PWP Group Assignment

AAPP010-4-2-PWP

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Table of Contents

1.0 Introduction

Python is a very powerful and easy-to-understand programming language in the current software programming world. By using Python, our team has designed and coded a program called **SUPER CAR RENTAL SERVICE ONLINE.** This program or interface is used by customers who want to rent a car for purposes like travelling, special events etc..

Before that, there are a few menus in our program **(images in Chapter 7.0)** since it is a menu-driven interface which is the **login menu, admin main menu, admin modify menu, admin search menu, customer main menu,** and **customer modify menu.**

In our program, the users will be between **admin, customers, and web-surfers (non-registered customers).** As **an admin**, he or she has the permission to **add** and **modify car details, search for specific customer records** and **as well as other details**, and last but not least **return a rented car** from customer when the rental period has ended. The car details are based on **4 elements** which is **car code, car brand, rent price per day,** and **car availability**, respectively, where car code is **unique.**

All **customers** or **non-customers** can view the car details in the **login menu.** If a non-customer wants to register and login to access more functions, the customer will need **insert username** and **password**, which is **unique**, followed by **name to display, phone number,** and **card number for payment verification**. During car booking process, customer will require to type the **car code and card number accurately** and **car availability** will need to be **"Yes"** in order to **successfully rent** the car.

If admin or customers wants to **logout**, they can just **exit their main menu** by typing correct option, and then they will be **taken back to the login menu**. This is the brief functionality of our team's program, for **more in-depth and specific explanation** about the functionalities of our program, kindly **refer to Chapter 7.**

Lastly, to improve the readability of flowcharts and making our program more efficient, **W3Schools (2021), GeeksforGeeks (2021), RFFlow5 (2021), Gliffy (2019)** has been used as our references and self-learning platforms throughout the course.

2.0 Assumptions

In our SUPER CAR RENTAL SERVICE ONLINE program, several assumptions have been made to make this service more user-friendliness, simple, and easier to understand.

Firstly, according to the admin() Function of this service, we are assuming there is exactly **one admin** for handling this rental car service which means there are **only one admin username and one admin password for login** as admin to the system.

Secondly, in modifying car detail, we assume that admin is required to be **extra careful and honest** as there is no validation for the specify car code. Admins **are able to** change what code he wants so there will be no validation needed since admin could change back the car detail **whenever he wants.**

Thirdly, we assume that each card number that is entered by the customer **is valid** and can be **used for payment.**

Lastly, during the car booking process, we assume that each customer is required to **make payment immediately** by verifying their card which is to enter their card number after they have selected **which car** and **how many days** they want to rent, assuming that the customer will **return** the car **within the time frame.**

3.0 Pseudocode Design

Screenshot taken with Windows Sniping Tools from Notepad with Word Wrap for better readability

```
FUNCTION customerLogin()
BEGIN
        Display 'Please enter your username and password to login'
        Read STRING (username)
        Read STRING (password)

        Declare customer[]
        Append username Into customer
        Append password Into customer
        row = Read From CustomerUsernamePsw.txt

        Loop line In row
                lines = join ' ' In line
                lst = rstrip '\n' In lines , split ' | ' In lines
                IF lst[0] == customer[0] and lst[1] == customer[1] THEN
                        Display 'Login Successful. Welcome' , username.
                        invalid = False
                        Break
                ELIF lst[0] != customer[0] or lst[1] != customer[1]
                        invalid = True
                ENDIF
        ENDLOOP

        IF invalid THEN
                CALL customerLogin()
        ENDIF
END
```

```
FUNCTION interface()
BEGIN
        Display '!<WELCOME TO SUPER CAR RENTAL SERVICES ONLINE
INTERFACE >!'
        Display 'Good day, user! I am Gabriel, a menu-driven assistant
for this online interface. Although I am not smart, but you will still
need to tell me who you are beforehand. :D', '1 - Login as Admin.', '2
- Login as Customer.', '3 - Register as Customer.', '4 - I am just
browsing the car for rent.'
```

```
        WHILE True
                TRY
                        Display 'Gabriel would kindly like you to
introduce yourself first. :D'
                        Read inputOption
                ENDTRY
                EXCEPT ValueError
                        Display 'Gabriel do not understand what are you
saying. Please type as per the menu give. :'
                        Continue
                ENDEXCEPT
                FINALLY
                        IF Length of STRING (inputOption) != 1 THEN
                                Display ('Invalid input. Please retype
the correct input')
                                Continue
                        ELSE
                                INTEGER (inputOption)
                                Break
                        ENDIF
                ENDFINALLY
        ENDWHILE
```

```
        IF inputOption == 1 THEN
                Display 'Enter your admin username and password.'
                SET adminName to STRING ('WY')
                SET psw to INTEGER ('1234321')
                Read username
                Read password

                IF (adminName == username) And (psw == password) THEN
                        Display 'Login Successful. Welcome', adminName
, '!'
                ELSE
                        WHILE (adminName != username) Or (psw !=
password)
                                Display 'Either your username or
password is incorrect. Please try again.'
                                Read username
                                Read password
                                IF (adminName == username) And (psw ==
password) THEN
                                Break
                        ENDWHILE
                        Display 'Login successful. Welcome' ,
adminName, '!'
                ENDIF
                CALL admin()
```

```
        ELIF inputOption == 2 THEN
                CALL customerLogin()
                CALL customerUse()

        ELIF inputOption == 3
                DEFINE FUNCTION registerStep()
                        Display 'Registeration successful. Please fill
in your personal information to complete your registeration process.All
your presonal information will be kept private and confidential.Gabriel
will not tell anyone about you.'
                        Display 'Enter your Name to display'
                        Read name
                        Display 'Enter your Phone Number'
                        Read phone_no
                        WHILE Length of phone_no != 10 And Length of
phone_no != 11
                                Display 'Invalid phone format. Please
retype.'
                                Read phone_no
                                IF Length of phone_no == 10 And Length
of Phone_no == 11 THEN
                                        Break
                                ENDIF
                        ENDWHILE

                        Display 'Enter your Card number'
                        Read card_no
                        WHILE Length of card_no != 16
                                Display 'Invalid card format. Please
retype.'
                                Read card_no
                                IF Length of card_no == 16
                                        Break
                                ENDIF
                        ENDWHILE

                        cusDetail = [name, phone_no, card_no]
                        Write join(cusDetail) In ' | ' Into
Customer_Details.txt
                        Write '\n' Into Customer_Details.txt
                        Display 'Your customer details have
successfully saved. Please proceed to login for more functions.'
                ENDFUNCTION
```

```
                Display 'Please register in order to access other
customer function.'
                Read username
                Read password
                info = Read From CustomerUsernamePsw.txt

                IF username Not In info THEN
                        cusUserPsw = [username,password]
                        Write join cusUserPsw In ' | ' Into
CustomerUsernamePsw.txt
                        Write '\n' Into CustomerUsernamePsw.txt
                        CALL registerStep()

                ELSE
                        Loop line In CustomerUsernamePsw.txt
                        lst = split ' | ' In line
                        IF lst[0] == username
                                Break
                        ENDLOOP

                        WHILE True
                                Display 'Username already taken. Please
try another username.'
                                Read username
                                Read password
                                info = Read From
CustomerUsernamePsw.txt
                                IF username Not In info THEN
                                        Break
                                ENDIF
                        ENDWHILE

                        cusUserPsw = [username,password]
                        Write join cusUserPsw In ' | ' Into
CustomerUsernamePsw.txt
                        Write '\n' Into CustomerUsernamePsw.txt
                        CALL registerStep()
                ENDIF
                CALL interface()

        ELIF inputOption == 4 THEN
                readFile = Read From Car_Details.txt
                Display readFile
                CALL interface()
        ENDIF
END
```

```
FUNCTION admin()
BEGIN
        Display 'Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do.
                1 - Add Car for Rent
                2 - Modify Car Details
                3 - Display Customer Rental Records
                4 - Search for a specific record
                5 - Return a Rented Car
                6 - Search Engine
                7 - Exit'
        WHILE True
                TRY
                        Display ' Gabriel awaiting your order '
                        Read adminInput
                ENDTRY
                EXCEPT ValueError
                        Display ' Gabriel do not understand what are you
saying. please type as per the menu given '
                        Continue
                ENDEXCEPT
                FINALLY
                        IF Length of STRING (adminInput) != 1 Or INTEGER
(adminInput) > 7 THEN
                                Display 'Invalid input. Please retype the
correct input'
                                Continue
                        ELSE
                                INTEGER (adminInput)
                                Break
                        ENDIF
                ENDFINALLY
        ENDWHILE
        IF adminInput == 1 THEN
                DEFINE FUNCTION category()
                        categoryCar = ['Code', ' | ', 'Car Brand', ' | ',
'Rent Price per day (RM)', ' | ', 'Availability for Rent', ' | ']
                        WHILE True
                                TRY
                                        Display 'Do you want Gabriel to
insert the category for your table?
                                                1 - Yes,Please
                                                2 - No, thank you
                                                3 - You can still go back
to the menu'
                                        Read inputCategory
                                ENDTRY
                                EXCEPT ValueError
                                        Display 'Gabriel do not
understand what are you saying. Please type as per the menu give.'
                                        Continue
                                ENDEXCEPT
```

```
                                FINALLY
                                        IF Length of STRING
(inputCategory) != 1 Or INTEGER (inputCategory) > 3 THEN
                                        Display 'Invalid input.
Please retype the correct input'
                                        Continue
                                ELSE
                                        INTEGER (inputCategory)
                                        Break
                                ENDIF
                        ENDFINALLY
                ENDWHILE

                IF inputCategory == 1 THEN
                        Write join ' | ' In categoryCar Into
Car_Details.txt
                        Write '\n' Into Car_Details.txt
                ELIF inputCategory == 2 THEN
                        Pass
                ELIF inputCategory == 3 THEN
                        CALL admin()
                ENDIF

        WHILE True
                Display 'How many cars you want to add?\nExample:
6\n'
                Read amount
                TRY
                        amount = INTEGER (amount)
                        Break
                ENDTRY
                EXCEPT
                        Display 'Please enter a specific NUMBER
of cars to add.'
                        Continue
                ENDEXCEPT
        ENDWHILE
```

```
                Loop i From 0 To amount+1 Step 1
                        IF i == 0 THEN
                                CALL category()
                        ELSE
                                WHILE True
                                        Display 'Enter the car types
followed by the code number assigned. SDN – Sedan SUV - Sport Utility
Vehicles HBK - Hatchback MVN – Minivan Example: SDNxxx'
                                        Read STRING (code)
                                        IF Length of code != 6 THEN
                                                Display 'Invalid input
format Please retype Make sure it starts with the code followed by the
code number.'
                                                Continue
                                        ELSE
                                                Break
                                        ENDIF
                                ENDWHILE
                        ENDIF
                ENDLOOP
                                WHILE True
                                        Display 'Enter the car brand.
Example : Honda Accord'
                                        Read car_brand
                                        IF Length of car_brand <= 5 THEN
                                                Display 'Please enter a
valid car brand'
                                                Continue
                                        ELSE
                                                Break
                                        ENDIF
                                ENDWHILE

                                WHILE True
                                        Display 'Enter the price for rent
. Example : xxx'
                                        Read price_per_day
                                        IF Length of price_per_day != 3
THEN
                                                Display 'The range of
price is RM100-RM999. Please retype a valid price'
                                                Continue
                                        ELSE
                                                Break
                                        ENDIF
                                ENDWHILE
```

```
                                Display 'Is the car ready for
rent.Example: Yes/No'
                                Read car_availability
                                WHILE car_availability != 'Yes' And
car_availability != 'No'
                                        Display 'Is the car ready for
rent . Example: Yes/No'
                                        Read car_availability
                                        IF car_availability == 'Yes' Or
car_availability == 'No'
                                                Break
                                        ENDIF
                                ENDWHILE
                                data = [code, ' | ',car_brand, ' |
',price_per_day, ' | ',car_availability]
                                Write join data In ' | ' Into
Car_Details.txt
                                Write '\n' Into Car_Details.txt
                                Display data
                        ENDIF
                ENDLOOP
                CALL admin()

        ELIF adminInput == 2 THEN
                readfile = Read From Car_Detail.txt
                Display readfile
                Declare lst[]
                Loop i In readFile
                        j = strip '\n' In i
                        k = split ' | ' In j
                        Append k Into lst
                ENDLOOP
                WHILE True
                        TRY
                                Display 'Enter which code you wish to
modify? Example: 1-20'
                                Read inputCode
                                Try
                                        Display lst[inputcode]
                                ENDTRY
                                EXCEPT IndexError
                                        Display 'There is no such car in
the database'
                                        Continue
                                ENDEXCEPT
                        ENDTRY
```

```
                        EXCEPT ValueError
                                Display 'Gabriel do not understand what
are you saying. Please type as per the menu give.'
                                Continue
                        ENDEXCEPT
                        FINALLY
                                IF Length of STRING (inputCode) > 3 THEN
                                        Display 'Invalid code. Code
should be at most 3 numbers. Please retype.'
                                        Continue
                                ELSE
                                        INTEGER (inputCode)
                                        Break
                                ENDIF
                        ENDFINALLY
                ENDWHILE

                WHILE True
                        TRY
                                Display 'Which section do you want to
modify?0 – Code 1 - Car Brand 2 - Rent Price per day (RM) 3 -
Availability for Rent 4 - Wrong code? Back to Menu.'
                                Read INTEGER (InputIndex)
                        ENDTRY
                        EXCEPT ValueError
                                Display  'Gabriel do not understand what
are you saying. Please type as per the menu give.'
                                Continue
                        ENDEXCEPT
                        FINALLY
                                IF Length of STRING (inputIndex) != 1 Or
INTEGER (inputIndex) > 4 THEN
                                        Display 'Invalid input. Please

retype.'
                                        Continue
                                ELSE
                                        INTEGER (inputIndex)
                                        Break
                                ENDIF
                        ENDFINALLY
                ENDWHILE
```

```
                IF inputIndex == 4 THEN
                        CALL admin()
                ELSE
                        Display lst[inputCode][inputIndex]
                        Display 'Enter the new data to replace the old
data'
                        Read temp
                        Display temp
                        lst[inputCode][inputIndex] = temp
                        Display lst

                        Loop i In lst
                                Write join ' | ' In i Into
Car_Details.txt
                                Write '\n' Into Car_Details.txt
                        ENDLOOP
                ENDIF
                CALL admin()
        ELIF adminInput == 3
                showHisFile = Read From Rental_History_Records.txt
                Display showHisFile
                CALL admin()
        ELIF adminInput == 4
                Display 'Gabriel will help you to find the customer you
specified.Just tell Gabriel the username of the customer.Gabriel will
print the whole file for you.'
                Read tempInput
                hisReadFile = Read From Rental_History_Records.txt
                Declare hlst[]

                Loop i In hisReadFile
                        j = strip '\n' In i
                        k = split ' | ' In j
                        Append k Into hlst
                ENDLOOP

                LOOP i In hlst
                        IF i[0] == tempInput
                                Display (i)
                        ENDIF
                ENDLOOP

                Display 'Above is/are the rental record(s) of', tempInput
                Display 'If it is empty, it means the customer does not
exist or have not rent a car before'

                CALL admin()
```

```
        ELIF adminInput == 5
                readFile = Read From Car_Details.txt
                Declare lst[]

                Loop i In readFile
                        j = strip '\n' In i
                        k = split ' | ' in j
                        Append k Into lst
                ENDLOOP

                LOOP i in lst
                        IF i[-1] == 'No' THEN
                                Display (i)
                        ENDIF
                ENDLOOP

                WHILE True
                        TRY
                                Display 'Enter which code you wish to
modify? Example: 1-20'
                                Read inputCode
                                Try
                                        Display lst[inputcode]
                                ENDTRY
                                EXCEPT IndexError
                                        Display 'There is no such car in
the database'
                                        Continue
                                ENDEXCEPT
                        EXCEPT ValueError
                                Display 'Gabriel do not understand what
are you saying. Please type as per the menu give.'
                                Continue
                        ENDEXCEPT
                        FINALLY
                                IF Length of STRING (inputCode) > = 3
THEN
                                        Display 'Invalid code. Code
should be at most 3 numbers. Please retype.'
                                        Continue
                                ELSE
                                        INTEGER (inputCode)
                                        Break
                                ENDIF
                        ENDFINALLY
                ENDWHILE
```

```
                Display 'Type Yes to return the car. Type No to remain
the car at rented.'
                Read temp
                WHILE temp != 'No' And temp != 'Yes'
                        Display 'Type Yes to return the car. Type No to
remain the car at rented.'
                        Read temp
                        Display 'Either Yes or No. Please do not type
other input.'
                        IF temp == 'No' Or temp == 'Yes'
                                Break
                        ENDIF
                ENDWHILE

                lst[inputCode][3] = temp
                Display lst[inputCode]
                IF temp == 'Yes' THEN
                        Display 'The respective car is successfully
returned and wating for another rental.'
                ELIF temp == 'No'
                        Display 'The respective car is still remain at
rented.'
                ENDIF

                Loop i In lst
                        Write Join ' | ' In I Into Car_Details.txt
                        Write '\n' Into Car_Details.txt
                ENDLOOP
                CALL admin()

        ELIF adminInput == 6 THEN
                readFile = Read from Car_Details.txt
                Declare lst[]

                Loop i In readFile
                        j = strip '\n' In i
                        k = split ' | ' In j
                        Append k Into lst
                ENDLOOP

                Display 'Yes? How can Gabriel help you to display the
data? 1 - Car Types 2 - Car Availability 3 - Customer Bookings for a
specific timeframe 4 - Back to menu'
```

```
WHILE True
        TRY
                Display 'Enter input Display'
                Read inputDisplay
        ENDTRY
        EXCEPT ValueError
                Display 'Gabriel do not understand what
are you saying. Please type as per the menu give.'
                Continue
        ENDEXCEPT
        FINALLY
                IF Length of STRING (inputDisplay) != 1
Or INTEGER (inputDisplay) > 4 THEN
                        Display 'Invalid input. Please
retype.'
                        Continue
                ELSE
                        INTEGER (inputDisplay)
                        Break
                ENDIF
ENDWHILE

IF inputDisplay == 1 THEN
        Display 'What types of car are you looking for?
                1 - Sedan (SDN)
                2 - Sport Utility Vehicle (SUV)
                3 - Hatchback (HBK)
                4 – Minivan (MVN)'
        WHILE True
                TRY
                        Read inputTypes
                ENDTRY
                EXCEPT ValueError
                        Display 'Gabriel do not
understand what are you saying. Please type as per the menu give.'
                        continue
                ENDEXCEPT
                FINALLY
                        IF Length of STRING (inputTypes)
!= 1 Or INTEGER (inputTypes) > 4 THEN
                                Display 'Invalid input.
Please retype'
                                Continue
                        ELSE
                                INTEGER (inputTypes)
                                Break
                        ENDIF
                ENDFINALLY
        ENDWHILE
```

```
                        IF inputTypes == 1 THEN
                                Loop i In lst
                                        IF i[0].startswith 'SDN' THEN
                                                Display i
                                        ENDIF
                                ENDLOOP
                        ELIF inputTypes == 2 THEN
                                Loop i In lst
                                        IF i[0].startswith 'SUV' THEN
                                                Display i
                                        ENDIF
                                ENDLOOP
                        ELIF inputTypes == 3 THEN
                                Loop i In lst
                                        IF i[0].startswith 'HBK' THEN
                                                Display i
                                        ENDIF
                                ENDLOOP
                        ELIF inputTypes == 4 THEN
                                Loop i In lst
                                        IF i[0].startswith 'MVN' THEN
                                                Display i
                                        ENDIF
                                ENDLOOP
                        ENDIF
                        CALL admin()

                ELIF inputDisplay == 2 THEN
                        Display 'You are looking car available for rent
or car that already rented out? 1 -Available 2 - Rented Out '
                        WHILE True
                                TRY
                                        Read inputAvailability
                                ENDTRY
                                EXCEPT ValueError
                                        Display 'Gabriel do not
understand what are you saying. Please type as per the menu give.'
                                        Continue
                                ENDEXCEPT
                                FINALLY
                                        IF Length of STRING
(inputAvailability) != 1 Or INTEGER (inputAvailability) > 2 THEN
                                                Display 'Invalid input.
Please retype'
                                                Continue
                                        ELSE
                                                INTEGER
(inputAvailability)
                                                Break
                                        ENDIF
                                ENDFINALLY
                        ENDWHILE
```

```
                        IF inputAvailability == 1 THEN
                                Loop i In lst
                                        Loop element In i
                                                IF element == 'Yes' Then
                                                        Display i
                                                ENDIF
                                        ENDLOOP
                                ENDLOOP
                        ELIF inputAvailability == 2 THEN
                                Loop i In lst
                                        Loop element In i
                                                IF element == 'No' Then
                                                        Display i
                                                ENDIF
                                        ENDLOOP
                                ENDLOOP
                        ENDIF
                        CALL admin()

                ELIF inputDisplay == 3 THEN
                        historyFile = Read From
Rental_History_Records.txt
                        Declare hlst[]

                        Loop i In historyFile
                                j = strip '\n' In i
                                k = split ' | ' In j
                                Append k Into hlst
                        ENDLOOP
                        WHILE True
                                TRY
                                        Display 'Which month of customer
rental records you wish to display? January (1) - December (12) Please
enter in numeric form.'
                                        Read inputMonth
                                ENDTRY
                                EXCEPT ValueError
                                        Display 'Gabriel do not
understand what are you saying. Please type as per the menu give.'
                                        Continue
                                ENDEXCEPT
                                FINALLY
                                        IF Length of STRING (inputMonth)
> 2 Or INTEGER (inputMonth) >12 THEN
                                                Display ‘There is at most
two digits for a month.’
                                                Continue
                                        ELSE
                                                INTEGER (inputMonth)
                                                Break
                                        ENDIF
                                ENDFINALLY
                        ENDWHILE
```

```
                        a = STRING (inputMonth)
                        b = zfill(2) In a
                        TRY
                                Loop x In hlst
                                        IF b == (x[4][5:7]) THEN
                                                Display x
                                        ENDIF
                                ENDLOOP
                        ENDTRY
                        EXCEPT IndexError
                                Pass
                        ENDEXCEPT
                        CALL admin()

                ELIF inputDisplay == 4 THEN
                        CALL admin()

        ELIF adminInput == 7
                DEFINE FUNCTION exit_function()
                        Display 'Exit this program'
                        Display 'Yes or No?'
                        Read bye
                        WHILE bye != 'Yes' And bye != 'No'
                                Display 'Yes or No?'
                                Read bye
                                IF bye != 'Yes' Or bye != 'No'
                                        Break
                                ENDIF
                        ENDWHILE

                        Y = STRING Yes
                        N = STRING No
                        IF bye == Y THEN
                                Display 'you are always welcome. Have a
nice day.'
                                CALL interface()
                        ELIF bye == N THEN
                                Display 'Well, do you still have anything
that I can help? :).'
                                CALL admin()
                        ELSE
                                Display 'Uh? What did you type? ._." I
did not understand.'
                                CALL exit_function()
                        ENDIF
                END FUNCTION
                CALL exit_function()
        ENDIF
END
```

```
FUNCTION customerUse()
BEGIN
        Display 'Gabriel at your service. How can I kindly help you?
                Please select the function below so that I know what
you want me to do. :)
                1 - Modify Personal Details
                2 - View Personal Rental History
                3 - View Car Details List
                4 - Book a Car and Make Payment
                5 - Exit'
        WHILE True
                TRY
                        Display 'Gabriel awaiting your order.'
                        Read customerInput
                ENDTRY
                EXCEPT ValueError
                        Display 'Gabriel do not understand what are you
saying. Please type as per the menu give.'
                        Continue
                ENDEXCEPT
                FINALLY
                        IF Length of STRING (customerInput) != 1 Or
INTEGER (customerInput) > 5 THEN
                                Display 'Invalid input. Please retype'
                                Continue
                        ELSE
                                INTEGER (customerInput)
                                Break
                        ENDIF
                ENDFINALLY
        ENDWHILE

        IF customerInput == 1
                Display "Please Enter your username and password to
verify"
                Read username
                Read password
                credential = username + ' | ' + password + '\n'

                f = Read lines From CustomerUsernamePsw.txt
                no_line = Length of f
                count = 0
                x = 0
```

```
                WHILE x <= no_line
                        TRY
                                IF line[count] == credential THEN
                                        Break
                                count = count + 1
                                ENDIF
                        ENDTRY
                        EXCEPT IndexError
                                Display 'Either your username or
password is incorrect.please try again'
                                CALL customerUse()
                        ENDEXCEPT
                ENDWHILE

                Declare lst[]
                readFile = Read From Customer_Details.txt
                Loop i In readFile
                        j = strip '\n' In i
                        k = split ' | ' In j
                        Append k Into lst
                ENDLOOP
                Display lst[count]
                WHILE True
                        TRY
                                Display 'Which section do you wish to
modify'
                                0 - Name
                                1 - Phone Number
                                2 - Card Number
                                3 - Back to Menu'
                                Read option
                        ENDTRY
                        EXCEPT ValueError
                                Display 'Gabriel do not understand what
are you saying. Please type as per the menu give.'
                                Continue
                        ENDEXCEPT
                        FINALLY
                                IF Length of STRING (option) != 1 Or
INTEGER (option) > 4 THEN
                                        Display 'Invalid input. Please
retype.'
                                        Continue
                                ELSE
                                        INTEGER (option)
                                        Break
                                ENDIF
                        ENDFINALLY
                ENDWHILE
```

```
                IF option == 3 THEN
                        CALL customerUse()
                ELSE
                        IF option == 0 THEN
                                Display 'Please enter your new display
name'
                                Read temp
                                lst[count][option] = temp

                        ELIF option == 1 THEN
                                Display 'Please enter your new phone
number'
                                Read temp
                                WHILE Length of temp != 10 And Length
of temp != 11
                                        Display 'Invalid phone format.
Please retype.Make sure your phone is 10 - 11 numbers long.
                                        Display 'New Phone Number:'
                                        Read temp
                                        IF Length of temp == 10 And
Length of temp == 11 THEN
                                                Break
                                        ENDIF
                                ENDWHILE
                                lst[count][option] = temp
                        ELIF option == 2 THEN
                                Display 'Enter new card number'
                                Read temp
                                WHILE Length of temp != 16
                                        Display 'Invalid card format.
Please retype.Make sure you card number is 16 numbers long.     '
                                        Display 'New card number: '
                                        Read temp
                                        IF Length of temp == 16 THEN
                                                Break
                                        ENDIF
                                ENDWHILE
                                lst[count][option] = temp
                        ENDIF

                        Loop i In lst
                                Write join i In ' | ' Into
Customer_Details.txt
                                Write '\n' Into Customer_Details.txt
                        ENDLOOP

                        Display lst[count]
                        Display 'Modification Successful'

                        CALL customerUse()
                ENDIF
```

```
        ELIF customerInput == 2 THEN
                Display 'Gabriel will need to know your username in
order to find your rental history records.
                        Please kindly type your username.'

                individualFile = Read From Rental_History_Records.txt
                Loop x In individualFile
                        lst = Split ' | ' in x
                        IF lst[0] == username
                                Display x

                Display 'Here is your rental history records, username'
                Display 'If it is empty, it means you have not rent any
car yet.
                        Or maybe you typed your username wrongly.'

                CALL customerUse()

        ELIF customerInput == 3 THEN
                readFile = Read From Car_Details.txt
                Display readFile

                CALL customerUse()
        ELIF customerInput == 4
                Import datetime
                Import timedelta
                date_and_time = datetime.now(), Replace microsecond In
datetime To 0

                DEFINE FUNCTION bookCar()
                        readFile = Read From Car_Details.txt
                        Declare lst[]

                        Loop i In readFile
                                j = strip '\n' In i
                                k = split ' | ' In j
                                Append k Into lst
                        ENDLOOP

                        Loop i In lst
                                Loop element In i
                                        IF element startswith 'Y' THEN
                                                Display i
                                        ENDIF
                                ENDLOOP
                        ENDLOOP
```

```
                        Display 'Please select your desired car for
rent by typing thecode according to the menu.Example:SDNxxx'
                        Read code
                        readFile = Read From Car_Details.txt
                        car_count = 0
                        Loop row In readFile
                                line = strip '\n' In row
                                lines = split ' | ' In line
                                IF lines[0] == code THEN
                                        Break
                                car_count = car_count + 1
                                ENDIF
                        ENDLOOP
                        WHILE True
                                TRY
                                        Display 'How many days you like
to rent this car for?'
                                        Maximum day for rent is 30
days.NOTE: Rent price is counted as per day. Any wrong input Gabriel
will not entertain.
                                        Read duration
                                ENDTRY
                                EXCEPT ValueError
                                        Display 'Gabriel do not
understand what are you saying. Please type as per the menu give.'
                                        Continue
                                FINALLY
                                        IF Length of STRING (duration)
> 2 Or INTEGER (duration) > 30 THEN
                                                Display 'Please note
that you can only rent at most 30 days.'
                                                Continue
                                        ELSE
                                                INTEGER (duration)
                                                Break
                                        ENDIF
                                ENDFINALLY
                        ENDWHILE
                        rows = Read lines From Car_Details.txt
                        WHILE True
                                TRY
                                        car = rows[car_count]
                                ENDTRY
                                EXCEPT IndexError
                                        Display 'The car code you enter
does not exist.Gabriel took you back to the menu to avoid any mistaken
rental.
                                        CALL customerUse()
                                ENDEXCEPT
                                ELSE
                                        Break
                        ENDWHILE
```

```
                        Display 'The car you requested to rent is', car
, 'The duration you requested is' , duration ,' day(s)'

                        WHILE True
                                TRY
                                        Display 'Are you sure?
                                                1 - Yes
                                                2 - No'
                                        Read confirmation
                                ENDTRY
                                EXCEPT ValueError
                                        Display 'Gabriel do not
understand what are you saying. Please type as per the menu give.'
                                        Continue
                                ENDEXCEPT
                                FINALLY
                                        IF Length of STRING
(confirmation) != 1 Or INTEGER (confirmation) > 2 THEN
                                                Display 'Invalid input.
Please retype.'
                                                Continue
                                        ELSE
                                                INTEGER (confirmation)
                                                Break
                                        ENDIF
                                ENDFINALLY
                        ENDWHILE
                        IF confirmation == 1 THEN
                                lst = split ' | ' In car
                                price = lst[2]
                                integer = strip ' ' In price
                                rentPrice = INTEGER (integer)

                                amount = rentPrice * duration
                                new_time = date_and_time + timedelta
(days=duration)

                                Display 'Total amount to pay' ,'RM' ,
amount

                                Display 'Please enter your username and
password for confirmation.'
                                Read username
                                Read password
                                customer = username + ' | ' + password
+ '\n'

                                row = Read lines From
CustomerUsernamePsw.txt
```

```
                                IF customer In row THEN
                                        Display 'Verification
successful'
                                ELSE
                                        WHILE True
                                                Display 'Either your
username or password is incorrect. Please try again'
                                                Read username
                                                Read password
                                                customer = username + '
| ' + password + '\n'
                                                IF customer In row THEN
                                                        Break
                                                ENDIF
                                        ENDWHILE
                                        Display 'Verifcation
successful'
                                ENDIF

                                line = Read lines From
CustomerUsernamePsw.txt
                                no_line = Length of line
                                count = 0
                                x = 0
                                WHILE x <= no_line
                                        TRY
                                                IF line[count] ==
customer THEN
                                                        Break
                                                count = count + 1
                                                ENDIF
                                        ENDTRY
                                        EXCEPT IndexError
                                                Display 'Either your
username or password is incorrect. Please try again.'
                                                Display 'Gabriel will
void this order to prevent any troublesome matters.'
                                                CALL customerUse()
                                        ENDEXCEPT
                                ENDWHILE

                                Display 'Please type your card number
to make the payment.'
                                Read card_no
                                WHILE Length of card_no != 16
                                        Display 'Invalid card format.
Please retype. Make sure your card number is 16 numbers long.'
                                        Display 'card number :'
                                        Read card_no
                                        IF Length of card_no == 16
                                                Break
                                        ENDIF
                                ENDWHILE
```

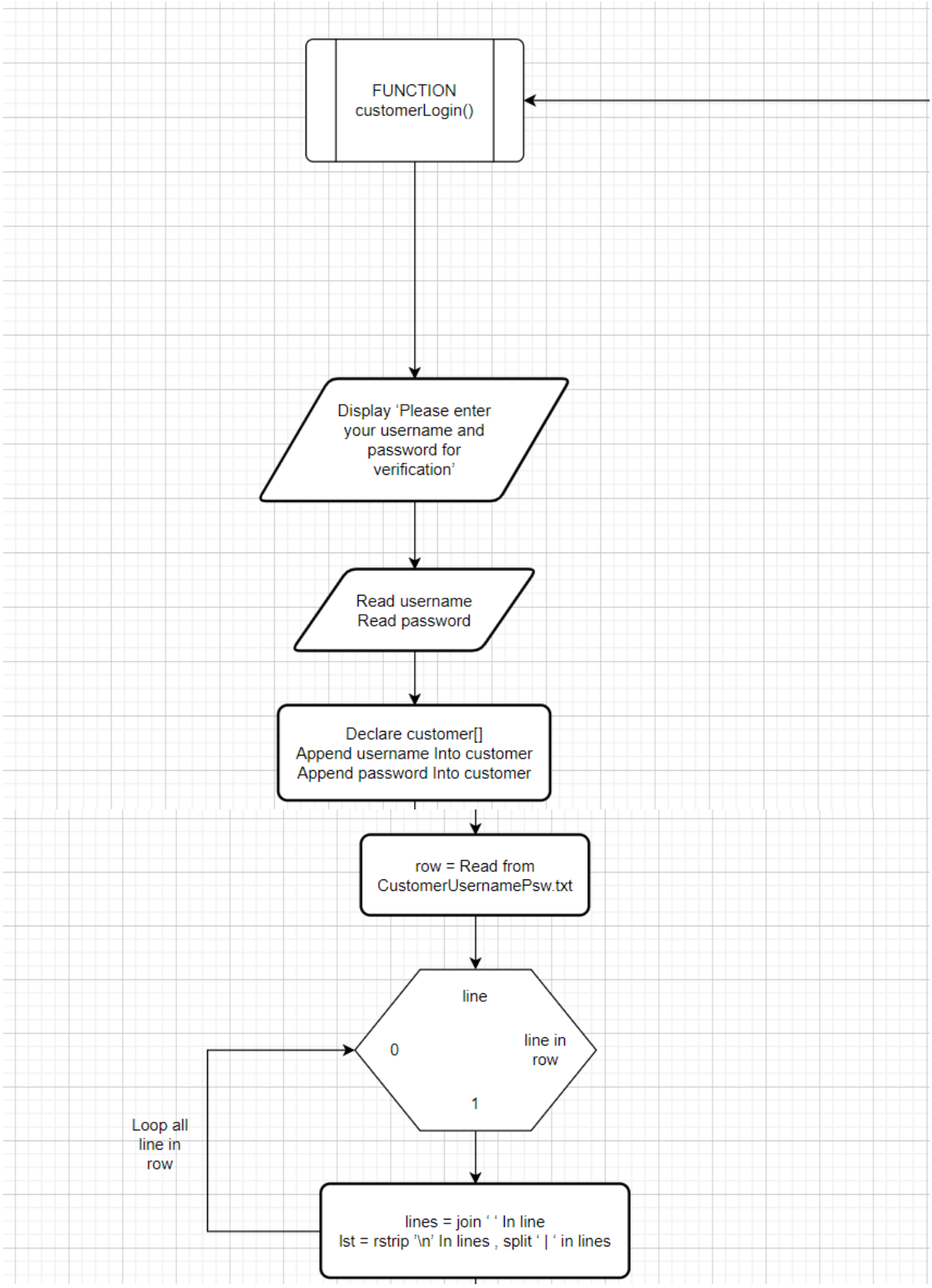
```
                                Declare lst[]
                                Loop i In Customer_Details.txt
                                        j = strip '\n' In i
                                        k = split ' | ' In j
                                        Append k Into lst
                                ENDLOOP

                                IF card_no == lst[count][2]
                                        Display 'Your booking has
confirmed! Booking time is ',date_and_time
                                        Display 'Please kindly return
your rented car by ',new_time

                                ELSE
                                        Display 'Invalid card number.
Make sure you typed correctly.'
                                        Display 'Card number'
                                        Read card_no

                                        WHILE Length of card_no != 16
                                                Display 'Invalid card
format or wrong card number. Please retype. Make sure your card number
is 16 numbers long.'
                                                IF Length of card_no ==
16 THEN
                                                        IF card_no ==
line[count][2] THEN
                                                                Break
                                                        ENDIF
                                                ENDIF
                                        ENDWHILE

                                        Display 'Your booking has
confirmed! Booking time is ',date_and_time
                                        Display 'Please kindly return
your rented car by ',new_time
                                ENDIF

                                templst = [username, 'Rented Car Code'
, code ,'Booking time' , date_and_time , 'Duration(day(s))' , duration
, 'Return Before' , new_time]

                                Loop i In templst
                                        Write STRING (i),' | ' Into
Rental_History_Records.txt
                                Write '\n' Into
Rental_History_Records.txt
                                ENDLOOP
```

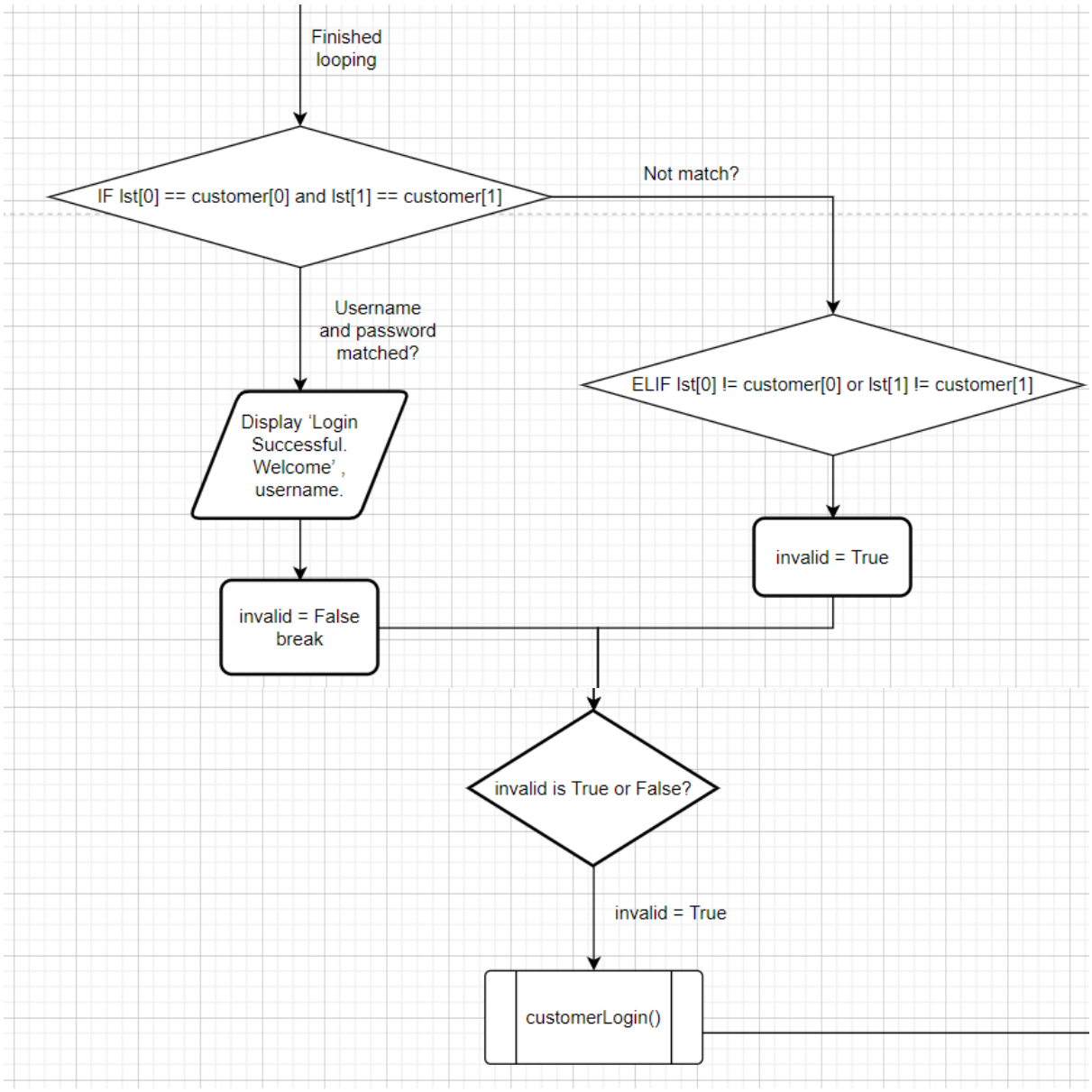
```
                                readFile = Read From Car_Details.txt
                                Declare lst[]

                                Loop i In readFile
                                        j = strip '\n' In i
                                        k = split ' | ' In j
                                        Append k Into lst
                                ENDLOOP

                                temp = 'No'

                                lst[car_count][3] = temp

                                Loop i In lst
                                        Write join i In ' | ' Into
Car_Details.txt
                                ENDLOOP

                                CALL customerUse()

                        ELIF confirmation == 2
                                Display 'Booking process cancelled.
Gabriel took you back to the menu.)'
                                CALL customerUse()
                        ENDIF
                ENDFUNCTION

                CALL bookCar()
        ELIF customerInput == 5
                DEFINE FUNCTION exit_function()
                        Display 'Exit this program?
                        Display 'Yes or No?'
                        Read bye
                        WHILE bye != 'Yes' And bye != 'No'
                                Display ''Yes or No?'
                                Read bye
                                IF bye != 'Yes' Or bye != 'No'
                                        Break
                                ENDIF
                        ENDWHILE
```

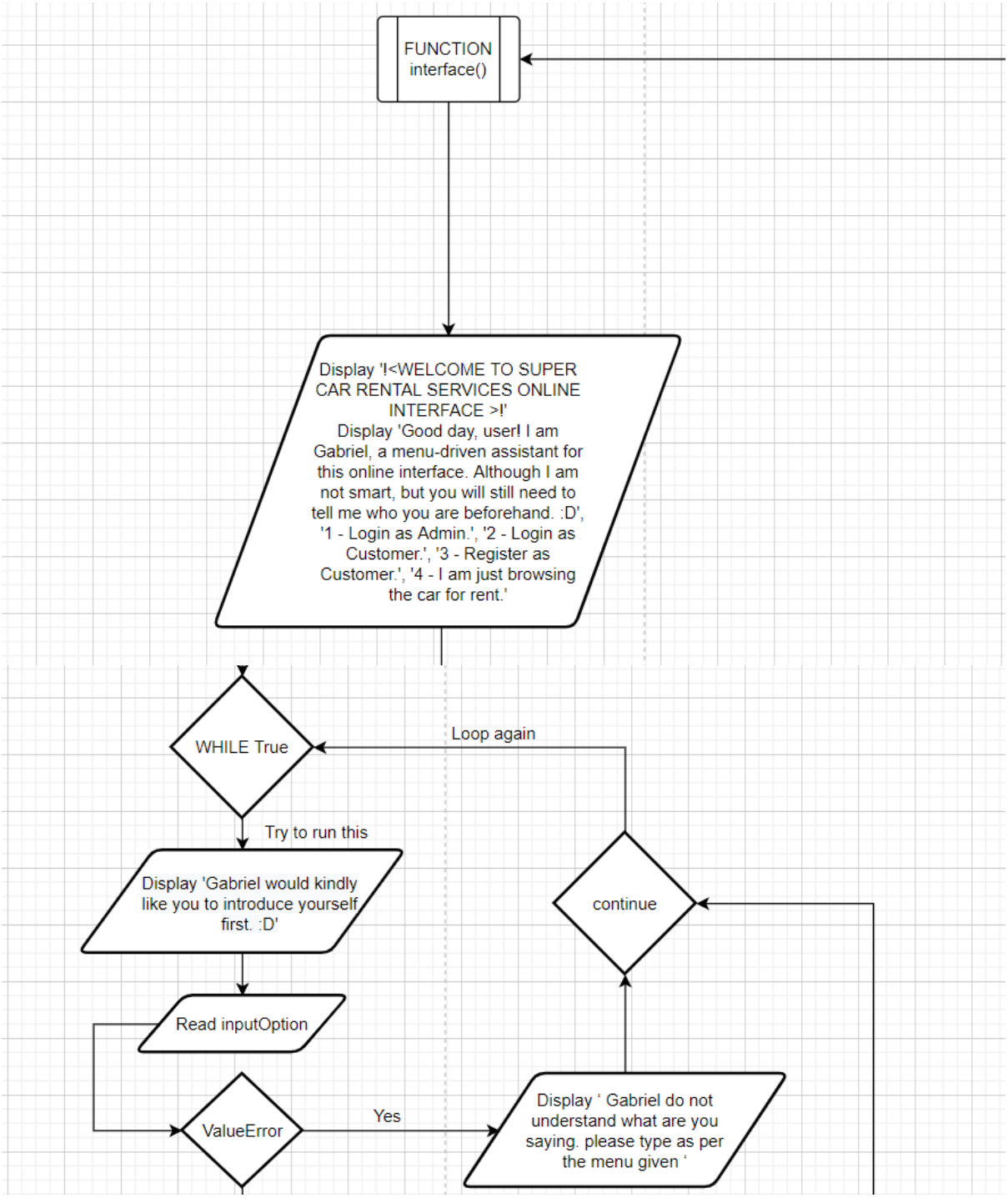
```
                        Y = str('Yes')
                        N = str('No')

                        IF bye == Y THEN
                                Display 'You are always welcome. Have a
nice day.'
                                CALL interface()
                        ELIF bye == N THEN
                                Display 'Well, do you still have
anything that I can help?'
                                CALL customerUse()
                        ELSE
                                Display 'Uh? What did you type? ._." I
did not understand.'
                                CALL exit_function()
                        ENDIF
                ENDFUNCTION
                CALL exit_function()
        ENDIF
END
```

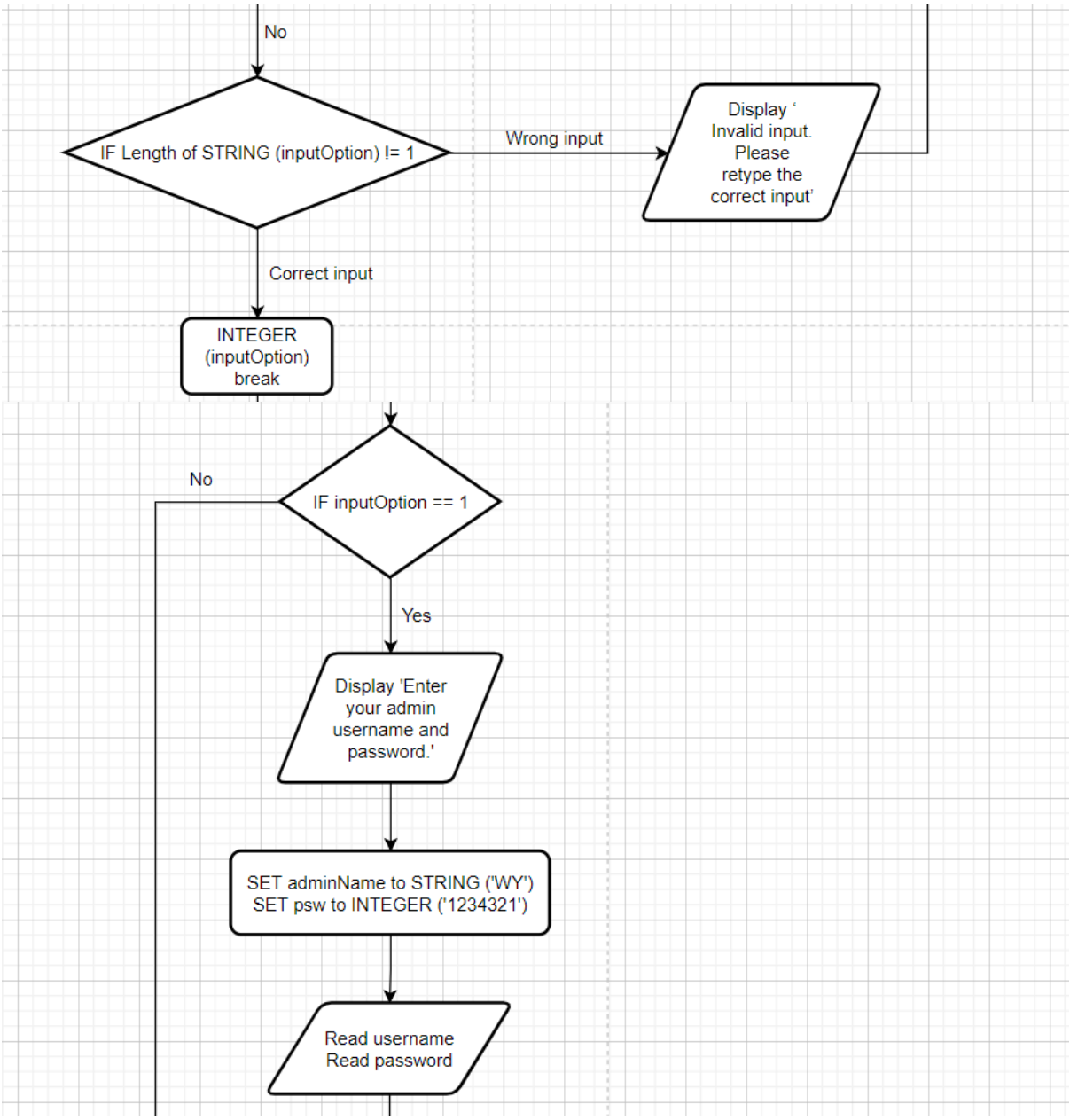
4.0 Flowcharts Design

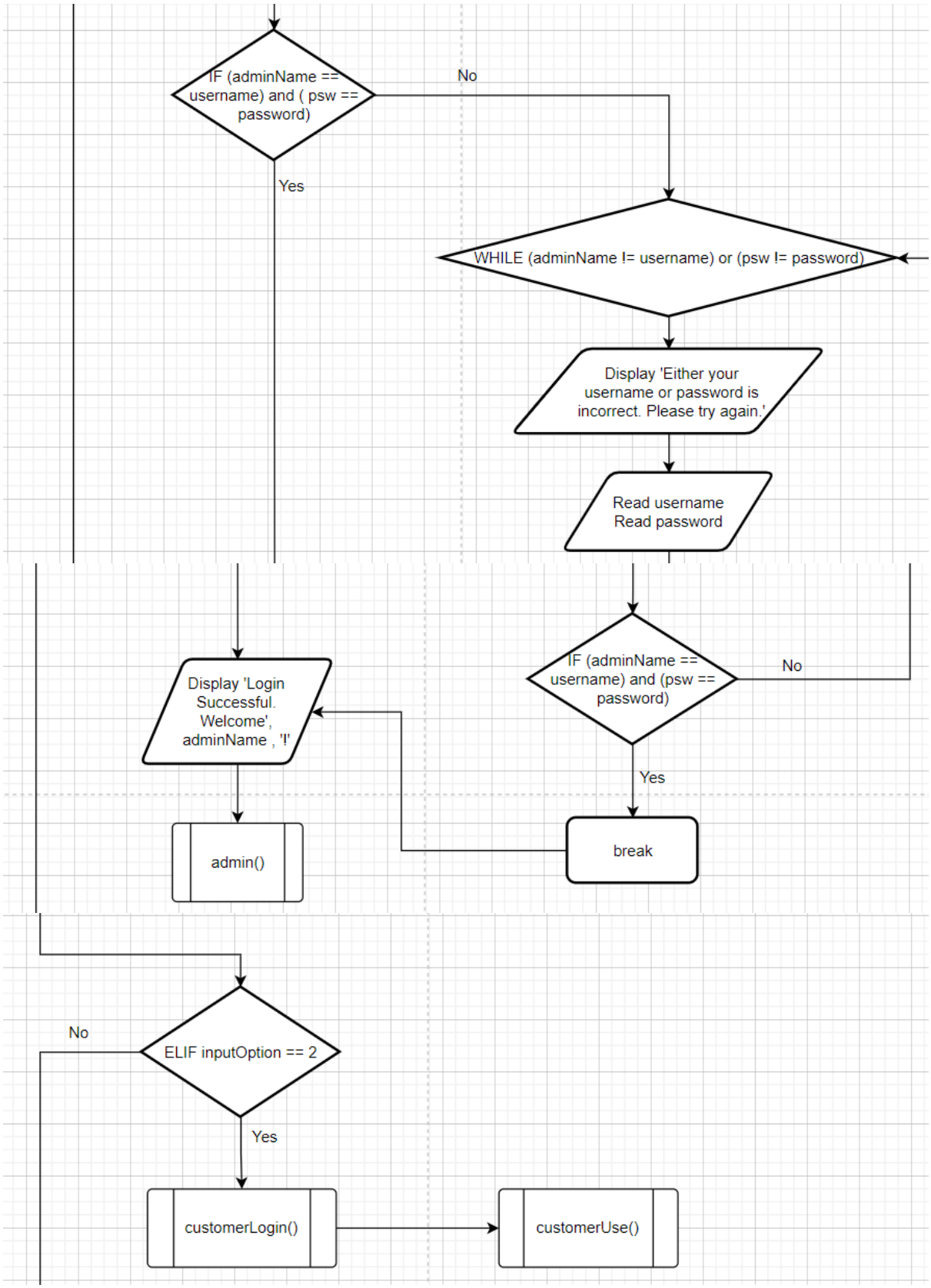
Flowcharts are drawn using draw.io platforms and snipped for better readability.

