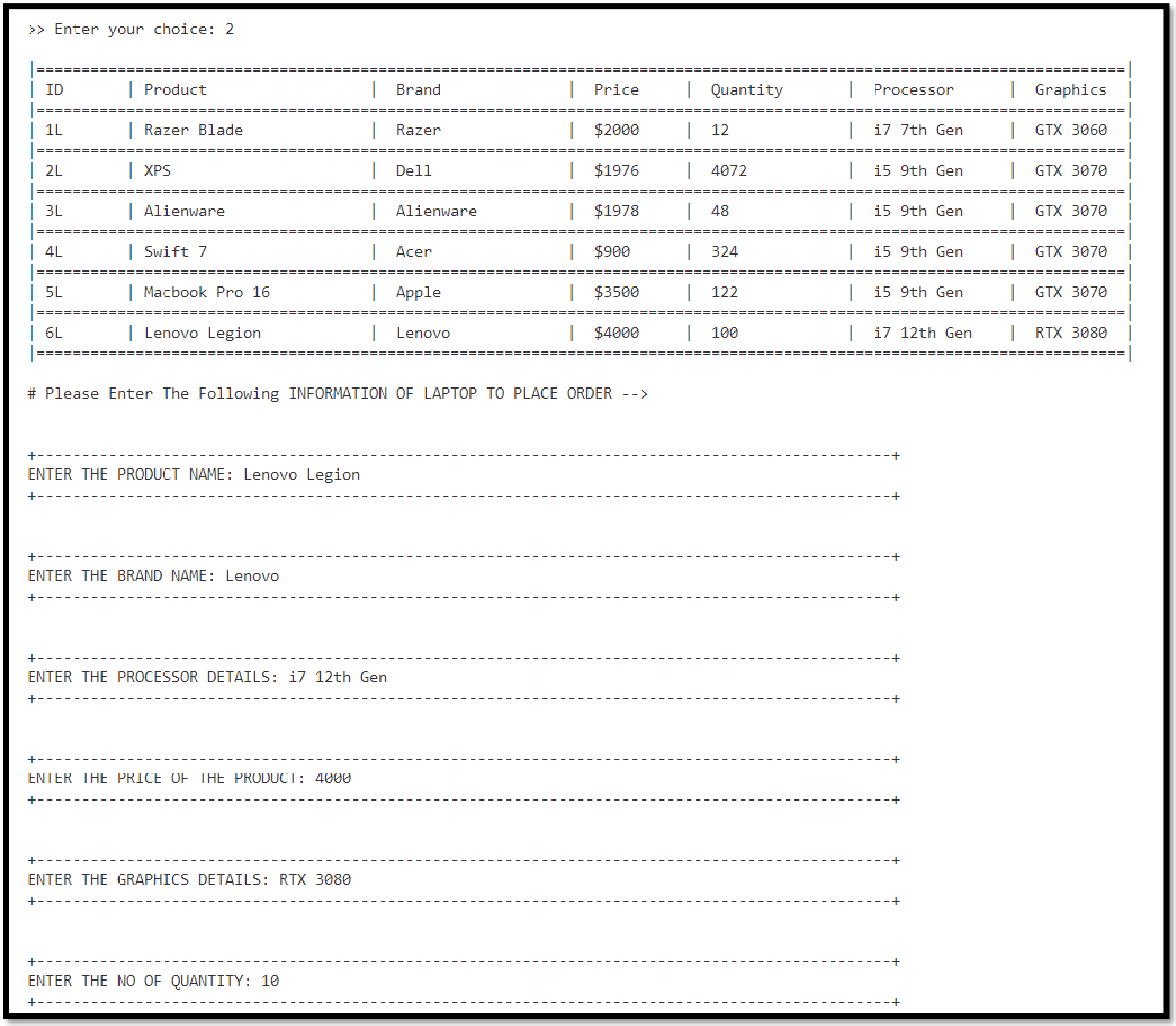
Test NO.	3
Objective:	To Show File generation of purchase of laptops (Purchasing multiple laptops)
Action:	➡ The main module was executed and inputted “1” to start then the order option was selected by entering “2” as input. ➡ The Product name “Lenovo Legion”, Brand name “Lenovo”, Processor “i7 12th Gen”, Price “4000”, Graphics “RTX 3080” and Quantity “10” were entered. **(FIRST ORDER)** ➡ ‘Y’ was entered when promt “ Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> ” appeared. ➡The Product name “XPS”, Brand name “Dell”, Processor “i5 9th Gen”, Price “1976”, Graphics “GTX 3070” and Quantity “100” were entered. **(SECOND ORDER)** ➡ ‘N’ was entered when promt “ Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> ” appeared.

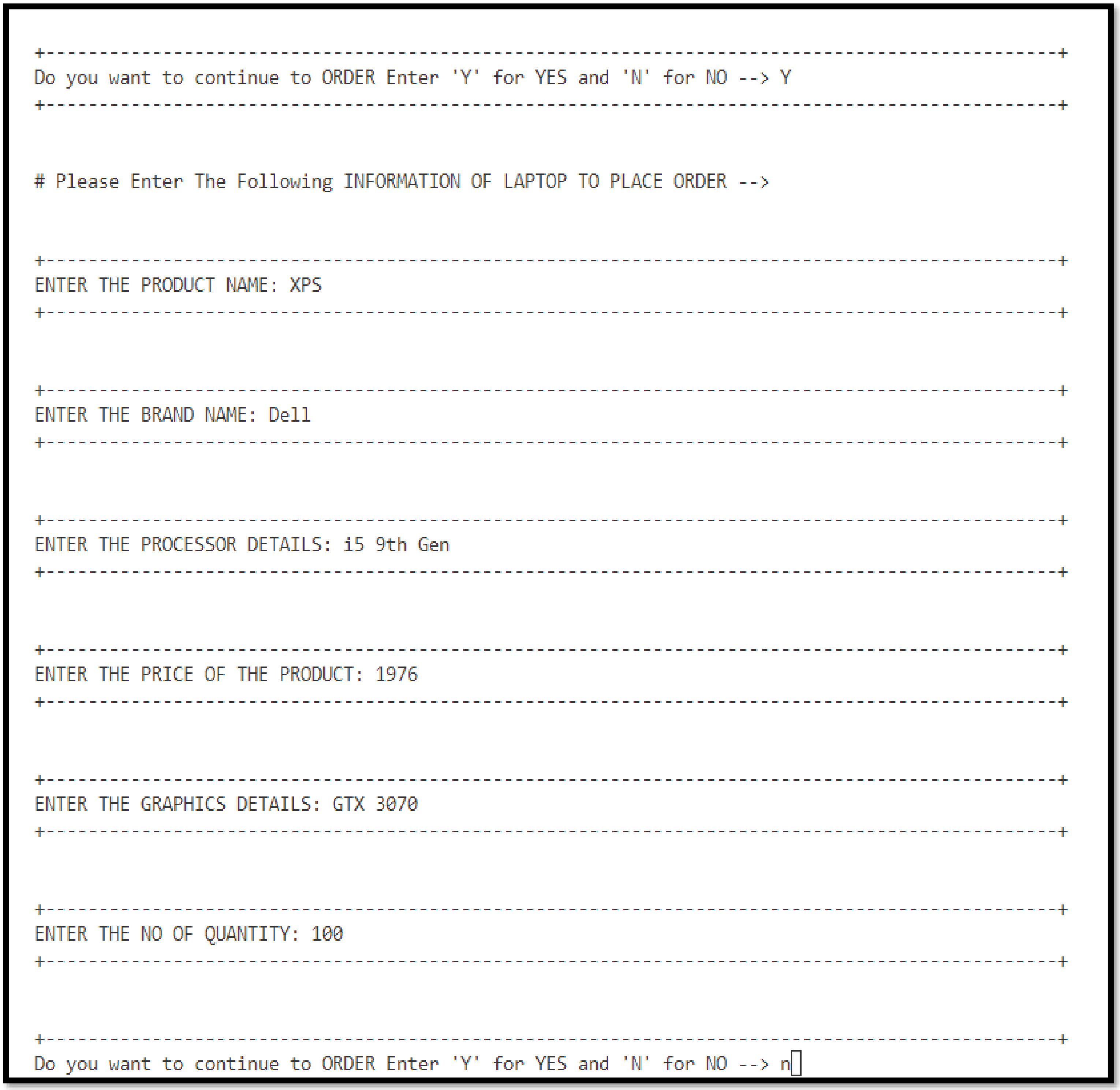
Expected Result:	A single purchase invoice will be created that includes the purchase information of both laptops.
Actual Result:	A single purchase invoice was created that includes the purchase information of both laptops.
Conclusion:	The test is successful.

Table 5: Test 3 – To Show File generation of purchase of laptops (Purchasing multiple laptops)

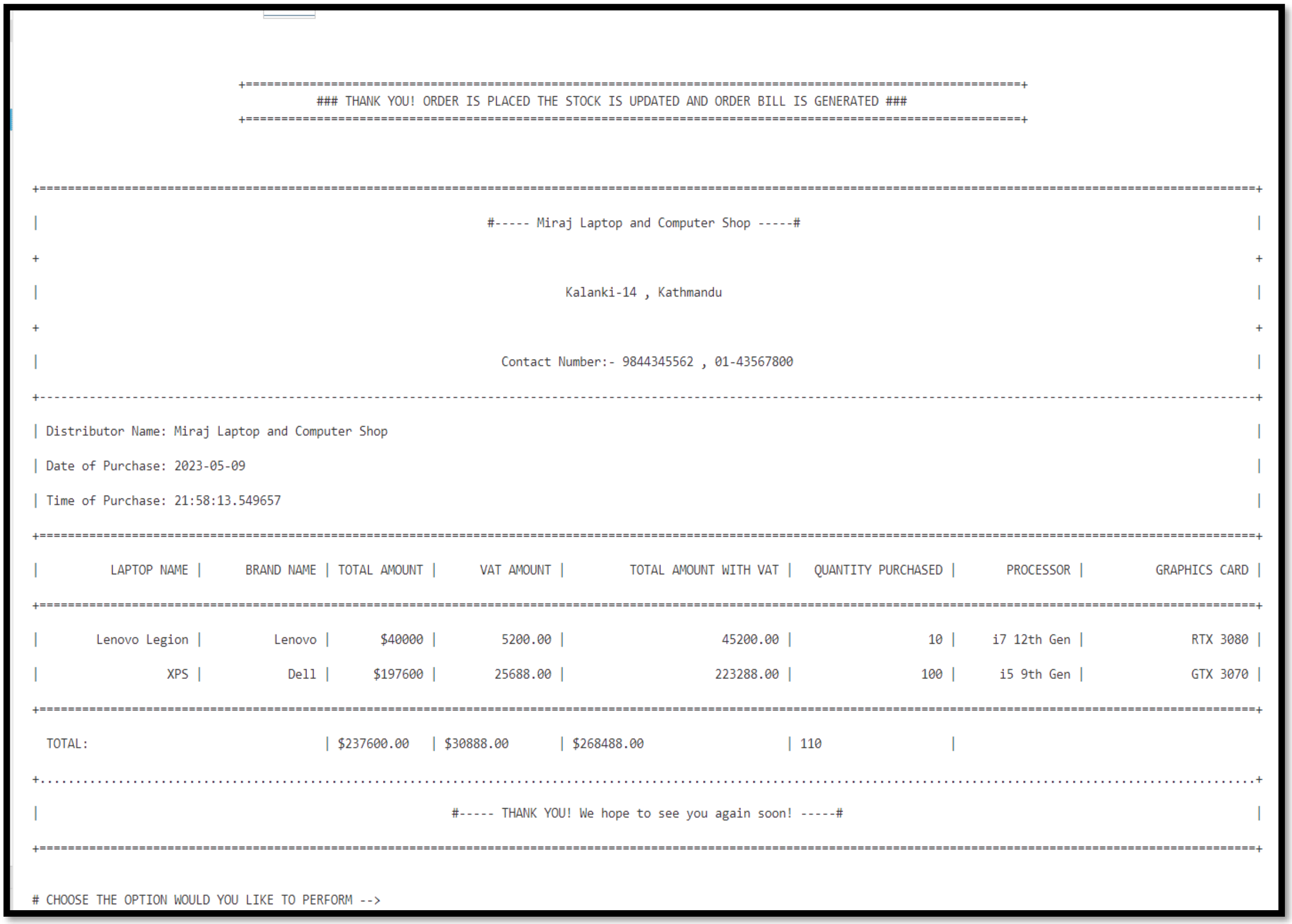


```
+====================================================================================================================+
|                                                                                                                    |
|                                #-----  Welcome to Miraj Laptop and Computer Shop -----#                            |
|                                                                                                                    |
|                                              Kalanki-14, Kathmandu                                                 |
|                                                                                                                    |
|                                      Contact Number:- 9844345562 , 01-43567800                                     |
|                                                                                                                    |
+====================================================================================================================+
|                                                                                                                    |
|                                              ...... Main Menu ......                                               |
|                                                                                                                    |
+--------------------------------------------------------------------------------------------------------------------+
|                                                                                                                    |
|                                                    1) Start                                                        |
|                                                                                                                    |
|                                                                                                                    |
|                                                    2) Close                                                        |
|                                                                                                                    |
+--------------------------------------------------------------------------------------------------------------------+


>> Enter your choice: 1


# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action        |
|=========================|
|   0    |  Show Stock    |
+-------------------------+
|   1    |  Sell          |
+-------------------------+
|   2    |  Order         |
+-------------------------+
|   3    |  Back          |
+-------------------------+
|   4    |  Close         |
+-------------------------+

>> Enter your choice: 2
```


```
>> Enter your choice: 2

|==================================================================================================|
| ID      | Product               | Brand            | Price    | Quantity      | Processor     | Graphics |
|==================================================================================================|
| 1L      | Razer Blade           | Razer            | $2000    | 12            | i7 7th Gen    | GTX 3060 |
|==================================================================================================|
| 2L      | XPS                   | Dell             | $1976    | 4072          | i5 9th Gen    | GTX 3070 |
|==================================================================================================|
| 3L      | Alienware             | Alienware        | $1978    | 48            | i5 9th Gen    | GTX 3070 |
|==================================================================================================|
| 4L      | Swift 7               | Acer             | $900     | 324           | i5 9th Gen    | GTX 3070 |
|==================================================================================================|
| 5L      | Macbook Pro 16        | Apple            | $3500    | 122           | i5 9th Gen    | GTX 3070 |
|==================================================================================================|
| 6L      | Lenovo Legion         | Lenovo           | $4000    | 100           | i7 12th Gen   | RTX 3080 |
|==================================================================================================|

# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: Lenovo Legion
+------------------------------------------------------------------------------+


+------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Lenovo
+------------------------------------------------------------------------------+


+------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i7 12th Gen
+------------------------------------------------------------------------------+


+------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 4000
+------------------------------------------------------------------------------+


+------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: RTX 3080
+------------------------------------------------------------------------------+


+------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 10
+------------------------------------------------------------------------------+
```

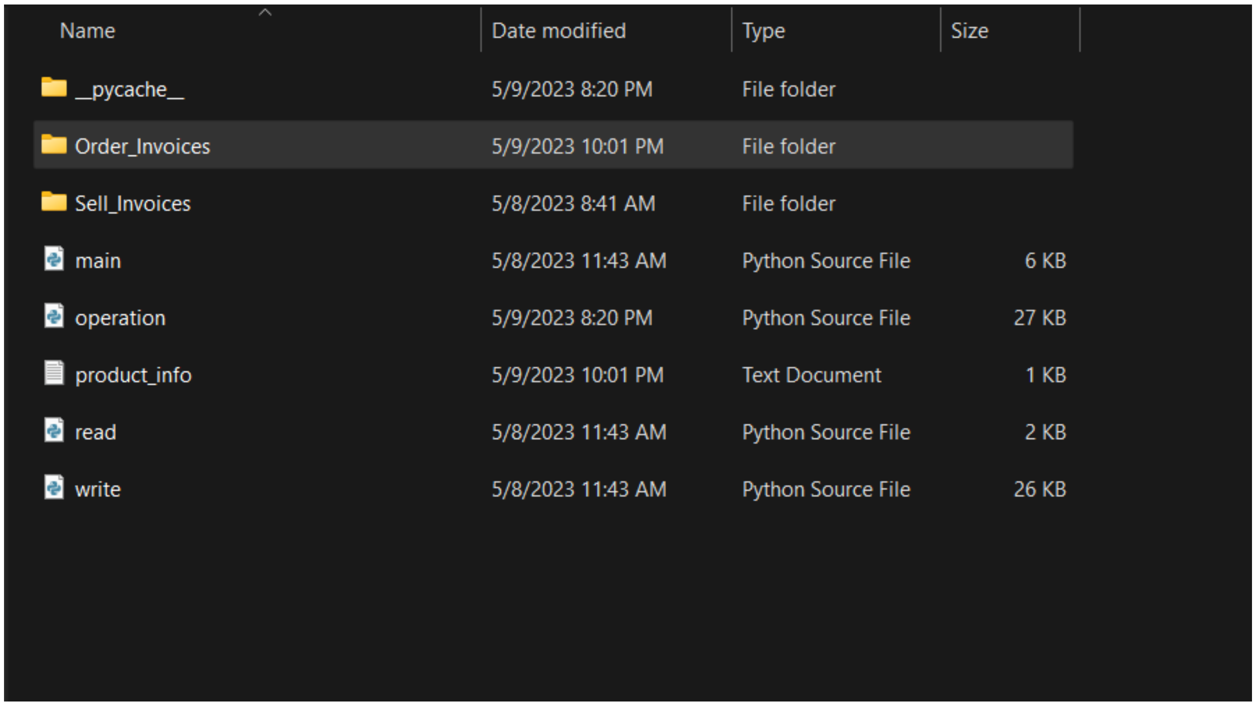


```
+--------------------------------------------------------------------------------+
Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> Y
+--------------------------------------------------------------------------------+


# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+--------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: XPS
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Dell
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i5 9th Gen
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 1976
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: GTX 3070
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 100
+--------------------------------------------------------------------------------+


+--------------------------------------------------------------------------------+
Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> n
```

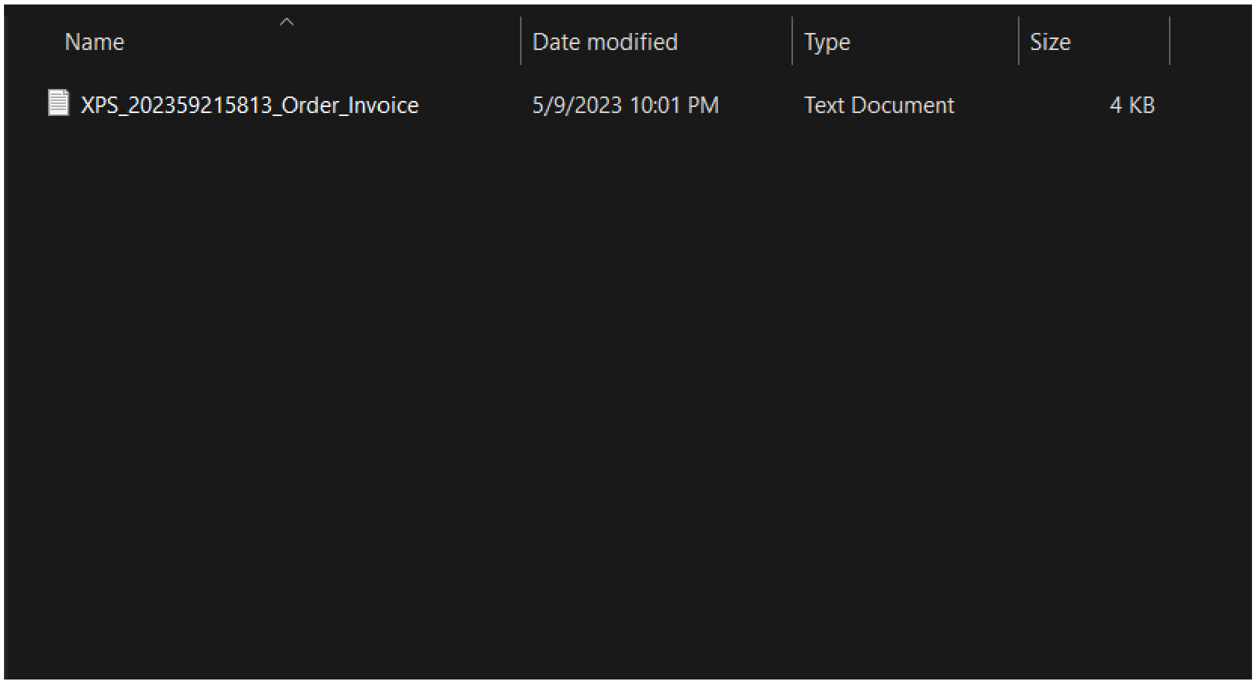


```
                    +==========================================================================================+
                            ### THANK YOU! ORDER IS PLACED THE STOCK IS UPDATED AND ORDER BILL IS GENERATED ###
                    +==========================================================================================+


+==================================================================================================================================================+
|                                                   #----- Miraj Laptop and Computer Shop -----#                                                   |
+                                                                                                                                                  +
|                                                           Kalanki-14 , Kathmandu                                                                 |
+                                                                                                                                                  +
|                                                Contact Number:- 9844345562 , 01-43567800                                                         |
+--------------------------------------------------------------------------------------------------------------------------------------------------+
| Distributor Name: Miraj Laptop and Computer Shop                                                                                                 |
| Date of Purchase: 2023-05-09                                                                                                                     |
| Time of Purchase: 21:58:13.549657                                                                                                                |
+==================================================================================================================================================+
|         LAPTOP NAME |      BRAND NAME | TOTAL AMOUNT |      VAT AMOUNT |         TOTAL AMOUNT WITH VAT |  QUANTITY PURCHASED |      PROCESSOR |        GRAPHICS CARD |
+==================================================================================================================================================+
|       Lenovo Legion |          Lenovo |       $40000 |         5200.00 |                      45200.00 |                  10 |    i7 12th Gen |             RTX 3080 |
|                 XPS |            Dell |      $197600 |        25688.00 |                     223288.00 |                 100 |     i5 9th Gen |             GTX 3070 |
+==================================================================================================================================================+
  TOTAL:                                | $237600.00   | $30888.00       | $268488.00                    | 110                 |
+..................................................................................................................................................+
|                                              #----- THANK YOU! We hope to see you again soon! -----#                                             |
+==================================================================================================================================================+

# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->
```

