INDIAN SCHOOL, AL GHUBRA

SULTANATE OF OMAN

PRACTICAL RECORD

COMPUTER SCIENCE (NEW) - 083

2020 - 21

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Class: **12** Section: **A**

CERTIFICATE

It is hereby certified that ***Syed Ayaan Jilani*** *of Class* ***12*** *Section* ***A*** *has carried out the necessary practical work as per the syllabus prescribed by the* ***Central Board of Secondary Education****, New Delhi, for the academic year* ***2020-2021****.*

Principal School Seal Teacher – in – Charge

Date:

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24	25/8	1. Write a python program that allowing you to create a directory in the desktop called myDir. 2. Write a Python program allowing you to create a file in the desktop named myFile.txt and write it the following lines: Here is an example of a text file This file was created with python We can write on this file 3. Write a Python program allowing you to moving myFile.txt in the directory myDir.	47-48	

Ex.1

Pig Latin is a common secret language (also known as an argot). Words are created in Pig Latin by taking the first letter of the word, moving it to the end, and adding 'ay'.

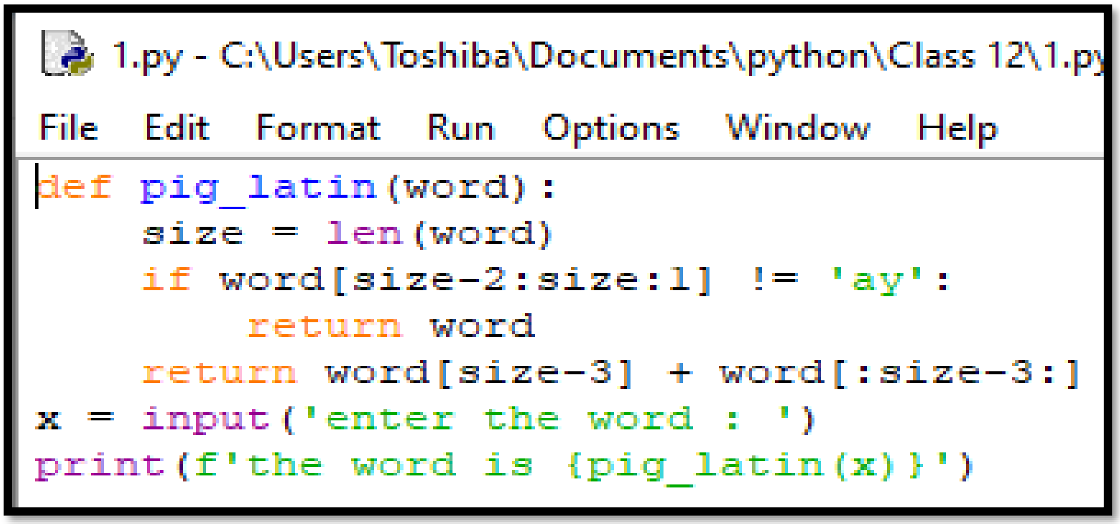
Write an user defined function that receives a Pig Latin word and translate back into English and return it. Like this:

Word: athsmay
maths

If the word does not end in ay then do not change anything:

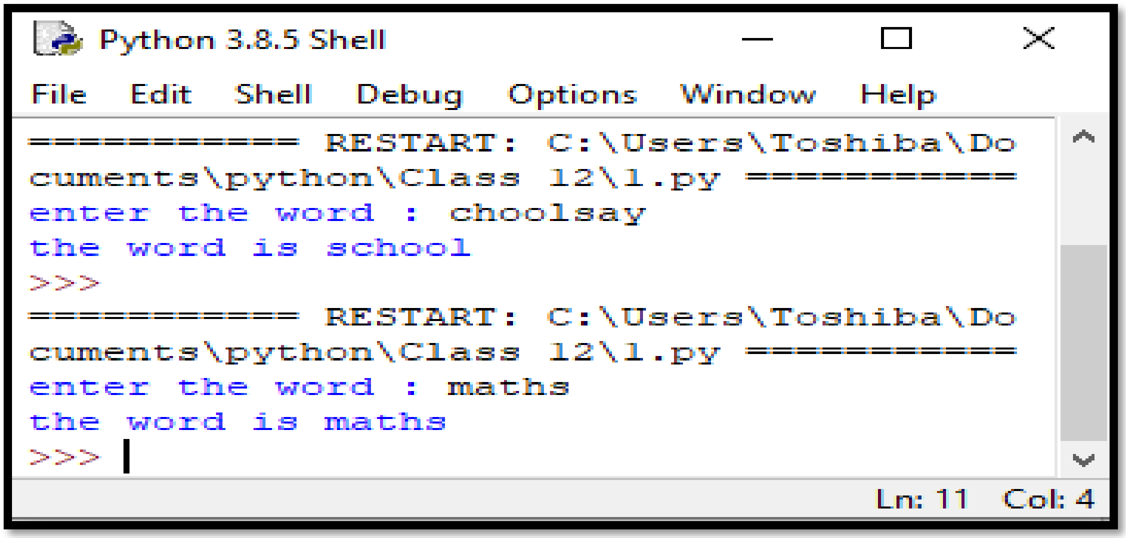
Word: science
Science

********** CODE************


1.py - C:\Users\Toshiba\Documents\python\Class 12\1.py
File Edit Format Run Options Window Help

```
def pig_latin(word):
    size = len(word)
    if word[size-2:size:1] != 'ay':
        return word
    return word[size-3] + word[:size-3:]
x = input('enter the word : ')
print(f'the word is {pig_latin(x)}')
```

********** OUTPUT************



```
=========== RESTART: C:\Users\Toshiba\Do
cuments\python\Class 12\1.py ===========
enter the word : choolsay
the word is school
>>> 
=========== RESTART: C:\Users\Toshiba\Do
cuments\python\Class 12\1.py ===========
enter the word : maths
the word is maths
>>> 
```

Ex.2

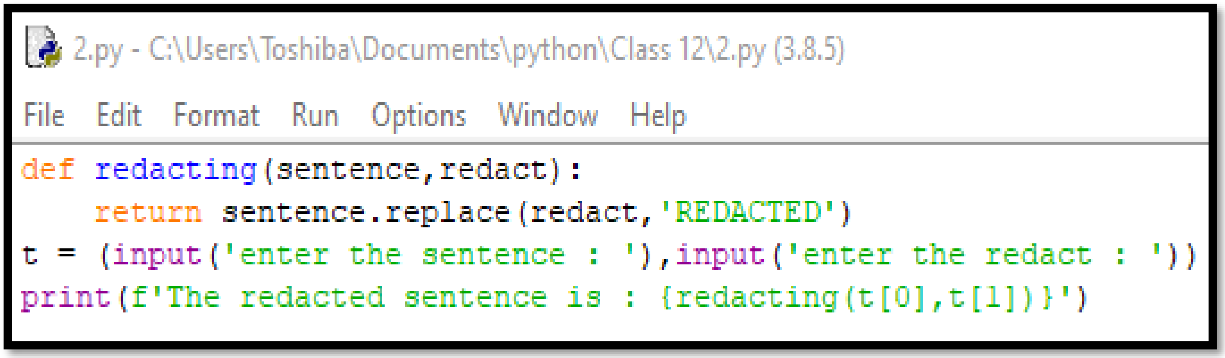
To redact means to edit or obscure text, sometimes for security or legal reasons. Write an UDF which redacts Top Secret documents. Your function should read in a string to be redacted, and some text. Your function should print the text, replacing the redacted string with REDACTED.

Here is an example:
Redact: Hercules Mulligan
Text: The spy's name is Hercules Mulligan.
The spy's name is REDACTED.

Your function should only work when the string matches exactly, including case:
Redact: rochambeau
Text: Rochambeau is the code word. When you hear rochambeau it is time to charge the fort.
Rochambeau is the code word. When you hear REDACTED it is time to charge the fort.

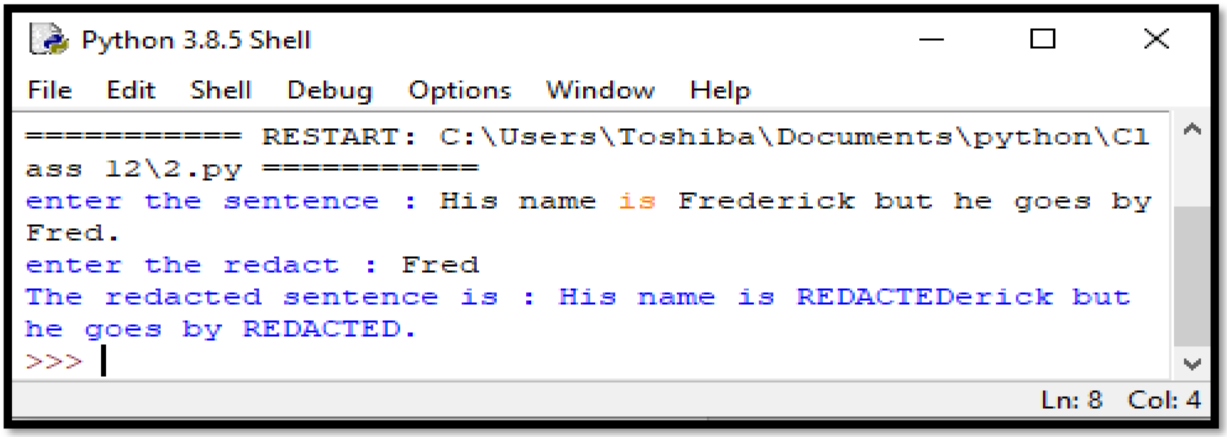
Here is an example with multiple replacements. Sometimes the replacements might be a bit strange!
Redact: Fred
Text: His name is Frederick but he goes by Fred.
His name is REDACTEDerick but he goes by REDACTED.

********** CODE************


2.py - C:\Users\Toshiba\Documents\python\Class 12\2.py (3.8.5)
File Edit Format Run Options Window Help

```python
def redacting(sentence,redact):
    return sentence.replace(redact,'REDACTED')
t = (input('enter the sentence : '),input('enter the redact : '))
print(f'The redacted sentence is : {redacting(t[0],t[1])}')
```

********** OUTPUT************

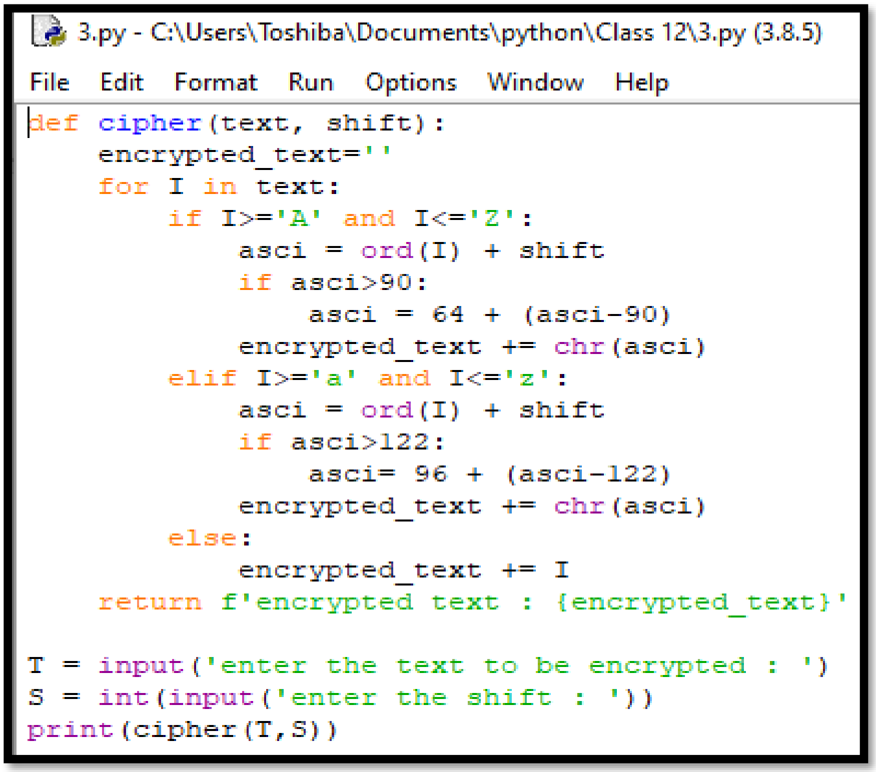


```
=========== RESTART: C:\Users\Toshiba\Documents\python\Cl
ass 12\2.py ===========
enter the sentence : His name is Frederick but he goes by
Fred.
enter the redact : Fred
The redacted sentence is : His name is REDACTEDerick but
he goes by REDACTED.
>>> 
```

Ex.3

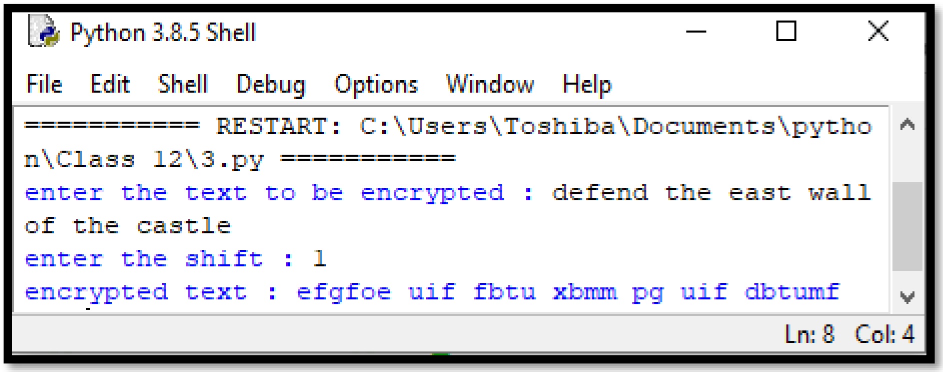
The Caesar cipher is one of the earliest known and simplest ciphers. It is a type of substitution cipher in which each letter in the plaintext is 'shifted' a certain number of places down the alphabet. For example, with a shift of 1, A would be replaced by B, B would become C, and so on. The method is named after Julius Caesar, who apparently used it to communicate with his
generals.
Write an user defined function in Python that takes a Text and a Shift as arguments and returns the encrypted text.
Here is a quick example of the encryption with the Caesar cipher. The text we will encrypt is 'defend the east wall of the castle', with a shift of 1.
plaintext: defend the east wall of the castle
ciphertext: efgfoe uif fbtu xbmm pg uif dbtumf

********** CODE************


3.py - C:\Users\Toshiba\Documents\python\Class 12\3.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```python
def cipher(text, shift):
    encrypted_text=''
    for I in text:
        if I>='A' and I<='Z':
            asci = ord(I) + shift
            if asci>90:
                asci = 64 + (asci-90)
            encrypted_text += chr(asci)
        elif I>='a' and I<='z':
            asci = ord(I) + shift
            if asci>122:
                asci= 96 + (asci-122)
            encrypted_text += chr(asci)
        else:
            encrypted_text += I
    return f'encrypted text : {encrypted_text}'

T = input('enter the text to be encrypted : ')
S = int(input('enter the shift : '))
print(cipher(T,S))
```

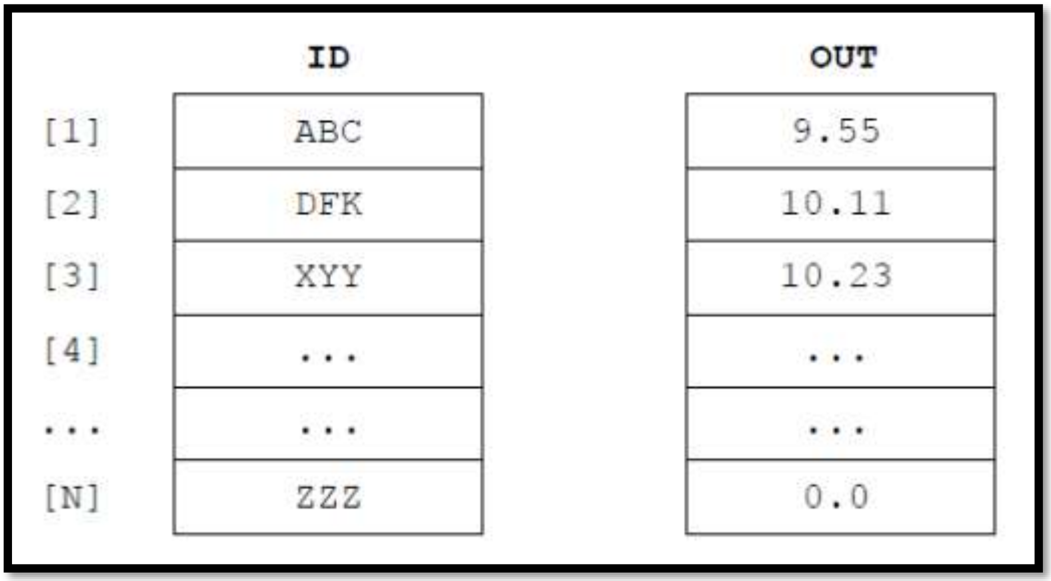
********** OUTPUT************



```
=========== RESTART: C:\Users\Toshiba\Documents\pytho
n\Class 12\3.py ===========
enter the text to be encrypted : defend the east wall
of the castle
enter the shift : 1
encrypted text : efgfoe uif fbtu xbmm pg uif dbtumf
```

Ex.4

In the rental shop system, the BIKEID and time OUT are stored in parallel lists as follows:



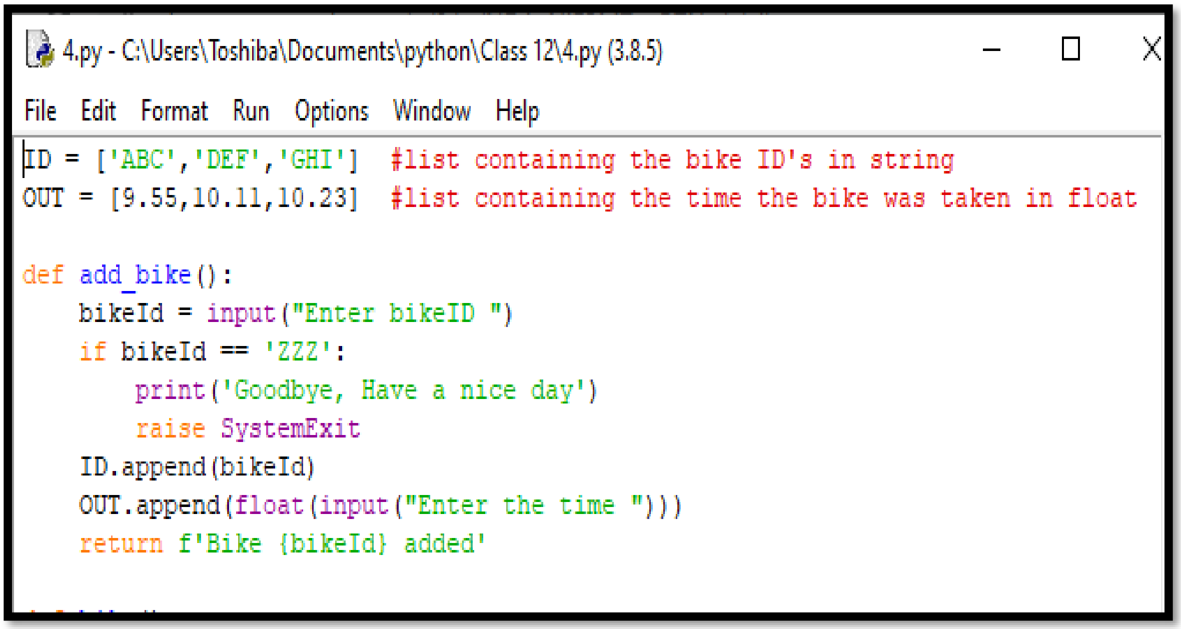
	ID	OUT
[1]	ABC	9.55
[2]	DFK	10.11
[3]	XYY	10.23
[4]	...	...
...	...	...
[N]	ZZZ	0.0

The end of the BIKEID list is marked with the rogue value ZZZ. ID is a string list and OUT is a list of real numbers representing times. When a bike is returned, the following operations are needed:

� the ID is looked up in the ID array
� if the ID does not exist an error message is output
� the OUT time is found
� the current time is input & the difference between that and time OUT is output

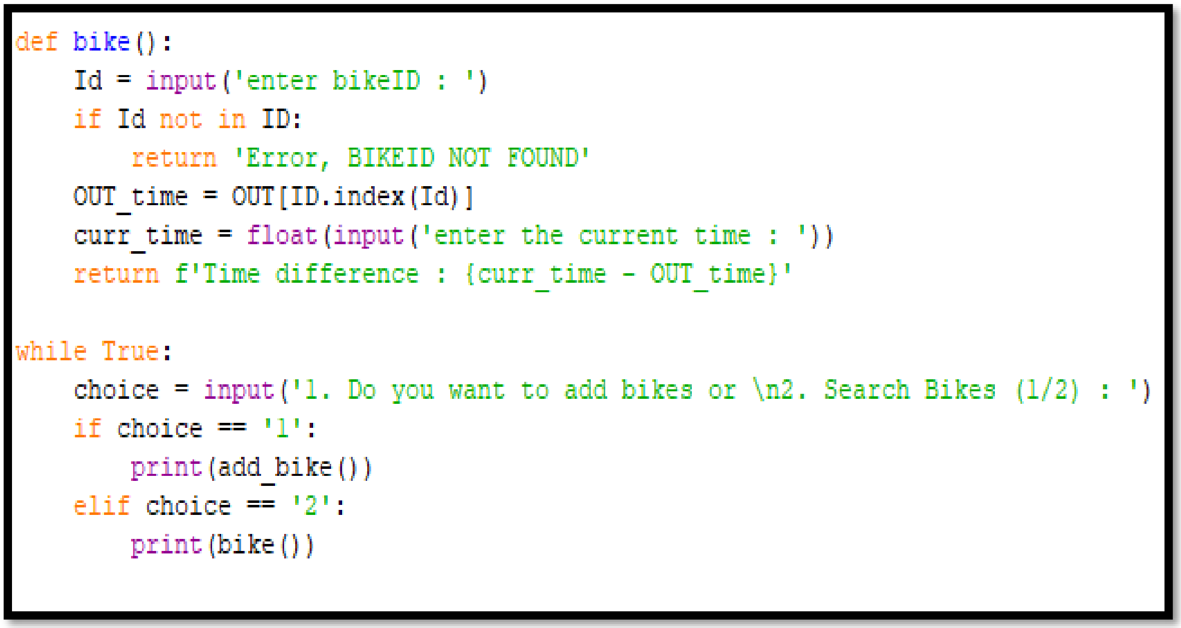
Write a user defined function in python that receives the ID, OUT and the BIKEID if the returned bike as arguments and perform the above mentioned operations.

********** CODE************



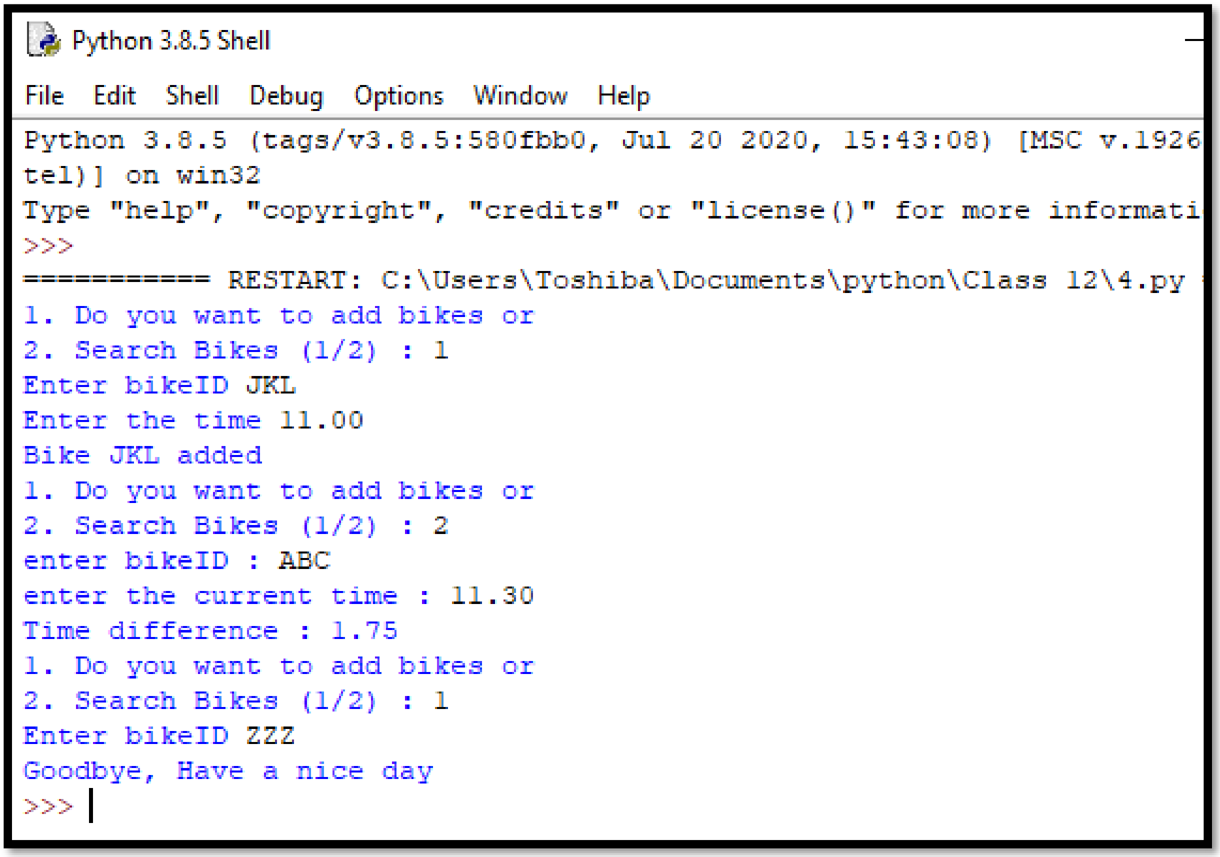
4.py - C:\Users\Toshiba\Documents\python\Class 12\4.py (3.8.5)
File Edit Format Run Options Window Help

```python
ID = ['ABC','DEF','GHI']  #list containing the bike ID's in string
OUT = [9.55,10.11,10.23]  #list containing the time the bike was taken in float

def add_bike():
    bikeId = input("Enter bikeID ")
    if bikeId == 'ZZZ':
        print('Goodbye, Have a nice day')
        raise SystemExit
    ID.append(bikeId)
    OUT.append(float(input("Enter the time ")))
    return f'Bike {bikeId} added'
```



```
def bike():
    Id = input('enter bikeID : ')
    if Id not in ID:
        return 'Error, BIKEID NOT FOUND'
    OUT_time = OUT[ID.index(Id)]
    curr_time = float(input('enter the current time : '))
    return f'Time difference : {curr_time - OUT_time}'

while True:
    choice = input('1. Do you want to add bikes or \n2. Search Bikes (1/2) : ')
    if choice == '1':
        print(add_bike())
    elif choice == '2':
        print(bike())
```

********** OUTPUT************

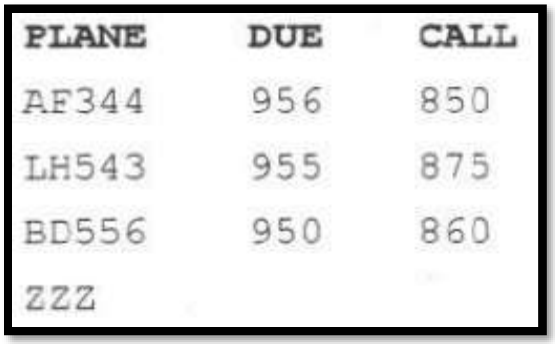