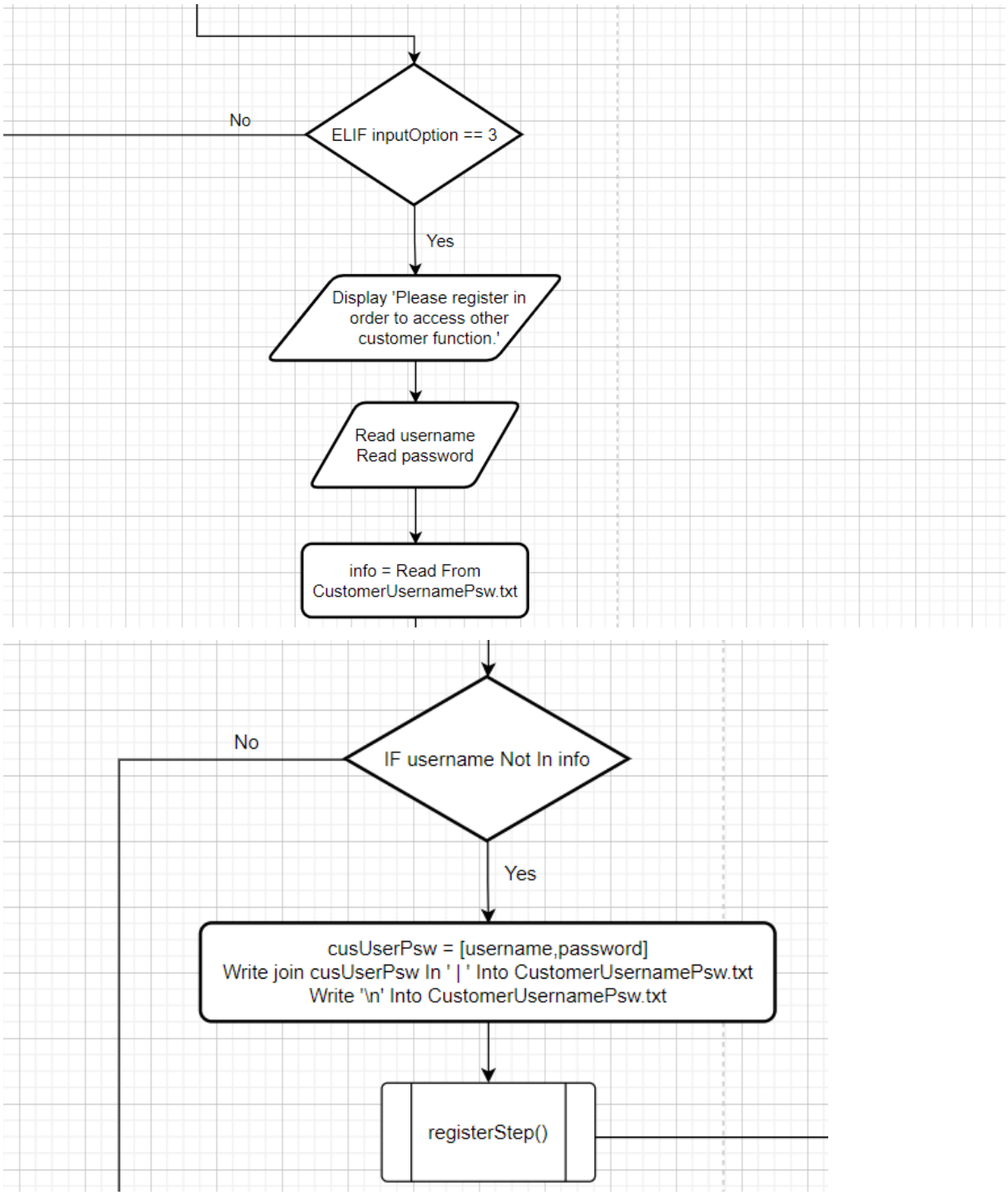


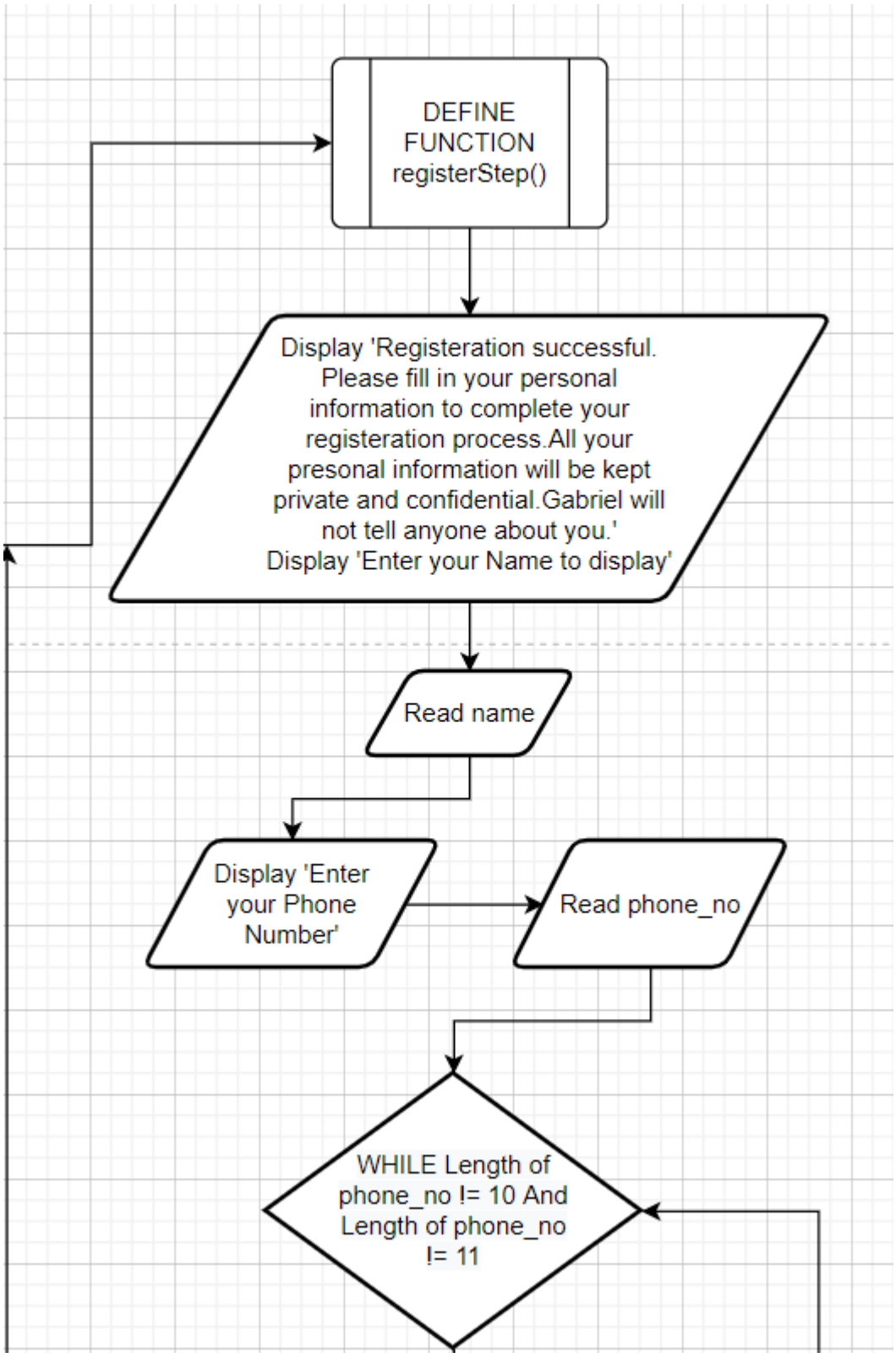

Finished looping
IF lst[0] == customer[0] and lst[1] == customer[1]
Not match?
Username and password matched?
ELIF lst[0] != customer[0] or lst[1] != customer[1]
Display 'Login Successful. Welcome' , username.
invalid = True
invalid = False break
invalid is True or False?
invalid = True
customerLogin()

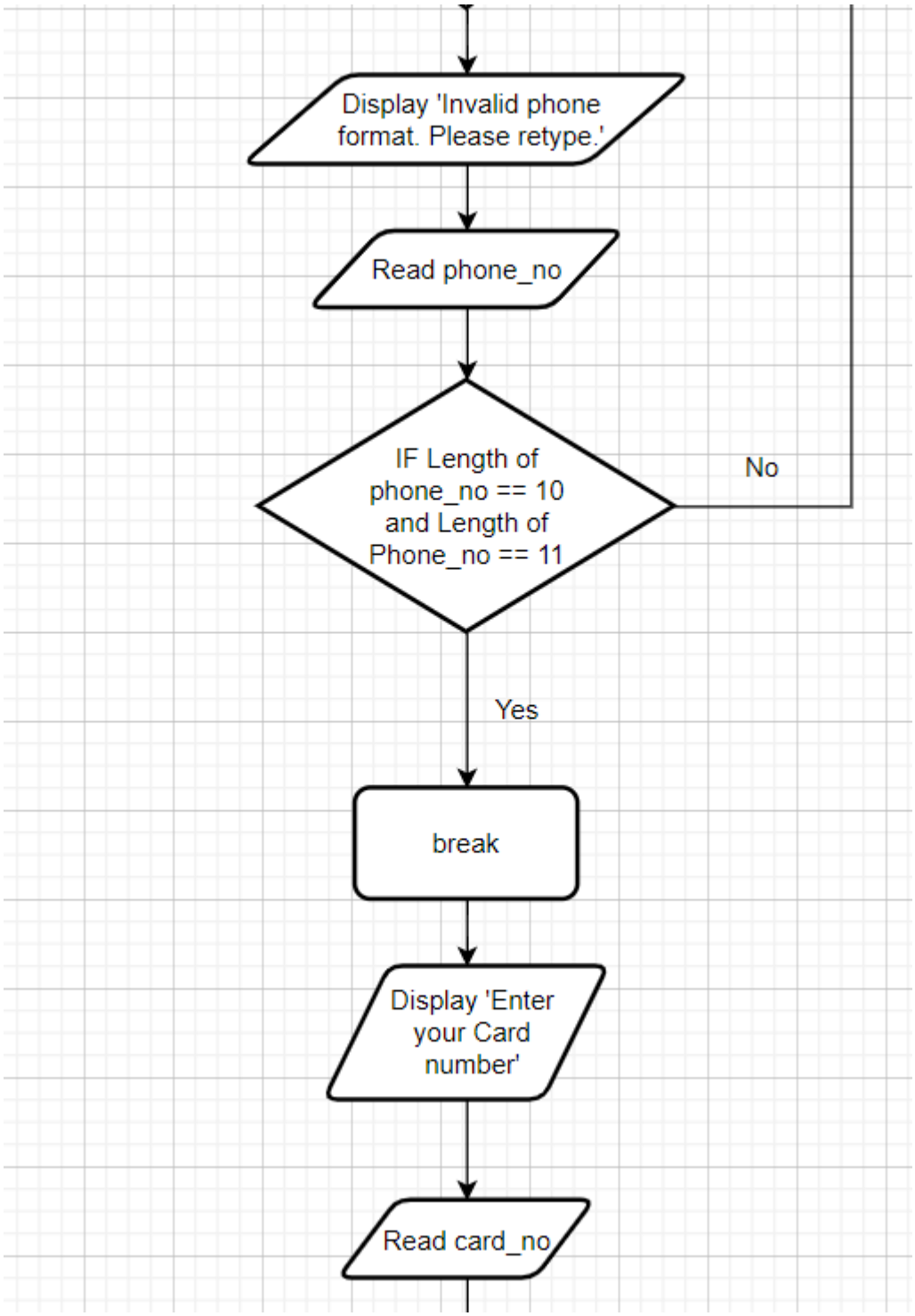

FUNCTION interface()
Display '!<WELCOME TO SUPER CAR RENTAL SERVICES ONLINE INTERFACE >!'
Display 'Good day, user! I am Gabriel, a menu-driven assistant for this online interface. Although I am not smart, but you will still need to tell me who you are beforehand. :D', '1 - Login as Admin.', '2 - Login as Customer.', '3 - Register as Customer.', '4 - I am just browsing the car for rent.'
WHILE True
Loop again
Try to run this
Display 'Gabriel would kindly like you to introduce yourself first. :D'
continue
Read inputOption
ValueError
Yes
Display ' Gabriel do not understand what are you saying. please type as per the menu given '

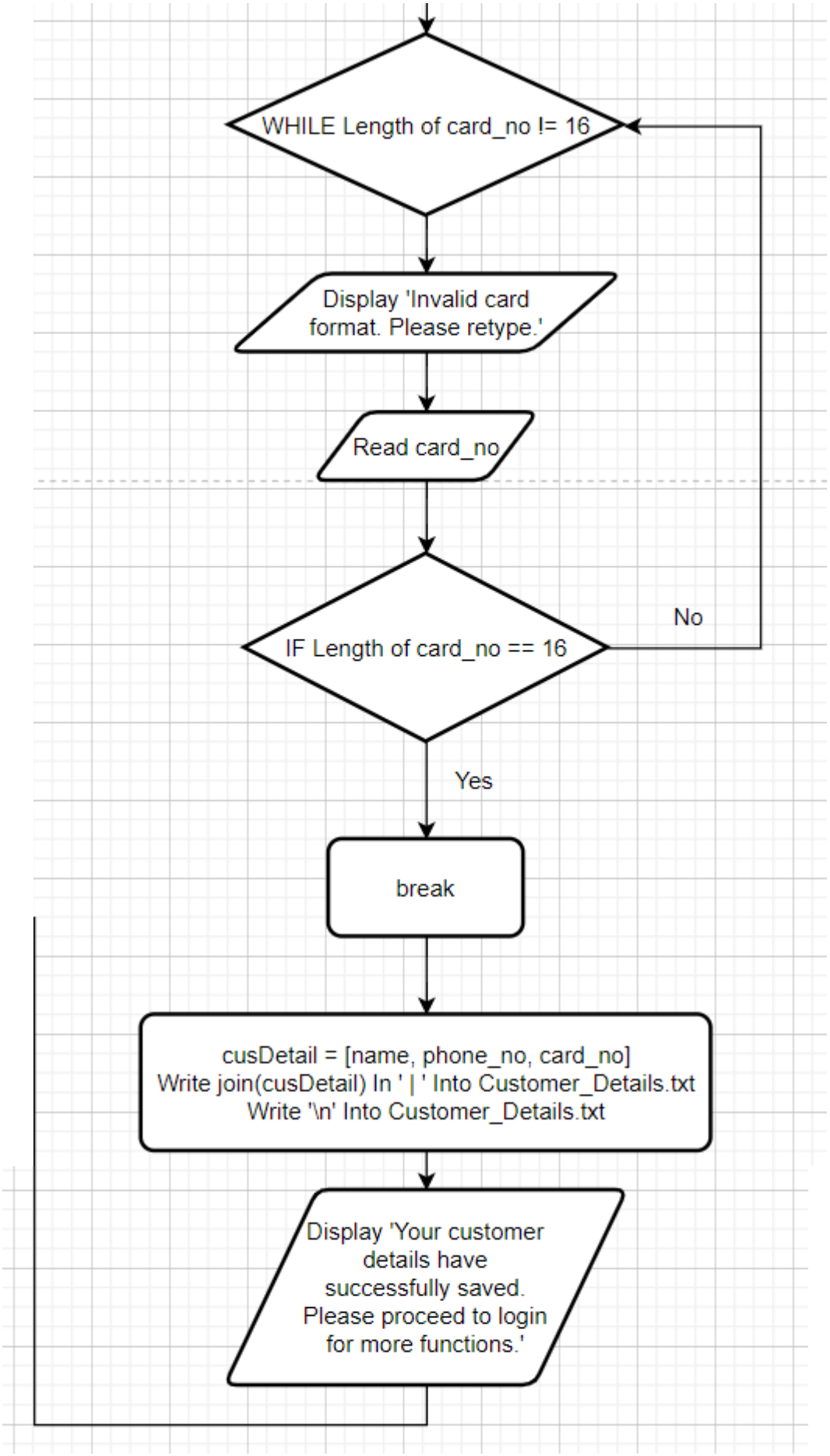

No
IF Length of STRING (inputOption) != 1
Wrong input
Display ' Invalid input. Please retype the correct input'
Correct input
INTEGER (inputOption) break
No
IF inputOption == 1
Yes
Display 'Enter your admin username and password.'
SET adminName to STRING ('WY')
SET psw to INTEGER ('1234321')
Read username
Read password

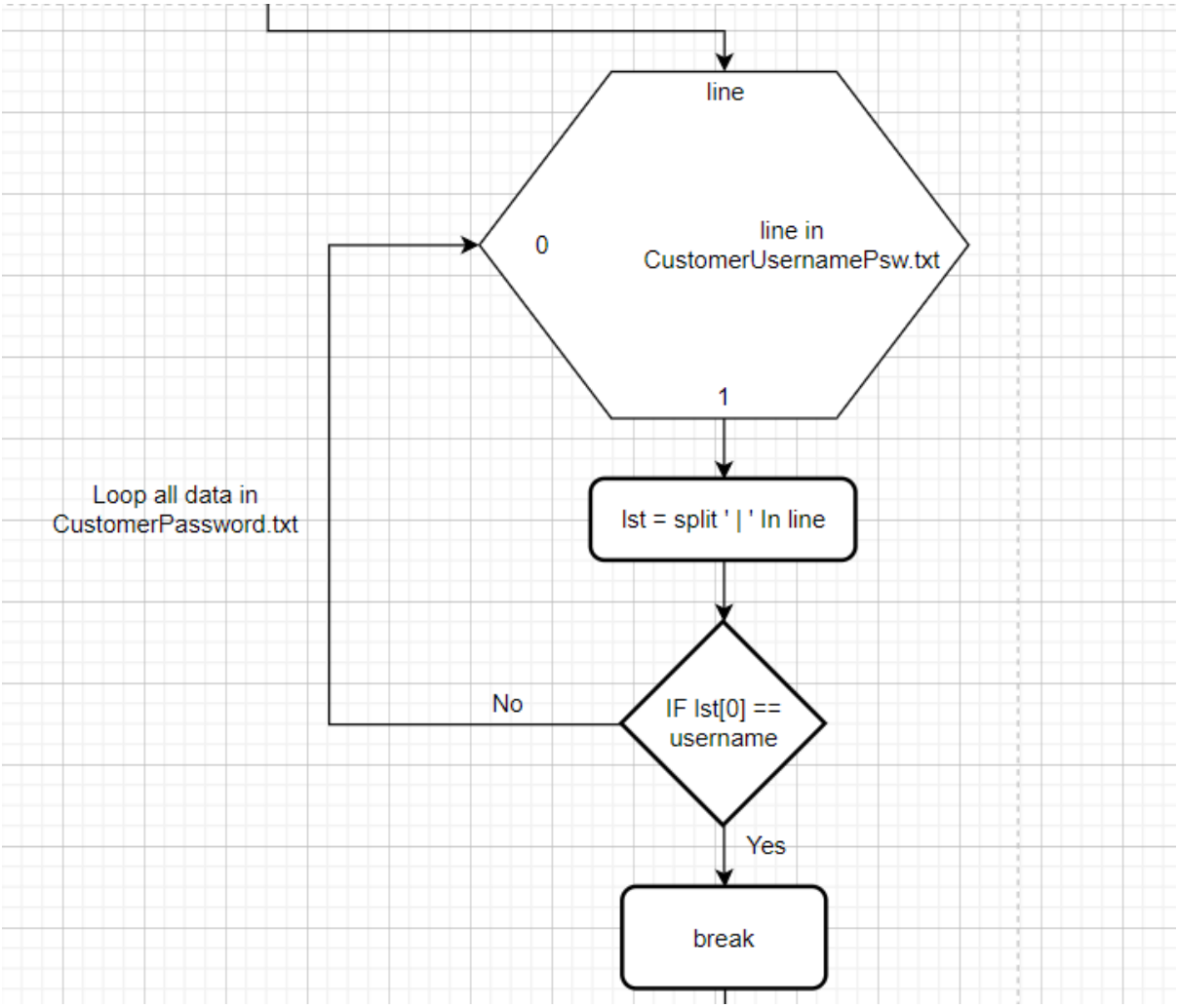

IF (adminName == username) and (psw == password)
No
Yes
WHILE (adminName != username) or (psw != password)
Display 'Either your username or password is incorrect. Please try again.'
Read username
Read password
IF (adminName == username) and (psw == password)
No
Yes
Display 'Login Successful. Welcome', adminName , '!'
admin()
break
No
ELIF inputOption == 2
Yes
customerLogin()
customerUse()

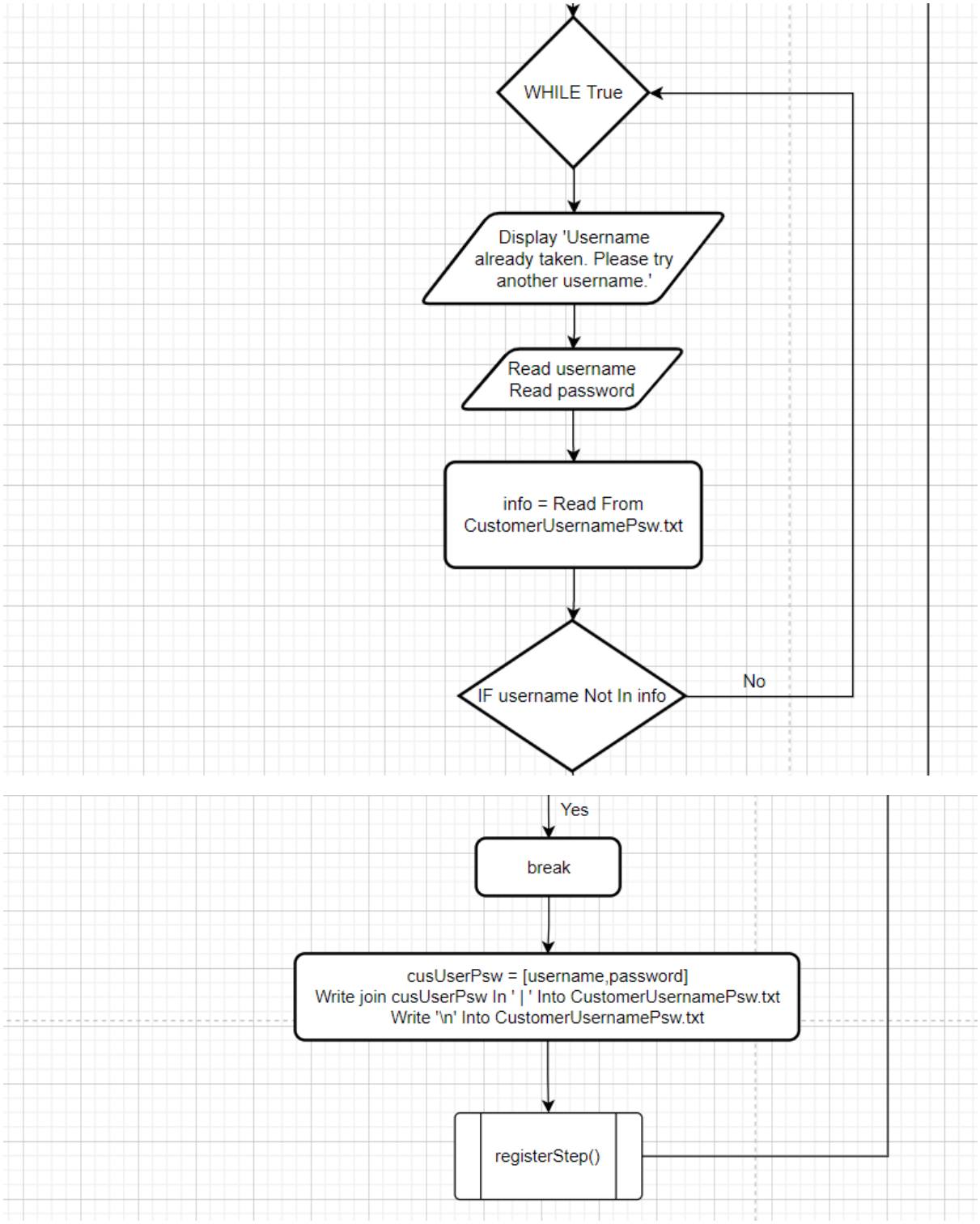

No
ELIF inputOption == 3
Yes
Display 'Please register in order to access other customer function.'
Read username
Read password
info = Read From CustomerUsernamePsw.txt
No
IF username Not In info
Yes
cusUserPsw = [username,password]
Write join cusUserPsw In ' | ' Into CustomerUsernamePsw.txt
Write '\n' Into CustomerUsernamePsw.txt
registerStep()

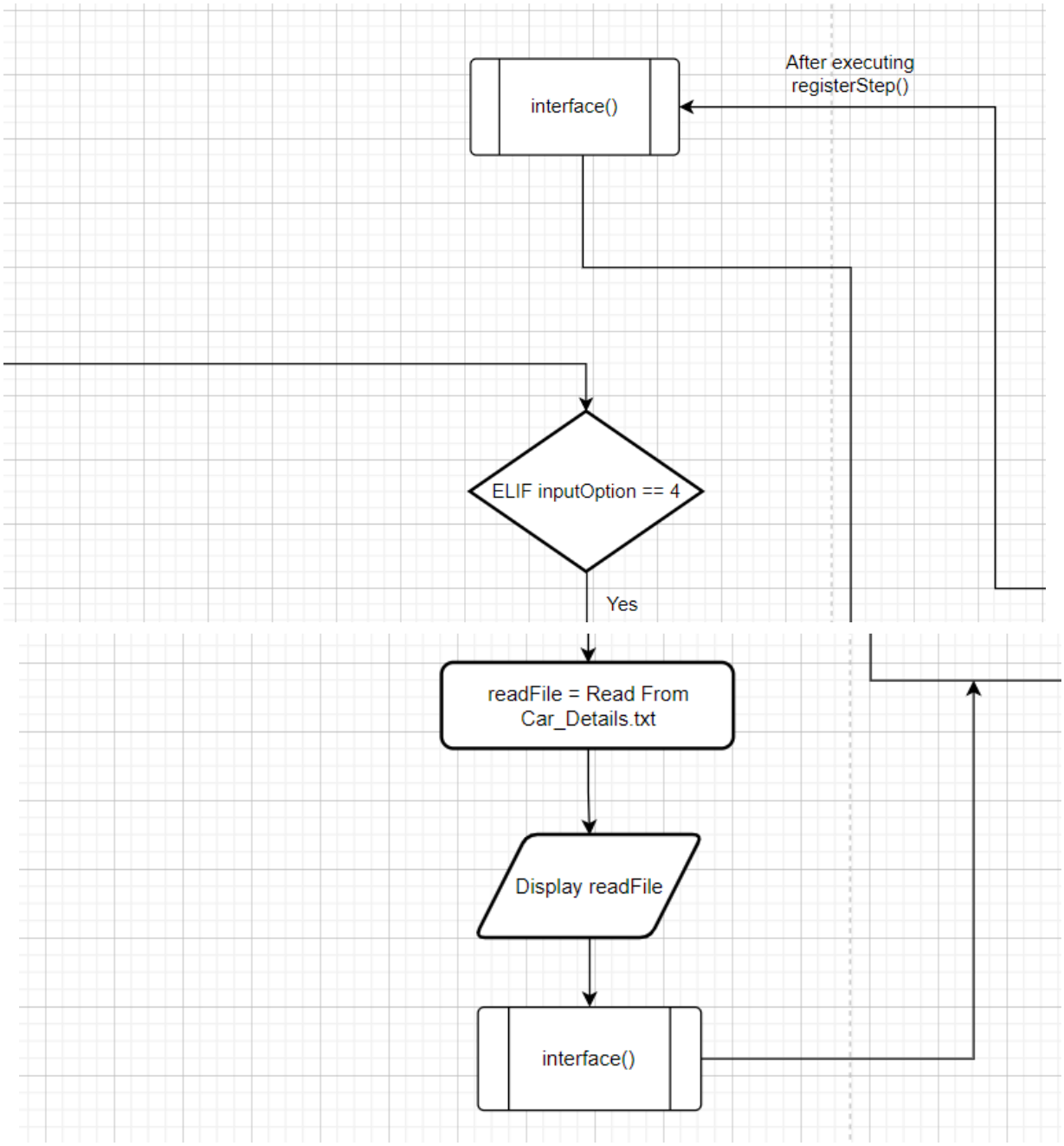

DEFINE FUNCTION registerStep()
Display 'Registeration successful. Please fill in your personal information to complete your registeration process.All your presonal information will be kept private and confidential.Gabriel will not tell anyone about you.'
Display 'Enter your Name to display'
Read name
Display 'Enter your Phone Number'
Read phone_no
WHILE Length of phone_no != 10 And Length of phone_no != 11

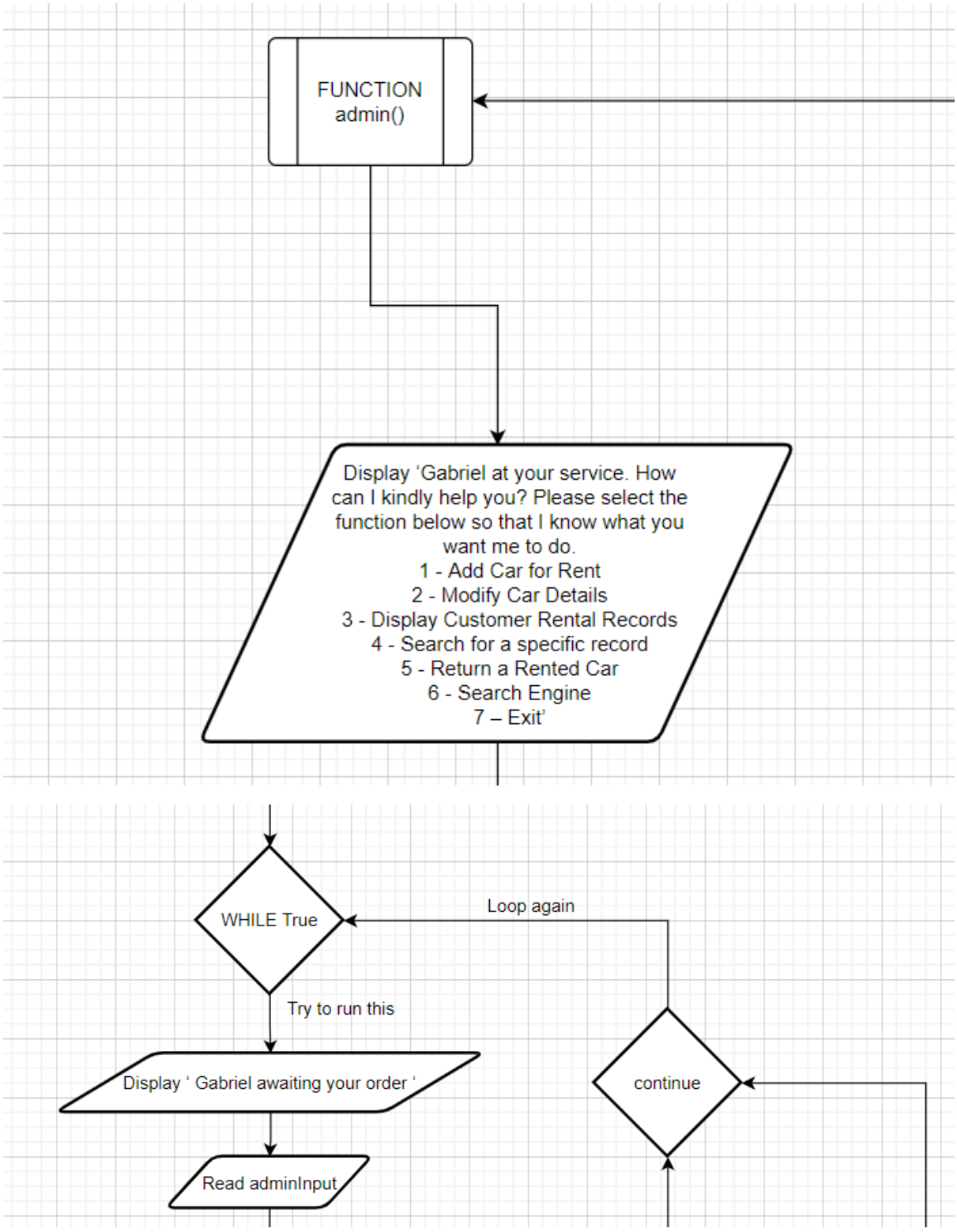

Display 'Invalid phone format. Please retype.'
Read phone_no
IF Length of phone_no == 10 and Length of Phone_no == 11
No
Yes
break
Display 'Enter your Card number'
Read card_no

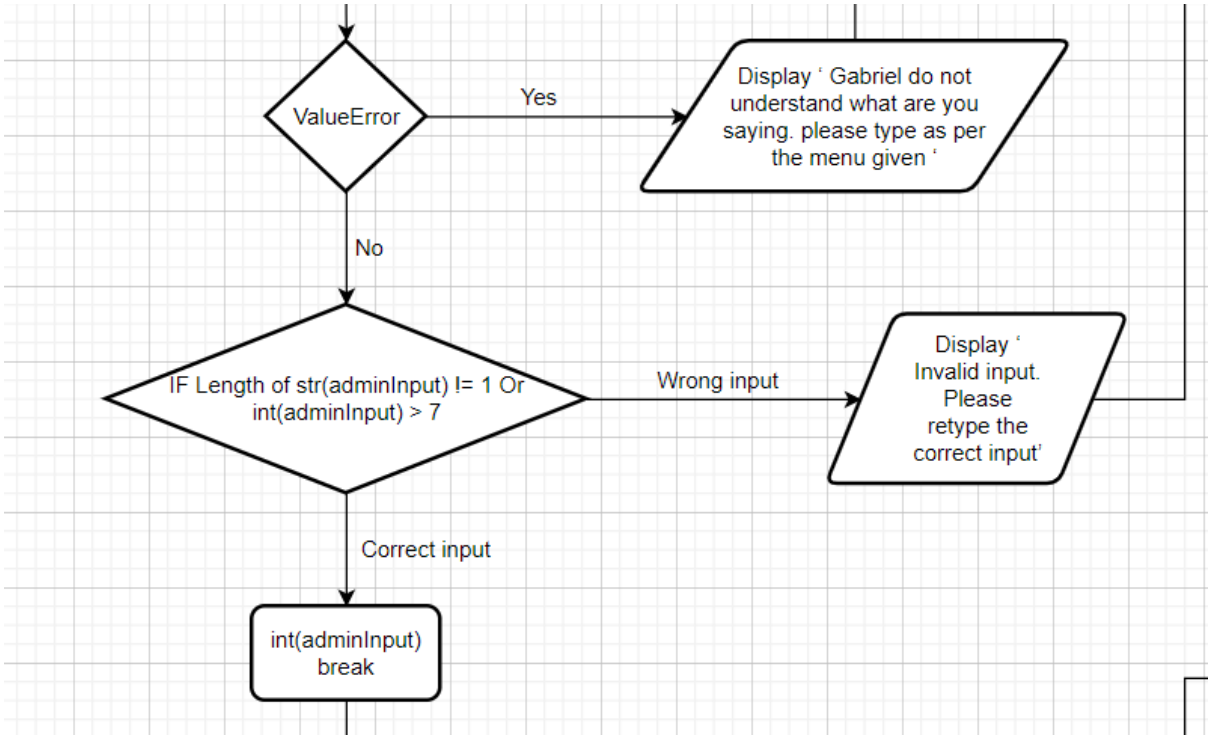

WHILE Length of card_no != 16
Display 'Invalid card format. Please retype.'
Read card_no
IF Length of card_no == 16
No
Yes
break
cusDetail = [name, phone_no, card_no]
Write join(cusDetail) In ' | ' Into Customer_Details.txt
Write '\n' Into Customer_Details.txt
Display 'Your customer details have successfully saved. Please proceed to login for more functions.'

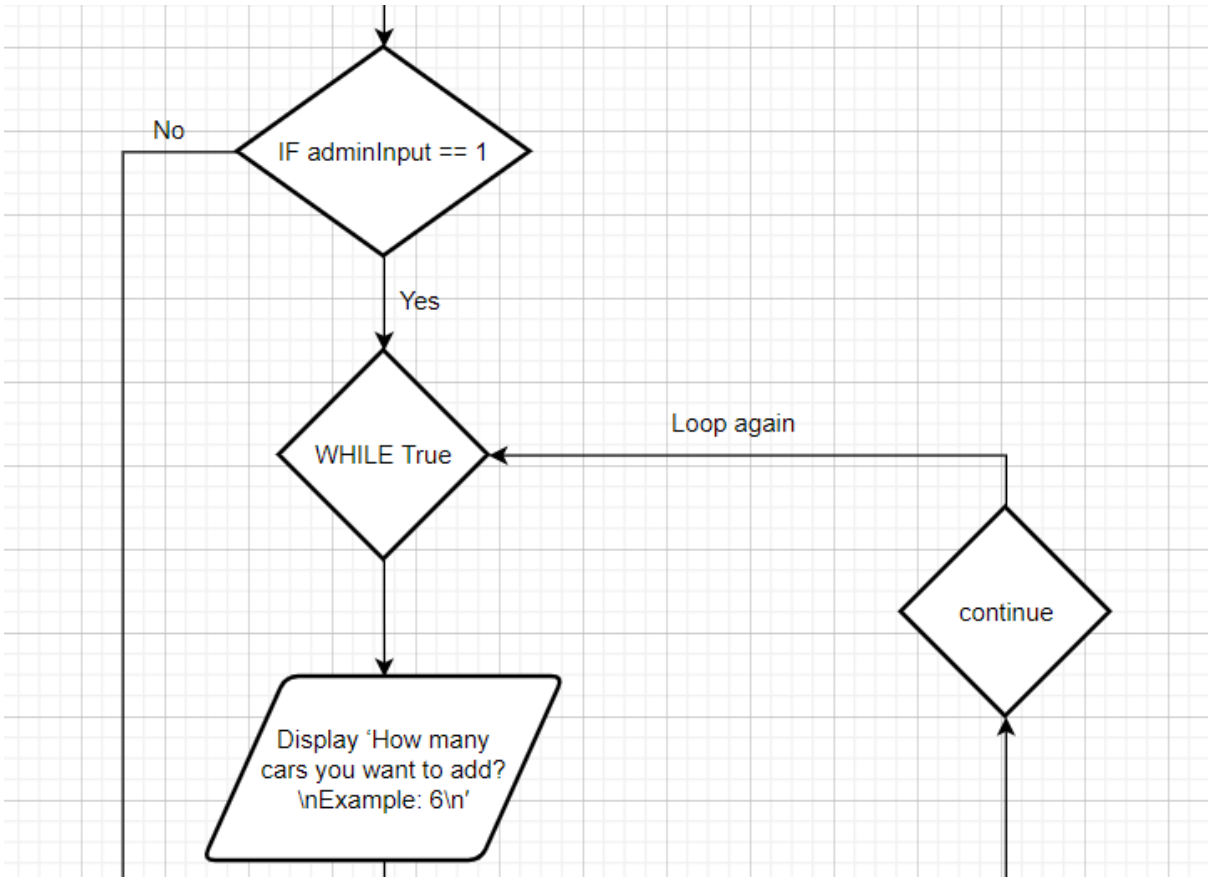

line
0
line in
CustomerUsernamePsw.txt
1
Loop all data in
CustomerPassword.txt
lst = split ' | ' In line
No
IF lst[0] ==
username
Yes
break

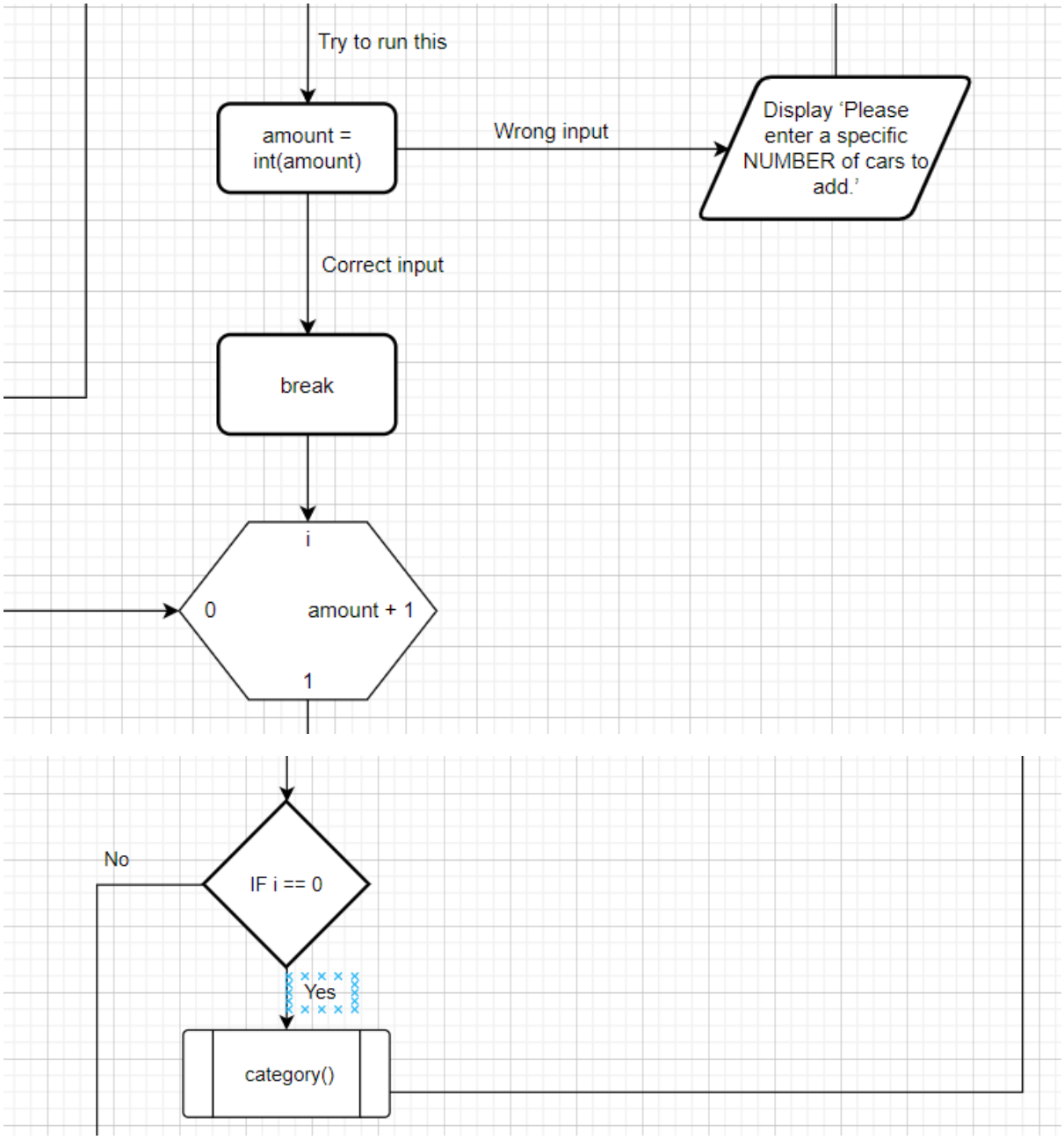

WHILE True
Display 'Username already taken. Please try another username.'
Read username
Read password
info = Read From CustomerUsernamePsw.txt
IF username Not In info
No
Yes
break
cusUserPsw = [username,password]
Write join cusUserPsw In ' | ' Into CustomerUsernamePsw.txt
Write '\n' Into CustomerUsernamePsw.txt
registerStep()

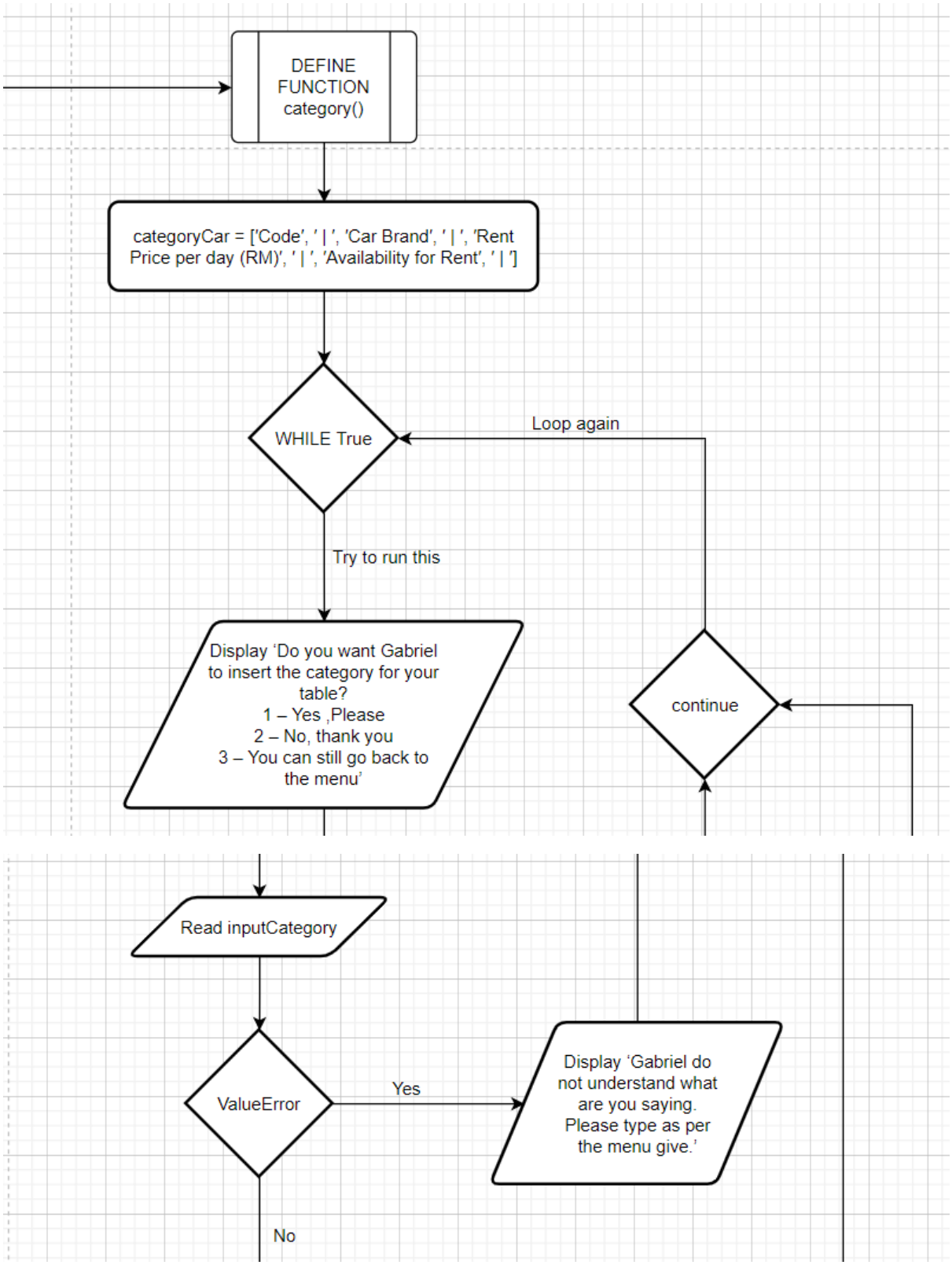

interface()
After executing registerStep()
ELIF inputOption == 4
Yes
readFile = Read From Car_Details.txt
Display readFile
interface()

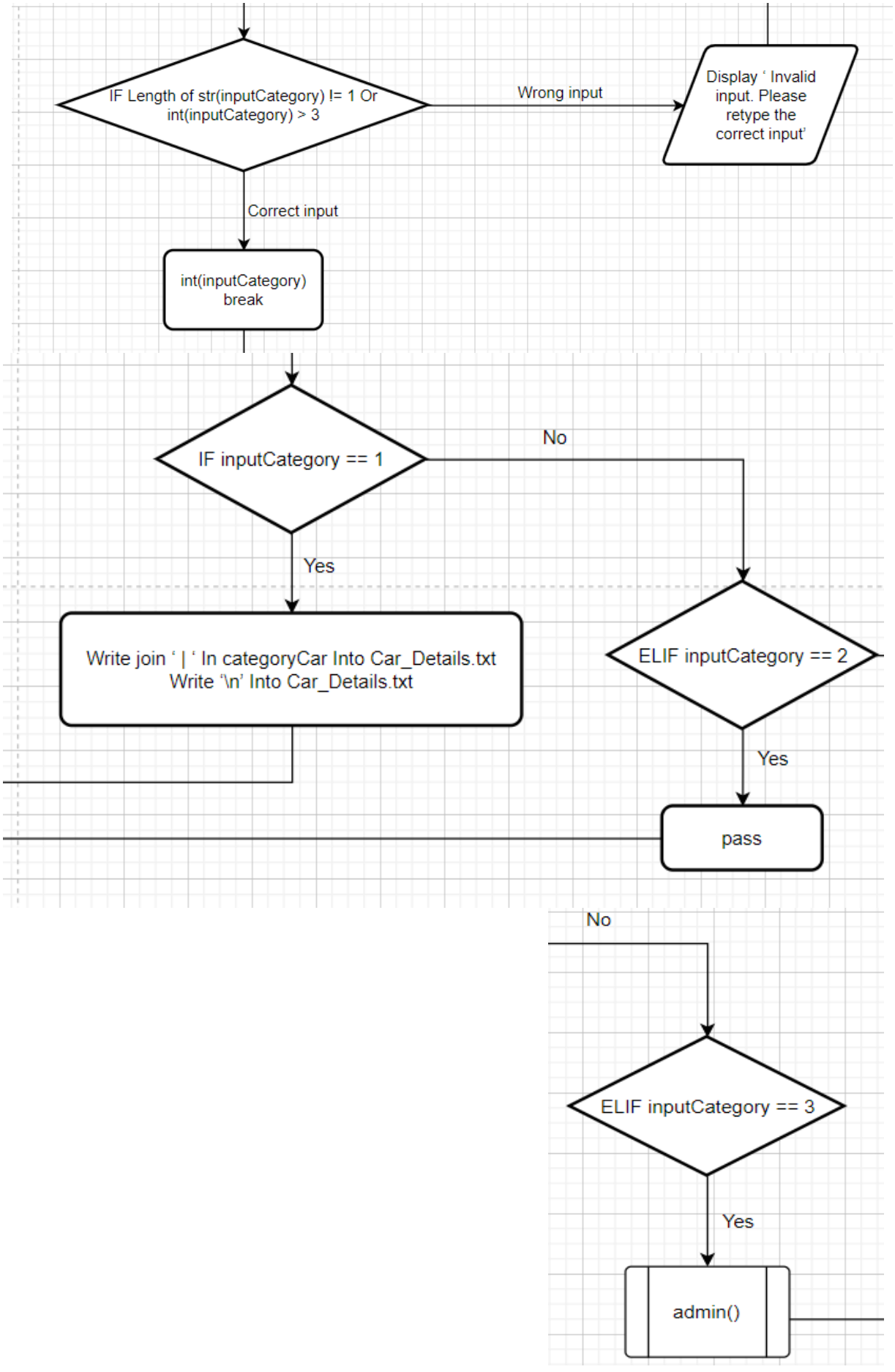

FUNCTION
admin()
Display 'Gabriel at your service. How can I kindly help you? Please select the function below so that I know what you want me to do.
1 - Add Car for Rent
2 - Modify Car Details
3 - Display Customer Rental Records
4 - Search for a specific record
5 - Return a Rented Car
6 - Search Engine
7 – Exit'
WHILE True
Loop again
Try to run this
Display ' Gabriel awaiting your order '
continue
Read adminInput

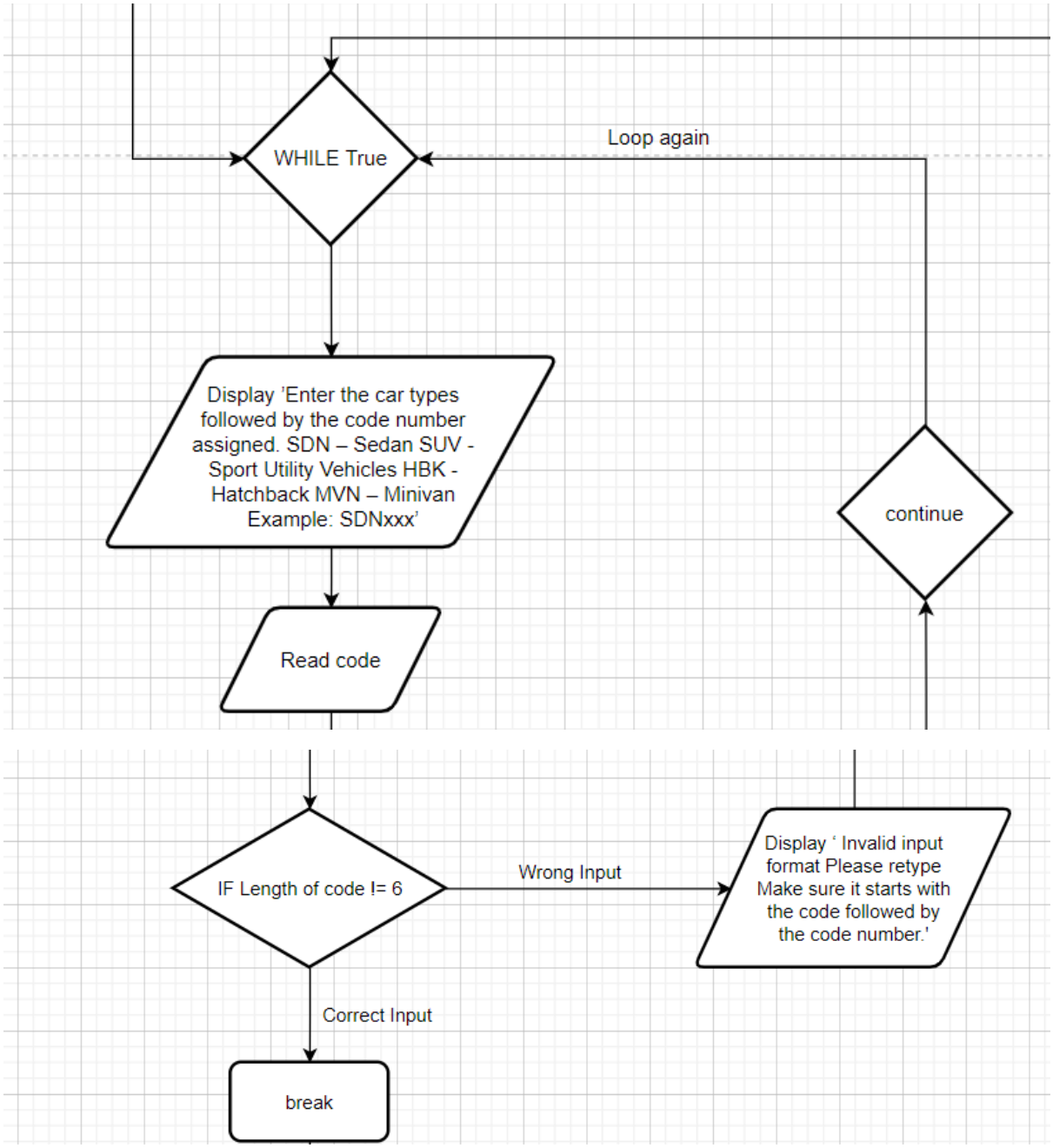

ValueError
Yes
Display ' Gabriel do not understand what are you saying. please type as per the menu given '
No
IF Length of str(adminInput) != 1 Or int(adminInput) > 7
Wrong input
Display ' Invalid input. Please retype the correct input'
Correct input
int(adminInput)
break

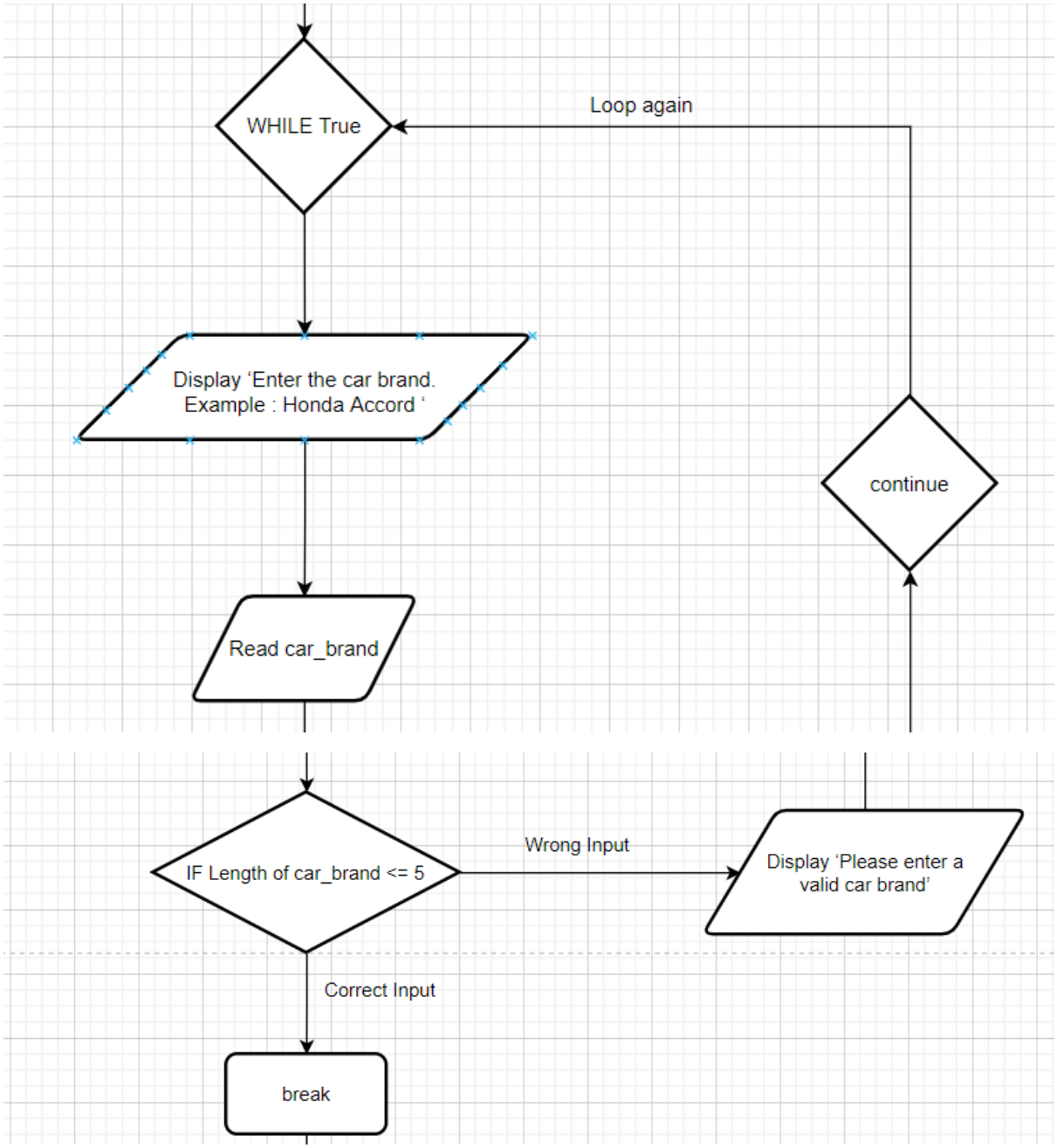

No
IF adminInput == 1
Yes
WHILE True
Loop again
continue
Display 'How many cars you want to add? \nExample: 6\n'