Figure 16: Screenshot of Complete process of Purcahse of Multiple Laptop with Purchase Invoice output in Shell

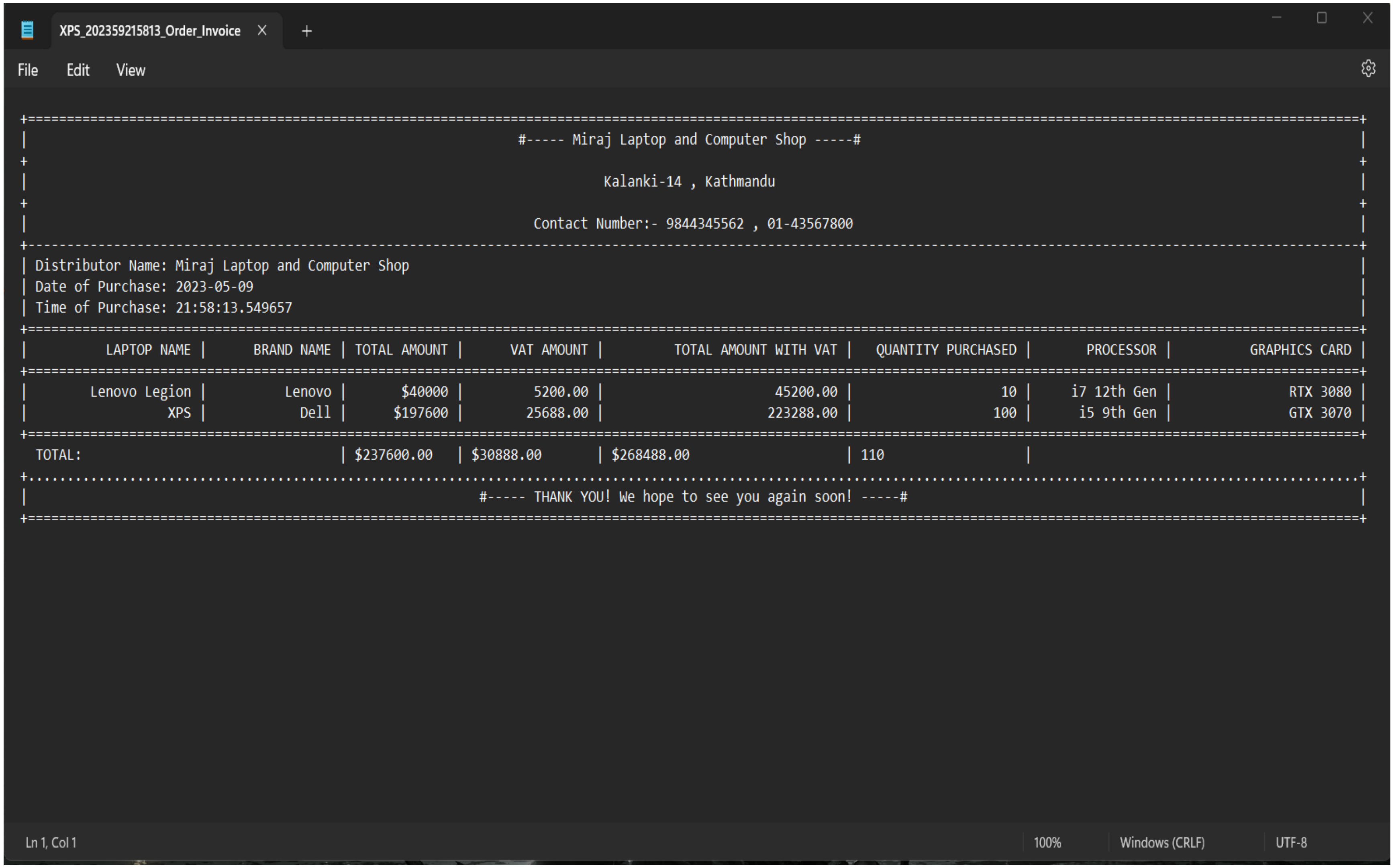


Name	Date modified	Type	Size
__pycache__	5/9/2023 8:20 PM	File folder	
Order_Invoices	5/9/2023 10:01 PM	File folder	
Sell_Invoices	5/8/2023 8:41 AM	File folder	
main	5/8/2023 11:43 AM	Python Source File	6 KB
operation	5/9/2023 8:20 PM	Python Source File	27 KB
product_info	5/9/2023 10:01 PM	Text Document	1 KB
read	5/8/2023 11:43 AM	Python Source File	2 KB
write	5/8/2023 11:43 AM	Python Source File	26 KB



Name	Date modified	Type	Size
XPS_202359215813_Order_Invoice	5/9/2023 10:01 PM	Text Document	4 KB

Figure 17: Screenshot of opening Purchase Invoice in txt File


XPS_202359215813_Order_Invoice

File Edit View

```
+====================================================================================================================================+
|                                              #----- Miraj Laptop and Computer Shop -----#                                          |
+                                                                                                                                    +
|                                                      Kalanki-14 , Kathmandu                                                        |
+                                                                                                                                    +
|                                               Contact Number:- 9844345562 , 01-43567800                                            |
+------------------------------------------------------------------------------------------------------------------------------------+
| Distributor Name: Miraj Laptop and Computer Shop                                                                                   |
| Date of Purchase: 2023-05-09                                                                                                       |
| Time of Purchase: 21:58:13.549657                                                                                                  |
+====================================================================================================================================+
|        LAPTOP NAME |     BRAND NAME | TOTAL AMOUNT |     VAT AMOUNT |       TOTAL AMOUNT WITH VAT |  QUANTITY PURCHASED |      PROCESSOR |        GRAPHICS CARD |
+====================================================================================================================================+
|      Lenovo Legion |         Lenovo |       $40000 |        5200.00 |                    45200.00 |                  10 |    i7 12th Gen |             RTX 3080 |
|                XPS |           Dell |      $197600 |       25688.00 |                   223288.00 |                 100 |     i5 9th Gen |             GTX 3070 |
+====================================================================================================================================+
 TOTAL:                             | $237600.00   | $30888.00      | $268488.00                  | 110                 |
+....................................................................................................................................+
|                                         #----- THANK YOU! We hope to see you again soon! -----#                                    |
+====================================================================================================================================+
```

Ln 1, Col 1 100% Windows (CRLF) UTF-8

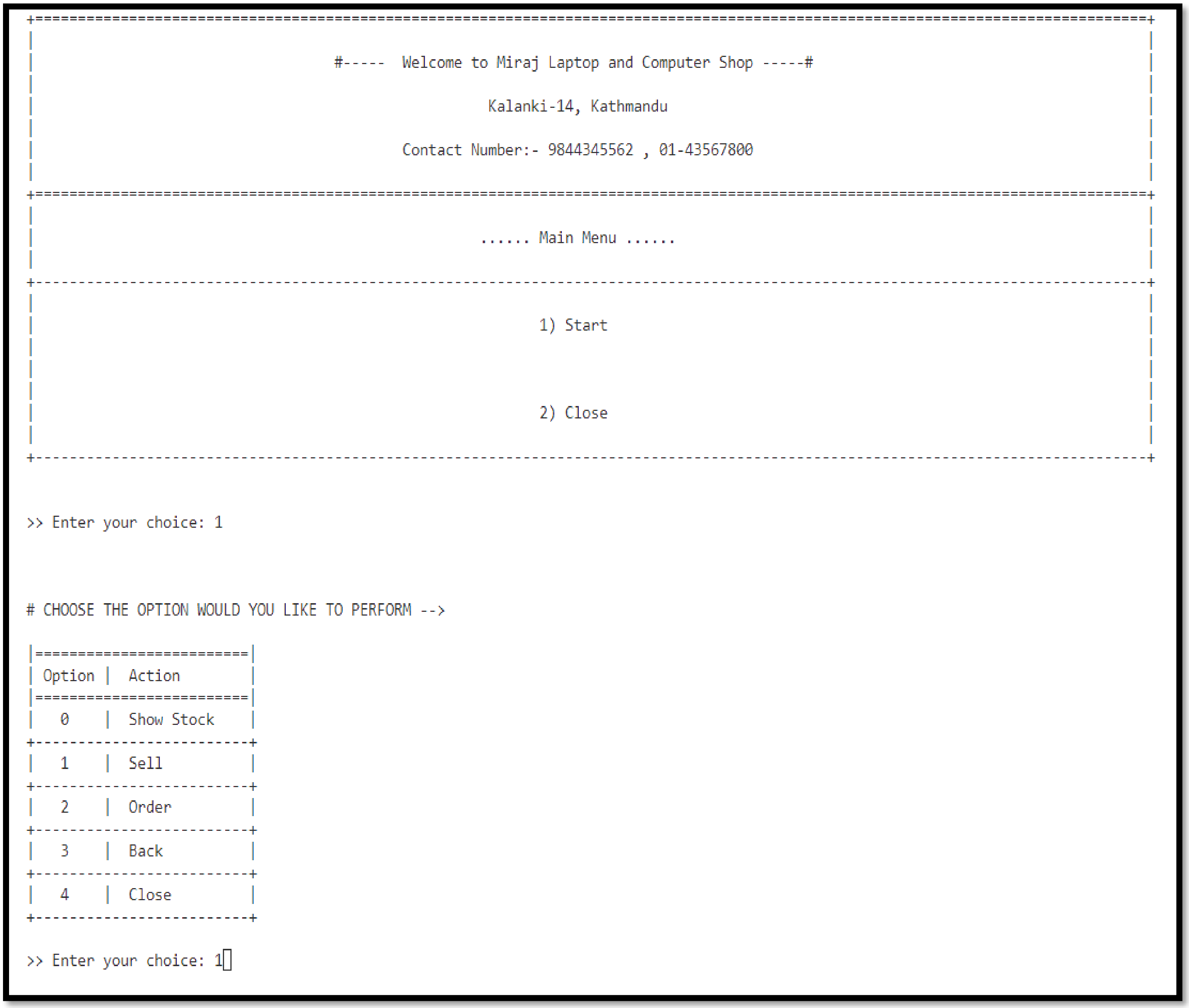
Figure 18: Screenshot of Purchase of multiple Laptops Invoice in txt file

Test 4 – To Show File generation of sales process of laptop (Selling multiple laptops)

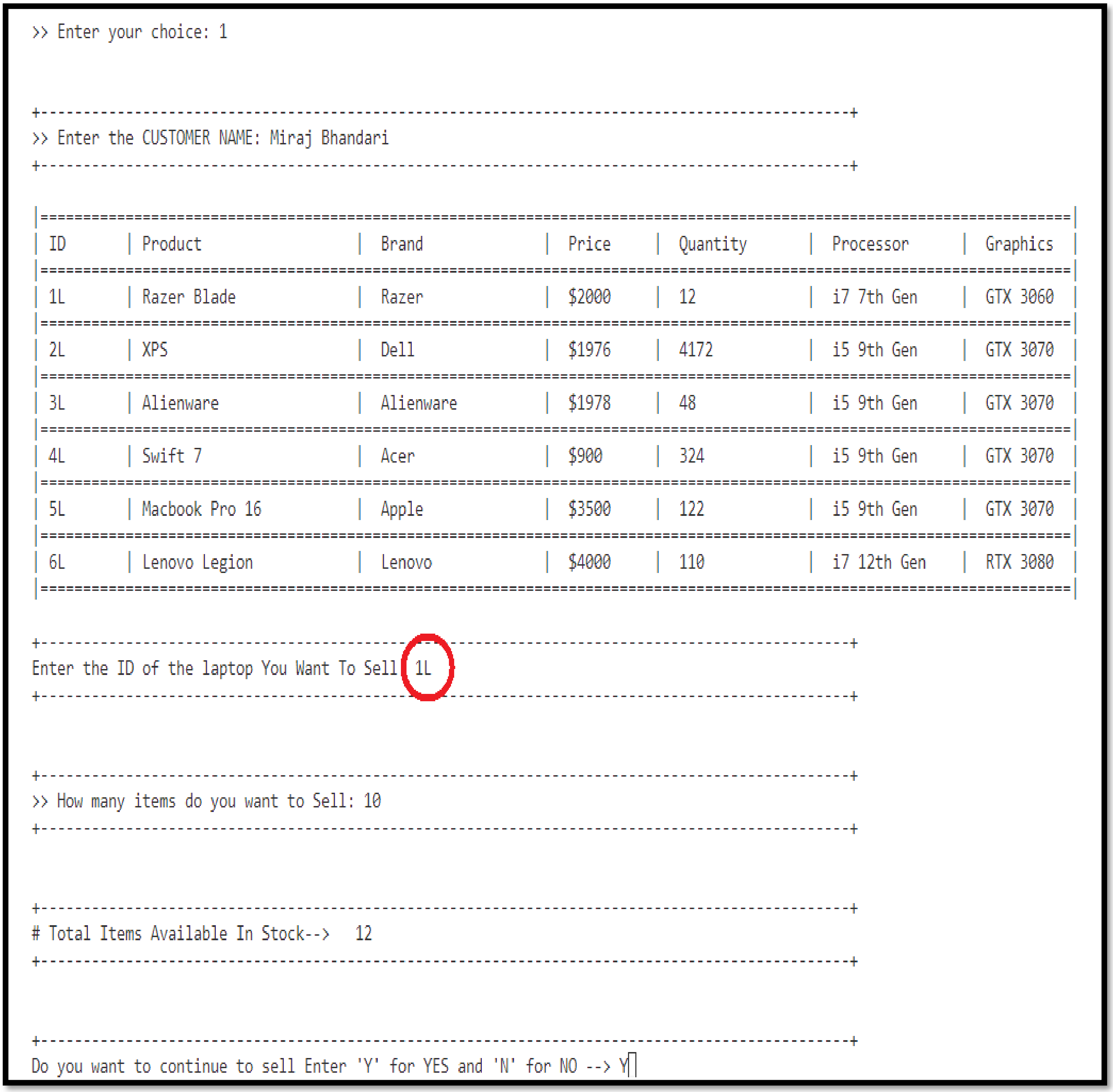
Test NO.	4
Objective:	To Show File generation of sales process of laptop (Selling multiple laptops)
Action:	➡ The main module was executed and inputted “1” to start then the sell option was selected by entering “1” as input. ➡ The Customer Name “Miraj Bhandari”, Laptop ID “1L”, and Quantity “10” were entered. **(FIRST SELL)** ➡ ‘Y’ was entered when promt “ Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> ” appeared. ➡ Laptop ID “5L”, and Quantity “5” were entered. **(SECOND SELL)** ➡ ‘Y ’was entered when promt “ Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> ” appeared. ➡ Laptop ID “3L”, and Quantity “15” were entered. **(THIRD SELL)** ➡ ‘N’ was entered when promt “ Do you want

	to continue to sell Enter 'Y' for YES and 'N' for NO --> ” appeared. ➡ ‘y’ was entered when promt “Do you want your item to be shipped ? Please Enter 'y' for yes and 'n' for NO --> ” appeared.
Expected Result:	A single Sell invoice will be created that includes the sell information of all three laptops.
Actual Result:	A single Sell invoice was created that includes the sell information of all three laptops.
Conclusion:	The test is successful.

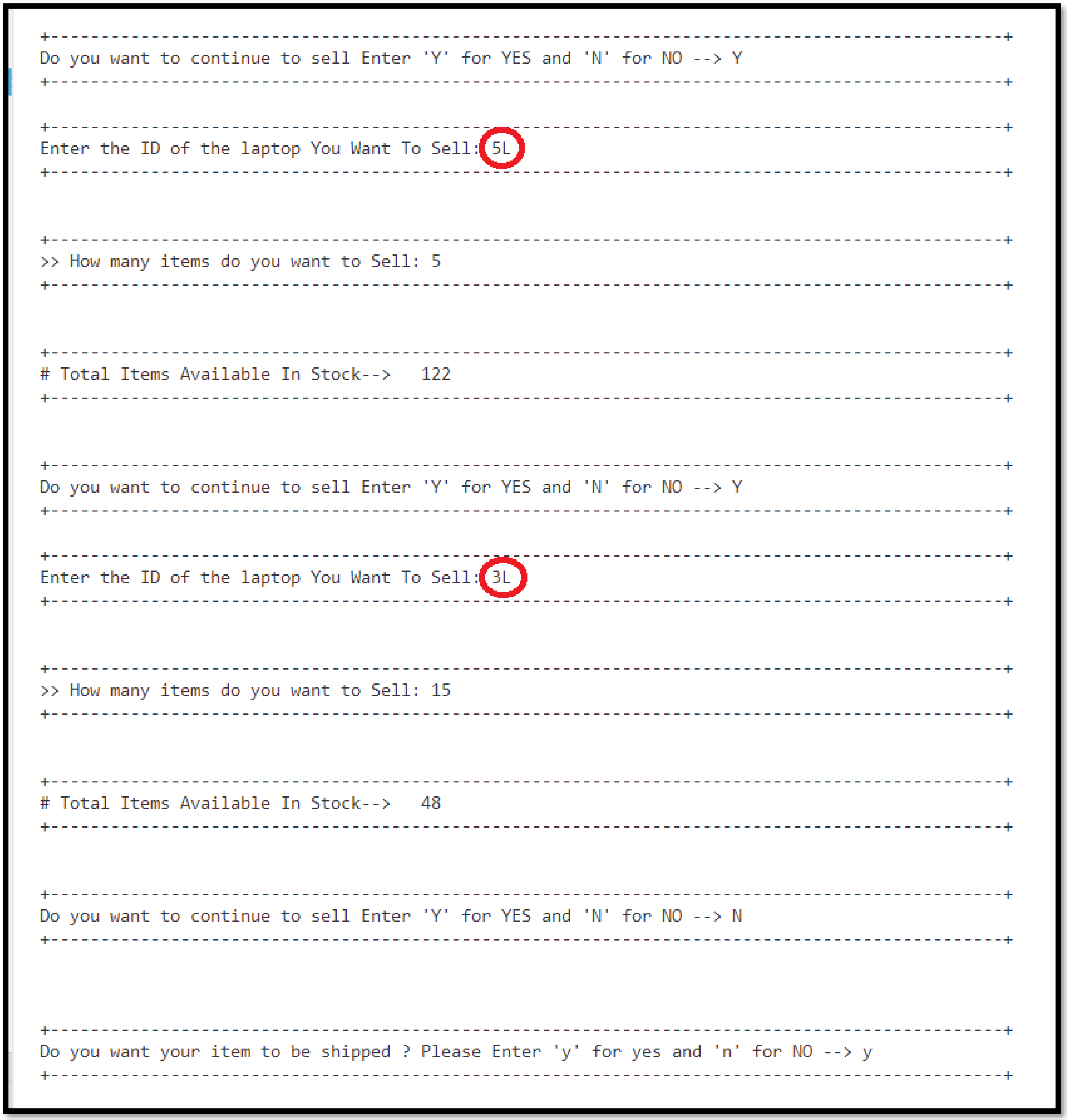
Table 6: Test 4 – To Show File generation of sales process of laptop (Selling multiple laptops)