```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more informati
>>>
=========== RESTART: C:\Users\Toshiba\Documents\python\Class 12\4.py
1. Do you want to add bikes or
2. Search Bikes (1/2) : 1
Enter bikeID JKL
Enter the time 11.00
Bike JKL added
1. Do you want to add bikes or
2. Search Bikes (1/2) : 2
enter bikeID : ABC
enter the current time : 11.30
Time difference : 1.75
1. Do you want to add bikes or
2. Search Bikes (1/2) : 1
Enter bikeID ZZZ
Goodbye, Have a nice day
>>>
```

Ex.5

When an airplane is ready to take off, the pilot calls air traffic control to notify them. The number of the airplane, the time it was due to take off and the time called in are added to a list. When there is a free runway, the first plane on the list is called to take off. The airplane identifier, call time and due time are stored in three lists- PLANE, DUE and CALL. An entry of ZZZ in the PLANE array indicates that there are no further airplanes waiting. (Due time and call time are both stored as minutes since midnight.)

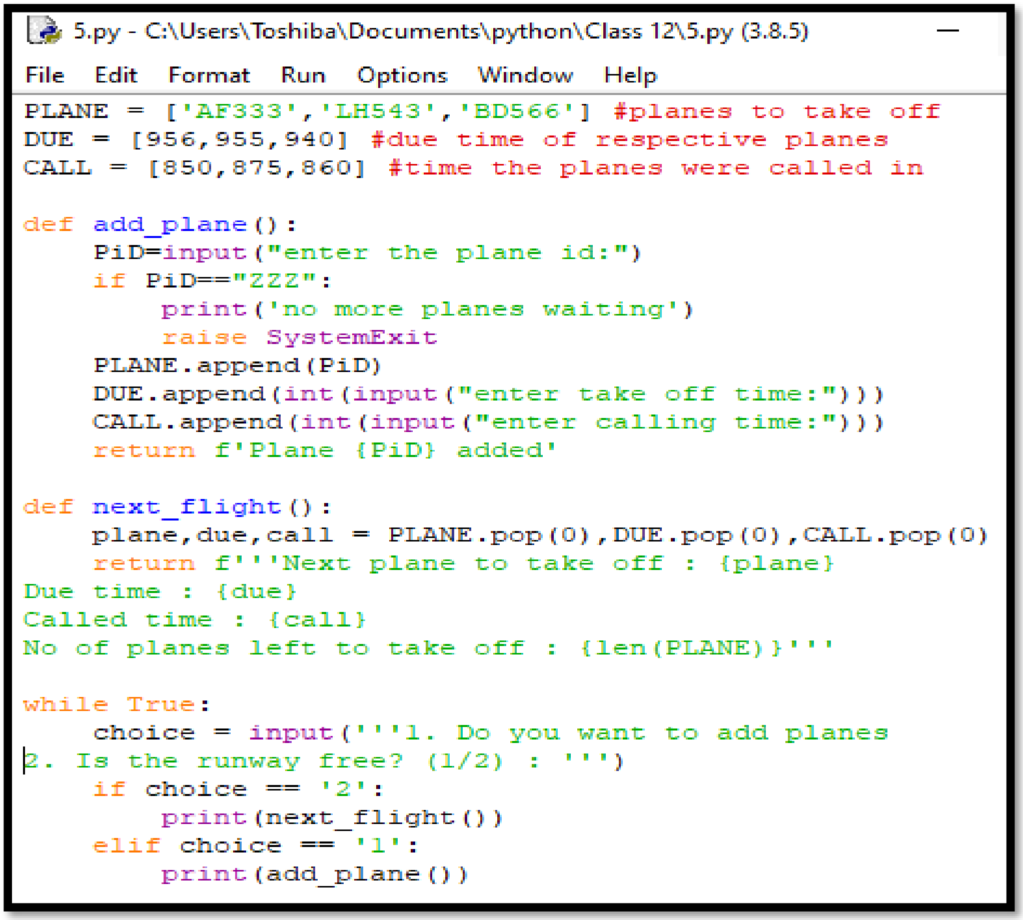
For example, when there are three planes waiting, the lists could be as follows.



PLANE	DUE	CALL
AF344	956	850
LH543	955	875
BD556	950	860
ZZZ		

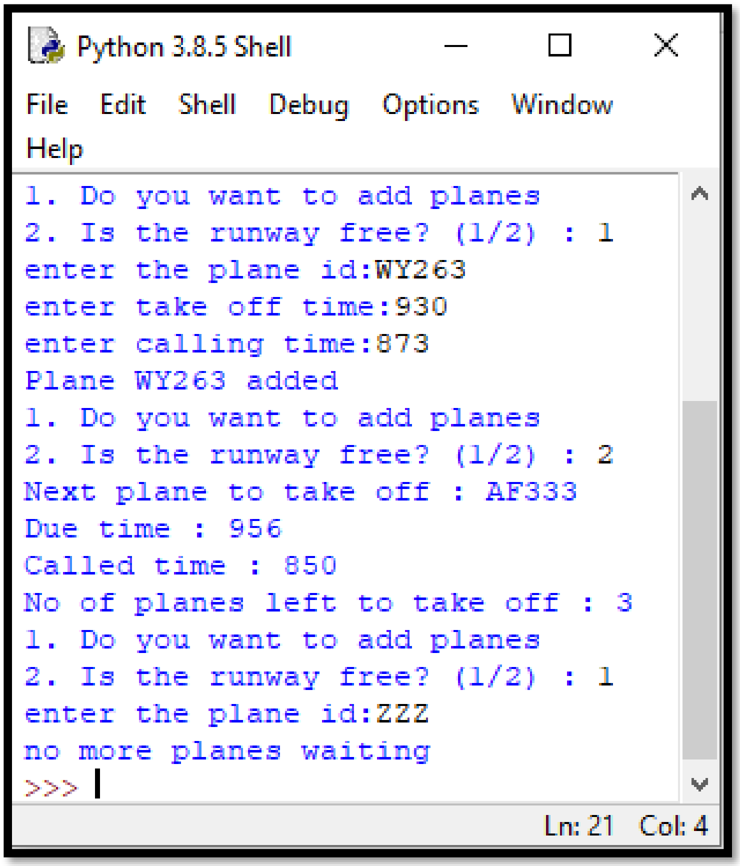
Write an user defined procedure that returns the identifier of the next airplane to take off and the number of airplanes left in the list. In addition, the procedure moves the remaining airplanes up the list.

********** CODE************


5.py - C:\Users\Toshiba\Documents\python\Class 12\5.py (3.8.5)
File Edit Format Run Options Window Help

```
PLANE = ['AF333','LH543','BD566'] #planes to take off
DUE = [956,955,940] #due time of respective planes
CALL = [850,875,860] #time the planes were called in

def add_plane():
    PiD=input("enter the plane id:")
    if PiD=="ZZZ":
        print('no more planes waiting')
        raise SystemExit
    PLANE.append(PiD)
    DUE.append(int(input("enter take off time:")))
    CALL.append(int(input("enter calling time:")))
    return f'Plane {PiD} added'

def next_flight():
    plane,due,call = PLANE.pop(0),DUE.pop(0),CALL.pop(0)
    return f'''Next plane to take off : {plane}
Due time : {due}
Called time : {call}
No of planes left to take off : {len(PLANE)}'''

while True:
    choice = input('''1. Do you want to add planes
2. Is the runway free? (1/2) : ''')
    if choice == '2':
        print(next_flight())
    elif choice == '1':
        print(add_plane())
```

********** OUTPUT***********

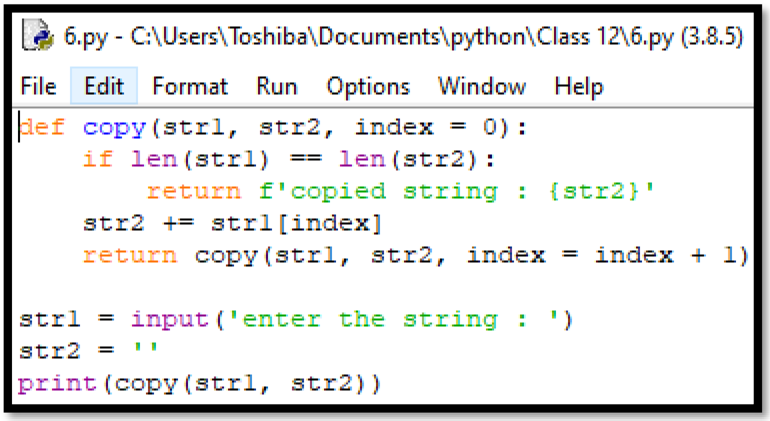


```
1. Do you want to add planes
2. Is the runway free? (1/2) : 1
enter the plane id:WY263
enter take off time:930
enter calling time:873
Plane WY263 added
1. Do you want to add planes
2. Is the runway free? (1/2) : 2
Next plane to take off : AF333
Due time : 956
Called time : 850
No of planes left to take off : 3
1. Do you want to add planes
2. Is the runway free? (1/2) : 1
enter the plane id:ZZZ
no more planes waiting
>>> 
```

Ex.6

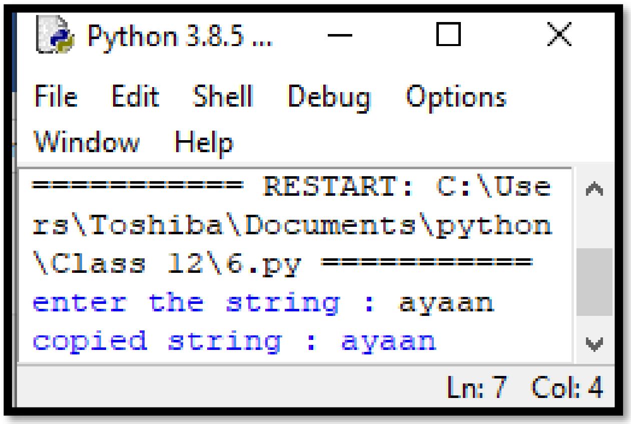
Write a Program to copy one String to another using Recursion.

********** CODE************


6.py - C:\Users\Toshiba\Documents\python\Class 12\6.py (3.8.5)
File Edit Format Run Options Window Help

```
def copy(str1, str2, index = 0):
    if len(str1) == len(str2):
        return f'copied string : {str2}'
    str2 += str1[index]
    return copy(str1, str2, index = index + 1)

str1 = input('enter the string : ')
str2 = ''
print(copy(str1, str2))
```

********** OUTPUT************

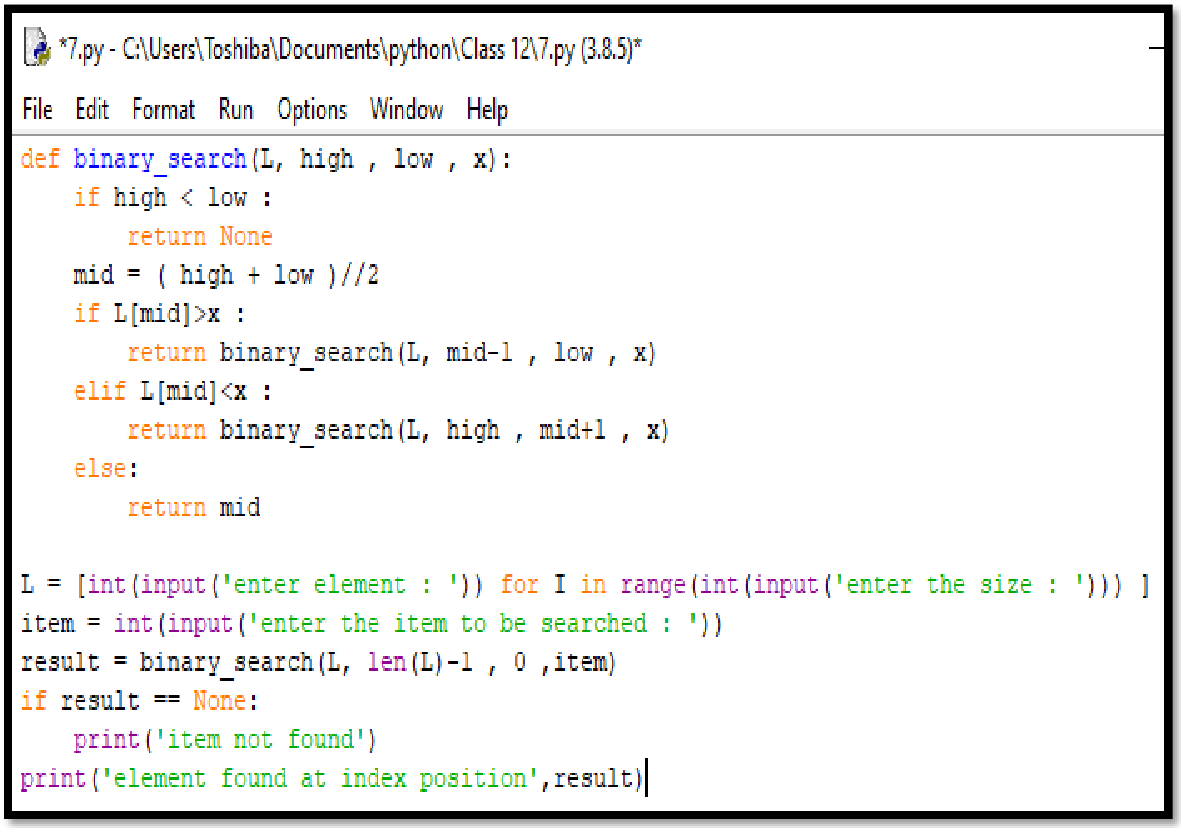


```
=========== RESTART: C:\Use
rs\Toshiba\Documents\python
\Class 12\6.py ===========
enter the string : ayaan
copied string : ayaan
```

Ex.7

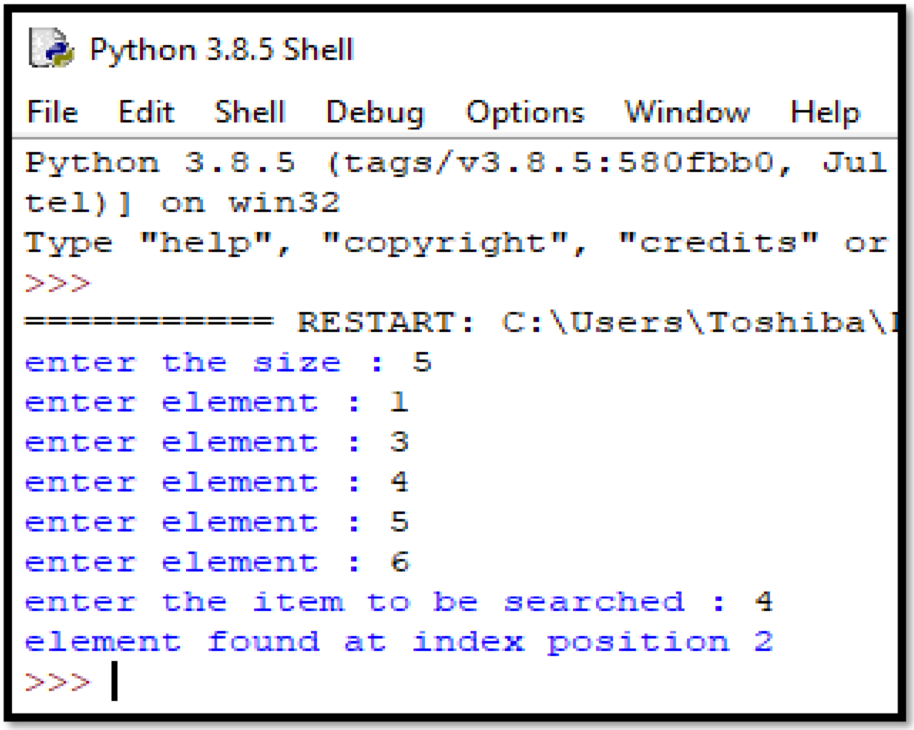
Write a recursive program to implement binary search in a list of integers. Assume that the elements in the list are in ascending order.

********** CODE************


7.py - C:\Users\Toshiba\Documents\python\Class 12\7.py (3.8.5)
File Edit Format Run Options Window Help

```
def binary_search(L, high , low , x):
    if high < low :
        return None
    mid = ( high + low )//2
    if L[mid]>x :
        return binary_search(L, mid-1 , low , x)
    elif L[mid]<x :
        return binary_search(L, high , mid+1 , x)
    else:
        return mid

L = [int(input('enter element : ')) for I in range(int(input('enter the size : '))) ]
item = int(input('enter the item to be searched : '))
result = binary_search(L, len(L)-1 , 0 ,item)
if result == None:
    print('item not found')
print('element found at index position',result)
```

********** OUTPUT************

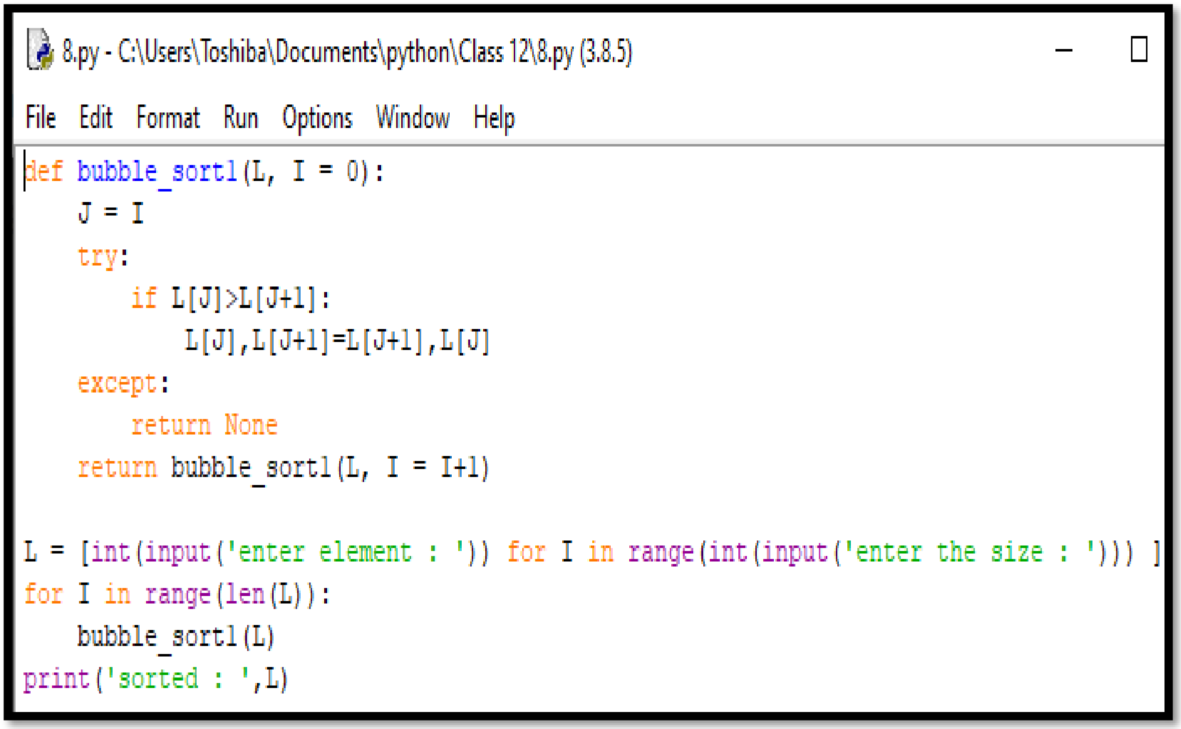


```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul
tel)] on win32
Type "help", "copyright", "credits" or
>>>
=========== RESTART: C:\Users\Toshiba\
enter the size : 5
enter element : 1
enter element : 3
enter element : 4
enter element : 5
enter element : 6
enter the item to be searched : 4
element found at index position 2
>>>
```

Ex.8

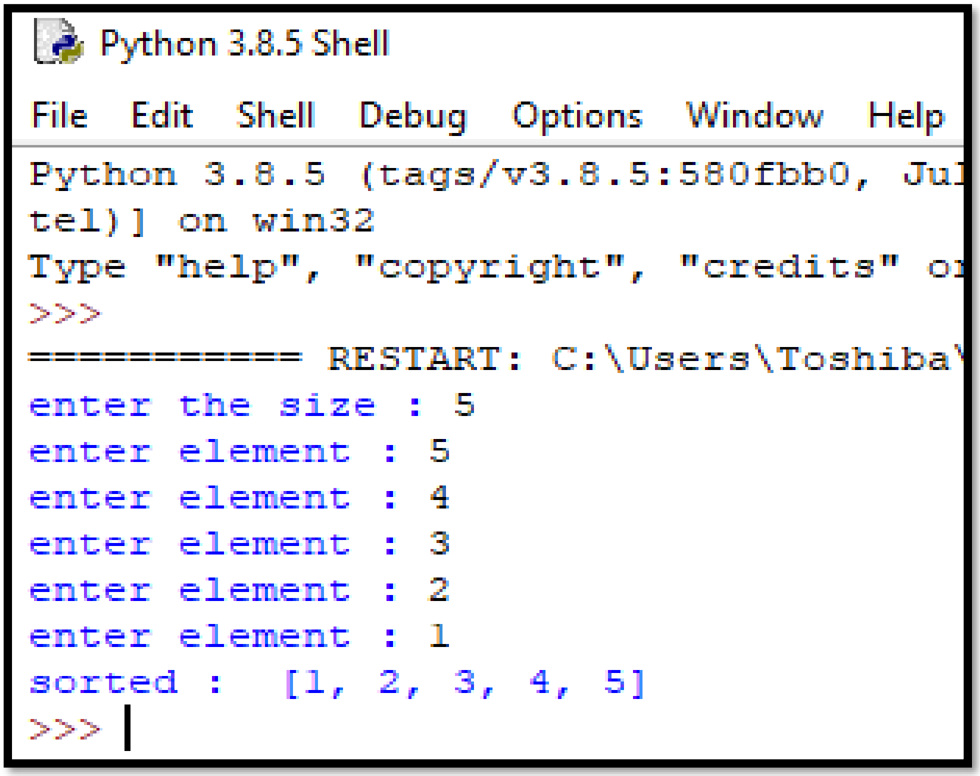
Bubble Sort is the simplest sorting algorithm that works by repeatedly swapping the adjacent elements if they are in wrong order. Write a recursive program to arrange the list of elements in ascending order.

********** CODE************


8.py - C:\Users\Toshiba\Documents\python\Class 12\8.py (3.8.5)
File Edit Format Run Options Window Help

```python
def bubble_sort1(L, I = 0):
    J = I
    try:
        if L[J]>L[J+1]:
            L[J],L[J+1]=L[J+1],L[J]
    except:
        return None
    return bubble_sort1(L, I = I+1)

L = [int(input('enter element : ')) for I in range(int(input('enter the size : '))) ]
for I in range(len(L)):
    bubble_sort1(L)
print('sorted : ',L)
```

********** OUTPUT************



```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul
tel)] on win32
Type "help", "copyright", "credits" or
>>>
=========== RESTART: C:\Users\Toshiba\
enter the size : 5
enter element : 5
enter element : 4
enter element : 3
enter element : 2
enter element : 1
sorted :  [1, 2, 3, 4, 5]
>>> 
```

Ex.9

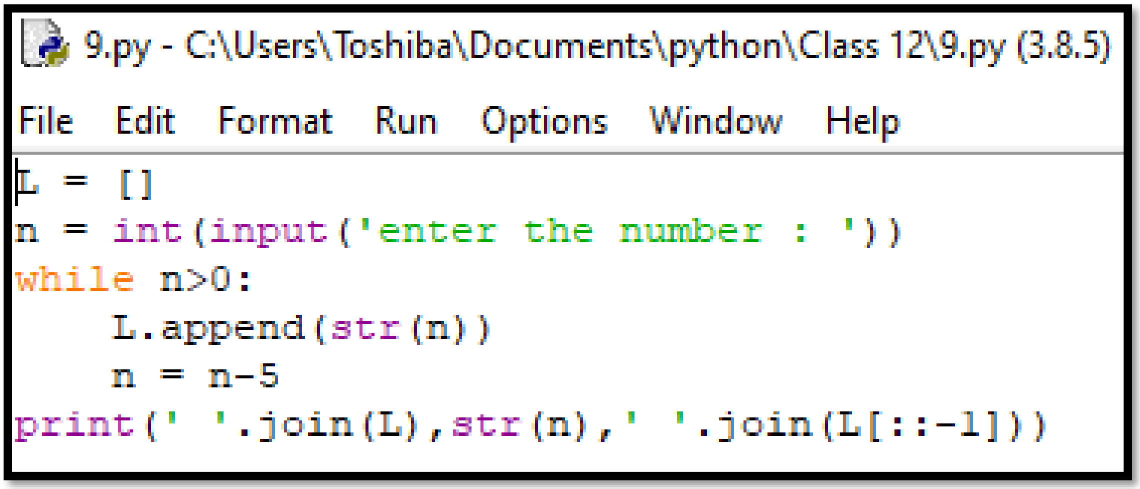
Write program to print a pattern without using recursion. Given a number n, print following a pattern.

Examples :
Input: n = 16
Output: 16, 11, 6, 1, -4, 1, 6, 11, 16

Input: n = 10
Output: 10, 5, 0, 5, 10

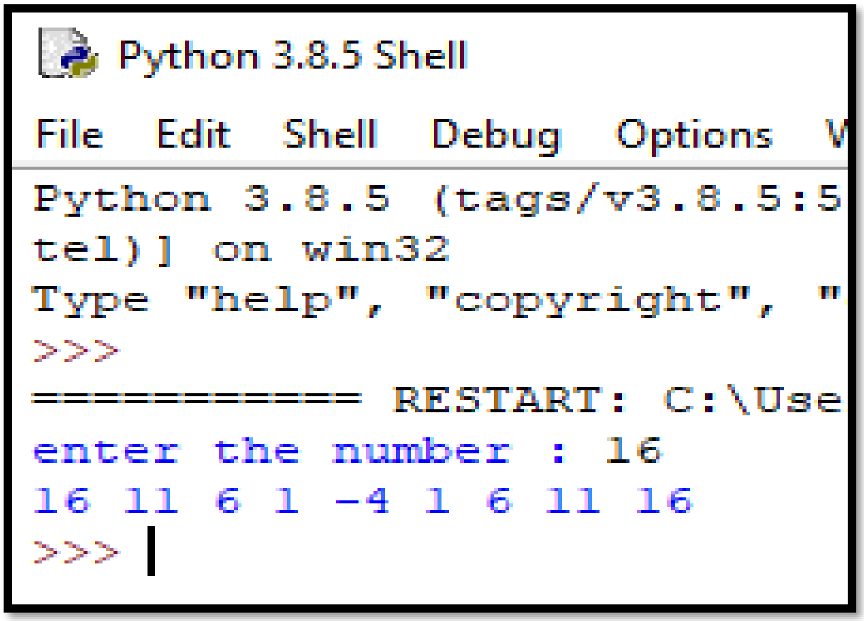
We basically first reduce 5 one by one until we reach a negative or 0. After we reach 0 or negative, we add 5 until we reach n.

********** CODE************


9.py - C:\Users\Toshiba\Documents\python\Class 12\9.py (3.8.5)
File Edit Format Run Options Window Help

```
L = []
n = int(input('enter the number : '))
while n>0:
    L.append(str(n))
    n = n-5
print(' '.join(L),str(n),' '.join(L[::-1]))
```

********** OUTPUT************

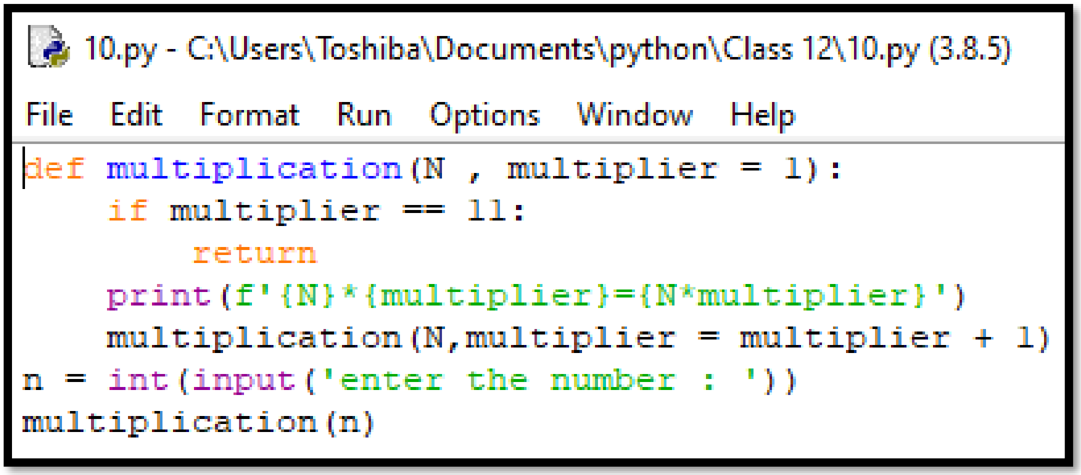