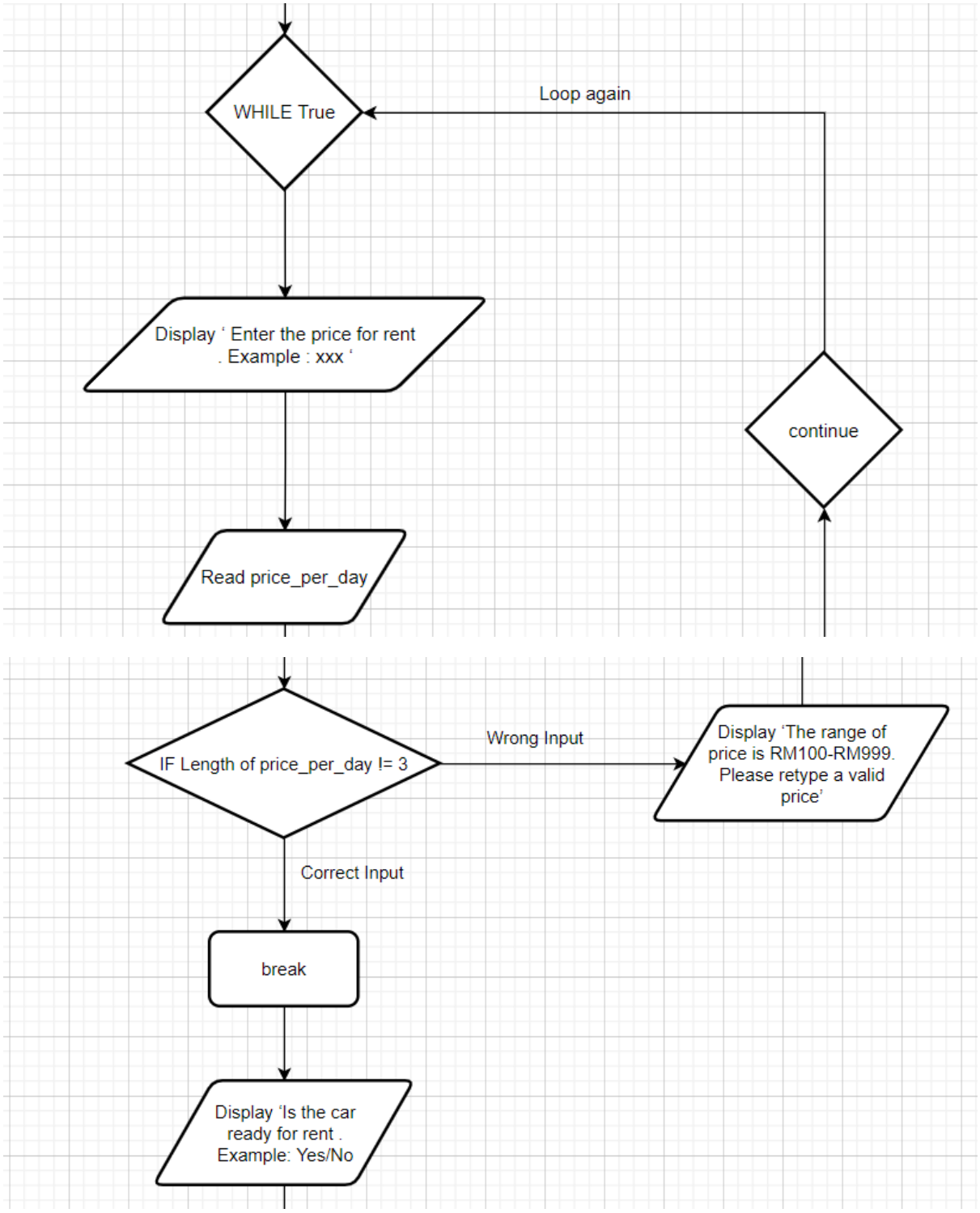

Try to run this
amount = int(amount)
Wrong input
Display 'Please enter a specific NUMBER of cars to add.'
Correct input
break
i
0
amount + 1
1
No
IF i == 0
Yes
category()

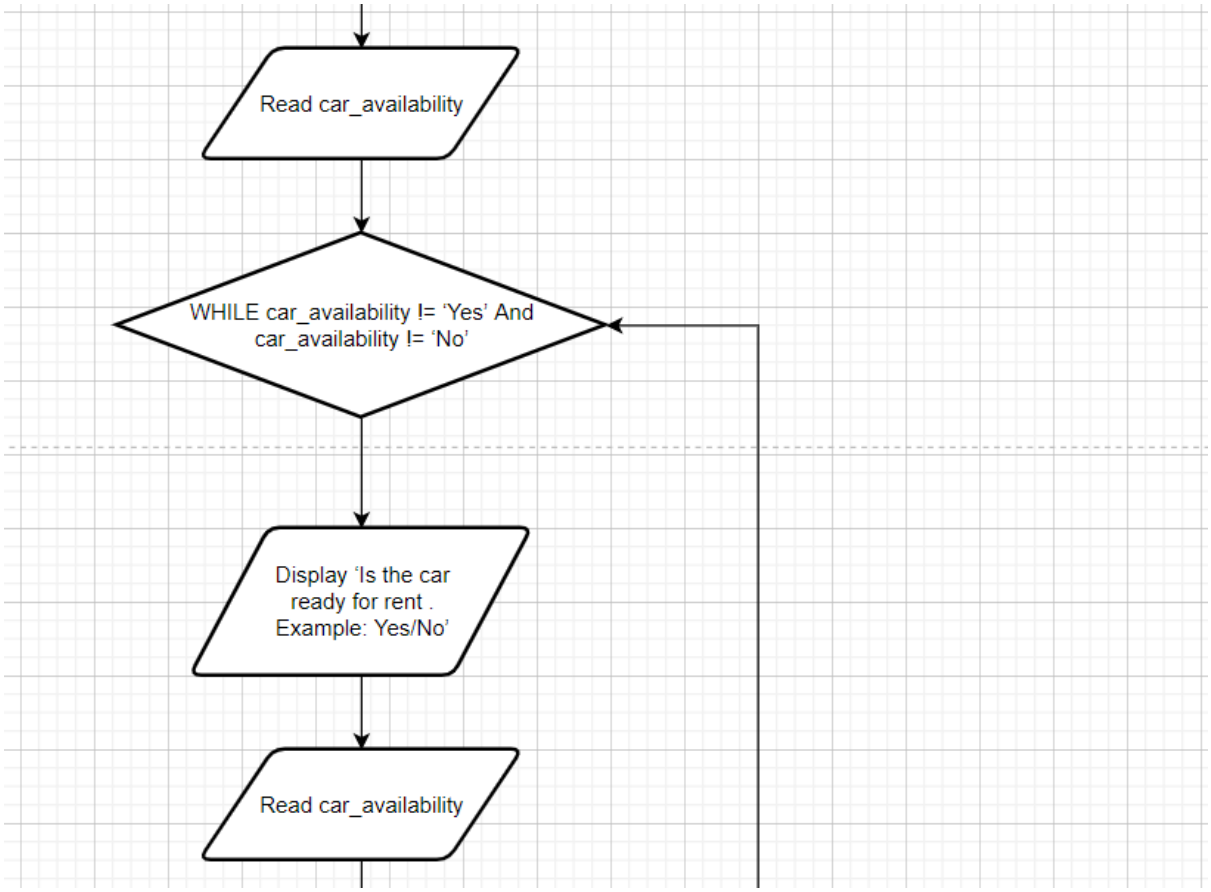

DEFINE FUNCTION category()
categoryCar = ['Code', ' | ', 'Car Brand', ' | ', 'Rent Price per day (RM)', ' | ', 'Availability for Rent', ' | ']
WHILE True
Loop again
Try to run this
Display 'Do you want Gabriel to insert the category for your table?
1 – Yes ,Please
2 – No, thank you
3 – You can still go back to the menu'
continue
Read inputCategory
ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'
No

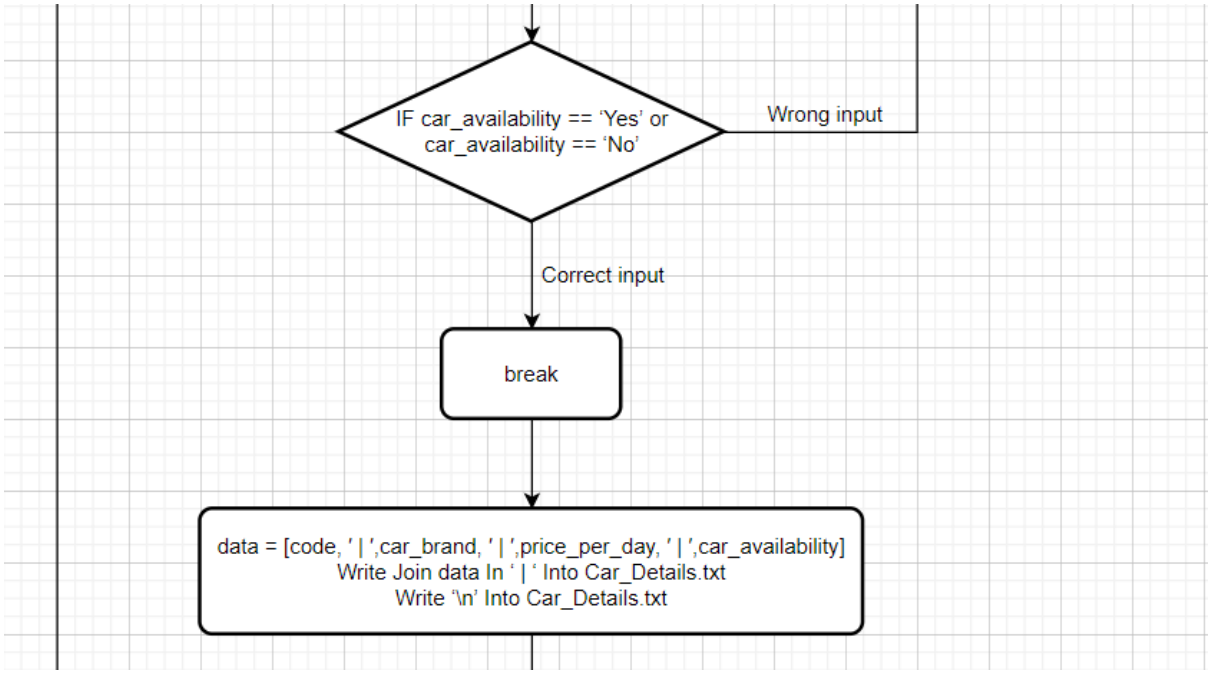

IF Length of str(inputCategory) != 1 Or int(inputCategory) > 3
Wrong input
Display ' Invalid input. Please retype the correct input'
Correct input
int(inputCategory)
break
IF inputCategory == 1
No
Yes
Write join ' | ' In categoryCar Into Car_Details.txt
Write '\n' Into Car_Details.txt
ELIF inputCategory == 2
Yes
pass
No
ELIF inputCategory == 3
Yes
admin()

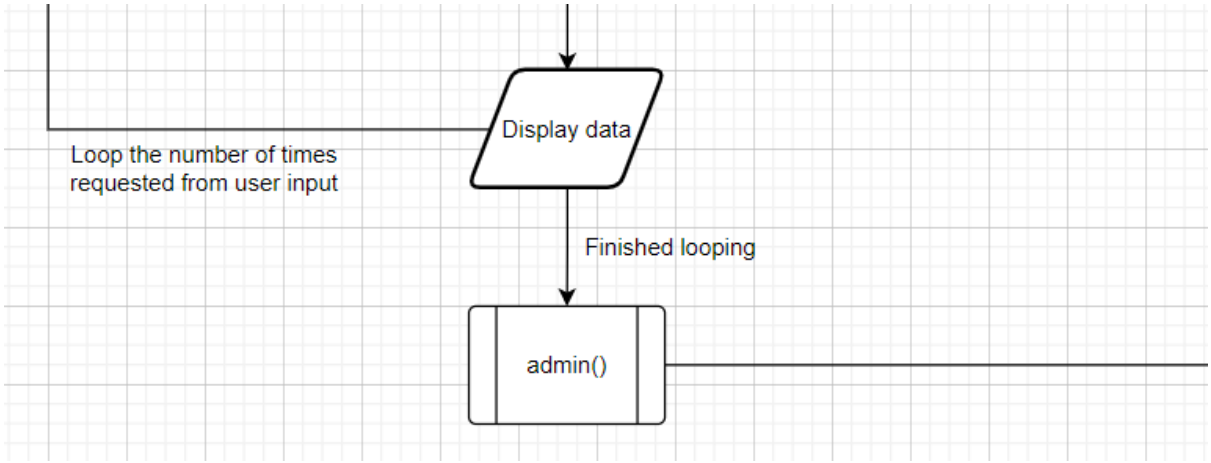

WHILE True
Loop again
Display 'Enter the car types followed by the code number assigned. SDN – Sedan SUV - Sport Utility Vehicles HBK - Hatchback MVN – Minivan Example: SDNxxx'
continue
Read code
IF Length of code I= 6
Wrong Input
Display ' Invalid input format Please retype Make sure it starts with the code followed by the code number.'
Correct Input
break

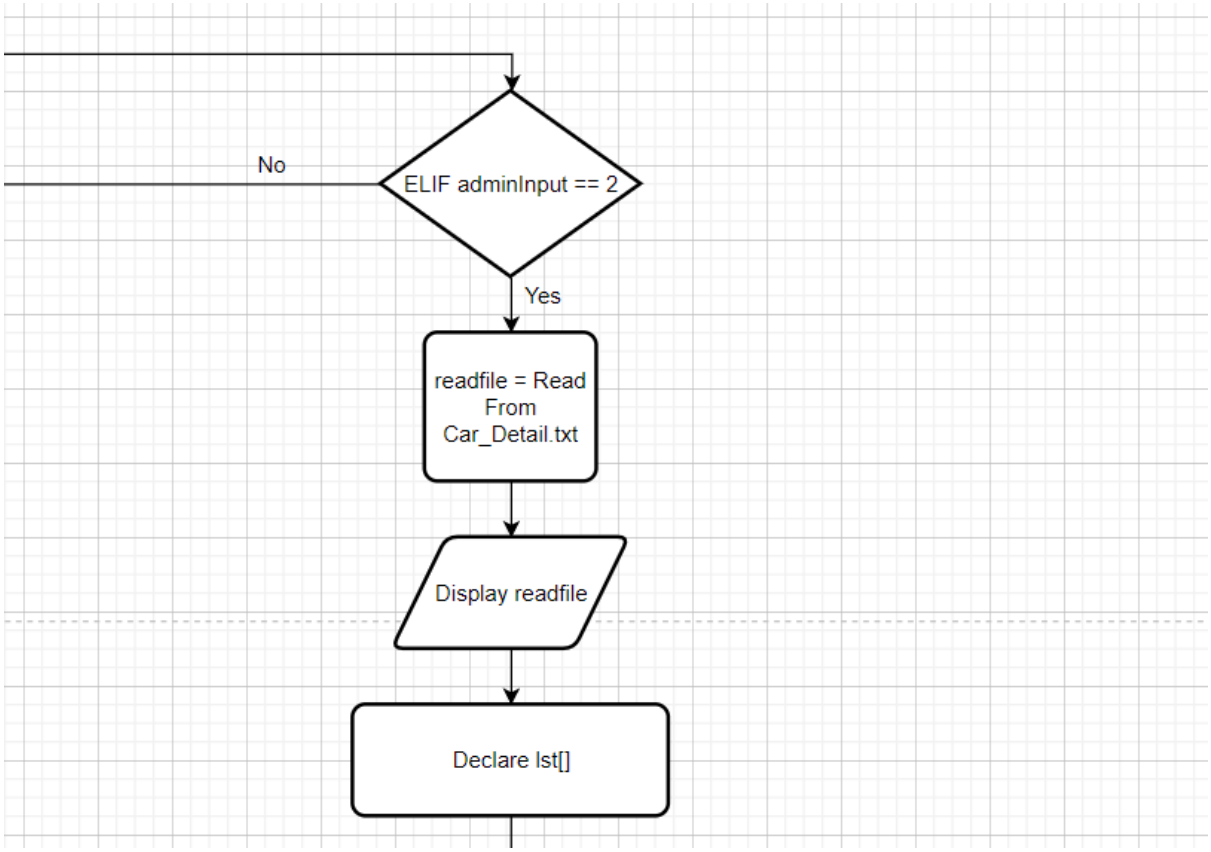

WHILE True
Loop again
Display 'Enter the car brand.
Example : Honda Accord '
continue
Read car_brand
IF Length of car_brand <= 5
Wrong Input
Display 'Please enter a
valid car brand'
Correct Input
break

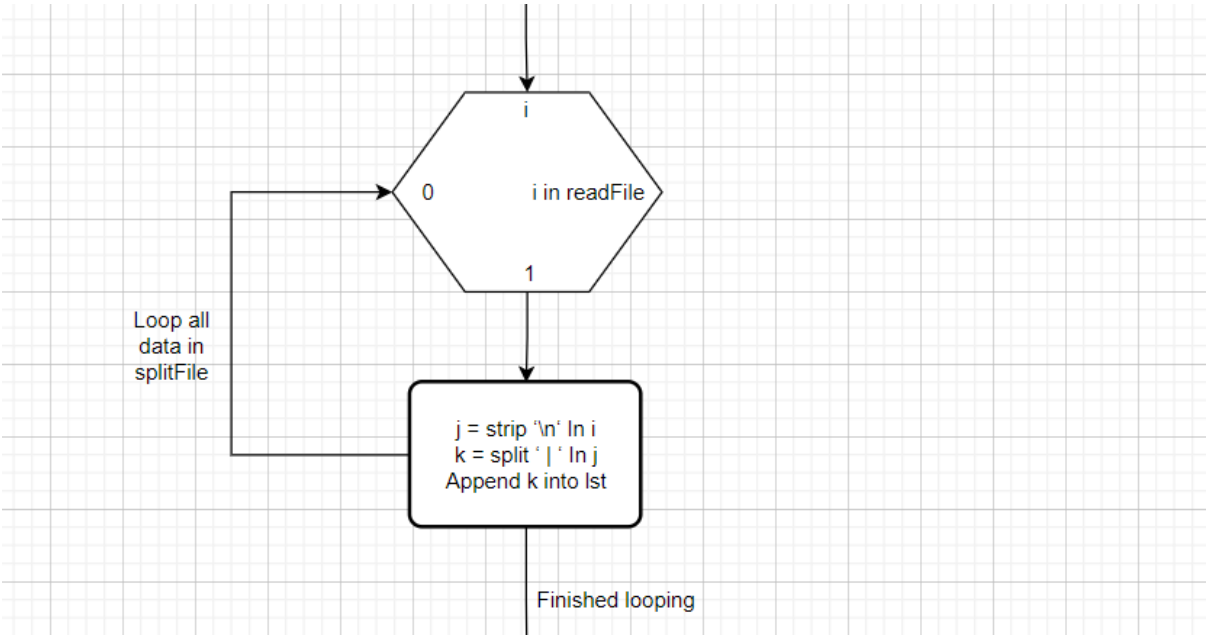

WHILE True
Loop again
Display ' Enter the price for rent . Example : xxx '
continue
Read price_per_day
IF Length of price_per_day != 3
Wrong Input
Display 'The range of price is RM100-RM999. Please retype a valid price'
Correct Input
break
Display 'Is the car ready for rent . Example: Yes/No

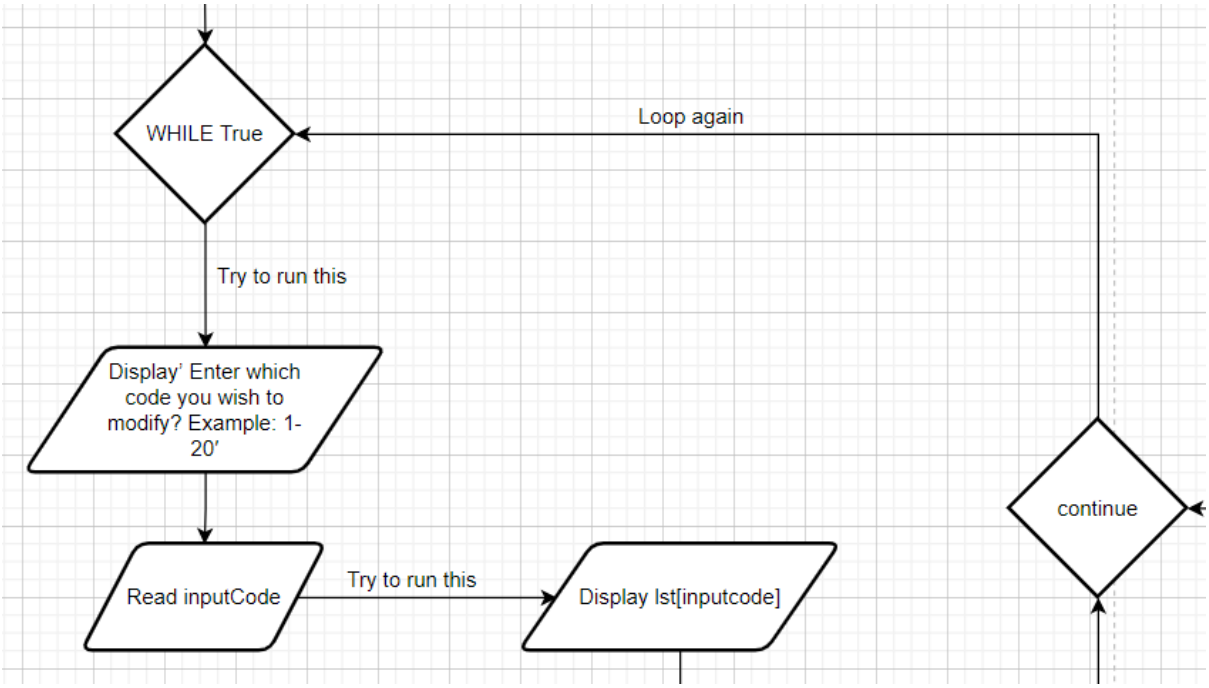

Read car_availability
WHILE car_availability != 'Yes' And car_availability != 'No'
Display 'Is the car ready for rent . Example: Yes/No'
Read car_availability

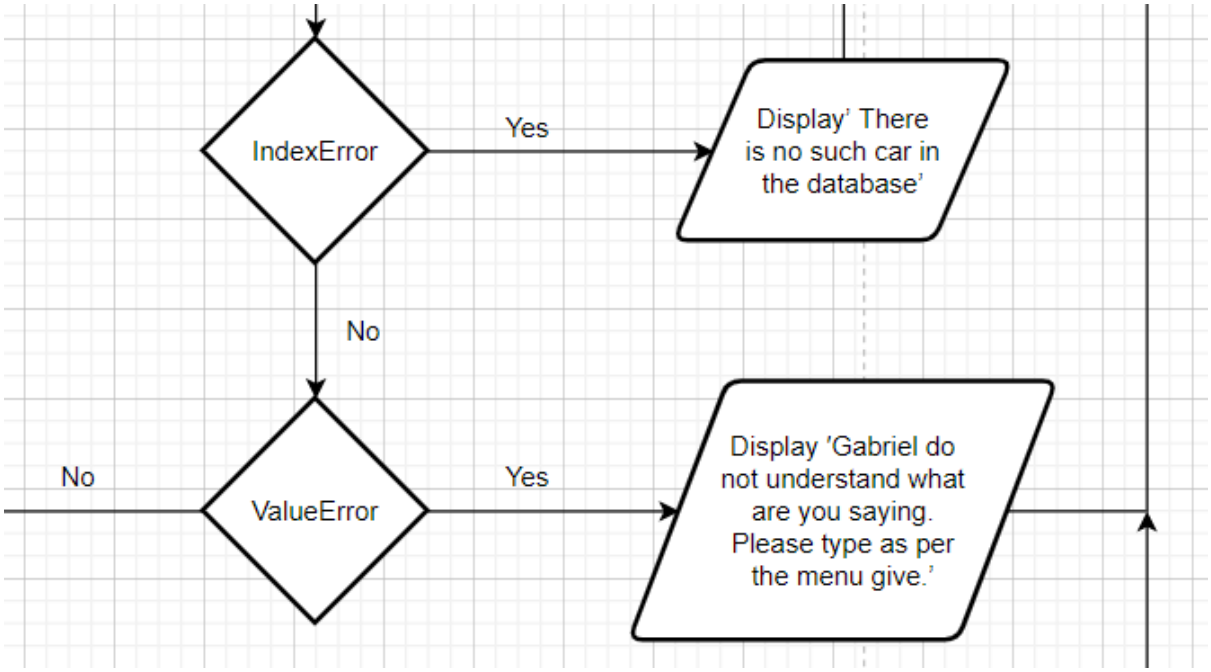

IF car_availability == 'Yes' or car_availability == 'No'
Wrong input
Correct input
break
data = [code, ' | ',car_brand, ' | ',price_per_day, ' | ',car_availability]
Write Join data In ' | ' Into Car_Details.txt
Write '\n' Into Car_Details.txt

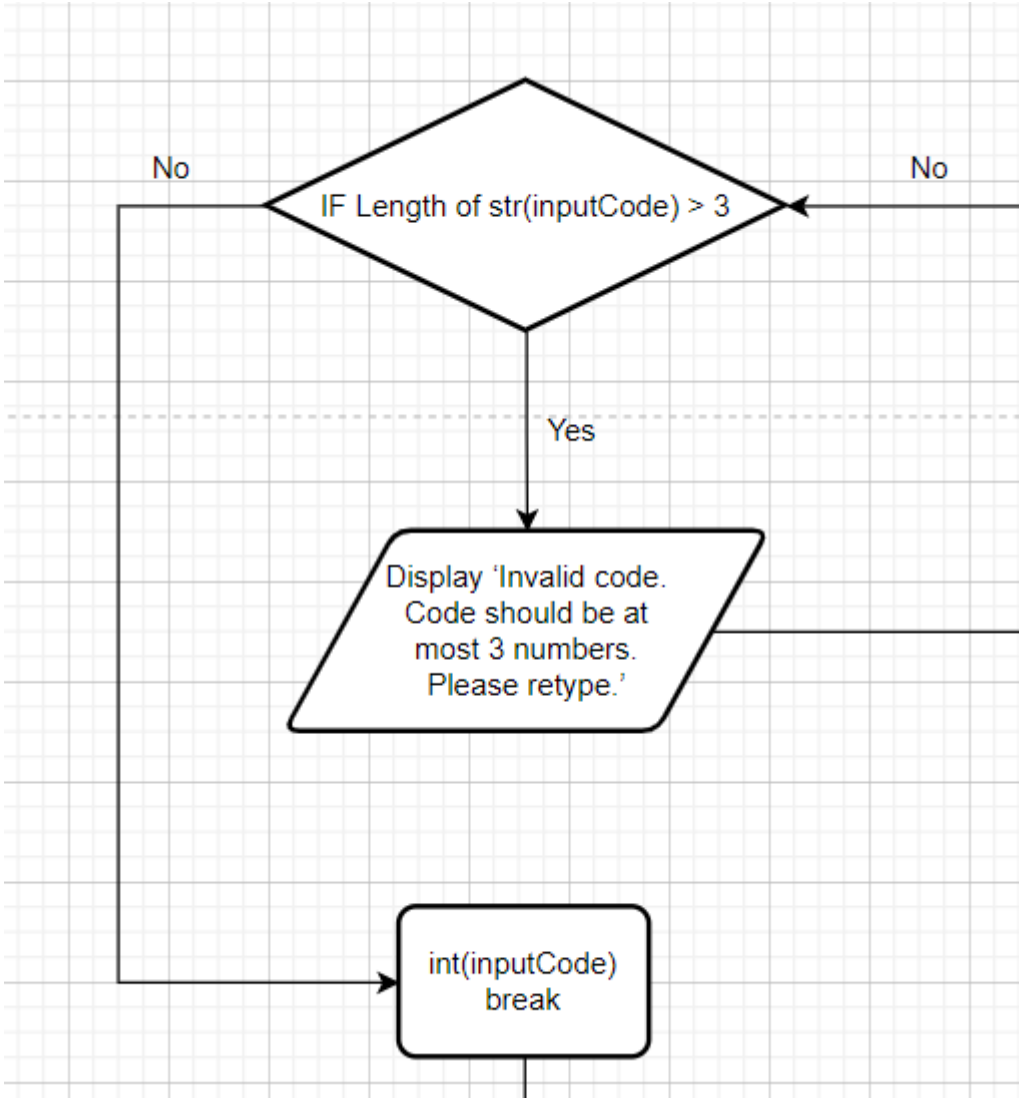

Display data
Loop the number of times
requested from user input
Finished looping
admin()

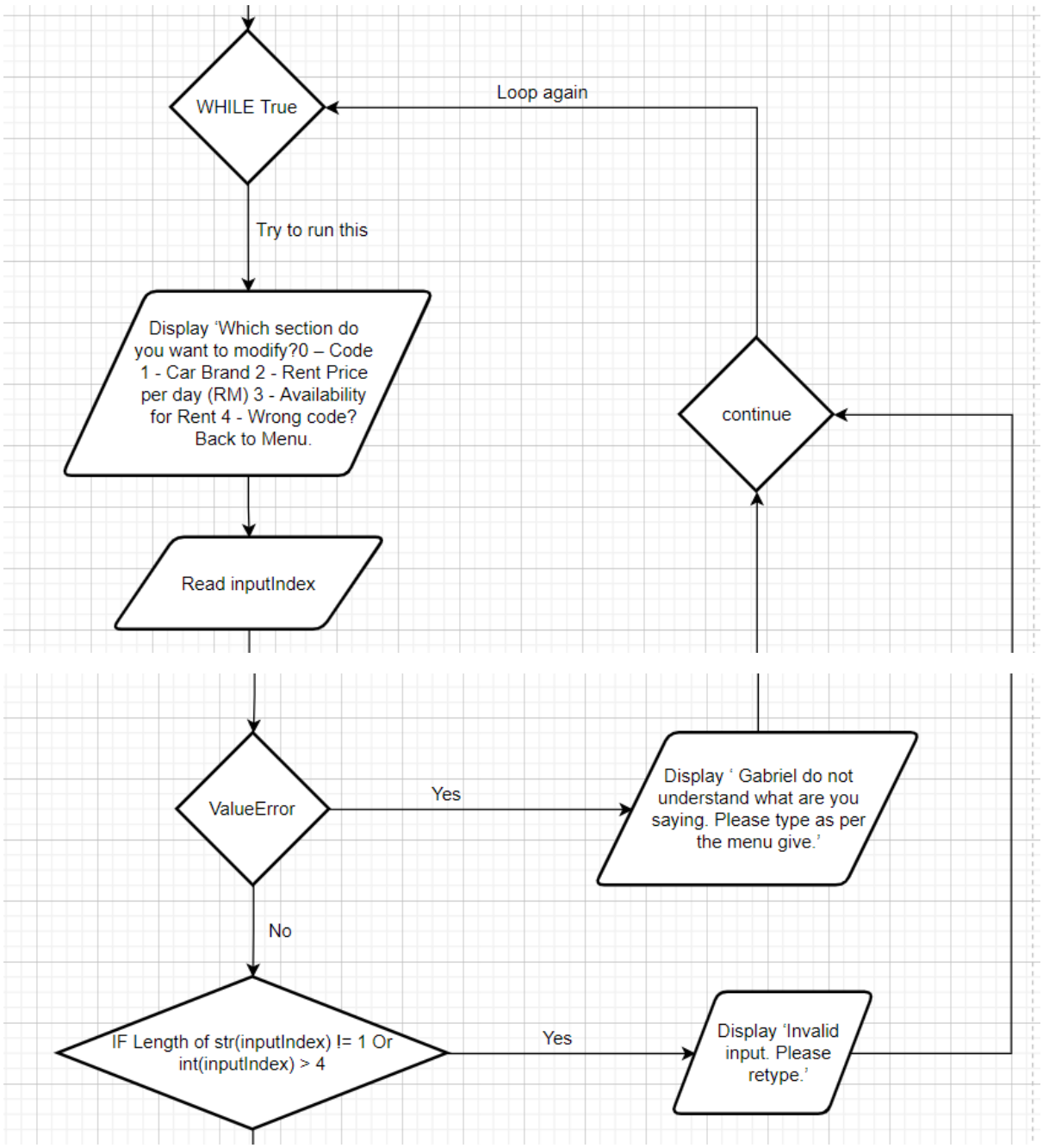

No
ELIF adminInput == 2
Yes
readfile = Read
From
Car_Detail.txt
Display readfile
Declare lst[]

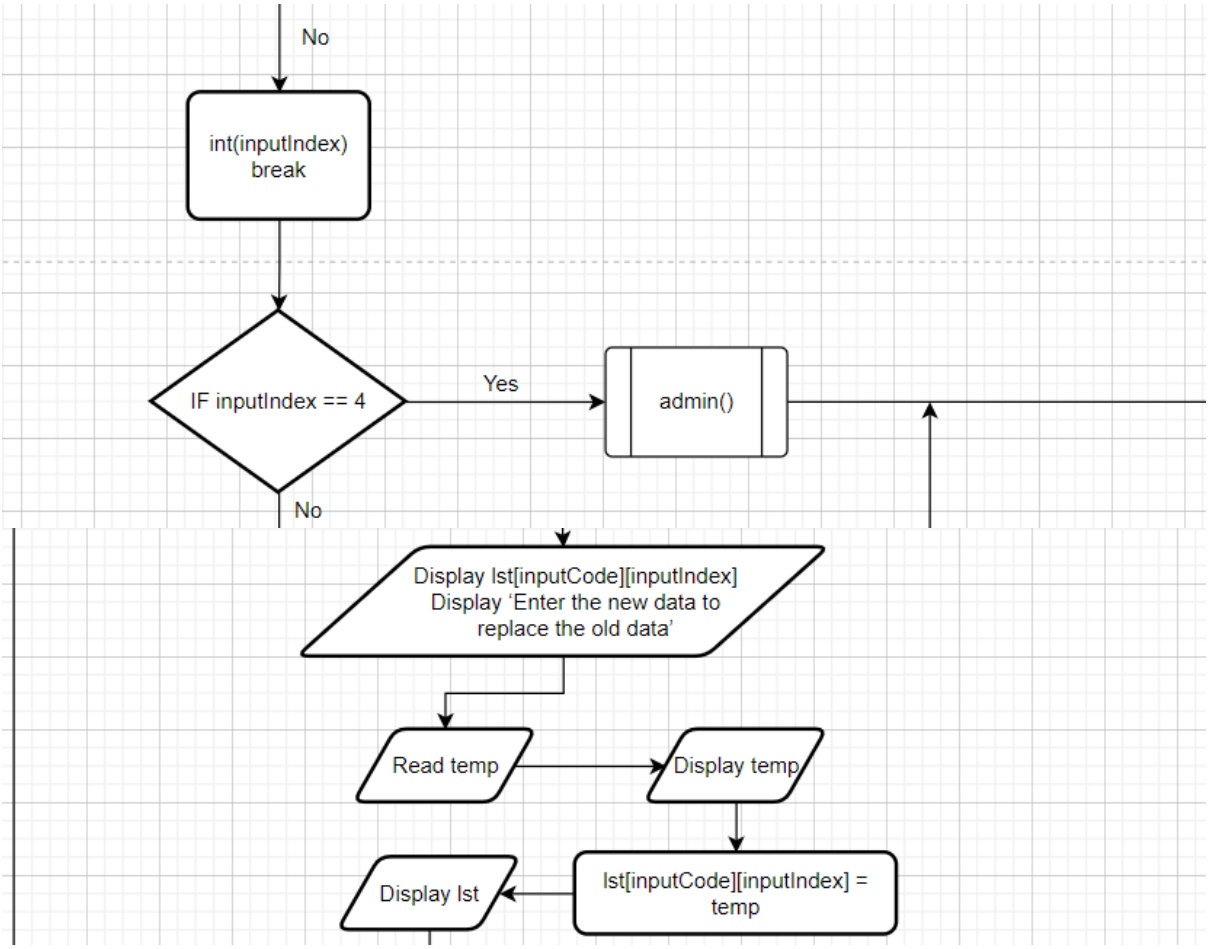

i
0
i in readFile
1
Loop all data in splitFile
j = strip '\n' In i
k = split ' | ' In j
Append k into lst
Finished looping

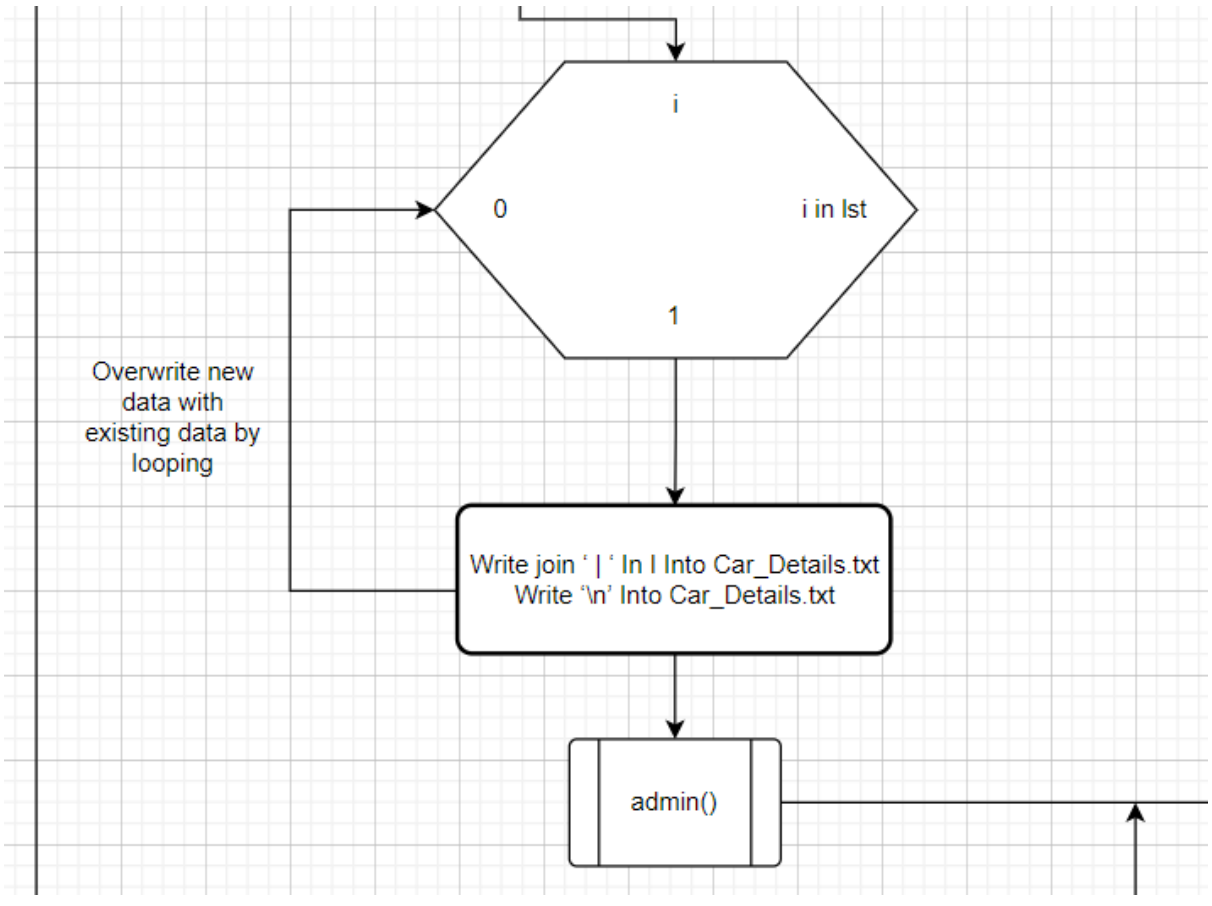

WHILE True
Loop again
Try to run this
Display' Enter which code you wish to modify? Example: 1-20'
Read inputCode
Try to run this
Display lst[inputcode]
continue

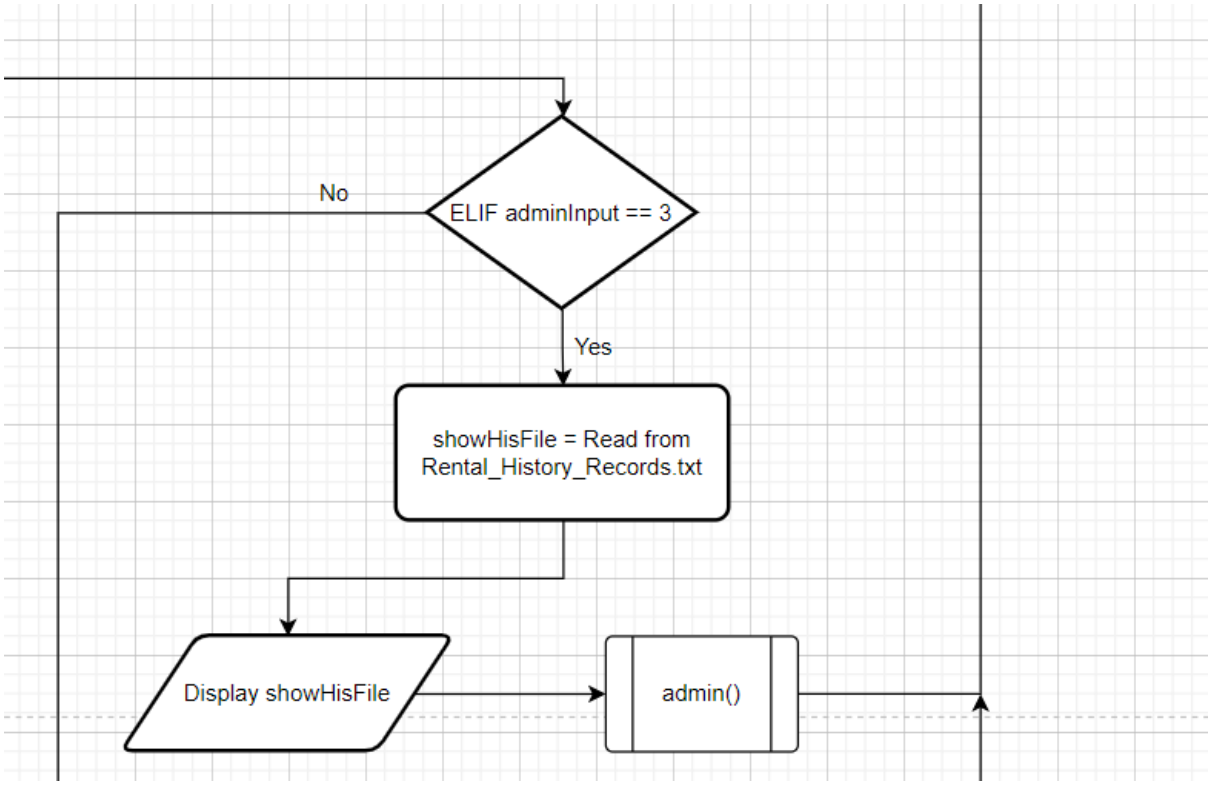

IndexError
Yes
Display' There is no such car in the database'
No
No
ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'

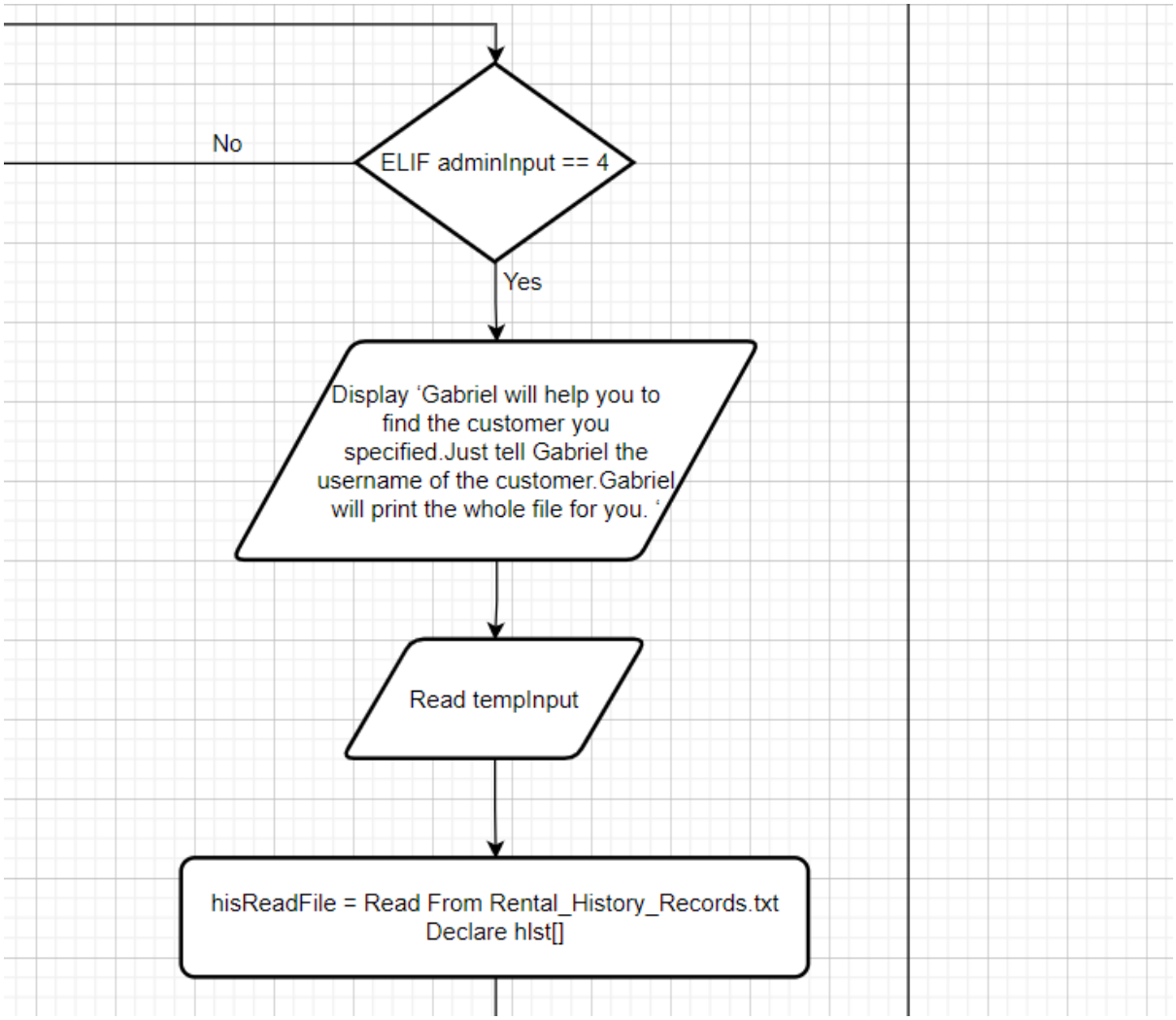

No
IF Length of str(inputCode) > 3
No
Yes
Display 'Invalid code. Code should be at most 3 numbers. Please retype.'
int(inputCode)
break

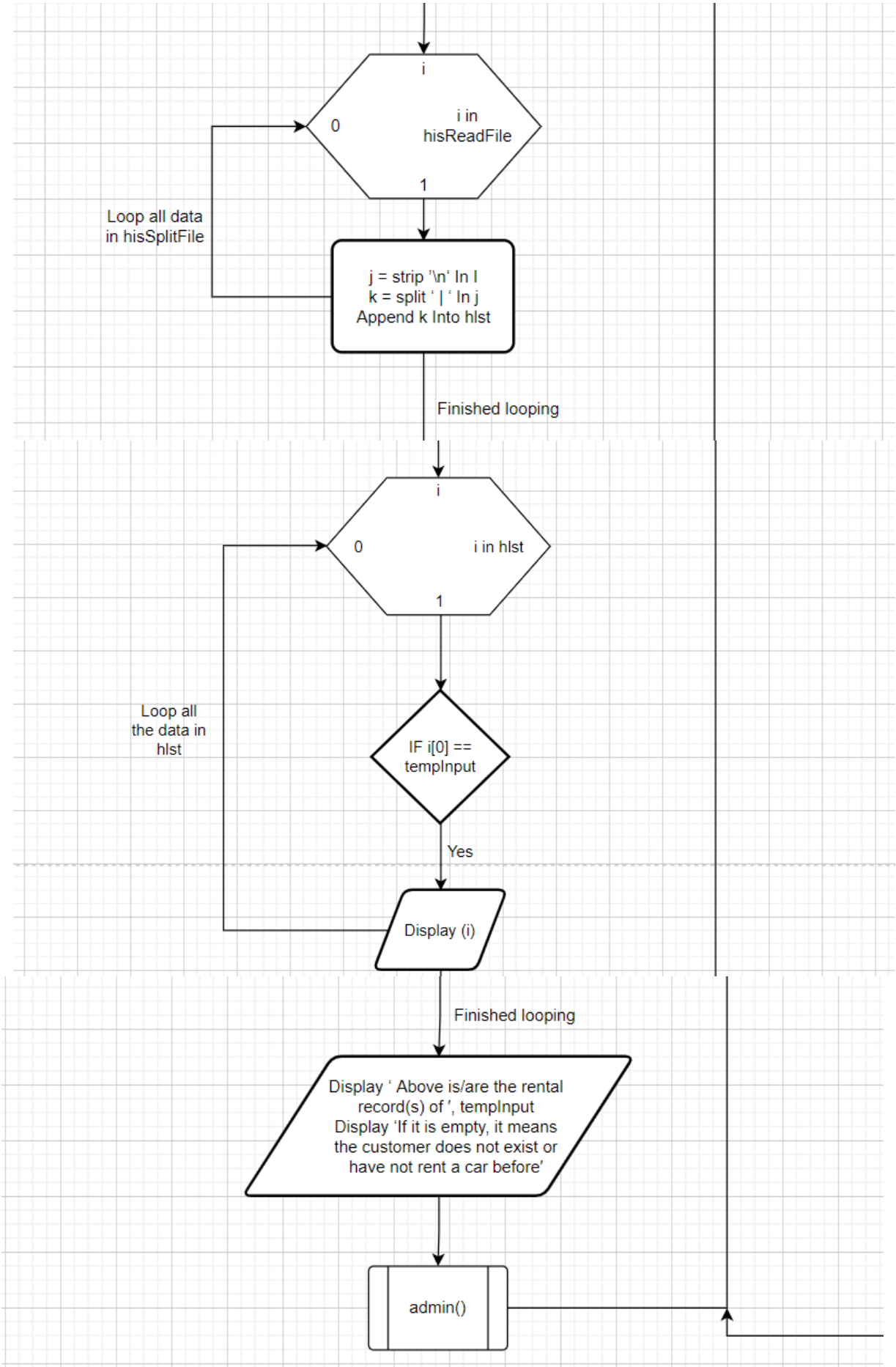

WHILE True
Loop again
Try to run this
Display 'Which section do you want to modify?0 – Code 1 - Car Brand 2 - Rent Price per day (RM) 3 - Availability for Rent 4 - Wrong code? Back to Menu.
continue
Read inputIndex
ValueError
Yes
Display ' Gabriel do not understand what are you saying. Please type as per the menu give.'
No
IF Length of str(inputIndex) != 1 Or int(inputIndex) > 4
Yes
Display 'Invalid input. Please retype.'