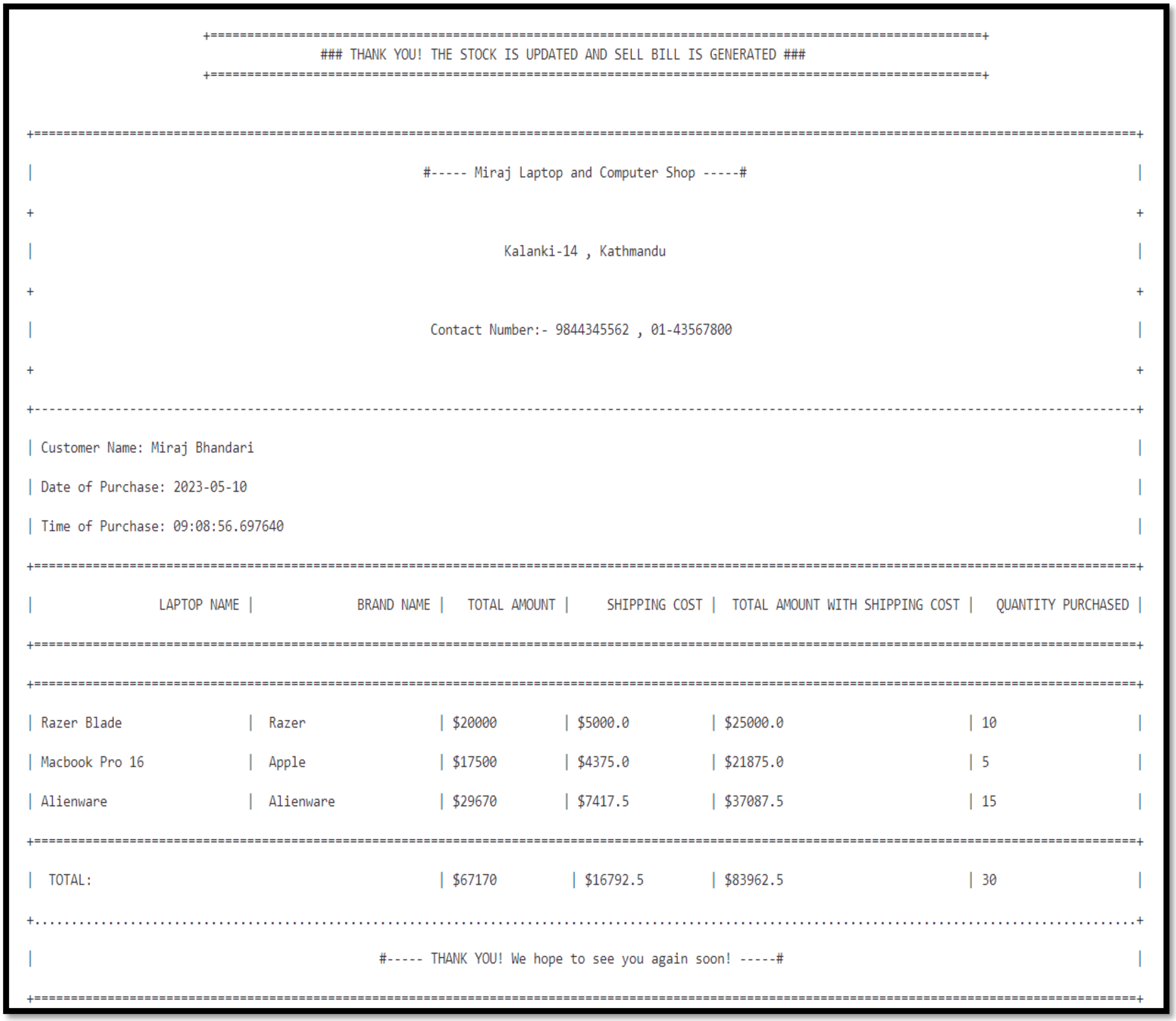
```
+==================================================================================================================+
|                                                                                                                  |
|                               #-----  Welcome to Miraj Laptop and Computer Shop -----#                           |
|                                                                                                                  |
|                                          Kalanki-14, Kathmandu                                                   |
|                                                                                                                  |
|                                 Contact Number:- 9844345562 , 01-43567800                                        |
|                                                                                                                  |
+==================================================================================================================+
|                                                                                                                  |
|                                            ...... Main Menu ......                                               |
|                                                                                                                  |
+------------------------------------------------------------------------------------------------------------------+
|                                                                                                                  |
|                                                 1) Start                                                         |
|                                                                                                                  |
|                                                                                                                  |
|                                                                                                                  |
|                                                 2) Close                                                         |
|                                                                                                                  |
+------------------------------------------------------------------------------------------------------------------+


>> Enter your choice: 1



# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|========================|
| Option |  Action       |
|========================|
|   0    |  Show Stock   |
+------------------------+
|   1    |  Sell         |
+------------------------+
|   2    |  Order        |
+------------------------+
|   3    |  Back         |
+------------------------+
|   4    |  Close        |
+------------------------+

>> Enter your choice: 1
```



```
>> Enter your choice: 1


+--------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
+--------------------------------------------------------------------------------+

|====================================================================================================|
| ID       | Product              | Brand             | Price    | Quantity     | Processor    | Graphics |
|====================================================================================================|
| 1L       | Razer Blade          | Razer             | $2000    | 12           | i7 7th Gen   | GTX 3060 |
|====================================================================================================|
| 2L       | XPS                  | Dell              | $1976    | 4172         | i5 9th Gen   | GTX 3070 |
|====================================================================================================|
| 3L       | Alienware            | Alienware         | $1978    | 48           | i5 9th Gen   | GTX 3070 |
|====================================================================================================|
| 4L       | Swift 7              | Acer              | $900     | 324          | i5 9th Gen   | GTX 3070 |
|====================================================================================================|
| 5L       | Macbook Pro 16       | Apple             | $3500    | 122          | i5 9th Gen   | GTX 3070 |
|====================================================================================================|
| 6L       | Lenovo Legion        | Lenovo            | $4000    | 110          | i7 12th Gen  | RTX 3080 |
|====================================================================================================|

+--------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell  1L
+--------------------------------------------------------------------------------+



+--------------------------------------------------------------------------------+
>> How many items do you want to Sell: 10
+--------------------------------------------------------------------------------+



+--------------------------------------------------------------------------------+
# Total Items Available In Stock-->   12
+--------------------------------------------------------------------------------+



+--------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> Y
```

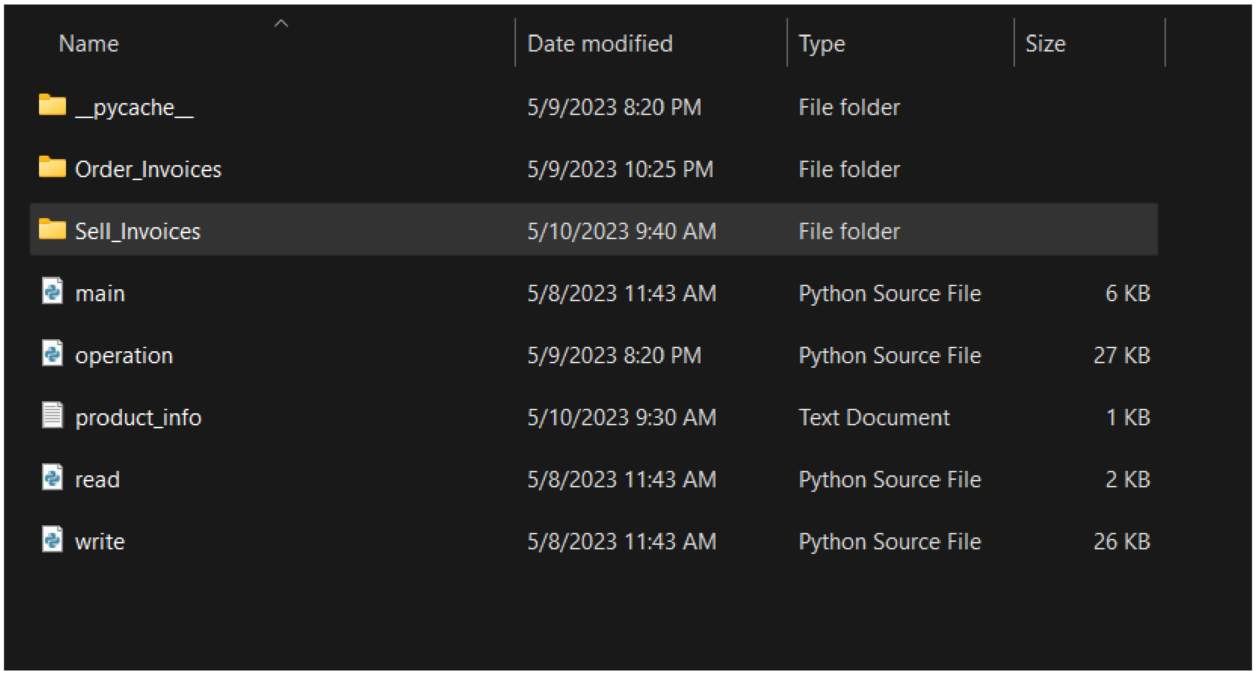


```
+----------------------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> Y
+----------------------------------------------------------------------------------------------+

+----------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 5L
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: 5
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
# Total Items Available In Stock-->   122
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> Y
+----------------------------------------------------------------------------------------------+

+----------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 3L
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: 15
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
# Total Items Available In Stock-->   48
+----------------------------------------------------------------------------------------------+


+----------------------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> N
+----------------------------------------------------------------------------------------------+



+----------------------------------------------------------------------------------------------+
Do you want your item to be shipped ? Please Enter 'y' for yes and 'n' for NO --> y
+----------------------------------------------------------------------------------------------+
```

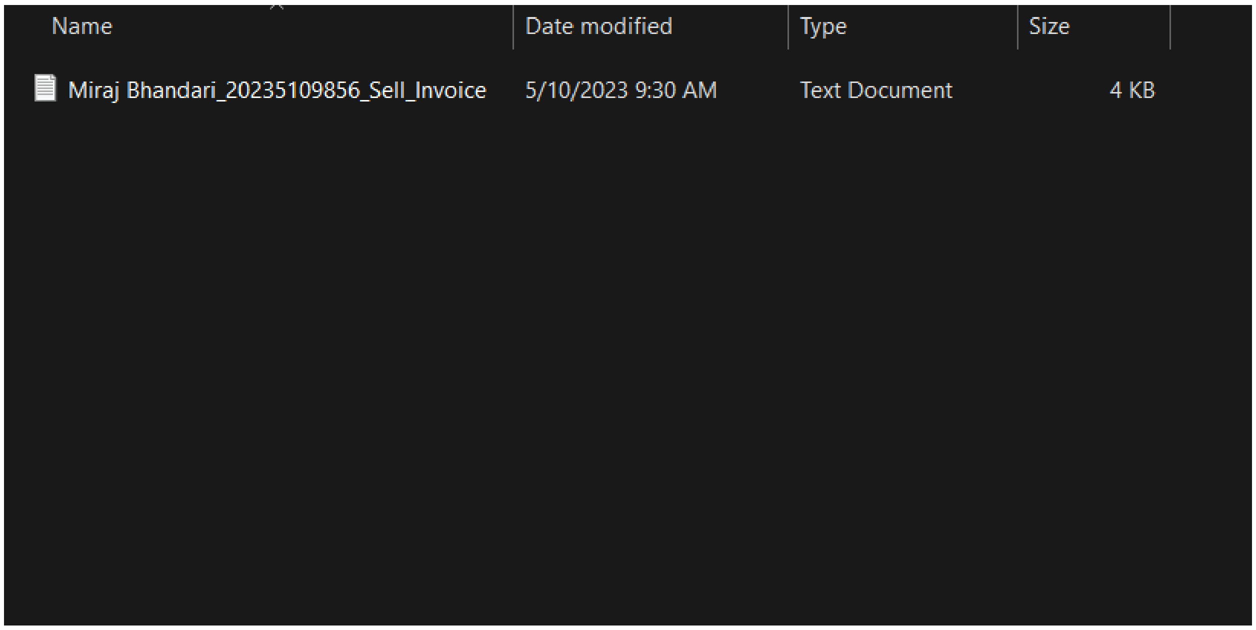


```
                    +==========================================================================================+
                                  ### THANK YOU! THE STOCK IS UPDATED AND SELL BILL IS GENERATED ###
                    +==========================================================================================+


+==================================================================================================================================+

|                                              #----- Miraj Laptop and Computer Shop -----#                                        |

+                                                                                                                                  +

|                                                        Kalanki-14 , Kathmandu                                                    |

+                                                                                                                                  +

|                                               Contact Number:- 9844345562 , 01-43567800                                          |

+                                                                                                                                  +

+----------------------------------------------------------------------------------------------------------------------------------+

| Customer Name: Miraj Bhandari                                                                                                    |

| Date of Purchase: 2023-05-10                                                                                                     |

| Time of Purchase: 09:08:56.697640                                                                                                |

+==================================================================================================================================+

|              LAPTOP NAME |            BRAND NAME | TOTAL AMOUNT |    SHIPPING COST | TOTAL AMOUNT WITH SHIPPING COST |  QUANTITY PURCHASED |

+==================================================================================================================================+

+==================================================================================================================================+

| Razer Blade              | Razer                 | $20000        | $5000.0          | $25000.0                       | 10                  |

| Macbook Pro 16           | Apple                 | $17500        | $4375.0          | $21875.0                       | 5                   |

| Alienware                | Alienware             | $29670        | $7417.5          | $37087.5                       | 15                  |

+==================================================================================================================================+

|  TOTAL:                                          | $67170        | $16792.5         | $83962.5                       | 30                  |

+..................................................................................................................................+

|                                           #----- THANK YOU! We hope to see you again soon! -----#                                |

+==================================================================================================================================+
```

Figure 19: Screenshot of Complete process of Sales of Multiple Laptop with Sales Invoice output in Shell

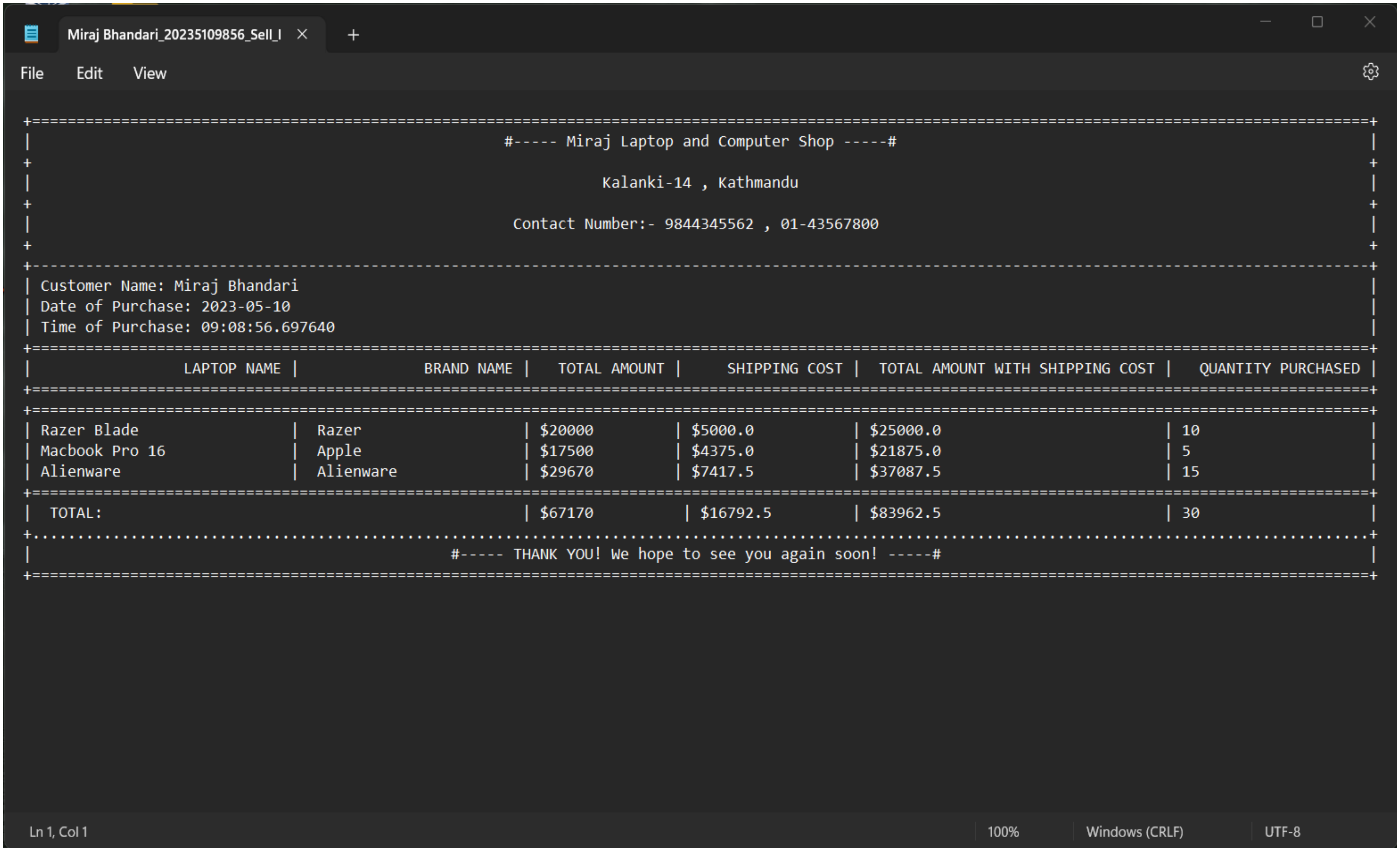


Name	Date modified	Type	Size
__pycache__	5/9/2023 8:20 PM	File folder	
Order_Invoices	5/9/2023 10:25 PM	File folder	
Sell_Invoices	5/10/2023 9:40 AM	File folder	
main	5/8/2023 11:43 AM	Python Source File	6 KB
operation	5/9/2023 8:20 PM	Python Source File	27 KB
product_info	5/10/2023 9:30 AM	Text Document	1 KB
read	5/8/2023 11:43 AM	Python Source File	2 KB
write	5/8/2023 11:43 AM	Python Source File	26 KB



Name	Date modified	Type	Size
Miraj Bhandari_20235109856_Sell_Invoice	5/10/2023 9:30 AM	Text Document	4 KB

Figure 20: Screenshot of opening Sales Invoice in txt File



```
+==================================================================================================================================+
|                                           #----- Miraj Laptop and Computer Shop -----#                                           |
+                                                                                                                                  +
|                                                    Kalanki-14 , Kathmandu                                                        |
+                                                                                                                                  +
|                                           Contact Number:- 9844345562 , 01-43567800                                              |
+                                                                                                                                  +
+----------------------------------------------------------------------------------------------------------------------------------+
| Customer Name: Miraj Bhandari                                                                                                    |
| Date of Purchase: 2023-05-10                                                                                                     |
| Time of Purchase: 09:08:56.697640                                                                                                |
+==================================================================================================================================+
|               LAPTOP NAME |               BRAND NAME |  TOTAL AMOUNT |     SHIPPING COST |  TOTAL AMOUNT WITH SHIPPING COST |   QUANTITY PURCHASED |
+==================================================================================================================================+
+==================================================================================================================================+
| Razer Blade               |  Razer                   | $20000        | $5000.0          | $25000.0                          | 10                   |
| Macbook Pro 16            |  Apple                   | $17500        | $4375.0          | $21875.0                          | 5                    |
| Alienware                 |  Alienware               | $29670        | $7417.5          | $37087.5                          | 15                   |
+==================================================================================================================================+
|  TOTAL:                                              | $67170         | $16792.5        | $83962.5                          | 30                   |
+..................................................................................................................................+
|                                     #----- THANK YOU! We hope to see you again soon! -----#                                      |
+==================================================================================================================================+
```

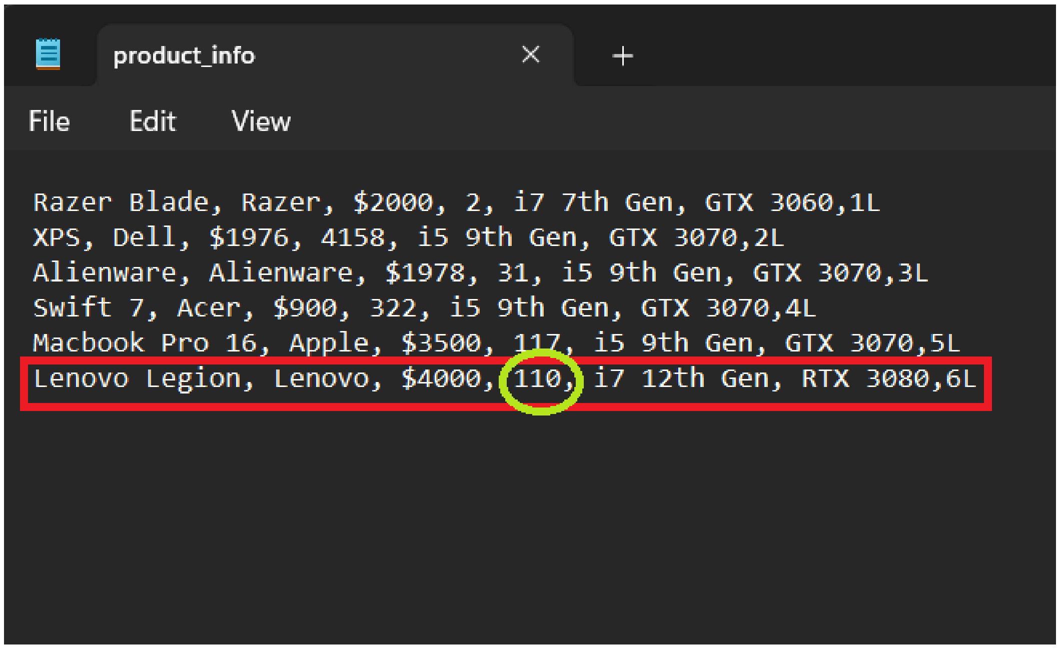
Figure 21: Screenshot of Sales of multiple Laptops Invoice in txt file

Test 5 – To Show the update in stock of laptops

Test 5.1 – To Show the quantity being added while purchasing the laptop

Test NO.	**5.1**
Objective:	To Show the quantity being added while purchasing the laptop
Action:	➡ The main module was executed and inputted “1” to start then the order option was selected by entering “2” as input. ➡ The Product name “Lenovo Legion”, Brand name “Lenovo”, Processor “i7 12th Gen”, Price “4000”, Graphics “RTX 3080” and Quantity “100” were entered. ➡ ‘N’ was entered when promt “ Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> ” appeared.
Expected Result:	The Quantity of “Lenovo Legion” will be increased by 100 after Purchase.
Actual Result:	The Quantity of “Lenovo Legion” was increased by 100 after Purchase.
Conclusion:	The test is successful.