```
Python 3.8.5 (tags/v3.8.5:5
tel)] on win32
Type "help", "copyright", "
>>>
=========== RESTART: C:\Use
enter the number : 16
16 11 6 1 -4 1 6 11 16
>>> 
```

Ex.10

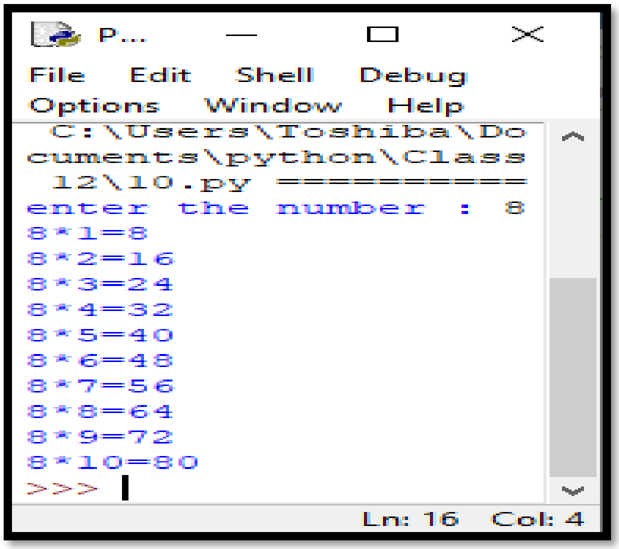
Write a Recursive Program to print multiplication table of a number. Given a number N, the task
is to print its multiplication table using recursion.
Input: N=8
Output:
8*1=8
8*2=16
8*3=24
8*4=32
8*5=40
8*6=48
8*7=56
8*8=64
8*9=72
8*10 = 80

********** CODE************


10.py - C:\Users\Toshiba\Documents\python\Class 12\10.py (3.8.5)
File Edit Format Run Options Window Help

```
def multiplication(N , multiplier = 1):
    if multiplier == 11:
        return
    print(f'{N}*{multiplier}={N*multiplier}')
    multiplication(N,multiplier = multiplier + 1)
n = int(input('enter the number : '))
multiplication(n)
```

********** OUTPUT************



```
 C:\Users\Toshiba\Do
cuments\python\Class
 12\10.py ==========
enter the number : 8
8*1=8
8*2=16
8*3=24
8*4=32
8*5=40
8*6=48
8*7=56
8*8=64
8*9=72
8*10=80
>>> 
```

Ex.11

A text file class9.txt is stored with name and aggregate marks of students who have passed in class 9 (descending order of aggregate marks). Write a python program to create 3 files names class10A.txt, class10B.txt, and class10C.txt from class9.txt by equally distributing the students.

Example:

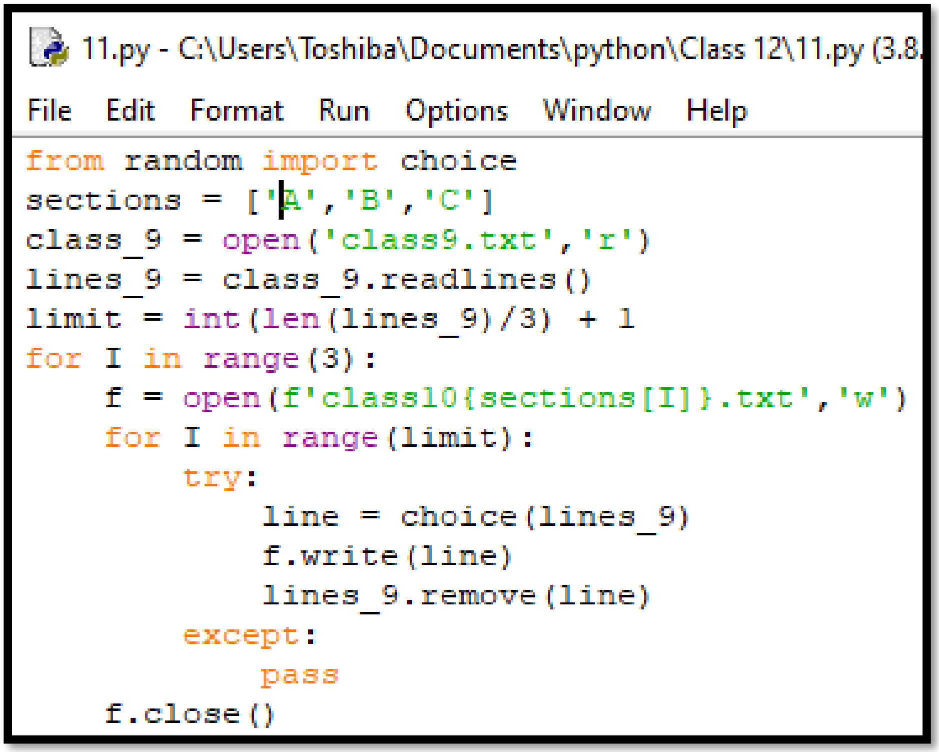
class9.txt
Rohit 98.4
Akash Bandyopadhyay 98.4
Anurag Joshi 98.3
Pranav Nair 97.0
Kartik Pathak 97.0
Dipayan Nag 96.5
Mayurnath 96.2
Gayathri 96.1
Shifa Majeed 96
Samya Kazmi 95
Rizwan Mohammed Numan 95

class10A.txt
Rohit 98.4
Dipayan Nag 96.5
Mayurnath 96.2

class10B.txt
Akash Bandyopadhyay 98.4
Kartik Pathak 97.0
Gayathri 96.1
Rizwan Mohammed Numan 95

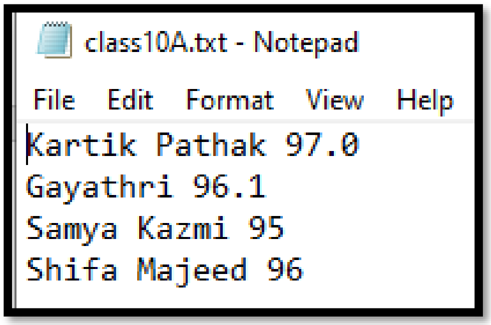
class10C.txt
Anurag Joshi 98.3
Pranav Nair 97.0
Shifa Majeed 96
Samya Kazmi 95

********CODE*********

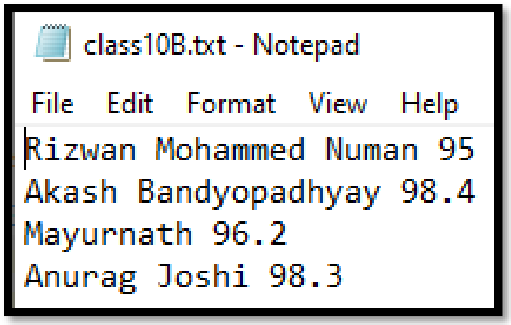

11.py - C:\Users\Toshiba\Documents\python\Class 12\11.py (3.8.
File Edit Format Run Options Window Help

```python
from random import choice
sections = ['A','B','C']
class_9 = open('class9.txt','r')
lines_9 = class_9.readlines()
limit = int(len(lines_9)/3) + 1
for I in range(3):
    f = open(f'class10{sections[I]}.txt','w')
    for I in range(limit):
        try:
            line = choice(lines_9)
            f.write(line)
            lines_9.remove(line)
        except:
            pass
    f.close()
```

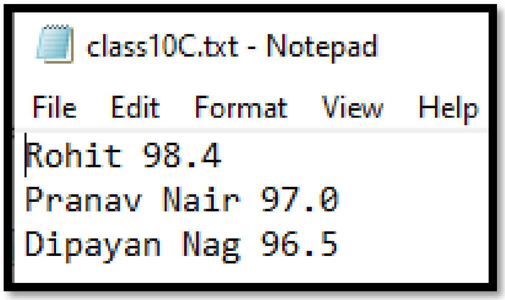
********OUTPUT*********



```
Kartik Pathak 97.0
Gayathri 96.1
Samya Kazmi 95
Shifa Majeed 96
```



```
Rizwan Mohammed Numan 95
Akash Bandyopadhyay 98.4
Mayurnath 96.2
Anurag Joshi 98.3
```

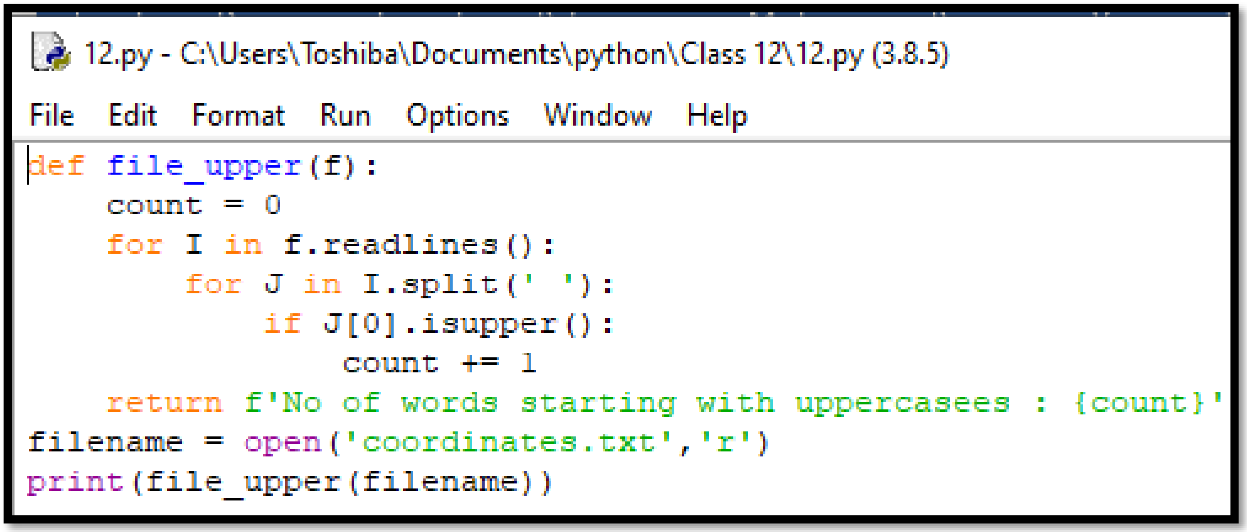


```
Rohit 98.4
Pranav Nair 97.0
Dipayan Nag 96.5
```

Ex.12

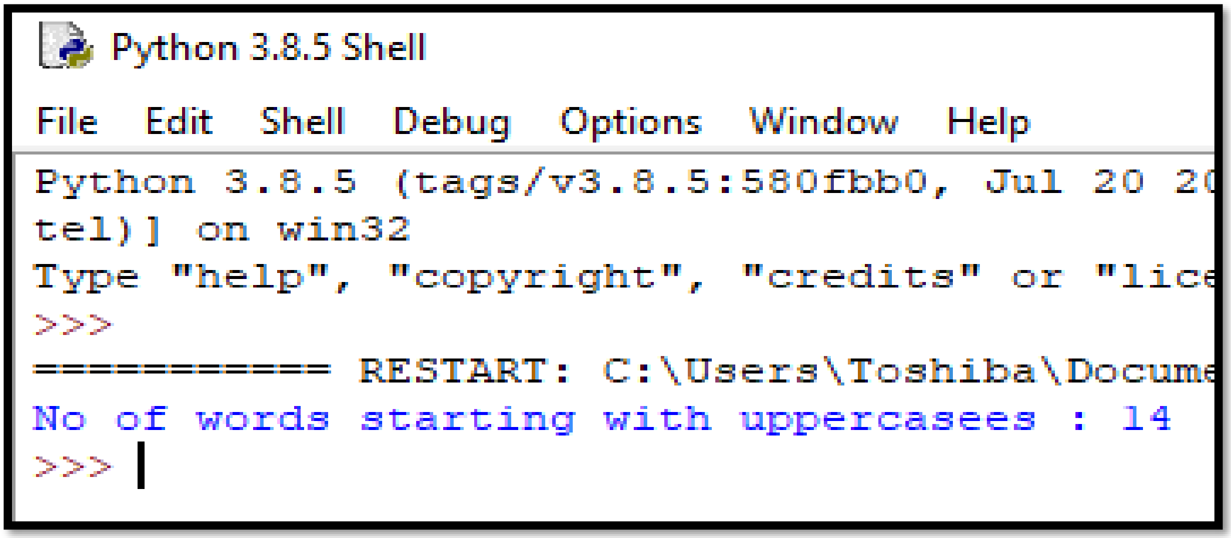
A text file coordinate.txt contain the following text in it:
Do less Thinking and pay more attention to your heart.
Do less Acquiring and pay more Attention to what you already have.
Do less complaining and more Attention to giving.
Do less criticizing and pay more Attention to Complementing.
Do Less talking and Pay more attention to SILIENCE.
Write function in python to count the number of words having first character capital.

********** CODE************


12.py - C:\Users\Toshiba\Documents\python\Class 12\12.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```
def file_upper(f):
    count = 0
    for I in f.readlines():
        for J in I.split(' '):
            if J[0].isupper():
                count += 1
    return f'No of words starting with uppercasees : {count}'
filename = open('coordinates.txt','r')
print(file_upper(filename))
```

**********OUTPUT*********



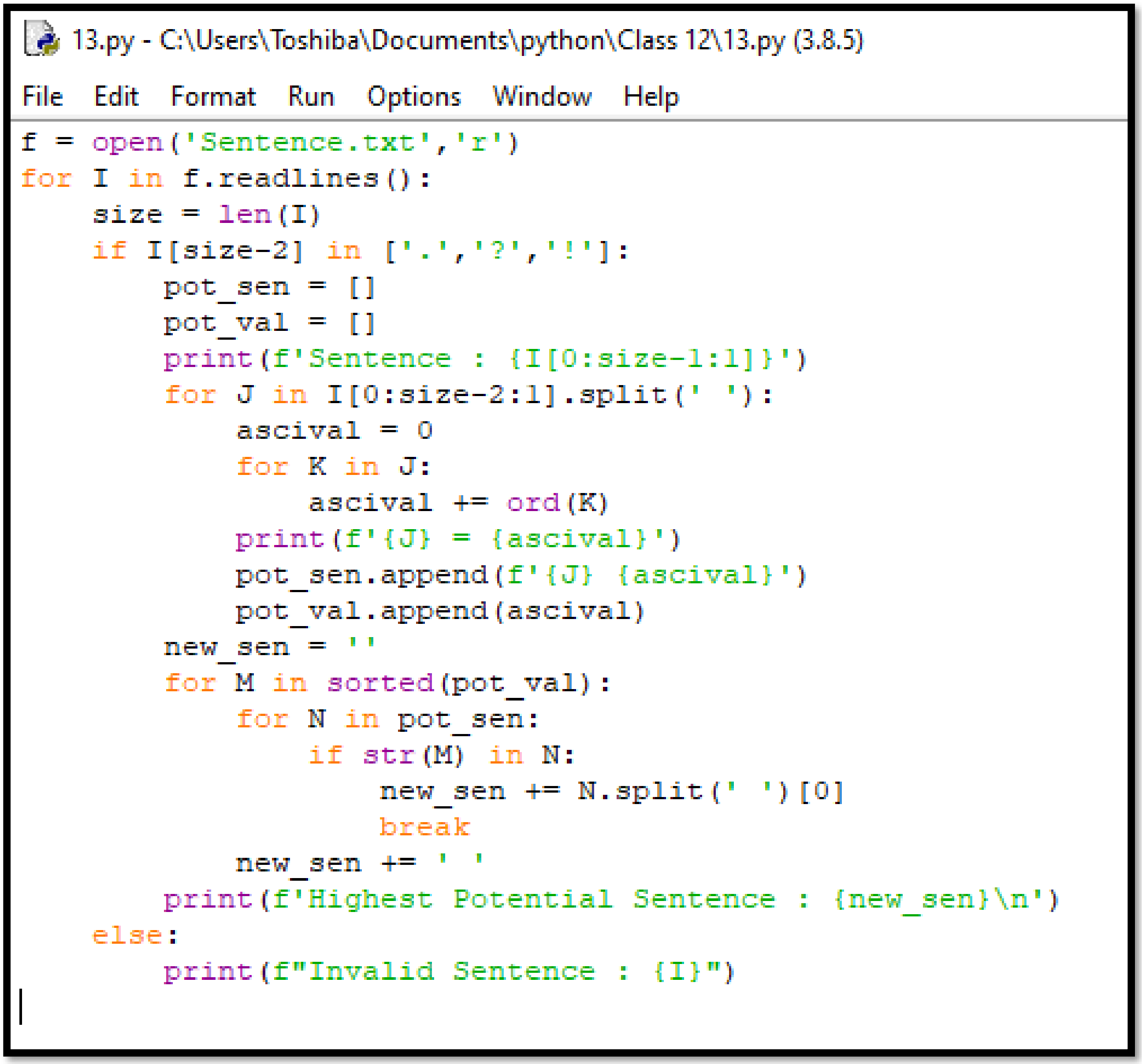
```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 20
tel)] on win32
Type "help", "copyright", "credits" or "lice
>>>
============ RESTART: C:\Users\Toshiba\Docume
No of words starting with uppercasees : 14
>>>
```

Ex.13

Write a python program to read sentence from a text file Sentence.txt, a sentence which may be terminated by either “ . ” , “ ? ” or “ ! ” only. The words of sentence are separated by single blank space and are in UPPER CASE. Decode the words according to their potential and arrange them in ascending order of their potential strength and display it. Test your program with the following data and some random data:

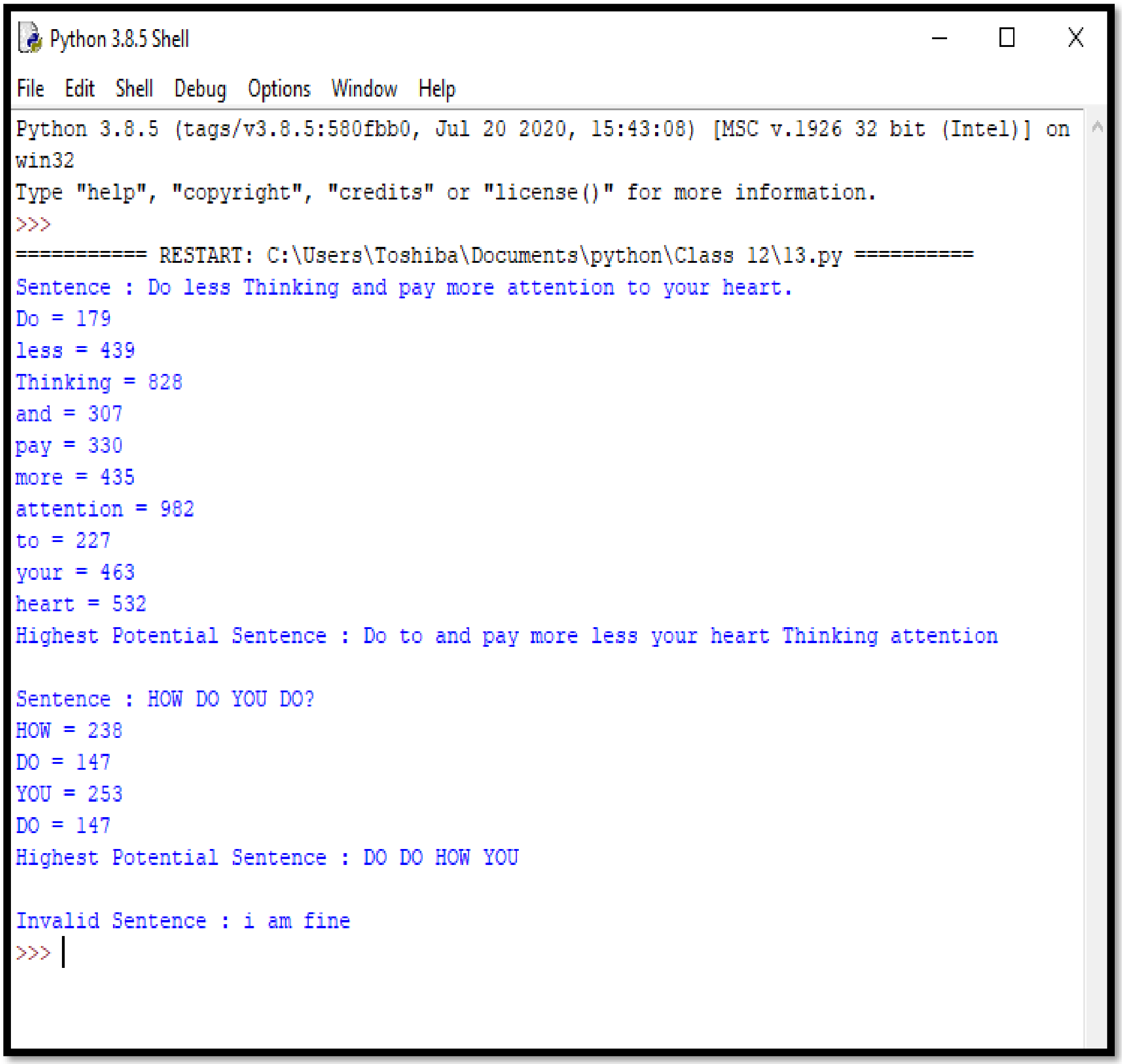
Example:
INPUT: HOW DO YOU DO?
OUTPUT: HOW = 238
DO = 147
YOU = 253
DO = 147
DO DO HOW YOU

********** CODE************


13.py - C:\Users\Toshiba\Documents\python\Class 12\13.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```python
f = open('Sentence.txt','r')
for I in f.readlines():
    size = len(I)
    if I[size-2] in ['.','?','!']:
        pot_sen = []
        pot_val = []
        print(f'Sentence : {I[0:size-1:1]}')
        for J in I[0:size-2:1].split(' '):
            ascival = 0
            for K in J:
                ascival += ord(K)
            print(f'{J} = {ascival}')
            pot_sen.append(f'{J} {ascival}')
            pot_val.append(ascival)
        new_sen = ''
        for M in sorted(pot_val):
            for N in pot_sen:
                if str(M) in N:
                    new_sen += N.split(' ')[0]
                    break
            new_sen += ' '
        print(f'Highest Potential Sentence : {new_sen}\n')
    else:
        print(f"Invalid Sentence : {I}")
```

*********OUTPUT*********



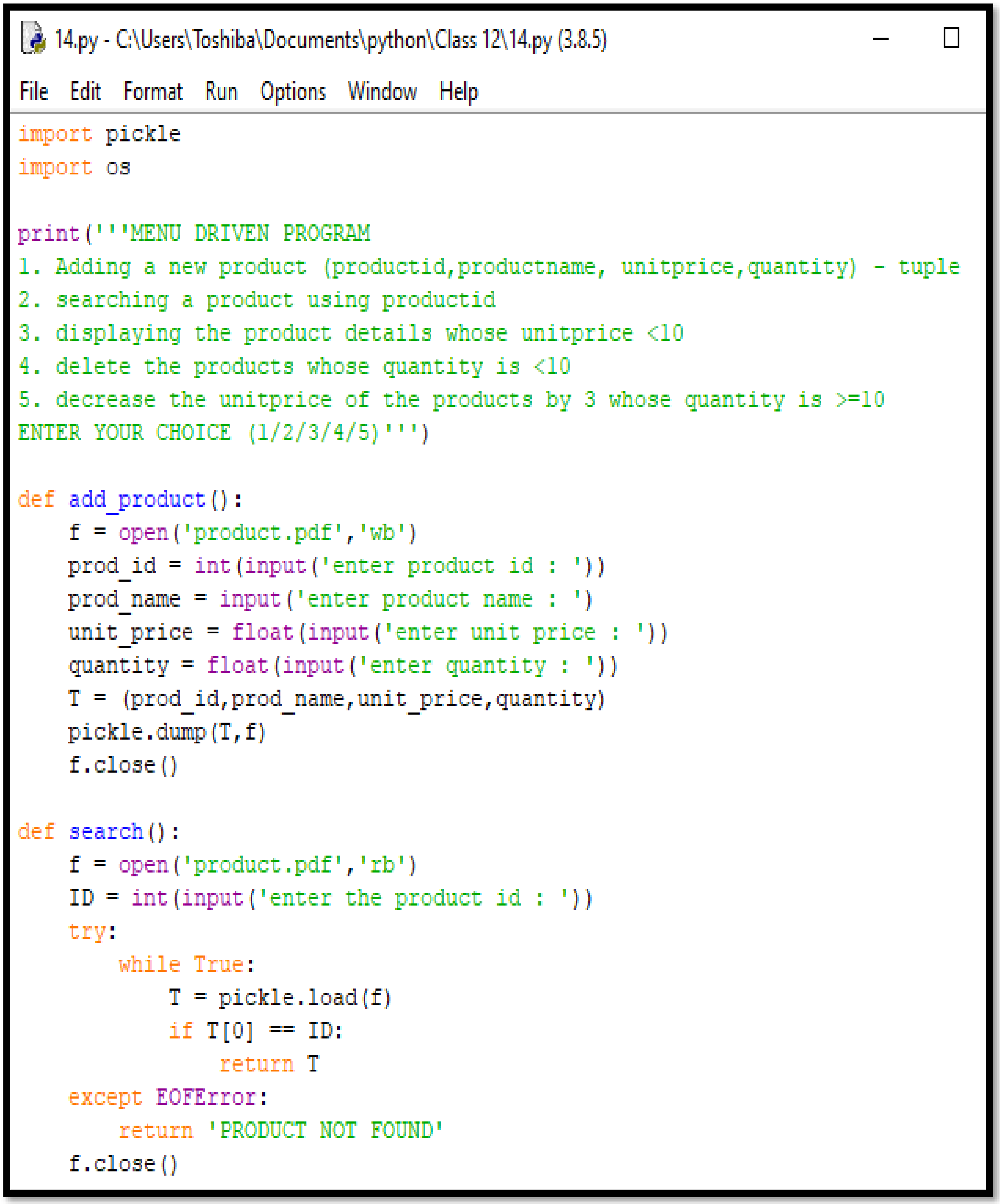
```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on
win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=========== RESTART: C:\Users\Toshiba\Documents\python\Class 12\13.py ==========
Sentence : Do less Thinking and pay more attention to your heart.
Do = 179
less = 439
Thinking = 828
and = 307
pay = 330
more = 435
attention = 982
to = 227
your = 463
heart = 532
Highest Potential Sentence : Do to and pay more less your heart Thinking attention

Sentence : HOW DO YOU DO?
HOW = 238
DO = 147
YOU = 253
DO = 147
Highest Potential Sentence : DO DO HOW YOU