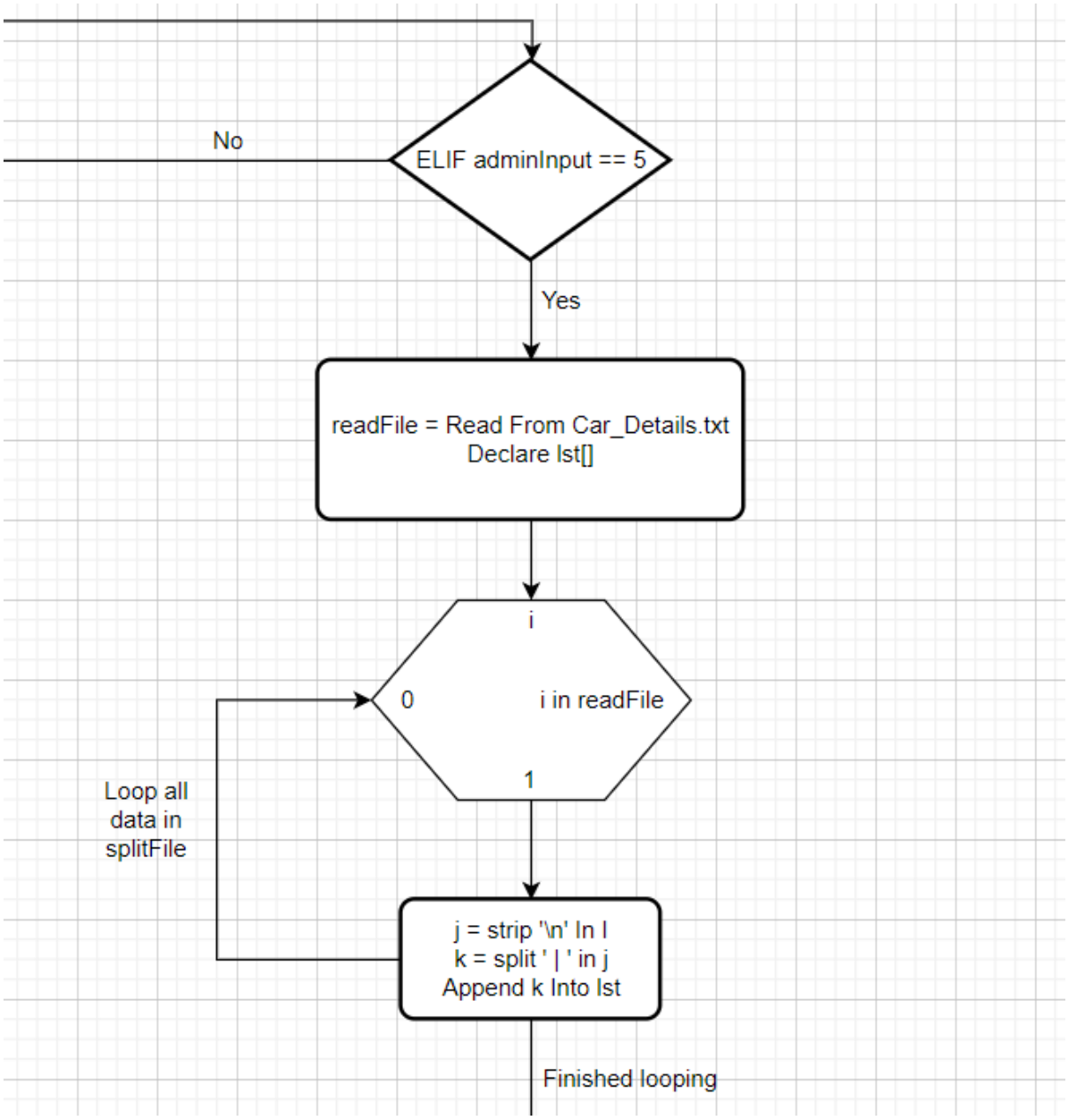

No
int(inputIndex)
break
IF inputIndex == 4
Yes
admin()
No
Display lst[inputCode][inputIndex]
Display 'Enter the new data to
replace the old data'
Read temp
Display temp
Display lst
lst[inputCode][inputIndex] =
temp

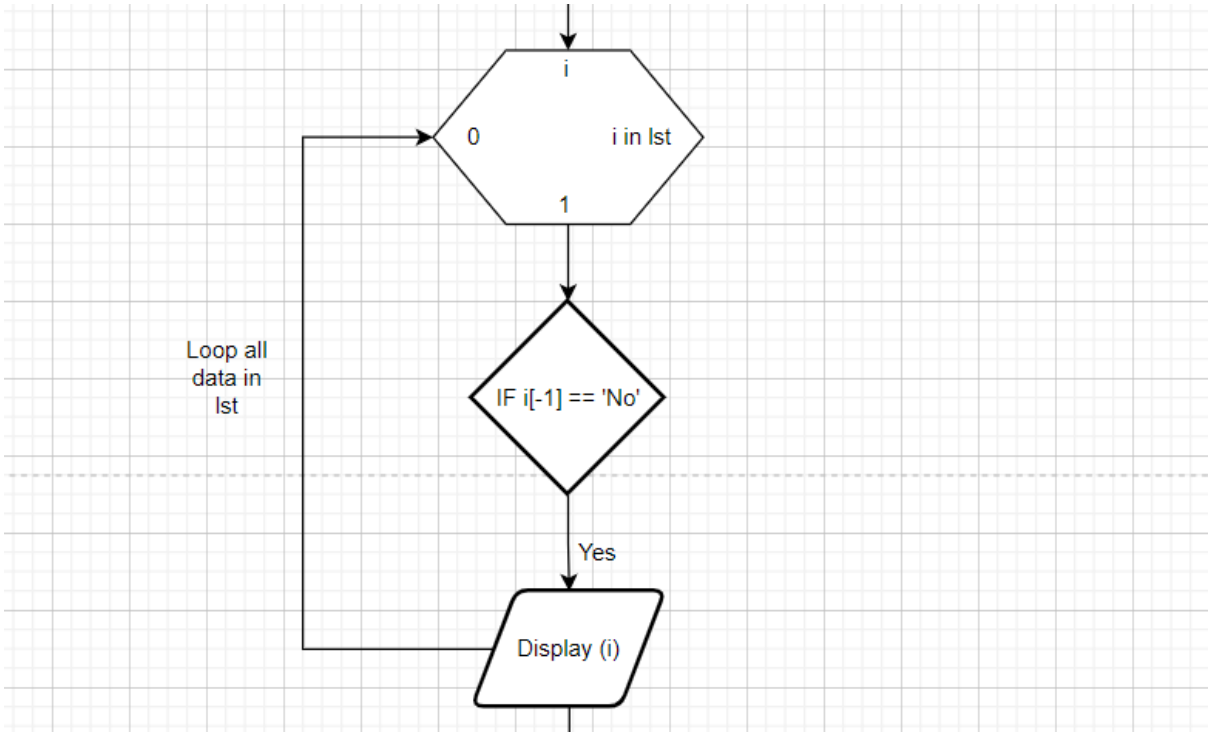

i
0
i in lst
1
Overwrite new
data with
existing data by
looping
Write join ' | ' In I Into Car_Details.txt
Write '\n' Into Car_Details.txt
admin()

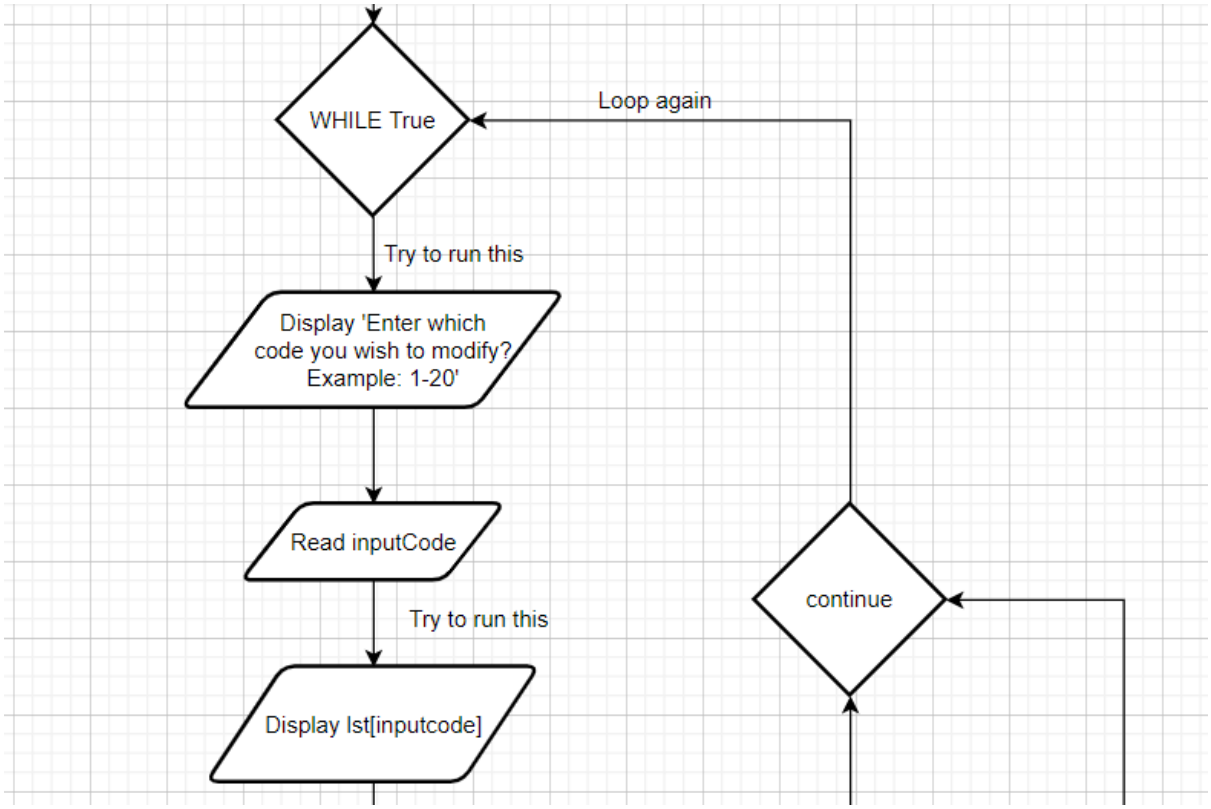

No
ELIF adminInput == 3
Yes
showHisFile = Read from Rental_History_Records.txt
Display showHisFile
admin()

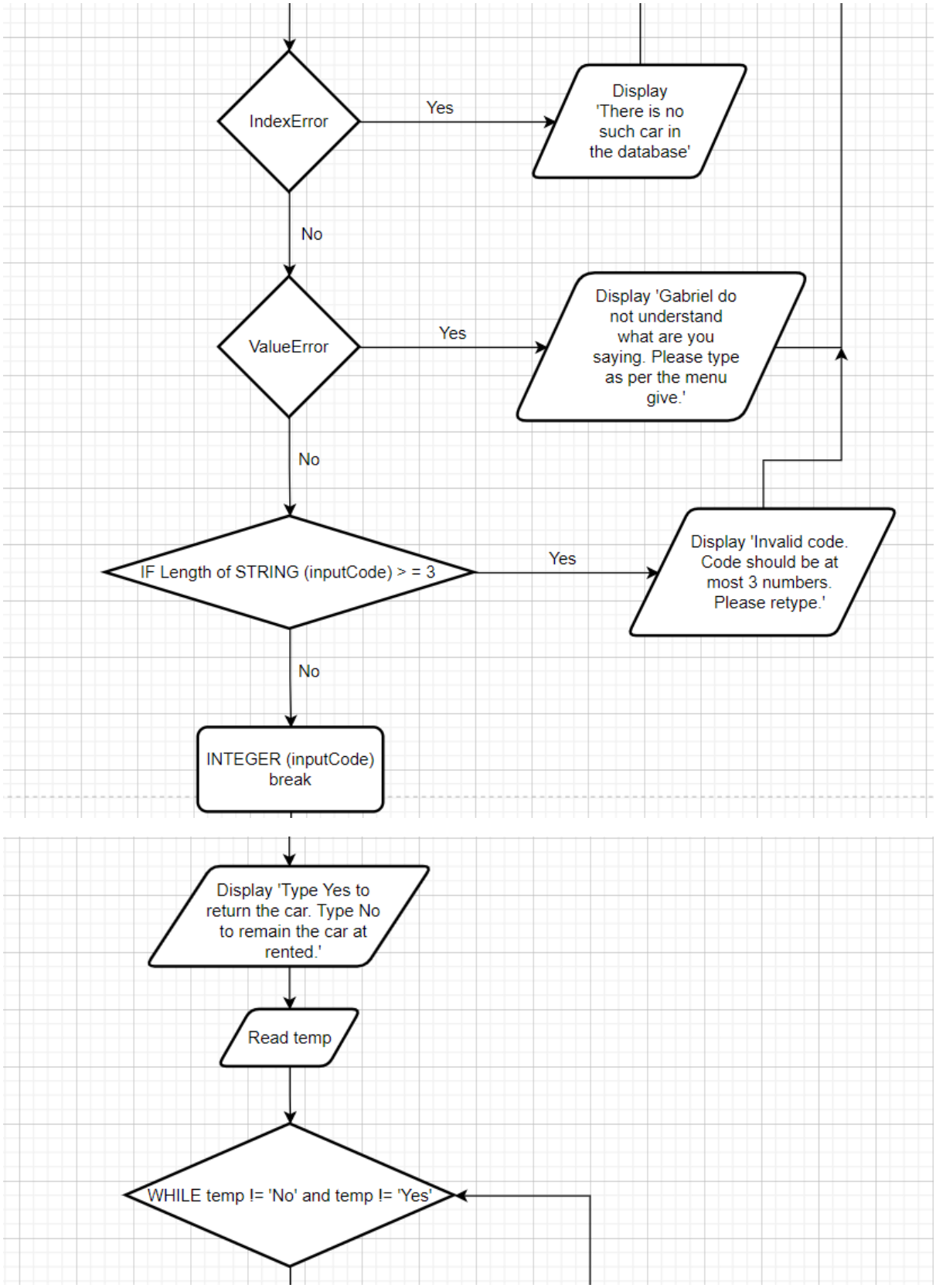

No
ELIF adminInput == 4
Yes
Display 'Gabriel will help you to find the customer you specified.Just tell Gabriel the username of the customer.Gabriel will print the whole file for you. '
Read tempInput
hisReadFile = Read From Rental_History_Records.txt
Declare hlst[]

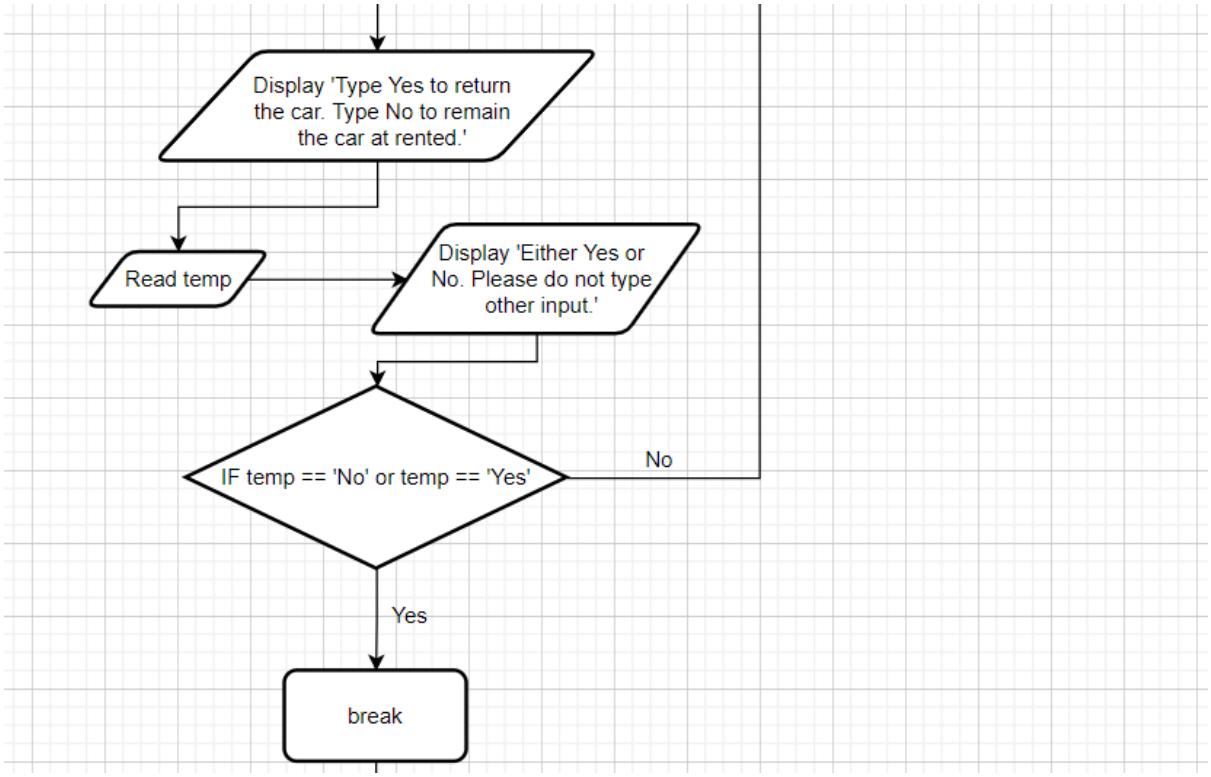

i
0
i in
hisReadFile
1
Loop all data
in hisSplitFile
j = strip '\n' In l
k = split ' | ' In j
Append k Into hlst
Finished looping
i
0
i in hlst
1
Loop all
the data in
hlst
IF i[0] ==
tempInput
Yes
Display (i)
Finished looping
Display ' Above is/are the rental
record(s) of ', tempInput
Display 'If it is empty, it means
the customer does not exist or
have not rent a car before'
admin()

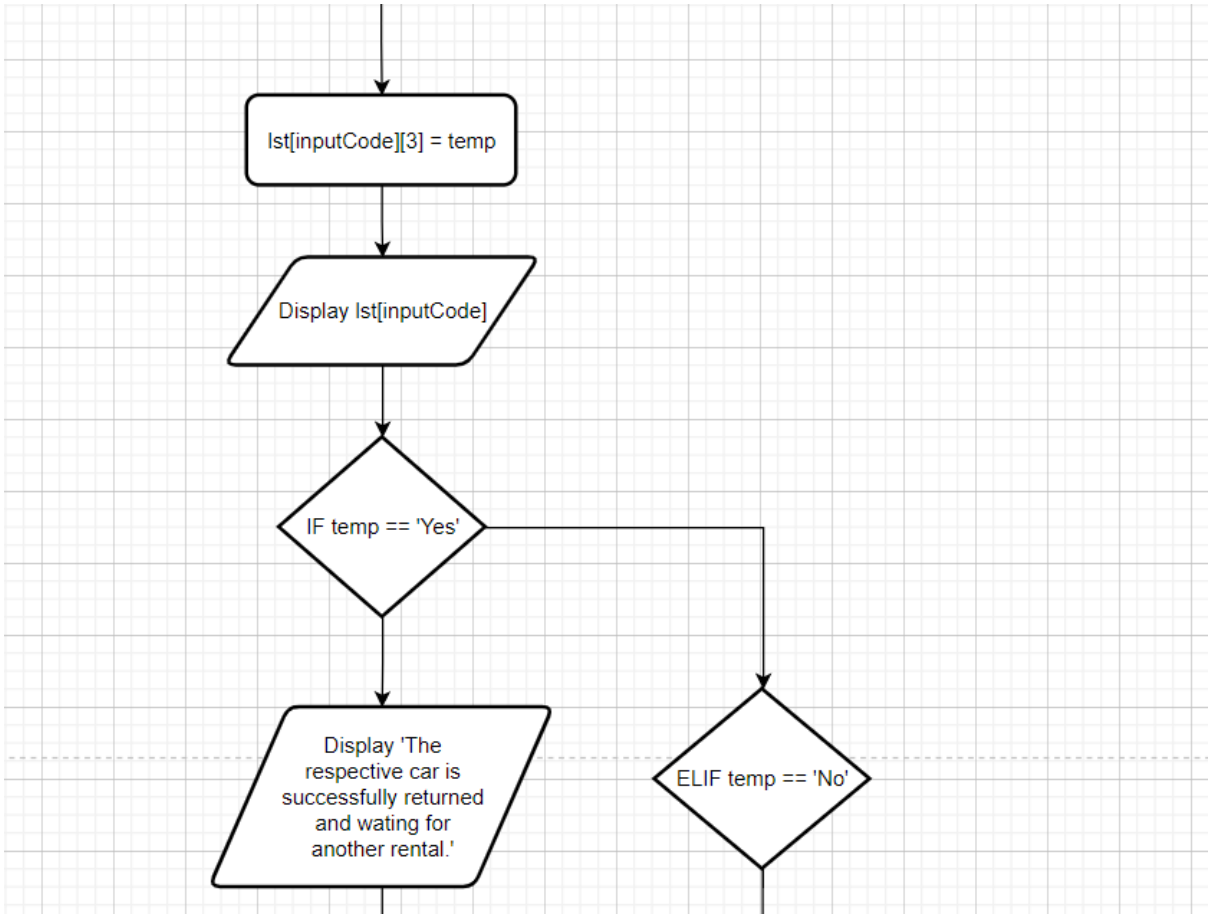

No
ELIF adminInput == 5
Yes
readFile = Read From Car_Details.txt
Declare lst[]
i
0
i in readFile
1
Loop all
data in
splitFile
j = strip '\n' In l
k = split ' | ' in j
Append k Into lst
Finished looping

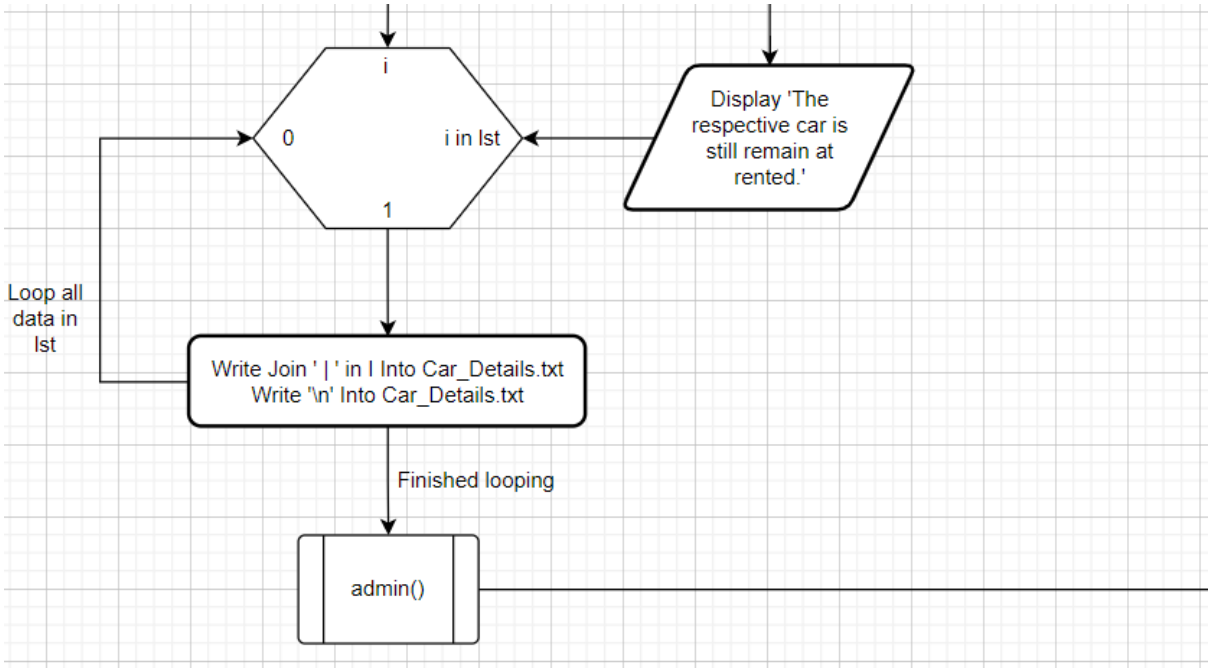

i
0
i in lst
1
Loop all data in lst
IF i[-1] == 'No'
Yes
Display (i)

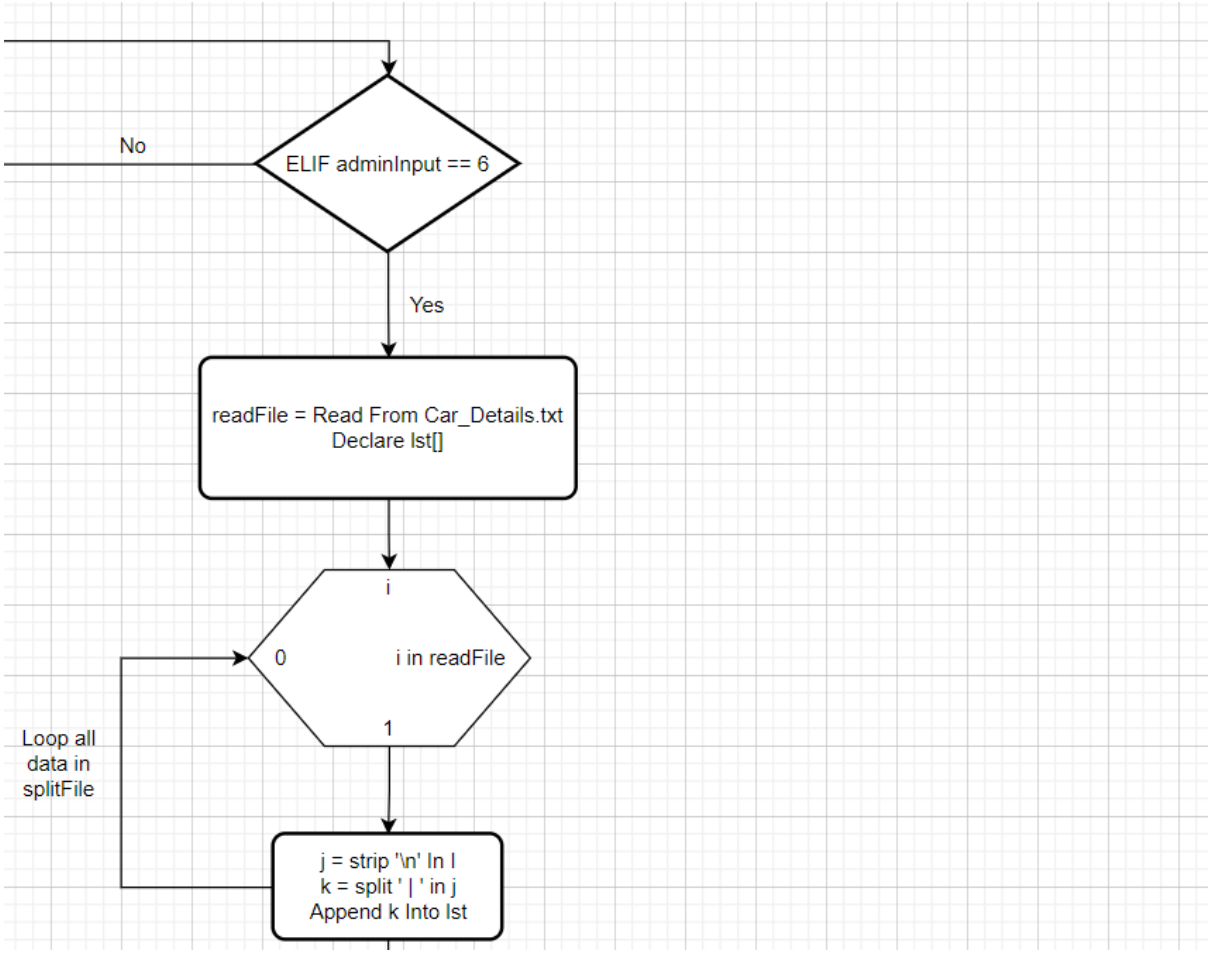

WHILE True
Loop again
Try to run this
Display 'Enter which code you wish to modify? Example: 1-20'
Read inputCode
Try to run this
Display lst[inputcode]
continue

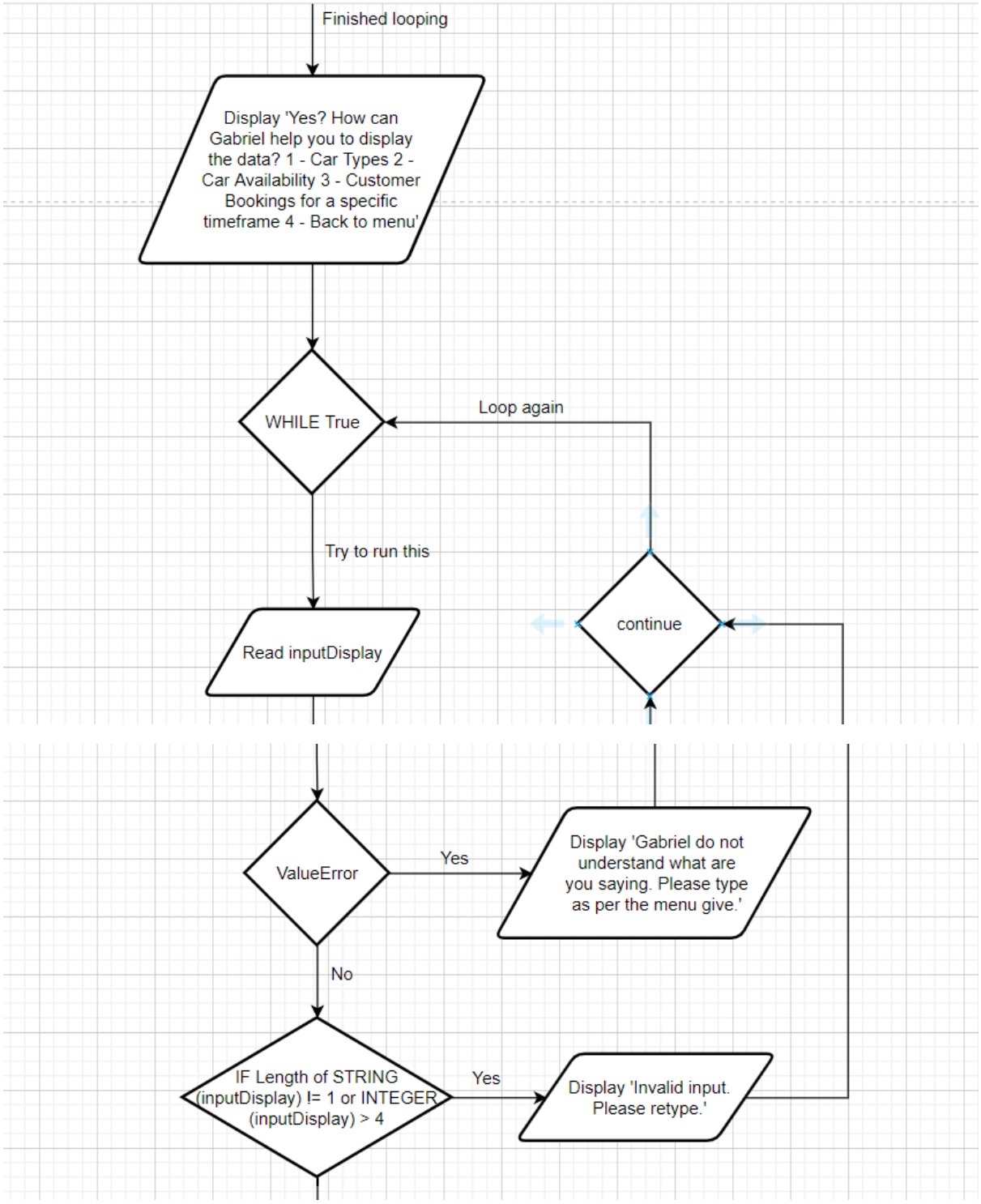

IndexError
Yes
Display 'There is no such car in the database'
No
ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'
No
IF Length of STRING (inputCode) > = 3
Yes
Display 'Invalid code. Code should be at most 3 numbers. Please retype.'
No
INTEGER (inputCode)
break
Display 'Type Yes to return the car. Type No to remain the car at rented.'
Read temp
WHILE temp != 'No' and temp != 'Yes'

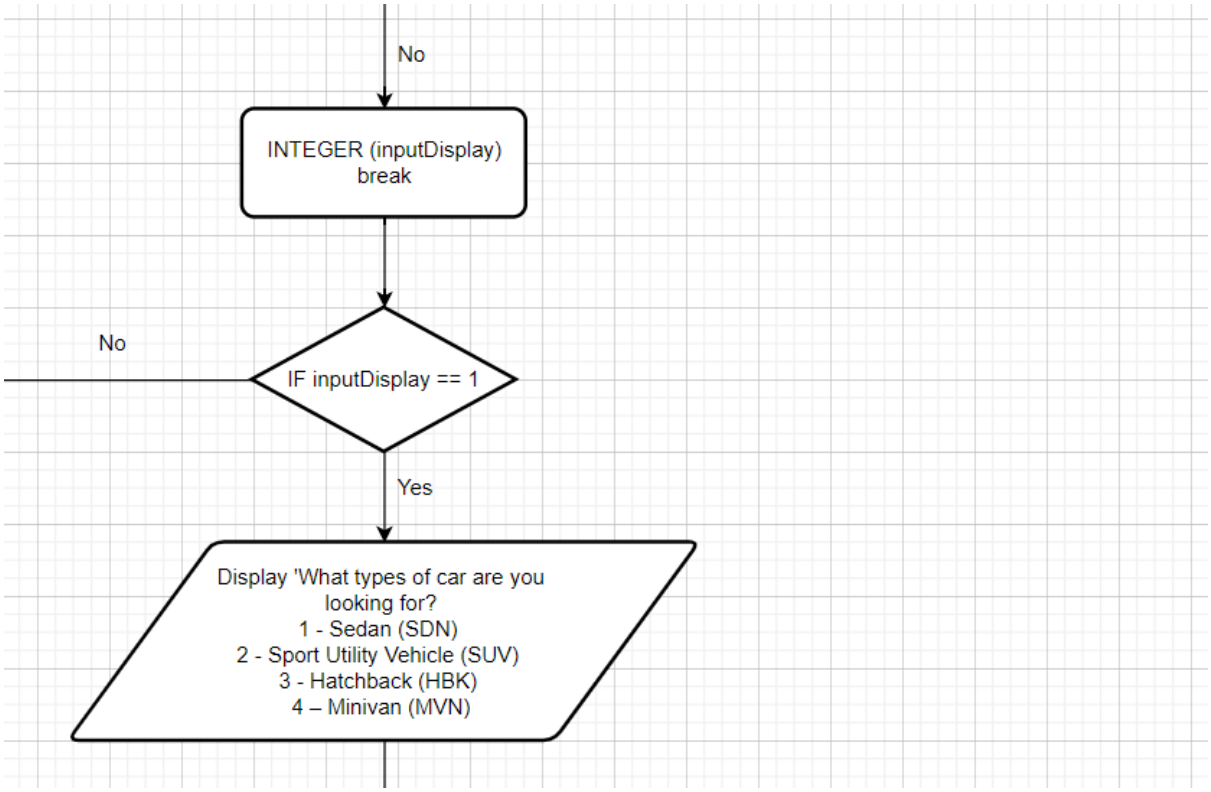

Display 'Type Yes to return the car. Type No to remain the car at rented.'
Read temp
Display 'Either Yes or No. Please do not type other input.'
IF temp == 'No' or temp == 'Yes'
No
Yes
break

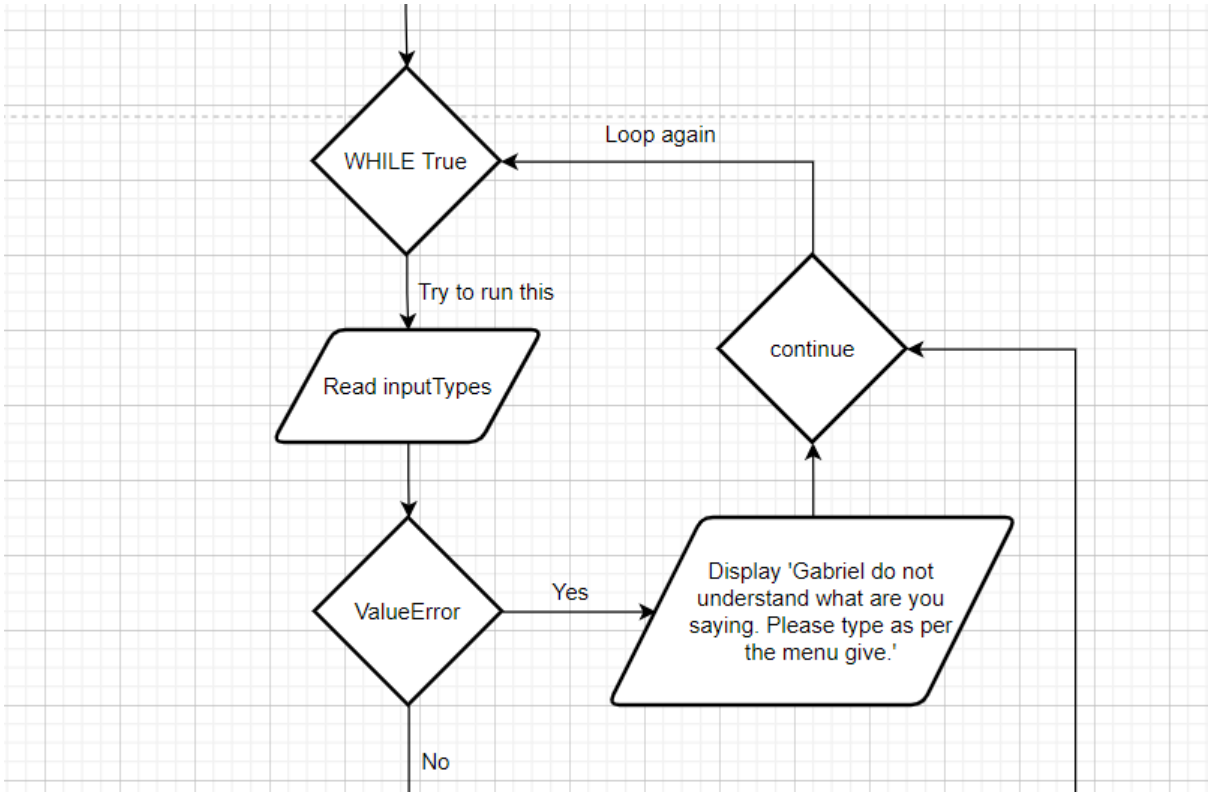

lst[inputCode][3] = temp
Display lst[inputCode]
IF temp == 'Yes'
Display 'The respective car is successfully returned and wating for another rental.'
ELIF temp == 'No'

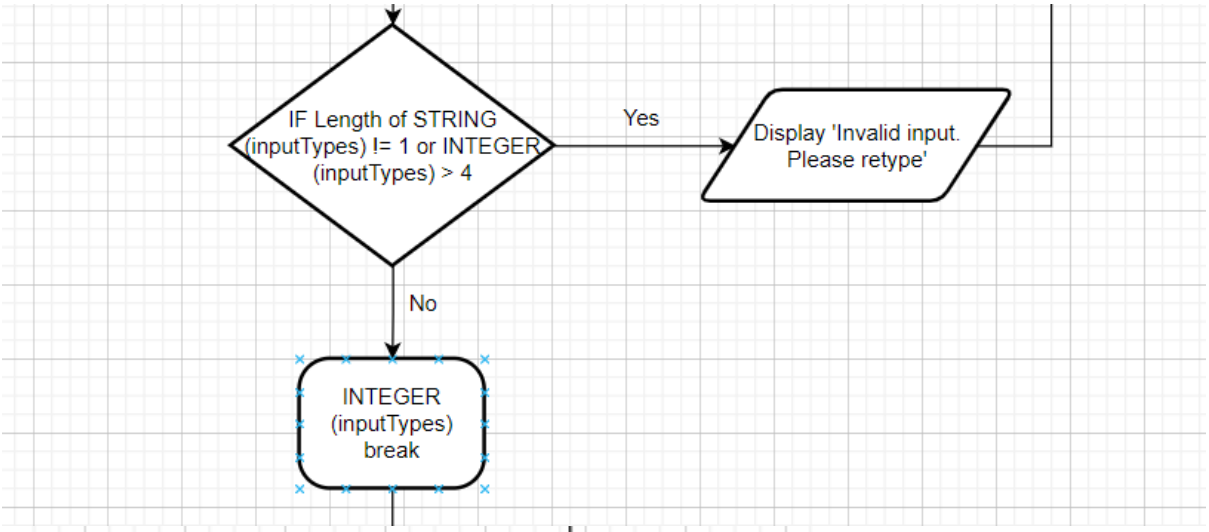

i
0
i in lst
1
Display 'The respective car is still remain at rented.'
Loop all data in lst
Write Join ' | ' in l Into Car_Details.txt
Write '\n' Into Car_Details.txt
Finished looping
admin()

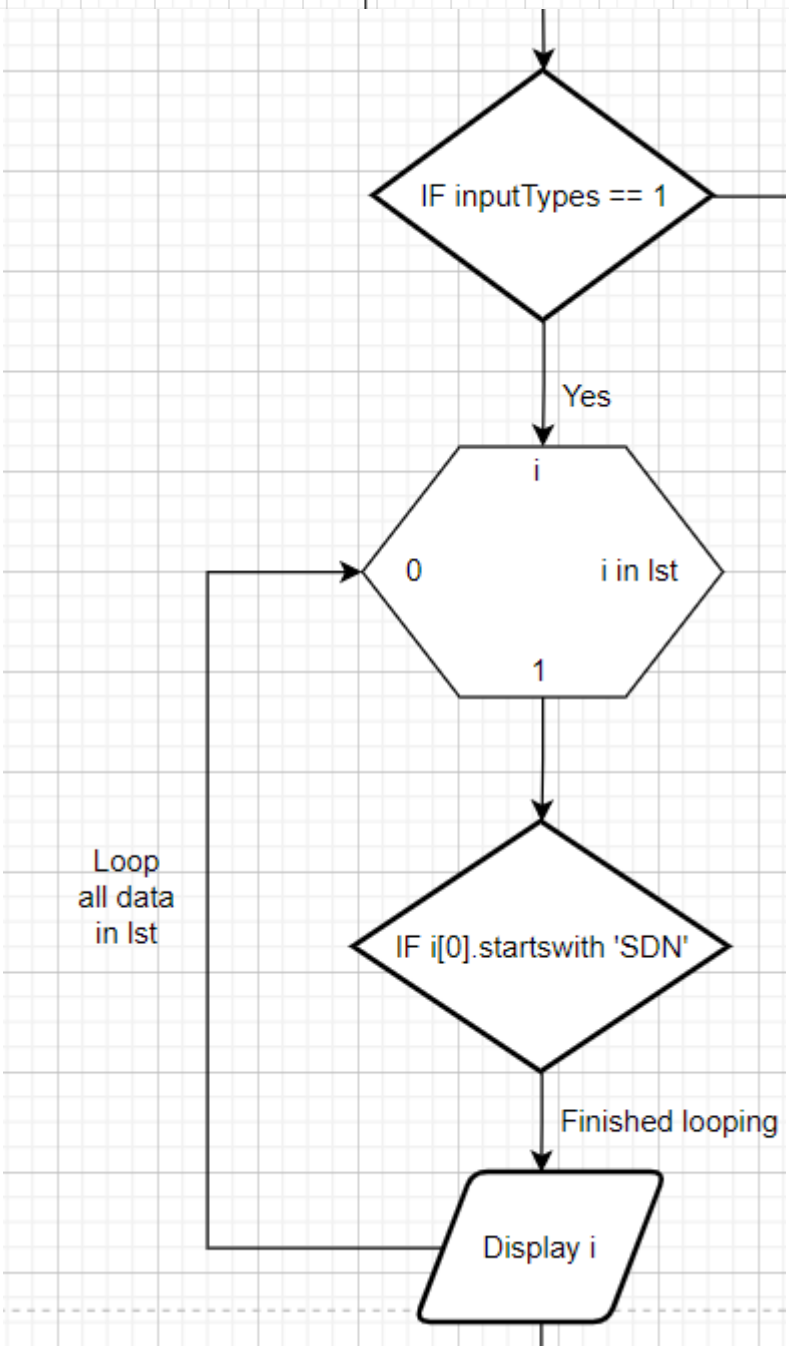

No
ELIF adminInput == 6
Yes
readFile = Read From Car_Details.txt
Declare lst[]
i
0
i in readFile
1
Loop all data in splitFile
j = strip '\n' In l
k = split ' | ' in j
Append k Into lst

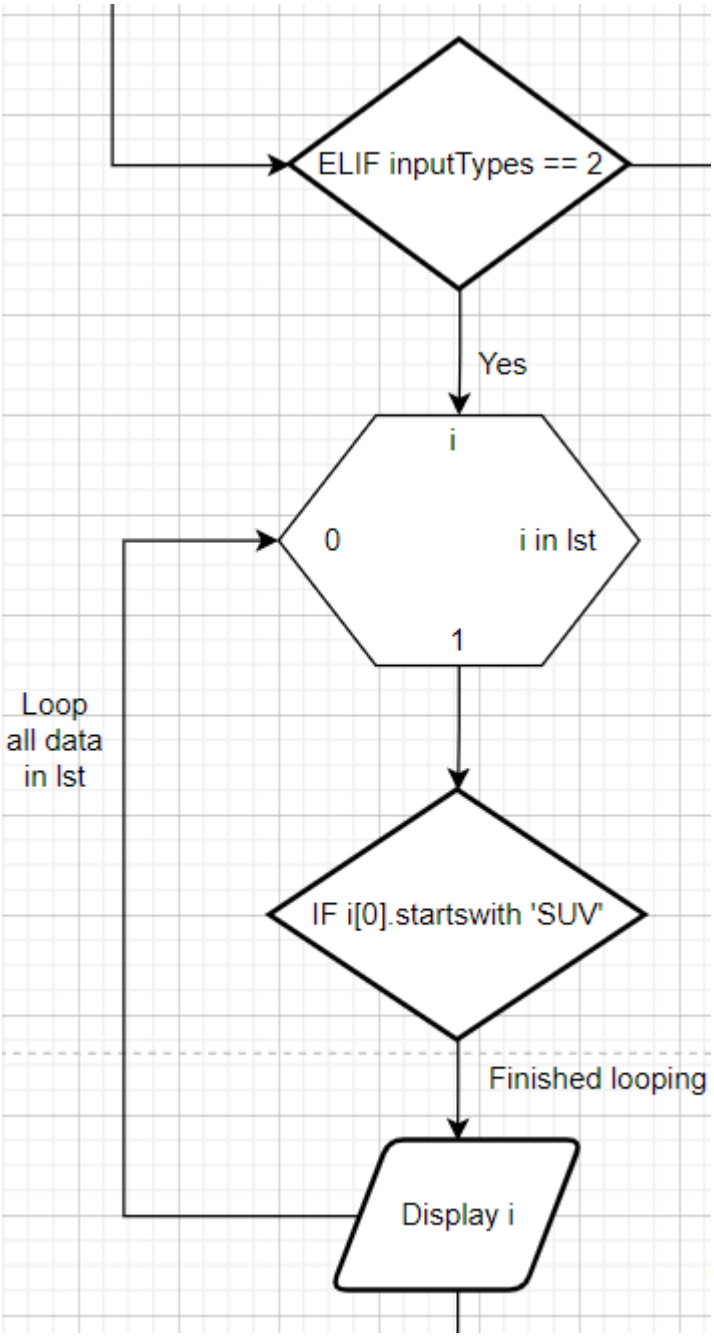

Finished looping
Display 'Yes? How can Gabriel help you to display the data? 1 - Car Types 2 - Car Availability 3 - Customer Bookings for a specific timeframe 4 - Back to menu'
WHILE True
Loop again
Try to run this
Read inputDisplay
continue
ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'
No
IF Length of STRING (inputDisplay) != 1 or INTEGER (inputDisplay) > 4
Yes
Display 'Invalid input. Please retype.'

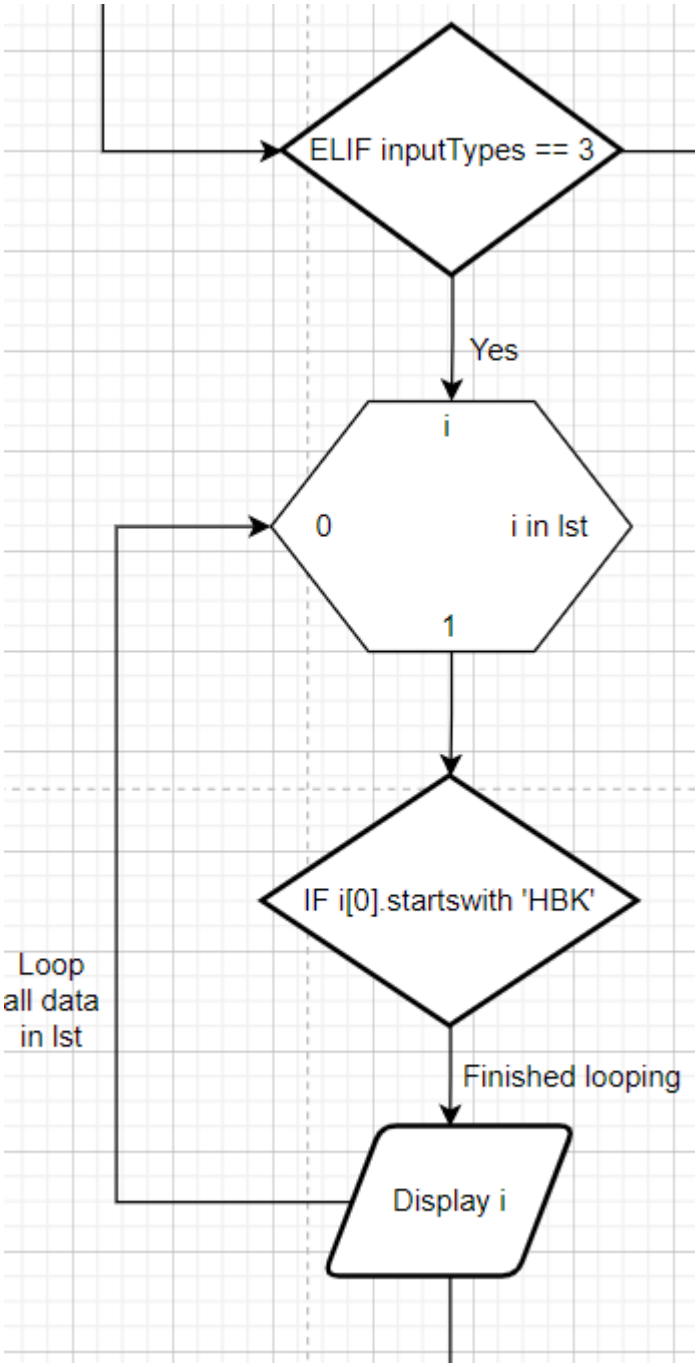

No
INTEGER (inputDisplay)
break
No
IF inputDisplay == 1
Yes
Display 'What types of car are you looking for?
1 - Sedan (SDN)
2 - Sport Utility Vehicle (SUV)
3 - Hatchback (HBK)
4 – Minivan (MVN)

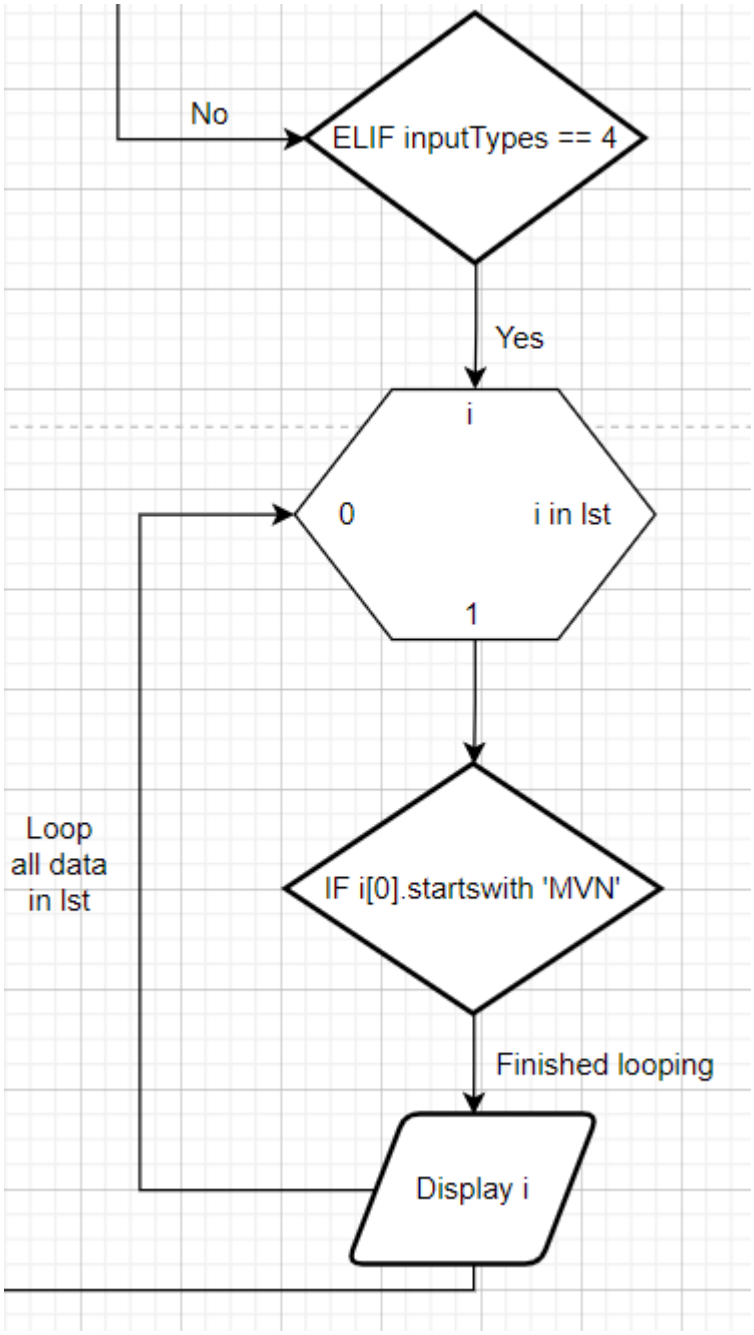

WHILE True
Loop again
Try to run this
Read inputTypes
continue
ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'
No

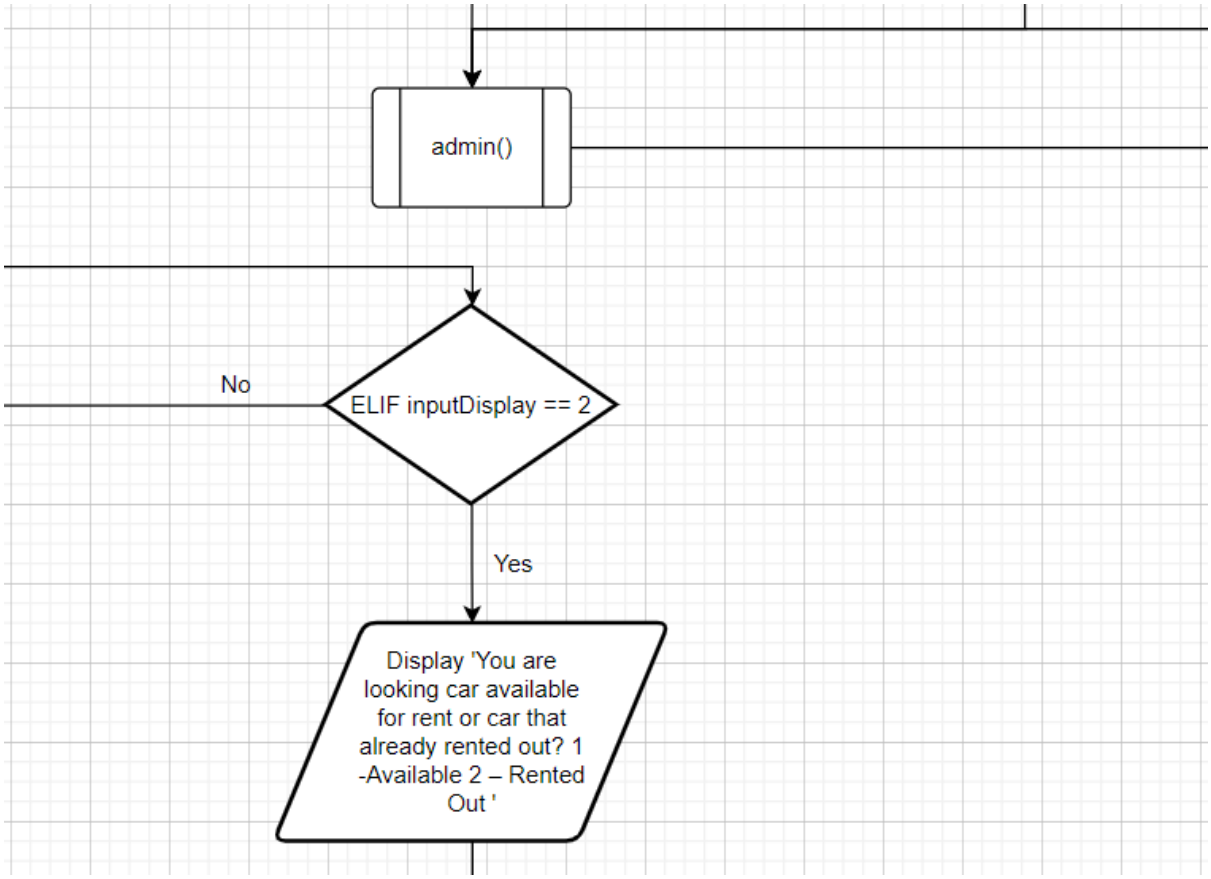

IF Length of STRING (inputTypes) != 1 or INTEGER (inputTypes) > 4
Yes
Display 'Invalid input. Please retype'
No
INTEGER (inputTypes) break

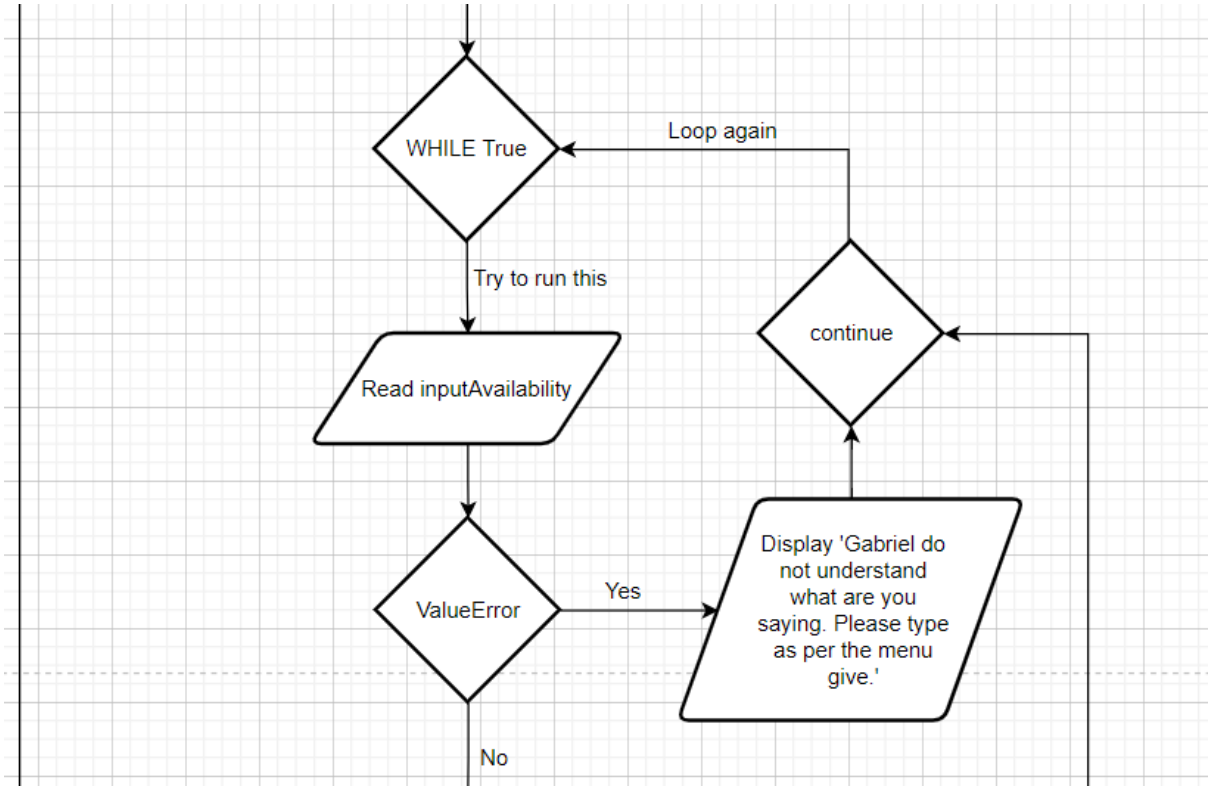

IF inputTypes == 1
Yes
i
0
i in lst
1
Loop all data in lst
IF i[0].startswith 'SDN'
Finished looping
Display i

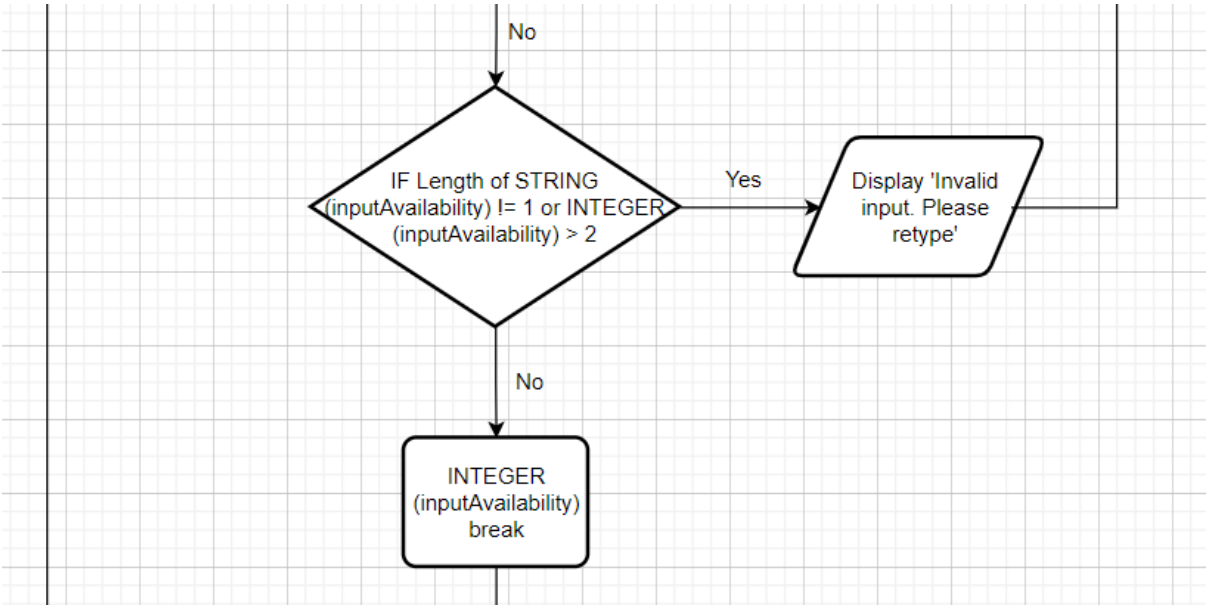

ELIF inputTypes == 2
Yes
i
0
i in lst
1
Loop
all data
in lst
IF i[0].startswith 'SUV'
Finished looping
Display i