Table 7: Test 5.1 – To Show the quantity being added while purchasing the laptop

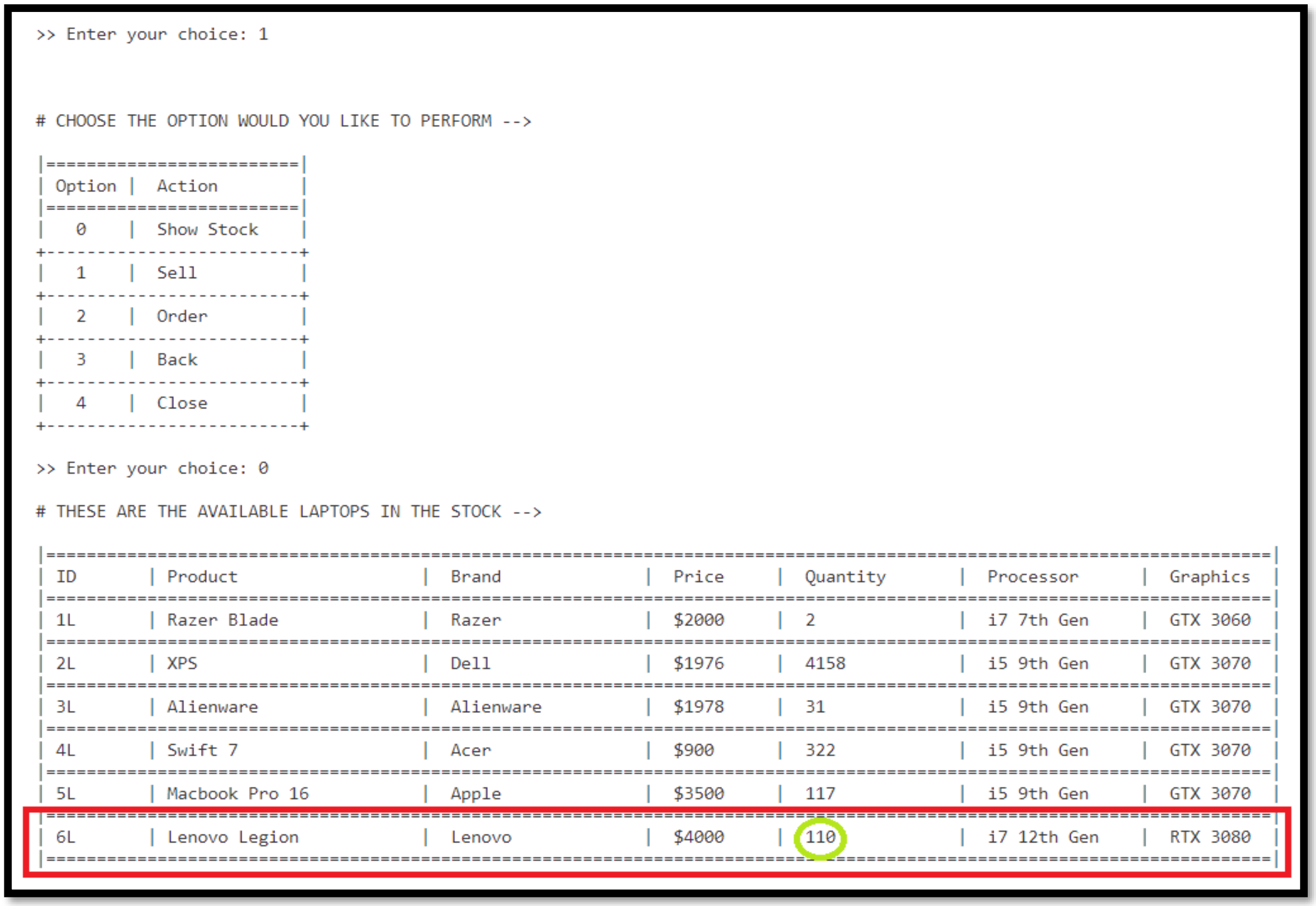


product_info

File Edit View

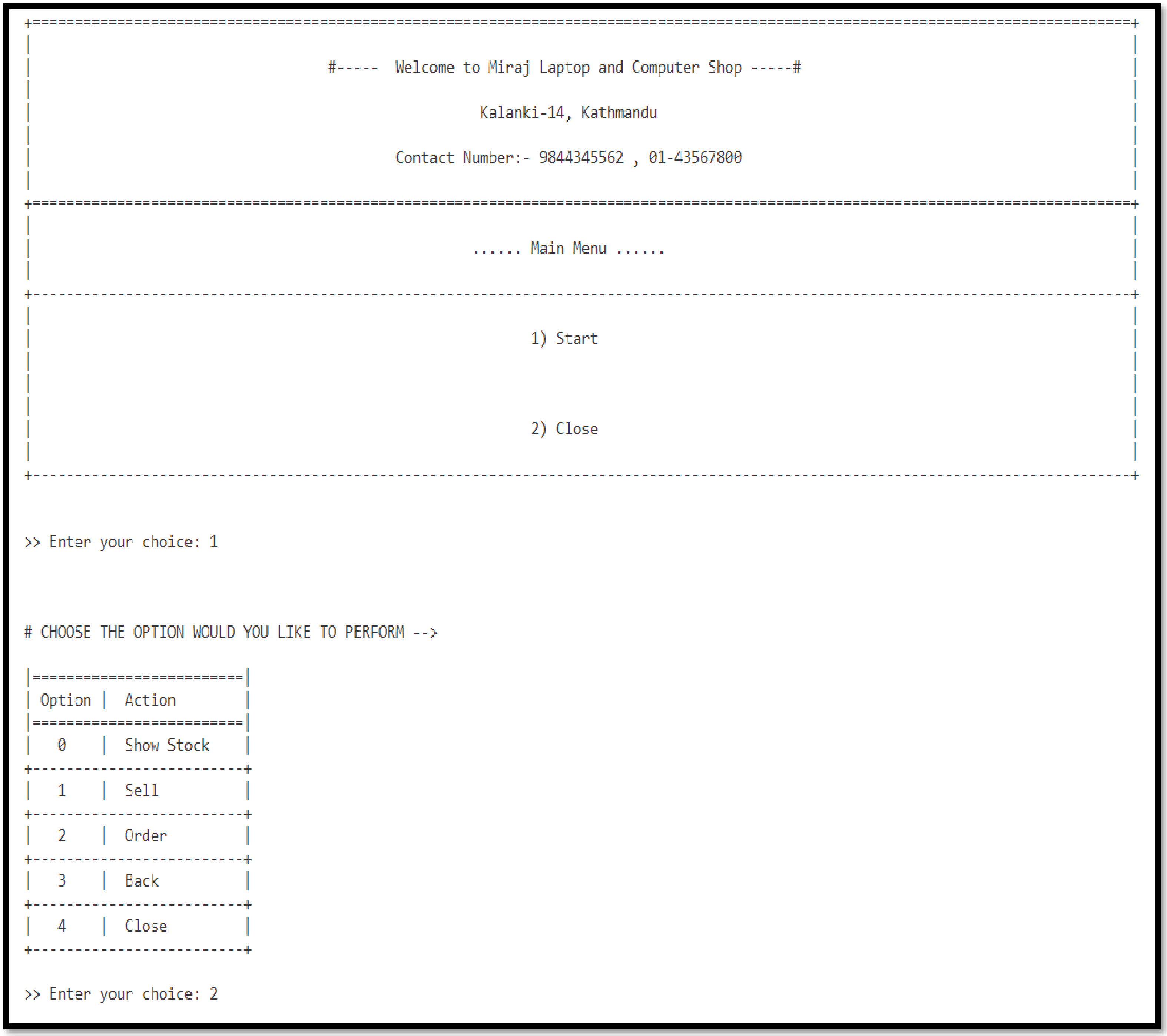
```
Razer Blade, Razer, $2000, 2, i7 7th Gen, GTX 3060,1L
XPS, Dell, $1976, 4158, i5 9th Gen, GTX 3070,2L
Alienware, Alienware, $1978, 31, i5 9th Gen, GTX 3070,3L
Swift 7, Acer, $900, 322, i5 9th Gen, GTX 3070,4L
Macbook Pro 16, Apple, $3500, 117, i5 9th Gen, GTX 3070,5L
Lenovo Legion, Lenovo, $4000, 110, i7 12th Gen, RTX 3080,6L
```

Figure 22:Screenshot of Quantity of Lenovo Legion before Purchase in txt file

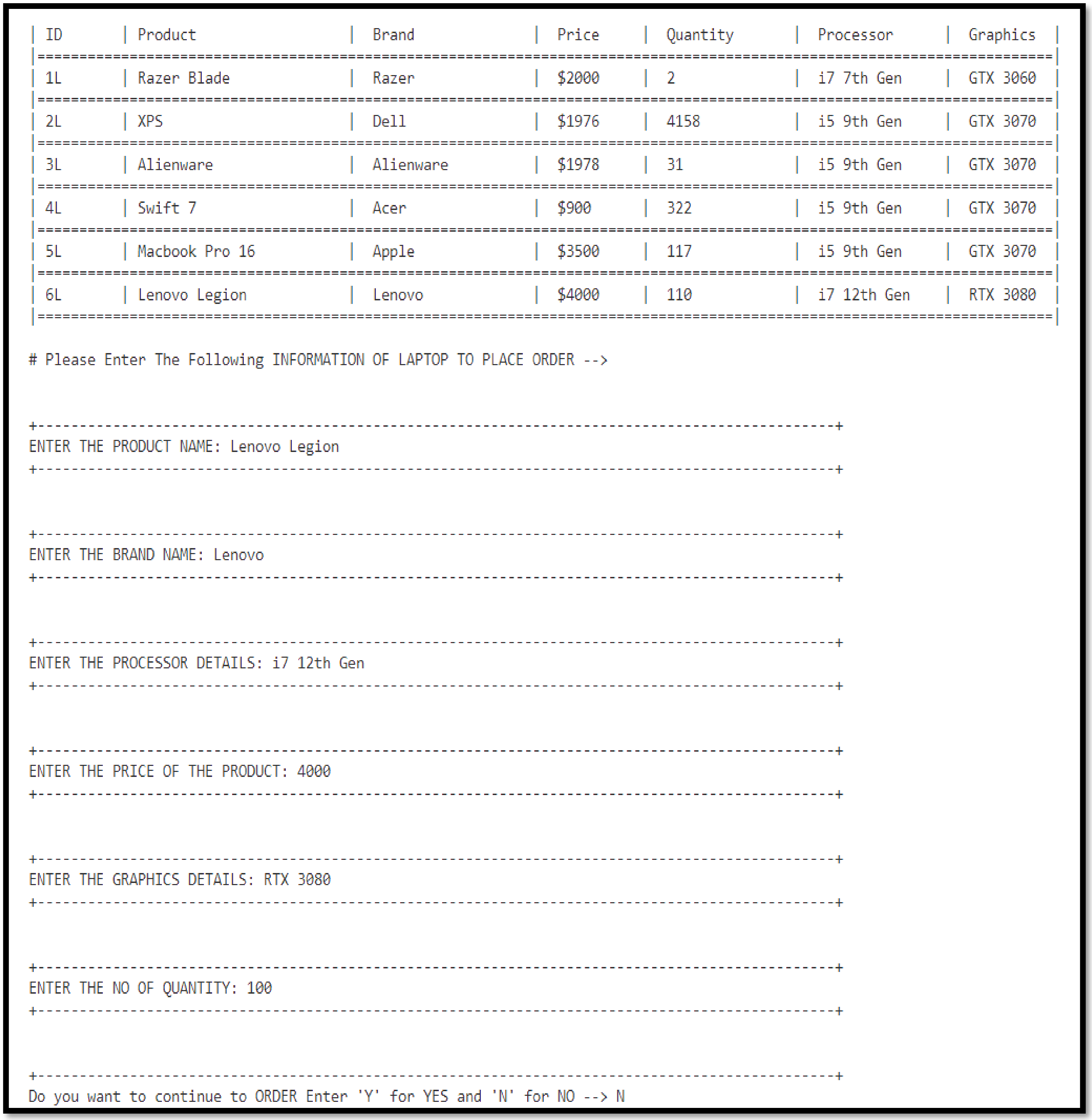


```
>> Enter your choice: 1


# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action        |
|=========================|
|   0    |  Show Stock    |
+-------------------------+
|   1    |  Sell          |
+-------------------------+
|   2    |  Order         |
+-------------------------+
|   3    |  Back          |
+-------------------------+
|   4    |  Close         |
+-------------------------+

>> Enter your choice: 0

# THESE ARE THE AVAILABLE LAPTOPS IN THE STOCK -->

|==============================================================================================================|
| ID     | Product                  | Brand                | Price     | Quantity        | Processor      | Graphics  |
|==============================================================================================================|
| 1L     | Razer Blade              | Razer                | $2000     | 2               | i7 7th Gen     | GTX 3060  |
|==============================================================================================================|
| 2L     | XPS                      | Dell                 | $1976     | 4158            | i5 9th Gen     | GTX 3070  |
|==============================================================================================================|
| 3L     | Alienware                | Alienware            | $1978     | 31              | i5 9th Gen     | GTX 3070  |
|==============================================================================================================|
| 4L     | Swift 7                  | Acer                 | $900      | 322             | i5 9th Gen     | GTX 3070  |
|==============================================================================================================|
| 5L     | Macbook Pro 16           | Apple                | $3500     | 117             | i5 9th Gen     | GTX 3070  |
|==============================================================================================================|
| 6L     | Lenovo Legion            | Lenovo               | $4000     | 110             | i7 12th Gen    | RTX 3080  |
|==============================================================================================================|
```

Figure 23: Screenshot of Quantity of Lenovo Legion before Purchase in Stock on User Display

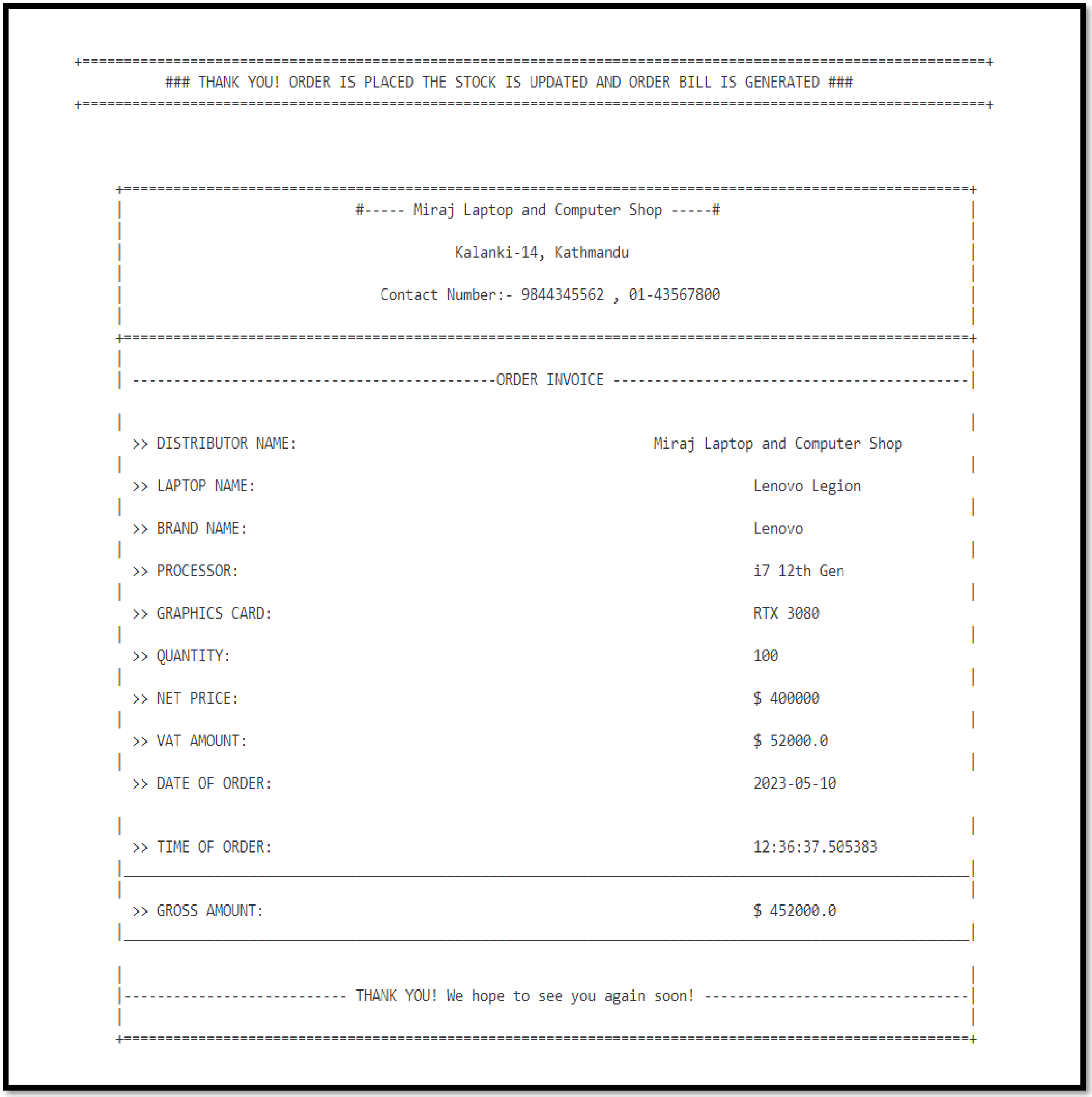


```
+=============================================================================================================+
|                                                                                                             |
|                          #-----  Welcome to Miraj Laptop and Computer Shop -----#                           |
|                                                                                                             |
|                                        Kalanki-14, Kathmandu                                                |
|                                                                                                             |
|                                Contact Number:- 9844345562 , 01-43567800                                    |
|                                                                                                             |
+=============================================================================================================+
|                                                                                                             |
|                                        ...... Main Menu ......                                              |
|                                                                                                             |
+-------------------------------------------------------------------------------------------------------------+
|                                                                                                             |
|                                              1) Start                                                       |
|                                                                                                             |
|                                                                                                             |
|                                                                                                             |
|                                              2) Close                                                       |
|                                                                                                             |
+-------------------------------------------------------------------------------------------------------------+


>> Enter your choice: 1



# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action        |
|=========================|
|   0    |  Show Stock    |
+-------------------------+
|   1    |  Sell          |
+-------------------------+
|   2    |  Order         |
+-------------------------+
|   3    |  Back          |
+-------------------------+
|   4    |  Close         |
+-------------------------+

>> Enter your choice: 2
```