Invalid Sentence : i am fine
>>> 
```

Ex.14

Write a menu driven program to perfom following file operations using a binary file product.pdf

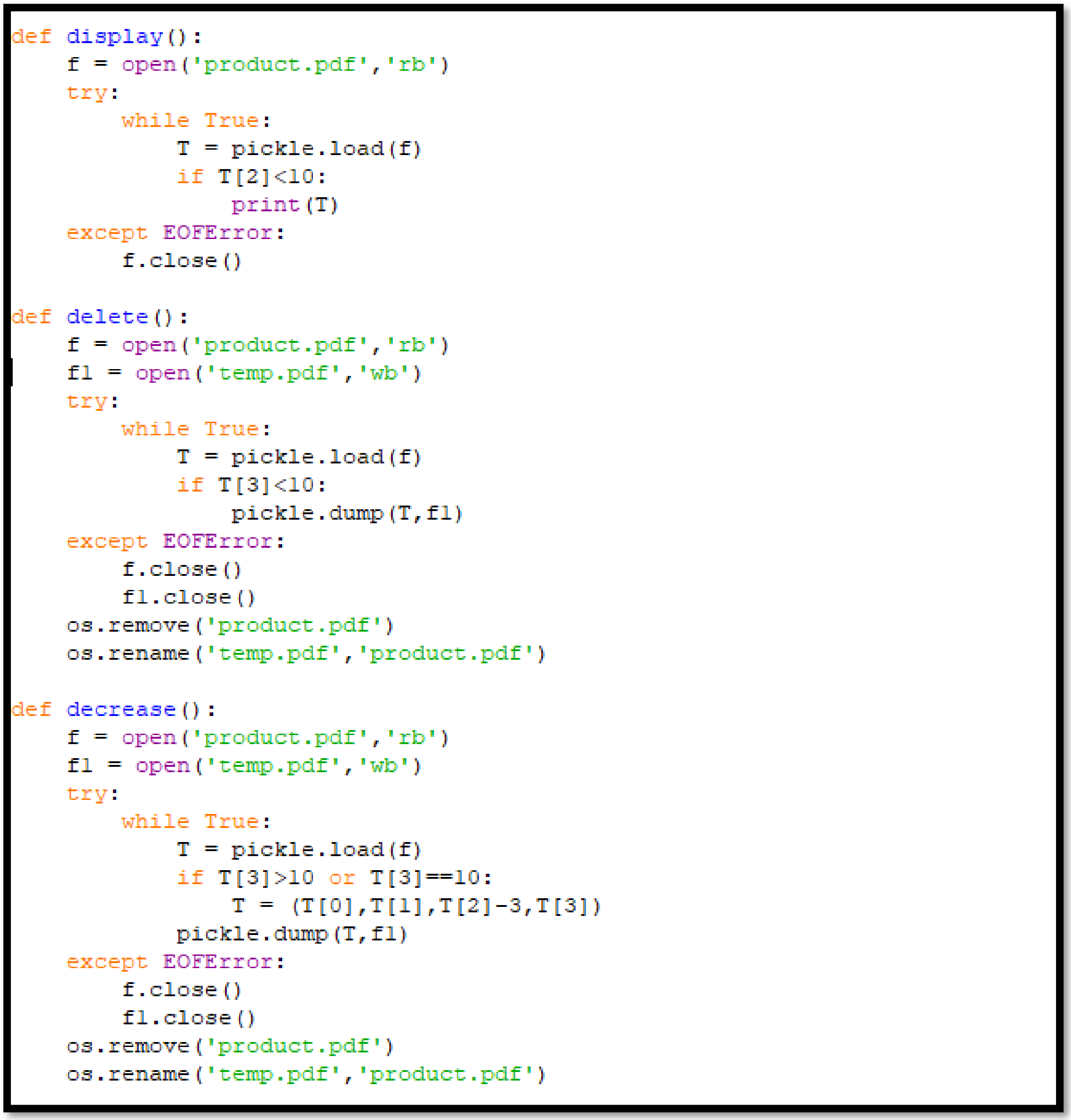
1. Adding a new product (productid,productname, unitprice,quantity) - tuple
2. searching a product using productid
3.displaying the product details whose unitprice <10
4. delete the products whose quantity is <10
5. decrease the unitprice of the products by 3 whose quantity is >=10

********** CODE************

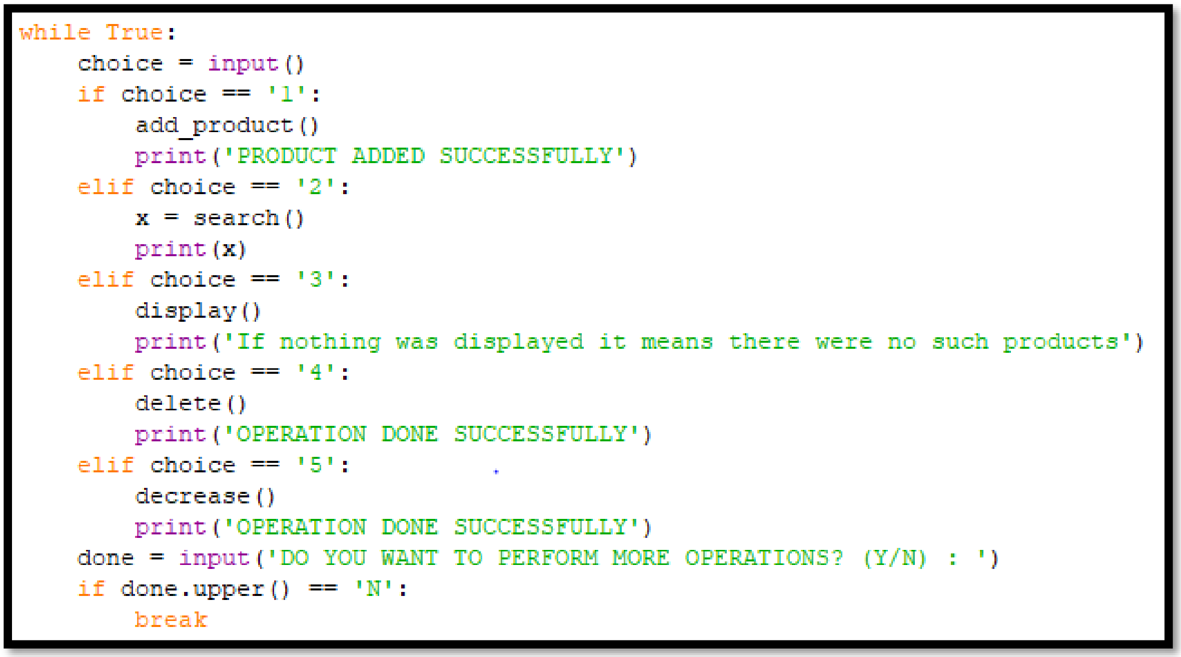


14.py - C:\Users\Toshiba\Documents\python\Class 12\14.py (3.8.5)
File Edit Format Run Options Window Help

```
import pickle
import os

print('''MENU DRIVEN PROGRAM
1. Adding a new product (productid,productname, unitprice,quantity) - tuple
2. searching a product using productid
3. displaying the product details whose unitprice <10
4. delete the products whose quantity is <10
5. decrease the unitprice of the products by 3 whose quantity is >=10
ENTER YOUR CHOICE (1/2/3/4/5)''')

def add_product():
    f = open('product.pdf','wb')
    prod_id = int(input('enter product id : '))
    prod_name = input('enter product name : ')
    unit_price = float(input('enter unit price : '))
    quantity = float(input('enter quantity : '))
    T = (prod_id,prod_name,unit_price,quantity)
    pickle.dump(T,f)
    f.close()

def search():
    f = open('product.pdf','rb')
    ID = int(input('enter the product id : '))
    try:
        while True:
            T = pickle.load(f)
            if T[0] == ID:
                return T
    except EOFError:
        return 'PRODUCT NOT FOUND'
    f.close()
```

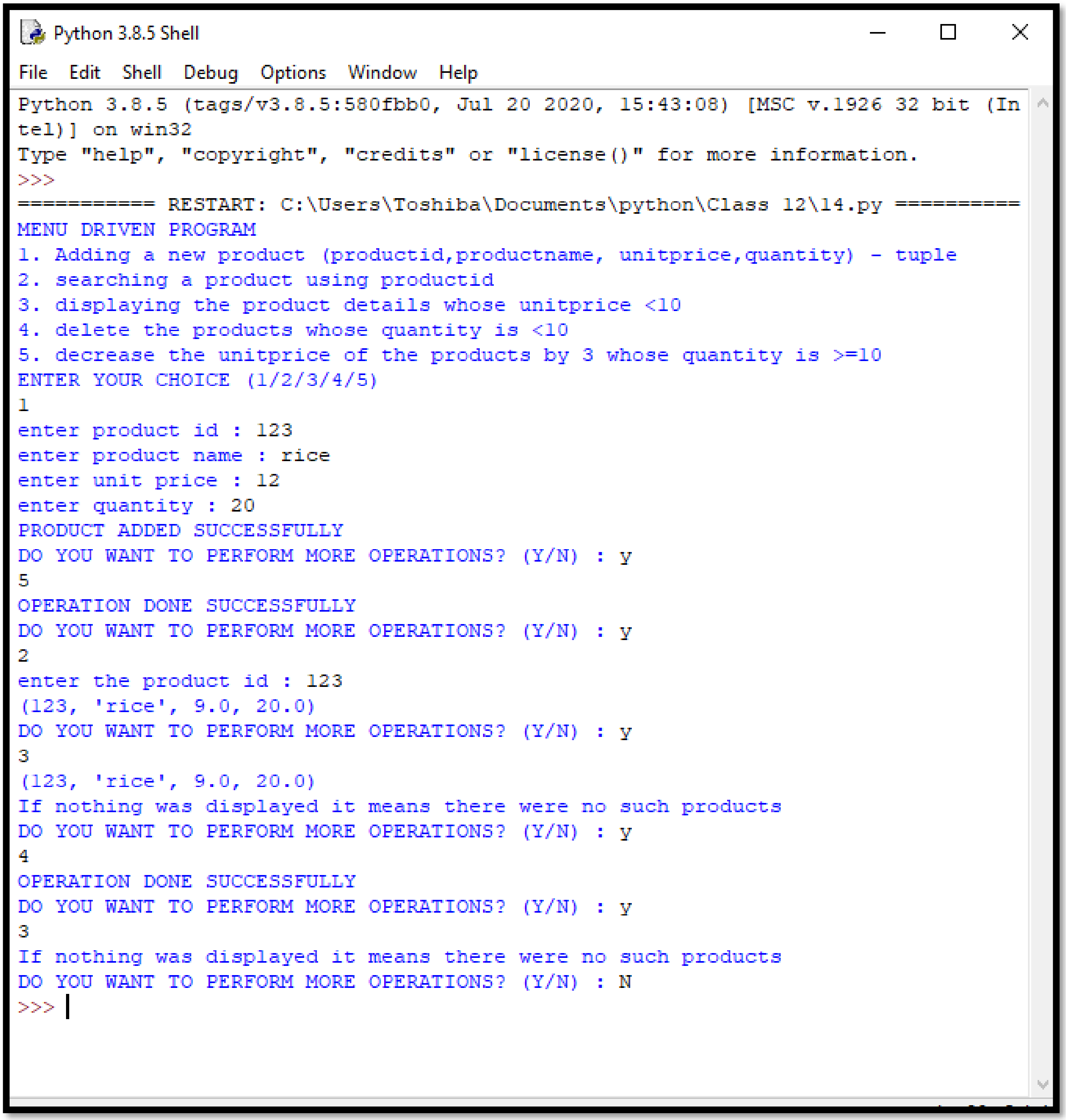


```
def display():
    f = open('product.pdf','rb')
    try:
        while True:
            T = pickle.load(f)
            if T[2]<10:
                print(T)
    except EOFError:
        f.close()

def delete():
    f = open('product.pdf','rb')
    f1 = open('temp.pdf','wb')
    try:
        while True:
            T = pickle.load(f)
            if T[3]<10:
                pickle.dump(T,f1)
    except EOFError:
        f.close()
        f1.close()
    os.remove('product.pdf')
    os.rename('temp.pdf','product.pdf')

def decrease():
    f = open('product.pdf','rb')
    f1 = open('temp.pdf','wb')
    try:
        while True:
            T = pickle.load(f)
            if T[3]>10 or T[3]==10:
                T = (T[0],T[1],T[2]-3,T[3])
            pickle.dump(T,f1)
    except EOFError:
        f.close()
        f1.close()
    os.remove('product.pdf')
    os.rename('temp.pdf','product.pdf')
```



```
while True:
    choice = input()
    if choice == '1':
        add_product()
        print('PRODUCT ADDED SUCCESSFULLY')
    elif choice == '2':
        x = search()
        print(x)
    elif choice == '3':
        display()
        print('If nothing was displayed it means there were no such products')
    elif choice == '4':
        delete()
        print('OPERATION DONE SUCCESSFULLY')
    elif choice == '5':
        decrease()
        print('OPERATION DONE SUCCESSFULLY')
    done = input('DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : ')
    if done.upper() == 'N':
        break
```

*******OUTPUT*********

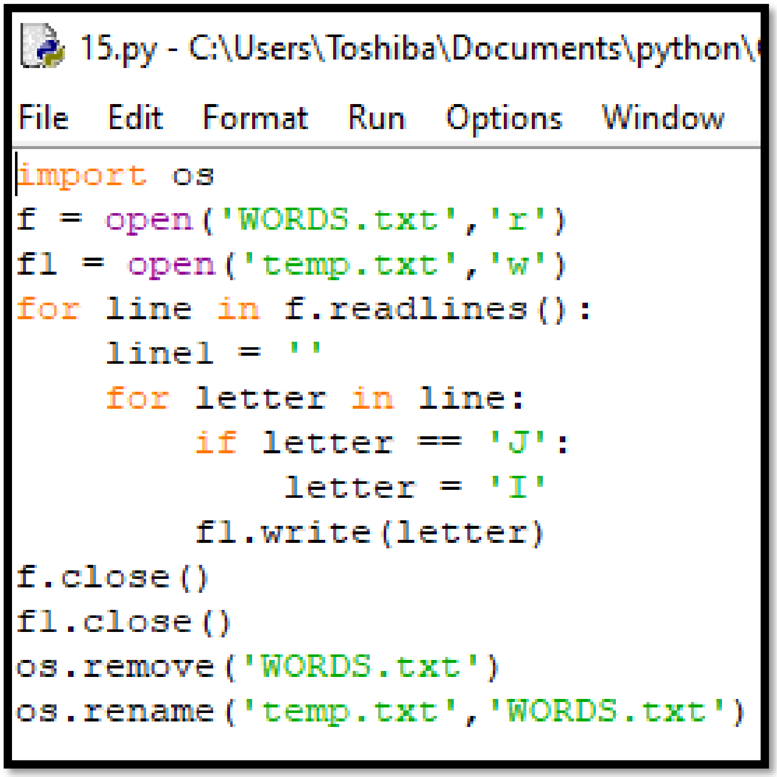


```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=========== RESTART: C:\Users\Toshiba\Documents\python\Class 12\14.py ==========
MENU DRIVEN PROGRAM
1. Adding a new product (productid,productname, unitprice,quantity) - tuple
2. searching a product using productid
3. displaying the product details whose unitprice <10
4. delete the products whose quantity is <10
5. decrease the unitprice of the products by 3 whose quantity is >=10
ENTER YOUR CHOICE (1/2/3/4/5)
1
enter product id : 123
enter product name : rice
enter unit price : 12
enter quantity : 20
PRODUCT ADDED SUCCESSFULLY
DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : y
5
OPERATION DONE SUCCESSFULLY
DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : y
2
enter the product id : 123
(123, 'rice', 9.0, 20.0)
DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : y
3
(123, 'rice', 9.0, 20.0)
If nothing was displayed it means there were no such products
DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : y
4
OPERATION DONE SUCCESSFULLY
DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : y
3
If nothing was displayed it means there were no such products
DO YOU WANT TO PERFORM MORE OPERATIONS? (Y/N) : N
>>> |
```

Ex.15

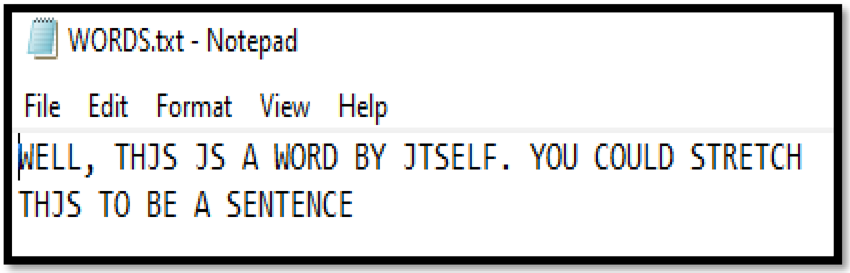
Aditi has used a text editing software to type some text. After saving the article as WORDS.TXT, she realised that she has wrongly typed alphabet J in place of alphabet I everywhere in the article. Write a function definition for JTOI() in python that would display the corrected version of entire content of the file WORDS.TXT with all the alphabets “J” to be
displayed as an alphabet “I” on screen.
Note : Assuming that WORD.TXT does not contain any J alphabet otherwise.

********** CODE************

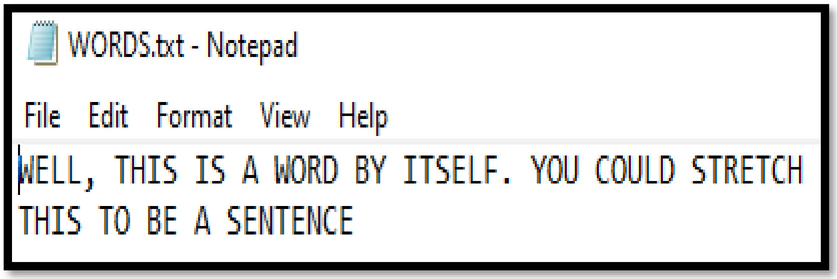


```
import os
f = open('WORDS.txt','r')
fl = open('temp.txt','w')
for line in f.readlines():
    linel = ''
    for letter in line:
        if letter == 'J':
            letter = 'I'
        fl.write(letter)
f.close()
fl.close()
os.remove('WORDS.txt')
os.rename('temp.txt','WORDS.txt')
```

**********OUTPUT*********



```
WELL, THJS JS A WORD BY JTSELF. YOU COULD STRETCH
THJS TO BE A SENTENCE
```



```
WELL, THIS IS A WORD BY ITSELF. YOU COULD STRETCH
THIS TO BE A SENTENCE
```

Ex.16

MySQL-Python Connectivity

- Create a database Employee and establish database connectivity.
- Create a table Emp in the database with fields Empno as primary key, Empname, Salary, Department and Designation with appropriate datatypes.
- Write a user defined function Insert_Initial() to insert 6 records in the table. (Use a single parameterized query)

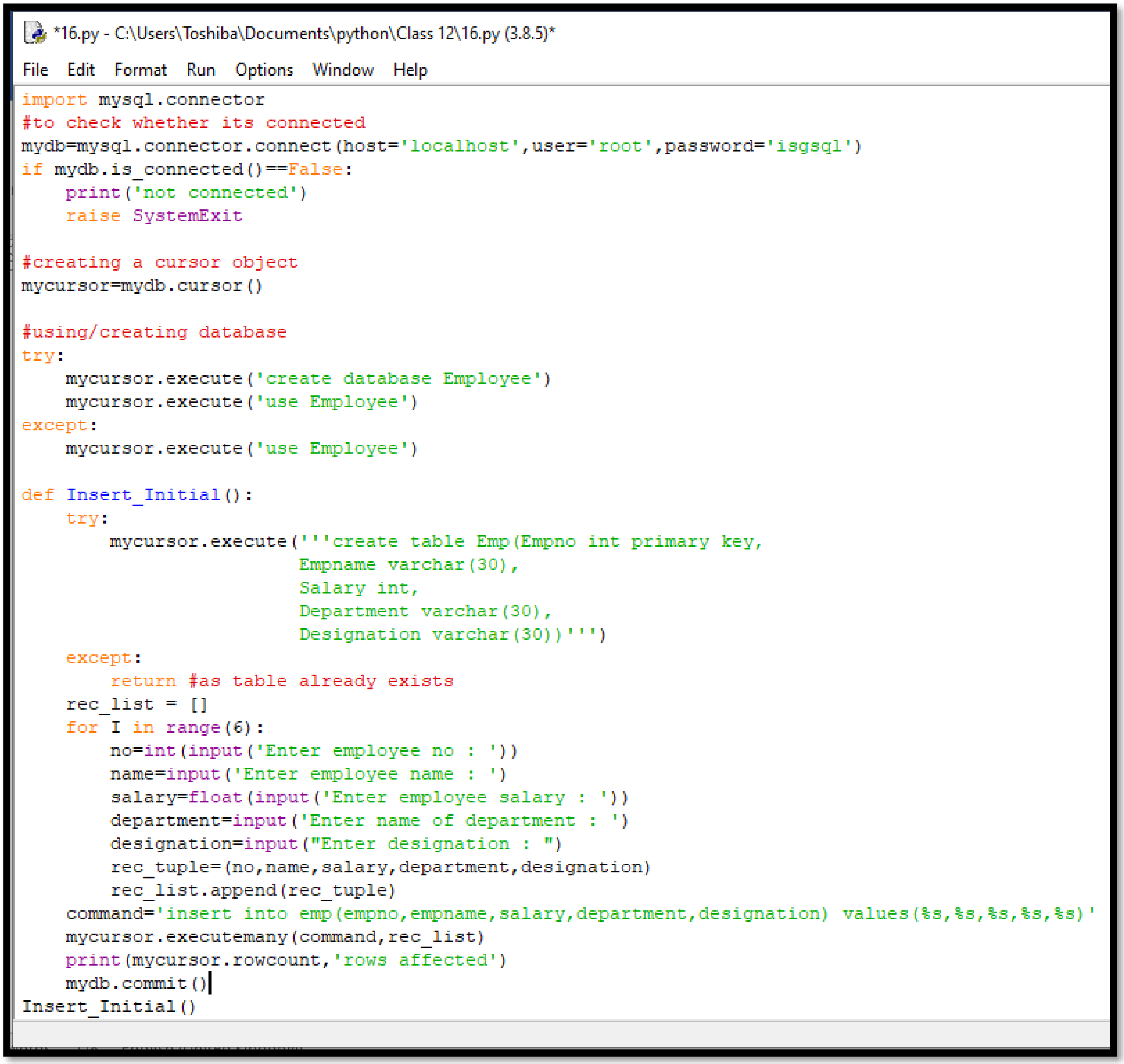
Write a menu driven program in Python which does the following tasks:

1. Insert details of an employee in the table.
2. Search the details of employees (The search should have a combination of 2 conditions ie it has to be based on multiple criteria(Use any of the SQL operators - IN, BETWEEN, Relational Operators, Like etc)
3. Update details of the employees with atleast 2 fields involved. Eg: the salary of all employees in the department Sales with Designation Clerk, by 35% .
4. Remove the details of an employee. Eg: Remove all the employees of HR department who earn a salary less than 15000.

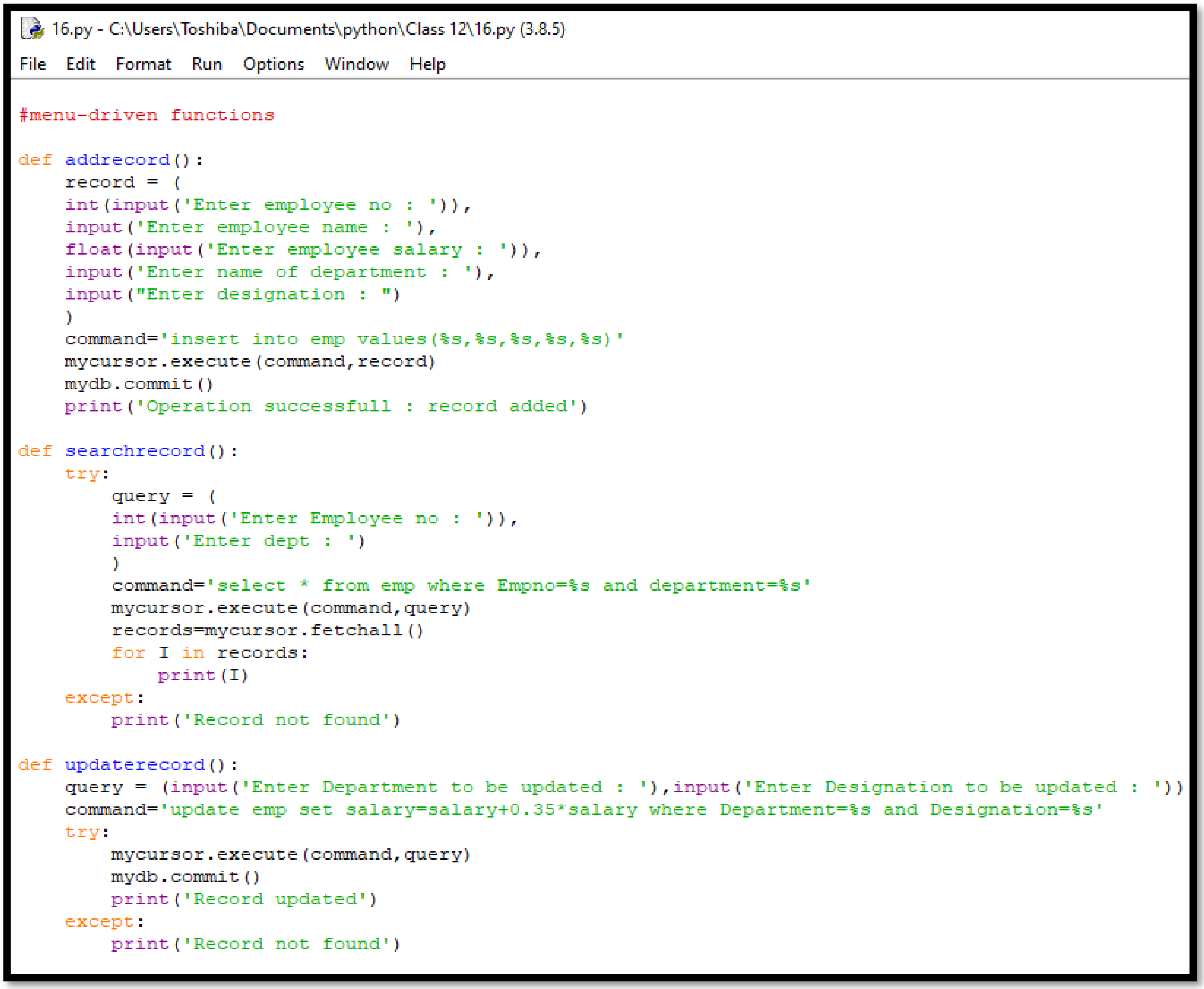
Points to be noted

- Insert and Delete should be associated with suitable confirmation messages (Hint:rowcount)
- Error in connection needs to be tackled with appropriate function (Hint:built in)
- Write separate user defined functions for Insert, Search, Delete, Update and Display
- Exceptions should be handled.

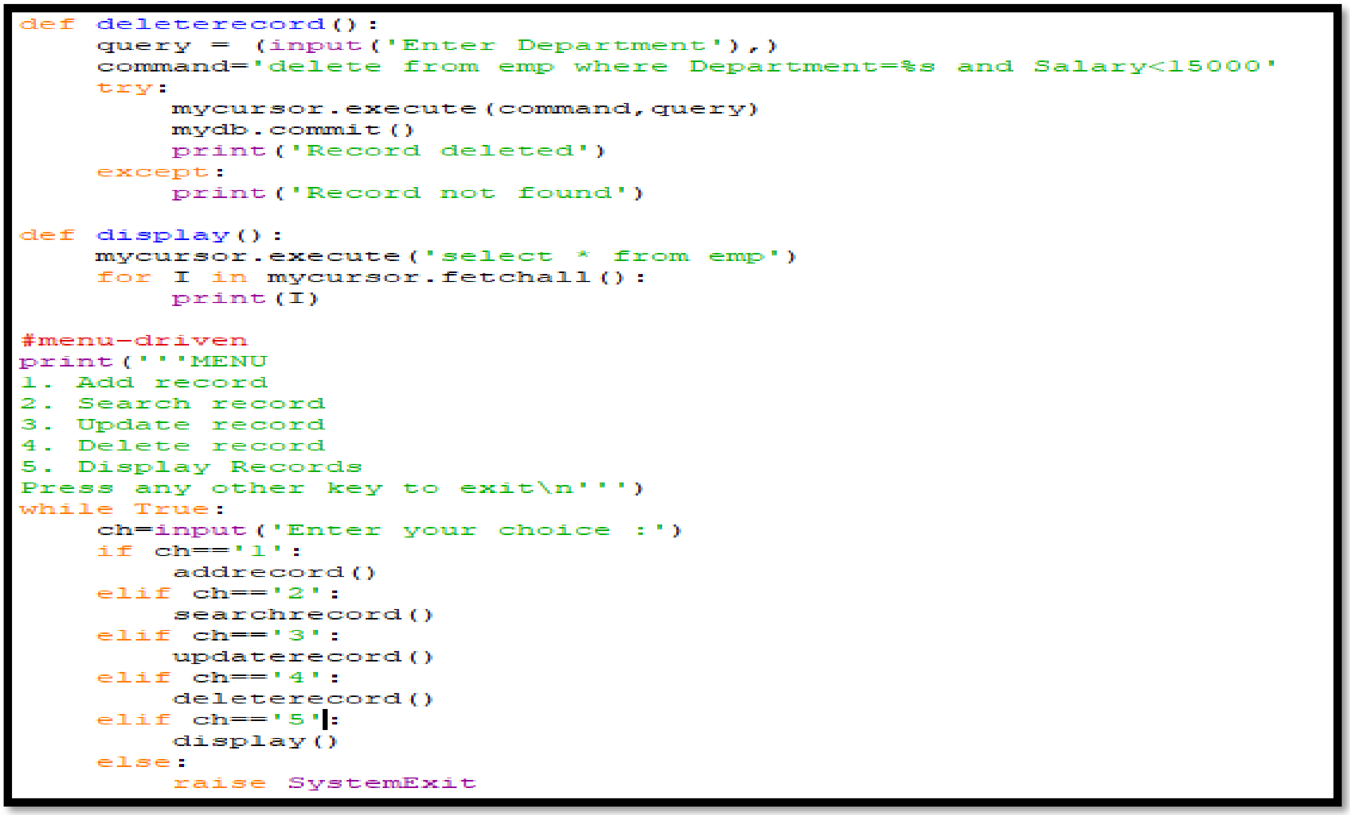
**********CODE***********


16.py - C:\Users\Toshiba\Documents\python\Class 12\16.py (3.8.5)
File Edit Format Run Options Window Help