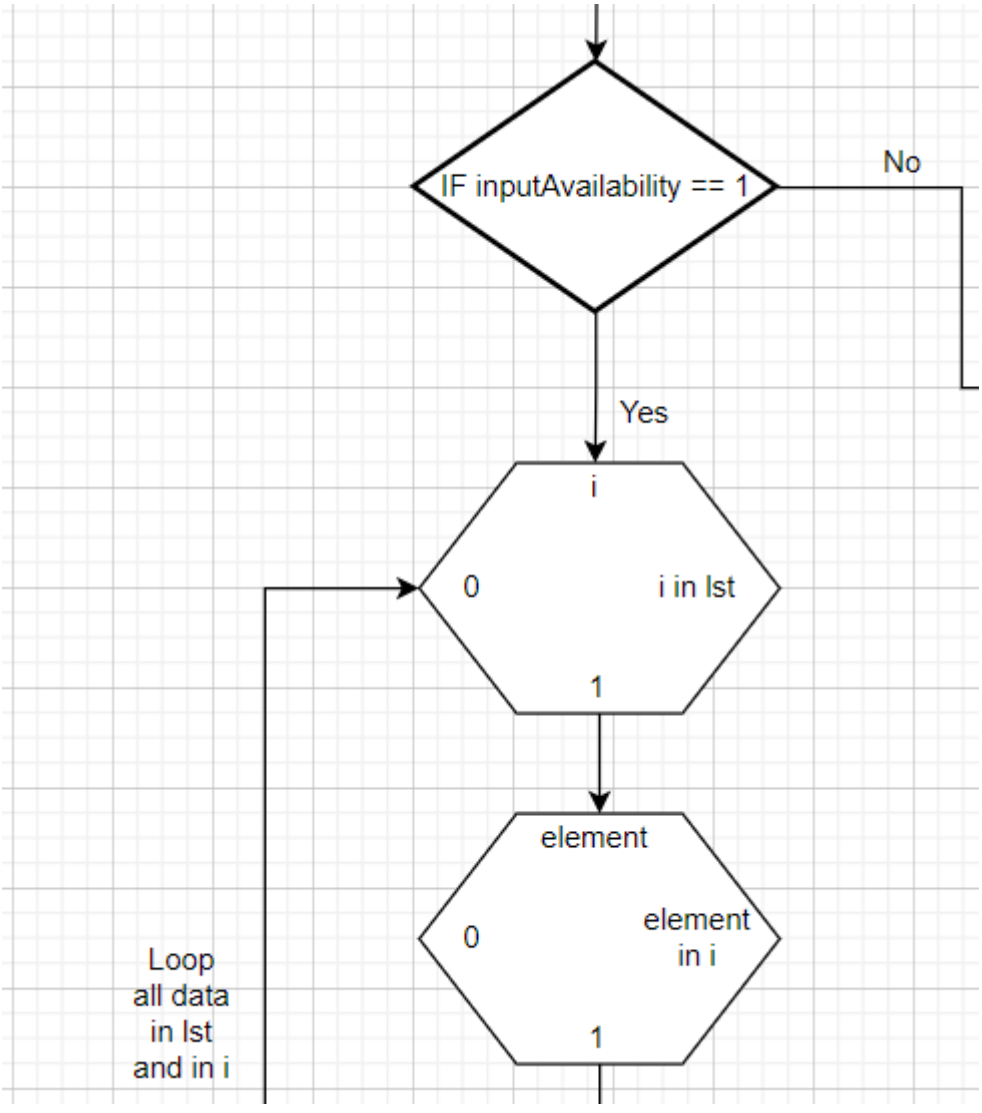

ELIF inputTypes == 3
Yes
i
0
i in lst
1
IF i[0].startswith 'HBK'
Loop
all data
in lst
Finished looping
Display i

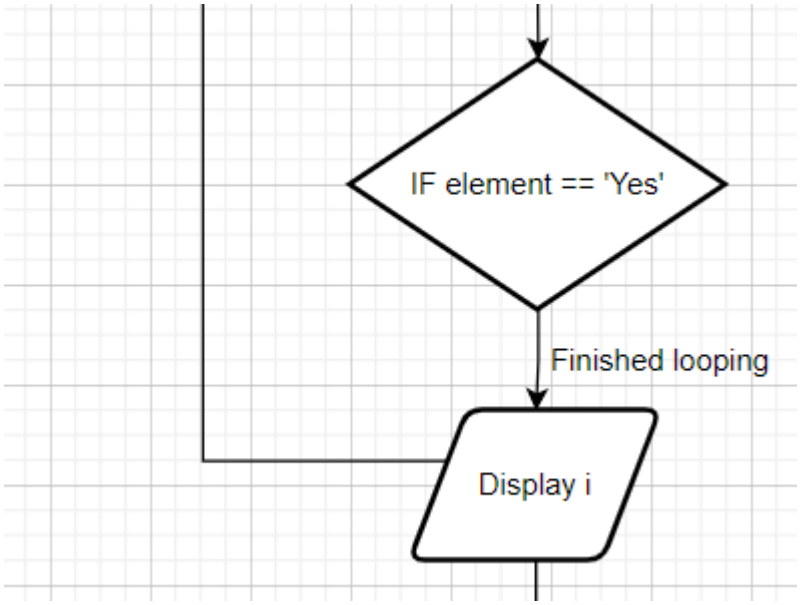

No
ELIF inputTypes == 4
Yes
i
0
i in lst
1
Loop
all data
in lst
IF i[0].startswith 'MVN'
Finished looping
Display i

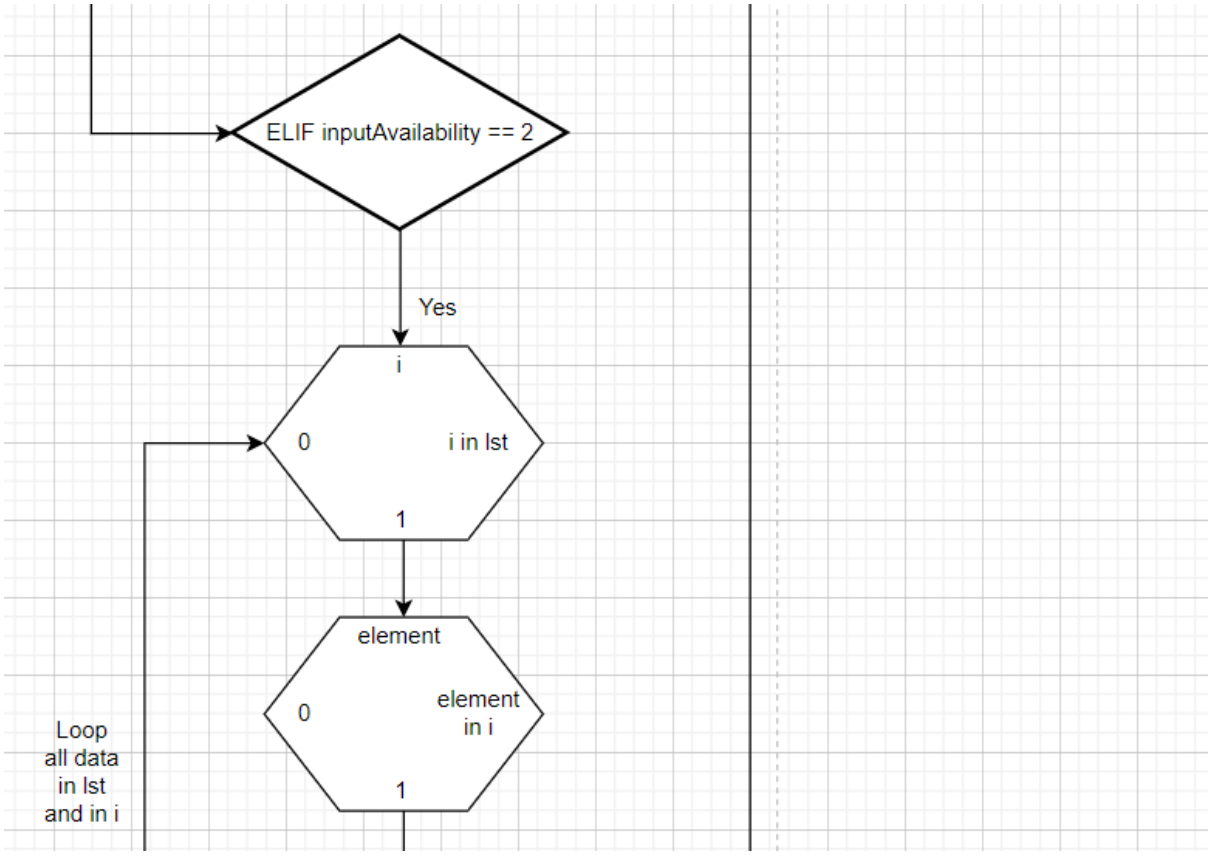

admin()
No
ELIF inputDisplay == 2
Yes
Display 'You are looking car available for rent or car that already rented out? 1 -Available 2 – Rented Out '

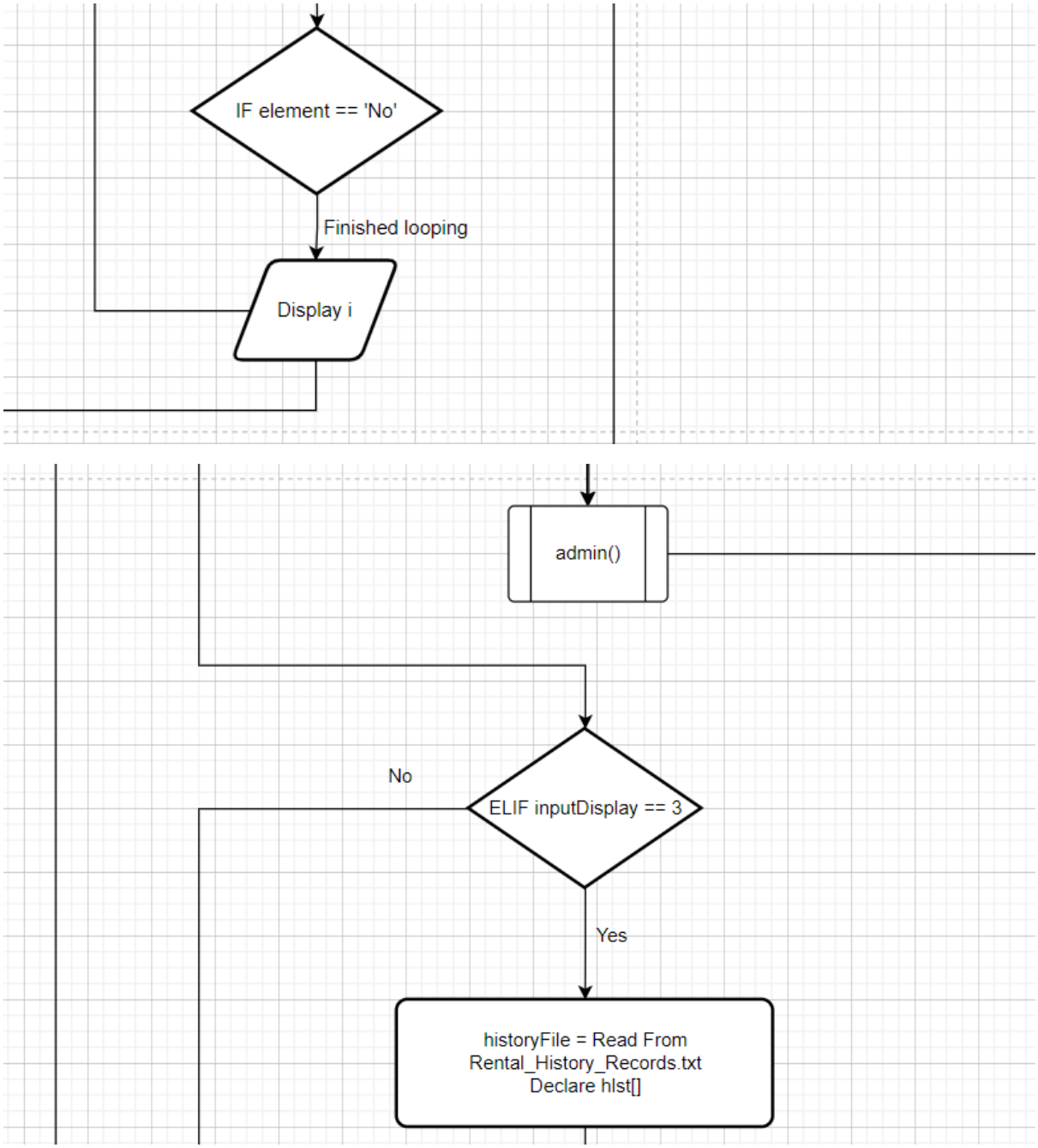

WHILE True
Loop again
Try to run this
Read inputAvailability
continue
ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'
No

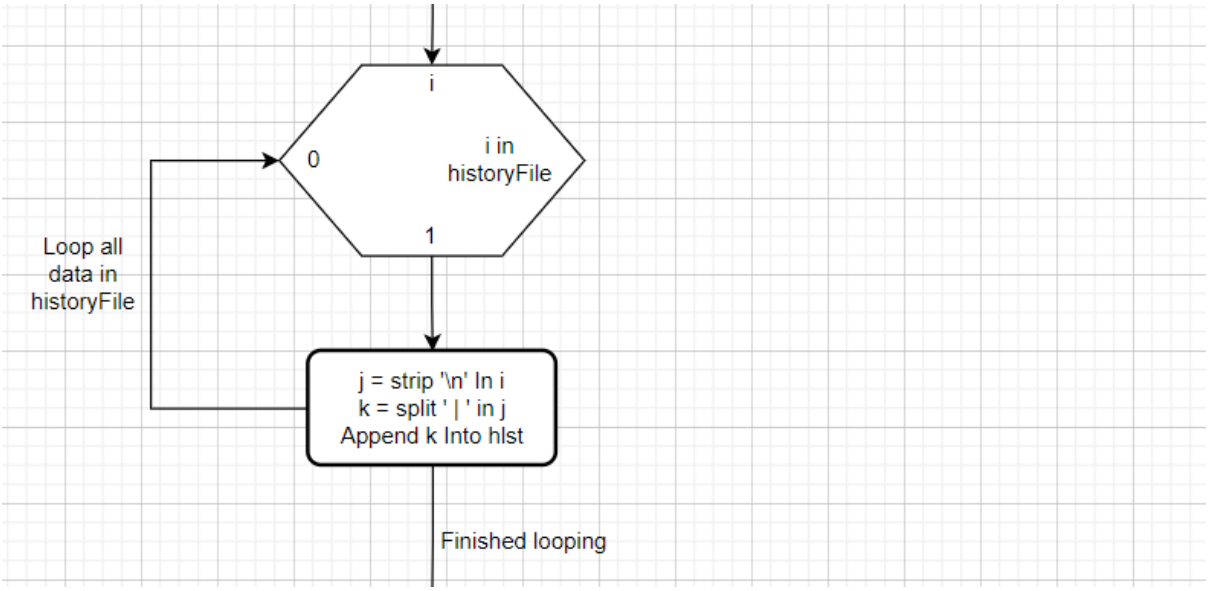

No
IF Length of STRING (inputAvailability) != 1 or INTEGER (inputAvailability) > 2
Yes
Display 'Invalid input. Please retype'
No
INTEGER (inputAvailability) break

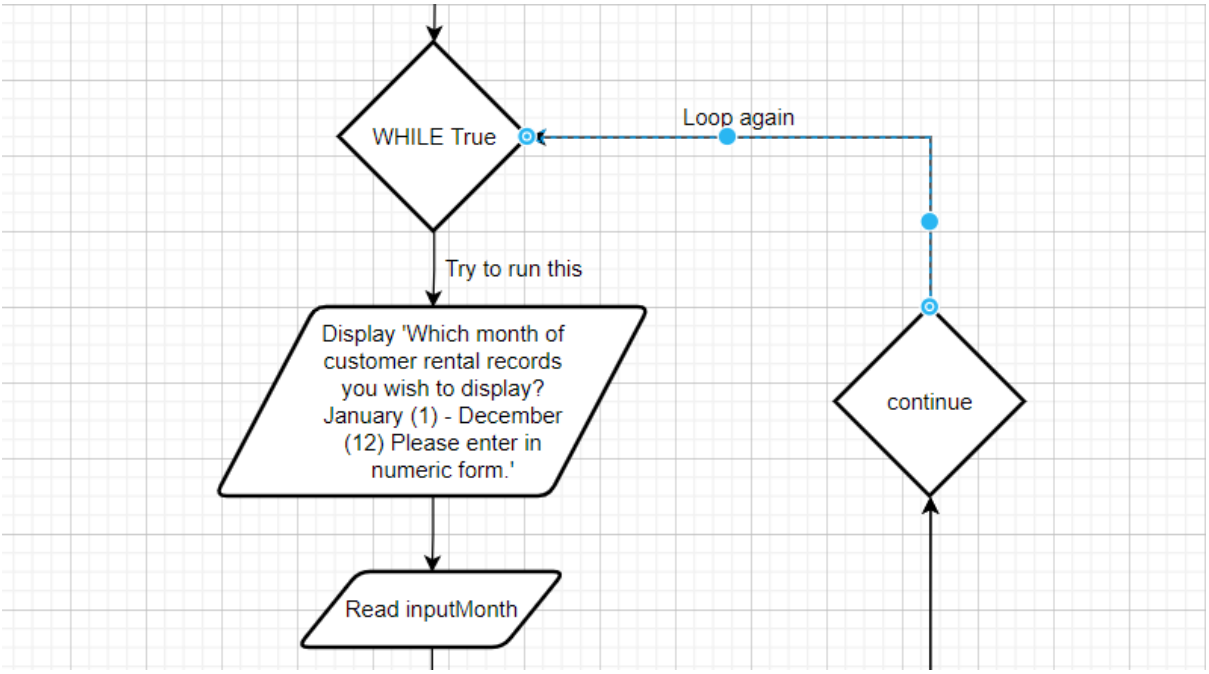

IF inputAvailability == 1
No
Yes
i
0
i in lst
1
element
0
element in i
1
Loop all data in lst and in i

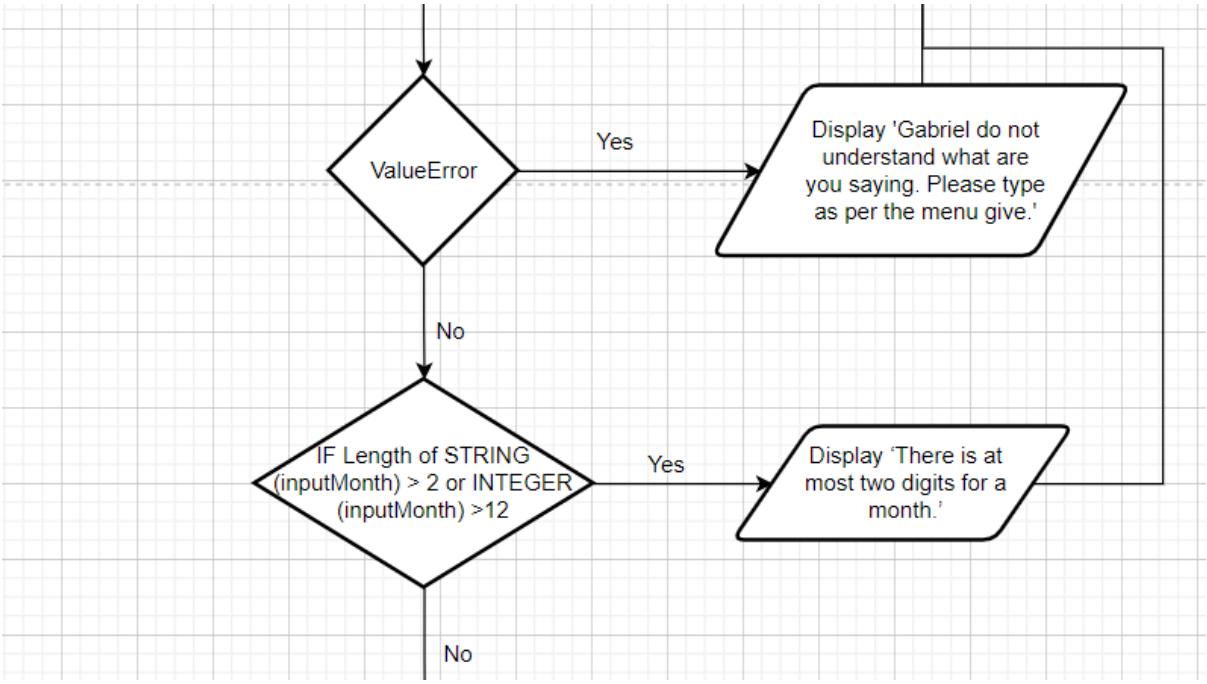

IF element == 'Yes'
Finished looping
Display i

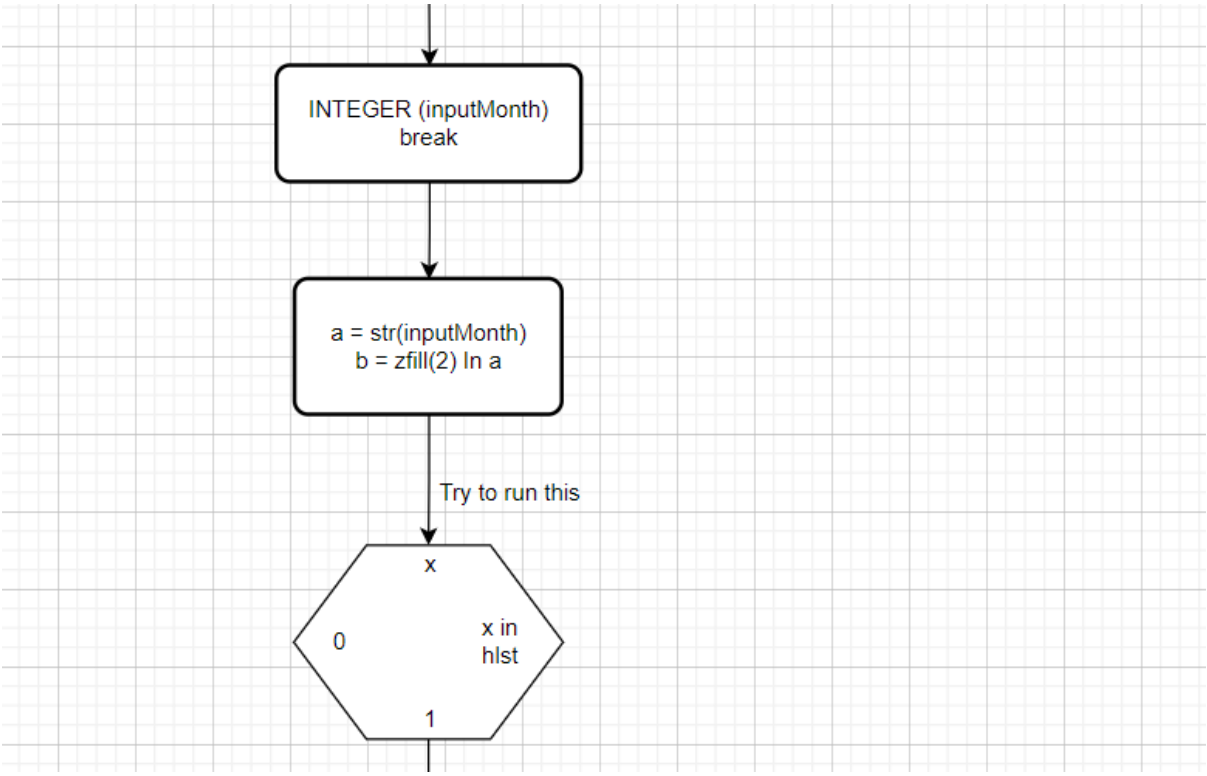

ELIF inputAvailability == 2
Yes
i
0
i in lst
1
element
0
element
in i
1
Loop
all data
in lst
and in i

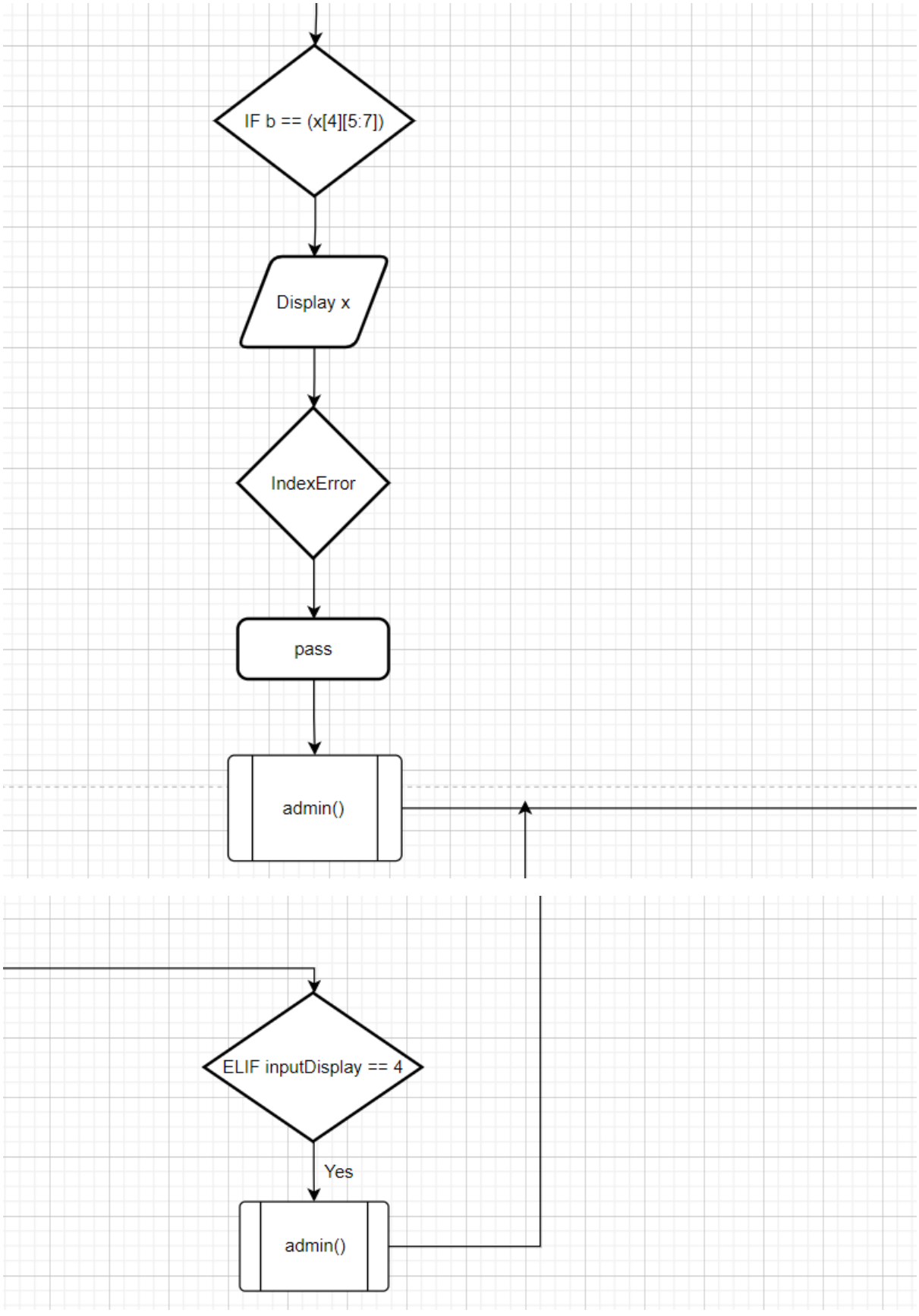

IF element == 'No'
Finished looping
Display i
admin()
No
ELIF inputDisplay == 3
Yes
historyFile = Read From
Rental_History_Records.txt
Declare hlst[]

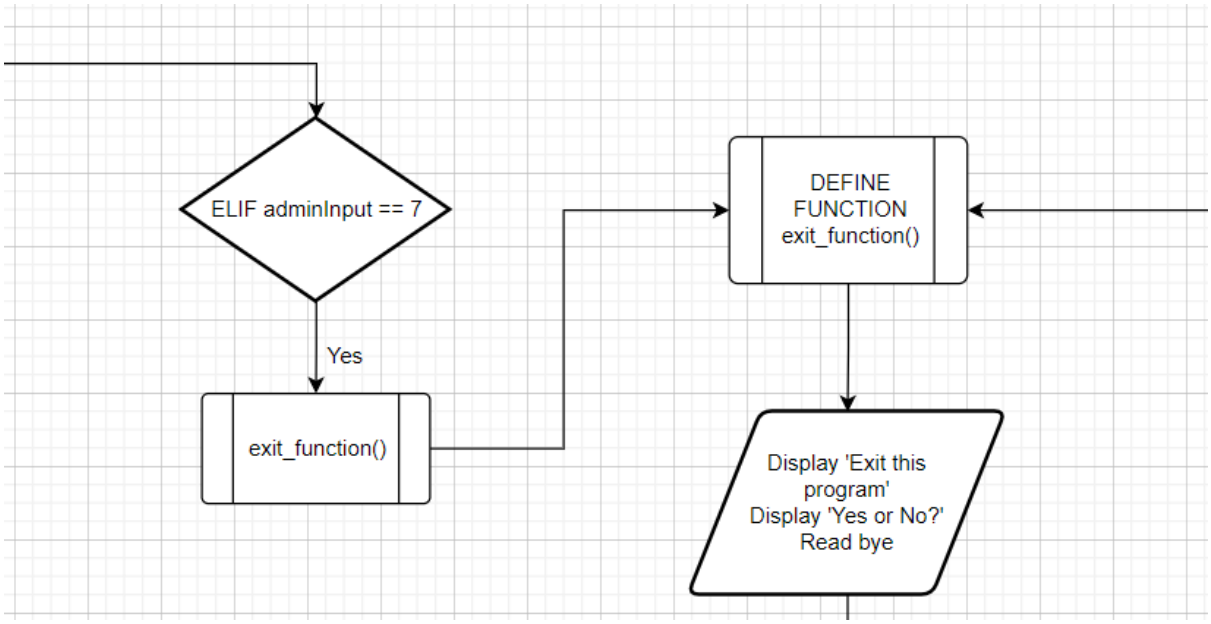

i
0
i in
historyFile
1
Loop all
data in
historyFile
j = strip '\n' In i
k = split ' | ' in j
Append k Into hlst
Finished looping

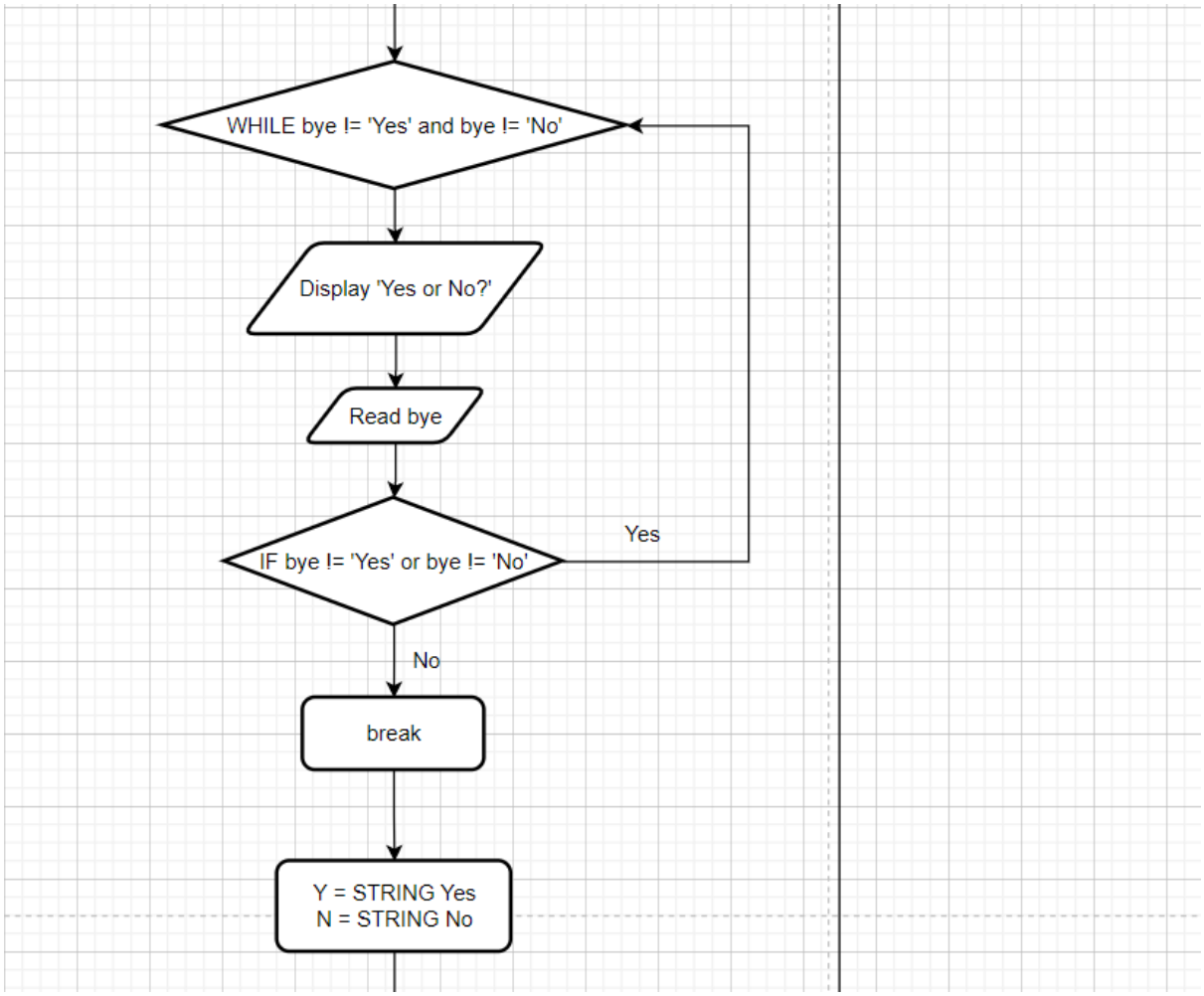

WHILE True
Loop again
Try to run this
Display 'Which month of
customer rental records
you wish to display?
January (1) - December
(12) Please enter in
numeric form.'
continue
Read inputMonth

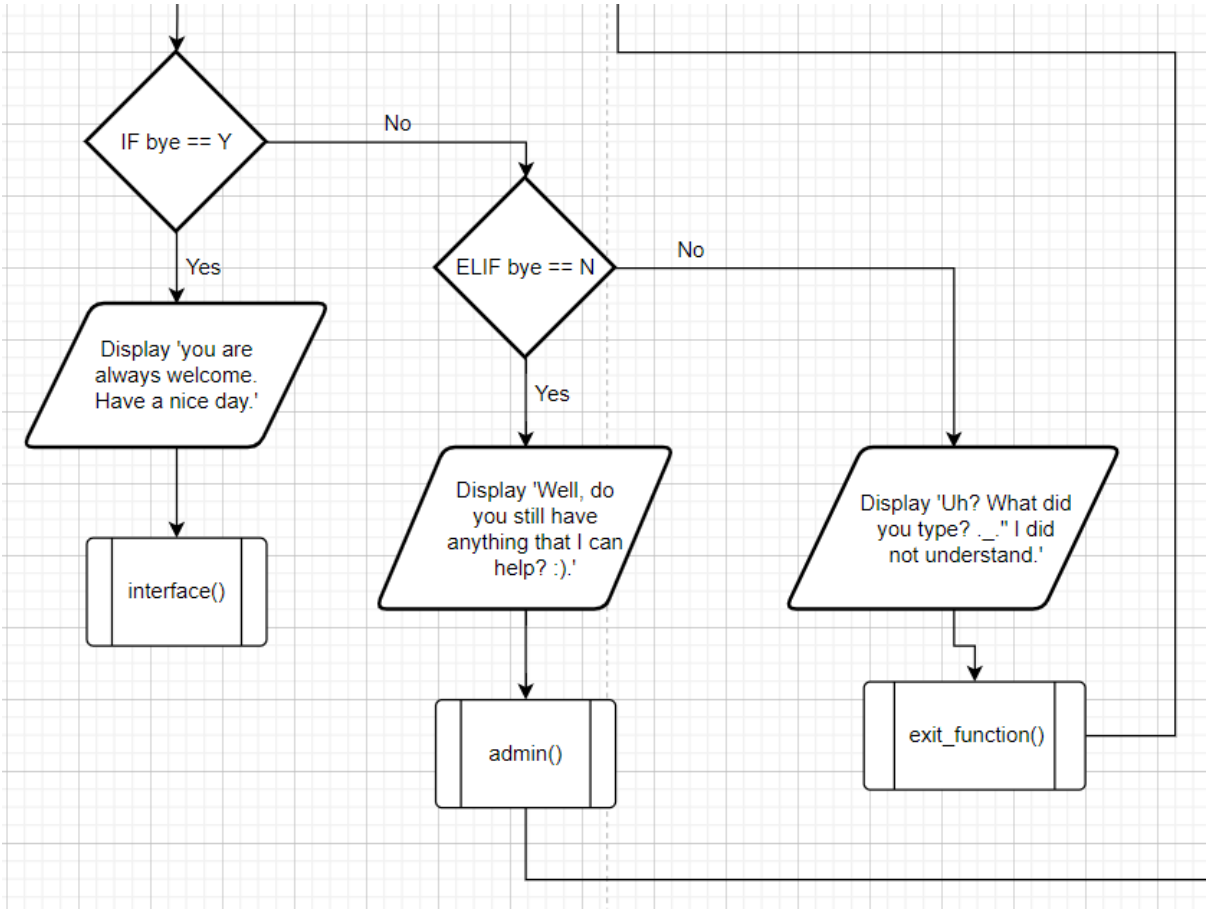

ValueError
Yes
Display 'Gabriel do not understand what are you saying. Please type as per the menu give.'
No
IF Length of STRING (inputMonth) > 2 or INTEGER (inputMonth) >12
Yes
Display 'There is at most two digits for a month.'
No

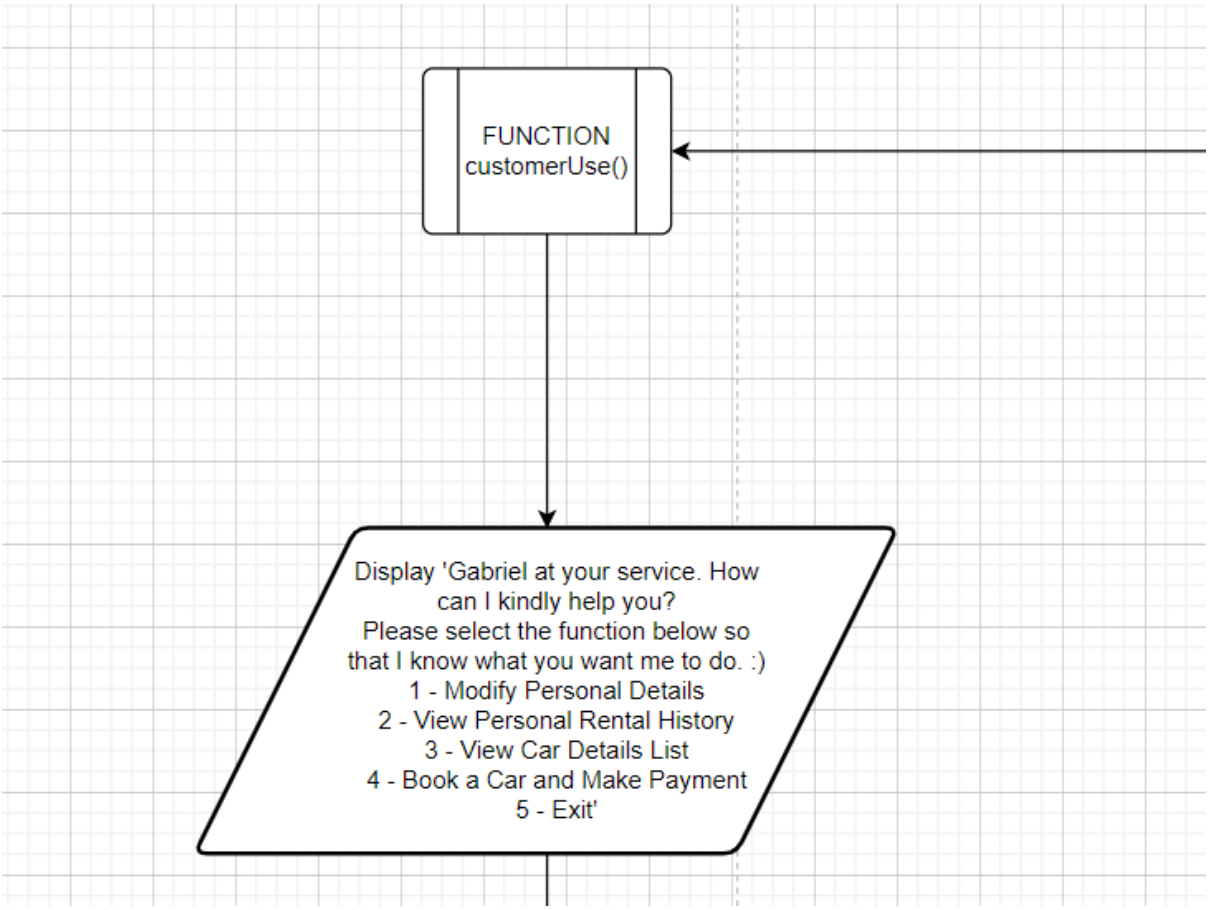

INTEGER (inputMonth)
break
a = str(inputMonth)
b = zfill(2) In a
Try to run this
x
0
x in hlst
1

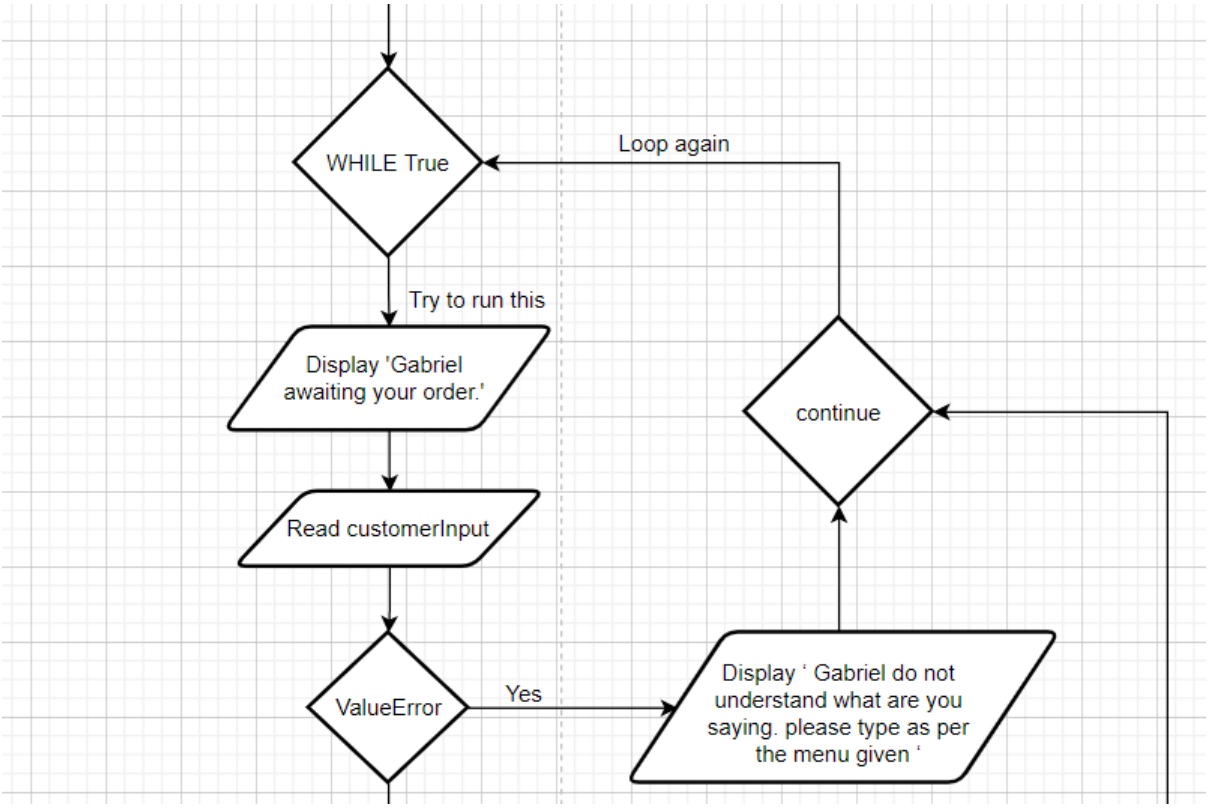

IF b == (x[4][5:7])
Display x
IndexError
pass
admin()
ELIF inputDisplay == 4
Yes
admin()

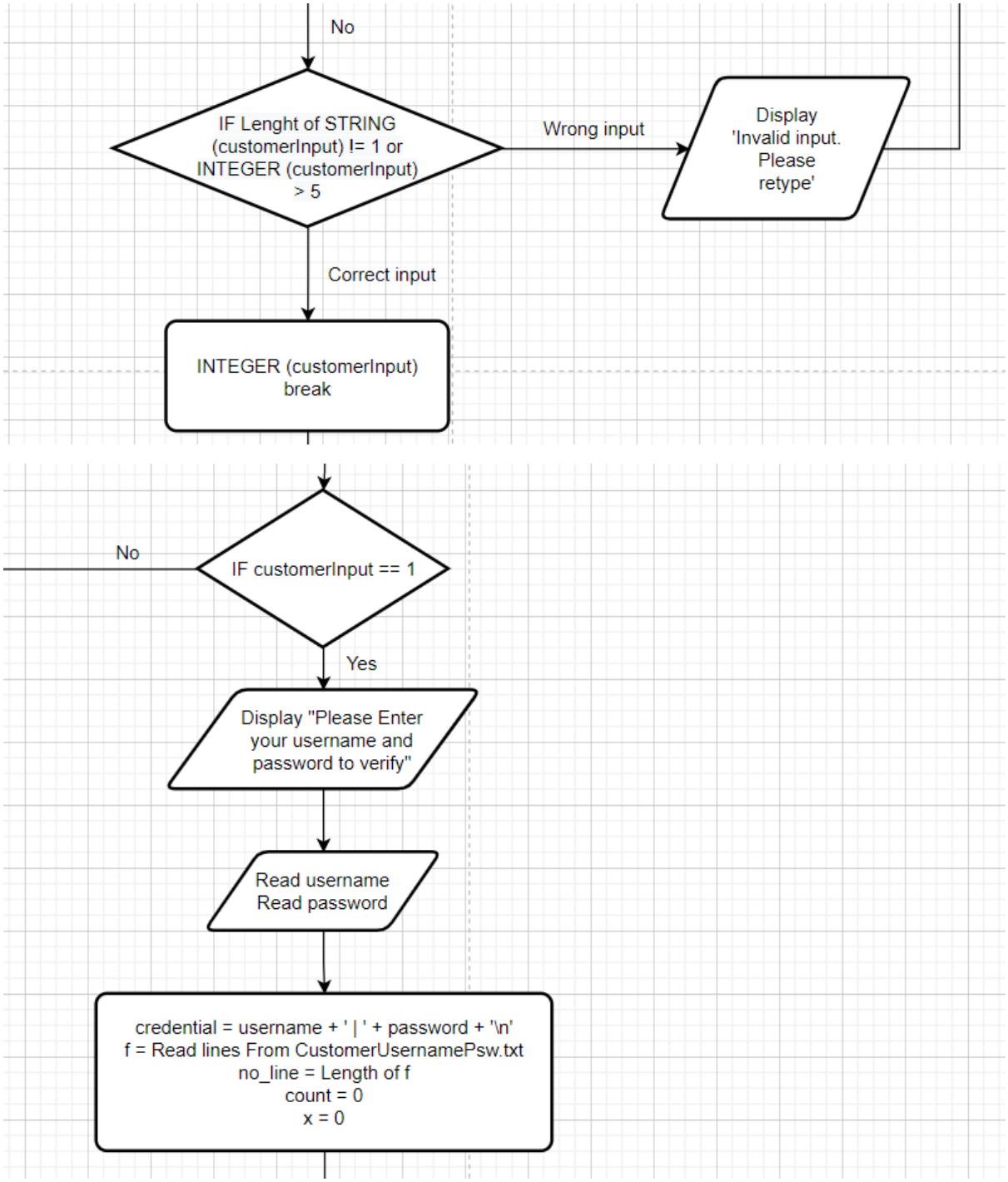

ELIF adminInput == 7
Yes
exit_function()
DEFINE
FUNCTION
exit_function()
Display 'Exit this
program'
Display 'Yes or No?'
Read bye

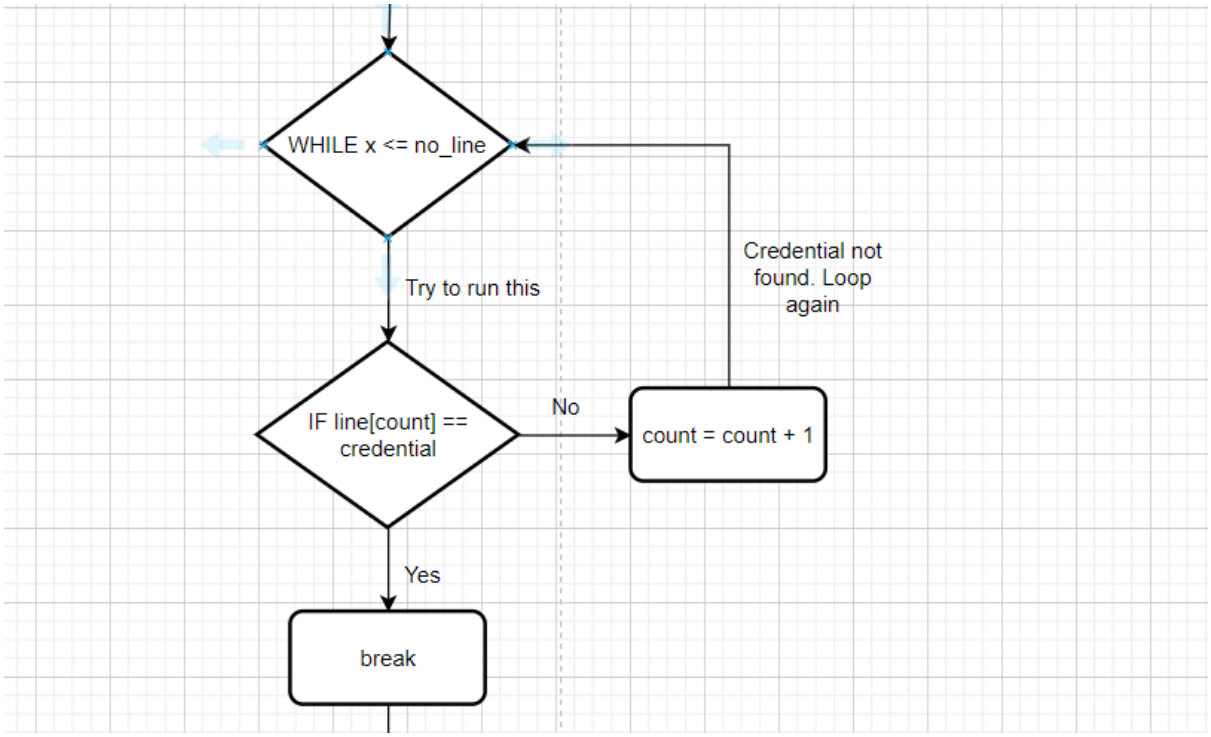

WHILE bye != 'Yes' and bye != 'No'
Display 'Yes or No?'
Read bye
IF bye != 'Yes' or bye != 'No'
Yes
No
break
Y = STRING Yes
N = STRING No

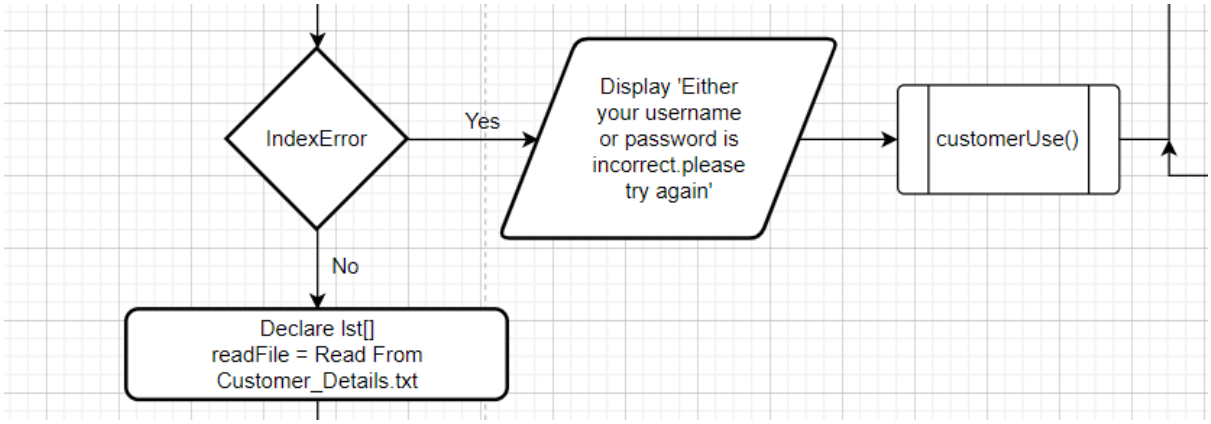

IF bye == Y
No
Yes
ELIF bye == N
No
Yes
Display 'you are always welcome. Have a nice day.'
interface()
Display 'Well, do you still have anything that I can help? :).'
admin()
Display 'Uh? What did you type? ._." I did not understand.'
exit_function()

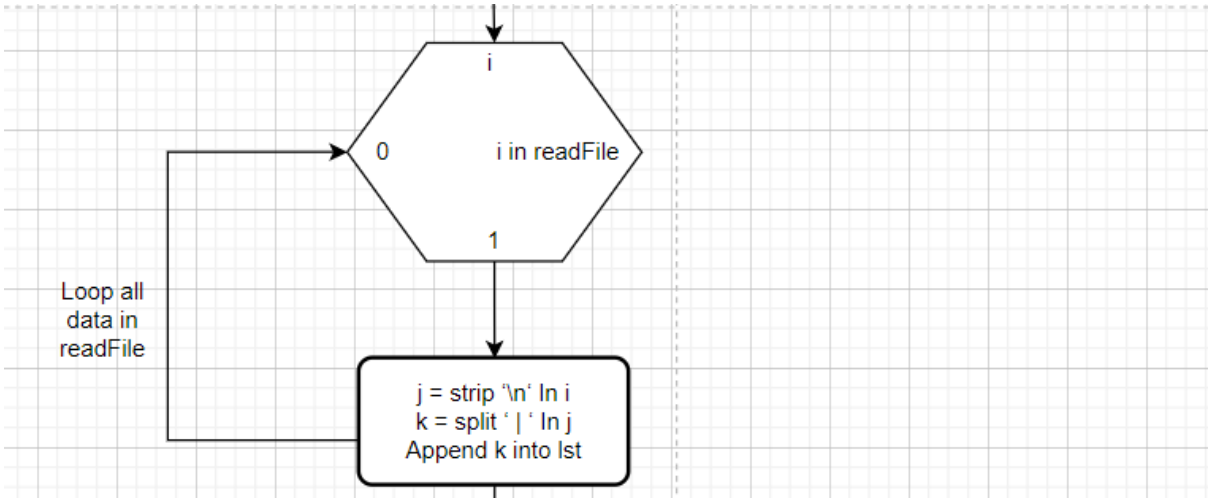

FUNCTION
customerUse()
Display 'Gabriel at your service. How
can I kindly help you?
Please select the function below so
that I know what you want me to do. :)
1 - Modify Personal Details
2 - View Personal Rental History
3 - View Car Details List
4 - Book a Car and Make Payment
5 - Exit'

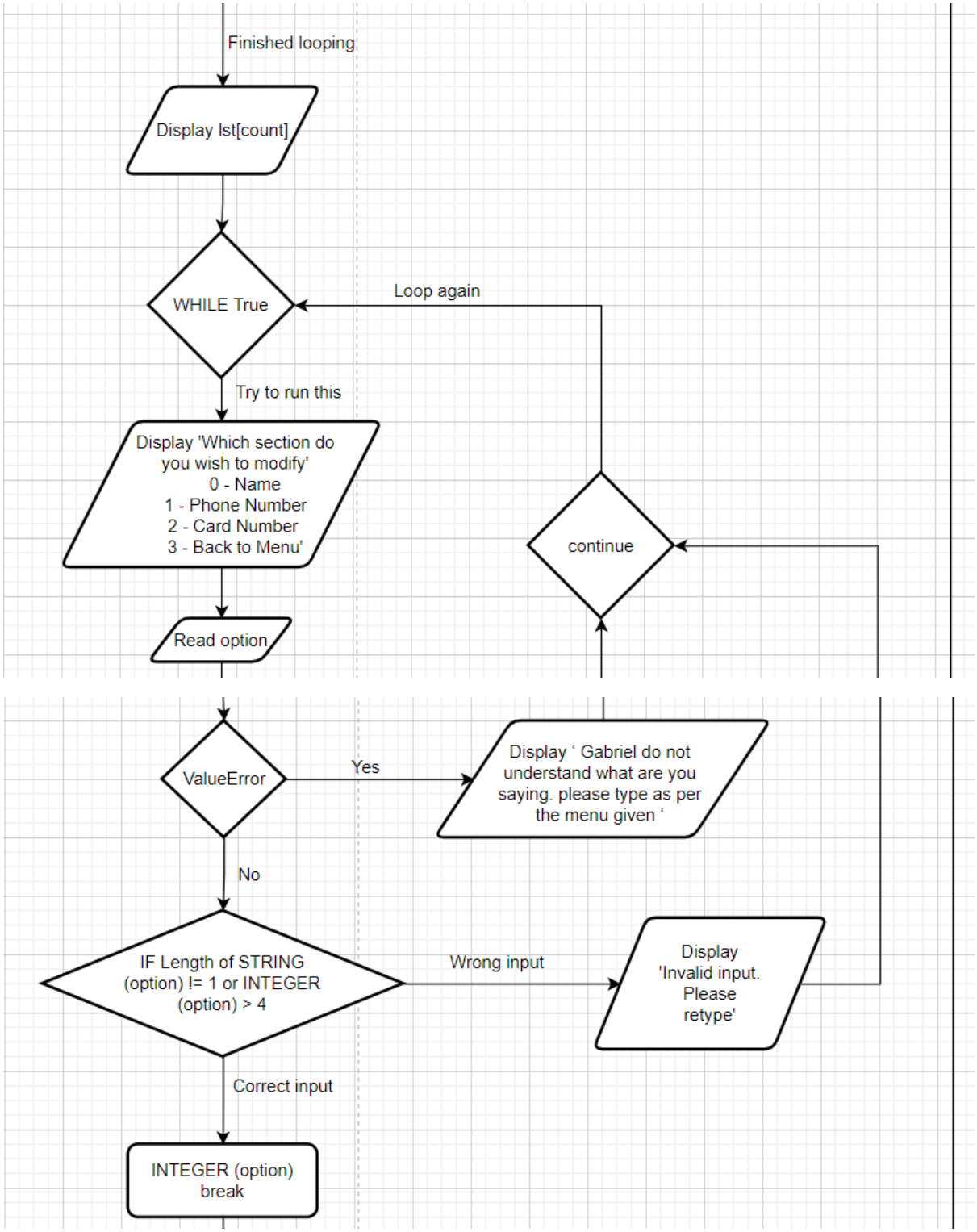

WHILE True
Loop again
Try to run this
Display 'Gabriel
awaiting your order.'
Read customerInput
ValueError
Yes
Display ' Gabriel do not
understand what are you
saying. please type as per
the menu given '
continue