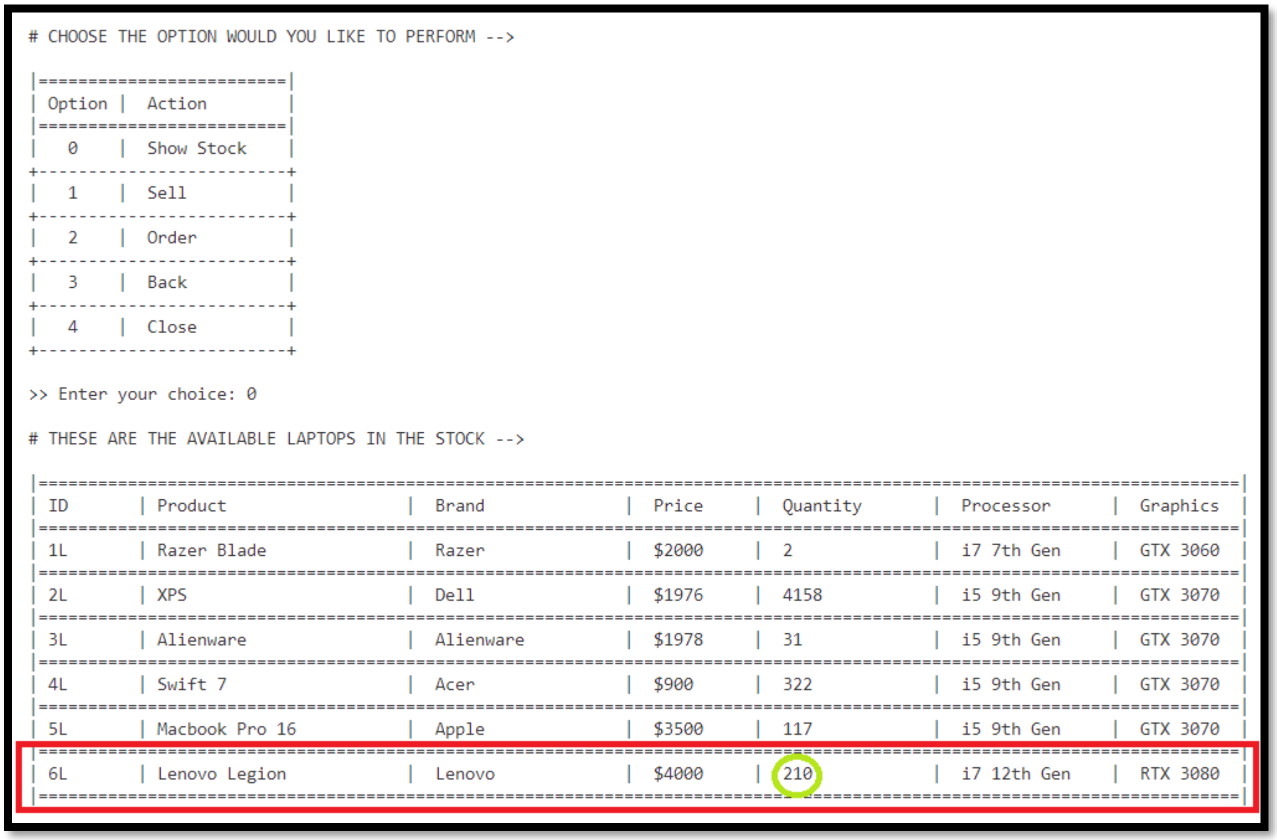
```
| ID       | Product                    |  Brand                 |  Price        |  Quantity          |  Processor         |  Graphics   |
|========================================================================================================================================|
| 1L       | Razer Blade                |  Razer                 |  $2000        |  2                 |  i7 7th Gen        |  GTX 3060   |
|========================================================================================================================================|
| 2L       | XPS                        |  Dell                  |  $1976        |  4158              |  i5 9th Gen        |  GTX 3070   |
|========================================================================================================================================|
| 3L       | Alienware                  |  Alienware             |  $1978        |  31                |  i5 9th Gen        |  GTX 3070   |
|========================================================================================================================================|
| 4L       | Swift 7                    |  Acer                  |  $900         |  322               |  i5 9th Gen        |  GTX 3070   |
|========================================================================================================================================|
| 5L       | Macbook Pro 16             |  Apple                 |  $3500        |  117               |  i5 9th Gen        |  GTX 3070   |
|========================================================================================================================================|
| 6L       | Lenovo Legion              |  Lenovo                |  $4000        |  110               |  i7 12th Gen       |  RTX 3080   |
|========================================================================================================================================|

# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER -->


+---------------------------------------------------------------------------------------------------+
ENTER THE PRODUCT NAME: Lenovo Legion
+---------------------------------------------------------------------------------------------------+



+---------------------------------------------------------------------------------------------------+
ENTER THE BRAND NAME: Lenovo
+---------------------------------------------------------------------------------------------------+



+---------------------------------------------------------------------------------------------------+
ENTER THE PROCESSOR DETAILS: i7 12th Gen
+---------------------------------------------------------------------------------------------------+



+---------------------------------------------------------------------------------------------------+
ENTER THE PRICE OF THE PRODUCT: 4000
+---------------------------------------------------------------------------------------------------+



+---------------------------------------------------------------------------------------------------+
ENTER THE GRAPHICS DETAILS: RTX 3080
+---------------------------------------------------------------------------------------------------+



+---------------------------------------------------------------------------------------------------+
ENTER THE NO OF QUANTITY: 100
+---------------------------------------------------------------------------------------------------+



+---------------------------------------------------------------------------------------------------+
Do you want to continue to ORDER Enter 'Y' for YES and 'N' for NO --> N
```

Figure 24: Screenshot of giving details to Purchase Lenovo Legion



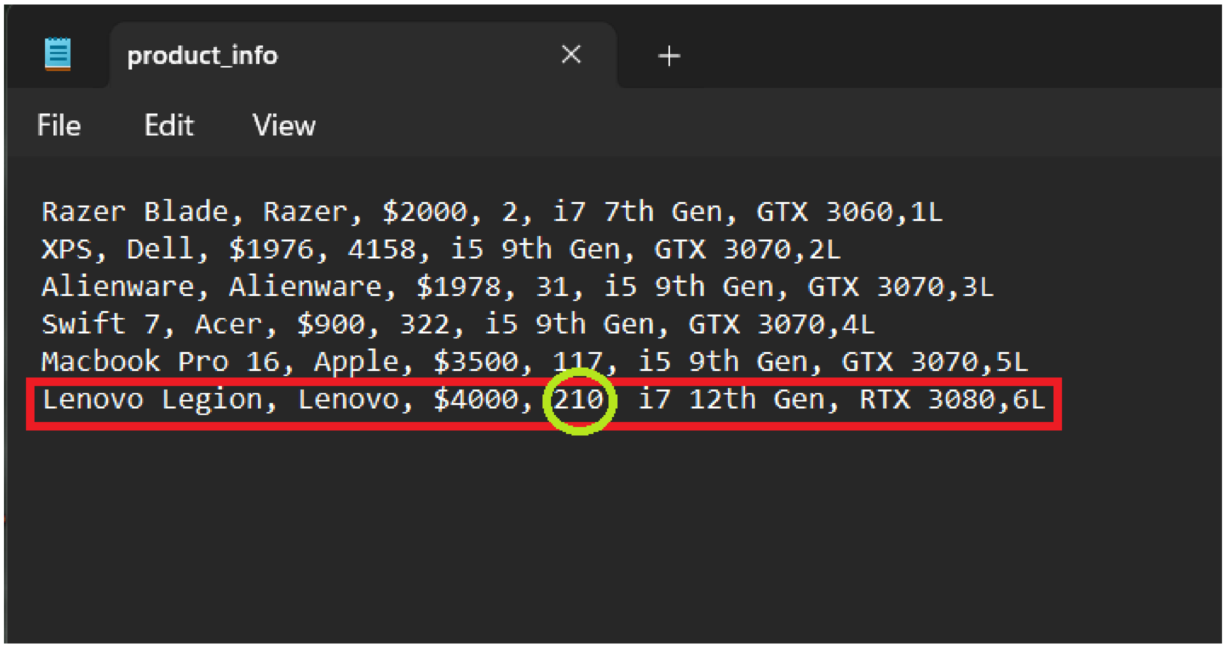
```
+=========================================================================================================+
         ### THANK YOU! ORDER IS PLACED THE STOCK IS UPDATED AND ORDER BILL IS GENERATED ###
+=========================================================================================================+


     +==============================================================================================+
     |                          #----- Miraj Laptop and Computer Shop -----#                        |
     |                                                                                              |
     |                                  Kalanki-14, Kathmandu                                       |
     |                                                                                              |
     |                          Contact Number:- 9844345562 , 01-43567800                           |
     |                                                                                              |
     +==============================================================================================+
     |                                                                                              |
     | ----------------------------------------ORDER INVOICE ----------------------------------------|

     |                                                                                              |
       >> DISTRIBUTOR NAME:                                       Miraj Laptop and Computer Shop
     |                                                                                              |
       >> LAPTOP NAME:                                                       Lenovo Legion
     |                                                                                              |
       >> BRAND NAME:                                                        Lenovo
     |                                                                                              |
       >> PROCESSOR:                                                         i7 12th Gen
     |                                                                                              |
       >> GRAPHICS CARD:                                                     RTX 3080
     |                                                                                              |
       >> QUANTITY:                                                          100
     |                                                                                              |
       >> NET PRICE:                                                         $ 400000
     |                                                                                              |
       >> VAT AMOUNT:                                                        $ 52000.0
     |                                                                                              |
       >> DATE OF ORDER:                                                     2023-05-10

     |                                                                                              |
       >> TIME OF ORDER:                                                     12:36:37.505383
     |______________________________________________________________________________________________|
     |                                                                                              |
       >> GROSS AMOUNT:                                                      $ 452000.0
     |______________________________________________________________________________________________|

     |                                                                                              |
     |-------------------------- THANK YOU! We hope to see you again soon! --------------------------|
     |                                                                                              |
     +==============================================================================================+
```

Figure 25: Screenshot of Successful Purchase of Lenovo Legion



```
# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|========================|
| Option |  Action       |
|========================|
|   0    |  Show Stock   |
+------------------------+
|   1    |  Sell         |
+------------------------+
|   2    |  Order        |
+------------------------+
|   3    |  Back         |
+------------------------+
|   4    |  Close        |
+------------------------+

>> Enter your choice: 0

# THESE ARE THE AVAILABLE LAPTOPS IN THE STOCK -->

|==========================================================================================================|
| ID       | Product              | Brand              | Price      | Quantity       | Processor      |  Graphics  |
|==========================================================================================================|
| 1L       | Razer Blade          | Razer              | $2000      | 2              | i7 7th Gen     |  GTX 3060  |
|==========================================================================================================|
| 2L       | XPS                  | Dell               | $1976      | 4158           | i5 9th Gen     |  GTX 3070  |
|==========================================================================================================|
| 3L       | Alienware            | Alienware          | $1978      | 31             | i5 9th Gen     |  GTX 3070  |
|==========================================================================================================|
| 4L       | Swift 7              | Acer               | $900       | 322            | i5 9th Gen     |  GTX 3070  |
|==========================================================================================================|
| 5L       | Macbook Pro 16       | Apple              | $3500      | 117            | i5 9th Gen     |  GTX 3070  |
|==========================================================================================================|
| 6L       | Lenovo Legion        | Lenovo             | $4000      | 210            | i7 12th Gen    |  RTX 3080  |
|==========================================================================================================|
```

Figure 27: Screenshot of Increment in Quantity of Lenovo Legion after Purchase in the Stock on User Display



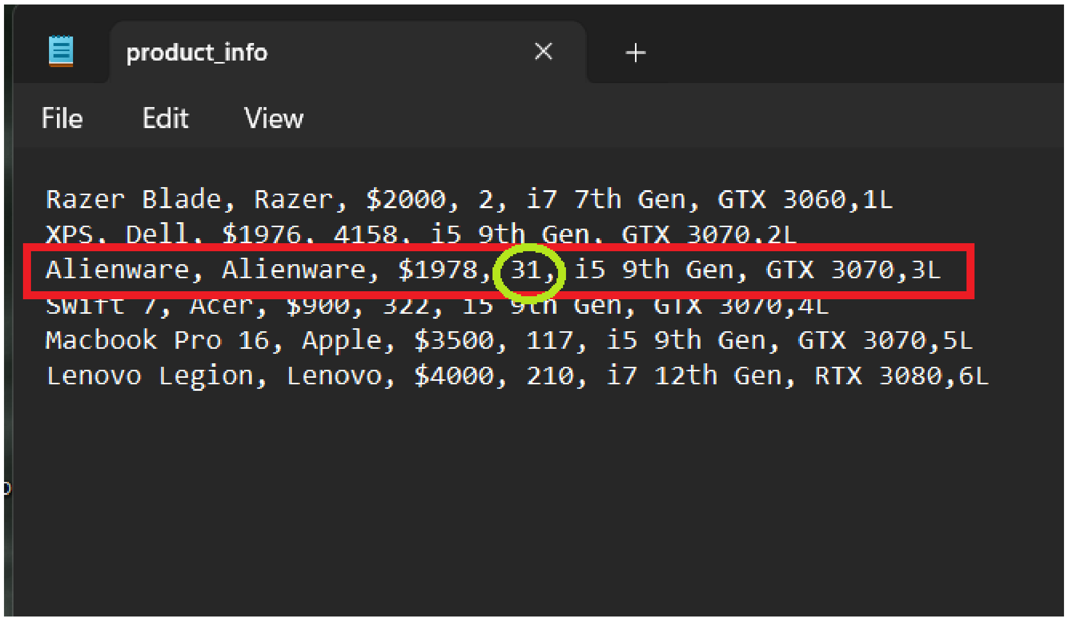
```
Razer Blade, Razer, $2000, 2, i7 7th Gen, GTX 3060,1L
XPS, Dell, $1976, 4158, i5 9th Gen, GTX 3070,2L
Alienware, Alienware, $1978, 31, i5 9th Gen, GTX 3070,3L
Swift 7, Acer, $900, 322, i5 9th Gen, GTX 3070,4L
Macbook Pro 16, Apple, $3500, 117, i5 9th Gen, GTX 3070,5L
Lenovo Legion, Lenovo, $4000, 210, i7 12th Gen, RTX 3080,6L
```

Figure 26: Screenshot of Increment in Quantity of Lenovo Legion after Purchase in the txt file

Test 5.2 – To Show the quantity being deducted while selling the laptop

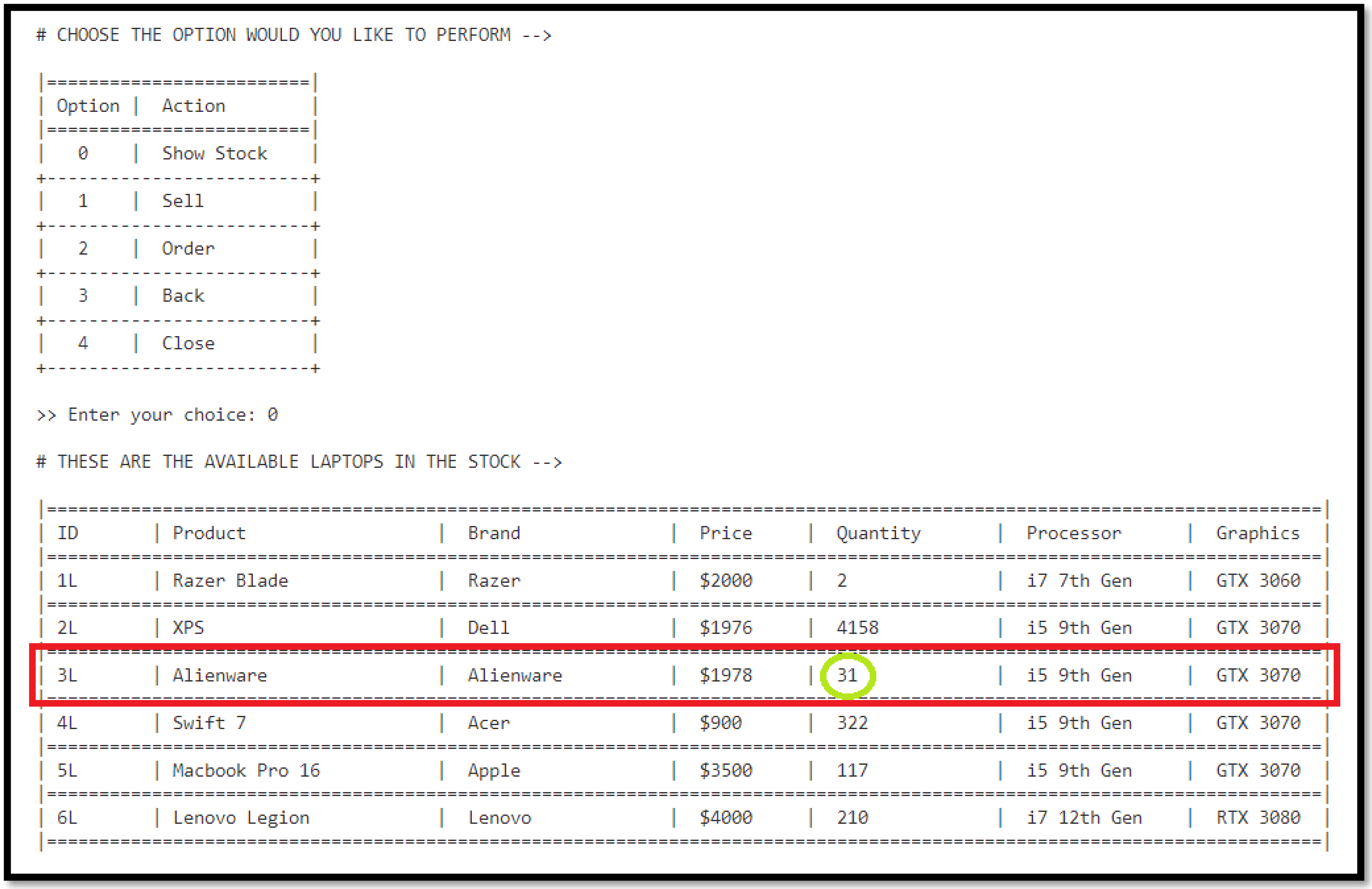
Test NO.	5.2
Objective:	To Show the quantity being deducted while selling the laptop
Action:	➡ The main module was executed and inputted “1” to start then the sell option was selected by entering “1” as input. ➡ The customer name “Miraj Bhandari”, Laptop ID “3L” and No of Quantity to Sell “10” was entered. ➡ ‘N’ was entered when promt “ Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> ” appeared.
Expected Result:	The Quantity of Laptop having ID “3L” would be decreased by 10 after Sell.
Actual Result:	The Quantity of Laptop having ID “3L” was decreased by 10 after Sell.
Conclusion:	The test is successful.

Table 8: Test 5.2 – To Show the quantity being deducted while selling the laptop



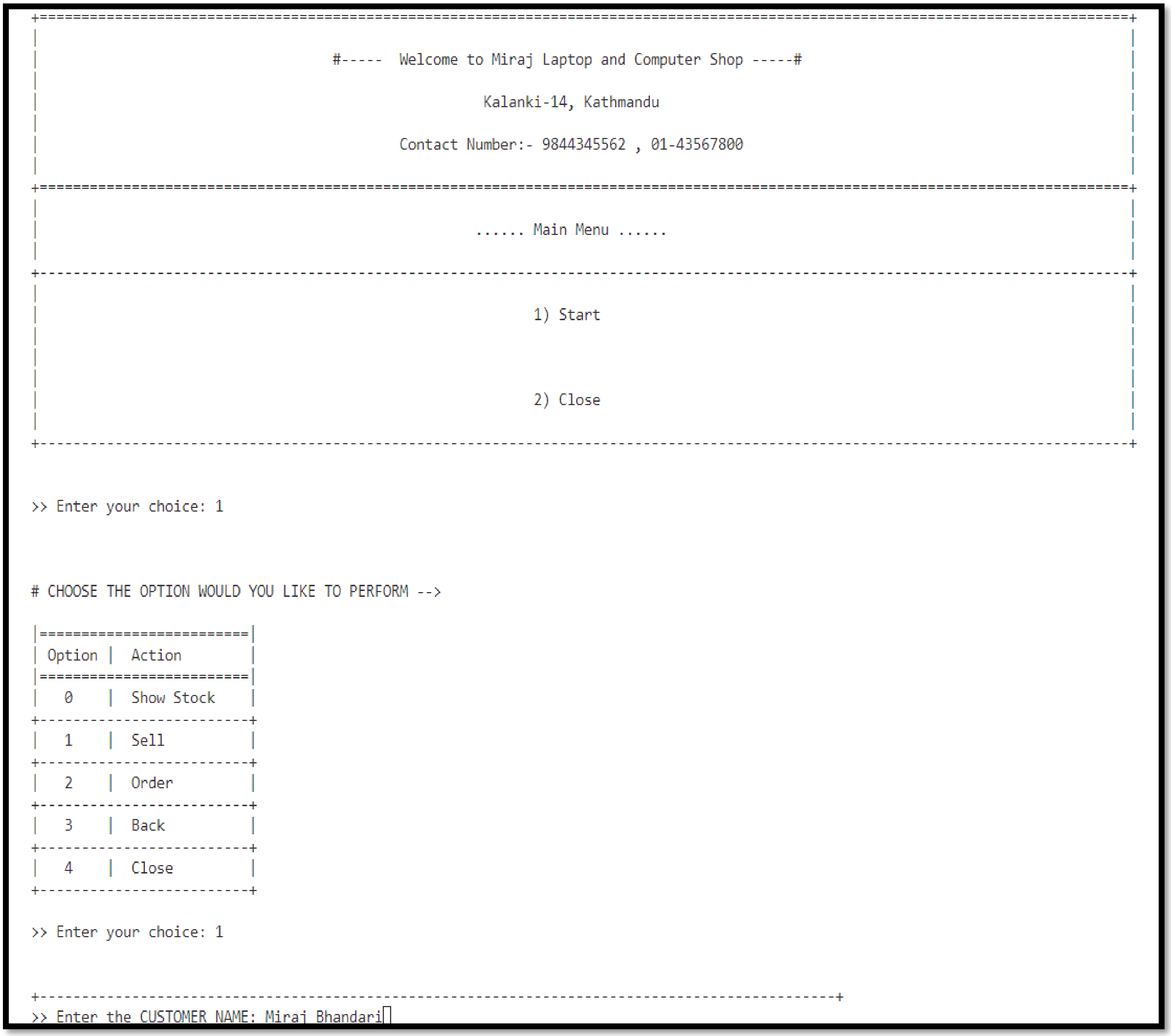
```
product_info
File    Edit    View

Razer Blade, Razer, $2000, 2, i7 7th Gen, GTX 3060,1L
XPS, Dell, $1976, 4158, i5 9th Gen, GTX 3070,2L
Alienware, Alienware, $1978, 31, i5 9th Gen, GTX 3070,3L
Swift 7, Acer, $900, 322, i5 9th Gen, GTX 3070,4L
Macbook Pro 16, Apple, $3500, 117, i5 9th Gen, GTX 3070,5L
Lenovo Legion, Lenovo, $4000, 210, i7 12th Gen, RTX 3080,6L
```