```
import mysql.connector
#to check whether its connected
mydb=mysql.connector.connect(host='localhost',user='root',password='isgsql')
if mydb.is_connected()==False:
    print('not connected')
    raise SystemExit

#creating a cursor object
mycursor=mydb.cursor()

#using/creating database
try:
    mycursor.execute('create database Employee')
    mycursor.execute('use Employee')
except:
    mycursor.execute('use Employee')

def Insert_Initial():
    try:
        mycursor.execute('''create table Emp(Empno int primary key,
                         Empname varchar(30),
                         Salary int,
                         Department varchar(30),
                         Designation varchar(30))''')
    except:
        return #as table already exists
    rec_list = []
    for I in range(6):
        no=int(input('Enter employee no : '))
        name=input('Enter employee name : ')
        salary=float(input('Enter employee salary : '))
        department=input('Enter name of department : ')
        designation=input("Enter designation : ")
        rec_tuple=(no,name,salary,department,designation)
        rec_list.append(rec_tuple)
    command='insert into emp(empno,empname,salary,department,designation) values(%s,%s,%s,%s,%s)'
    mycursor.executemany(command,rec_list)
    print(mycursor.rowcount,'rows affected')
    mydb.commit()
Insert_Initial()
```

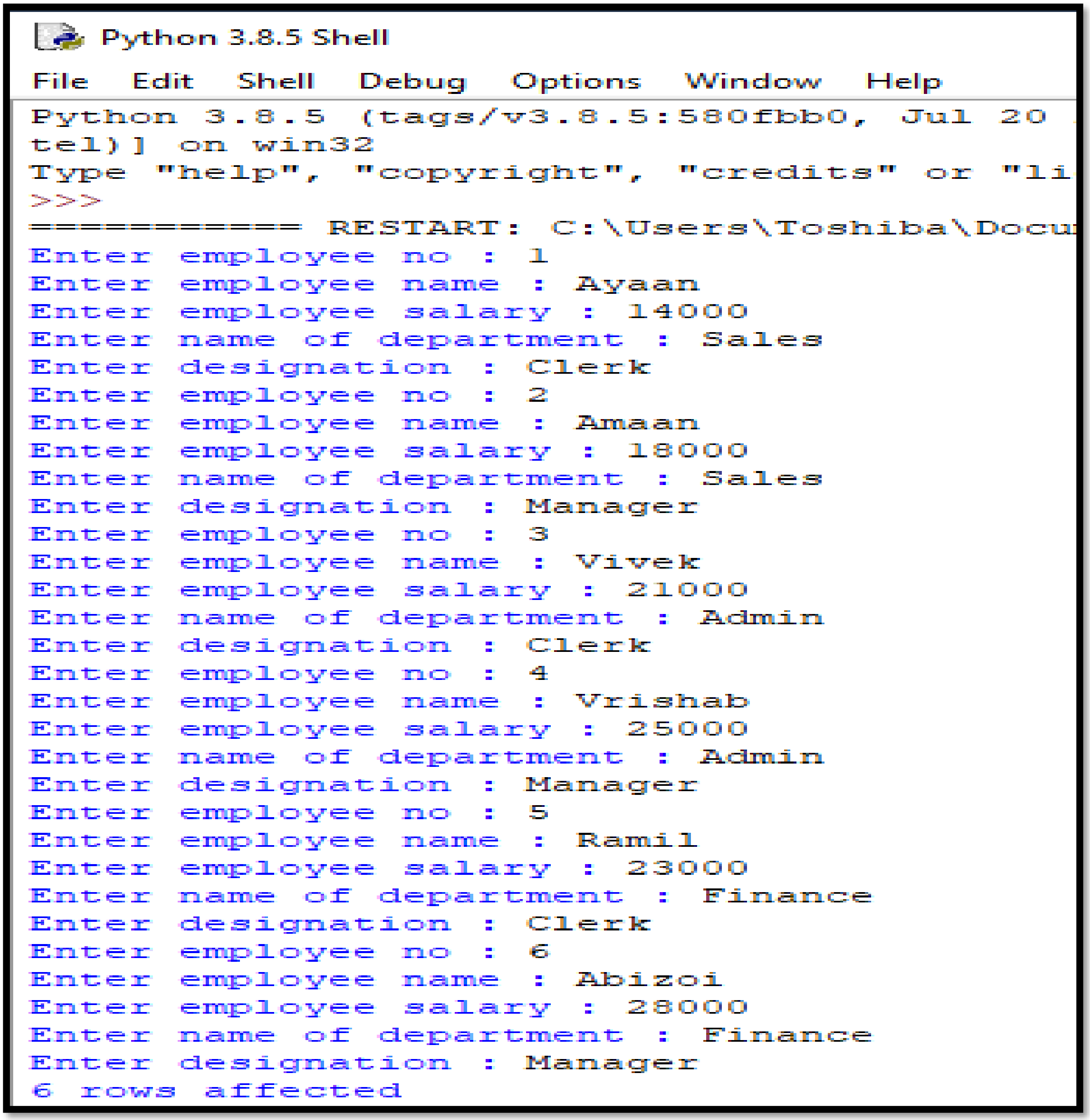

16.py - C:\Users\Toshiba\Documents\python\Class 12\16.py (3.8.5)
File Edit Format Run Options Window Help

```
#menu-driven functions

def addrecord():
    record = (
    int(input('Enter employee no : ')),
    input('Enter employee name : '),
    float(input('Enter employee salary : ')),
    input('Enter name of department : '),
    input("Enter designation : ")
    )
    command='insert into emp values(%s,%s,%s,%s,%s)'
    mycursor.execute(command,record)
    mydb.commit()
    print('Operation successfull : record added')

def searchrecord():
    try:
        query = (
        int(input('Enter Employee no : ')),
        input('Enter dept : ')
        )
        command='select * from emp where Empno=%s and department=%s'
        mycursor.execute(command,query)
        records=mycursor.fetchall()
        for I in records:
            print(I)
    except:
        print('Record not found')

def updaterecord():
    query = (input('Enter Department to be updated : '),input('Enter Designation to be updated : '))
    command='update emp set salary=salary+0.35*salary where Department=%s and Designation=%s'
    try:
        mycursor.execute(command,query)
        mydb.commit()
        print('Record updated')
    except:
        print('Record not found')
```

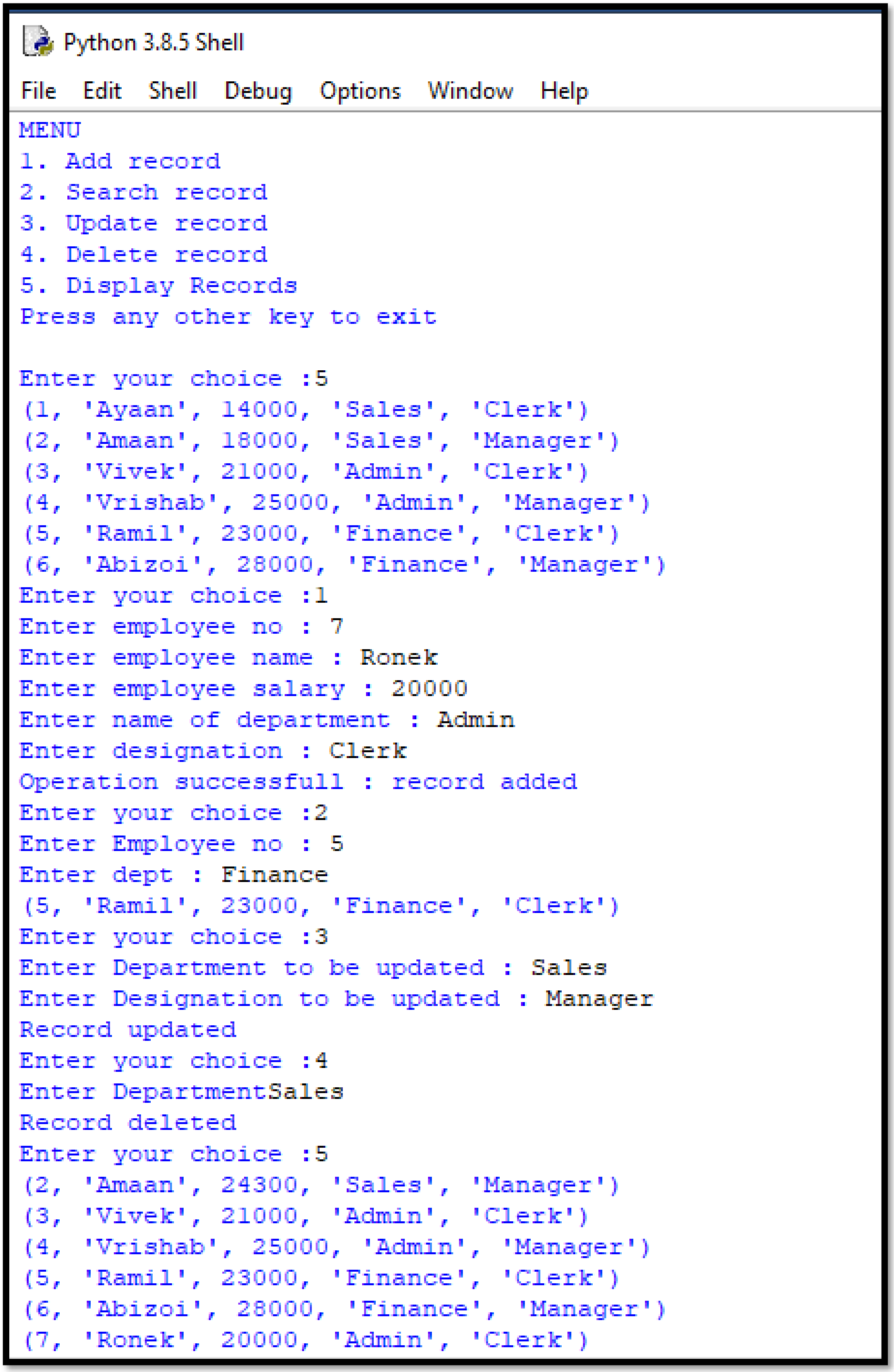


```
def deleterecord():
    query = (input('Enter Department'),)
    command='delete from emp where Department=%s and Salary<15000'
    try:
        mycursor.execute(command,query)
        mydb.commit()
        print('Record deleted')
    except:
        print('Record not found')

def display():
    mycursor.execute('select * from emp')
    for I in mycursor.fetchall():
        print(I)

#menu-driven
print('''MENU
1. Add record
2. Search record
3. Update record
4. Delete record
5. Display Records
Press any other key to exit\n''')
while True:
    ch=input('Enter your choice :')
    if ch=='1':
        addrecord()
    elif ch=='2':
        searchrecord()
    elif ch=='3':
        updaterecord()
    elif ch=='4':
        deleterecord()
    elif ch=='5':
        display()
    else:
        raise SystemExit
```

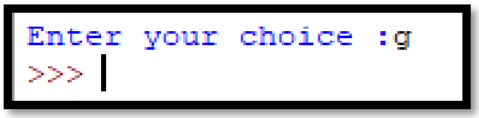
*******OUTPUT********



```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 
tel)] on win32
Type "help", "copyright", "credits" or "li
>>> 
============ RESTART: C:\Users\Toshiba\Docu
Enter employee no : 1
Enter employee name : Ayaan
Enter employee salary : 14000
Enter name of department : Sales
Enter designation : Clerk
Enter employee no : 2
Enter employee name : Amaan
Enter employee salary : 18000
Enter name of department : Sales
Enter designation : Manager
Enter employee no : 3
Enter employee name : Vivek
Enter employee salary : 21000
Enter name of department : Admin
Enter designation : Clerk
Enter employee no : 4
Enter employee name : Vrishab
Enter employee salary : 25000
Enter name of department : Admin
Enter designation : Manager
Enter employee no : 5
Enter employee name : Ramil
Enter employee salary : 23000
Enter name of department : Finance
Enter designation : Clerk
Enter employee no : 6
Enter employee name : Abizoi
Enter employee salary : 28000
Enter name of department : Finance
Enter designation : Manager
6 rows affected
```



```
MENU
1. Add record
2. Search record
3. Update record
4. Delete record
5. Display Records
Press any other key to exit

Enter your choice :5
(1, 'Ayaan', 14000, 'Sales', 'Clerk')
(2, 'Amaan', 18000, 'Sales', 'Manager')
(3, 'Vivek', 21000, 'Admin', 'Clerk')
(4, 'Vrishab', 25000, 'Admin', 'Manager')
(5, 'Ramil', 23000, 'Finance', 'Clerk')
(6, 'Abizoi', 28000, 'Finance', 'Manager')
Enter your choice :1
Enter employee no : 7
Enter employee name : Ronek
Enter employee salary : 20000
Enter name of department : Admin
Enter designation : Clerk
Operation successfull : record added
Enter your choice :2
Enter Employee no : 5
Enter dept : Finance
(5, 'Ramil', 23000, 'Finance', 'Clerk')
Enter your choice :3
Enter Department to be updated : Sales
Enter Designation to be updated : Manager
Record updated
Enter your choice :4
Enter DepartmentSales
Record deleted
Enter your choice :5
(2, 'Amaan', 24300, 'Sales', 'Manager')
(3, 'Vivek', 21000, 'Admin', 'Clerk')
(4, 'Vrishab', 25000, 'Admin', 'Manager')
(5, 'Ramil', 23000, 'Finance', 'Clerk')
(6, 'Abizoi', 28000, 'Finance', 'Manager')
(7, 'Ronek', 20000, 'Admin', 'Clerk')
```

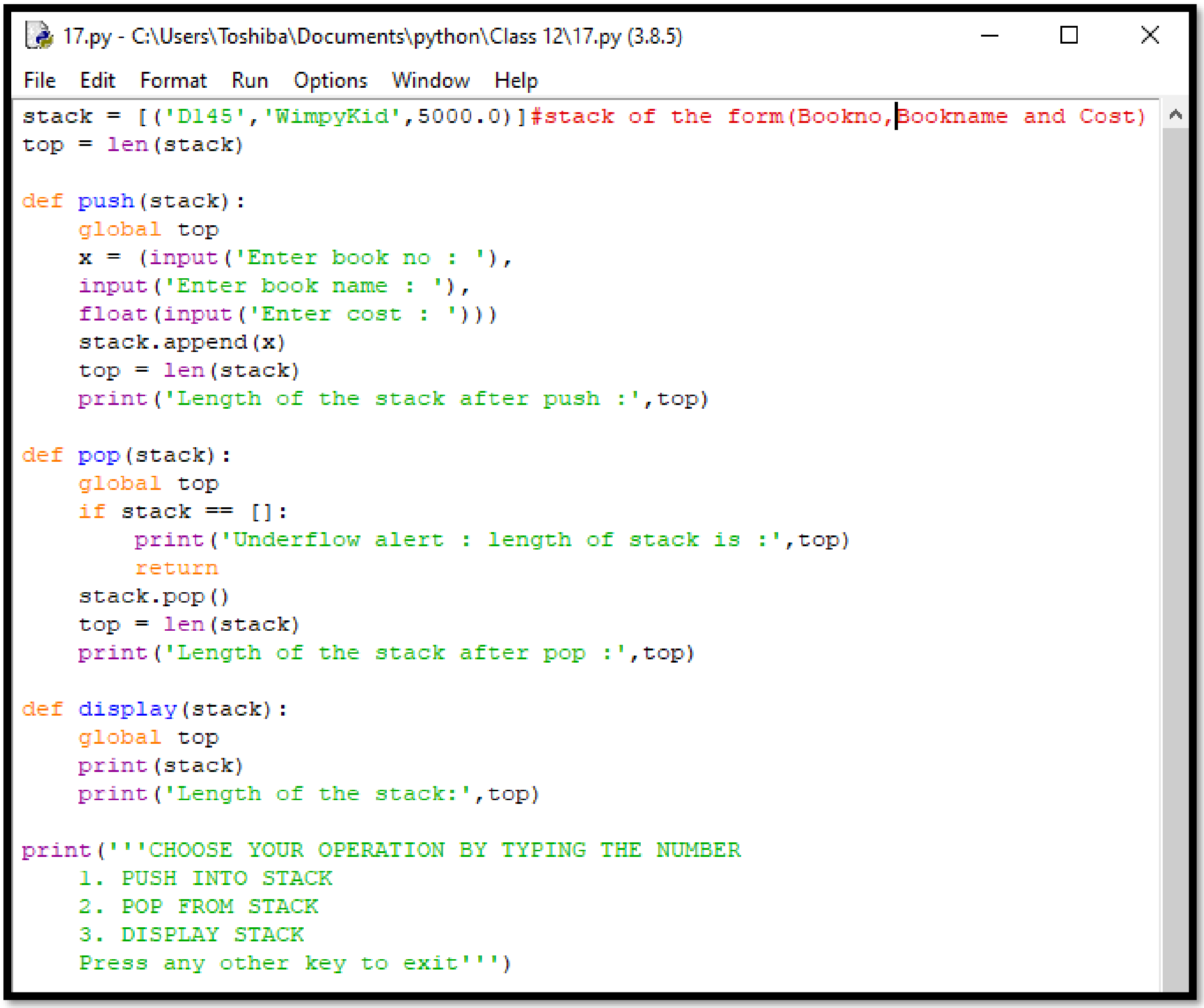


```
Enter your choice :g
>>> 
```

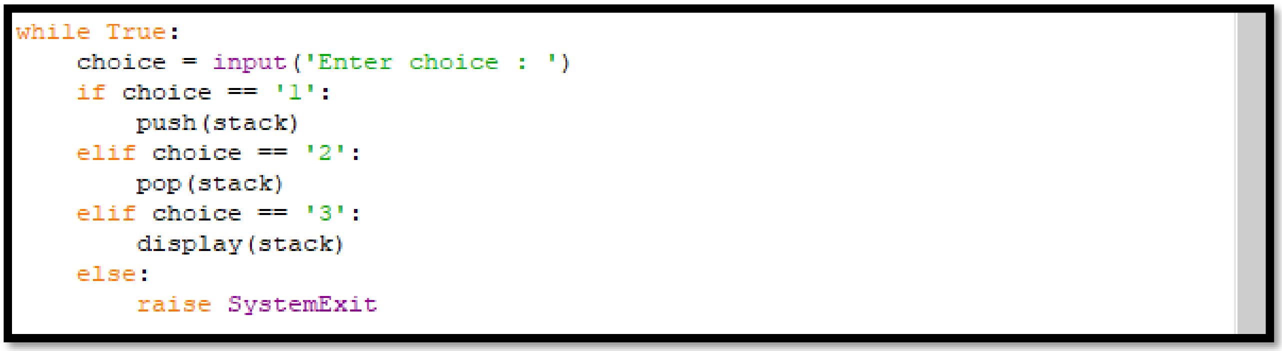
Ex.17

Write a program to implement a stack for the given book details (Bookno, Bookname and Cost) ie each item node of the stack contains three types of information. Implement Push, Pop and Display Operations. Top should be a global variable which will display the size of the stack at any point of time. The program should be Menu driven which should be terminated based on the user's choice.

********** CODE************

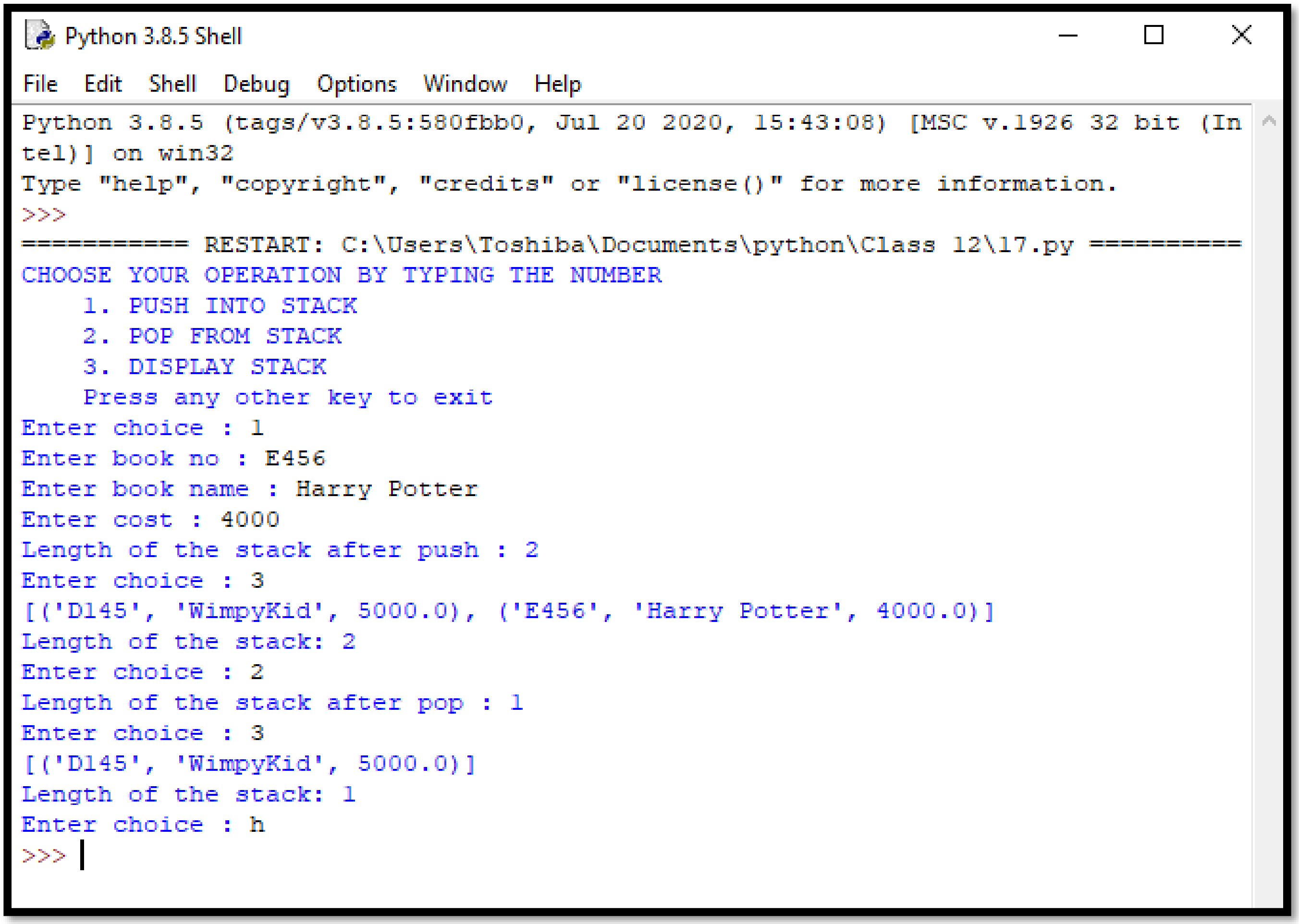

17.py - C:\Users\Toshiba\Documents\python\Class 12\17.py (3.8.5)
File Edit Format Run Options Window Help

```
stack = [('D145','WimpyKid',5000.0)]#stack of the form(Bookno,Bookname and Cost)
top = len(stack)

def push(stack):
    global top
    x = (input('Enter book no : '),
    input('Enter book name : '),
    float(input('Enter cost : ')))
    stack.append(x)
    top = len(stack)
    print('Length of the stack after push :',top)

def pop(stack):
    global top
    if stack == []:
        print('Underflow alert : length of stack is :',top)
        return
    stack.pop()
    top = len(stack)
    print('Length of the stack after pop :',top)

def display(stack):
    global top
    print(stack)
    print('Length of the stack:',top)

print('''CHOOSE YOUR OPERATION BY TYPING THE NUMBER
    1. PUSH INTO STACK
    2. POP FROM STACK
    3. DISPLAY STACK
    Press any other key to exit''')
```



```
while True:
    choice = input('Enter choice : ')
    if choice == '1':
        push(stack)
    elif choice == '2':
        pop(stack)
    elif choice == '3':
        display(stack)
    else:
        raise SystemExit
```

********OUTPUT********



```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=========== RESTART: C:\Users\Toshiba\Documents\python\Class 12\17.py ==========
CHOOSE YOUR OPERATION BY TYPING THE NUMBER
    1. PUSH INTO STACK
    2. POP FROM STACK
    3. DISPLAY STACK
    Press any other key to exit
Enter choice : 1
Enter book no : E456
Enter book name : Harry Potter
Enter cost : 4000
Length of the stack after push : 2
Enter choice : 3
[('D145', 'WimpyKid', 5000.0), ('E456', 'Harry Potter', 4000.0)]
Length of the stack: 2
Enter choice : 2
Length of the stack after pop : 1
Enter choice : 3
[('D145', 'WimpyKid', 5000.0)]
Length of the stack: 1
Enter choice : h
>>> |
```

Ex.18

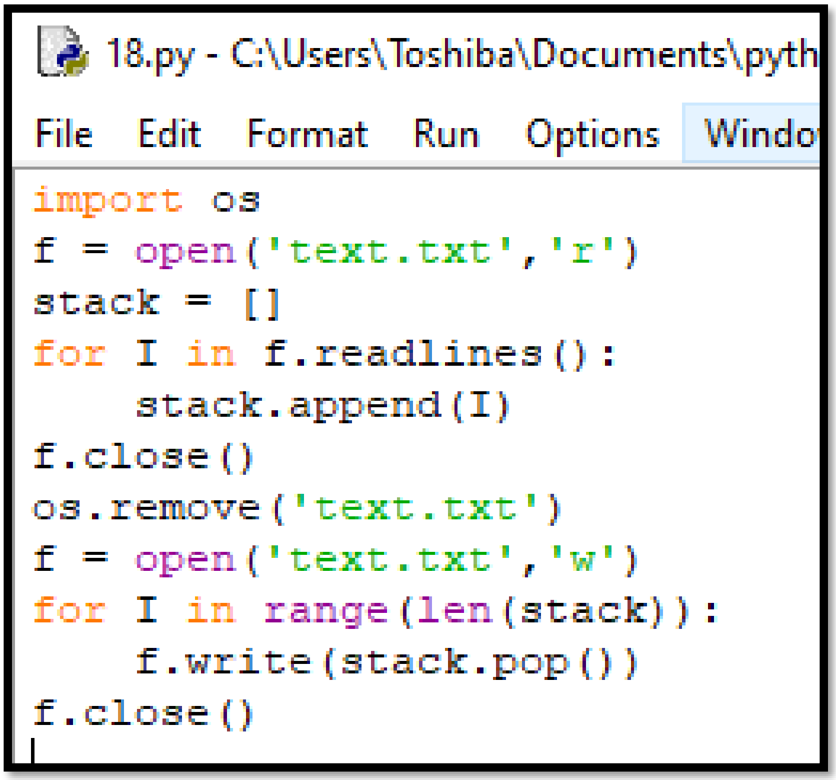
Write a program in Python to reverse the contents of a file using stack.

Examples:

Input :
This is the program
to reverse the
content of a file
using stack
Output :
using stack
content of a file
to reverse the
This is the program

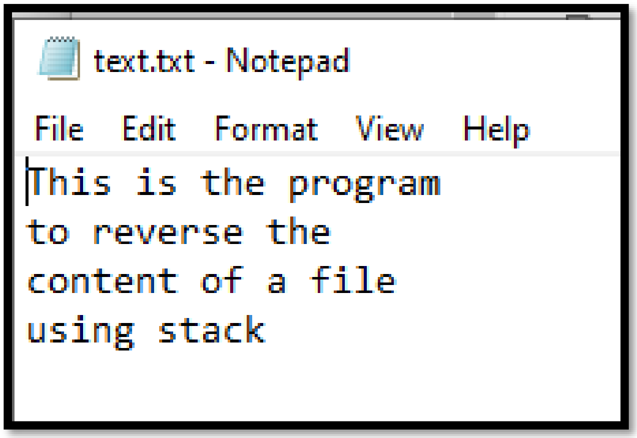
Hint:
□ Create an empty stack.
□ One by one push every line of the file to the stack.
□ One by one pop each line from the stack and put them back to the file.

********** CODE************

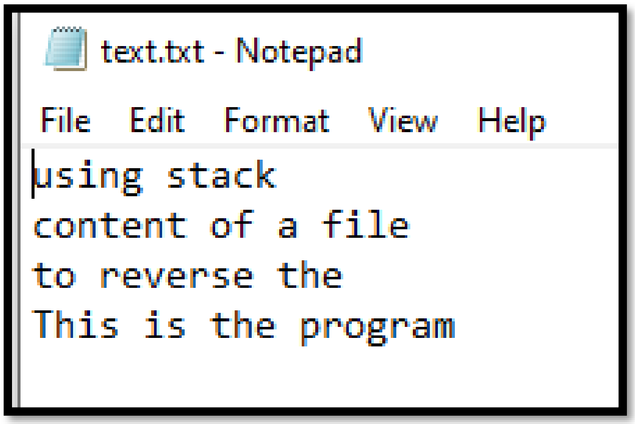