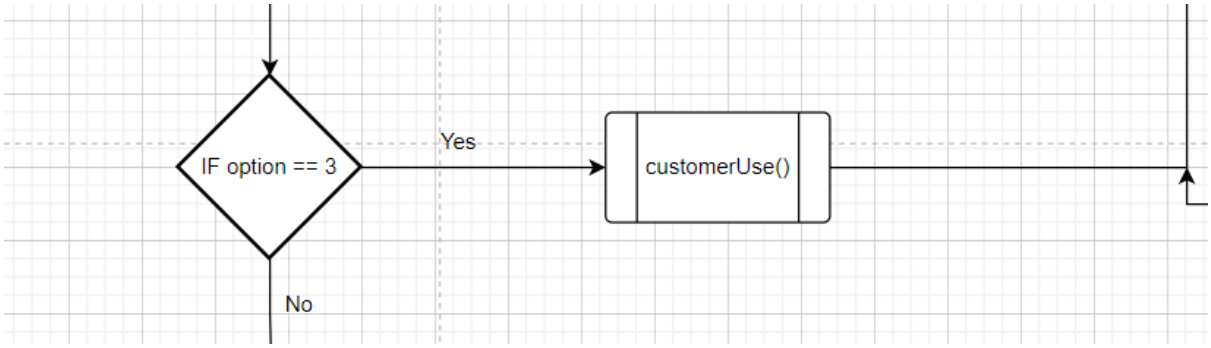

No
IF Lenght of STRING (customerInput) != 1 or INTEGER (customerInput) > 5
Wrong input
Display 'Invalid input. Please retype'
Correct input
INTEGER (customerInput)
break
No
IF customerInput == 1
Yes
Display "Please Enter your username and password to verify"
Read username
Read password
credential = username + ' | ' + password + '\n'
f = Read lines From CustomerUsernamePsw.txt
no_line = Length of f
count = 0
x = 0

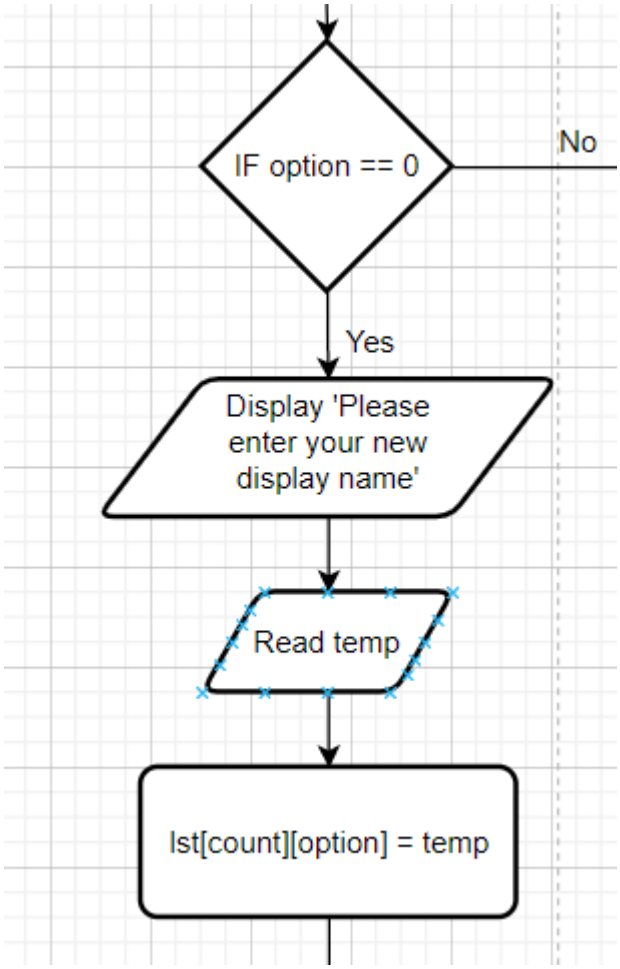

WHILE x <= no_line
Try to run this
Credential not found. Loop again
IF line[count] == credential
No
count = count + 1
Yes
break

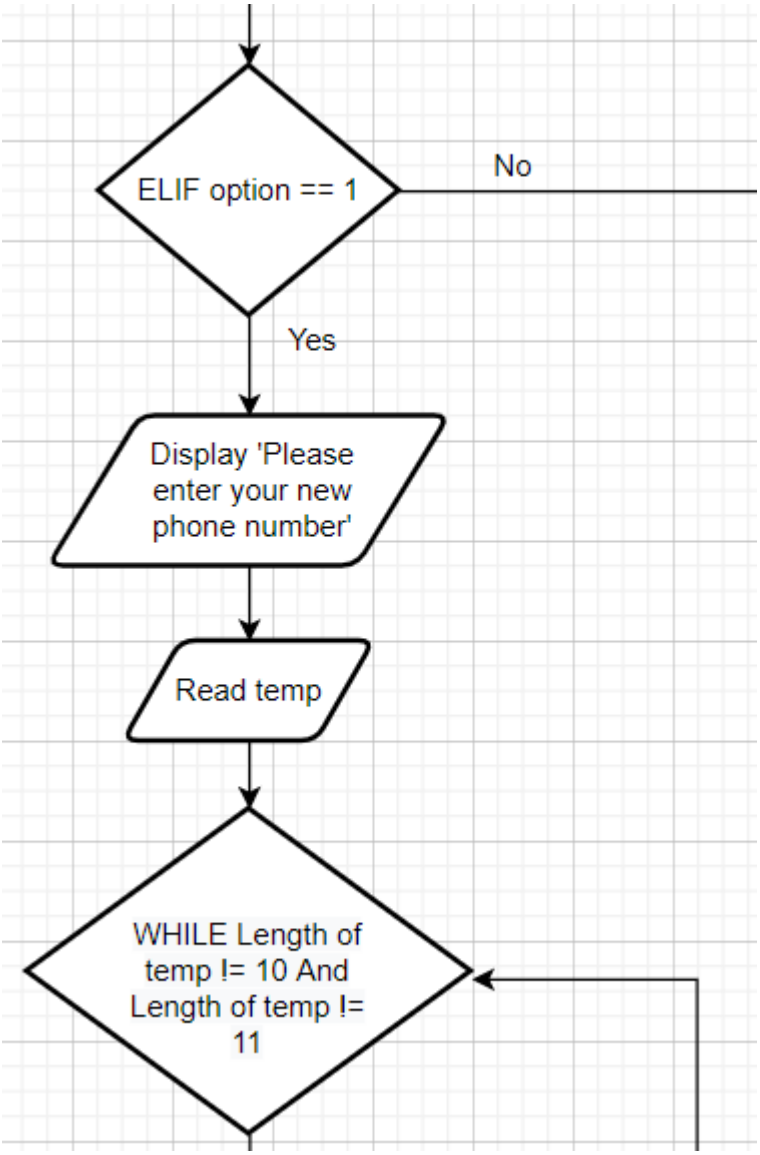

IndexError
Yes
Display 'Either your username or password is incorrect.please try again'
customerUse()
No
Declare lst[]
readFile = Read From Customer_Details.txt

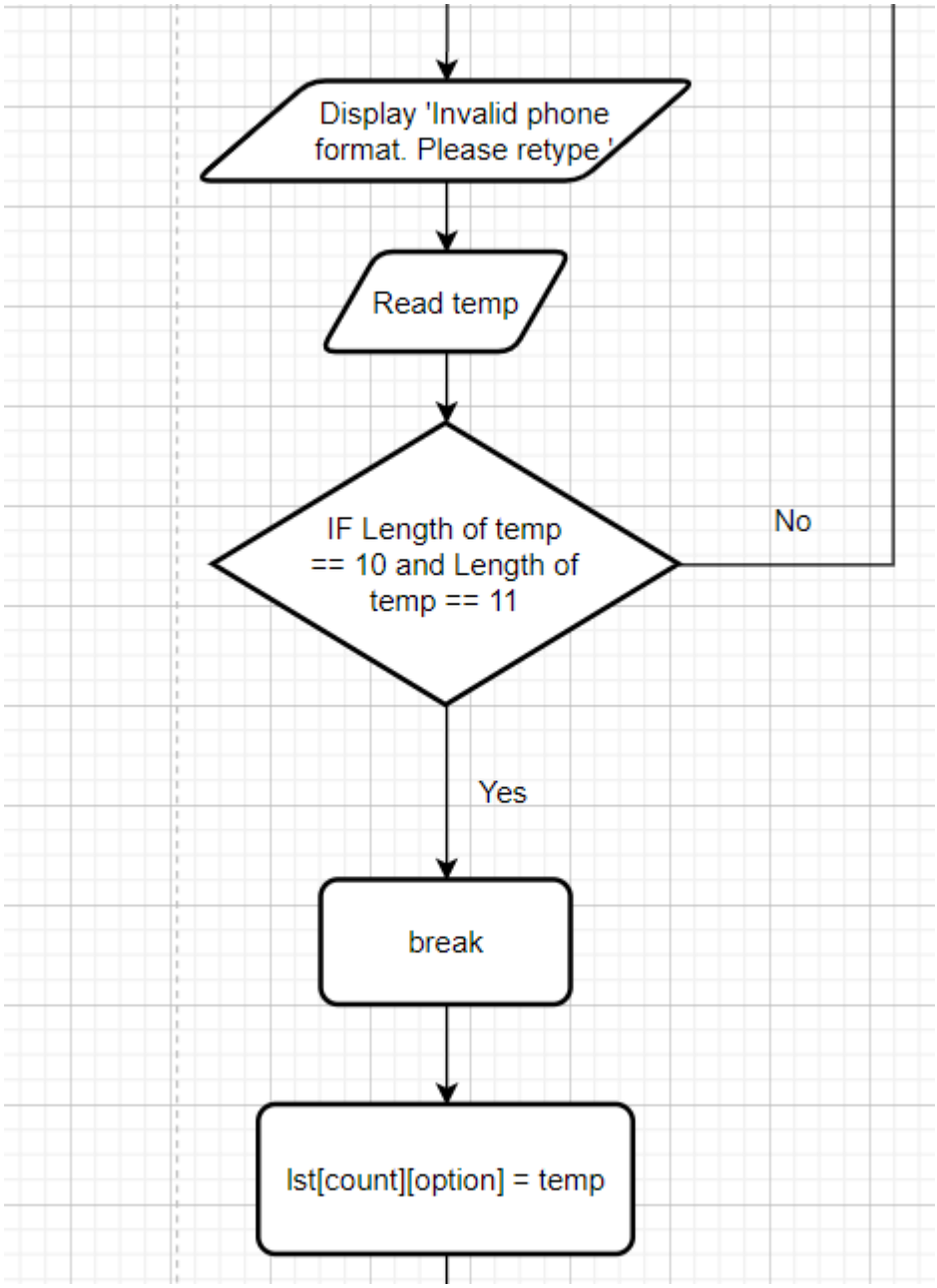

i
0
i in readFile
1
Loop all data in readFile
j = strip '\n' In i
k = split ' | ' In j
Append k into lst

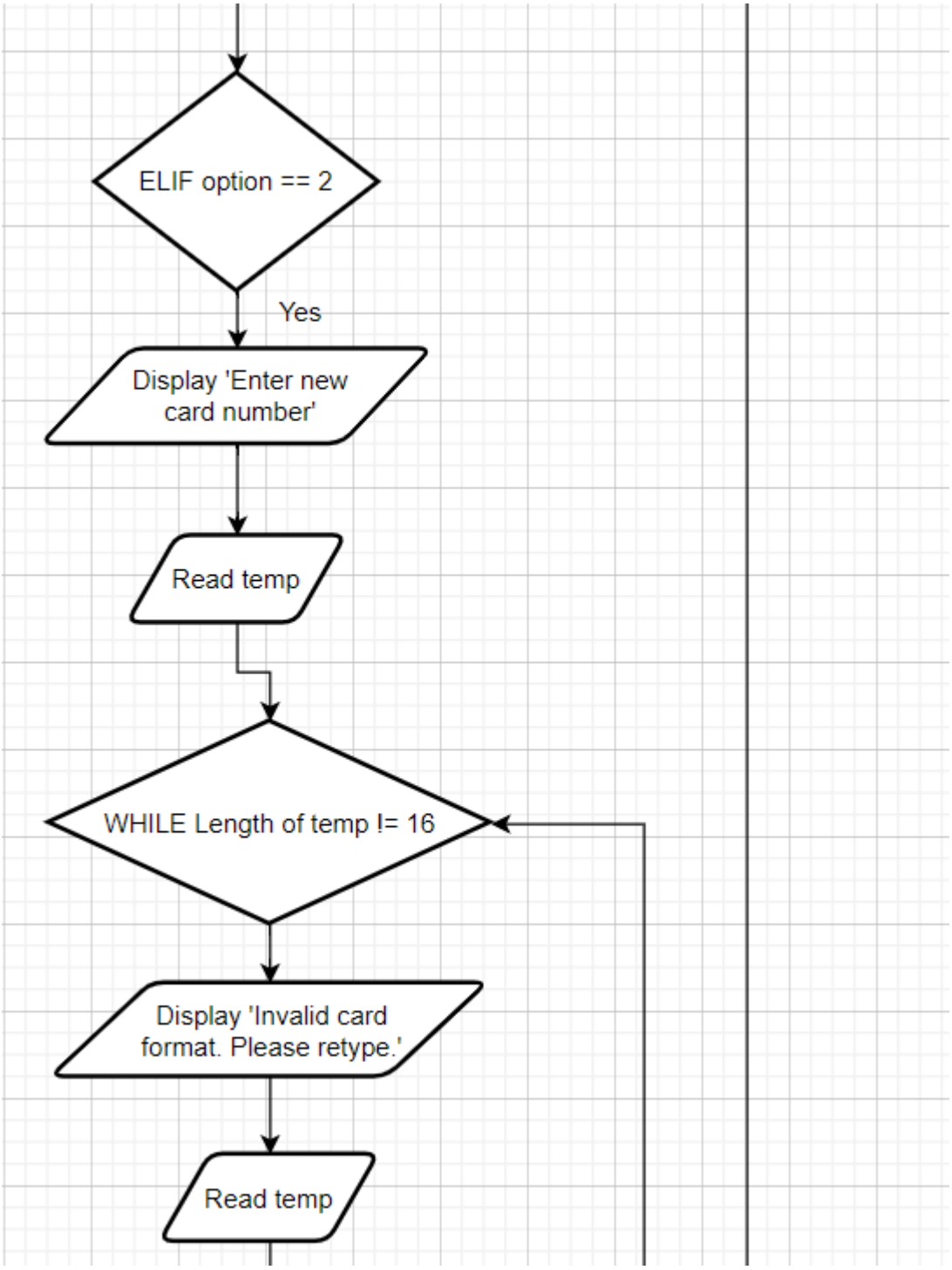

Finished looping
Display lst[count]
WHILE True
Loop again
Try to run this
Display 'Which section do you wish to modify'
0 - Name
1 - Phone Number
2 - Card Number
3 - Back to Menu'
Read option
continue
ValueError
Yes
Display ' Gabriel do not understand what are you saying. please type as per the menu given '
No
IF Length of STRING (option) != 1 or INTEGER (option) > 4
Wrong input
Display 'Invalid input. Please retype'
Correct input
INTEGER (option)
break

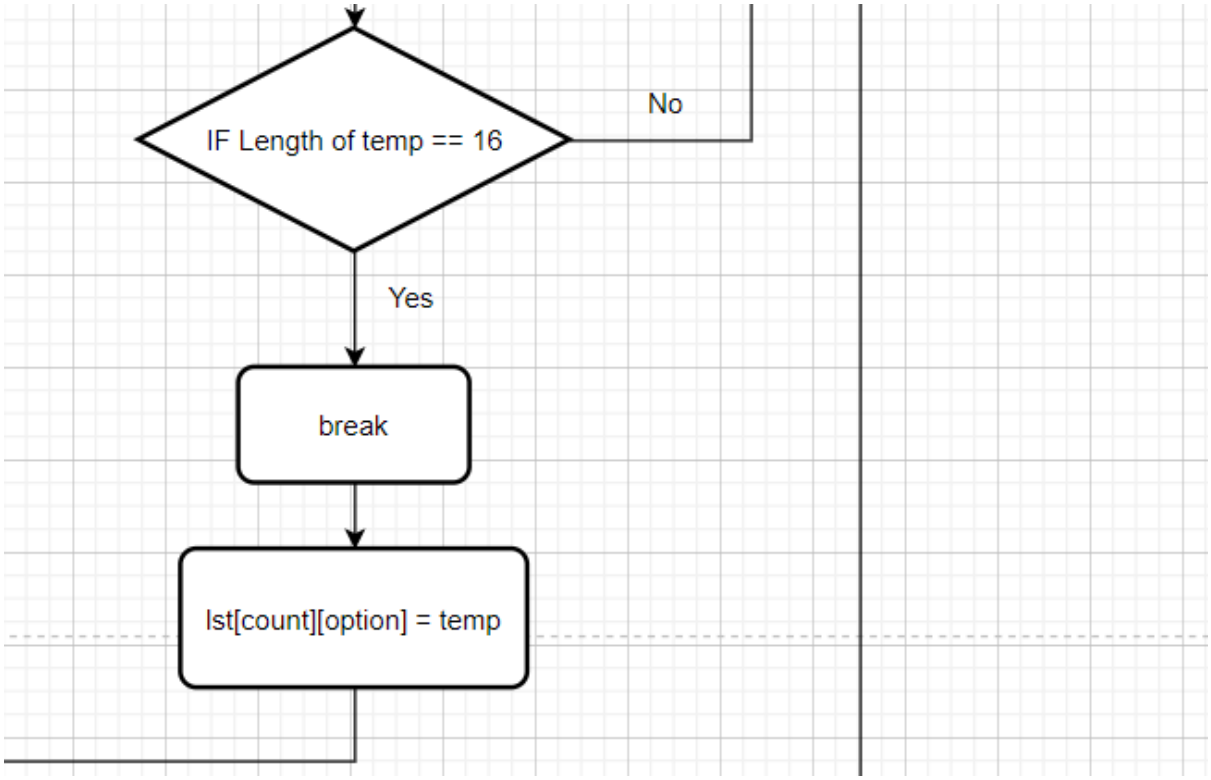

IF option == 3
Yes
customerUse()
No

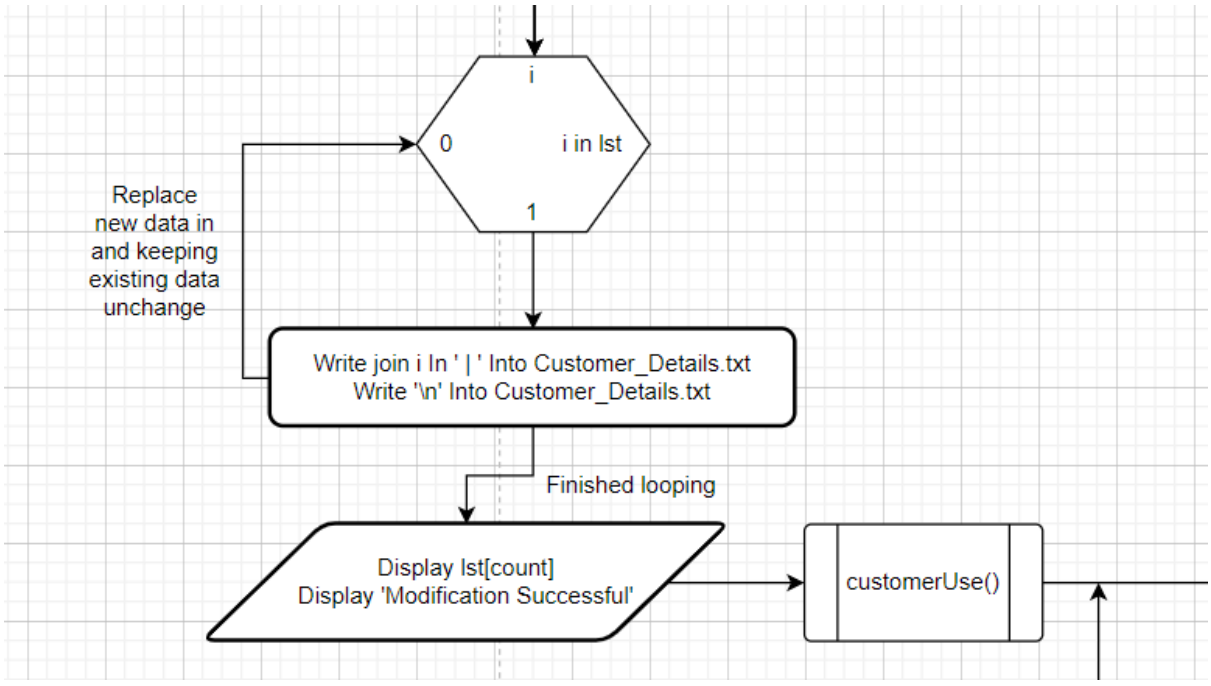

IF option == 0
No
Yes
Display 'Please enter your new display name'
Read temp
lst[count][option] = temp

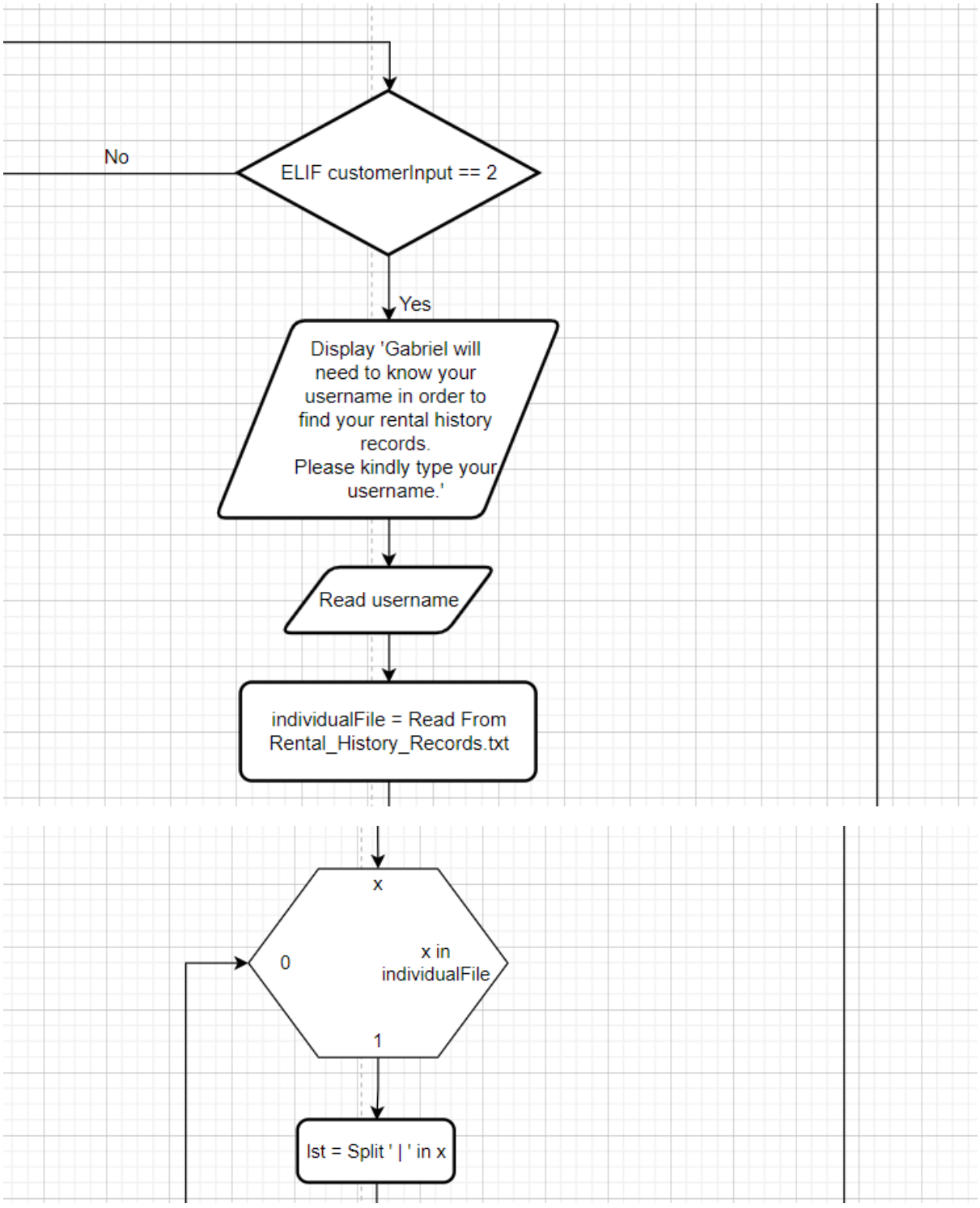

ELIF option == 1
No
Yes
Display 'Please enter your new phone number'
Read temp
WHILE Length of temp != 10 And Length of temp != 11

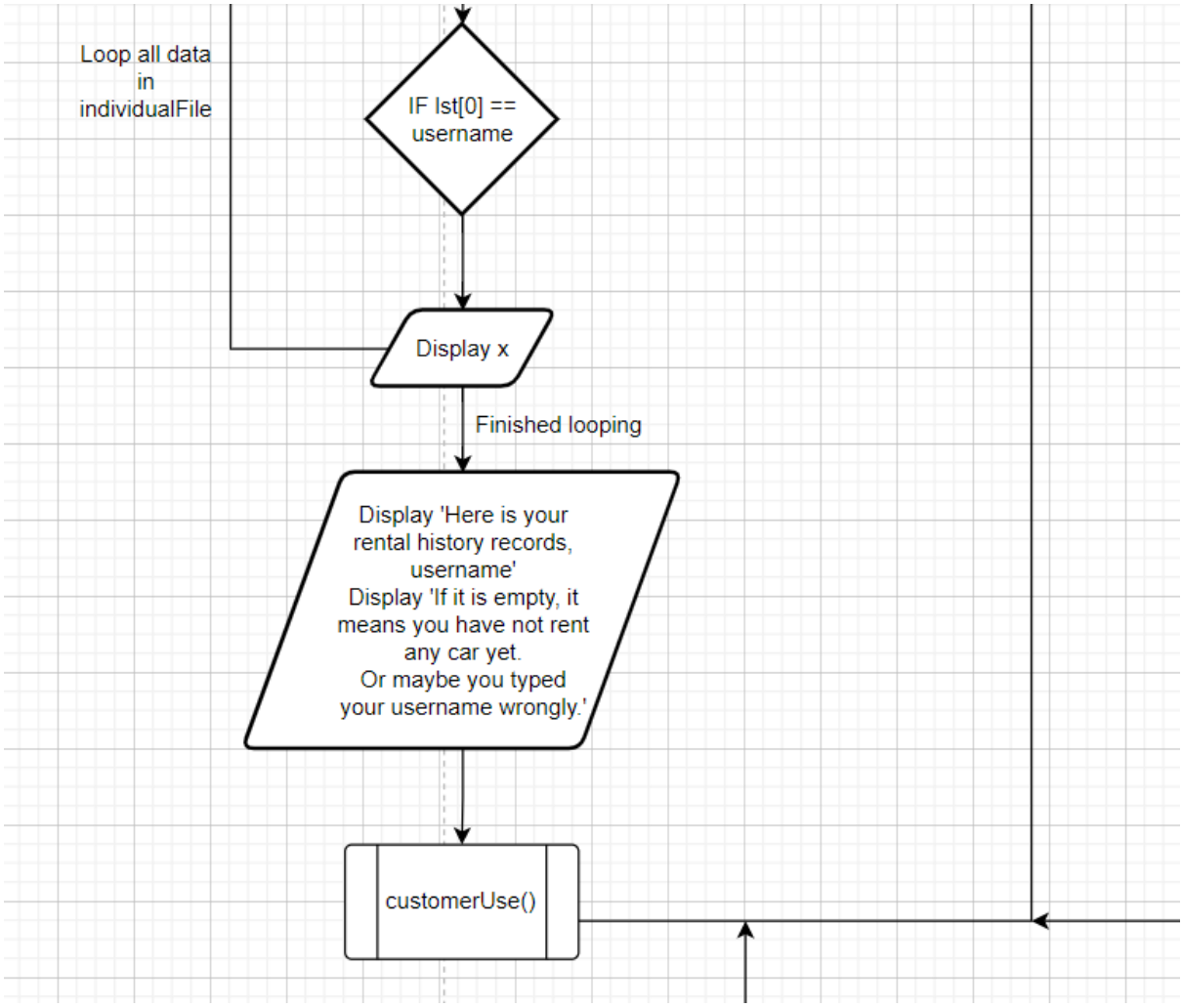

Display 'Invalid phone format. Please retype.'
Read temp
IF Length of temp == 10 and Length of temp == 11
No
Yes
break
lst[count][option] = temp

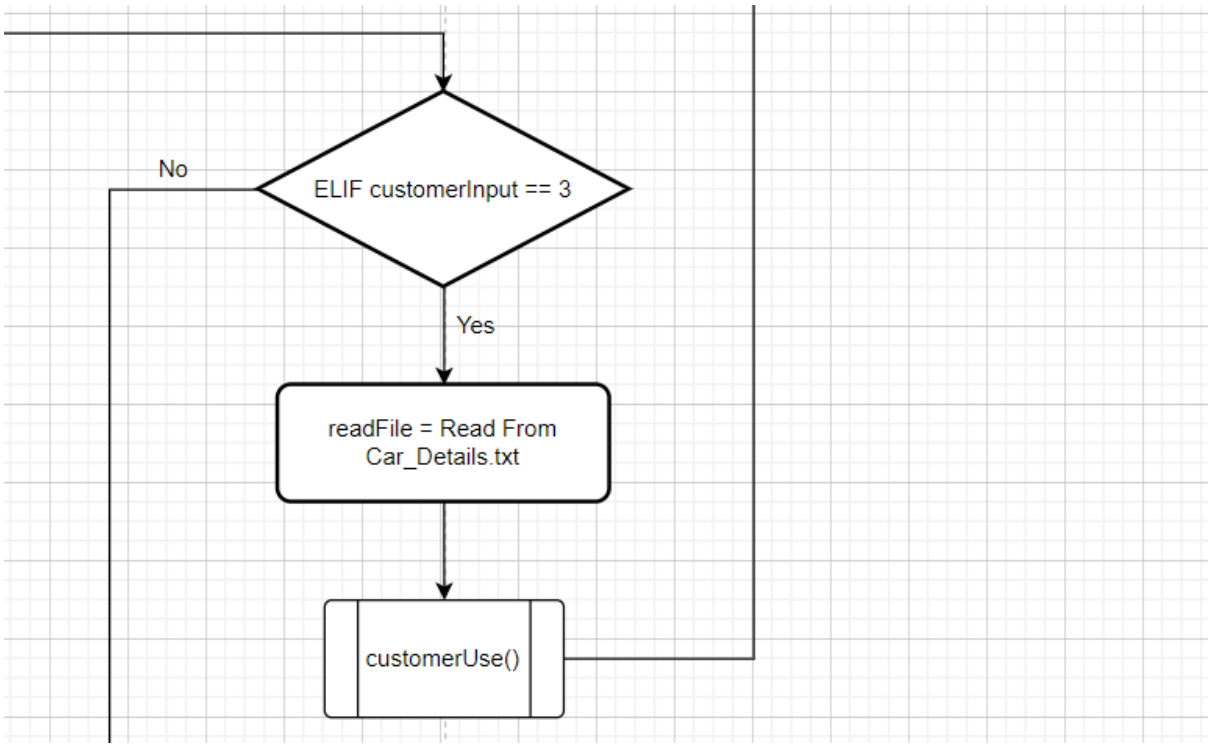

ELIF option == 2
Yes
Display 'Enter new card number'
Read temp
WHILE Length of temp != 16
Display 'Invalid card format. Please retype.'
Read temp

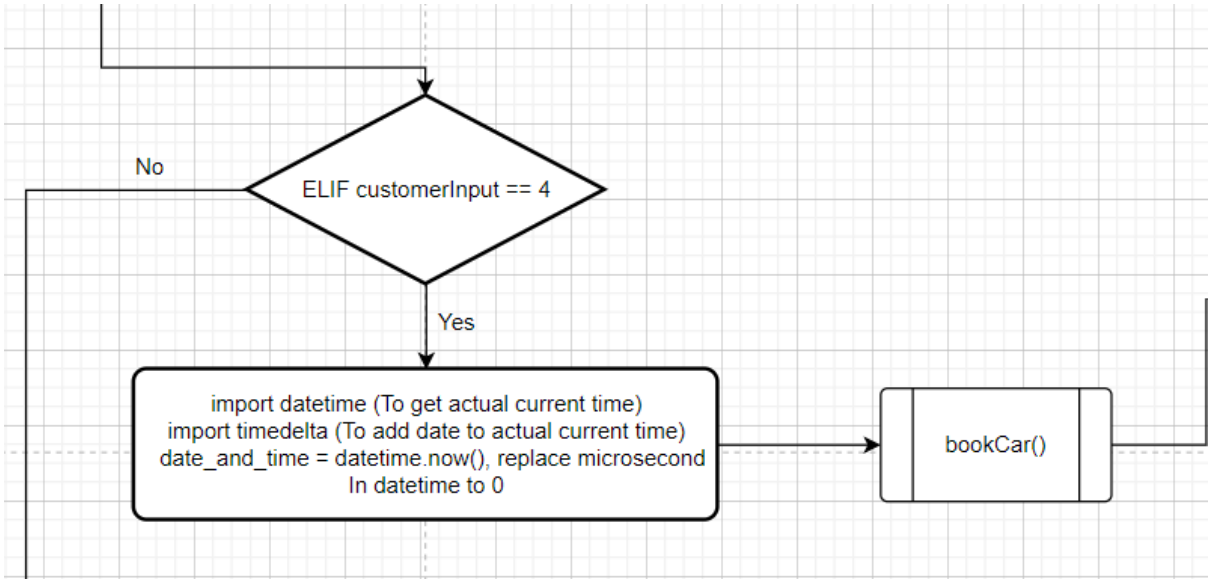

IF Length of temp == 16
No
Yes
break
lst[count][option] = temp

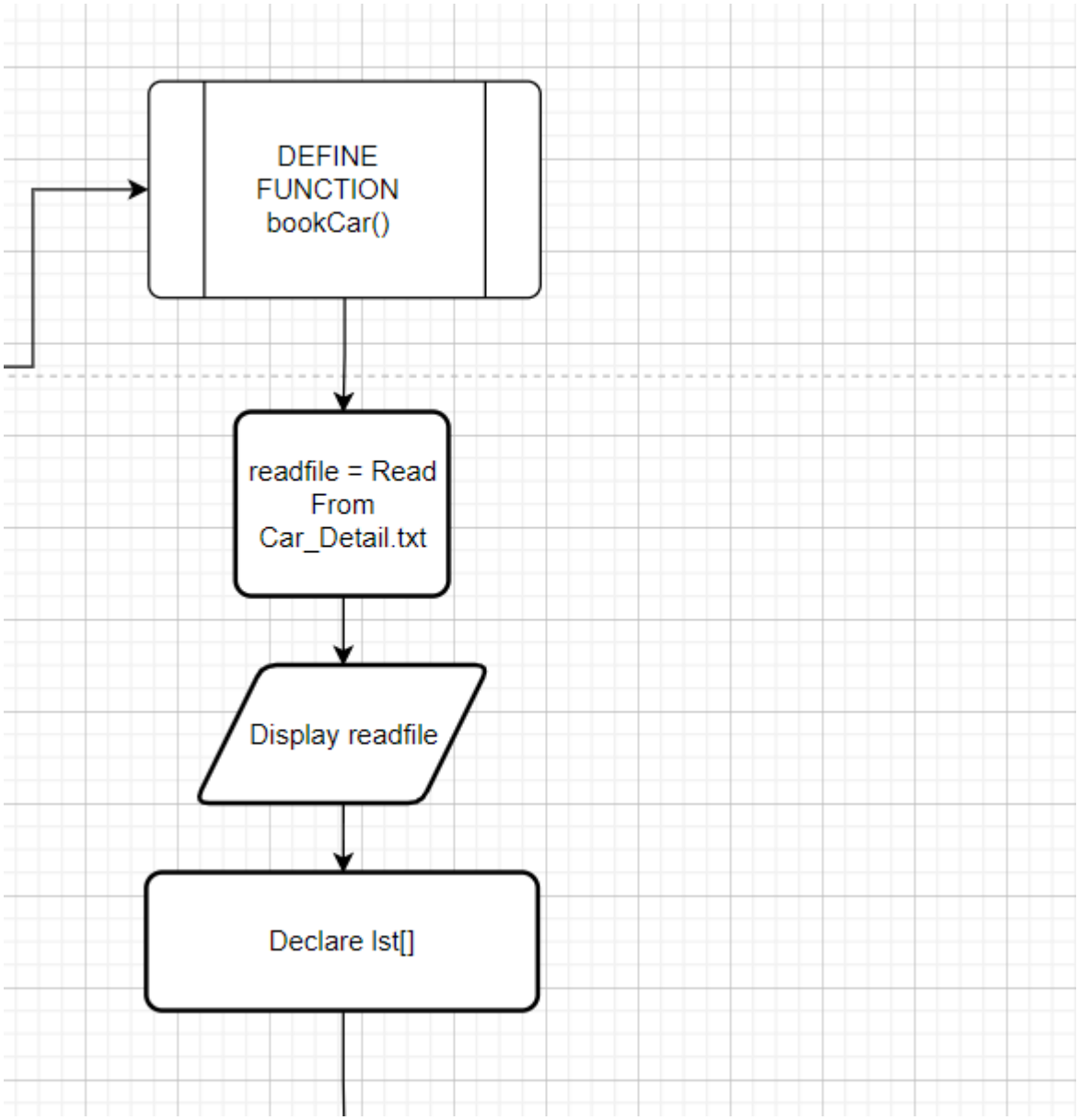

i
0
i in lst
1
Replace new data in and keeping existing data unchange
Write join i In ' | ' Into Customer_Details.txt
Write '\n' Into Customer_Details.txt
Finished looping
Display lst[count]
Display 'Modification Successful'
customerUse()

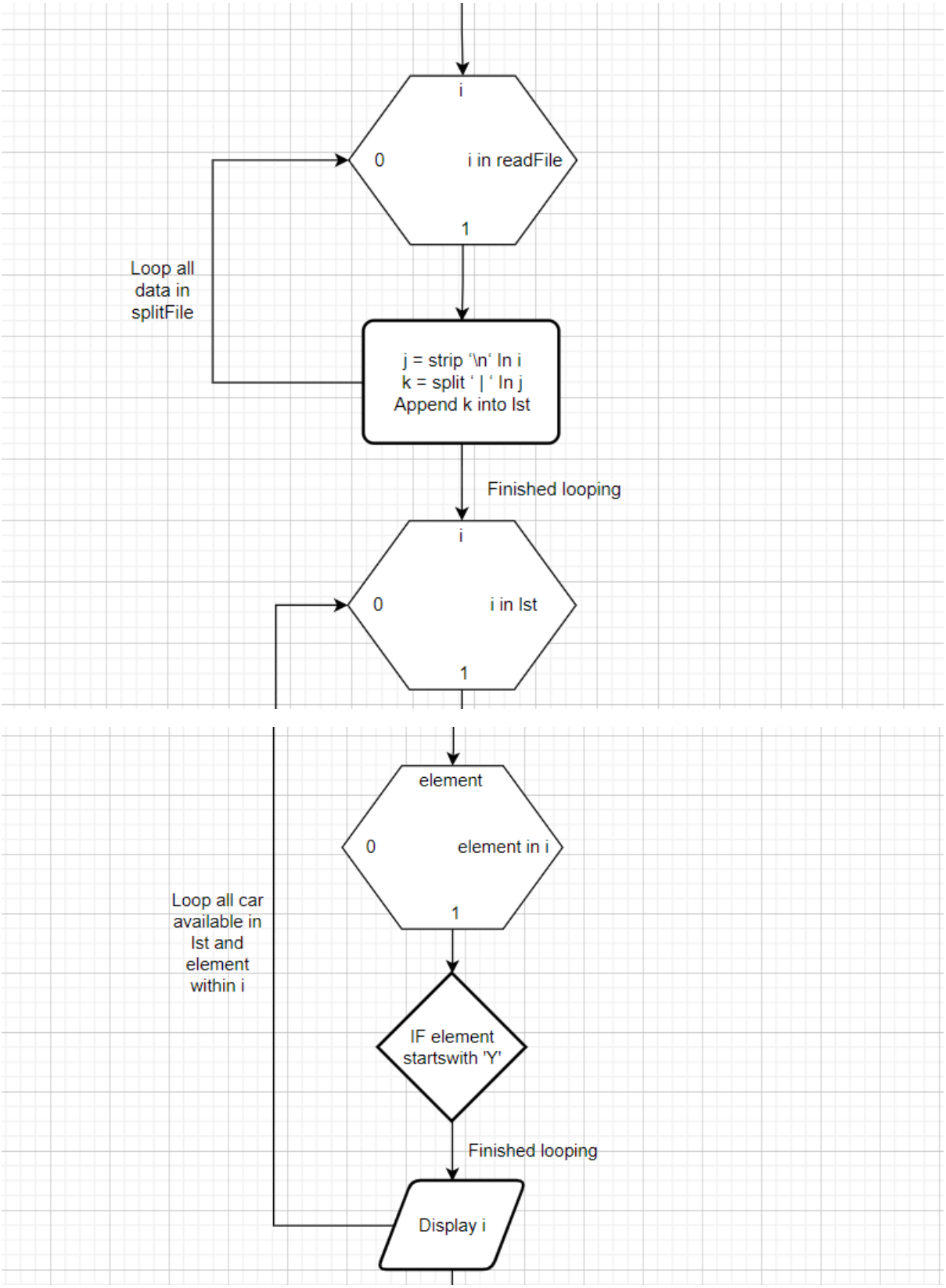

No
ELIF customerInput == 2
Yes
Display 'Gabriel will need to know your username in order to find your rental history records.
Please kindly type your username.'
Read username
individualFile = Read From Rental_History_Records.txt
x
0
x in individualFile
1
lst = Split ' | ' in x

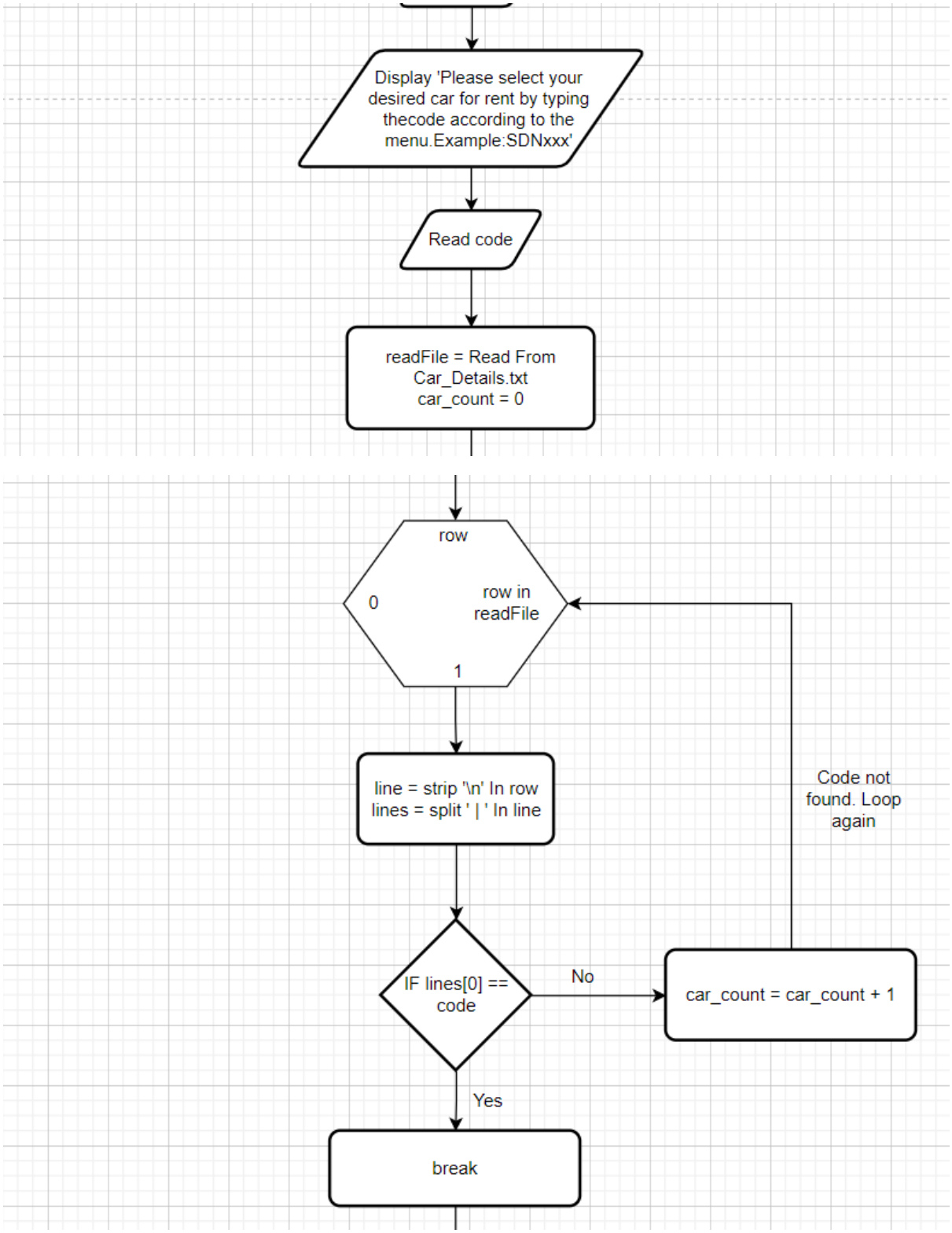

Loop all data in individualFile
IF lst[0] == username
Display x
Finished looping
Display 'Here is your rental history records, username'
Display 'If it is empty, it means you have not rent any car yet.
Or maybe you typed your username wrongly.'
customerUse()

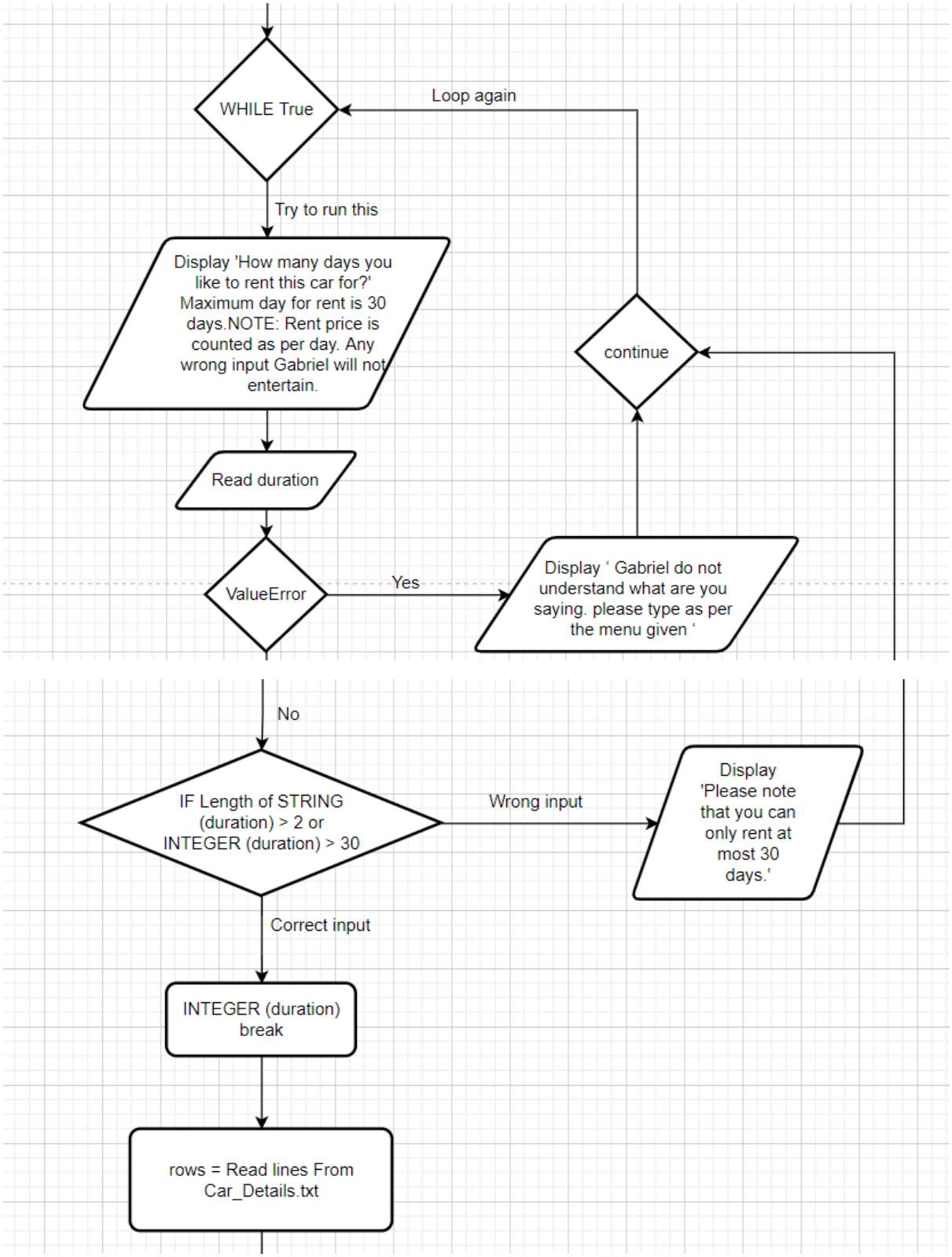

No
ELIF customerInput == 3
Yes
readFile = Read From Car_Details.txt
customerUse()

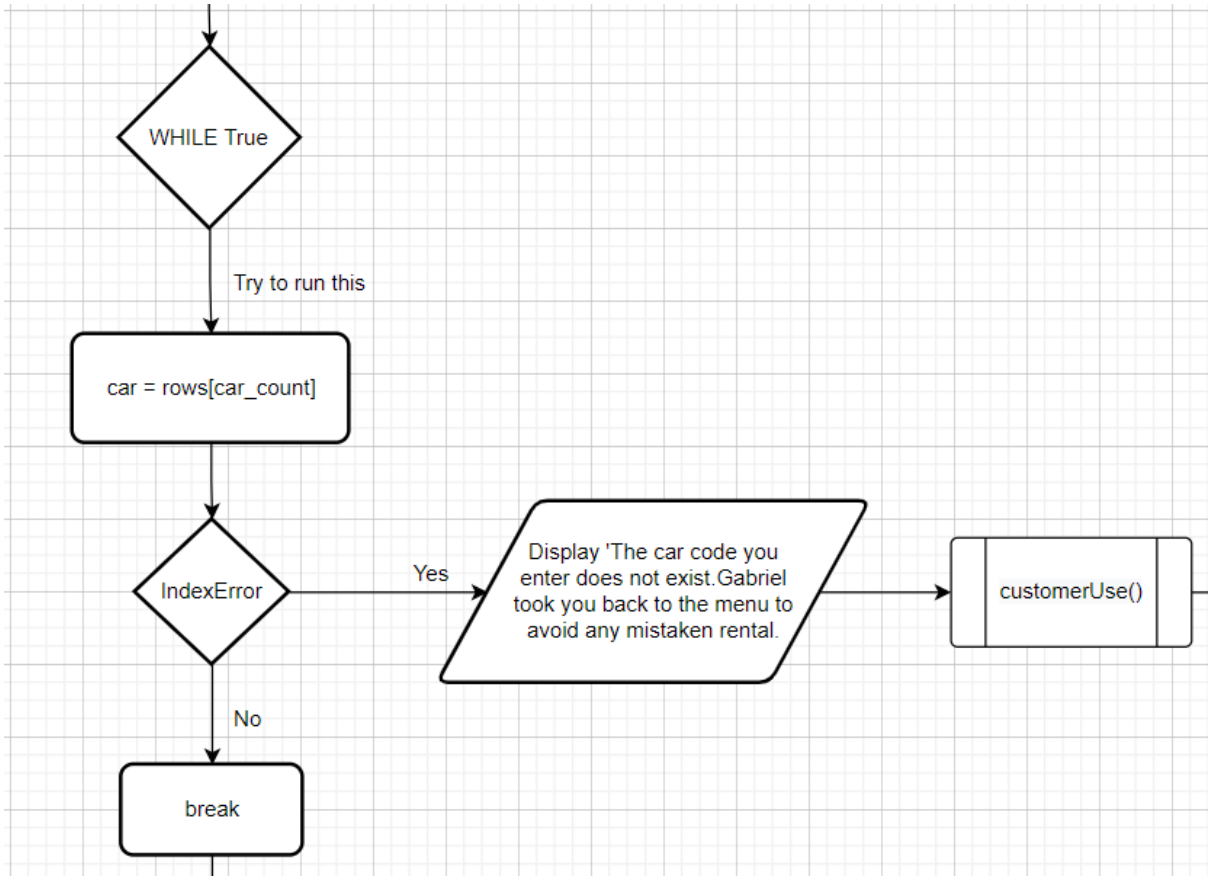

No
ELIF customerInput == 4
Yes
import datetime (To get actual current time)
import timedelta (To add date to actual current time)
date_and_time = datetime.now(), replace microsecond
In datetime to 0
bookCar()

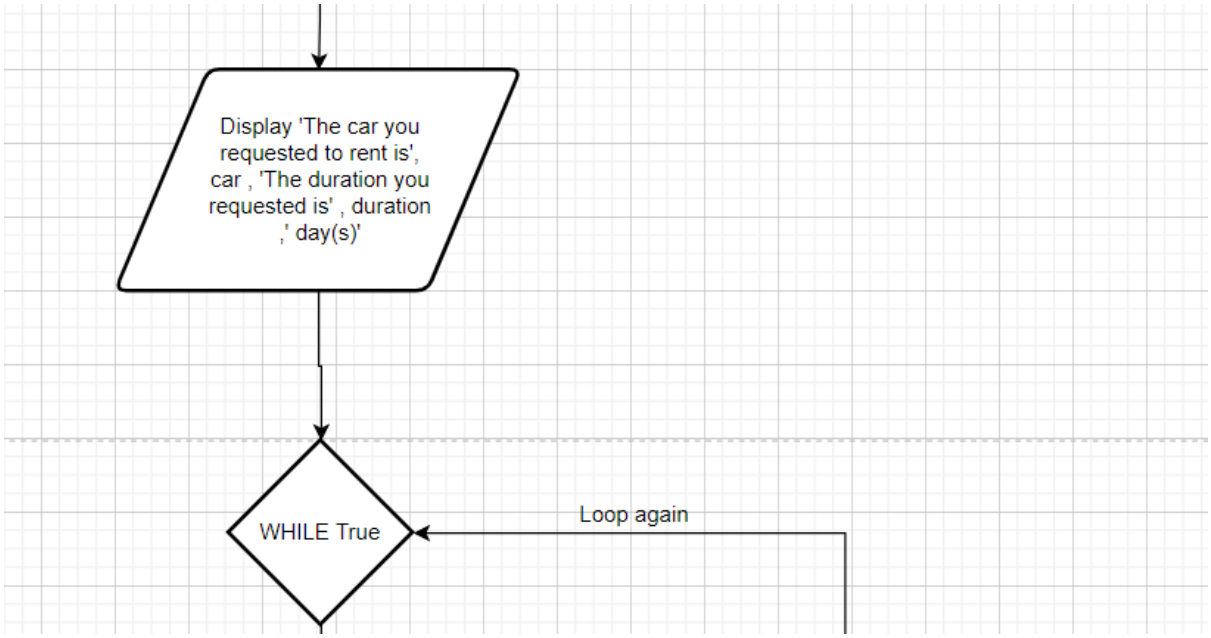

DEFINE
FUNCTION
bookCar()
readfile = Read
From
Car_Detail.txt
Display readfile
Declare lst[]