Figure 28: Screenshot of Quantity of Laptop having Id 3L before Sell in txt file

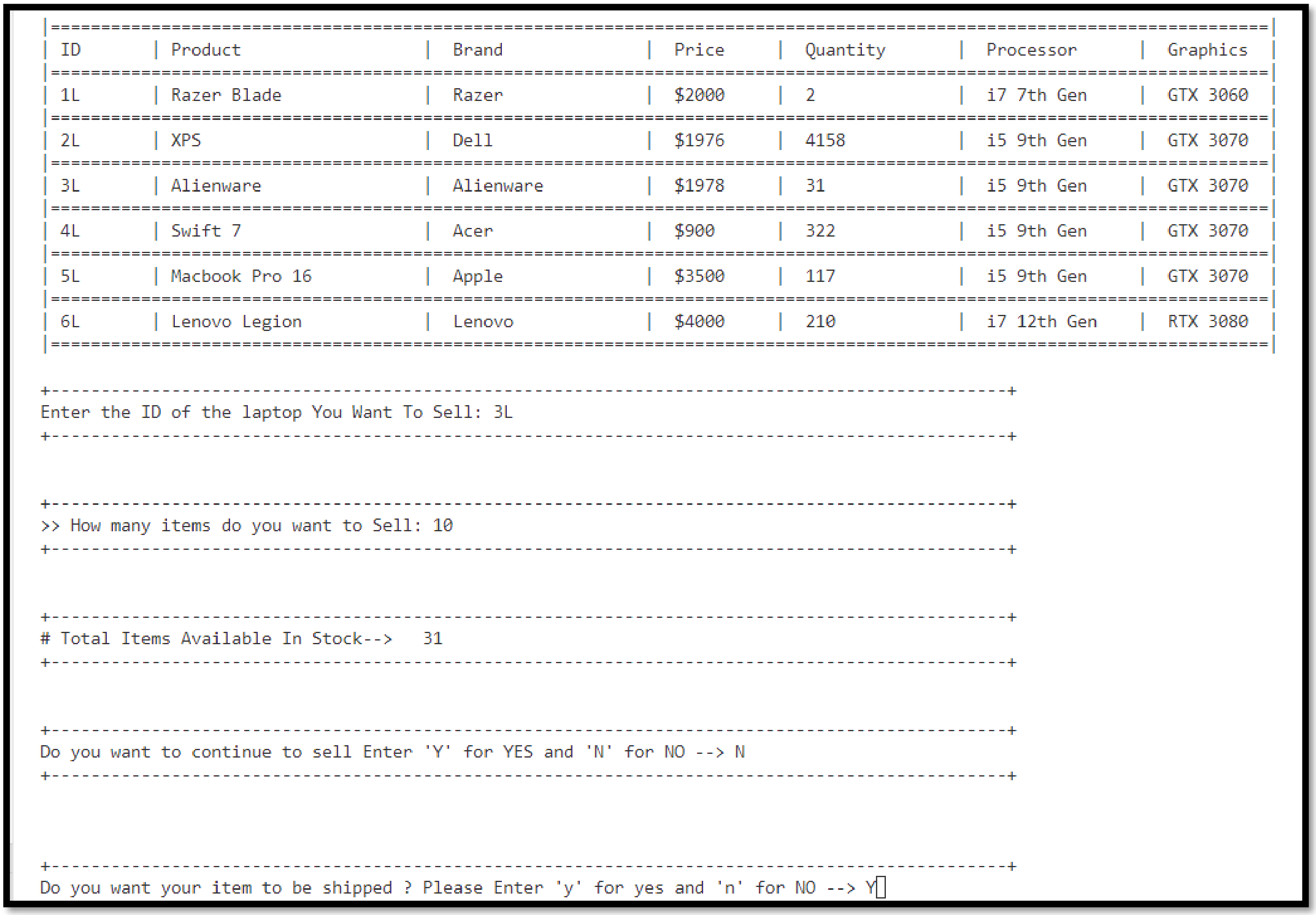


```
# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |   Action       |
|=========================|
|   0    |   Show Stock   |
+-------------------------+
|   1    |   Sell         |
+-------------------------+
|   2    |   Order        |
+-------------------------+
|   3    |   Back         |
+-------------------------+
|   4    |   Close        |
+-------------------------+

>> Enter your choice: 0

# THESE ARE THE AVAILABLE LAPTOPS IN THE STOCK -->

|==========================================================================================================================|
| ID       | Product              | Brand               | Price      | Quantity         | Processor        | Graphics      |
|==========================================================================================================================|
| 1L       | Razer Blade          | Razer               | $2000      | 2                | i7 7th Gen       | GTX 3060      |
|==========================================================================================================================|
| 2L       | XPS                  | Dell                | $1976      | 4158             | i5 9th Gen       | GTX 3070      |
|==========================================================================================================================|
| 3L       | Alienware            | Alienware           | $1978      | 31               | i5 9th Gen       | GTX 3070      |
|==========================================================================================================================|
| 4L       | Swift 7              | Acer                | $900       | 322              | i5 9th Gen       | GTX 3070      |
|==========================================================================================================================|
| 5L       | Macbook Pro 16       | Apple               | $3500      | 117              | i5 9th Gen       | GTX 3070      |
|==========================================================================================================================|
| 6L       | Lenovo Legion        | Lenovo              | $4000      | 210              | i7 12th Gen      | RTX 3080      |
|==========================================================================================================================|
```

Figure 29: Screenshot of Quantity of Laptop having Id 3L before Sell in Stock on User Display

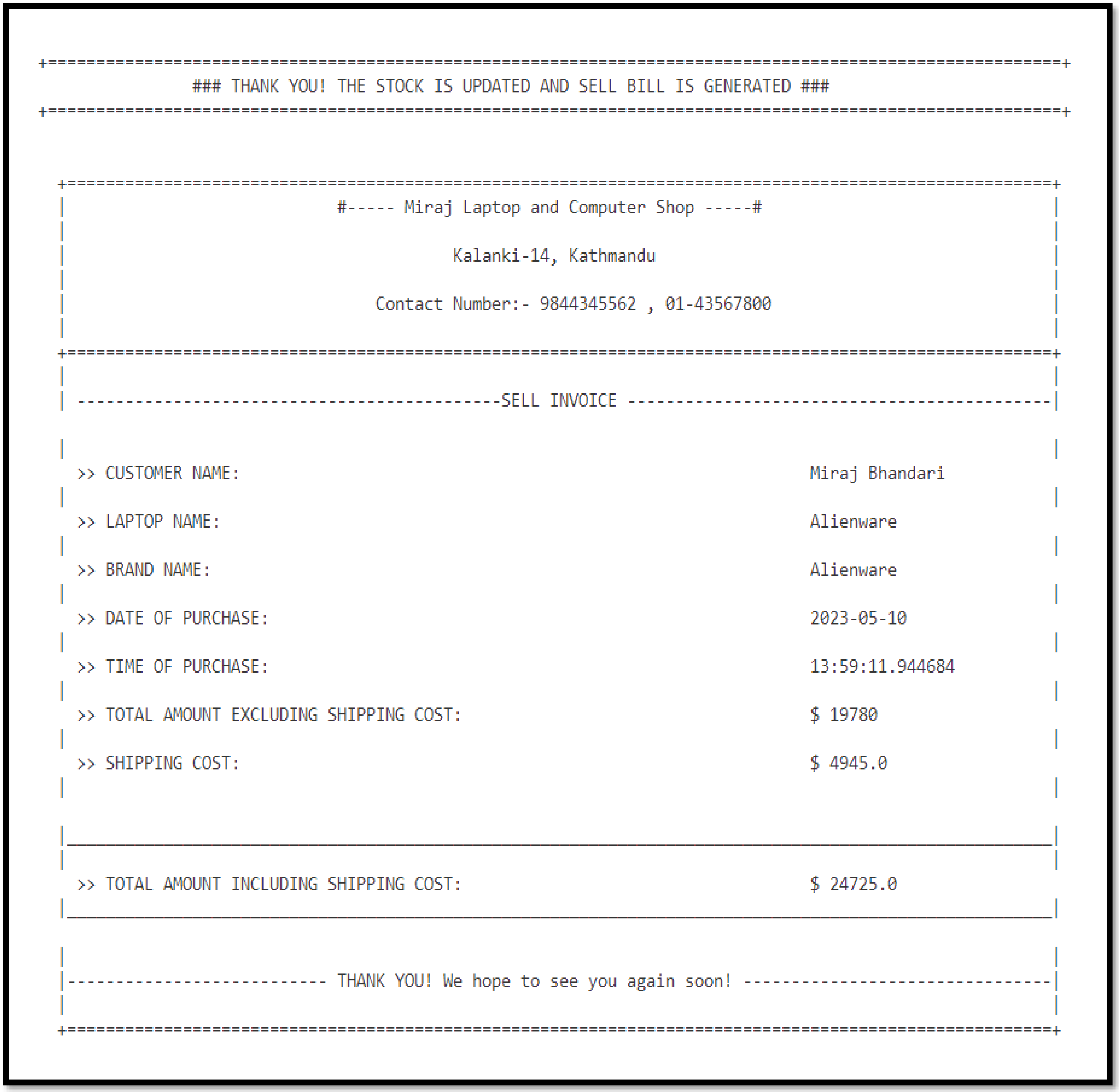


```
+==========================================================================================================+
|                                                                                                          |
|                              #-----  Welcome to Miraj Laptop and Computer Shop -----#                    |
|                                                                                                          |
|                                          Kalanki-14, Kathmandu                                           |
|                                                                                                          |
|                                  Contact Number:- 9844345562 , 01-43567800                               |
|                                                                                                          |
+==========================================================================================================+
|                                                                                                          |
|                                          ...... Main Menu ......                                         |
|                                                                                                          |
+----------------------------------------------------------------------------------------------------------+
|                                                                                                          |
|                                                1) Start                                                  |
|                                                                                                          |
|                                                                                                          |
|                                                                                                          |
|                                                2) Close                                                  |
|                                                                                                          |
+----------------------------------------------------------------------------------------------------------+


>> Enter your choice: 1



# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|=========================|
| Option |  Action        |
|=========================|
|   0    |  Show Stock    |
+-------------------------+
|   1    |  Sell          |
+-------------------------+
|   2    |  Order         |
+-------------------------+
|   3    |  Back          |
+-------------------------+
|   4    |  Close         |
+-------------------------+

>> Enter your choice: 1


+---------------------------------------------------------------------------------+
>> Enter the CUSTOMER NAME: Miraj Bhandari
```



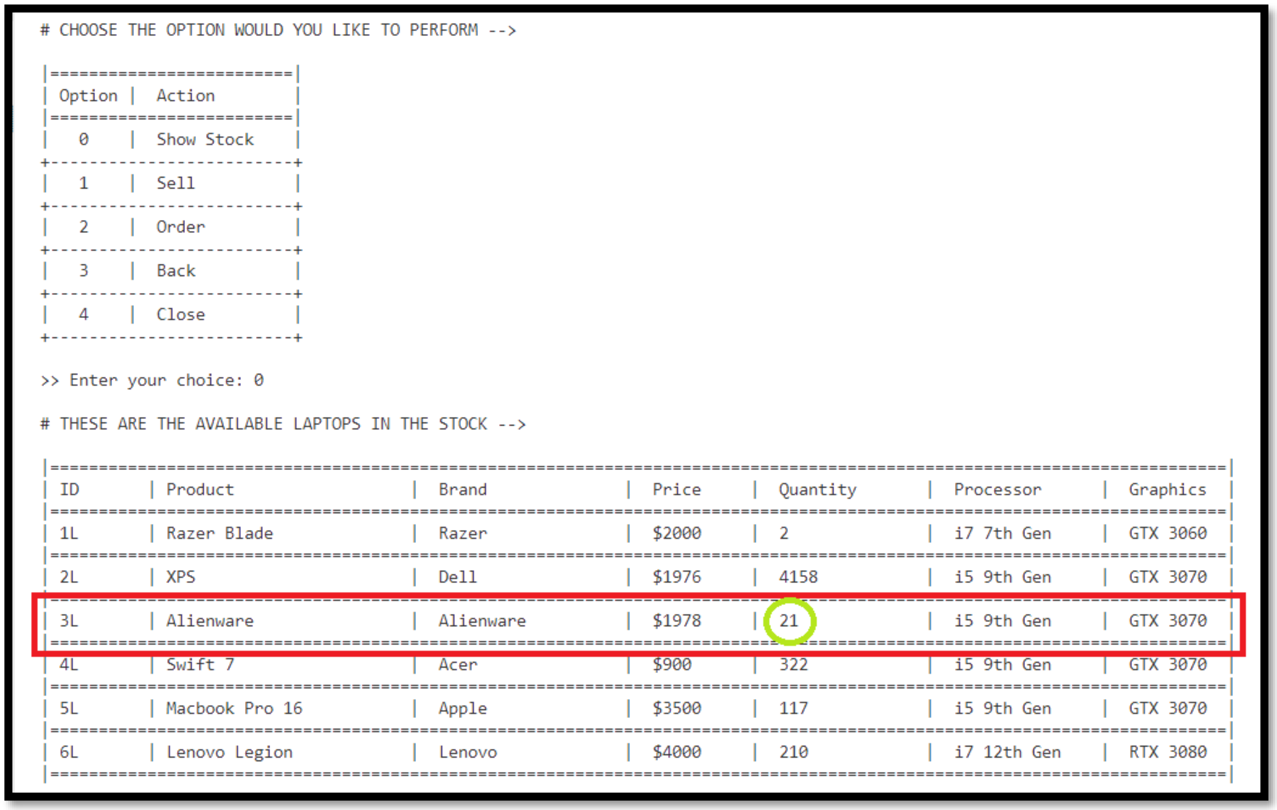
```
|====================================================================================================================|
| ID        | Product                  | Brand                 | Price      | Quantity        | Processor       | Graphics  |
|====================================================================================================================|
| 1L        | Razer Blade              | Razer                 | $2000      | 2               | i7 7th Gen      | GTX 3060  |
|====================================================================================================================|
| 2L        | XPS                      | Dell                  | $1976      | 4158            | i5 9th Gen      | GTX 3070  |
|====================================================================================================================|
| 3L        | Alienware                | Alienware             | $1978      | 31              | i5 9th Gen      | GTX 3070  |
|====================================================================================================================|
| 4L        | Swift 7                  | Acer                  | $900       | 322             | i5 9th Gen      | GTX 3070  |
|====================================================================================================================|
| 5L        | Macbook Pro 16           | Apple                 | $3500      | 117             | i5 9th Gen      | GTX 3070  |
|====================================================================================================================|
| 6L        | Lenovo Legion            | Lenovo                | $4000      | 210             | i7 12th Gen     | RTX 3080  |
|====================================================================================================================|

+--------------------------------------------------------------------------------------------------+
Enter the ID of the laptop You Want To Sell: 3L
+--------------------------------------------------------------------------------------------------+



+--------------------------------------------------------------------------------------------------+
>> How many items do you want to Sell: 10
+--------------------------------------------------------------------------------------------------+



+--------------------------------------------------------------------------------------------------+
# Total Items Available In Stock-->   31
+--------------------------------------------------------------------------------------------------+



+--------------------------------------------------------------------------------------------------+
Do you want to continue to sell Enter 'Y' for YES and 'N' for NO --> N
+--------------------------------------------------------------------------------------------------+




+--------------------------------------------------------------------------------------------------+
Do you want your item to be shipped ? Please Enter 'y' for yes and 'n' for NO --> Y
```

Figure 30: Screenshot of giving details to sell Laptop of Id 3L



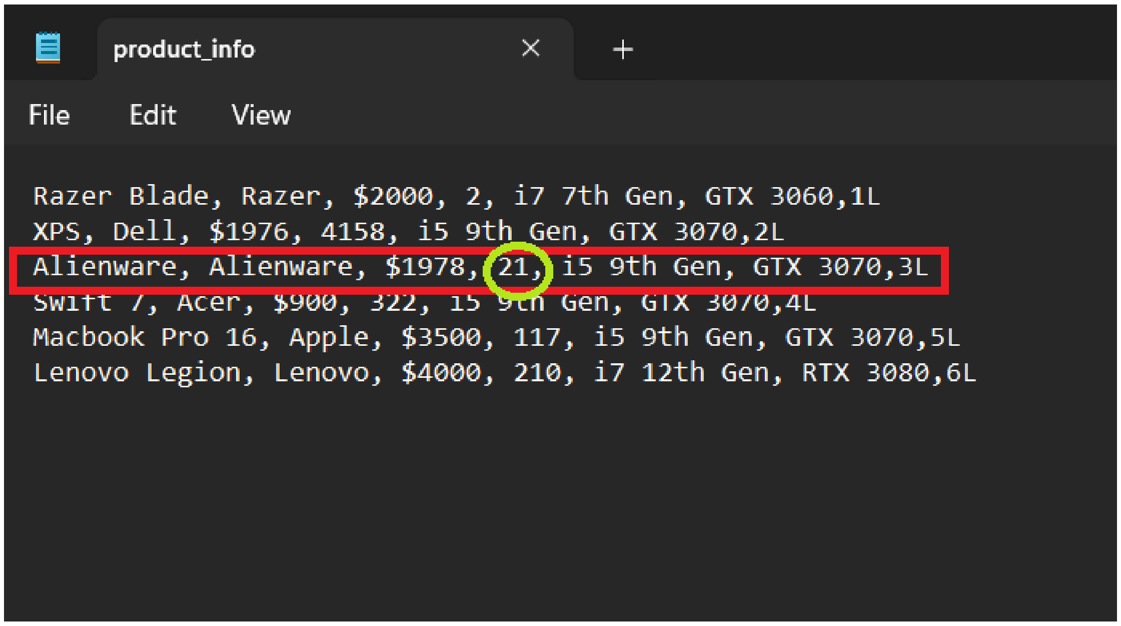
```
+=============================================================================================+
              ### THANK YOU! THE STOCK IS UPDATED AND SELL BILL IS GENERATED ###
+=============================================================================================+


  +==========================================================================================+
  |                        #----- Miraj Laptop and Computer Shop -----#                      |
  |                                                                                          |
  |                               Kalanki-14, Kathmandu                                      |
  |                                                                                          |
  |                     Contact Number:- 9844345562 , 01-43567800                            |
  |                                                                                          |
  +==========================================================================================+
  |                                                                                          |
  | ---------------------------------------SELL INVOICE ------------------------------------|

  |                                                                                          |
    >> CUSTOMER NAME:                                                   Miraj Bhandari
  |                                                                                          |
    >> LAPTOP NAME:                                                     Alienware
  |                                                                                          |
    >> BRAND NAME:                                                      Alienware
  |                                                                                          |
    >> DATE OF PURCHASE:                                                2023-05-10
  |                                                                                          |
    >> TIME OF PURCHASE:                                                13:59:11.944684
  |                                                                                          |
    >> TOTAL AMOUNT EXCLUDING SHIPPING COST:                            $ 19780
  |                                                                                          |
    >> SHIPPING COST:                                                   $ 4945.0
  |                                                                                          |

  |__________________________________________________________________________________________|
  |                                                                                          |
    >> TOTAL AMOUNT INCLUDING SHIPPING COST:                            $ 24725.0
  |__________________________________________________________________________________________|

  |                                                                                          |
  |-------------------------- THANK YOU! We hope to see you again soon! ---------------------|
  |                                                                                          |
  +==========================================================================================+
```

Figure 31: Screenshot of Successful Sell Laptop having Id 3L



```
# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM -->

|========================|
| Option |  Action       |
|========================|
|   0    |  Show Stock   |
+------------------------+
|   1    |  Sell         |
+------------------------+
|   2    |  Order        |
+------------------------+
|   3    |  Back         |
+------------------------+
|   4    |  Close        |
+------------------------+

>> Enter your choice: 0

# THESE ARE THE AVAILABLE LAPTOPS IN THE STOCK -->

|==============================================================================================================================|
| ID         | Product                  | Brand                 | Price        | Quantity           | Processor         | Graphics     |
|==============================================================================================================================|
| 1L         | Razer Blade              | Razer                 | $2000        | 2                  | i7 7th Gen        | GTX 3060     |
|==============================================================================================================================|
| 2L         | XPS                      | Dell                  | $1976        | 4158               | i5 9th Gen        | GTX 3070     |
|==============================================================================================================================|
| 3L         | Alienware                | Alienware             | $1978        | 21                 | i5 9th Gen        | GTX 3070     |
|==============================================================================================================================|
| 4L         | Swift 7                  | Acer                  | $900         | 322                | i5 9th Gen        | GTX 3070     |
|==============================================================================================================================|
| 5L         | Macbook Pro 16           | Apple                 | $3500        | 117                | i5 9th Gen        | GTX 3070     |
|==============================================================================================================================|
| 6L         | Lenovo Legion            | Lenovo                | $4000        | 210                | i7 12th Gen       | RTX 3080     |
|==============================================================================================================================|
```

Figure 32: Screenshot of decrement in Quantity of Laptop having Id 3L after Sell in the Stock on User Display



```
Razer Blade, Razer, $2000, 2, i7 7th Gen, GTX 3060,1L
XPS, Dell, $1976, 4158, i5 9th Gen, GTX 3070,2L
Alienware, Alienware, $1978, 21, i5 9th Gen, GTX 3070,3L
Swift 7, Acer, $900, 322, i5 9th Gen, GTX 3070,4L
Macbook Pro 16, Apple, $3500, 117, i5 9th Gen, GTX 3070,5L
Lenovo Legion, Lenovo, $4000, 210, i7 12th Gen, RTX 3080,6L
```

Figure 33: Screenshot of decrement in Quantity of Laptop having Id 3L after Sell in txt file

5. CONCLUSION

5.1 What I Learned in this Project

Through this project, I gained a comprehensive understanding of Python's file handling capabilities, which is an essential aspect of programming. The project itself revolved around creating a program that could efficiently handle the buying and selling activities of laptops. To accomplish this, I learned about the different functionalities of Python that enable file handling, which is crucial in managing data, storing information, and retrieving it when necessary.