```python
import os
f = open('text.txt','r')
stack = []
for I in f.readlines():
    stack.append(I)
f.close()
os.remove('text.txt')
f = open('text.txt','w')
for I in range(len(stack)):
    f.write(stack.pop())
f.close()
```

********OUTPUT********



```
This is the program
to reverse the
content of a file
using stack
```



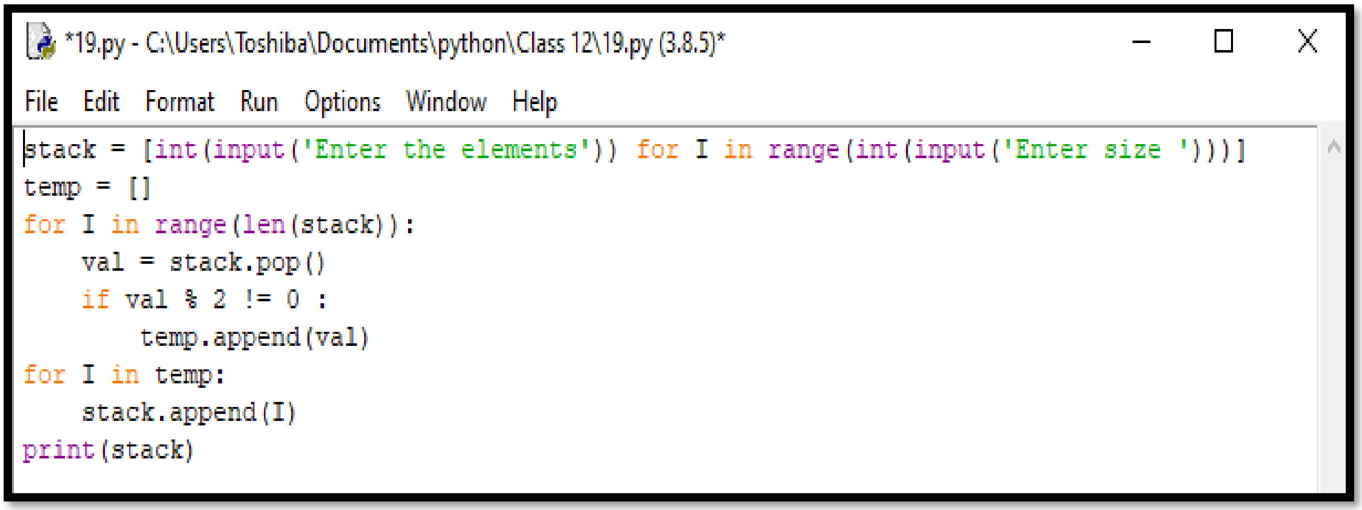
```
using stack
content of a file
to reverse the
This is the program
```

Ex.19

Write a program to delete all even elements from a stack
Given a stack with n elements, the task is to remove all the elements of the stack without affecting the order of elements.
Example:
Input : s = 16 &lt;- 15 &lt;- 29 &lt;- 24 &lt;- 19 (TOP)
Output: 19 29 15
19 29 15 is the order of odd elements in which they will be popped from the given stack.
Approach:

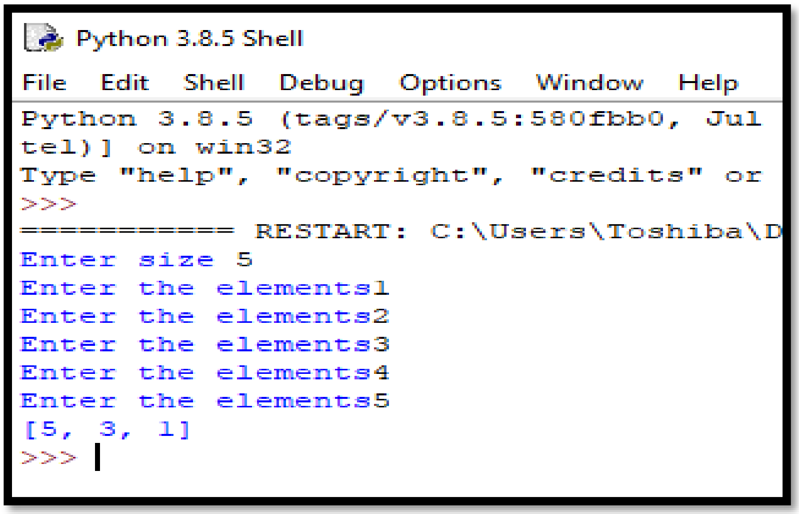
- Create a temporary stack temp and start popping the elements of the given stack s.
- For every popped element say val, if val % 2 == 1 then push it to temp.
- At the end of step 2, temp will contain all the odd elements from s but in reverse order.
- Now, to get the original order, pop every element from temp & push it to s.

********** CODE************


19.py - C:\Users\Toshiba\Documents\python\Class 12\19.py (3.8.5)
File Edit Format Run Options Window Help

```
stack = [int(input('Enter the elements')) for I in range(int(input('Enter size ')))]
temp = []
for I in range(len(stack)):
    val = stack.pop()
    if val % 2 != 0 :
        temp.append(val)
for I in temp:
    stack.append(I)
print(stack)
```

*******OUTPUT*******

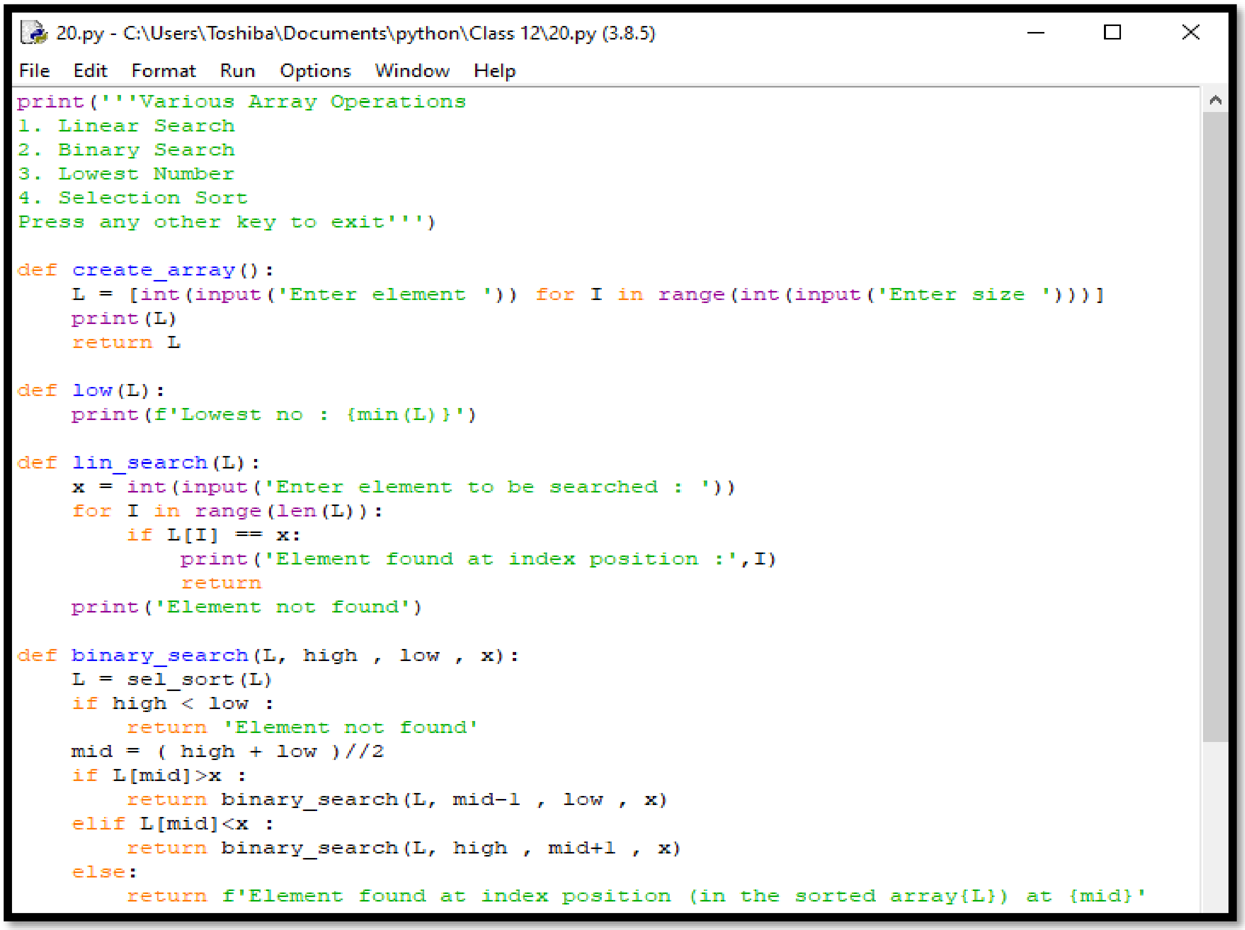


```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul
tel)] on win32
Type "help", "copyright", "credits" or
>>>
=========== RESTART: C:\Users\Toshiba\D
Enter size 5
Enter the elements1
Enter the elements2
Enter the elements3
Enter the elements4
Enter the elements5
[5, 3, 1]
>>> 
```

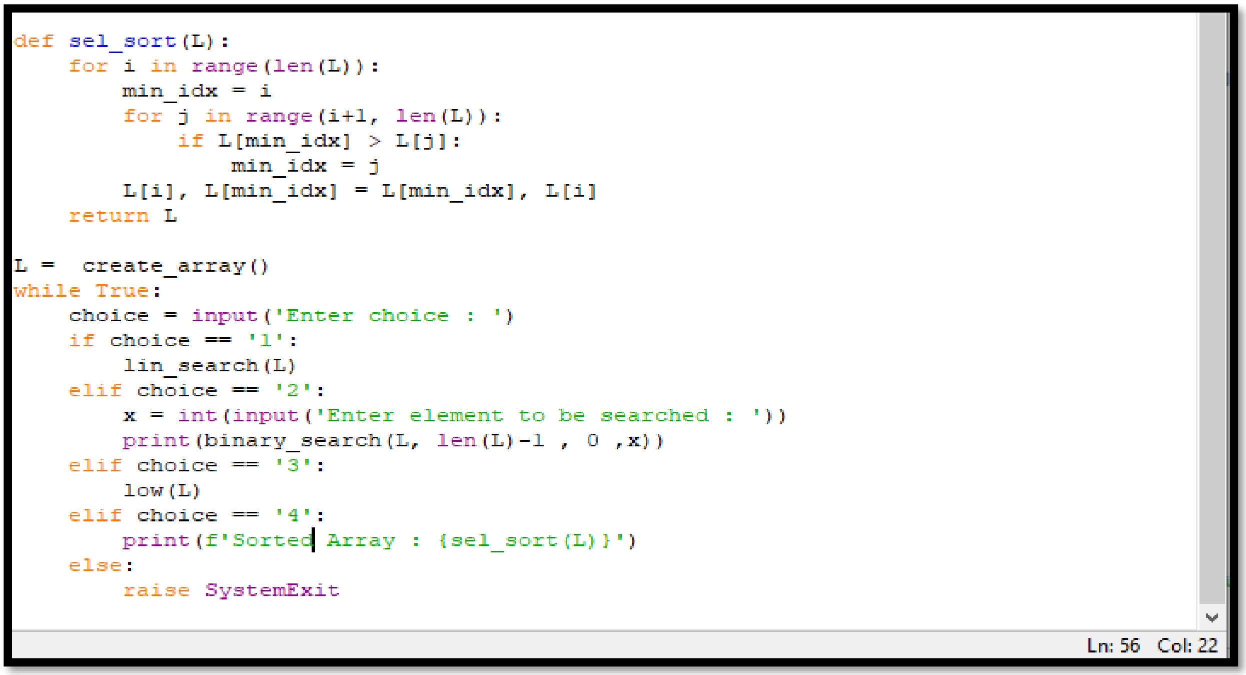
Ex.20

Write a Program to enter the numbers and perform Linear Search, Binary Search, Lowest Number and Selection Sort using list/array code.

********** CODE************

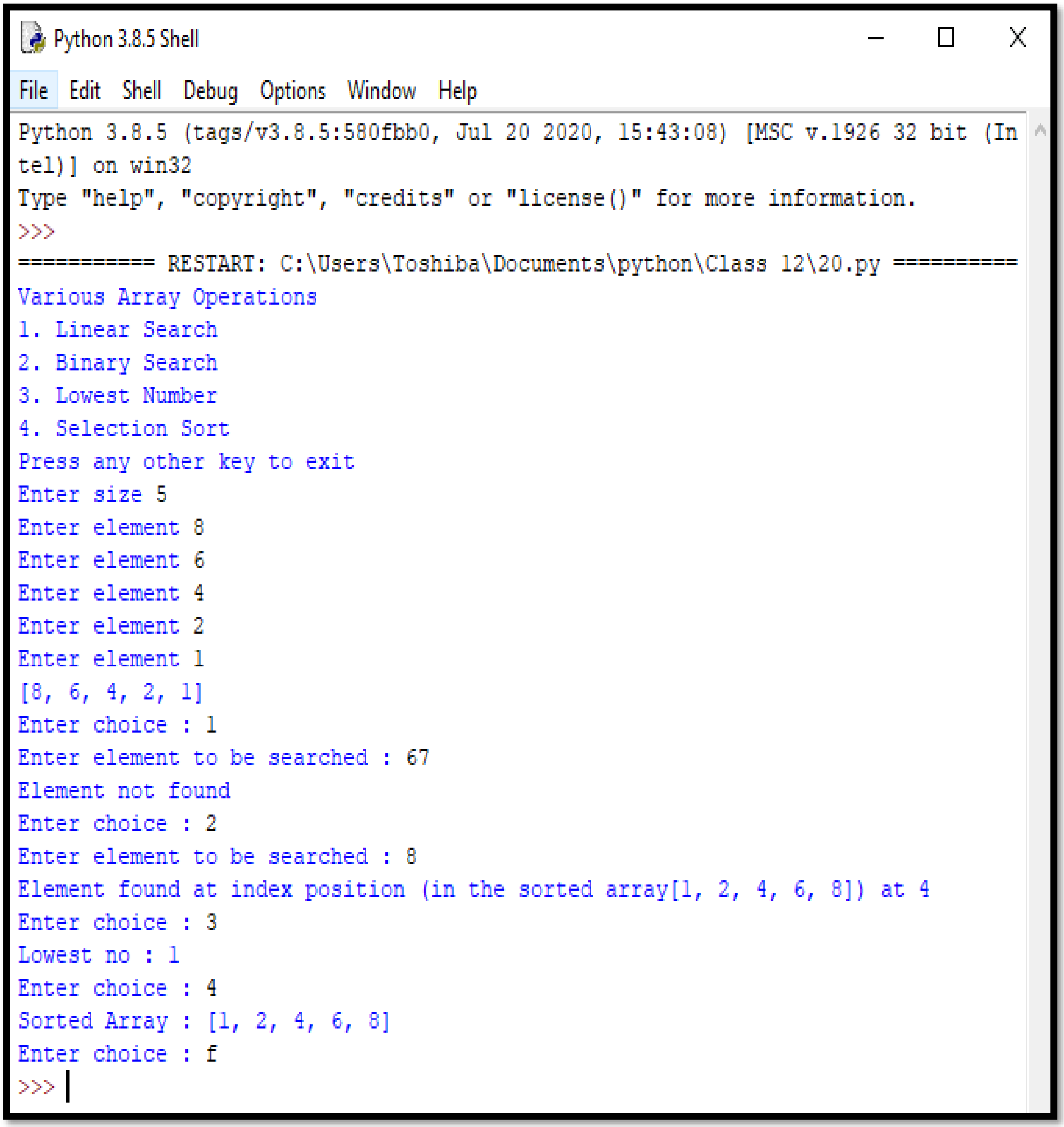

20.py - C:\Users\Toshiba\Documents\python\Class 12\20.py (3.8.5)
File Edit Format Run Options Window Help

```
print('''Various Array Operations
1. Linear Search
2. Binary Search
3. Lowest Number
4. Selection Sort
Press any other key to exit''')

def create_array():
    L = [int(input('Enter element ')) for I in range(int(input('Enter size ')))]
    print(L)
    return L

def low(L):
    print(f'Lowest no : {min(L)}')

def lin_search(L):
    x = int(input('Enter element to be searched : '))
    for I in range(len(L)):
        if L[I] == x:
            print('Element found at index position :',I)
            return
    print('Element not found')

def binary_search(L, high , low , x):
    L = sel_sort(L)
    if high < low :
        return 'Element not found'
    mid = ( high + low )//2
    if L[mid]>x :
        return binary_search(L, mid-1 , low , x)
    elif L[mid]<x :
        return binary_search(L, high , mid+1 , x)
    else:
        return f'Element found at index position (in the sorted array{L}) at {mid}'
```



```
def sel_sort(L):
    for i in range(len(L)):
        min_idx = i
        for j in range(i+1, len(L)):
            if L[min_idx] > L[j]:
                min_idx = j
        L[i], L[min_idx] = L[min_idx], L[i]
    return L

L =  create_array()
while True:
    choice = input('Enter choice : ')
    if choice == '1':
        lin_search(L)
    elif choice == '2':
        x = int(input('Enter element to be searched : '))
        print(binary_search(L, len(L)-1 , 0 ,x))
    elif choice == '3':
        low(L)
    elif choice == '4':
        print(f'Sorted Array : {sel_sort(L)}')
    else:
        raise SystemExit
```

*********OUTPUT*********



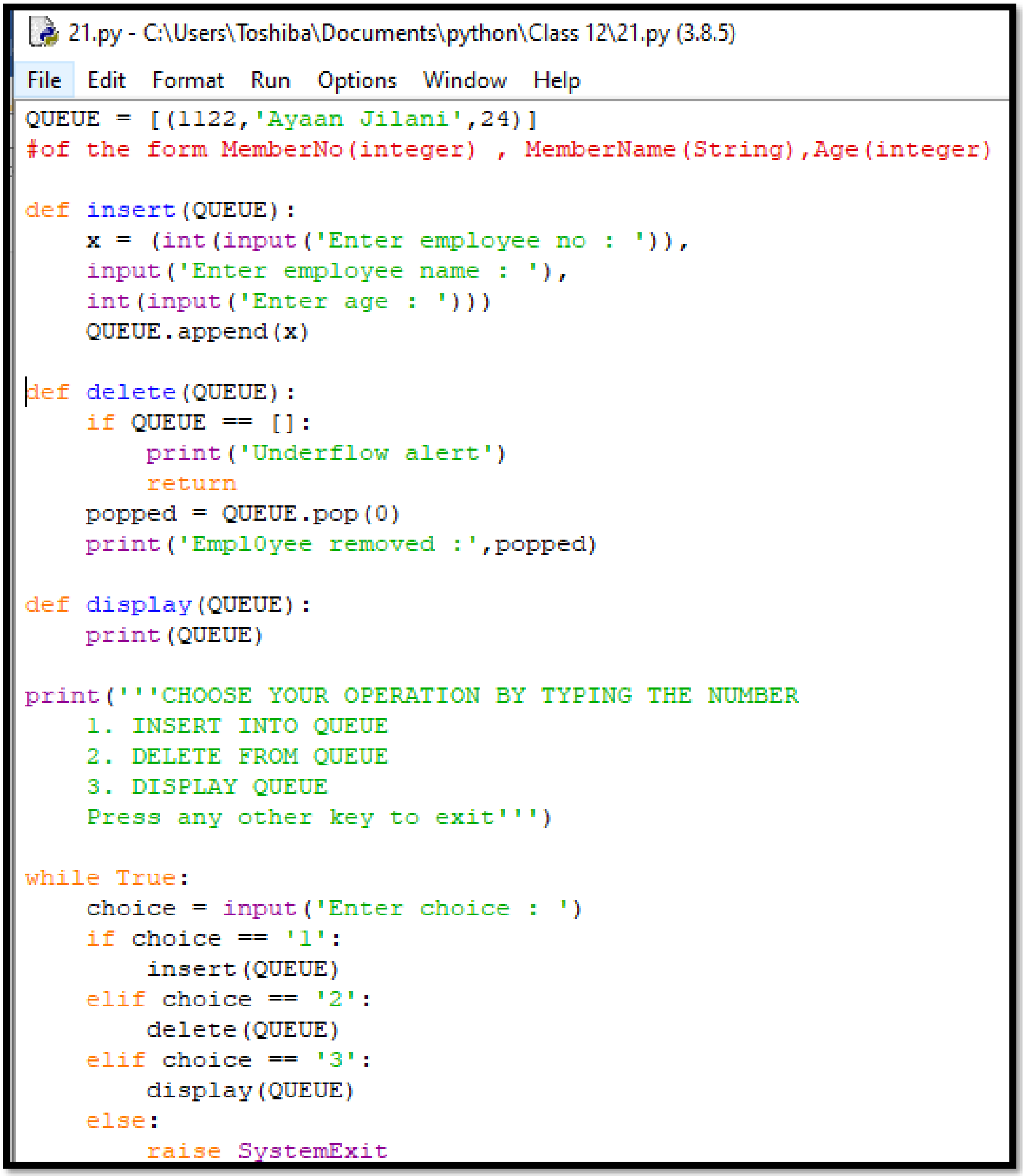
```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=========== RESTART: C:\Users\Toshiba\Documents\python\Class 12\20.py ==========
Various Array Operations
1. Linear Search
2. Binary Search
3. Lowest Number
4. Selection Sort
Press any other key to exit
Enter size 5
Enter element 8
Enter element 6
Enter element 4
Enter element 2
Enter element 1
[8, 6, 4, 2, 1]
Enter choice : 1
Enter element to be searched : 67
Element not found
Enter choice : 2
Enter element to be searched : 8
Element found at index position (in the sorted array[1, 2, 4, 6, 8]) at 4
Enter choice : 3
Lowest no : 1
Enter choice : 4
Sorted Array : [1, 2, 4, 6, 8]
Enter choice : f
>>>
```

Ex.21

Write a program to perform insert and delete operations on a Queue containing Member details as given on the following definition of itemnode:

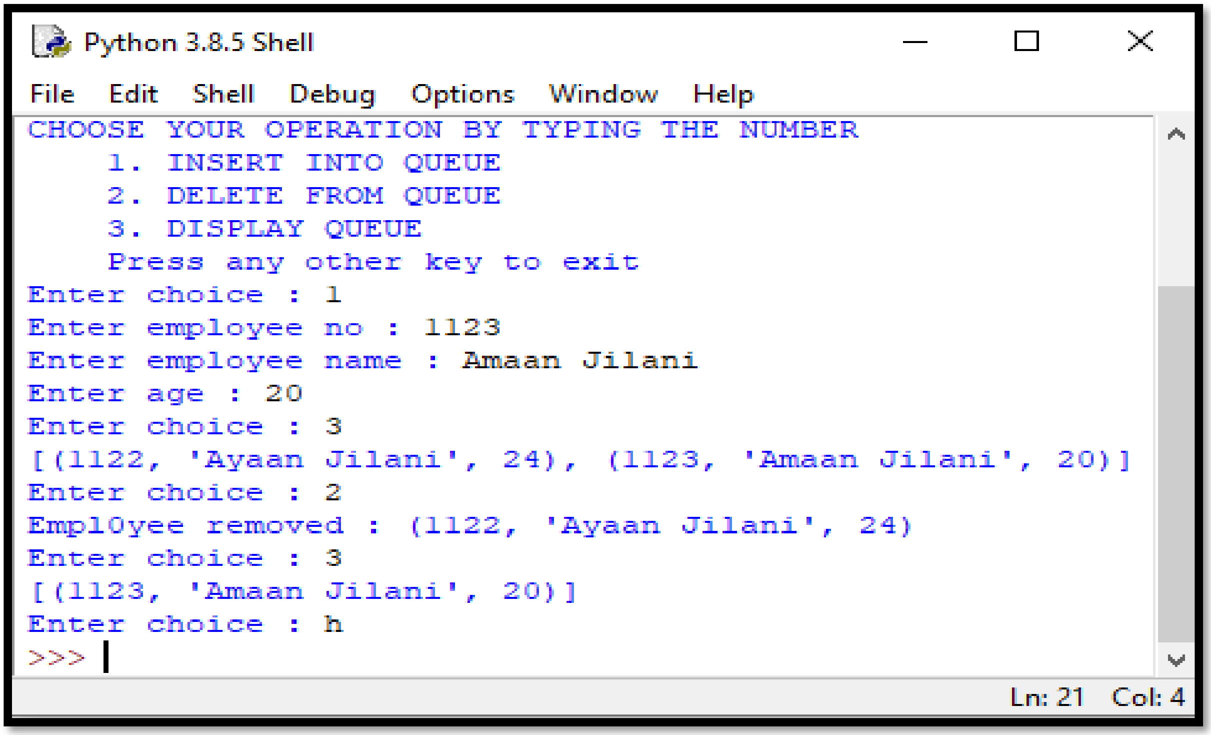
- MemberNo (integer)
- MemberName (String)
- Age (integer)

********** CODE************


21.py - C:\Users\Toshiba\Documents\python\Class 12\21.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```
QUEUE = [(1122,'Ayaan Jilani',24)]
#of the form MemberNo(integer) , MemberName(String),Age(integer)

def insert(QUEUE):
    x = (int(input('Enter employee no : ')),
    input('Enter employee name : '),
    int(input('Enter age : ')))
    QUEUE.append(x)

def delete(QUEUE):
    if QUEUE == []:
        print('Underflow alert')
        return
    popped = QUEUE.pop(0)
    print('Empl0yee removed :',popped)

def display(QUEUE):
    print(QUEUE)

print('''CHOOSE YOUR OPERATION BY TYPING THE NUMBER
    1. INSERT INTO QUEUE
    2. DELETE FROM QUEUE
    3. DISPLAY QUEUE
    Press any other key to exit''')

while True:
    choice = input('Enter choice : ')
    if choice == '1':
        insert(QUEUE)
    elif choice == '2':
        delete(QUEUE)
    elif choice == '3':
        display(QUEUE)
    else:
        raise SystemExit
```

***********OUTPUT***********



```
CHOOSE YOUR OPERATION BY TYPING THE NUMBER
     1. INSERT INTO QUEUE
     2. DELETE FROM QUEUE
     3. DISPLAY QUEUE
     Press any other key to exit
Enter choice : 1
Enter employee no : 1123
Enter employee name : Amaan Jilani
Enter age : 20
Enter choice : 3
[(1122, 'Ayaan Jilani', 24), (1123, 'Amaan Jilani', 20)]
Enter choice : 2
Empl0yee removed : (1122, 'Ayaan Jilani', 24)
Enter choice : 3
[(1123, 'Amaan Jilani', 20)]
Enter choice : h
>>> 
```

Ex.22

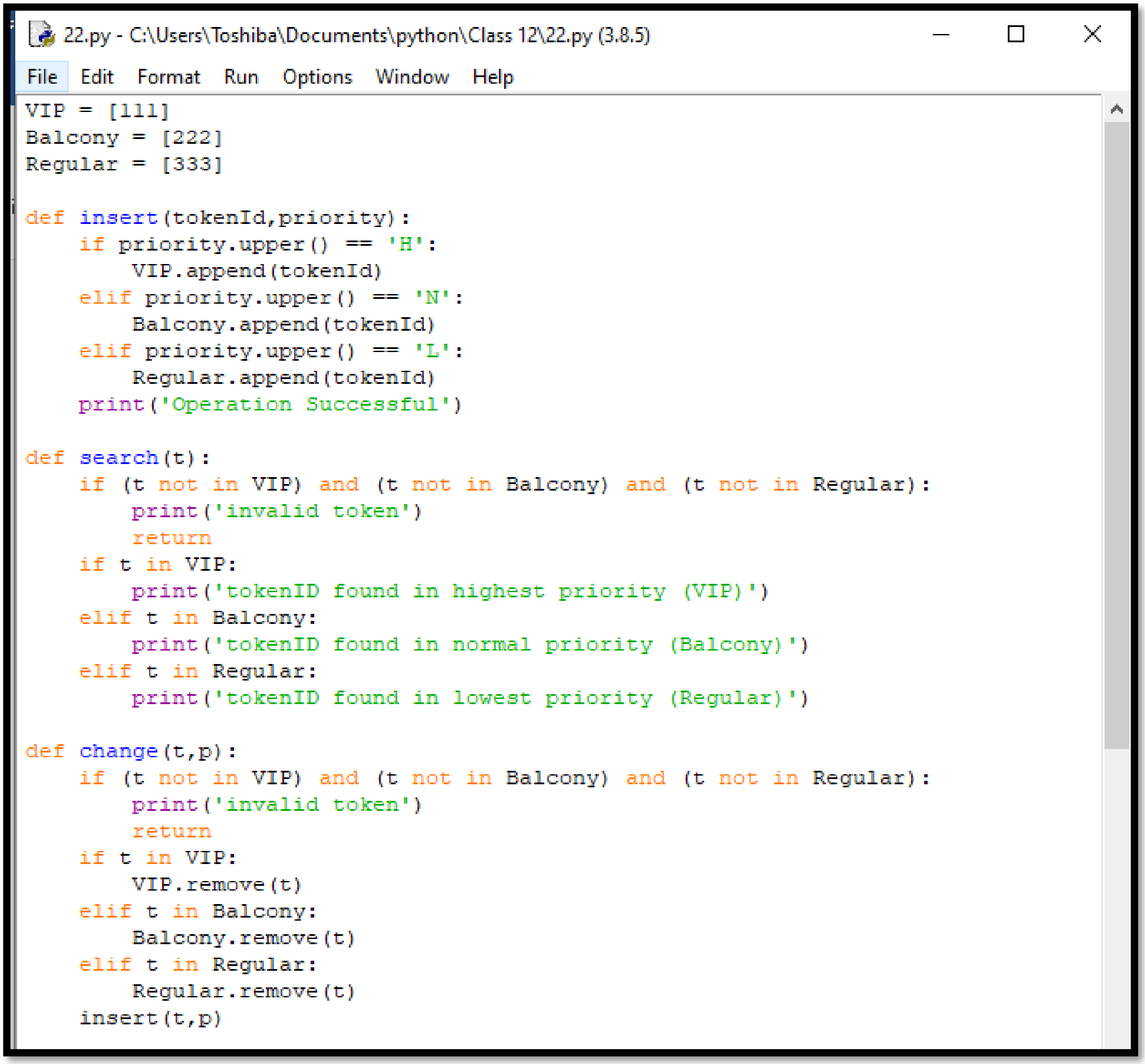
Write a program that implements three queues namely VIP, Balcony and Regular. The program accepts the tokenID with it priority from the user eg:

Enter tokenID: ABC123
Priority(Highest/Normal/lowest(H/N/L): H
As per the priority entered, the element is added in the corresponding queue.