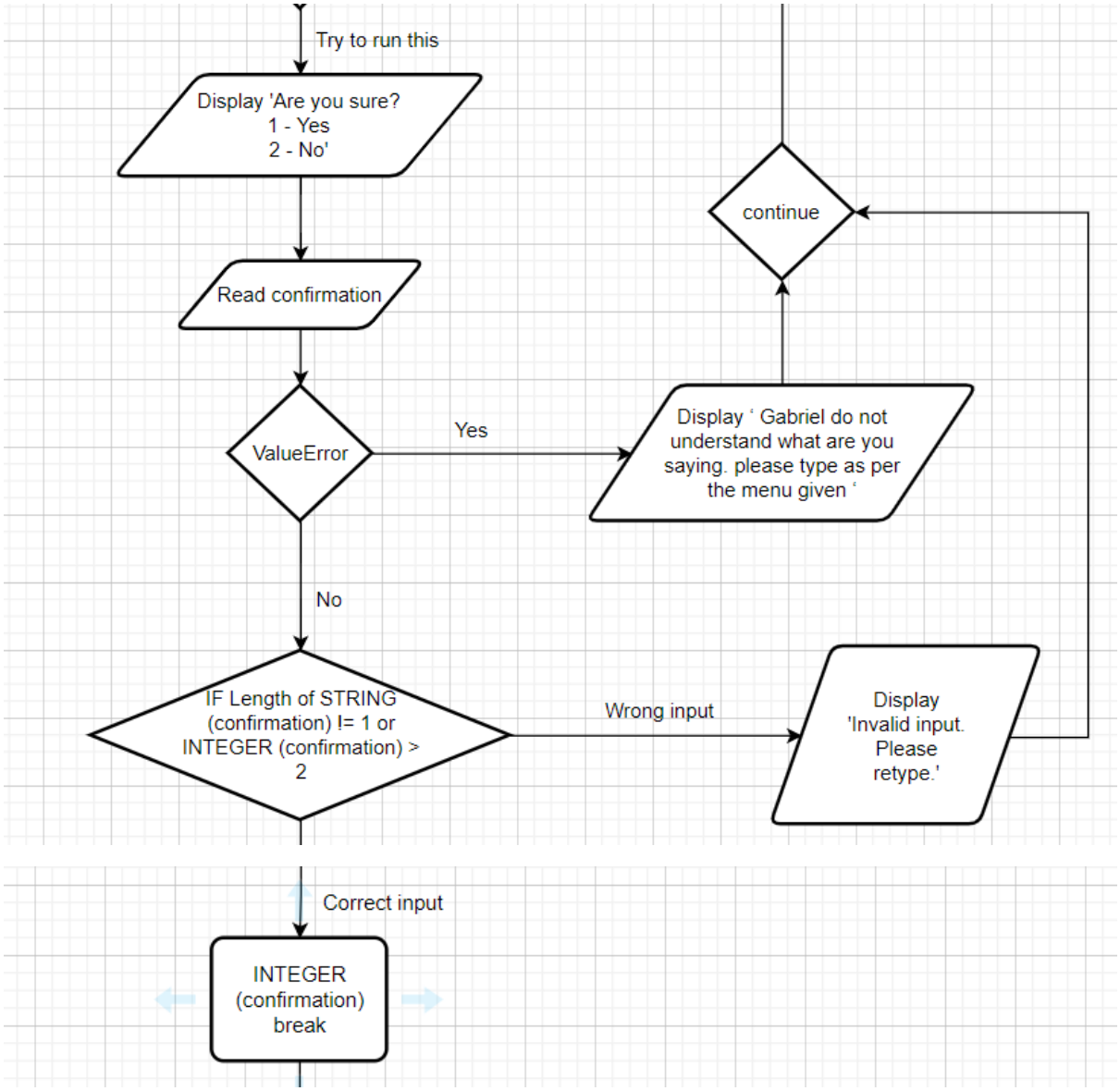

i
0
i in readFile
1
Loop all data in splitFile
j = strip '\n' In i
k = split ' | ' In j
Append k into lst
Finished looping
i
0
i in lst
1
element
0
element in i
1
Loop all car available in lst and element within i
IF element startswith 'Y'
Finished looping
Display i

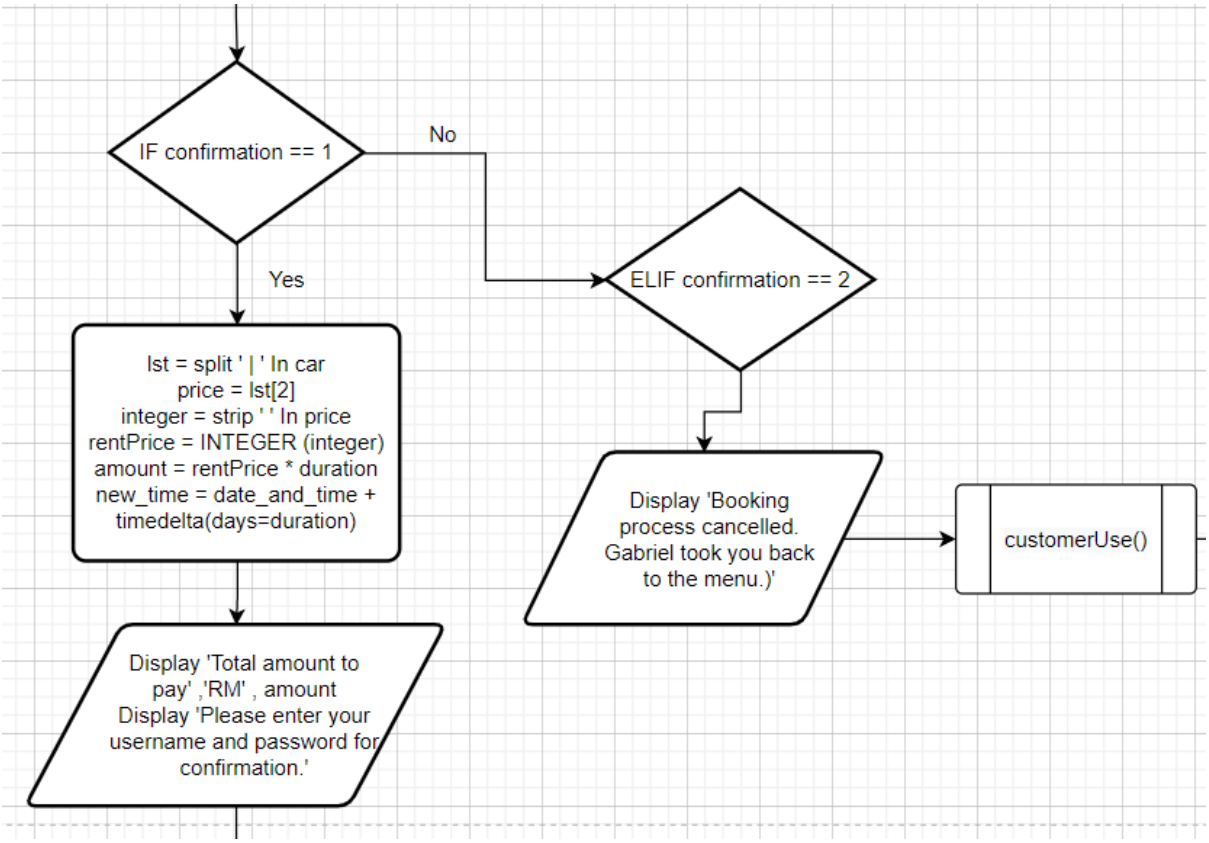

Display 'Please select your desired car for rent by typing thecode according to the menu.Example:SDNxxx'
Read code
readFile = Read From Car_Details.txt
car_count = 0
row
0
row in readFile
1
line = strip '\n' In row
lines = split ' | ' In line
IF lines[0] == code
No
car_count = car_count + 1
Code not found. Loop again
Yes
break

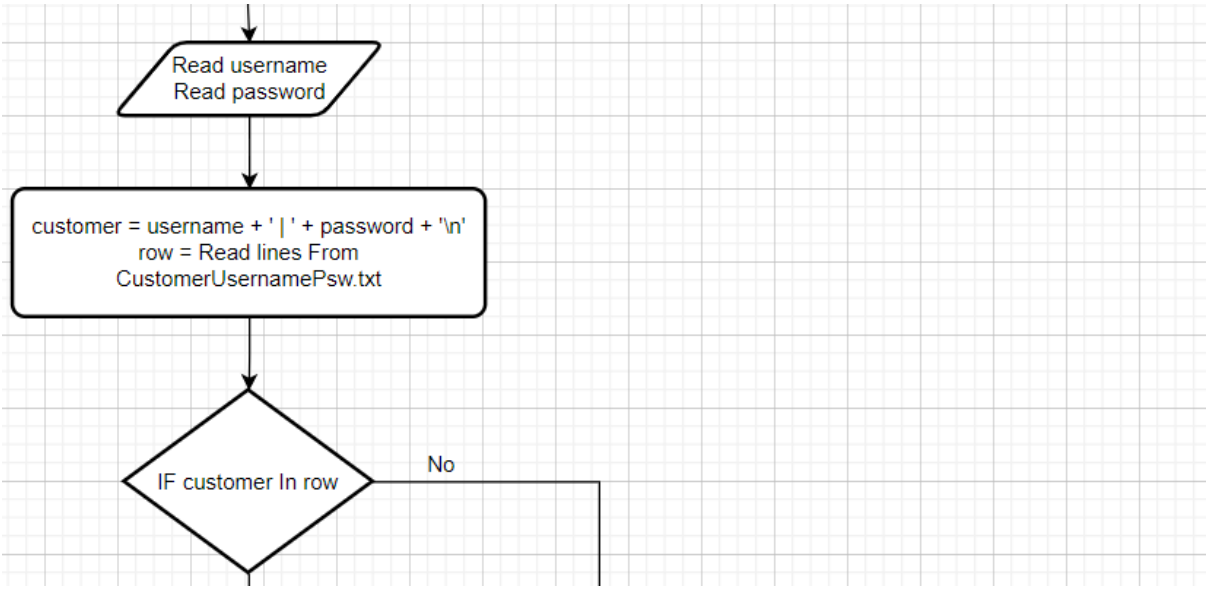

WHILE True
Loop again
Try to run this
Display 'How many days you like to rent this car for?' Maximum day for rent is 30 days.NOTE: Rent price is counted as per day. Any wrong input Gabriel will not entertain.
continue
Read duration
ValueError
Yes
Display ' Gabriel do not understand what are you saying. please type as per the menu given '
No
IF Length of STRING (duration) > 2 or INTEGER (duration) > 30
Wrong input
Display 'Please note that you can only rent at most 30 days.'
Correct input
INTEGER (duration)
break
rows = Read lines From Car_Details.txt

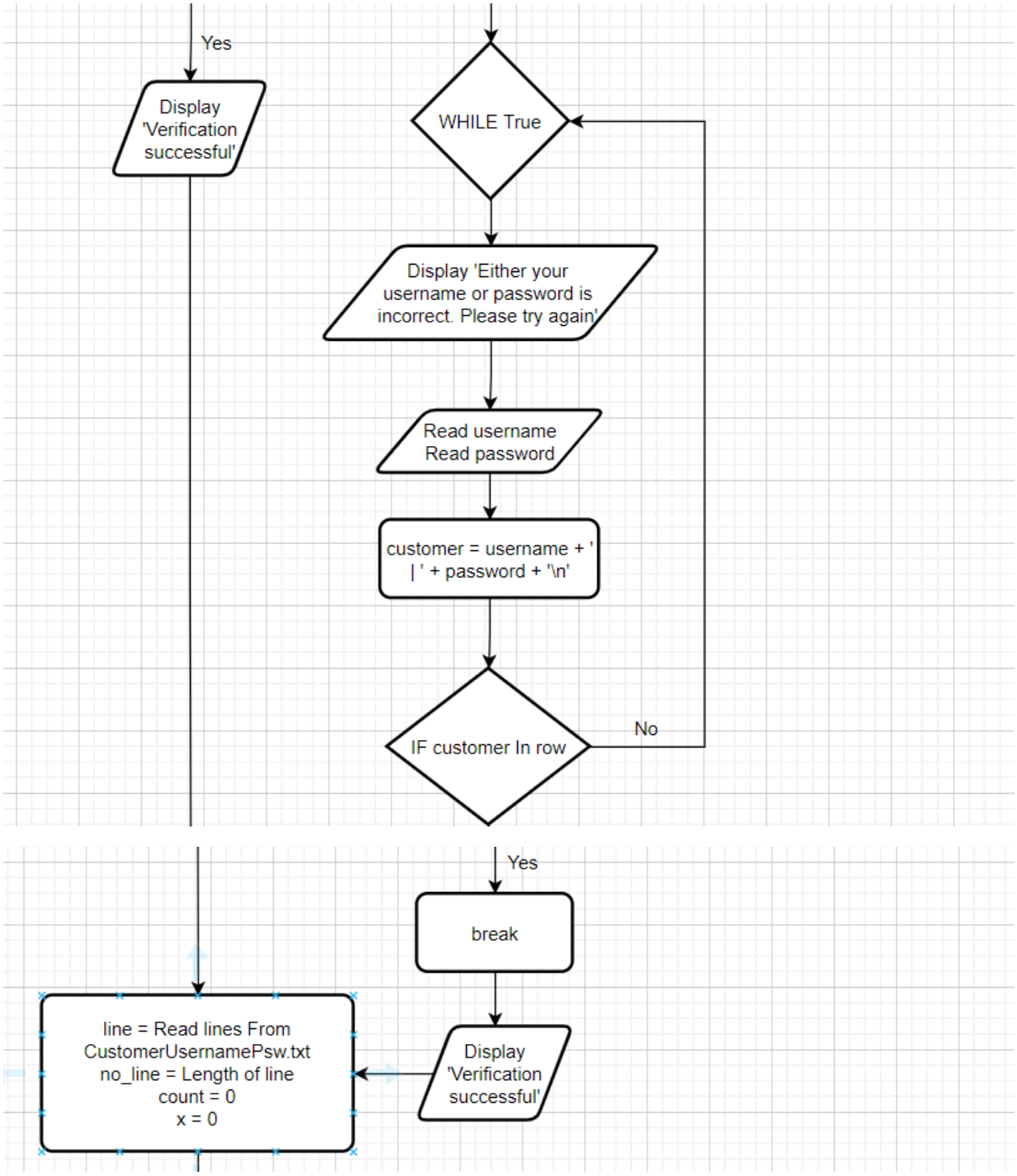

WHILE True
Try to run this
car = rows[car_count]
IndexError
Yes
Display 'The car code you enter does not exist.Gabriel took you back to the menu to avoid any mistaken rental.
customerUse()
No
break

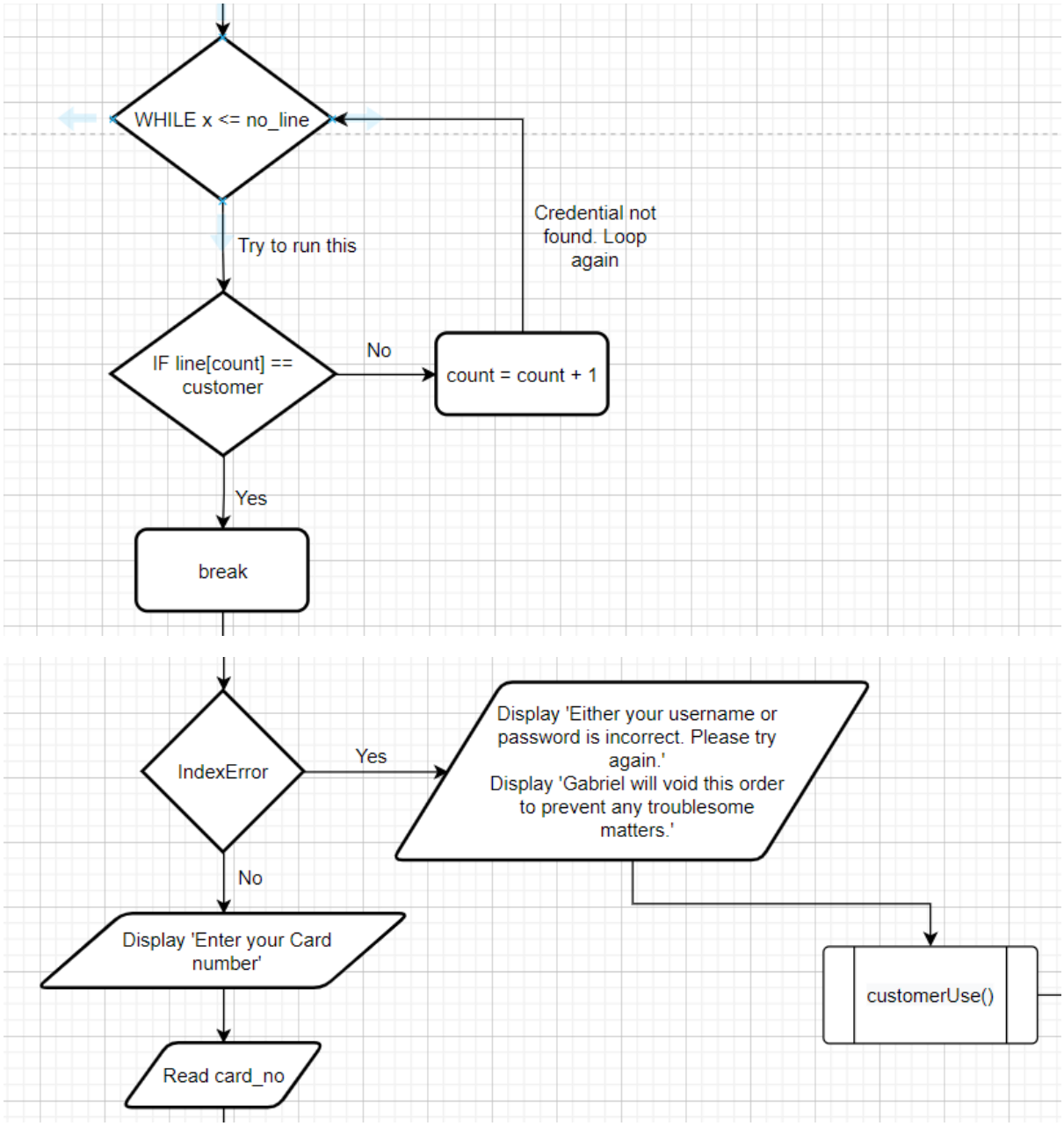

Display 'The car you requested to rent is', car , 'The duration you requested is' , duration ,' day(s)'
WHILE True
Loop again

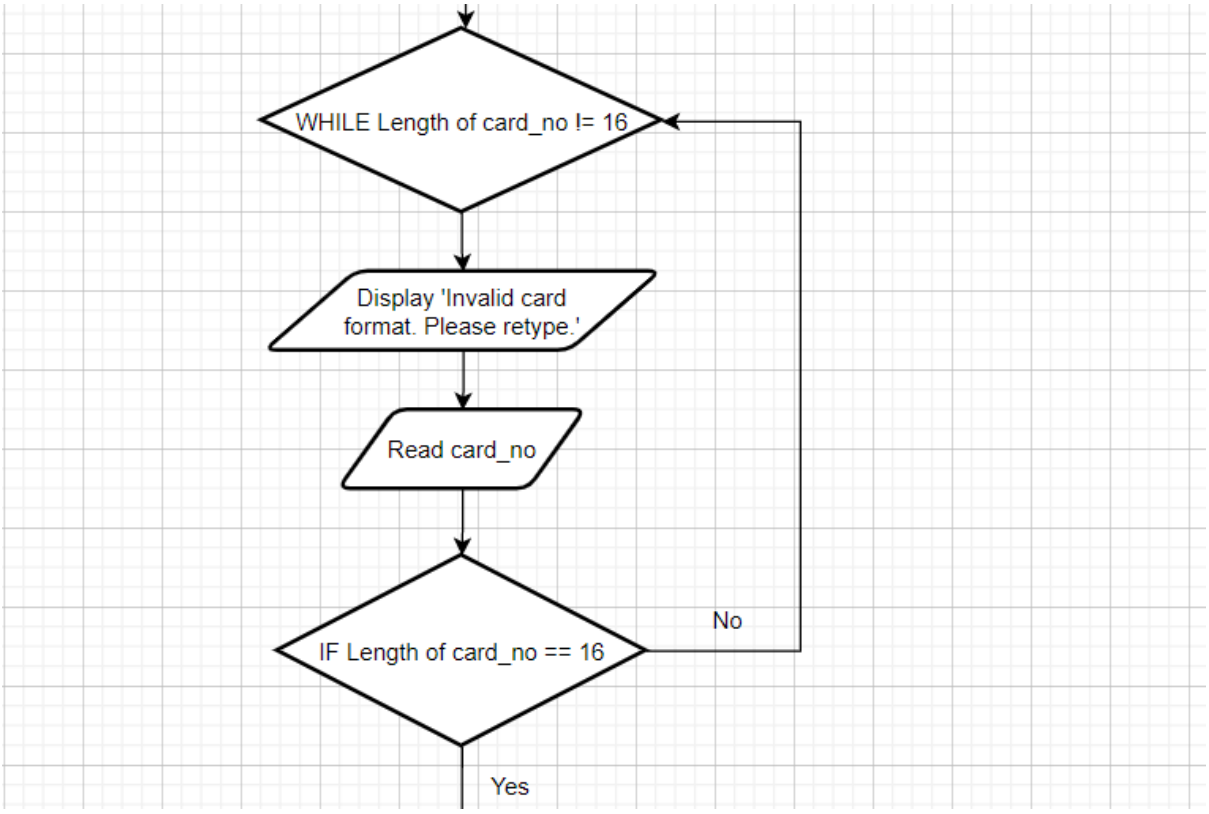

Try to run this
Display 'Are you sure?
1 - Yes
2 - No'
Read confirmation
ValueError
Yes
Display ' Gabriel do not understand what are you saying. please type as per the menu given '
continue
No
IF Length of STRING (confirmation) != 1 or INTEGER (confirmation) > 2
Wrong input
Display 'Invalid input. Please retype.'
Correct input
INTEGER (confirmation)
break

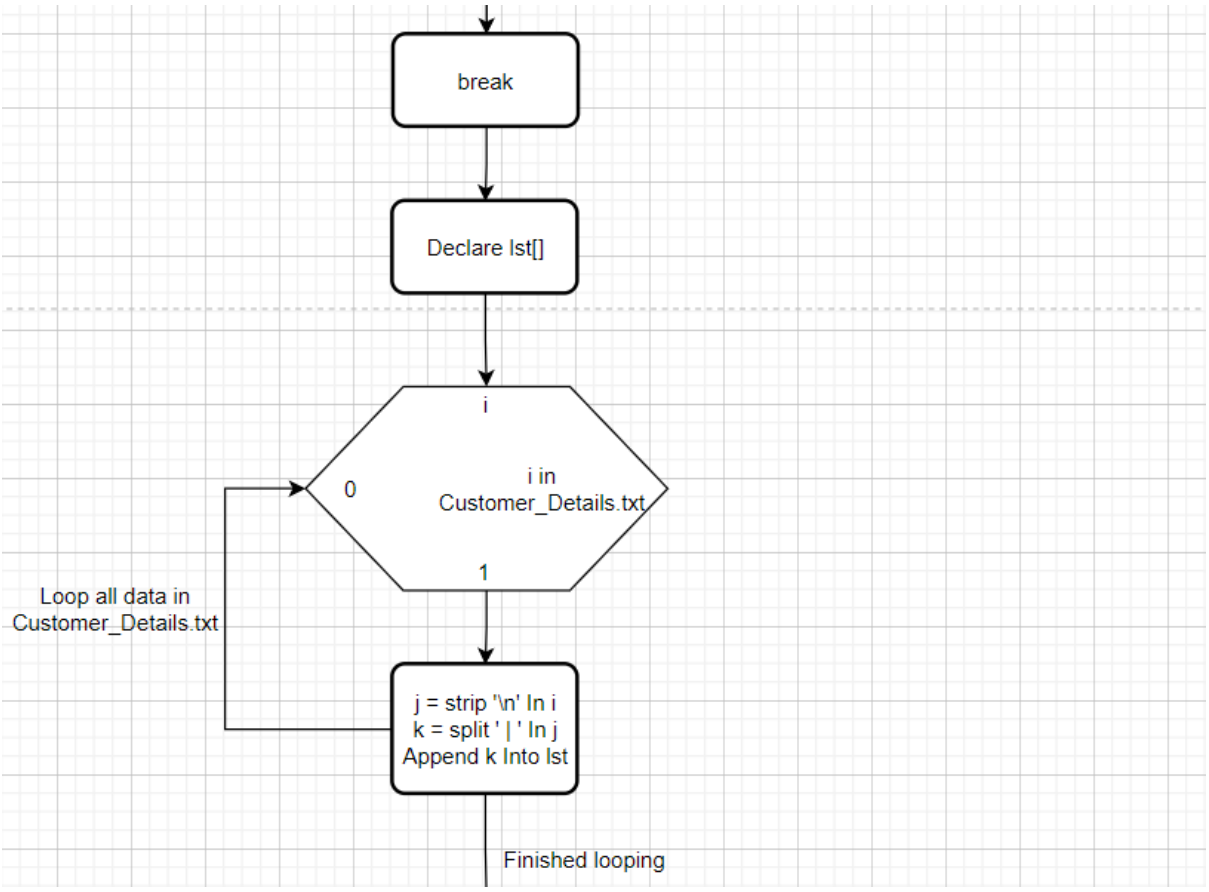

IF confirmation == 1
No
Yes
ELIF confirmation == 2
lst = split ' | ' In car
price = lst[2]
integer = strip ' ' In price
rentPrice = INTEGER (integer)
amount = rentPrice * duration
new_time = date_and_time +
timedelta(days=duration)
Display 'Booking
process cancelled.
Gabriel took you back
to the menu.)'
customerUse()
Display 'Total amount to
pay' ,'RM' , amount
Display 'Please enter your
username and password for
confirmation.'

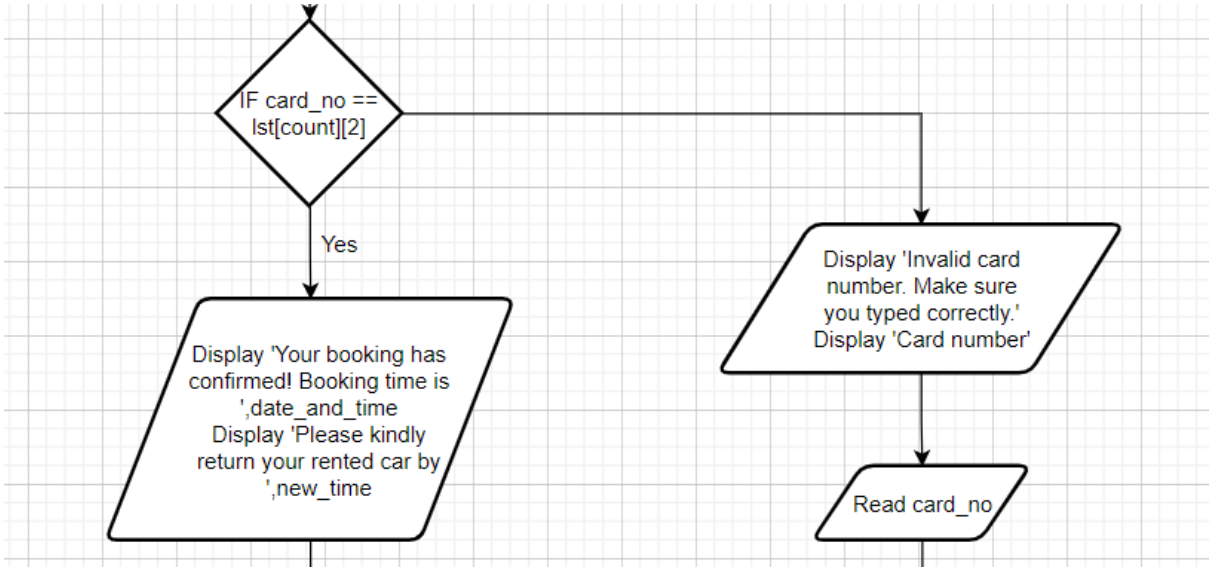

Read username
Read password
customer = username + ' | ' + password + '\n'
row = Read lines From
CustomerUsernamePsw.txt
IF customer In row
No

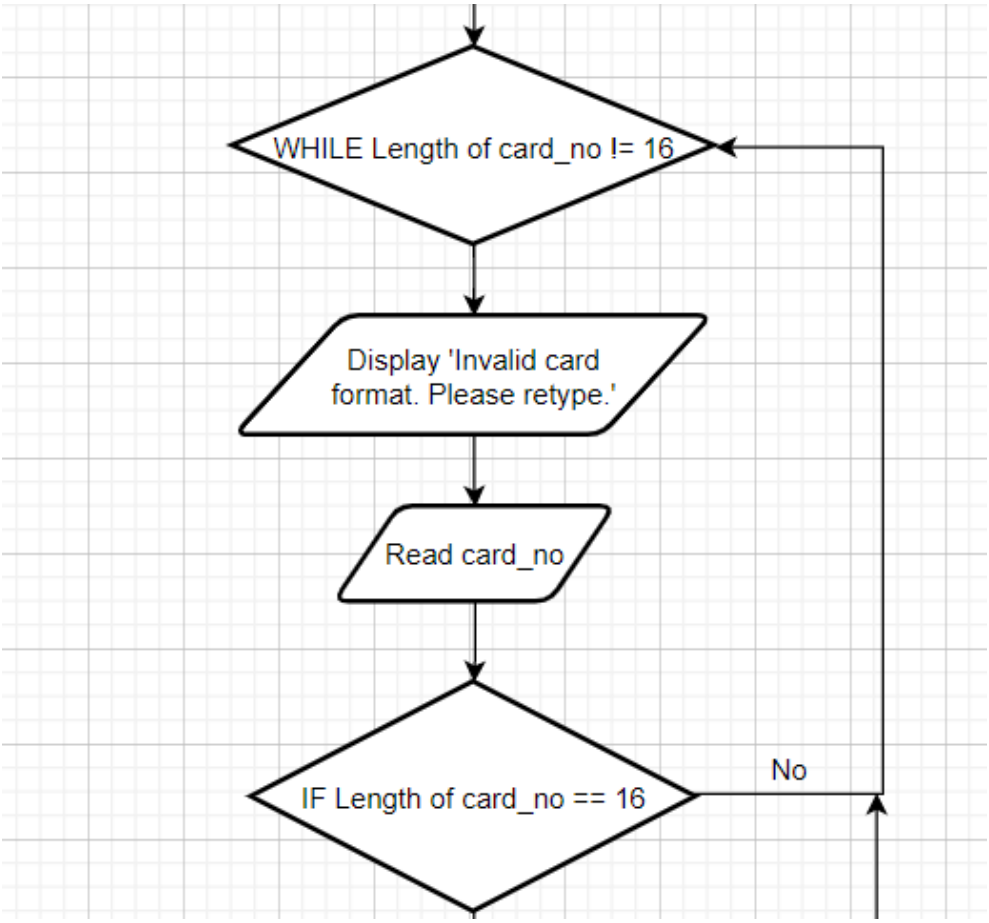

Yes
Display 'Verification successful'
WHILE True
Display 'Either your username or password is incorrect. Please try again'
Read username
Read password
customer = username + ' | ' + password + '\n'
IF customer In row
No
Yes
break
Display 'Verification successful'
line = Read lines From CustomerUsernamePsw.txt
no_line = Length of line
count = 0
x = 0

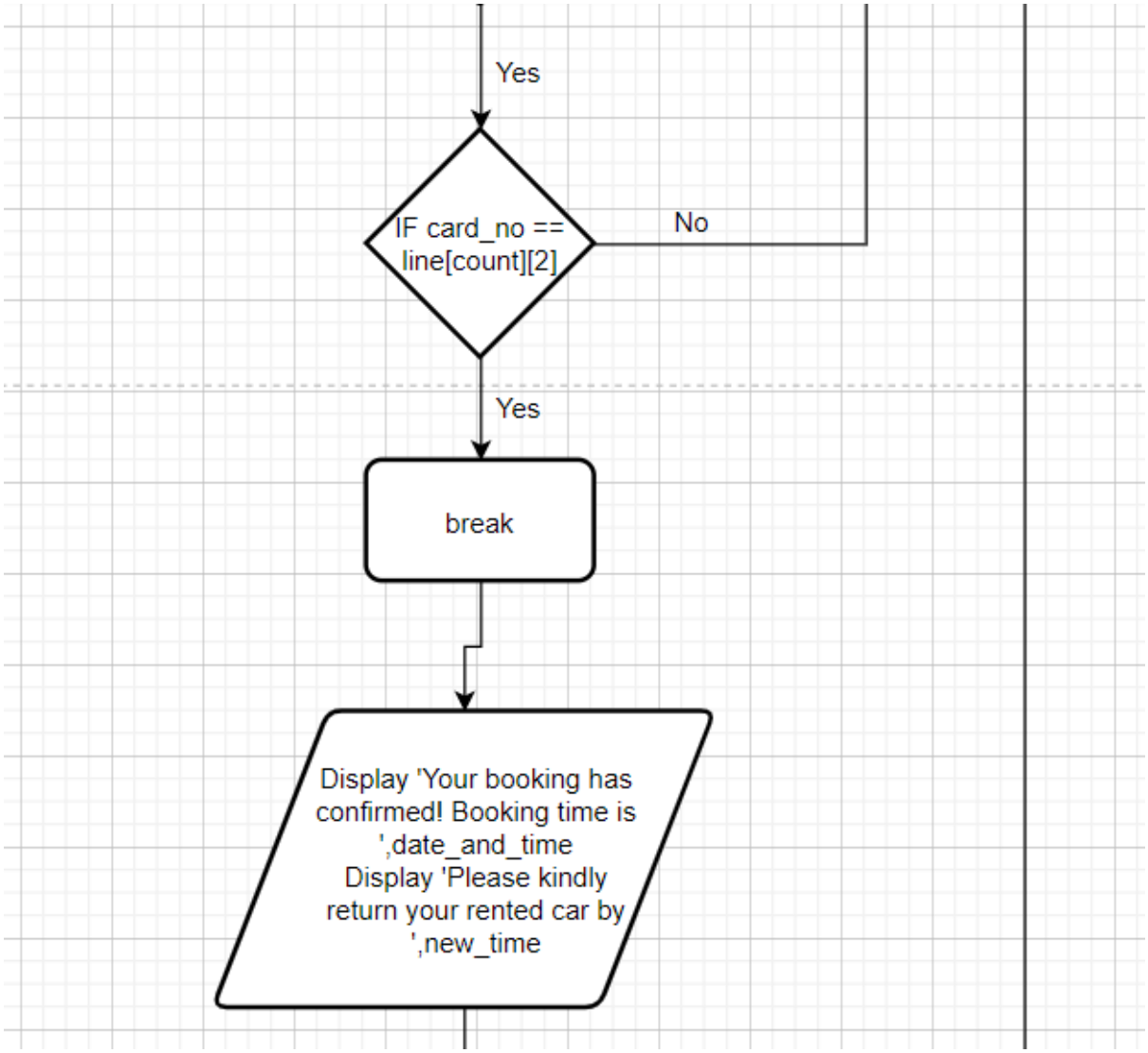

WHILE x <= no_line
Try to run this
Credential not found. Loop again
IF line[count] == customer
No
count = count + 1
Yes
break
IndexError
Yes
Display 'Either your username or password is incorrect. Please try again.'
Display 'Gabriel will void this order to prevent any troublesome matters.'
No
Display 'Enter your Card number'
Read card_no
customerUse()

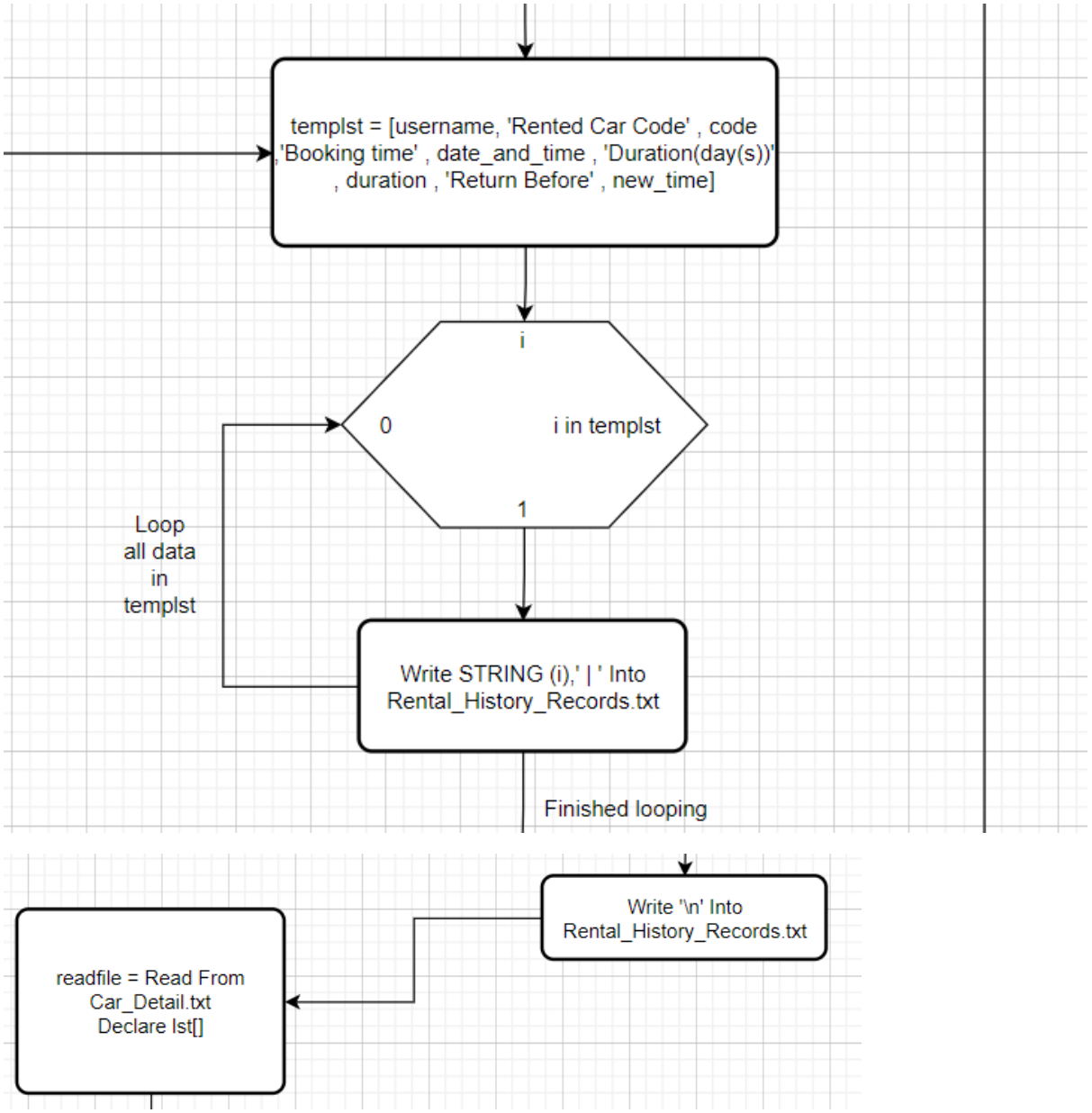

WHILE Length of card_no != 16
Display 'Invalid card format. Please retype.'
Read card_no
IF Length of card_no == 16
No
Yes

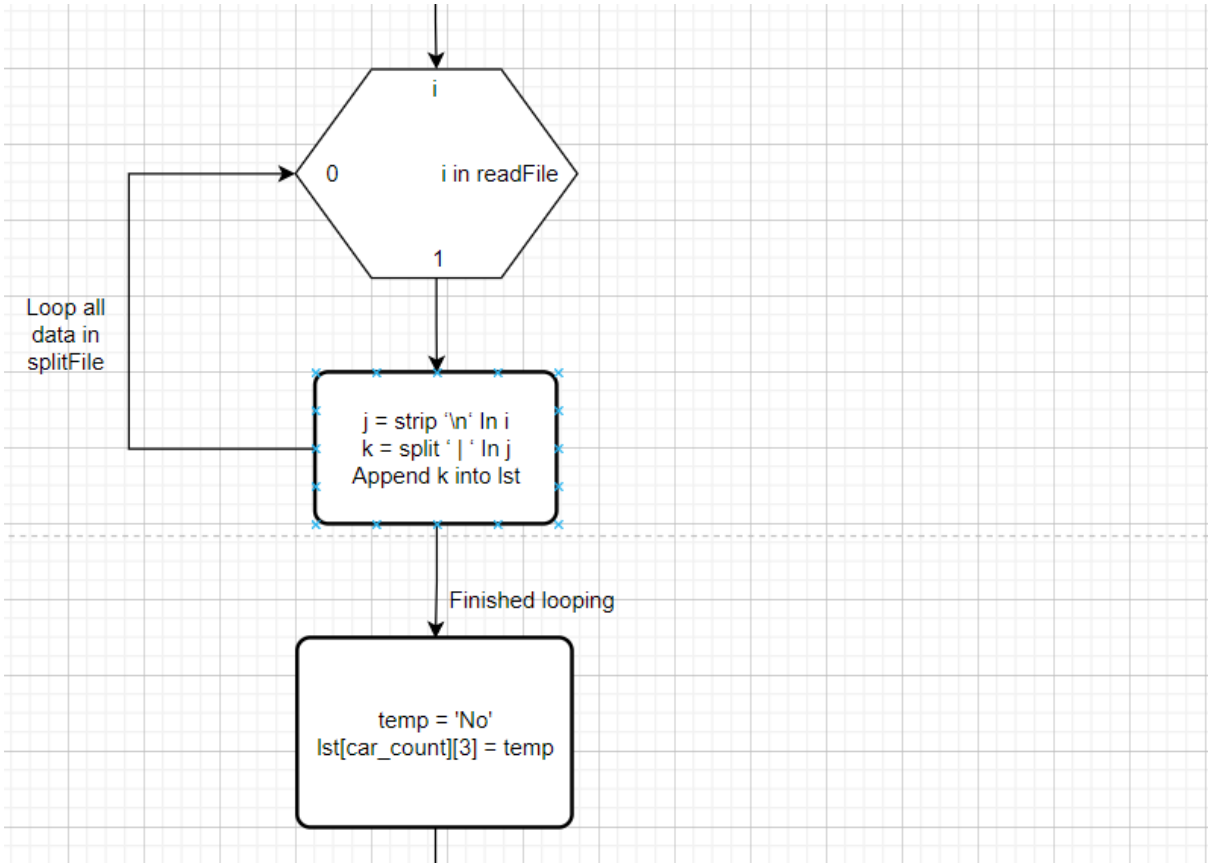

break
Declare lst[]
i
0
i in Customer_Details.txt
1
Loop all data in Customer_Details.txt
j = strip '\n' In i
k = split ' | ' In j
Append k Into lst
Finished looping

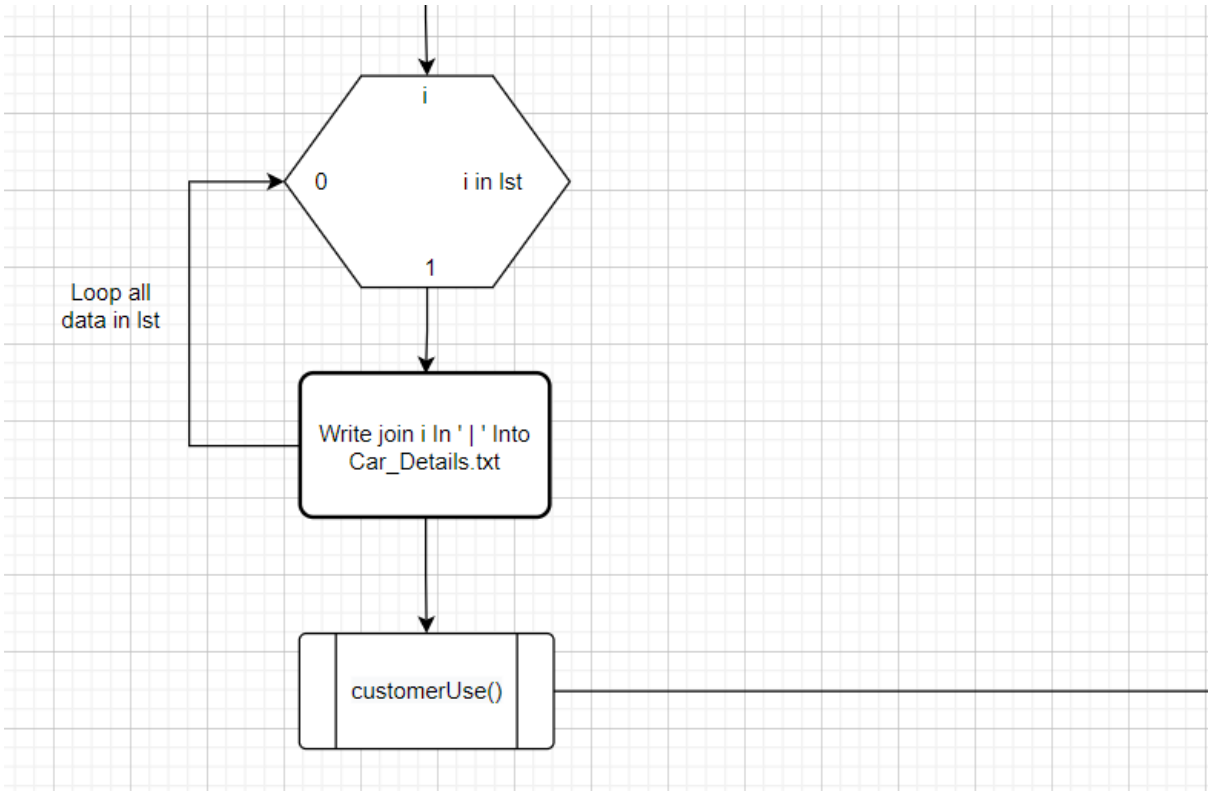

IF card_no ==
lst[count][2]
Yes
Display 'Your booking has confirmed! Booking time is ',date_and_time
Display 'Please kindly return your rented car by ',new_time
Display 'Invalid card number. Make sure you typed correctly.'
Display 'Card number'
Read card_no

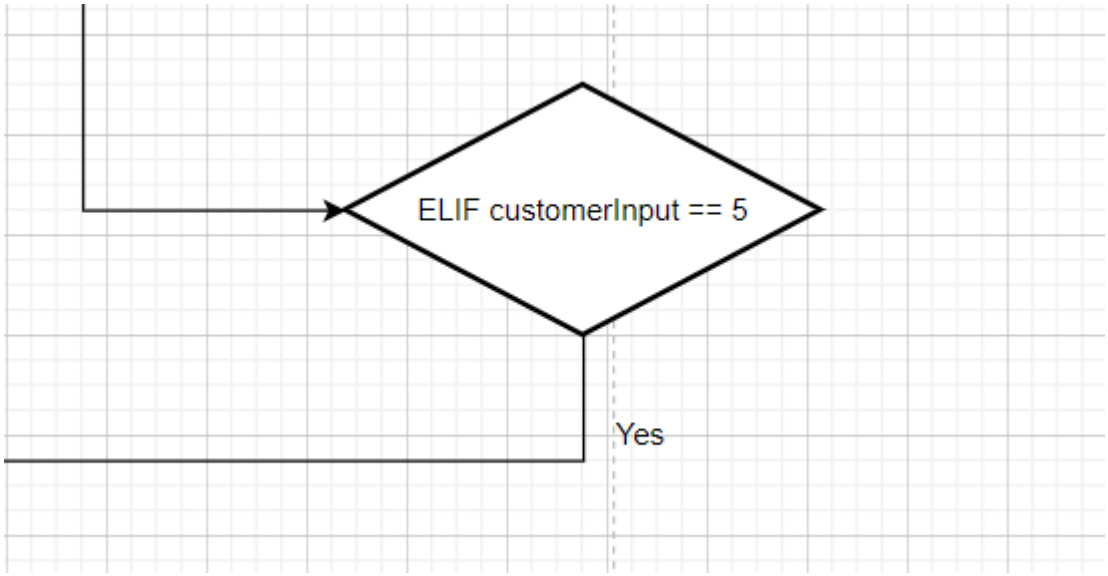

WHILE Length of card_no != 16
Display 'Invalid card format. Please retype.'
Read card_no
IF Length of card_no == 16
No

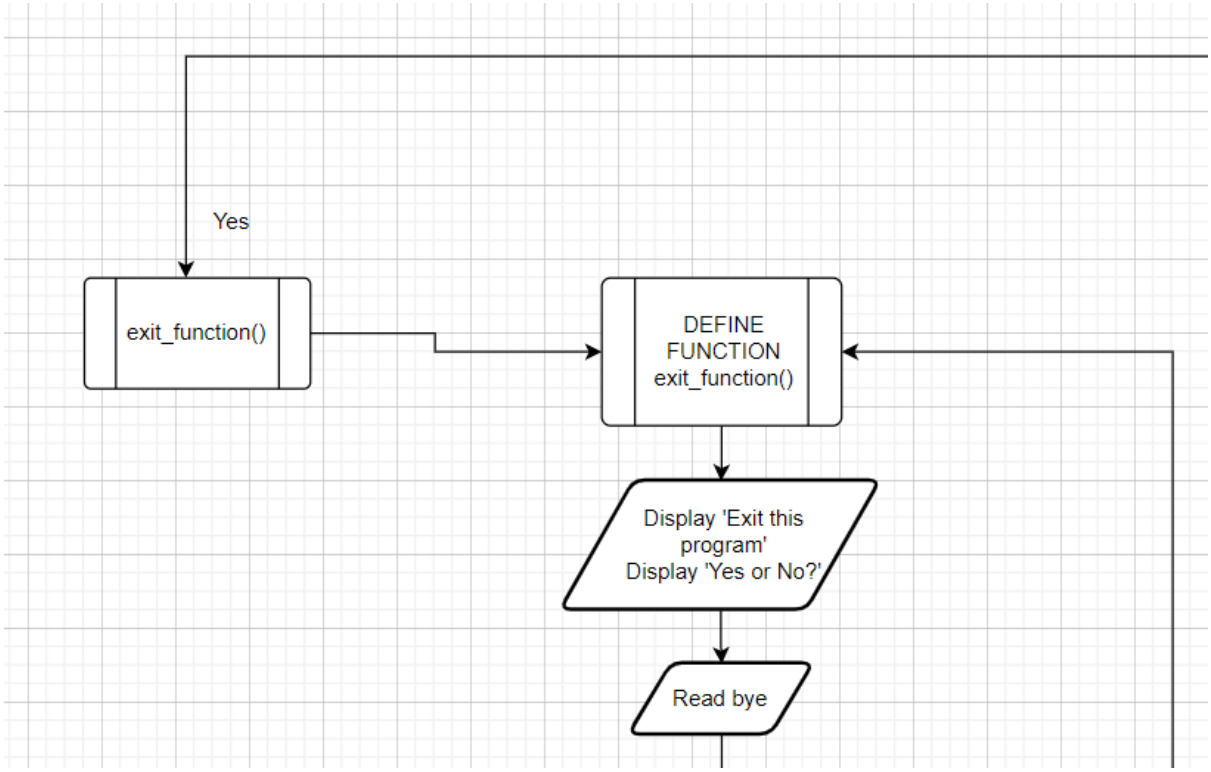

Yes
IF card_no == line[count][2]
No
Yes
break
Display 'Your booking has confirmed! Booking time is ',date_and_time
Display 'Please kindly return your rented car by ',new_time

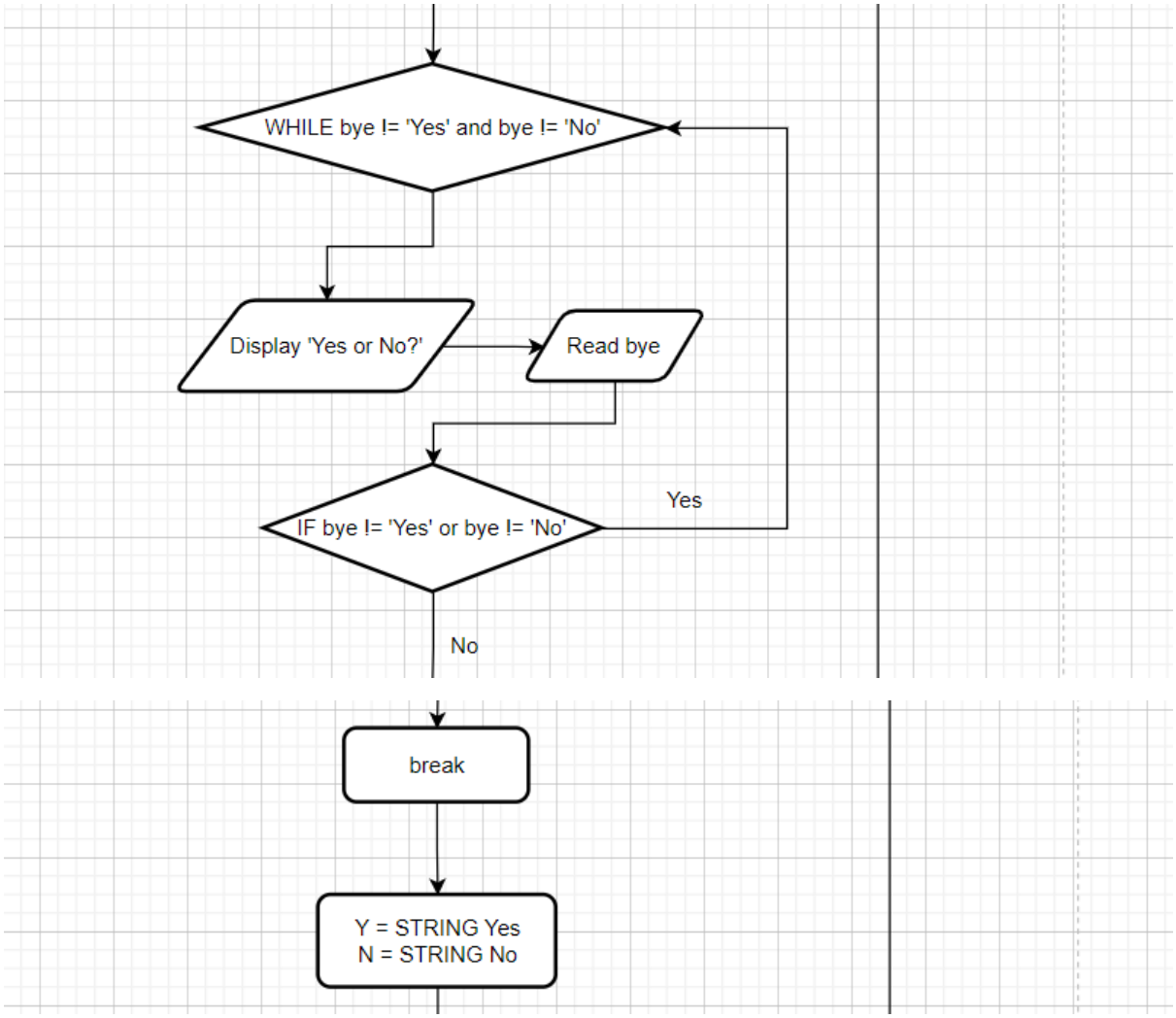

templst = [username, 'Rented Car Code' , code ,'Booking time' , date_and_time , 'Duration(day(s))' , duration , 'Return Before' , new_time]
i
0
i in templst
1
Loop all data in templst
Write STRING (i),' | ' Into Rental_History_Records.txt
Finished looping
Write '\n' Into Rental_History_Records.txt
readfile = Read From Car_Detail.txt
Declare lst[]

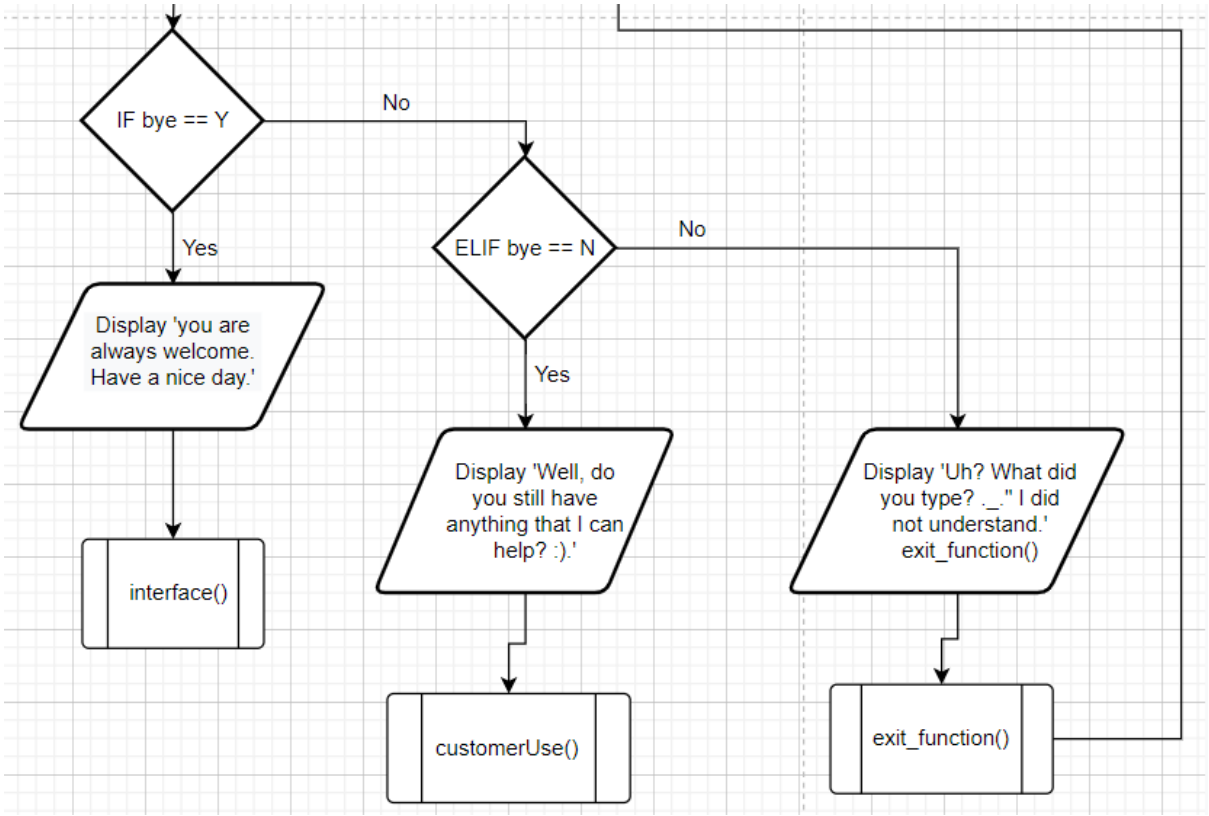

i
0
i in readFile
1
Loop all data in splitFile
j = strip '\n' In i
k = split ' | ' In j
Append k into lst
Finished looping
temp = 'No'
lst[car_count][3] = temp


i
0
i in lst
1
Loop all data in lst
Write join i In ' | ' Into Car_Details.txt
customerUse()


ELIF customerInput == 5
Yes


Yes
exit_function()
DEFINE
FUNCTION
exit_function()
Display 'Exit this
program'
Display 'Yes or No?'
Read bye


WHILE bye != 'Yes' and bye != 'No'
Display 'Yes or No?'
Read bye
IF bye != 'Yes' or bye != 'No'
Yes
No
break
Y = STRING Yes
N = STRING No


IF bye == Y
No
Yes
ELIF bye == N
No
Yes
Display 'you are always welcome. Have a nice day.'
interface()
Display 'Well, do you still have anything that I can help? :).'
customerUse()
Display 'Uh? What did you type? ._." I did not understand.'
exit_function()
exit_function()

5.0 Program Source Code & Explanations

Basic source code such as **variable, control structure, string, list, function, file** will be implemented in this Online rental car system to ensure the system can run smoothly and error-free.