One of the most significant takeaways from this project was the use of 2D lists as a data structure to store and manage laptop information. Using 2D lists allowed me to organize and display the data more effectively and efficiently on the user's screen. I was also able to filter information from text files, and use it as necessary to generate invoices and update product quantities.

Another critical aspect of the project was handling exceptions, which is a fundamental aspect of programming. By using the try and except statements, I was able to handle errors that could have led to program crashes and prevent them from occurring. This helped me ensure the program runs smoothly and correctly.

To make the code manageable and effective, I divided it into modules. Doing so allowed me to break down the code into smaller, more manageable chunks, making it easier to read, modify and maintain. I also learned about the importance of functions and how they can help maintain the DRY principle. By creating reusable functions, I was able to avoid code duplication, make the code more readable and more comfortable to maintain.

In addition to coding, I also learned about the importance of planning and documenting my code. Using flowcharts and algorithms, I was able to create a clear representation of how the program worked, making it easier to understand and follow. I used tools like draw.io to create flowcharts and MS Word to prepare reports, which are essential skills for any programmer.

Overall, this project was an enriching learning experience that has helped me develop a solid understanding of Python's file handling capabilities. I was also able to learn and practice essential skills like modular programming, using functions, planning, and documentation. These skills are crucial for any programmer and will undoubtedly be useful in future projects.

5.2 Challenges and Its solution while doing the Project

While working on this project, I encountered several challenges that required me to expand my knowledge and skills. The first challenge I faced involved cleaning up data from a text file containing laptop details. Initially, I struggled to remove unnecessary spaces, new lines, and unwanted characters from the file, as I was not familiar with some of the string functions in Python. However, I didn't let this obstacle stop me and decided to read the Python documentation on strings. By doing so, I gained knowledge of different useful string functions such as strip, split, and replace, which I used to filter the laptop details successfully.

The second challenge I encountered was related to displaying the laptop data in a table format. As I worked on creating a tabular display of the laptop details, I faced an indentation problem, causing my code to become bulky and difficult to understand. At this point, I realized I needed to find a more efficient and readable way to format my code. After doing some research, I discovered the use of format strings, which helped me create a better-looking table and made my code easier to read and understand.

The third issue I encountered was related to updating the text file after selling or purchasing laptops. I made a mistake by setting the file to read mode instead of write mode, which caused an error when I tried to update the file. To overcome this issue, I asked help from my teacher, who reviewed my code and suggested that I change the file mode to write. This simple change allowed me to update the quantity of laptops after selling or purchasing them without any issues.

The last challenge I faced was dividing my code into modules. As a first-time Python project modularization, I struggled with the concept and encountered a circular import problem. This issue arose because I was simultaneously importing two modules from each other. However, I was determined to find a solution and researched the circular import problem. After doing some research, I finally found a solution by importing the module in one place only, which solved the issue and helped me create a more organized and structured project.

In conclusion, this project has been a great learning experience that provided me with valuable insights into the world of programming. The project allowed me to gain an in-depth understanding of Python's file handling capabilities and the importance of modular programming, functions, planning, and documentation. I encountered several challenges while working on the project, such as cleaning up data, displaying data in a table format, updating text files, and modularization. However, I tackled these issues by expanding my knowledge and skills, doing research, seeking help, and persevering. Overall, this project has equipped me with practical skills that will be beneficial in future programming projects

6. References

geeksforgeeks, 2023. *geeksforgeeks.* [Online]
Available at: https://www.geeksforgeeks.org/python-data-structures/
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NishuAggarwal, 2023. *geeksforgeeks.* [Online]
Available at: https://www.geeksforgeeks.org/an-introduction-to-flowcharts/
[Accessed 8 5 2023].

7. APPENDIX

7.1 APPENDIX OF READ MODULE

```
path ="product_info.txt"
datalist = []
# Read in each line of file and append to data list

with open(path, 'r') as file:
    for line in file:
        line = line.strip().split(",")
        datalist.append(line)

def display_products():
    """
        Display a formatted table of products, including their ID, name, brand,
price, quantity, processor, and graphics.

        This function takes no arguments and uses the global variable `datalist`,
which is assumed to be a list of lists
        where each inner list contains information about a product, in the
following order: name, brand, price, quantity,
        processor, graphics, and ID.

        The table is printed to the console using the `print` function and
includes a header row with column names, a line
        separator, and one row for each product, with data aligned in columns
according to a predefined format string.

    """

    print("|====================================================================
====================================================|")
    print("| {:<8} | {:<24} | {:<19} | {:<10} | {:<15} | {:<15} | {:<10}
|".format("ID", "Product", " Brand", " Price", " Quantity", " Processor", "
Graphics"))

    print("|====================================================================
====================================================|")
    for i in datalist:
        print("| {:<8} | {:<24} | {:<19} | {:<10} | {:<15} | {:<15} | {:<10}
|".format(i[6],i[0], i[1], i[2], i[3], i[4], i[5]))
```

```
        print("|=================================================================
========================================================|")
```

7.2 APPENDIX OF MAIN MODULE

```
import read as rd
import operation as op


#gui part
def display_menu():
    '''It shows the Gui Main Menu to the user asking to start or close

       Returns:
       None
    '''
    print("+=====================================================================
=============================================================+")
    print("|
                                                              |")
    print("|                                        #-----  Welcome to Miraj Laptop
and Computer Shop -----#                                        |")
    print("|
                                                              |")
    print("|                                                          Kalanki-14,
Kathmandu                                                         |")
    print("|
                                                              |")
    print("|                                        Contact Number:-
9844345562 , 01-43567800                                                |")
    print("|
                                                              |")
    print("+=====================================================================
=============================================================+")
    print("|
                                                              |")
    print("|                                                         ...... Main Menu
......                                                        |")
    print("|
                                                              |")
    print("+---------------------------------------------------------------------
-------------------------------------------------------------+")
```

```
    print("|
                                                             |")
    print("|                                                                      1)
Start                                                               |")
    print("|
                                                             |")
    print("|
                                                             |")
    print("|
                                                             |")
    print("|                                                                      2)
Close                                                               |")
    print("|
                                                             |")
    print("+---------------------------------------------------------------------
-------------------------------------------------------------+")
    print("\n")



while True:
    display_menu()
    user_choice = input(">> Enter your choice: ")
    print()
    print()

    if user_choice == '1':

        while True:
            print()
            print("# CHOOSE THE OPTION WOULD YOU LIKE TO PERFORM --> \n")
            print("|=========================|")
            print("| Option |  Action        |")
            print("|=========================|")
            print("|   0    |  Show Stock    |")
            print("+-------------------------+")
            print("|   1    |  Sell          |")
            print("+-------------------------+")
            print("|   2    |  Order         |")
            print("+-------------------------+")
            print("|   3    |  Back          |")
            print("+-------------------------+")
            print("|   4    |  Close         |")
            print("+-------------------------+")
            print()
            sell_order_choice = input(">> Enter your choice: ")
            print()

            if sell_order_choice == '1':

                    op.username()
                    rd.display_products()
                    op.sell_products()
            elif sell_order_choice == '0':
                    print("# THESE ARE THE AVAILABLE LAPTOPS IN THE STOCK -->
\n")
                    rd.display_products()
            elif sell_order_choice == '2':
                   rd.display_products()
                   op.order_products()
            elif sell_order_choice == '3':
                    break
            elif sell_order_choice == '4':
                    exit()
            else:
                print("Invalid choice. Please enter a valid option.")


    elif user_choice == '2':
        exit()
    else:
        print("Invalid choice. Please enter a valid option.")
        print()
```

7.3 APPENDIX OF OPERATION MODULE

```
import read as rd
import write as wr

#sell product method
name_=""
noOfItems=""
customername_=""
sell_count=0
issingleSell=True
mul_sell=[]
ship=None
```

```
def sell_products():
    """
    Function to sell laptops from the inventory.

    This function allows the user to sell laptops from the inventory. It prompts
the user to enter the ID of the laptop they want to sell,
    the number of items they want to sell, and whether they want to continue
selling or not. Once the user confirms that they want to sell
    the item(s), it updates the inventory accordingly and generates a sell
invoice.

    Returns:
    None
    """

    global mul_sell
    multiple_sells=[]
    sell = True
    while sell:

        global id_   # initialize id_ to None
        while True:

            print()
            print("+-------------------------------------------------------------
----------------------------------+")
            id = input("Enter the ID of the laptop You Want To Sell: ")
            print("+-------------------------------------------------------------
----------------------------------+")
            print()
            for laptop_info in rd.datalist:
                if id in laptop_info:  # check if id is in the current laptop's
info
                    id_ = id  # set id_ to id
                    break  # break out of the inner loop
            else:  # executed when the inner loop completes without finding a
match
                print()
                print("+---------------------------------------------------------
--------------------------------------+")
                print("OPPS! No laptop found. Enter a valid ID!")
                print("+---------------------------------------------------------
--------------------------------------+")
```

```
                print()
                continue  # continue to the next iteration of the outer loop
            break  # break out of the outer loop

        global noOfItems
        while True:
         try:
             global sell_count
             print()
             print("+------------------------------------------------------------
-----------------------------------+")
             sell_count = int(input(">> How many items do you want to Sell: "))
             print("+------------------------------------------------------------
-----------------------------------+")
             print()
             if sell_count > 0:
                noOfItems = sell_count
                break
             else:

               print()
               print("Error: Please enter a valid number greater than 0.")
               print()
         except ValueError:
             print("+------------------------------------------------------------
-----------------------------------+")
             print()
             print()
             print("Error: Please enter a numeric value.")

             print()


        for block in rd.datalist:
            for inner_element in block:
                if id_.lower() == inner_element.lower():
                    if sell_count>int(block[3]) or int(block[3])<= 0:
                        print()
                        print("THE ITEM IS OUT OF STOCK!")

                    else:
                        print()
                        print("+-------------------------------------------------
----------------------------------------------+")
                        print("# Total Items Available In Stock--> ", block[3])
                        print("+----------------------------------------------------
------------------------------------------------+")
                        print()
                        rem_product = int(block[3]) - sell_count
                        block[3] = " "+str(rem_product)
                        print()

                        sold_items=[]

                        sold_items=block[:]
                        #dont mess with block as it is inside  datakist which is
uded to update

                        sold_items.append(str(noOfItems))

                        multiple_sells.append(sold_items)

                        mul_sell=multiple_sells[:]

                        continue_=True
                        while continue_:
                            print("+------------------------------------------------
----------------------------------------------------+")
                            ans = input("Do you want to continue to sell Enter
'Y' for YES and 'N' for NO --> ")
                            print("+------------------------------------------------
----------------------------------------------------+")
                            if ans.lower() == "n":
                                sell = False
                                continue_=False
                                print()
                                print()
                                print()
                            elif ans.lower() == "y":
                                global issingleSell
                                sin_sell=False
                                issingleSell=sin_sell
                                continue_=False
                            else:
                                print()
                                print("Invalid Input!, Please Input Either 'y' or
'n' ")

                                print()
    while True:
        print("+------------------------------------------------------------------
------------------------------+")
```

```
        confirm_=input("Do you want your item to be shipped ? Please Enter 'y'
for yes and 'n' for NO --> ")
        print("+-----------------------------------------------------------------
------------------------------+")
        if confirm_=='y':
              global ship
              ship_=True
              ship=ship_
              print()
              print()
              print("\t\t\t+=====================================================
====================================================+")
              print("\t\t\t\t\t\t### THANK YOU! THE STOCK IS UPDATED AND SELL BILL
IS GENERATED ###")
              print("\t\t\t+=====================================================
====================================================+")
              print("\t")
              print()
              break
        elif confirm_=='n':
              ship_=False
              ship=ship_
              print()
              print()
              print("\t\t\t+=====================================================
====================================================+")
              print("\t\t\t\t\t\t### THANK YOU! THE STOCK IS UPDATED AND SELL BILL
IS GENERATED ###")
              print("\t\t\t+=====================================================
====================================================+")
              print("\t")
              print()
              break
        else:
            print()
            print()
            print("INVALID ! INPUT PLEASE INPUT 'y' or 'n'")
            print()
            print()

    wr.update()
    wr.sell_invoice()


#order product method
```

```
productname=""
brandname=""
processor=""
price=""
graphics=""
quantity=""
customername_ =""
issinleOrder=True
multiple_order=[]
def order_products():
  """
    This function allows the user to place an order for a laptop. It prompts the
user to enter the product name, brand name,
    processor details, graphics details, price, and quantity of the laptop. The
inputs are validated to ensure they meet
    certain criteria (e.g., the product name should not contain numeric values).
Once the order is complete, the order
    information is stored in a list called multiple_order. The user can choose to
continue ordering or end the ordering
    process. If the user ends the process, an order invoice is generated, and the
order information is updated in the stock
    database. If the user chooses to continue ordering, the function calls the
update_order() function to update the stock
    database with the current order information.

    Returns:
    None
    """
  order=True
  while order:
        print()
        print("# Please Enter The Following INFORMATION OF LAPTOP TO PLACE ORDER
--> \n")
        while True:
                global productname
                print()
                print("+------------------------------------------------------------
-----------------------------------------+")
                Product_name = input("ENTER THE PRODUCT NAME: ")
                print("+------------------------------------------------------------
-----------------------------------------+")
                print()
                if not Product_name.isnumeric() and Product_name != "": # Check
if input contains numeric values
                        productname = Product_name
                        break
                else:
                        print()
                        print("Invalid input! Product Name should not contain 
numeric values and Empty Values")
                        print()



        while True:
                    global brandname
                    print()
                    print("+--------------------------------------------------------
------------------------------------------+")
                    Brand_name = input("ENTER THE BRAND NAME: ")
                    print("+--------------------------------------------------------
------------------------------------------+")
                    print()
                    brandname = Brand_name
                    if not Brand_name.isnumeric() and Brand_name != "": # Check 
if input contains numeric values
                        brandname = Brand_name
                        break
                    else:
                        print()
                        print("Invalid input! Brand Name should not contain 
numeric values and Empty Values")
                        print()



        while True:
                global processor
                print()
                print("+------------------------------------------------------------
--------------------------------------+")
                PROCESSOR = input("ENTER THE PROCESSOR DETAILS: ")
                print("+------------------------------------------------------------
--------------------------------------+")
                print()
                if not PROCESSOR.isnumeric() and PROCESSOR != "": # Check if 
input contains numeric values
                        processor = PROCESSOR
                        break
                else:
                        print()
                        print("Invalid input! Processor Name should not contain
numeric values and Empty Values")
                        print()



        while True:
            try:
                global price

                print()
                print("+----------------------------------------------------------
--------------------------------------+")
                PRICE = int(input("ENTER THE PRICE OF THE PRODUCT: "))
                print("+----------------------------------------------------------
--------------------------------------+")
                print()
                if PRICE > 0:
                        price = PRICE
                        break

                else:
                    print()
                    print("Error: Please enter a valid Price")
                    print()

            except ValueError:

                    print("+------------------------------------------------------
------------------------------------------+")
                    print()
                    print()
                    print("Invalid input! Please enter a numeric value for
PRICE.")
                    print()



        while True:
                global graphics
                print()
                print("+-----------------------------------------------------------
---------------------------------------+")
                GRAPHICS = input("ENTER THE GRAPHICS DETAILS: ")
                print("+-----------------------------------------------------------
---------------------------------------+")
                print()
                if not GRAPHICS.isnumeric() and GRAPHICS != "": # Check if input
contains numeric values
                        graphics = GRAPHICS
                        break
                else:
                        print()
                        print("Invalid input! Graphics should not contain numeric
values and Empty Values")
                        print()



        while True:
            try:
                global quantity
                print()
                print("+-----------------------------------------------------------
---------------------------------------+")
                Quantity = int(input("ENTER THE NO OF QUANTITY: ")) # Convert
input to integer
                print("+-----------------------------------------------------------
---------------------------------------+")
                print()
                if Quantity > 0:
                        quantity = Quantity
                        break
                else:
                    print()
                    print("Error: Please enter a valid number greater than 0.")
                    print()
            except ValueError:
                print("+-----------------------------------------------------------
---------------------------------------+")
                print()
                print()
                print("Invalid input! Please enter an integer value for
QUANTITY.")
                print()
        order_items=[productname, brandname, price, quantity, processor,
graphics]
        multiple_order.append(order_items)
        continue_=True
        while continue_:
                print()
                print("+---------------------------------------------------------
--------------------------------------+")
                ans = input("Do you want to continue to ORDER Enter 'Y' for YES
and 'N' for NO --> ")
                print("+---------------------------------------------------------
--------------------------------------+")
                print()

                if ans.lower() == "n":
                    order = False
                    continue_=False
                    print()
                    print()
                    print("\t\t\t     +==========================================
======================================================================+")
                    print("\t\t\t\t        ### THANK YOU! ORDER IS PLACED THE
STOCK IS UPDATED AND ORDER BILL IS GENERATED ###")
                    print("\t\t\t     +==========================================
======================================================================+")
                    print("\n")
                    print()
                elif ans.lower() == "y":
                    global issinleOrder
                    sin_order=False
                    issinleOrder=sin_order
                    continue_=False
                    wr.udpate_order()
                else:
                    print()
                    print("Invalid Input!, Please Input Either 'y' or 'n' ")
                    print()


  wr.order_invoice()
  wr.udpate_order()
```

```
def username():
     """
    This function prompts the user to input a customer name and checks if the
input contains numeric values.
    If the input is valid, it sets the global variable customername_ to the input
value and returns nothing.
    If the input is invalid, it displays an error message and prompts the user to
input again.

    Returns:
    None
    """
     while True:
                print()
                print("+-------------------------------------------------------------
-----------------------------------------+")
                customername = input(">> Enter the CUSTOMER NAME: ")
                print("+-------------------------------------------------------------
-----------------------------------------+")
                print()
                if not customername.isnumeric() and customername != "":# Check if
input contains numeric values
                    global customername_
                    customername_ = customername
                    break
                else:
                     print()
                     print("Invalid input! Customer Name should not contain
numeric values and Empty Values")
                     print()

def screen_display_Sorder():

      """
     Prints an order invoice for a laptop purchase, including distributor name,
laptop name, brand name,
     , graphics card, quantity, net price, VAT amount, date and time of order,
and gross amount.

     Returns:
     None
      """
      netamt=(int(price)*int(quantity))
      vatamt=(int(price)*0.13)*int(quantity)
      grossamt=netamt+vatamt
      head1="""                                +================================
==================================================================================+
                                   |                            #----- Miraj
Laptop and Computer Shop -----#                            |
                                   |
                                                      |
                                   |                                           Kalank
i-14, Kathmandu                                       |
                                   |
                                                      |
                                   |                                  Contact
Number:- 9844345562 , 01-43567800                        |
                                   |
                                                      |
                                  +===============================================
=========================================================+
                                   |
                                                      |
                                   | --------------------------------------------
ORDER INVOICE -------------------------------------------|"""

      data1="""
                                   |
                                                      |
                                    >> DISTRIBUTOR
NAME:                                        {}
                                   |
                                                      |
                                    >> LAPTOP
NAME:                                                        {}

                                   |
                                                      |
                                    >> BRAND
NAME:                                                         {}

                                   |
                                                      |
                                    >>
PROCESSOR:                                                          {}

                                   |
                                                      |
                                       >> GRAPHICS
CARD:                                                              {}

                                  |
                                                      |
                                       >>
QUANTITY:                                                                  {}

                                  |
                                                      |
                                       >> NET
PRICE:                                                                 {}

                                  |
                                                      |
                                       >> VAT
AMOUNT:                                                                {}

                                  |
                                                      |
                                       >> DATE OF
ORDER:                                                              {}


                                  |
                                                      |
                                       >> TIME OF
ORDER:                                                              {}

                                  |______________________________________________
________________________________________________________|
                                  |
                                                      |
                                       >> GROSS
AMOUNT:                                                                {}

                                  |______________________________________________
________________________________________________________|""".format("Miraj Laptop
and Computer Shop", productname, brandname, processor, graphics, quantity, "$
"+str(netamt), "$ "+str(vatamt), wr.now.date(), wr.now.time(),"$ "+str(grossamt))

      foot1="""
                                  |
                                                      |
                                |-------------------------- THANK YOU! We hope
to see you again soon! --------------------------------|
                                |
                                                      |
                                +===============================================
========================================================+
                            """
      print(head1)
      print(data1)
      print(foot1)

def screen_display_Morder():
                 """
                  Displays the multiple orders in a tabular format with details
such as laptop name, brand name, total amount,
                  VAT amount, total amount with VAT, quantity purchased,
processor, and graphics card. It also calculates and
                  displays the total amount, total VAT, amount with VAT, and the
total number of items purchased.

                  Returns:
                  None
                 """
                 header = "+{}+\n".format("=" * 171)
                 table_header = "| {:>20} | {:>15} | {:>12} | {:>15} | {:>29} |
{:>20} | {:>15} | {:>22} |\n".format("LAPTOP NAME", "BRAND NAME", "TOTAL AMOUNT",
"VAT AMOUNT", "TOTAL AMOUNT WITH VAT", "QUANTITY PURCHASED", "PROCESSOR",
"GRAPHICS CARD")
                 name= "|{:^171}|\n".format("#----- Miraj Laptop and Computer
Shop -----#")
                 address="|{:^171}|\n".format("Kalanki-14 , Kathmandu")
                 cont="|{:^171}|\n".format("Contact Number:- 9844345562 , 01-
43567800")
                 space="+{}+\n".format(" " * 171)
                 dots="+{}+\n".format("-" * 171)
                 rdots="+{}+\n".format("." * 171)
                 distributorname="| Distributor Name:
{:<25}
                                                            |\n".format("Miraj Laptop and
Computer Shop")
                 Date="| Date of Purchase:
{}
                                                                            |\n".format(wr.now
.date())
```

```
                 Time="| Time of Purchase:
{}
                                                 |\n".format(wr.now.time
())
                 greet= "|{:^171}|\n".format("#----- THANK YOU! We hope to see
you again soon! -----#")

                 print(header)
                 print(name)
                 print(space)
                 print(address)
                 print(space)
                 print(cont)
                 print(dots)
                 print(distributorname)
                 print(Date)
                 print(Time)
                 print(header)
                 print(table_header)
                 print(header)

                 total_amount=0
                 total_vat=0
                 amount_with_vat=0
                 t_items=0

                 for i in multiple_order:

                            total_amount += int(i[2])* int(i[3])
                            total_vat +=(0.13* int(i[2])* int(i[3]))
                            amount_with_vat+=(float(i[2])+float(0.13*
int(i[2])))* int(i[3])
                            t_items += int(i[3])


                            print("| {:>20} | {:>15} | {:>12} | {:>15.2f} |
{:>29.2f} | {:>20} | {:>15} | {:>22} |\n".format(i[0], i[1], "$" + str(i[2] *
int(i[3])), (0.13 * int(i[2])) * int(i[3]), (int(i[2]) + (0.13 * int(i[2]))) *
int(i[3]), str(i[3]), i[4], i[5]))


                #outside loop
                 print(header)
                 total_bar= "  TOTAL:                                 | {:<12} |
{:<15} | {:<29} | {:<20} |\n".format("${:.2f}".format(total_amount),
"${:.2f}".format(total_vat), "${:.2f}".format(amount_with_vat), t_items)
                 print(total_bar)
                 print(rdots)
                 print(greet)
                 print(header)
```