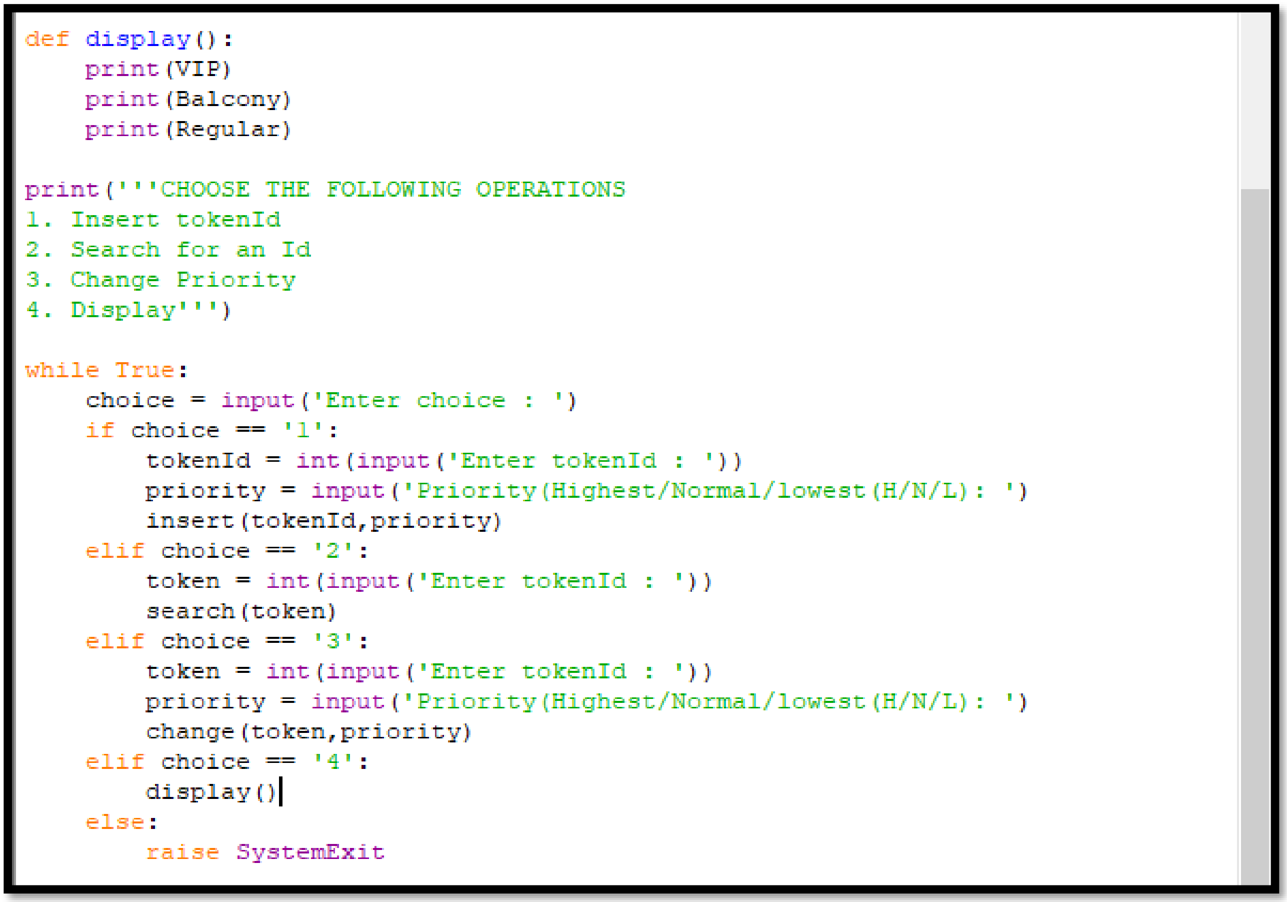
A menu offers the following options

1. Insert tokenId
2. Search for an Id
3. Change Priority

********** CODE************

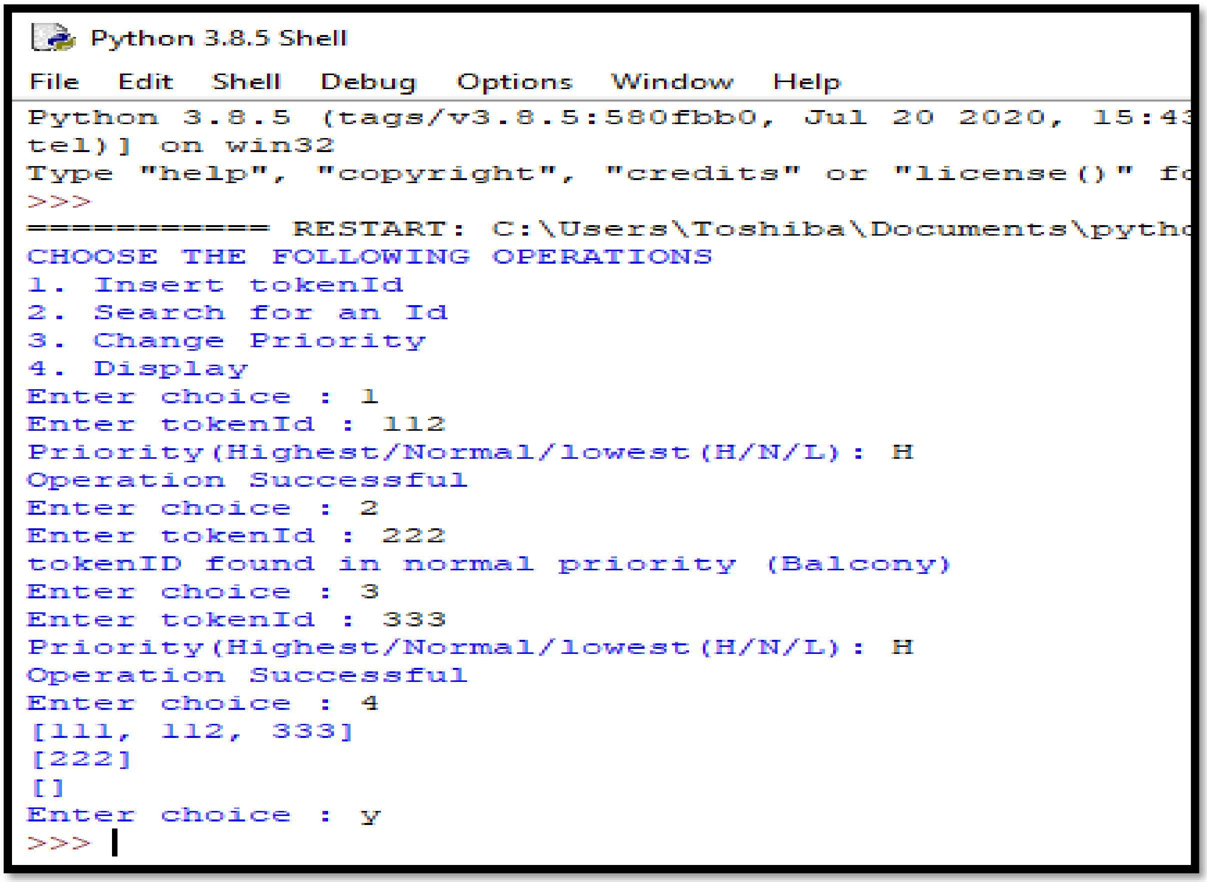

22.py - C:\Users\Toshiba\Documents\python\Class 12\22.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```python
VIP = [111]
Balcony = [222]
Regular = [333]

def insert(tokenId,priority):
    if priority.upper() == 'H':
        VIP.append(tokenId)
    elif priority.upper() == 'N':
        Balcony.append(tokenId)
    elif priority.upper() == 'L':
        Regular.append(tokenId)
    print('Operation Successful')

def search(t):
    if (t not in VIP) and (t not in Balcony) and (t not in Regular):
        print('invalid token')
        return
    if t in VIP:
        print('tokenID found in highest priority (VIP)')
    elif t in Balcony:
        print('tokenID found in normal priority (Balcony)')
    elif t in Regular:
        print('tokenID found in lowest priority (Regular)')

def change(t,p):
    if (t not in VIP) and (t not in Balcony) and (t not in Regular):
        print('invalid token')
        return
    if t in VIP:
        VIP.remove(t)
    elif t in Balcony:
        Balcony.remove(t)
    elif t in Regular:
        Regular.remove(t)
    insert(t,p)
```



```
def display():
    print(VIP)
    print(Balcony)
    print(Regular)

print('''CHOOSE THE FOLLOWING OPERATIONS
1. Insert tokenId
2. Search for an Id
3. Change Priority
4. Display''')

while True:
    choice = input('Enter choice : ')
    if choice == '1':
        tokenId = int(input('Enter tokenId : '))
        priority = input('Priority(Highest/Normal/lowest(H/N/L): ')
        insert(tokenId,priority)
    elif choice == '2':
        token = int(input('Enter tokenId : '))
        search(token)
    elif choice == '3':
        token = int(input('Enter tokenId : '))
        priority = input('Priority(Highest/Normal/lowest(H/N/L): ')
        change(token,priority)
    elif choice == '4':
        display()
    else:
        raise SystemExit
```

*********OUTPUT*********



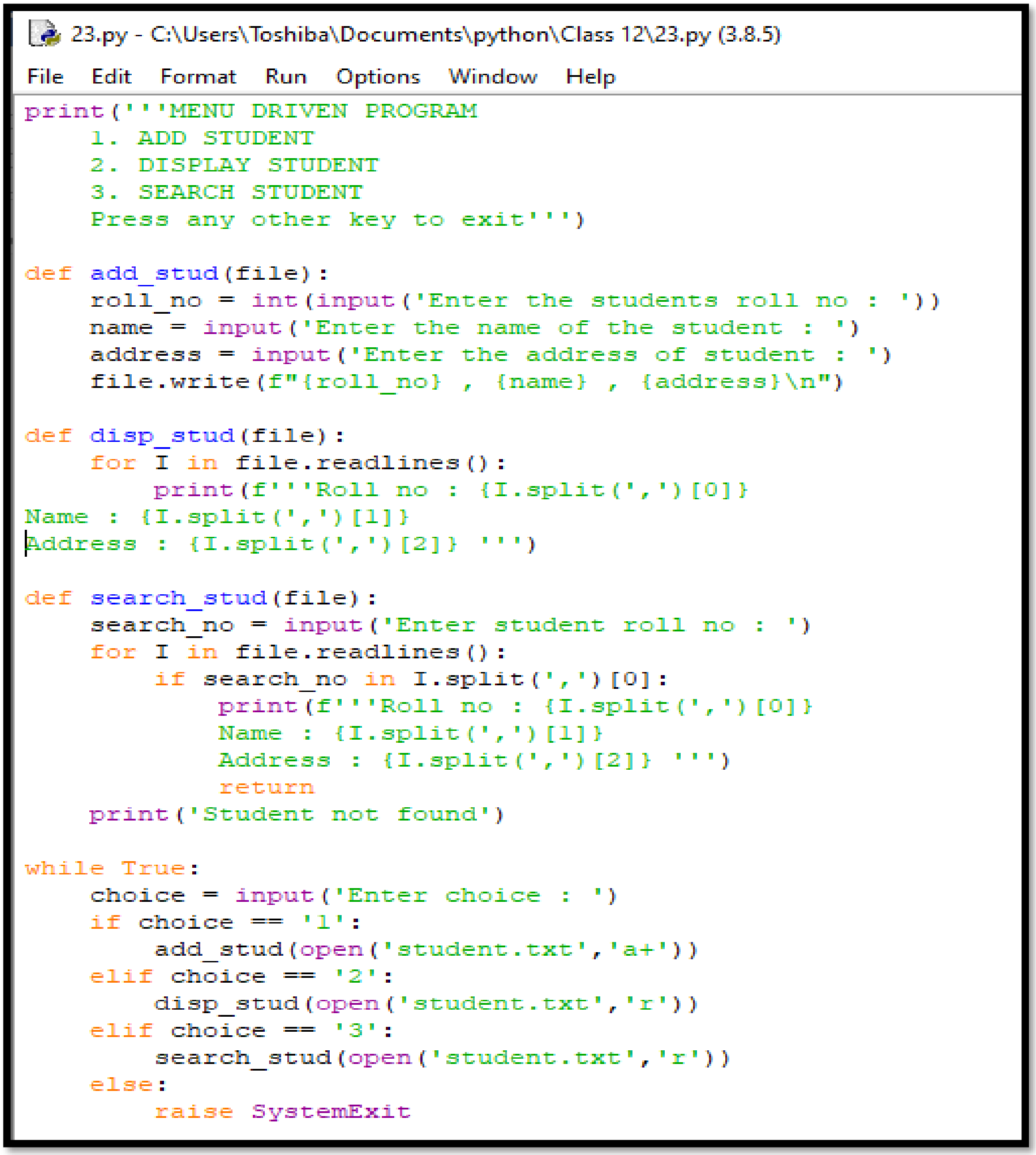
```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:4
tel)] on win32
Type "help", "copyright", "credits" or "license()" f
>>>
============ RESTART: C:\Users\Toshiba\Documents\pytho
CHOOSE THE FOLLOWING OPERATIONS
1. Insert tokenId
2. Search for an Id
3. Change Priority
4. Display
Enter choice : 1
Enter tokenId : 112
Priority(Highest/Normal/lowest(H/N/L): H
Operation Successful
Enter choice : 2
Enter tokenId : 222
tokenID found in normal priority (Balcony)
Enter choice : 3
Enter tokenId : 333
Priority(Highest/Normal/lowest(H/N/L): H
Operation Successful
Enter choice : 4
[111, 112, 333]
[222]
[]
Enter choice : y
>>>
```

Ex.23

Write a menu driven program to perform read and write operations using a text file called Student.txt containing Roll_No,Name and Address using separate functions given below

- Add_Stud() – Entering student details. While adding data to the file, the Roll_No field should be separated from the remaining fields with a comma separator.
- Disp_Stud() – To display the student details.
- Search_Stud() – To search a student based on Roll_No

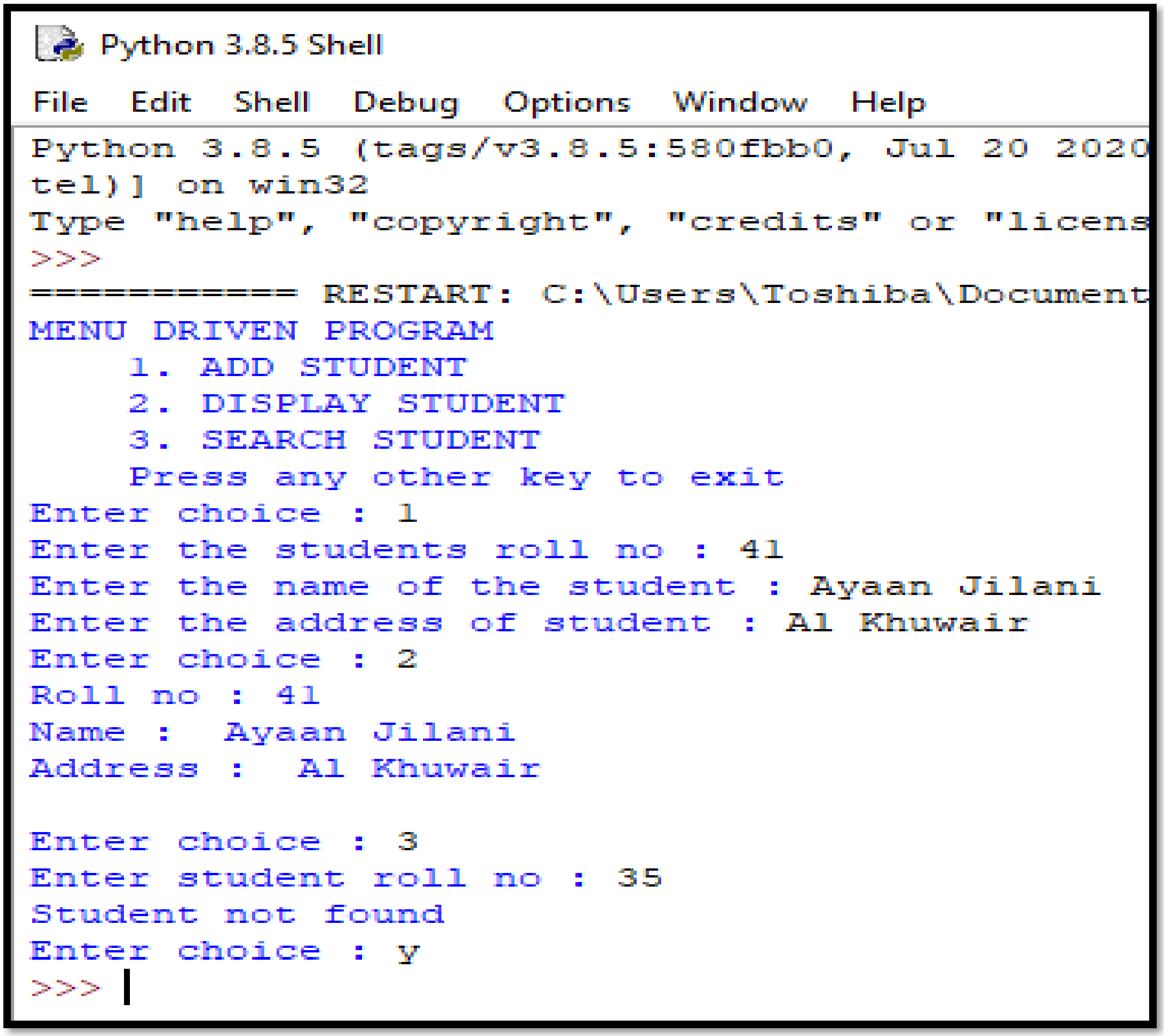
********** CODE************



23.py - C:\Users\Toshiba\Documents\python\Class 12\23.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```
print('''MENU DRIVEN PROGRAM
    1. ADD STUDENT
    2. DISPLAY STUDENT
    3. SEARCH STUDENT
    Press any other key to exit''')

def add_stud(file):
    roll_no = int(input('Enter the students roll no : '))
    name = input('Enter the name of the student : ')
    address = input('Enter the address of student : ')
    file.write(f"{roll_no} , {name} , {address}\n")

def disp_stud(file):
    for I in file.readlines():
        print(f'''Roll no : {I.split(',')[0]}
Name : {I.split(',')[1]}
Address : {I.split(',')[2]} ''')

def search_stud(file):
    search_no = input('Enter student roll no : ')
    for I in file.readlines():
        if search_no in I.split(',')[0]:
            print(f'''Roll no : {I.split(',')[0]}
            Name : {I.split(',')[1]}
            Address : {I.split(',')[2]} ''')
            return
    print('Student not found')

while True:
    choice = input('Enter choice : ')
    if choice == '1':
        add_stud(open('student.txt','a+'))
    elif choice == '2':
        disp_stud(open('student.txt','r'))
    elif choice == '3':
        search_stud(open('student.txt','r'))
    else:
        raise SystemExit
```

*********OUTPUT**********



```
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020
tel)] on win32
Type "help", "copyright", "credits" or "licens
>>>
=========== RESTART: C:\Users\Toshiba\Document
MENU DRIVEN PROGRAM
    1. ADD STUDENT
    2. DISPLAY STUDENT
    3. SEARCH STUDENT
    Press any other key to exit
Enter choice : 1
Enter the students roll no : 41
Enter the name of the student : Ayaan Jilani
Enter the address of student : Al Khuwair
Enter choice : 2
Roll no : 41
Name :  Ayaan Jilani
Address :  Al Khuwair

Enter choice : 3
Enter student roll no : 35
Student not found
Enter choice : y
>>>
```

Ex.24

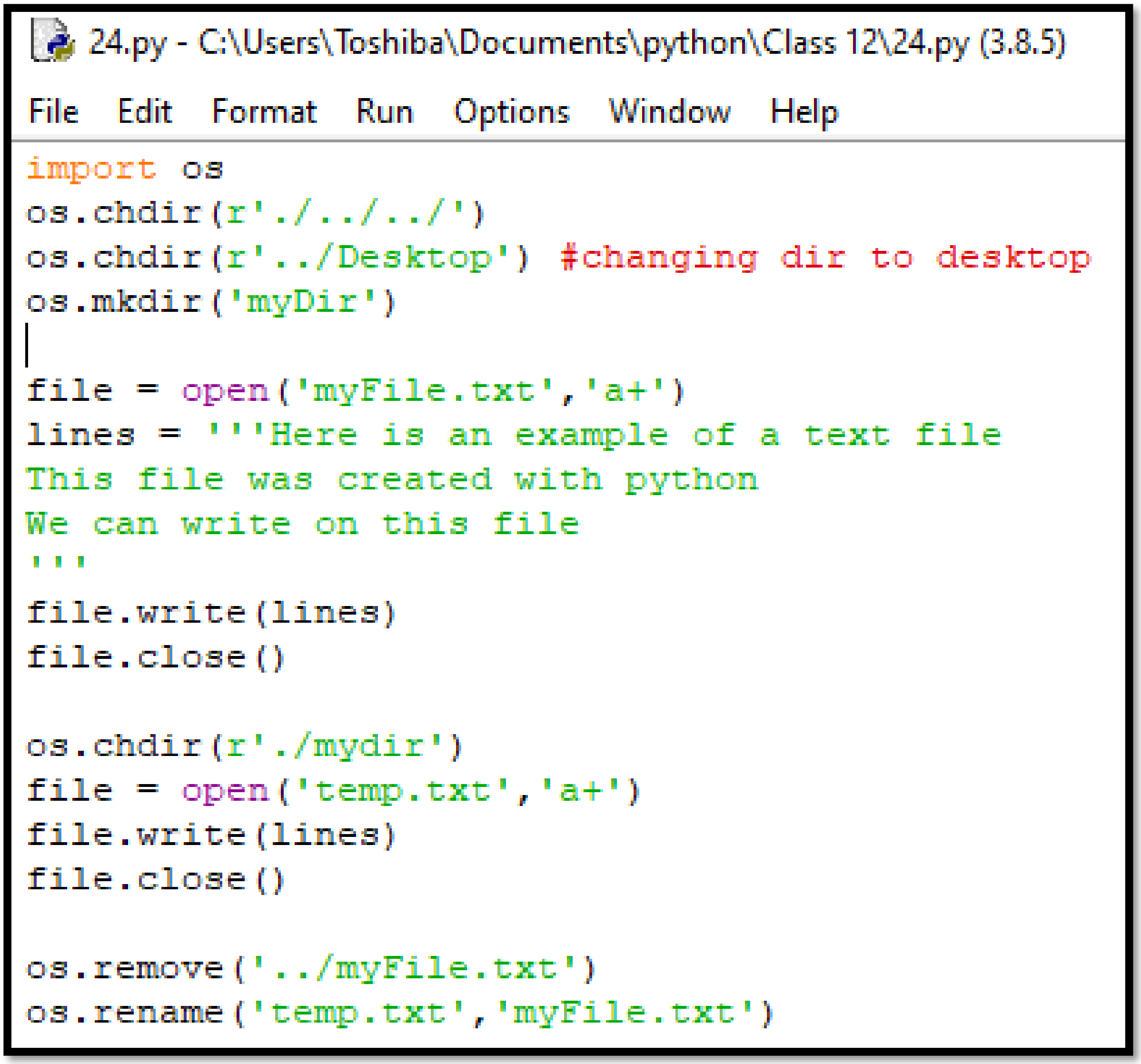
Write a python program that allowing you to create a directory in the desktop called myDir.