5.1 Variables

A variable is used **to store a value or operation** so that when we want to print out something we do **not need to call out all the operations**, but a single variable can replace it. For example, in our Online rental car system admin login part we will use a variable to store a specific admin username and admin password so that when we are comparing whether the input is equal to the admin username, we will call out the variable to compare instead of the string that store inside the variable as it is tidier and easier for other to understand our source code.

```
        print('Enter your admin username and password.')
        adminName = str('WY')
        psw = int('1234321')

# Special username and password for admin-use only

        username = str(input('Username: '))
        password = int(input('Password: '))
```

5.2 String & Integer

We use datatype to change the datatype of the **number or string**. The data types that we use in this online car rental system are **STRING and INTEGER**. A STRING is **a sequence of characters** like the **26 characters in English or the number.**

In Python, a STRING will be created when it is enclosing with a single quote or double quotes. Most commonly STRING is used for displaying the message to the user for giving instructions on what to do. But there is also other additional function such as **slicing STRING** are also implement in our online car rental system. By doing that we are required to put the character index that we want to **slice in [] such as [2:5].** Thus, it will slice the index position **from index 2 to index before 5.** The index of character is start from 0 if we want to slice the STRING from first character to the character up to index 5, we just **write [:5]** and if we want to slice the STRING **from index 5 to end of the character we will need to write [5:].**

An INTEGER is **the number** that allow us to **perform calculation** such as multiplication, division, subtraction, addition, modulus, floor division. Unlike STRING if a STRING addition it will become concatenate which led the two strings combine. So, whenever we want **do operations on a STRING** we are require **converting the STRING to INTEGER** by doing int (1234) and the 1234 will be convert to an INTEGER.

```
                inputMonth = int(input('''
Which month of customer rental records you wish to display?
January (1) - December (12)
Please enter in numeric form.
'''))
            except ValueError:
                print('Gabriel do not understand what are you saying. Please type as per the menu give. :(')
                continue # Continue looping if input wrong
            else:
                if len(str(inputMonth)) > 2 or int(inputMonth) > 12:
                    print('There is at most two digits for a month. <O.O> Where are you living?')
                    continue # Continue looping if input length more than 2
                else:
                    int(inputMonth)
                    break # Break loop if input satisfy

        a = str(inputMonth)
        b = a.zfill(2) # Fill in the spaces with '0' to match with the time format

        try:
            for x in hlst:
                if b == (x[4][5:7]):
                    print(x)
        except IndexError:
            pass
```

In our online car rental system, we will convert the input to STRING or INTEGER for verification purposes to prompt the user to enter the input that we want. So that it could improve the accuracy and integrity of this online car rental system. On the other hand, we will also use the slicing method to check whether the booking month is the same with input month if yes then we will print out the booking record of that month for admin to view the rental history record.

5.3 List

In Python, a list is a **data structure** that is a **mutable, or changeable, ordered series of elements.** Each element or value contained within a list is referred to as an item. Lists are defined by having values between square brackets [], as if strings are defined by characters between quotations.

Lists are useful when **working with multiple connected values.** You may **store data** that belongs together, **compress your code**, and **conduct the same multi-value procedures** and **operations at once.** Using a list is essential in our online rental car system as list can help us to store the data in a list instead of string. We also can **use index to call** out the item inside the list by doing **list[index].**

Beside that we also can use the function **'IN'** for a list, it is a function to **check whether the item is inside the list**. For example, in our online rental car system customer confirmation when booking car. we can use a list to store all the line of that file. So, if the customer username and password is inside the list, then verification succeed and proceed to next step.

```
print("Please enter your username and password for confirmation.")
username = str(input("Username: "))
password = str(input("Password: "))
customer = username + ' | ' + password + '\n'
```

```
f = open("CustomerUsernamePsw.txt","r")
row = f.readlines()
if customer in row:
    print("Verification Successful")
else:
    while True:
        print("Either your username or password is incorrect. Please try again")
        username = str(input("Username: "))
        password = str(input("Password: "))
        customer = username + ' | ' + password + '\n'
        if customer in row:
            break
    print("Verification Successful")

f.close() # Close file
```

5.4 IF, ELIF, ELSE Statements

We also used **control structures** to execute our code when it meets the situation we state out. The basic control structure that uses in our online rental car system is **if and else statement and looping structure.**

For if and else statement, we will use IF to **indicate the statement if the statement meets it will execute the code block under the IF statement section.** If the code is **not meet** the IF statement thus it **will go to the ELSE statement.** The difference between IF and ELSE is IF can have a statement which is a condition on the same line such as IF x = y but for ELSE it cannot have the condition on the same line.

So, whenever the code has not met the condition in IF it will **auto go to the ELSE block** but if we put ELIF it will allow us to put the condition on the same line of ELIF so if the code has pass thru the IF statement and meet the ELIF statement it will execute the code block

under the ELIF statement. In short, the **IF** statement is the **priority** and the **ELIF** will be the **second priority** and the **last priority** will be **ELSE.**

```
Y = str('Yes')
N = str('No')

if bye == Y:
    print('You are always welcome. Have a nice day.')
    interface()
elif bye == N:
    print('Well, do you still have anything that I can help? :).')
    customerUse()
else:
    print('Uh? What did you type? ._." I did not understand.')
    exit_function()
```

5.5 For Loop & While Loop Statements

For looping structure, there are two ways to perform which are **WHILE loop and FOR loop**. WHILE loop **allows the program to repeat the single or group of a statement** once the condition is true it will require to verify the condition before executing. If the condition is false, then the WHILE loop will stop.

While FOR loop are **usually used for iterating over a sequence** such as an item inside a list so when it finishes looping all the item in the list it will stop looping. It is better to use FOR loop if we know how many times, we want the looping going to be.

If we **do not know how many times**, we want to loop it is more recommended to use the **WHILE loop** so when the condition returns false then it will stop the WHILE loop. Many different functions are allowed to use in looping to control the loop. For instance, the 'break'

```
if (adminName == username) and (psw == password):
    print('Login Successful. Welcome,', adminName, '! :)')
else:
    while (adminName != username) or (psw != password): # Check to verify the input us
        print('Either your username or password is incorrect. Please try again. :(')
        username = str(input('Username: '))
        password = int(input('Password: '))
        if (adminName == username) and (psw == password):
            break # Break loop if input correct

    print('Login Successful. Welcome,', adminName, '! :)')

admin()
```

function to break the looping to continue, the ‘pass’ function to exit the loop, ‘continue; function to continue the loop.

Based on the figure above, as you can see we use a WHILE loop with the condition if the condition is met it will keep looping the code below WHILE block and to break the loop, we can put a break function so if the code meets the condition in the IF statement it will execute the break function and the WHILE loop will break.

```
elif adminInput == 5: # Return a rented car manually
    readFile = open('Car_Details.txt', 'r') # Open file
    lst = [] # Empty list
    for i in readFile:
        j = i.strip('\n')
        k = j.split(' | ')
        lst.append(k)
```

According to the figure above we can see that FOR loop is using to iterate the item in a list call variable readFile. So, for every item in the list, it will execute the code block under the FOR loop until there is no item left in the list. We also can use the IF statement to control what to do in the FOR loop for example when in Loop the item in the lst if the item in the index of [-1] is equal to the string ‘No’ then it will print the item.

5.6 Functions

```
def customerLogin():
    print("Please enter your username and password to login.")
    username = str(input("Username: "))
    password = str(input("Password: "))

    customer = []
    customer.append(username)
    customer.append(password)

    f = open("CustomerUsernamePsw.txt","r")
    row = f.readlines()
    for line in row:
        lines =''.join(line)
        lst = lines.rstrip('\n').split(' | ')
        if lst[0] == customer[0] and lst[1] == customer[1]:
            print('Login Successful. Welcome,', username, '! :)')
            invalid = False
            break
        elif lst[0] != customer[0] or lst[1] != customer[1]:
            invalid = True
    if invalid:
        customerLogin()
```

Declaring a function in Python like in the image shown above by using def, followed by the desired name of the function and close it up with (). This type of coding will **help to reduce the length of your code** by easily declaring the function and calling it multiple times in the code. For example, customerLogin() is defined here and all the process can be executed by just typing the function name itself, in this case is customerLogin().

```
elif inputOption == 2: # Login as registered customer

    customerLogin()
```

As shown above, the code called the function customerLogin() defined earlier. Obviously, it saves a lot of time and reduce the length of the code, making it shorter and more efficient. Moreover, within the bracket, arguments can be inserted and assigned to a variable. For instance, if a function defined as name (fname, lname), and inside the function coded print(fname, ‘ ’, lname), and the function is called and user entered first name (first variables - fname) as Sarah and last name (second variables - lname) as Lin, the output will be “Sarah Lin”.

5.7 Try, Except Statements

```
while True:
    try:
        inputOption = int(input('Gabriel would kindly like you to introduce yourself first. :D\n'))
    except ValueError:
        print('Gabriel do not understand what are you saying. Please type as per the menu give. :(')
        continue # Continue looping
    else:
        if len(str(inputOption)) != 1 or int(inputOption) > 4: # Validate input can only be length of 1
            print('Invalid input. Please retype the correct input.')
            continue # Continue looping
        else:
            int(inputOption)
            break # Break off the loop
```

Try and except statements act as **an error stopper** because whenever there is an error, Python will show the error and stop running the rest of the code after where the error occurred. By using the try and except statement, Python will **run the code under try statement normally** and if **an error** occurred, it would not show the error, but it will **run the code under except statement instead.**

Thus, this **avoids the need to kill the program and run again**. Like functions, except can also use arguments like **ValueError, IndexError, FileNotFoundError** etc. If no arguments are used, it will execute the code under except statement if any one error occurred and this except statement is known as a **catch-all except statements.**

5.8 File Control Statements

```
individualFile = open('Customer_Details.txt', 'a') # Open file

cusDetail = [name, phone_no, card_no]

individualFile.write(' | '.join(cusDetail))
individualFile.write('\n')

individualFile.close() # Close file
```

New file can be created from Python by typing the code**, open ('filename', 'x').** Noted that **'x' is for to create a file**, **'a' is for to append** or **add text** to the last line in file, **'w' is for to write data** into the file and will **overwrite existing text** in the file, and **'r' is to read the text in the file**. For **'a' and 'w'** if the file does not exist it will automatically **create** a new file.

When using these file control statement, if the file already existed, Python would prompt an error about the file already existed somewhere in your device. Assigning a variable when opening a file allows user to use the variables as the file itself. After opening a file in

Python, make sure that always, the file must be closed, or else Python will keep it running and problems and errors will arise.

So, to avoid that, simply type .close() after your filename, then the file will be closed. To insert text into a file, type .write() after your filename, then insert one argument only or else it will prompt an error.

5.9 Formatting

```
lines =''.join(line)
lst = lines.rstrip('\n').split(' | ')
```

There are many formatting commands in Python which can make your code easier or more complex or beautify your text file etc. For example**, "". join ()** is **to combine two strings together** with a **space** in the middle, if it is **",". join**, it will be a **comma** in between the two strings.

Next, for **.rstrip(),** it means **remove or delete unwanted spaces at the most right** of a line. **.split ()** is to **divide the one string into two strings** or **divide a sentence into a list of multiple string.** Like. **join()**, user can specify what to **divide by inserting an argument** like a comma or spaces etc.

6.0 Additional Features Source Code & Explanations

6.1 Card Number

```
card_no = str(input('Card number: '))
while len(card_no) != 16: # While loop for validation
    print('Invalid card format. Please retype.\nMake sure you card number is 16 numbers long.\n')
    card_no = str(input('Card number: '))
    if len(card_no) == 16:
        break # Break from while loop if input correct
```

In order to **verify the customer booking**, card number is required from customer during the registration. **16-digit card number** is compulsory because in real life, debit or credit cards also consist of 16 digits. Thus, this is an additional feature in our program as a way to validate that the customer's booking.

6.2 Import datetime, timedelta

```
        from datetime import datetime
        from datetime import timedelta

# Import datetime in order to record the actual date and time
# Import timedelta in order to add duration to datetime
```

Libraries like **datetime** is being implemented in our program to **record the actual time** when the customer rents a car and display the date for the customer to return the car. Besides, **timedelta** which is within datetime library, is to **add date or calculate the date** for customer to return their rented car.

6.3 zfill()

```
a = str(inputMonth)
b = a.zfill(2) # Fill in the spaces with '0' to match with the time format
```

According to self-research, zfill() is a built-in function of Python which did not mention in our assignment guidelines such that only max, min, sort, search is not allowed. zfill() **fills in the places of an integer with 0(s).** For example, here zfill(2) means if the input is 1, then the output will be 01.

zfill() is used in our admin search menu in order to match with the booking time of our customer and return the desired output. Specifically, the date format for booking time and return time are **yyyy-mm-dd.** Thus, zfill() is required for January to September **to match with the date format** as admin need to type the month in numeric form.

7.0 Sample Input/Output & Explanations

7.1 Login Menu

```
Good day, user!
I am Gabriel, a menu-driven assistant for this online interface.
Although I am not smart, but you will still need to tell me who you are beforehand. :D
    1 - Login as Admin.
    2 - Login as Customer.
    3 - Register as Customer.
    4 - I am just browsing the car for rent.

Gabriel would kindly like you to introduce yourself first. :D
```

7.2 Admin Main Menu

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
```

7.3 Admin Modify Menu

```
Which section do you want to modify?
    0 - Code
    1 - Car Brand
    2 - Rent Price per day (RM)
    3 - Availability for Rent
    4 - Wrong code? Back to Menu.
```

7.4 Admin Search Menu

```
Yes? How can Gabriel help you to display the data?
    1 - Car Types
    2 - Car Availability
    3 - Customer Bookings for a specific timeframe
    4 - Back to menu
```

7.5 Customer Main Menu

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

   1 - Modify Personal Details
   2 - View Personal Rental History
   3 - View Car Details List
   4 - Book a Car and Make Payment
   5 - Exit

Gabriel awaiting your order. :D
```

7.6 Customer Modify Menu

```
Which section do you wish to modify
    0 - Name
    1 - Phone Number
    2 - Card Number
    3 - Back to Menu
```

7.7 Demonstration

```
============================================================
!< WELCOME TO SUPER CAR RENTAL SERVICES ONLINE INTERFACE >!
============================================================

Good day, user!
I am Gabriel, a menu-driven assistant for this online interface.
Although I am not smart, but you will still need to tell me who you are beforehand. :D
    1 - Login as Admin.
    2 - Login as Customer.
    3 - Register as Customer.
    4 - I am just browsing the car for rent.

Gabriel would kindly like you to introduce yourself first. :D
t
Gabriel do not understand what are you saying. Please type as per the menu give. :(
Gabriel would kindly like you to introduce yourself first. :D
5
Invalid input. Please retype the correct input.
Gabriel would kindly like you to introduce yourself first. :D
1
Enter your admin username and password.
Username: WY
Password: 12
Either your username or password is incorrect. Please try again. :(
Username: WY
Password: 1234321
Login Successful. Welcome, WY ! :)
```

When the admin wants to login to the interface, he or she will need to enter the username and password for admin, which is WY (username) and 1234321 (password). The interface will prompt error whenever the admin key in the wrong username and password, either one. Only when both are correct, the interface will then proceed.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
8
Invalid input. Please retype the correct input.
Gabriel awaiting your order. :D
r
Gabriel do not understand what are you saying. Please type as per the menu give. :(
Gabriel awaiting your order. :D
1
How many cars you want to add?
Example: 6
```

If the admin wants to add car (By typing 1 based on the menu) to the Car_Details.txt, likewise, if the admin typed an invalid input, the interface would prompt again until the admin typed the correct input. Firstly, admin will need to type how many cars he or she wants to add.

The input for the car can only be an integer and no limitations for the number of cars to add into the text file. And if the admin does not want to add a new car, he or she can go back to the menu without making any changes to the text file.

```
How many cars you want to add?
Example: 6
e
Please enter a specific NUMBER of cars to add.
How many cars you want to add?
Example: 6
1

Do you want Gabriel to insert the category for your table? :D
    1 - Yes, please.
    2 - No, thank you.
    3 - You can still go back to the menu.
3

Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
```

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
1
How many cars you want to add?
Example: 6
1

Do you want Gabriel to insert the category for your table? :D
    1 - Yes, please.
    2 - No, thank you.
    3 - You can still go back to the menu.
1

Enter the car types followed by the code number assigned.
    SDN - Sedan
    SUV - Sport Utility Vehicles
    HBK - Hatchback
    MVN - Minivan
    (Example: SDNxxx)
SDN021
Enter the car brand.
Example: Honda Accord
BMW i5 Coupe
Enter the price for rent.
Example: xxx
```

This is an example of adding a new car to the text file. Noted that each input will have a validation like the previous sample shown above, so that the data for the text file will be clean and free of any invalid data. Before adding the car details, the interface will ask whether the admin wants to include the category for the table. After that, admin will need to type the car types according to the menu given and assign a code number to the car, followed by the car brand, the price for rent per day, and the car availability, respectively.

```
Enter the price for rent.
Example: xxx
549
Is the car ready for rent?
Example: Yes/No
Yes
['SDN021', 'BMW i5 Coupe', '549', 'Yes']

Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
```

```
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN001 | Honda City | 249 | Yes
SDN002 | Honda Civic | 259 | Yes
SDN003 | Honda Accord | 209 | Yes
SDN004 | Toyota Vios | 189 | Yes
SDN005 | Nissan Almera | 209 | Yes
MVN006 | Nissan Serena | 419 | Yes
SUV007 | Nissan X-trail | 409 | Yes
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
SUV011 | Proton X70 | 389 | Yes
HBK012 | Toyota Yaris | 179 | Yes
SDN013 | Toyota Corolla | 209 | Yes
SDN014 | Toyota Camry | 189 | Yes
HBK015 | Mazda 3 | 389 | Yes
SDN016 | Mazda 6 | 429 | Yes
HBK017 | Honda Jazz | 229 | Yes
MVN018 | Honda Odyssey | 459 | Yes
MVN019 | Proton Alza | 199 | Yes
HBK020 | Proton Axia | 109 | Yes
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN021 | BMW i5 Coupe | 549 | Yes
```

After typing all the inputs, the interface will show the final data in list which will be appended to the Car_Details.txt and as excepted the data and the category for the table as appended. Slight reminder that if a category is included the index number for SDN021 will be 22 because the category has taken the index number 21.

```
Gabriel awaiting your order. :D
2
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN001 | Honda City | 249 | Yes
SDN002 | Honda Civic | 259 | Yes
SDN003 | Honda Accord | 209 | Yes
SDN004 | Toyota Vios | 189 | Yes
SDN005 | Nissan Almera | 209 | Yes
MVN006 | Nissan Serena | 419 | Yes
SUV007 | Nissan X-trail | 409 | Yes
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
SUV011 | Proton X70 | 389 | Yes
HBK012 | Toyota Yaris | 179 | Yes
SDN013 | Toyota Corolla | 209 | Yes
SDN014 | Toyota Camry | 189 | Yes
HBK015 | Mazda 3 | 389 | Yes
SDN016 | Mazda 6 | 429 | Yes
HBK017 | Honda Jazz | 229 | Yes
MVN018 | Honda Odyssey | 459 | Yes
MVN019 | Proton Alza | 199 | Yes
HBK020 | Proton Axia | 109 | Yes
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN021 | BMW i5 Coupe | 549 | Yes


Enter which code you wish to modify?
Example: 1-20
20
['HBK020', 'Proton Axia', '109', 'Yes']
```

The next function for admin will be to modify the car details within the Car_Details.txt by typing 2 in the menu. When the admin typed 2 and enter to proceed, the interface will print the data in the text file for admin to refer to. After that, admin will need to type the index number to select the specific car detail in order to modify.

When admin typed the index number for the car he or she wants to modify, the interface will print the car details in a list for confirmation. Noted that if admin input the index number which exceed the index number in the text file, an error message will be prompted as below, and admin will need to retype.

```
Enter which code you wish to modify?
Example: 1-20
69
There is no such car in the database.
```

```
Which section do you want to modify?
    0 - Code
    1 - Car Brand
    2 - Rent Price per day (RM)
    3 - Availability for Rent
    4 - Wrong code? Back to Menu.
4
```

Next, the admin will be requested to select which data of the selected car for modification. To assume that admin might wrongly type the index number a 'Back to Menu' option is implemented here for convenience. Noted that when typed the option here, a similar data validation is implemented.

For all part of the interface, when admin modifying the car detail, assume that admin will be extra careful because whatsoever input can be typed. On the bright side, admin can modify the car details once again, if the wrong data is typed. After the modification is done, the whole text file will be printed in list within list format to let admin know that only the part selected is modified.

```
Enter which code you wish to modify?
Example: 1-20
9
['SDN009', 'Perodua Myvi', '109', 'Yes']

Which section do you want to modify?
    0 - Code
    1 - Car Brand
    2 - Rent Price per day (RM)
    3 - Availability for Rent
    4 - Wrong code? Back to Menu.
0
SDN009
Enter the new data to replace the old data.
HBK009
HBK009
[['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
 ['SDN001', 'Honda City', '249', 'Yes'], ['SDN002', 'Honda Civic', '259', '
Yes'], ['SDN003', 'Honda Accord', '209', 'Yes'], ['SDN004', 'Toyota Vios',
'189', 'Yes'], ['SDN005', 'Nissan Almera', '209', 'Yes'], ['MVN006', 'Nissa
n Serena', '419', 'Yes'], ['SUV007', 'Nissan X-trail', '409', 'Yes'], ['SDN
008', 'Proton Saga', '129', 'Yes'], ['HBK009', 'Perodua Myvi', '109', 'Yes'
], ['SUV010', 'Proton X50', '339', 'Yes'], ['SUV011', 'Proton X70', '389',
'Yes'], ['HBK012', 'Toyota Yaris', '179', 'Yes'], ['SDN013', 'Toyota Coroll
a', '209', 'Yes'], ['SDN014', 'Toyota Camry', '189', 'Yes'], ['HBK015', 'Ma
zda 3', '389', 'Yes'], ['SDN016', 'Mazda 6', '429', 'Yes'], ['HBK017', 'Hon
da Jazz', '229', 'Yes'], ['MVN018', 'Honda Odyssey', '459', 'Yes'], ['MVN01
9', 'Proton Alza', '199', 'Yes'], ['HBK020', 'Proton Axia', '109', 'Yes'],
['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
['SDN021', 'BMW i5 Coupe', '549', 'Yes'], [''], ['']]
```

```
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
```

This is a demonstration on the modification of car code from SDN009 to HBK009, along with the proof of change in the text file.

```
Enter which code you wish to modify?
Example: 1-20
9
['HBK009', 'Perodua Myvi', '109', 'Yes']

Which section do you want to modify?
    0 - Code
    1 - Car Brand
    2 - Rent Price per day (RM)
    3 - Availability for Rent
    4 - Wrong code? Back to Menu.
1
Perodua Myvi
Enter the new data to replace the old data.
Perodua Aruz
Perodua Aruz
[['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
 ['SDN001', 'Honda City', '249', 'Yes'], ['SDN002', 'Honda Civic', '259', '
Yes'], ['SDN003', 'Honda Accord', '209', 'Yes'], ['SDN004', 'Toyota Vios',
'189', 'Yes'], ['SDN005', 'Nissan Almera', '209', 'Yes'], ['MVN006', 'Nissa
n Serena', '419', 'Yes'], ['SUV007', 'Nissan X-trail', '409', 'Yes'], ['SDN
008', 'Proton Saga', '129', 'Yes'], ['HBK009', 'Perodua Aruz', '109', 'Yes'
], ['SUV010', 'Proton X50', '339', 'Yes'], ['SUV011', 'Proton X70', '389',
'Yes'], ['HBK012', 'Toyota Yaris', '179', 'Yes'], ['SDN013', 'Toyota Coroll
a', '209', 'Yes'], ['SDN014', 'Toyota Camry', '189', 'Yes'], ['HBK015', 'Ma
zda 3', '389', 'Yes'], ['SDN016', 'Mazda 6', '429', 'Yes'], ['HBK017', 'Hon
da Jazz', '229', 'Yes'], ['MVN018', 'Honda Odyssey', '459', 'Yes'], ['MVN01
9', 'Proton Alza', '199', 'Yes'], ['HBK020', 'Proton Axia', '109', 'Yes'],
['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
['SDN021', 'BMW i5 Coupe', '549', 'Yes'], [''], [''], ['']]
```

```
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Aruz | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
```

This is a demostration on the modification of car brand from Perodua Myvi to Perodua Aruz and the proof of change in the text file.

```
Enter which code you wish to modify?
Example: 1-20
9
['HBK009', 'Perodua Myvi', '109', 'Yes']

Which section do you want to modify?
    0 - Code
    1 - Car Brand
    2 - Rent Price per day (RM)
    3 - Availability for Rent
    4 - Wrong code? Back to Menu.
2
109
Enter the new data to replace the old data.
129
129
[['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
 ['SDN001', 'Honda City', '249', 'Yes'], ['SDN002', 'Honda Civic', '259', '
Yes'], ['SDN003', 'Honda Accord', '209', 'Yes'], ['SDN004', 'Toyota Vios',
'189', 'Yes'], ['SDN005', 'Nissan Almera', '209', 'Yes'], ['MVN006', 'Nissa
n Serena', '419', 'Yes'], ['SUV007', 'Nissan X-trail', '409', 'Yes'], ['SDN
008', 'Proton Saga', '129', 'Yes'], ['HBK009', 'Perodua Myvi', '129', 'Yes'
], ['SUV010', 'Proton X50', '339', 'Yes'], ['SUV011', 'Proton X70', '389',
'Yes'], ['HBK012', 'Toyota Yaris', '179', 'Yes'], ['SDN013', 'Toyota Coroll
a', '209', 'Yes'], ['SDN014', 'Toyota Camry', '189', 'Yes'], ['HBK015', 'Ma
zda 3', '389', 'Yes'], ['SDN016', 'Mazda 6', '429', 'Yes'], ['HBK017', 'Hon
da Jazz', '229', 'Yes'], ['MVN018', 'Honda Odyssey', '459', 'Yes'], ['MVN01
9', 'Proton Alza', '199', 'Yes'], ['HBK020', 'Proton Axia', '109', 'Yes'],
['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
['SDN021', 'BMW i5 Coupe', '549', 'Yes'], [''], ['']]
```

```
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 129 | Yes
SUV010 | Proton X50 | 339 | Yes
```

This is a demostration on the modification of rent price per day from 109 to 129 and the proof of change in the text file.

```
Enter which code you wish to modify?
Example: 1-20
9
['HBK009', 'Perodua Myvi', '129', 'Yes']

Which section do you want to modify?
    0 - Code
    1 - Car Brand
    2 - Rent Price per day (RM)
    3 - Availability for Rent
    4 - Wrong code? Back to Menu.
3
Yes
Enter the new data to replace the old data.
No
No
[['Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'],
 ['SDN001', 'Honda City', '249', 'Yes'], ['SDN002', 'Honda Civic', '259', '
Yes'], ['SDN003', 'Honda Accord', '209', 'Yes'], ['SDN004', 'Toyota Vios',
'189', 'Yes'], ['SDN005', 'Nissan Almera', '209', 'Yes'], ['MVN006', 'Nissa
n Serena', '419', 'Yes'], ['SUV007', 'Nissan X-trail', '409', 'Yes'], ['SDN
008', 'Proton Saga', '129', 'Yes'], ['HBK009', 'Perodua Myvi', '129', 'No']
, ['SUV010', 'Proton X50', '339', 'Yes'], ['SUV011', 'Proton X70', '389', '
Yes'], ['HBK012', 'Toyota Yaris', '179', 'Yes'], ['SDN013', 'Toyota Corolla
', '209', 'Yes'], ['SDN014', 'Toyota Camry', '189', 'Yes'], ['HBK015', 'Maz
da 3', '389', 'Yes'], ['SDN016', 'Mazda 6', '429', 'Yes'], ['HBK017', 'Hond
a Jazz', '229', 'Yes'], ['MVN018', 'Honda Odyssey', '459', 'Yes'], ['MVN019
', 'Proton Alza', '199', 'Yes'], ['HBK020', 'Proton Axia', '109', 'Yes'], [
'Code', 'Car Brand', 'Rent Price per day (RM)', 'Availability for Rent'], [
'SDN021', 'BMW i5 Coupe', '549', 'Yes'], ['']]
```

```
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 129 | No
SUV010 | Proton X50 | 339 | Yes
```

This is a demostration on the modification of car availabity from Yes to No and the proof of change in the text file.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
3
Night | Rented Car Code | SDN021 | Booking Time | 2021-06-14 15:35:35 | Duration
(day(s)) | 20 | Return Before | 2021-07-04 15:35:35 |
```

Admin can display all the rental history records by typing 3 in the menu. The interface will then print all the data from Rental_History_Records.txt. Noted that the input will also have the same data validation as mentioned in previous menu input sample.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
4

Gabriel will help you to find the customer you specified.
Just tell Gabriel the username of the customer.
Gabriel will display all his or her rental records.

Night
['Night', 'Rented Car Code', 'SDN021', 'Booking Time', '2021-06-14 15:35:35', 'Dur
ation (day(s))', '20', 'Return Before', '2021-07-04 15:35:35 |']
Above is/are the rental record(s) of Night
If it is empty, it means the customer does not exist or have not rent a car before
```

If the admin wants to retrieve the rental records of a specific customer, admin can type 4 in the menu, followed by the username of the customer. The interface will display all the records according to the username since username is unique and not duplications. If the display is empty, it means the customer has not rent any car or the customer simply does not exist.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
5
['SDN021', 'BMW i5 Coupe', '549', 'No']

Enter which code you wish to modify?
Example: 1-20
22
['SDN021', 'BMW i5 Coupe', '549', 'No']
Type Yes to return the car.
Type No to remain the car at rented.
Yes
['SDN021', 'BMW i5 Coupe', '549', 'Yes']
The respective car is successfully returned and wating for another rental.
```

Assume that a customer wants to return a rented car, admin can type 5 to display all the car which is rented out (Car Availability = 'No'), which will be easier to locate all the rented car.

```
Type Yes to return the car.
Type No to remain the car at rented.
k
Type Yes to return the car.
Type No to remain the car at rented.
```

Admin will need to type only Yes or No to either return the car or keep the car at rented status. If other input is typed, the interface will prompt admin to retype the input.

```
HBK020 | Proton Axia | 109 | Yes
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN021 | BMW i5 Coupe | 549 | Yes
```

This is the proof of change in the text file which shows that SDN021 now is available for another rental again.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :

    1 - Add Car for Rent
    2 - Modify Car Details
    3 - Display Customer Rental Records
    4 - Search for a specific record
    5 - Return a Rented Car
    6 - Search Engine
    7 - Exit

Gabriel awaiting your order. :D
6

Yes? How can Gabriel help you to display the data?
    1 - Car Types
    2 - Car Availability
    3 - Customer Bookings for a specific timeframe
    4 - Back to menu
```

Admin will also have a search engine to find specific data in the text file by typing 6 in the menu. After that, admin will need to type which data he or she wants to display in the search menu. As usual, admin can return to the main menu by typing 4. Noted that same data validation like previous menu inputs is implemented here.

```
Yes? How can Gabriel help you to display the data?
    1 - Car Types
    2 - Car Availability
    3 - Customer Bookings for a specific timeframe
    4 - Back to menu

1

What types of car are you looking for?
    1 - Sedan (SDN)
    2 - Sport Utility Vehicle (SUV)
    3 - Hatchback (HBK)
    4 - Minivan (MVN)

1
['SDN001', 'Honda City', '249', 'Yes']
['SDN002', 'Honda Civic', '259', 'Yes']
['SDN003', 'Honda Accord', '209', 'Yes']
['SDN004', 'Toyota Vios', '189', 'Yes']
['SDN005', 'Nissan Almera', '209', 'Yes']
['SDN008', 'Proton Saga', '129', 'Yes']
['SDN013', 'Toyota Corolla', '209', 'Yes']
['SDN014', 'Toyota Camry', '189', 'Yes']
['SDN016', 'Mazda 6', '429', 'Yes']
['SDN021', 'BMW i5 Coupe', '549', 'Yes']
```

```
What types of car are you looking for?
    1 - Sedan (SDN)
    2 - Sport Utility Vehicle (SUV)
    3 - Hatchback (HBK)
    4 - Minivan (MVN)

2
['SUV007', 'Nissan X-trail', '409', 'Yes']
['SUV010', 'Proton X50', '339', 'Yes']
['SUV011', 'Proton X70', '389', 'Yes']
```

```
What types of car are you looking for?
    1 - Sedan (SDN)
    2 - Sport Utility Vehicle (SUV)
    3 - Hatchback (HBK)
    4 - Minivan (MVN)

3
['HBK009', 'Perodua Myvi', '129', 'Yes']
['HBK012', 'Toyota Yaris', '179', 'Yes']
['HBK015', 'Mazda 3', '389', 'Yes']
['HBK017', 'Honda Jazz', '229', 'Yes']
['HBK020', 'Proton Axia', '109', 'Yes']
```

```
What types of car are you looking for?
    1 - Sedan (SDN)
    2 - Sport Utility Vehicle (SUV)
    3 - Hatchback (HBK)
    4 - Minivan (MVN)

4
['MVN006', 'Nissan Serena', '419', 'Yes']
['MVN018', 'Honda Odyssey', '459', 'Yes']
['MVN019', 'Proton Alza', '199', 'Yes']
```

If admin wants to search for car types, type 1 in the search menu. After that, if admin wants to display car details of Sedan, code start with SDN, type 1. Sport Utility Vehicles, code start with SUV, type 2. Hatchback, code start with HBK, type 3. Minivan, code start with MVN, type 4. Otherwise, error message will prompt admin to retype again.

```
You are looking car available for rent or car that already rented out?
    1 - Available
    2 - Rented Out

1
['SDN001', 'Honda City', '249', 'Yes']
['SDN002', 'Honda Civic', '259', 'Yes']
['SDN003', 'Honda Accord', '209', 'Yes']
['SDN004', 'Toyota Vios', '189', 'Yes']
['SDN005', 'Nissan Almera', '209', 'Yes']
['MVN006', 'Nissan Serena', '419', 'Yes']
['SUV007', 'Nissan X-trail', '409', 'Yes']
['SDN008', 'Proton Saga', '129', 'Yes']
['HBK009', 'Perodua Myvi', '129', 'Yes']
['SUV010', 'Proton X50', '339', 'Yes']
['SUV011', 'Proton X70', '389', 'Yes']
['HBK012', 'Toyota Yaris', '179', 'Yes']
['SDN013', 'Toyota Corolla', '209', 'Yes']
['SDN014', 'Toyota Camry', '189', 'Yes']
['HBK015', 'Mazda 3', '389', 'Yes']
['SDN016', 'Mazda 6', '429', 'Yes']
['HBK017', 'Honda Jazz', '229', 'Yes']
['MVN018', 'Honda Odyssey', '459', 'Yes']
['MVN019', 'Proton Alza', '199', 'Yes']
['HBK020', 'Proton Axia', '109', 'Yes']
['SDN021', 'BMW i5 Coupe', '549', 'Yes']
```

```
You are looking car available for rent or car that already rented out?
    1 - Available
    2 - Rented Out

2
```

If the admin wants to search for the car availability, type 2 in the search menu. For car ready for rent, type 1 to display and for car are rented out, type 2 to display. Otherwise, an error message will prompt admin to retype.

```
Which month of customer rental records you wish to display?
January (1) - December (12)
Please enter in numeric form.
f
Gabriel do not understand what are you saying. Please type as per the menu give.

Which month of customer rental records you wish to display?
January (1) - December (12)
Please enter in numeric form.
13
There is at most two digits for a month. <O.O> Where are you living?

Which month of customer rental records you wish to display?
January (1) - December (12)
Please enter in numeric form.
```

```
Yes? How can Gabriel help you to display the data?
    1 - Car Types
    2 - Car Availability
    3 - Customer Bookings for a specific timeframe
    4 - Back to menu

3

Which month of customer rental records you wish to display?
January (1) - December (12)
Please enter in numeric form.
6
['Night', 'Rented Car Code', 'SDN021', 'Booking Time', '2021-06-14 15:35:35', 'Dur
ation (day(s))', '20', 'Return Before', '2021-07-04 15:35:35 |']
```

If the admin wants to search the rental history of a specific month, type 3 in the search menu. After that, admin will need to type the month in numeric form which is 1 – 12 and it will display only the month that admin requested. If anything else is being typed, an error message will prompt admin to retype.

```
============================================================
!< WELCOME TO SUPER CAR RENTAL SERVICES ONLINE INTERFACE >!
============================================================

Good day, user!
I am Gabriel, a menu-driven assistant for this online interface.
Although I am not smart, but you will still need to tell me who you are beforehand. :D
    1 - Login as Admin.
    2 - Login as Customer.
    3 - Register as Customer.
    4 - I am just browsing the car for rent.

Gabriel would kindly like you to introduce yourself first. :D
3
Please register in order to access other customer functions.
Username: night
Password: 123
Username already taken. Please try another username. :(
Username: why
Password: 123

Registeration successful. Please fill in your personal information to complete your registeration process.
All your presonal information will be kept private and confidential.
Gabriel will not tell anyone about you. :)

Name to display: haoyee
Phone number: 0126097880
Card number: qwert1234s561213
Your customer details have successfully saved. Please proceed to login for more functions.
```

CustomerUsernamePsw.txt

```
1   night | 156
2   why | 123
3
```

In our Interface of online rental car service, the customer is required to register as a registered customer to unlock the customer function. Customers will need to enter their username and password to register if the username is already taken then it will prompt the user to try again with another username until the username is unique and not use before. Once customers are done register with their username and password then their username and password will be stored in the CustomerUsernamPsw.txt file. Then they will need to enter their personal information such as name, phone number, and card number. After the customer fills up their personal information, they may proceed to log in as a registered customer.

```
============================================================
!< WELCOME TO SUPER CAR RENTAL SERVICES ONLINE INTERFACE >!
============================================================

Good day, user!
I am Gabriel, a menu-driven assistant for this online interface.
Although I am not smart, but you will still need to tell me who you are beforehand. :D
    1 - Login as Admin.
    2 - Login as Customer.
    3 - Register as Customer.
    4 - I am just browsing the car for rent.

Gabriel would kindly like you to introduce yourself first. :D
gg
Gabriel do not understand what are you saying. Please type as per the menu give. :(
Gabriel would kindly like you to introduce yourself first. :D
2
Please enter your username and password to login.
Username: why
Password: 1234
Please enter your username and password to login.
Username: why
Password: 123
Login Successful. Welcome, why ! :)
```

In our menu-driven interface, we will use the try and except ValueError to prompt the customer to key in the given option again if the user is entering the option that does not show above such as '5' or others character. When the customer proceeds to the Login stage, the Customer will need to enter the username and password that they register if the username and password match then it will proceed to the customer function else it will prompt the user to enter again their username and password login till the customer Login was successful.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
1
Please enter your username and password to verify
Username: why
Password: 123
['haoyee', '0126097880', 'qwert1234s561213']

Which section do you wish to modify
    0 - Name
    1 - Phone Number
    2 - Card Number
    3 - Back to Menu
0
Please enter your new display name: houyee
['houyee', '0126097880', 'qwert1234s561213']
Modification Successful.
```

Customer_Details.txt

```
1   haoyee | 0126097880 | qwert1234s561213
2
```

Customer_Details.txt

```
1   houyee | 0126097880 | qwert1234s561213
2
```

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
1
Please enter your username and password to verify
Username: why
Password: 123
['houyee', '0126097880', 'qwert1234s561213']

Which section do you wish to modify
    0 - Name
    1 - Phone Number
    2 - Card Number
    3 - Back to Menu
1
Example: 012xxxxxxx or 011xxxxxxxx
New Phone number: 0126644555
['houyee', '0126644555', 'qwert1234s561213']
Modification Successful.
```

Customer_Details.txt

```
1   houyee | 0126644555 | qwert1234s561213
2
```

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
1
Please enter your username and password to verify
Username: why
Password: 123
['houyee', '0126644555', 'qwert1234s561213']

Which section do you wish to modify
    0 - Name
    1 - Phone Number
    2 - Card Number
    3 - Back to Menu
2
Example: 5839xxxx1622xxxx
New Card number: qweasdasdsad
Invalid card format. Please retype.
Make sure you card number is 16 numbers long.

New Card number: q3412werty987654
['houyee', '0126644555', 'q3412werty987654']
Modification Successful.
```

Customer_Details.txt

```
1    houyee | 0126644555 | q3412werty987654
2
```

In the function of modifying personal details, the customer is required to enter their username and password to verify before modifying. After verifying success customers may choose which section they wish to modify.

The section includes name, phone number, and card number. Then customer will need to enter the new details to modify. If modify succeed, then it will modify the customer detail in the Customer_Details.txt text file as shown in the figure above. Else, if the customer key in the wrong section which excludes ‘0’, ‘1’, ‘2’, ‘3’ then the try and except ValueError will be executed to prompt the customer to enter based on the section just like the menu driven that I had mentioned just now.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
2

Gabriel will need to know your username in order to find your rental history records.
Please kindly type your username.
why
why | Rented Car Code | SDN025 | Booking Time | 2021-06-14 15:31:48 | Duration (day(s)) | 3 | Return Before | 2021-06-17 15:31:48 |

Here is your rental history records, why

If it is empty, it means you have not rent any car yet.
Or maybe you typed your username wrongly.
```


```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
2

Gabriel will need to know your username in order to find your rental history records.
Please kindly type your username.
why
Here is your rental history records, why

If it is empty, it means you have not rent any car yet.
Or maybe you typed your username wrongly.
```


Meanwhile, for the second function which is View personal Rental History customers will need to type their username to view. After entering their username, it will show a line of rental history record which consists of the customer username, the car code that the customer rent, booking time of the car, how many days that the customer rent, and car return time. If it is shown empty it is mean that this customer has not rent any car before or type the wrong username.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
3
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN001 | Honda City | 240 | yes
SDN002 | Honda Civic | 259 | Yes
SDN003 | Honda Accord | 209 | Yes
SDN004 | Toyota Vios | 189 | Yes
SDN005 | Nissan Almera | 209 | Yes
MVN006 | Nissan Serena | 419 | Yes
SUV007 | Nissan X-trail | 409 | Yes
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
SUV011 | Proton X70 | 389 | Yes
HBK012 | Toyota Yaris | 179 | Yes
SDN013 | Toyota Corolla | 209 | Yes
SDN014 | Toyota Camry | 189 | Yes
HBK015 | Mazda 3 | 389 | Yes
SDN016 | Mazda 6 | 429 | Yes
HBK017 | Honda Jazz | 229 | Yes
MVN018 | Honda Odyssey | 459 | Yes
MVN019 | Proton Alza | 199 | Yes
HBK020 | Proton Axia | 99 | No
SDN021 | BMW civic | 234 | No
SUV022 | Mercedes | 121 | No
SDN023 | Honda avv | 132 | No
SUV024 | Mazda  | 367 | Yes
SDN025 | Honda Accord | 111 | Yes
```

For function number 3 view car detail, the customer is allowed to view all the cars that store in our Car_Details.txt. It will show the car code, car brand, Rent price per day, and the availability for rent.

```
Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
4
['SDN002', 'Honda Civic', '259', 'Yes']
['SDN003', 'Honda Accord', '209', 'Yes']
['SDN004', 'Toyota Vios', '189', 'Yes']
['SDN005', 'Nissan Almera', '209', 'Yes']
['MVN006', 'Nissan Serena', '419', 'Yes']
['SUV007', 'Nissan X-trail', '409', 'Yes']
['SDN008', 'Proton Saga', '129', 'Yes']
['HBK009', 'Perodua Myvi', '109', 'Yes']
['SUV010', 'Proton X50', '339', 'Yes']
['SUV011', 'Proton X70', '389', 'Yes']
['HBK012', 'Toyota Yaris', '179', 'Yes']
['SDN013', 'Toyota Corolla', '209', 'Yes']
['SDN014', 'Toyota Camry', '189', 'Yes']
['HBK015', 'Mazda 3', '389', 'Yes']
['SDN016', 'Mazda 6', '429', 'Yes']
['HBK017', 'Honda Jazz', '229', 'Yes']
['MVN018', 'Honda Odyssey', '459', 'Yes']
['MVN019', 'Proton Alza', '199', 'Yes']
['SUV024', 'Mazda ', '367', 'Yes']
['SDN025', 'Honda Accord', '111', 'Yes']
Please select your desired car for rent by typing the code according to the menu.
Example: SDNxxx
SDN025

How many days you like to rent this car for?
Maximum day for rent is 30 days.
NOTE: Rent price is counted as per day. Any wrong input Gabriel will not entertain. :D
```

During the car booking process, we will display all the cars that are available for rent to customers select. Customer is required to enter their desired car code to rent instead of the car brand. Once selected the car code, the Customer will need to choose how many days they want to rent.

```
Please select your desired car for rent by typing the code according to the menu.
Example: SDNxxx
SDN025

How many days you like to rent this car for?
Maximum day for rent is 30 days.
NOTE: Rent price is counted as per day. Any wrong input Gabriel will not entertain. :D
3
The car you requested to rent is
 SDN025 | Honda Accord | 111 | Yes
 The duration you requested is
 3  day(s)

Are you sure?
1 - Yes
2 - No
1
Total amount to pay:  RM  333
Please enter your username and password for confirmation.
Username: why
Password: 123
Verification Successful
Please type your card number to make the payment.
Example: 2487xxxx1523xxxx
Card number: asdad
Invalid card format. Please retype. Make sure your card number is 16 numbers long.
Card number: q3412werty987654
Your booking has confirmed! Booking time is  2021-06-14 15:31:48
Please kindly return your rented car by  2021-06-17 15:31:48
```

After selecting how many days the customer wants to rent if the days that customer enter is exceeded 30 days we will use the try and except ValueError again to inform the customer it is not allowed to rent more than 30 days and ask them to enter their duration again.

Later, we will do a double confirm to check with the customer whether the car code he selects and the time for renting the car are correct or not. If the customer enters 1 which is yes, then it will show the total price for renting the car.

In this spot, the customer will be required to key in their username and password to avoid any error happen. If the username and password that key in by the customer is a match, then we will need the customer to enter their card number to make payment immediately. If the card number is despair with the card number that enter in register stage it will prompt the user to enter the card number again. Once the payment makes which is the card number correct then we will display the booking time and return time of that car.

Car_Details.txt

```
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN001 | Honda City | 240 | Yes
SDN002 | Honda Civic | 259 | Yes
SDN003 | Honda Accord | 209 | Yes
SDN004 | Toyota Vios | 189 | Yes
SDN005 | Nissan Almera | 209 | Yes
MVN006 | Nissan Serena | 419 | Yes
SUV007 | Nissan X-trail | 409 | Yes
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
SUV011 | Proton X70 | 389 | Yes
HBK012 | Toyota Yaris | 179 | Yes
SDN013 | Toyota Corolla | 209 | Yes
SDN014 | Toyota Camry | 189 | Yes
HBK015 | Mazda 3 | 389 | Yes
SDN016 | Mazda 6 | 429 | Yes
HBK017 | Honda Jazz | 229 | Yes
MVN018 | Honda Odyssey | 459 | Yes
MVN019 | Proton Alza | 199 | Yes
HBK020 | Proton Axia | 99 | No
SDN021 | BMW civic | 234 | No
SUV022 | Mercedes | 121 | No
SDN023 | Honda avv | 132 | No
SUV024 | Mazda  | 367 | Yes
SDN025 | Honda Accord | 111 | Yes
```

Car_Details.txt

```
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN001 | Honda City | 240 | yes
SDN002 | Honda Civic | 259 | Yes
SDN003 | Honda Accord | 209 | Yes
SDN004 | Toyota Vios | 189 | Yes
SDN005 | Nissan Almera | 209 | Yes
MVN006 | Nissan Serena | 419 | Yes
SUV007 | Nissan X-trail | 409 | Yes
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 109 | Yes
SUV010 | Proton X50 | 339 | Yes
SUV011 | Proton X70 | 389 | Yes
HBK012 | Toyota Yaris | 179 | Yes
SDN013 | Toyota Corolla | 209 | Yes
SDN014 | Toyota Camry | 189 | Yes
HBK015 | Mazda 3 | 389 | Yes
SDN016 | Mazda 6 | 429 | Yes
HBK017 | Honda Jazz | 229 | Yes
MVN018 | Honda Odyssey | 459 | Yes
MVN019 | Proton Alza | 199 | Yes
HBK020 | Proton Axia | 99 | No
SDN021 | BMW civic | 234 | No
SUV022 | Mercedes | 121 | No
SDN023 | Honda avv | 132 | No
SUV024 | Mazda  | 367 | Yes
SDN025 | Honda Accord | 111 | No
```

Rental_History_Records.txt

```
why | Rented Car Code | SDN025 | Booking Time | 2021-06-14 15:31:48 | Duration (day(s)) | 3 | Return Before | 2021-06-17 15:31:48 |
```

When the booking has been confirmed we will rewrite the availability in the Car_Details.txt text file from ‘Yes’ to ‘No’. Mean that the car is no longer available for Rent so when the next customer visits our online Rental car service it will show the car code availability is ‘No’. It will also store the history of the rental record in Rental_History-_Records.txt text file with the username followed by the car code, booking time, duration , and return time in a line.

```
Please select your desired car for rent by typing the code according to the menu.
Example: SDNxxx
SUV024

How many days you like to rent this car for?
Maximum day for rent is 30 days.
NOTE: Rent price is counted as per day. Any wrong input Gabriel will not entertain. :D
12
The car you requested to rent is
 SUV024 | Mazda  | 367 | Yes
 The duration you requested is
 12  day(s)

Are you sure?
1 - Yes
2 - No
2
Booking process cancelled. Gabriel took you back to the menu. :)

Gabriel at your service. How can I kindly help you?
Please select the function below so that I know what you want me to do. :)

    1 - Modify Personal Details
    2 - View Personal Rental History
    3 - View Car Details List
    4 - Book a Car and Make Payment
    5 - Exit

Gabriel awaiting your order. :D
```

If the customer regrets after choosing the desired car code, the customer may enter 2 which is ‘No’ to cancel the booking process and back to the customer function menu.

```
Good day, user!
I am Gabriel, a menu-driven assistant for this online interface.
Although I am not smart, but you will still need to tell me who you are beforehand
. :D
    1 - Login as Admin.
    2 - Login as Customer.
    3 - Register as Customer.
    4 - I am just browsing the car for rent.

Gabriel would kindly like you to introduce yourself first. :D
4
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN001 | Honda City | 249 | Yes
SDN002 | Honda Civic | 259 | Yes
SDN003 | Honda Accord | 209 | Yes
SDN004 | Toyota Vios | 189 | Yes
SDN005 | Nissan Almera | 209 | Yes
MVN006 | Nissan Serena | 419 | Yes
SUV007 | Nissan X-trail | 409 | Yes
SDN008 | Proton Saga | 129 | Yes
HBK009 | Perodua Myvi | 129 | Yes
SUV010 | Proton X50 | 339 | Yes
SUV011 | Proton X70 | 389 | Yes
HBK012 | Toyota Yaris | 179 | Yes
SDN013 | Toyota Corolla | 209 | Yes
SDN014 | Toyota Camry | 189 | Yes
HBK015 | Mazda 3 | 389 | Yes
SDN016 | Mazda 6 | 429 | Yes
HBK017 | Honda Jazz | 229 | Yes
MVN018 | Honda Odyssey | 459 | Yes
MVN019 | Proton Alza | 199 | Yes
HBK020 | Proton Axia | 109 | Yes
Code | Car Brand | Rent Price per day (RM) | Availability for Rent
SDN021 | BMW i5 Coupe | 549 | Yes
```

For everyone to browse for the car details, type 4 in the interface menu. The interface will display all the data in the Car_Details.txt. This will allow non-registered customer to view the car available for rent. If they wish to rent the car, they will need to register and login to the interface.

8.0 Conclusion

To implement and structure a code an online car rental system program, our team has to grasp the **concepts of basic python source code** such as variable, list, IF and ELSE statement, looping structure, file, function, try and except statement, and many more. Nevertheless, our team faced numerous **challenges** throughout the course of implementing this system as members' knowledge of Python code was **merely mediocre.**

However, our team managed to pull off with the help and aids of lecturers and the Internet. The workload was incredibly heavy hence **communication** between the team was **essential.** Effective communications aids in the efficiency in the task delegation. Besides that, the numbers of misunderstanding and argument had been **greatly reduced** result from the effective communication between our team. Apart from that, the team has managed to debug the system which contributed to the **improvements in problem-solving skills.** By mastering this skill, it will develop our coding skills in Python and **enhance our understanding** towards the **logic and design** of Python programming code.

Undeniably, this assignment has brought us **more pros than cons** since it has provided an opportunity for us to strengthen our career-essential skills and rounder our weaknesses.

9.0 References

W3Schools, (2021) Python tutorial. [Online]. Available from: W3Schools. https://www.w3schools.com/python/default.asp [Accessed 15 April 2021]

GeeksforGeeks, (2021) Python programming languae. [Online]. Available from: GeeksforGeeks. https://www.geeksforgeeks.org/python-programming-language/ [Accessed 18 April 2021]

RFFlow5, (2021) Professional flowcharting software. What do the different flowchart shapes mean? [Online]. Available from: RFFlow5. https://www.rff.com/flowchart_shapes.php [Accessed 6 June 2021]

Gliffy, (2019) Guide to flowchart symbols, from basic to advanced, November. [Online]. Available from: Gliffy. https://www.gliffy.com/blog/guide-to-flowchart-symbols [Accessed 6 June 2021]

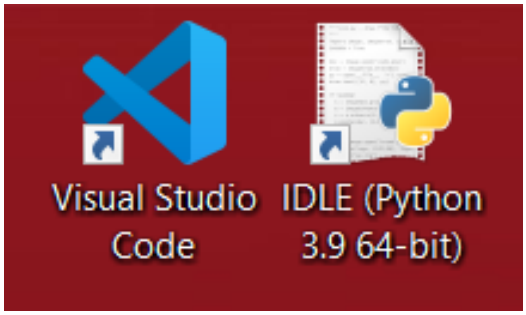
**These are the links for the website main page used for multiple research and additional learning. All learning examples and materials are from the same websites.*

10.0 Appendix

10.1 Workload Matrix

Members	Workload (Delegated & Together)	
Yip Zi Xian	**Documentation** – Chapter 1.0, Chapter 4.0, Chapter 5.6 – 5.9, Chapter 9.0, Chapter 10.0 **Design** – Flowcharts **Code** – Admin functionality, Browsing functionality	**Documentation** – Chapter 6.0, Chapter 7.0, Checking and submission **Design** – Minor fixing of both flowcharts and pseudocode **Code** – Debugging and checking code execution
Wong Hou Yee	**Documentation** – Chapter 2.0, Chapter 3.0, Chapter 5.1 – 5.5, Chapter 8.0 **Design** – Pseudocode **Code** – Customer Functionality, Register Functionality	

10.2 Platform Used



i. Visual Studio Code

ii. Python IDLE (64-bit)