7.4 APPENDIX OF WRITE MODULE

```
#sell invoice generator method
import datetime
import operation as op
import read as rd


now = datetime.datetime.now()
def sell_invoice():
    """
    This function generates a sell invoice in a text file format for a single
sell or multiple sells
    made by the user.

    For a single sell, the function extracts relevant information from the `op`
object and `rd.datalist`
    and generates a bill with the customer name, laptop name, brand name, date
and time of purchase,
    total amount, shipping cost (if shipping is chosen), and total amount
including shipping cost.

    For multiple sells, the function creates a table of laptop names, brand
names, total amounts, shipping
    costs, total amounts with shipping costs, and quantity purchased, and
calculates the grand total.

    The function saves the generated invoice in a text file format in a folder
named "Sell_Invoices"
    located in the current working directory.

    Parameters:
    None
    Returns:
    None
    """

    year_str = str(now.year)
    month_str = str(now.month)
    day_str = str(now.day)
    hour_str = str(now.hour)
    minute_str = str(now.minute)
    second_str = str(now.second)
    date_and_time_str = year_str + month_str + day_str + hour_str + minute_str +
second_str


    base_filename = f"{op.customername_}_{date_and_time_str}_Sell_Invoice.txt"
    #path1 = r"{}".format(base_filename)
    path1 = r".\Sell_Invoices\{}".format(base_filename)

    with open(path1, "w") as invoice:
         if  op.issingleSell:
              for block in rd.datalist:
                  for inner_element in block:
                      if op.id_.lower() == inner_element.lower():
                          invoice_info_list = block
                          if op.ship==True:
                             shippingamt = (0.25 * int(block[2][2:])) *
op.noOfItems
                             total_amt_withshipping = shippingamt +
(int(block[2][2:])) * (op.noOfItems)
                          elif op.ship==False:
                              shippingamt = 0
                              total_amt_withshipping = shippingamt +
(int(block[2][2:])) * (op.noOfItems)



                          head="""                    +====================
=================================================================================
=+
                          |                            #----- Miraj Laptop and
Computer Shop -----#                       |
                          |
                                                    |
                          |                                            Kalanki-14,
Kathmandu                                  |
                          |
                                                    |
                          |                                   Contact Number:-
9844345562 , 01-43567800                                  |
                          |
                                                    |
                          +===========================================================
==================================================+
                          |
                                                    |
                          | -------------------------------------------SELL
INVOICE --------------------------------------------|"""

                          data="""
                          |
                                                    |
                            >> CUSTOMER
NAME:                                                               {}

                          |
                                                    |
                            >> LAPTOP
NAME:                                                                 {}

                          |
                                                    |
                            >> BRAND
NAME:                                                                 {}

                          |
                                                    |
                            >> DATE OF
PURCHASE:                                                            {}

                          |
                                                    |
                            >> TIME OF
PURCHASE:                                                            {}

                          |
                                                    |
                            >> TOTAL AMOUNT EXCLUDING SHIPPING
COST:                                     {}
                          |
                                                    |
                                  >> SHIPPING
COST:                                                                   {}

                               |
                                                   |



                               |______________________________________________________
________________________________________________|
                               |
                                                   |
                                  >> TOTAL AMOUNT INCLUDING SHIPPING
COST:                                          {}
                               |______________________________________________________
________________________________________________|""".format( op.customername_,
invoice_info_list[0], invoice_info_list[1], now.date(), now.time(),"$
"+str((int(invoice_info_list[2][2:])) * op.noOfItems), "$ "+str(shippingamt), "$
"+str(total_amt_withshipping))

                          foot="""
                               |
                                                   |
                               |--------------------------- THANK YOU! We hope to see
you again soon! --------------------------------|
                               |
                                                   |
                          +========================================================
================================================+
                    """
                          invoice.write(head)
                          invoice.write(data)
                          invoice.write(foot)
                          print(head)
                          print(data)
                          print(foot)

         else:

            header = "+{}+\n".format("=" * 150)
            table_header = "| {:>27} | {:>23} | {:>14} | {:>17} | {:>32} | {:>20}
|\n".format("LAPTOP NAME", "BRAND NAME", "TOTAL AMOUNT", "SHIPPING COST", "TOTAL
AMOUNT WITH SHIPPING COST", "QUANTITY PURCHASED")
            name= "|{:^150}|\n".format("#----- Miraj Laptop and Computer Shop ---
--#")
            address="|{:^150}|\n".format("Kalanki-14 , Kathmandu")
            space="+{}+\n".format(" " * 150)
            cont="|{:^150}|\n".format("Contact Number:- 9844345562 , 01-
43567800")
            dots="+{}+\n".format("-" * 150)
            rdots="+{}+\n".format("." * 150)
            Customername="| Customer Name:
{:<25}
                                 |\n".format(op.customername_)
            Date="| Date of Purchase:
{}
                                         |\n".format(now.date())
            Time="| Time of Purchase:
{}
                                   |\n".format(now.time())
            greet= "|{:^150}|\n".format("#----- THANK YOU! We hope to see you
again soon! -----#")

            #writing in invoive
            invoice.write(header)
            invoice.write(name)
            invoice.write(space)
            invoice.write(address)
            invoice.write(space)
            invoice.write(cont)
            invoice.write(space)
            invoice.write(dots)
            invoice.write(Customername)
            invoice.write(Date)
            invoice.write(Time)
            invoice.write(header)
            invoice.write(table_header)
            invoice.write(header)
            invoice.write(header)

           #print bill on screen
            print(header)
            print(name)
            print(space)
            print(address)
            print(space)
            print(cont)
            print(space)
            print(dots)
            print(Customername)
            print(Date)
            print(Time)
            print(header)
            print(table_header)
            print(header)
            print(header)


            total_amount=0
            total_shipping=0
            amount_with_shipping=0
            t_items=0


            for i in op.mul_sell:

                 total_amount += int(i[2][2:])* int(i[7])
                 total_shipping +=(0.25* int(i[2][2:])* int(i[7]))
                 if op.ship==True:
                    amount_with_shipping+=(float(i[2][2:])+float(0.25*
int(i[2][2:])))* int(i[7])
                 elif op.ship==False:
                     amount_with_shipping+=(float(i[2][2:]))* int(i[7])


                 t_items += int(i[7])
                 if op.ship==True:
                        invoice.write("| {:<27} | {:<23} | {:<14} | {:<17} |
{:<32} | {:<20} |\n".format(i[0], i[1], "$"+str(int(i[2][2:])* int(i[7])),
("$"+str(0.25* int(i[2][2:])* int(i[7]))), "$"+str((float(i[2][2:])+float(0.25*
int(i[2][2:])))* int(i[7])),i[7]  ))
                        #for print in screen
                        print("| {:<27} | {:<23} | {:<14} | {:<17} | {:<32} |
{:<20} |\n".format(i[0], i[1], "$"+str(int(i[2][2:])* int(i[7])), ("$"+str(0.25*
int(i[2][2:])* int(i[7]))), "$"+str((float(i[2][2:])+float(0.25* int(i[2][2:])))*
int(i[7])),i[7]  ))
                 elif op.ship==False:
                      invoice.write("| {:<27} | {:<23} | {:<14} | {:<17} | {:<32}
| {:<20} |\n".format(i[0], i[1], "$"+str(int(i[2][2:])* int(i[7])), ("$"+str(0)),
"$"+str((float(i[2][2:]))* int(i[7])),i[7]  ))
                       #for print in screen
                      print("| {:<27} | {:<23} | {:<14} | {:<17} | {:<32} |
{:<20} |\n".format(i[0], i[1], "$"+str(int(i[2][2:])* int(i[7])), ("$"+str(0)),
"$"+str((float(i[2][2:]))* int(i[7])),i[7]  ))
```

```
          #outside the loop

            invoice.write(header)
            if op.ship==True:
               total_bar="|  TOTAL:
 | {:<15} | {:<16} | {:<32} | {:<20}
|\n".format("$"+str(total_amount),"$"+str(total_shipping),"$"+str(amount_with_shi
pping), t_items)
            elif op.ship==False:
               total_bar="|  TOTAL:
 | {:<15} | {:<16} | {:<32} | {:<20}
|\n".format("$"+str(total_amount),"$"+str(0),"$"+str(amount_with_shipping),
t_items)


            invoice.write(total_bar)
            invoice.write(rdots)
            invoice.write(greet)
            invoice.write(header)

           #to print in screen
            print(header)
            print(total_bar)
            print(rdots)
            print(greet)
            print(header)






# data update method after sell
def update():
    """
    Writes the contents of `rd.datalist` to the file specified by `rd.path`.

    For each block in `rd.datalist`, the elements are joined together with a
comma
    separator and written to the file. Each block is written on a new line in the
    file.

    At summary this function is used to update the quantity of the products after
sell at txt file
```

```
    Args:
        None

    Returns:
        None
    """
    with open(rd.path, 'w') as file:
       for block in rd.datalist: #for each loop
          para=",".join(block)
          file.write(para+"\n")



#order invoice generator method
def order_invoice():

      """
      This function generates an order invoice for a given order.

      The order invoice includes the following information:
      - Distributor name
      - Contact information
      - Laptop and brand name
      - Processor and graphics card
      - Quantity of the product
      - Net price
      - VAT amount
      - Gross amount
      - Date and time of order

      The function first generates a unique filename for the invoice, based on
the current date and time, and saves it in
      the 'Order_Invoices' folder in the current directory. It then calculates
the net amount, VAT amount, and gross
      amount of the order. Finally, it writes the invoice information to the
file.

      If the order is a single order, the invoice includes only information for
that order. If it is a multiple order, the
      invoice includes a table of information for each product in the order.

      return: None
    """
```

```
      year_str = str(now.year)
      month_str = str(now.month)
      day_str = str(now.day)
      hour_str = str(now.hour)
      minute_str = str(now.minute)
      second_str = str(now.second)
      date_and_time_str = year_str + month_str + day_str + hour_str + minute_str
+ second_str


      base_filename = f"{op.productname}_{date_and_time_str}_Order_Invoice.txt"


      path2 = r".\Order_Invoices\{}".format(base_filename)


      netamt=(int(op.price)*int(op.quantity))
      vatamt=(int(op.price)*0.13)*int(op.quantity)
      grossamt=netamt+vatamt


      with open(path2,"w") as orderInvoice:

           if op.issinleOrder:

                 head1="""                                 +====================
=================================================================================
==+
                                  |                            #----- Miraj
Laptop and Computer Shop -----#                            |
                                  |
                                                      |
                                  |                                      Kalank
i-14, Kathmandu                                       |
                                  |
                                                      |
                                  |                              Contact
Number:- 9844345562 , 01-43567800                           |
                                  |
                                                      |
                                  +===============================================
========================================================+
                                  |
                                                      |
                                                  | -------------------------------------------
ORDER INVOICE -------------------------------------------|"""

                data1="""
                                                  |
                                                                        |
                                                    >> DISTRIBUTOR
NAME:                                                           {}
                                                  |
                                                                        |
                                                    >> LAPTOP
NAME:                                                                             {}

                                                  |
                                                                        |
                                                    >> BRAND
NAME:                                                                              {}

                                                  |
                                                                        |
                                                    >>
PROCESSOR:                                                                               {}

                                                  |
                                                                        |
                                                    >> GRAPHICS
CARD:                                                                          {}

                                                  |
                                                                        |
                                                    >>
QUANTITY:                                                                                {}

                                                  |
                                                                        |
                                                    >> NET
PRICE:                                                                               {}

                                                  |
                                                                        |
                                                    >> VAT
AMOUNT:                                                                              {}
```

```
                                          |
                                                            |
                                           >> DATE OF
ORDER:                                                                {}


                                          |
                                                            |
                                           >> TIME OF
ORDER:                                                                {}

                                          |__________________________________________
____________________________________________________|
                                          |
                                                            |
                                           >> GROSS
AMOUNT:                                                                 {}

                                          |__________________________________________
____________________________________________________|""".format("Miraj Laptop
and Computer Shop", op.productname, op.brandname, op.processor, op.graphics,
op.quantity, "$ "+str(netamt), "$ "+str(vatamt), now.date(), now.time(),"$
"+str(grossamt))
                  foot1="""
                                          |
                                                            |
                                          |-------------------------- THANK YOU! We hope
to see you again soon! --------------------------------|
                                          |
                                                            |
                                          +=============================================
========================================================+
                                    """


                  orderInvoice.write(head1)
                  orderInvoice.write(data1)
                  orderInvoice.write(foot1)
                  op.screen_display_Sorder()


           else:
                 header = "+{}+\n".format("=" * 171)
                 table_header = "| {:>20} | {:>15} | {:>12} | {:>15} | {:>29} |
{:>20} | {:>15} | {:>22} |\n".format("LAPTOP NAME", "BRAND NAME", "TOTAL AMOUNT",
"VAT AMOUNT", "TOTAL AMOUNT WITH VAT", "QUANTITY PURCHASED", "PROCESSOR",
"GRAPHICS CARD")
                 name= "|{:^171}|\n".format("#----- Miraj Laptop and Computer
Shop -----#")
                 address="|{:^171}|\n".format("Kalanki-14 , Kathmandu")
                 cont="|{:^171}|\n".format("Contact Number:- 9844345562 , 01-
43567800")
                 space="+{}+\n".format(" " * 171)
                 dots="+{}+\n".format("-" * 171)
                 rdots="+{}+\n".format("." * 171)
                 distributorname="| Distributor Name:
{:<25}
                                                               |\n".format("Miraj Laptop and
Computer Shop")
                 Date="| Date of Purchase:
{}
                                                                                |\n".format(now.da
te())
                 Time="| Time of Purchase:
{}
                                                                           |\n".format(now.time())
                 greet= "|{:^171}|\n".format("#----- THANK YOU! We hope to see
you again soon! -----#")

                 orderInvoice.write(header)
                 orderInvoice.write(name)
                 orderInvoice.write(space)
                 orderInvoice.write(address)
                 orderInvoice.write(space)
                 orderInvoice.write(cont)
                 orderInvoice.write(dots)
                 orderInvoice.write(distributorname)
                 orderInvoice.write(Date)
                 orderInvoice.write(Time)
                 orderInvoice.write(header)
                 orderInvoice.write(table_header)
                 orderInvoice.write(header)




                 total_amount=0
                 total_vat=0
                 amount_with_vat=0
                 t_items=0
```

```
                    for i in op.multiple_order:

                        total_amount += int(i[2])* int(i[3])
                        total_vat +=(0.13* int(i[2])* int(i[3]))
                        amount_with_vat+=(float(i[2])+float(0.13* int(i[2])))*
int(i[3])
                        t_items += int(i[3])

                        orderInvoice.write("| {:>20} | {:>15} | {:>12} | {:>15.2f} |
{:>29.2f} | {:>20} | {:>15} | {:>22} |\n".format(i[0], i[1], "$" + str(i[2] *
int(i[3])), (0.13 * int(i[2])) * int(i[3]), (int(i[2]) + (0.13 * int(i[2]))) *
int(i[3]), str(i[3]), i[4], i[5]))


                   #outside loop print
                    orderInvoice.write(header)
                    total_bar = "  TOTAL:                                  | {:<12} |
{:<15} | {:<29} | {:<20} |\n".format("${:.2f}".format(total_amount),
"${:.2f}".format(total_vat), "${:.2f}".format(amount_with_vat), t_items)

                    orderInvoice.write(total_bar)
                    orderInvoice.write(rdots)
                    orderInvoice.write(greet)
                    orderInvoice.write(header)
                    op.screen_display_Morder()




#order update method
def udpate_order():
        """
      Updates the order list with new items or increases the quantity of an
existing item.

      - Finds the latest ID number from the order list and increments it to
generate a new ID for the new item.
      - Searches the order list for an existing item with the same product name,
brand name, processor, and graphics as the new item.
      - If found, updates the quantity of the existing item with the new
quantity.
      - If not found, creates a new item with a new ID and adds it to the order
list.
```

```
      - Saves the updated order list to the data file and reloads it into the
data list.

      Returns:
      None
    """
        ID_num=rd.datalist[-1][-1]
        id_num=int(ID_num.replace("L","").strip())+1


        for eachlist in rd.datalist:

          if op.productname.strip().lower() in [item.strip().lower() for item in
eachlist] and op.brandname.strip().lower() in [item.strip().lower() for item in
eachlist] and op.processor.strip().lower() in [item.strip().lower() for item in
eachlist] and op.graphics.strip().lower() in [item.strip().lower() for item in
eachlist]:
                upd_noofitems=int(eachlist[3])+int(op.quantity)
                eachlist[3]=" "+str(upd_noofitems)
                update()
                break
        else:
            new_orderitem=[op.productname," "+op.brandname," $"+str(op.price),"
"+str(op.quantity)," "+op.processor," "+op.graphics,str(id_num)+"L"]
            with open(rd.path, 'a') as file:
                para=",".join( new_orderitem)
                file.write(para+"\n")


        '''data list ma suru ma value file bata load vayo hunxa tei vara paxi
update vayeko value tesma aaudina tesko lagi
          hami ley update gareko file ko value lai feri data list ma pathaunu
parxa which is done below  --> aba yo gare paxi display
          method call garda updated sell value ne aauxa'''

        rd.datalist = [] # same as data_info

        with open(rd.path, 'r') as file:
          for line in file:
              line = line.strip().split(",")
              rd.datalist.append(line)
```