Write a Python program allowing you to create a file in the desktop named myFile.txt and write it the following lines:

> Here is an example of a text file
> This file was created with python
> We can write on this file

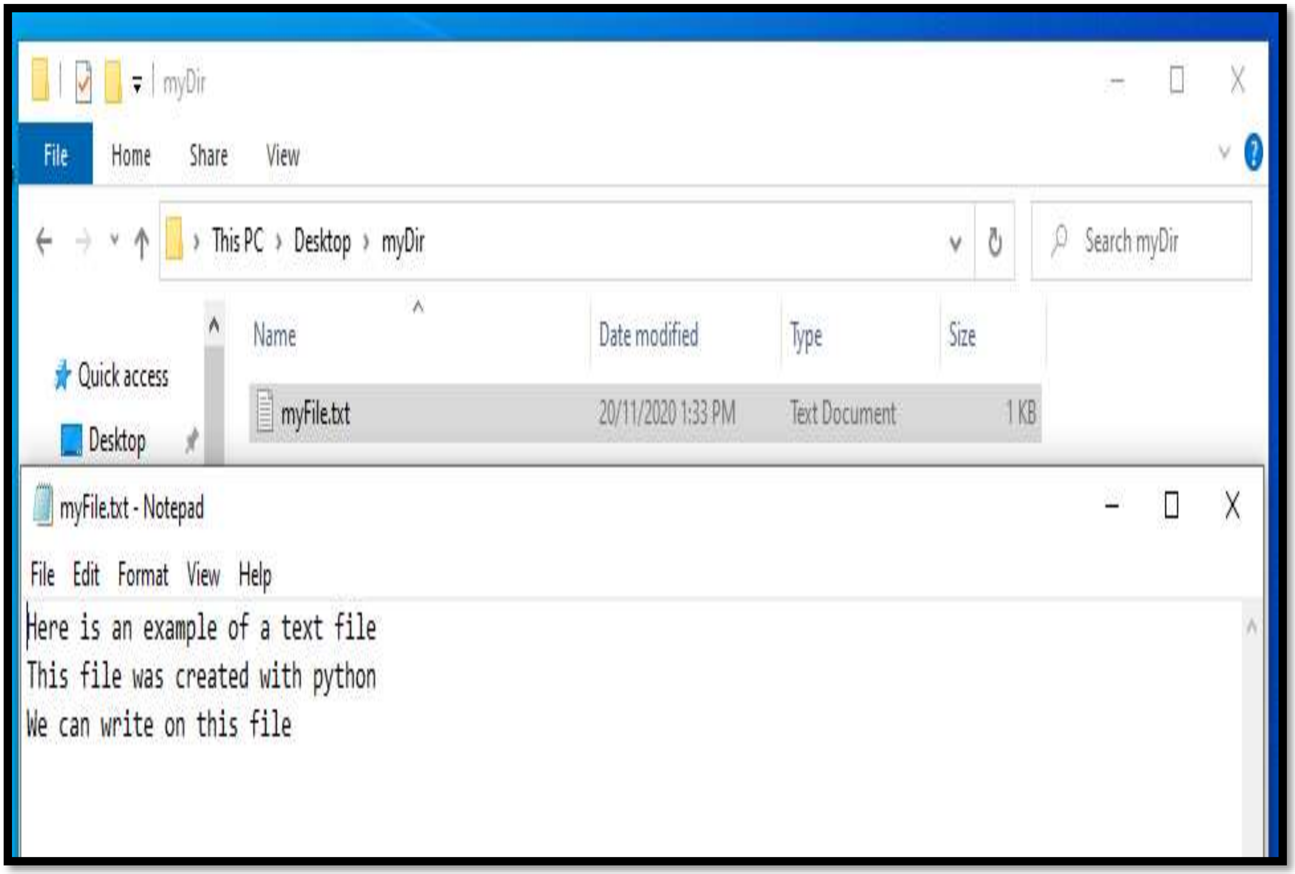
Write a Python program allowing you to moving myFile.txt in the directory myDir.

********** CODE************


24.py - C:\Users\Toshiba\Documents\python\Class 12\24.py (3.8.5)
File
Edit
Format
Run
Options
Window
Help

```python
import os
os.chdir(r'./../../')
os.chdir(r'../Desktop') #changing dir to desktop
os.mkdir('myDir')

file = open('myFile.txt','a+')
lines = '''Here is an example of a text file
This file was created with python
We can write on this file
'''
file.write(lines)
file.close()

os.chdir(r'./mydir')
file = open('temp.txt','a+')
file.write(lines)
file.close()

os.remove('../myFile.txt')
os.rename('temp.txt','myFile.txt')
```

*********OUTPUT**********



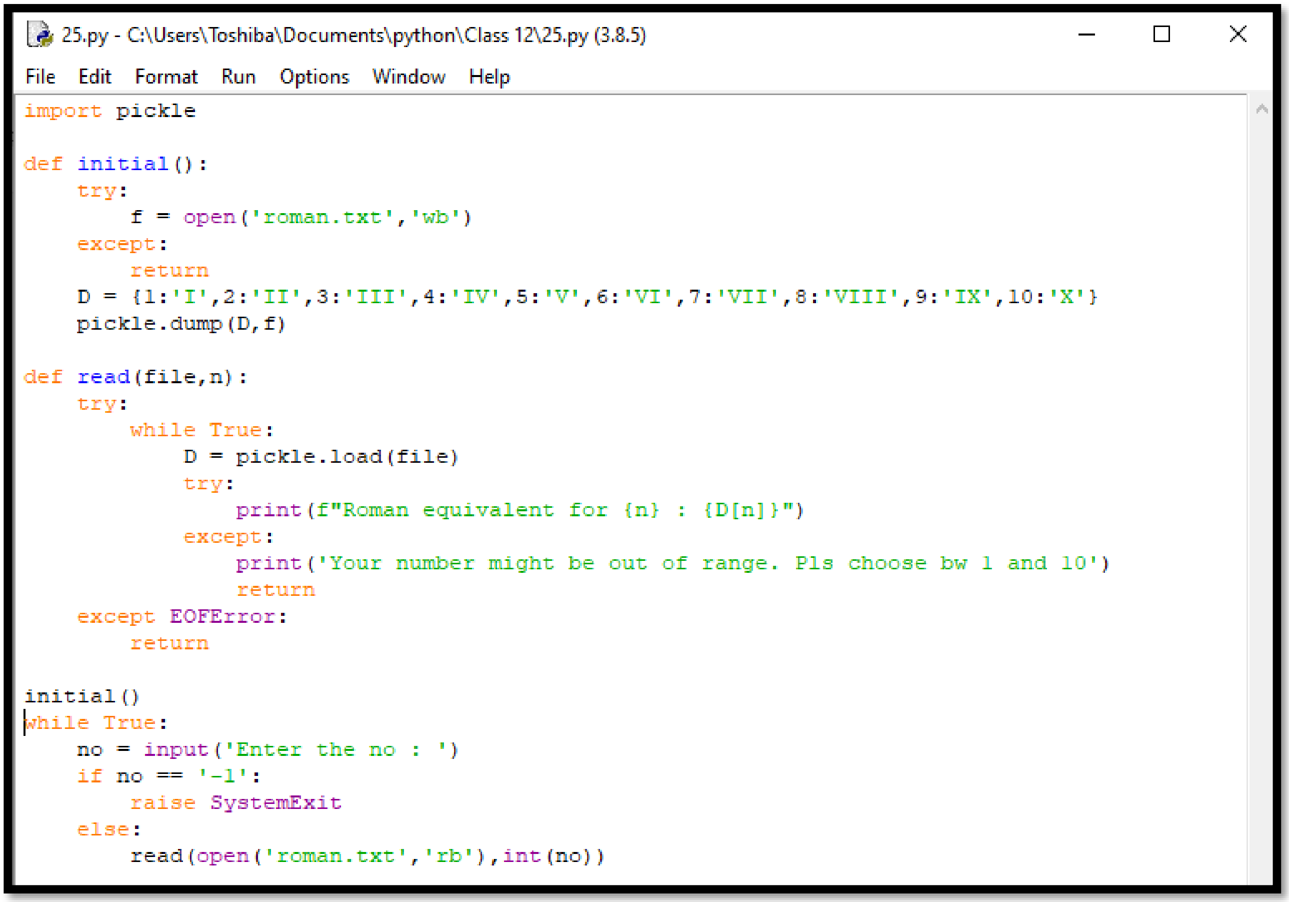
Name	Date modified	Type	Size
myFile.txt	20/11/2020 1:33 PM	Text Document	1 KB

```
Here is an example of a text file
This file was created with python
We can write on this file
```

Ex.25

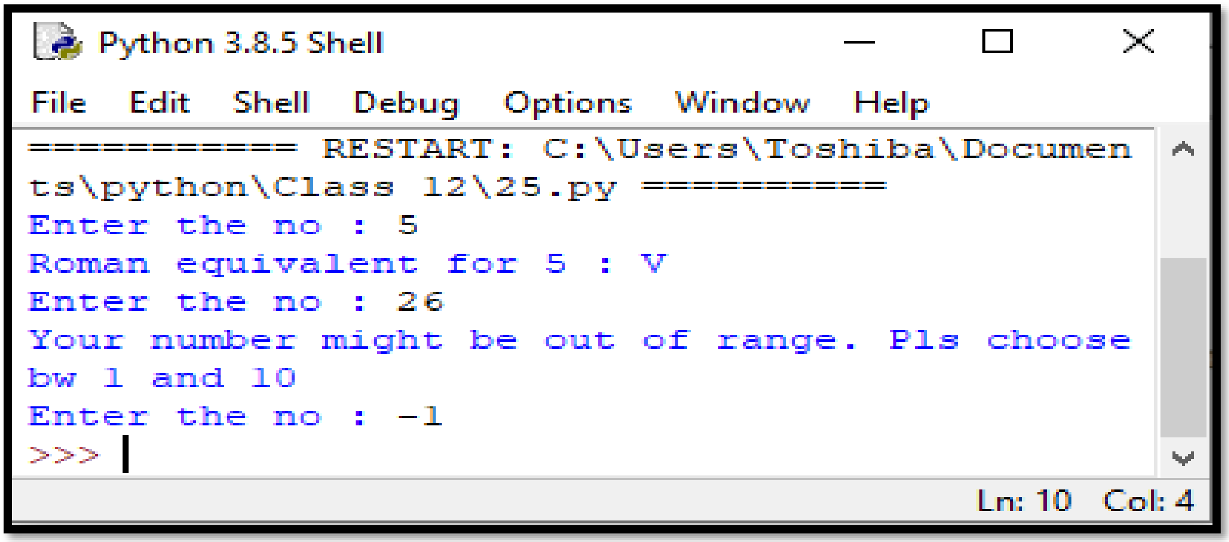
Write a program in Python to create a binary file with numbers as key and the equivalent Roman numeral as the value (eg: { 1:’I’ ,6: ‘VI’….and so on). The dictionary should have a minimum of 10 numbers. Write a menu driven program to accept a number from the user and display its equivalent Roman Numeral. The program stops when the user enters -1.

********** CODE************


25.py - C:\Users\Toshiba\Documents\python\Class 12\25.py (3.8.5)
File Edit Format Run Options Window Help

```python
import pickle

def initial():
    try:
        f = open('roman.txt','wb')
    except:
        return
    D = {1:'I',2:'II',3:'III',4:'IV',5:'V',6:'VI',7:'VII',8:'VIII',9:'IX',10:'X'}
    pickle.dump(D,f)

def read(file,n):
    try:
        while True:
            D = pickle.load(file)
            try:
                print(f"Roman equivalent for {n} : {D[n]}")
            except:
                print('Your number might be out of range. Pls choose bw 1 and 10')
                return
    except EOFError:
        return

initial()
while True:
    no = input('Enter the no : ')
    if no == '-1':
        raise SystemExit
    else:
        read(open('roman.txt','rb'),int(no))
```

********OUTPUT********



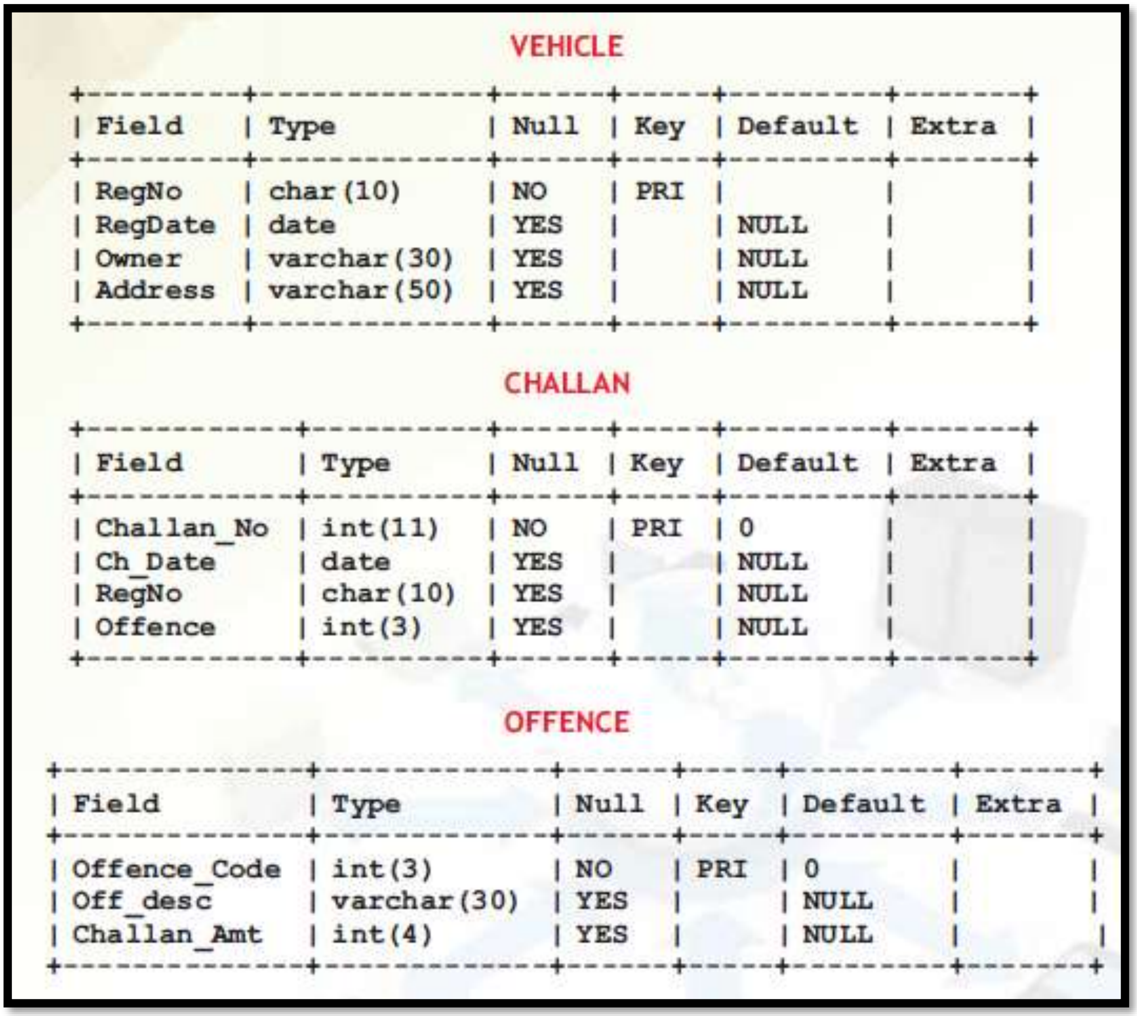
```
=========== RESTART: C:\Users\Toshiba\Documen
ts\python\Class 12\25.py ==========
Enter the no : 5
Roman equivalent for 5 : V
Enter the no : 26
Your number might be out of range. Pls choose
bw 1 and 10
Enter the no : -1
>>> 
```

Ex.26

Based on these tables write SQL statements for the following queries:

1. Display the dates of first registration and last registration from the table Vehicle.
2. Display the number of challans issued on each date.
3. Display the total number of challans issued for each offence.
4. Display the total number of vehicles for which the 3rd and 4th characters of RegNo are '6C'.
5. Display the total value of challans issued for which the Off_Desc is 'Driving without License'.
6. Display details of the challans issued on '2010-04-03' along with Off_Desc for each challan.
7. Display the RegNo of all vehicles which have been challaned more than once.
8. Display details of each challan alongwith vehicle details, Off_desc, and Challan_Amt.

***********TABLES*************



VEHICLE

```
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| RegNo   | char(10)    | NO   | PRI |         |       |
| RegDate | date        | YES  |     | NULL    |       |
| Owner   | varchar(30) | YES  |     | NULL    |       |
| Address | varchar(50) | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
```

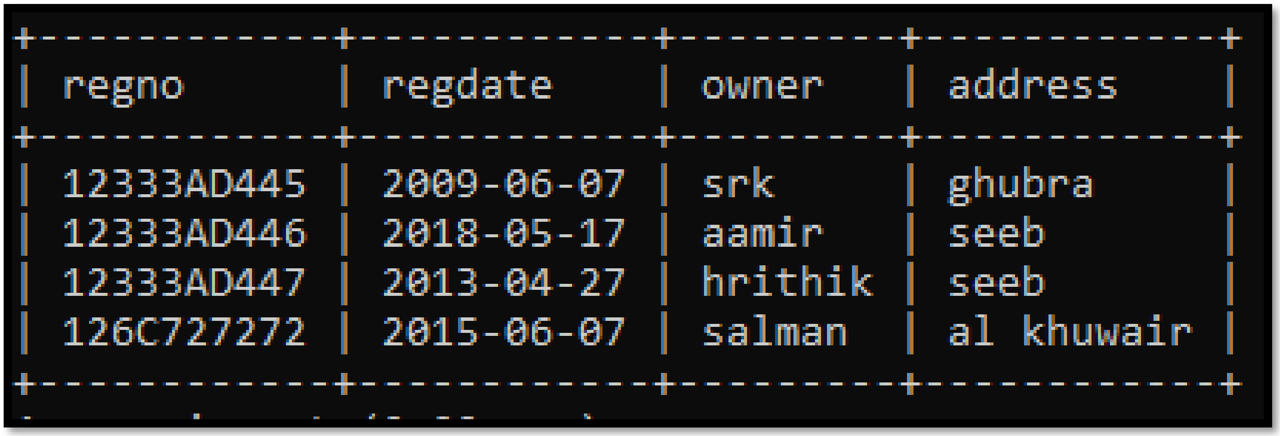
CHALLAN

```
+------------+----------+------+-----+---------+-------+
| Field      | Type     | Null | Key | Default | Extra |
+------------+----------+------+-----+---------+-------+
| Challan_No | int(11)  | NO   | PRI | 0       |       |
| Ch_Date    | date     | YES  |     | NULL    |       |
| RegNo      | char(10) | YES  |     | NULL    |       |
| Offence    | int(3)   | YES  |     | NULL    |       |
+------------+----------+------+-----+---------+-------+
```

OFFENCE

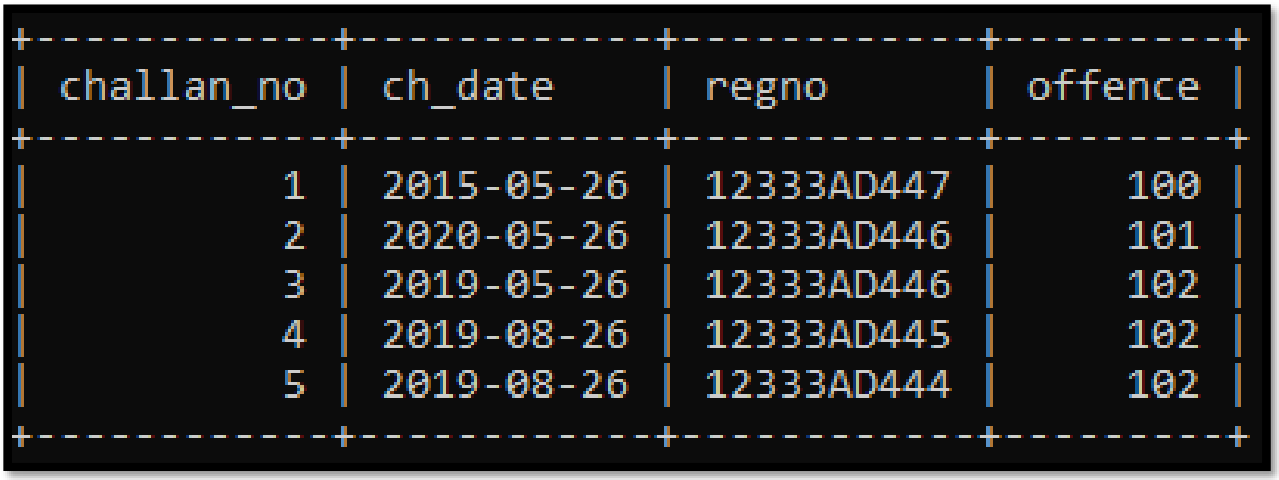
```
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| Offence_Code | int(3)      | NO   | PRI | 0       |       |
| Off_desc     | varchar(30) | YES  |     | NULL    |       |
| Challan_Amt  | int(4)      | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
```

VEHICLE



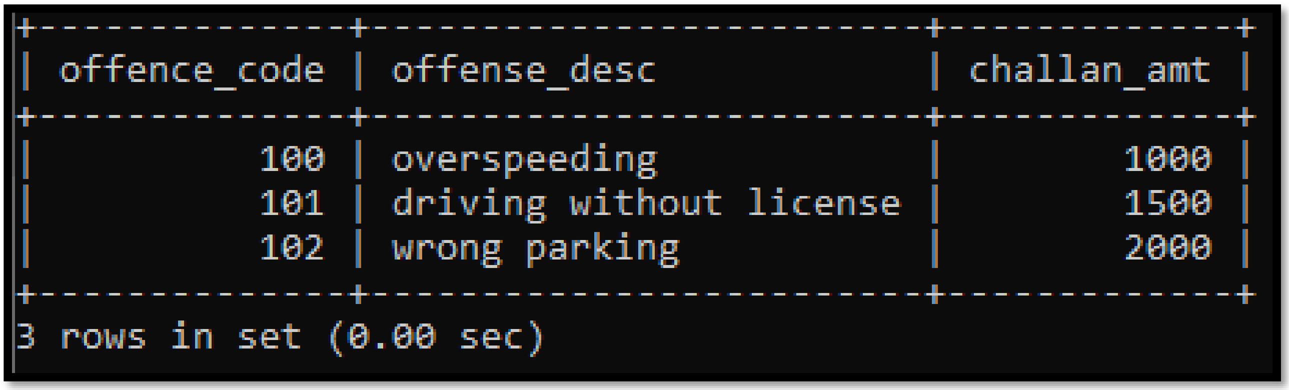
```
+------------+------------+---------+------------+
| regno      | regdate    | owner   | address    |
+------------+------------+---------+------------+
| 12333AD445 | 2009-06-07 | srk     | ghubra     |
| 12333AD446 | 2018-05-17 | aamir   | seeb       |
| 12333AD447 | 2013-04-27 | hrithik | seeb       |
| 126C727272 | 2015-06-07 | salman  | al khuwair |
+------------+------------+---------+------------+
```

CHALLAN



```
+------------+------------+------------+---------+
| challan_no | ch_date    | regno      | offence |
+------------+------------+------------+---------+
|          1 | 2015-05-26 | 12333AD447 |     100 |
|          2 | 2020-05-26 | 12333AD446 |     101 |
|          3 | 2019-05-26 | 12333AD446 |     102 |
|          4 | 2019-08-26 | 12333AD445 |     102 |
|          5 | 2019-08-26 | 12333AD444 |     102 |
+------------+------------+------------+---------+
```

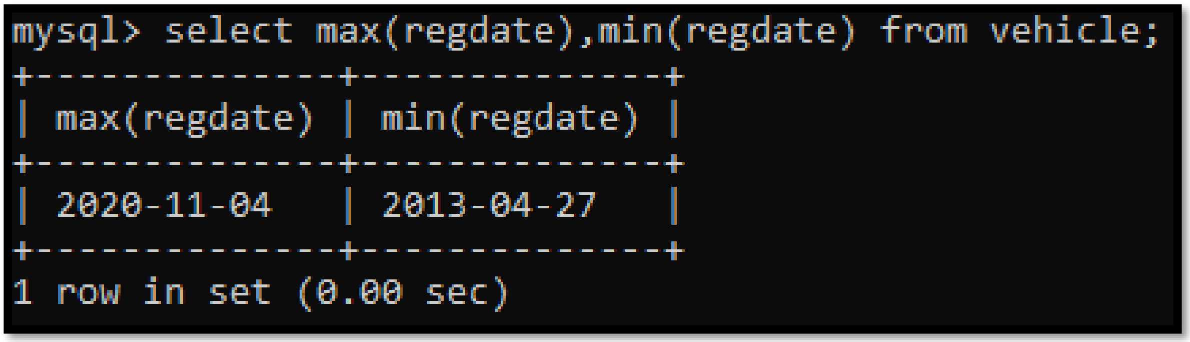
OFFENCE



```
+--------------+--------------------------+-------------+
| offence_code | offense_desc             | challan_amt |
+--------------+--------------------------+-------------+
|          100 | overspeeding             |        1000 |
|          101 | driving without license  |        1500 |
|          102 | wrong parking            |        2000 |
+--------------+--------------------------+-------------+
3 rows in set (0.00 sec)
```

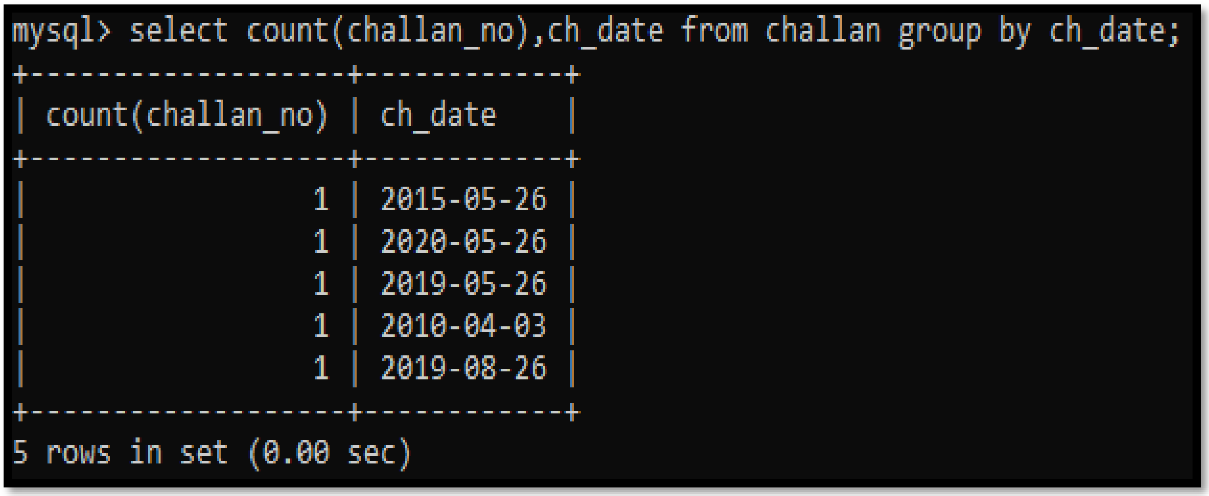
********OUTPUTS*********

1. Select max(regdate),min(regdate) from vehicle;



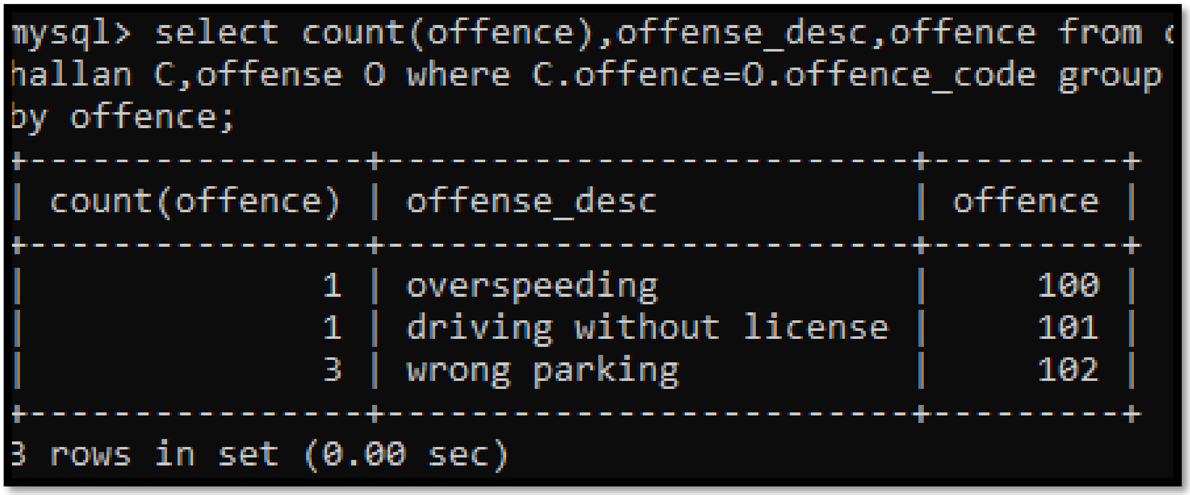
```
mysql> select max(regdate),min(regdate) from vehicle;
+--------------+--------------+
| max(regdate) | min(regdate) |
+--------------+--------------+
| 2020-11-04   | 2013-04-27   |
+--------------+--------------+
1 row in set (0.00 sec)
```

2. Select count(challan_no),ch_date from challan group by ch_date;.



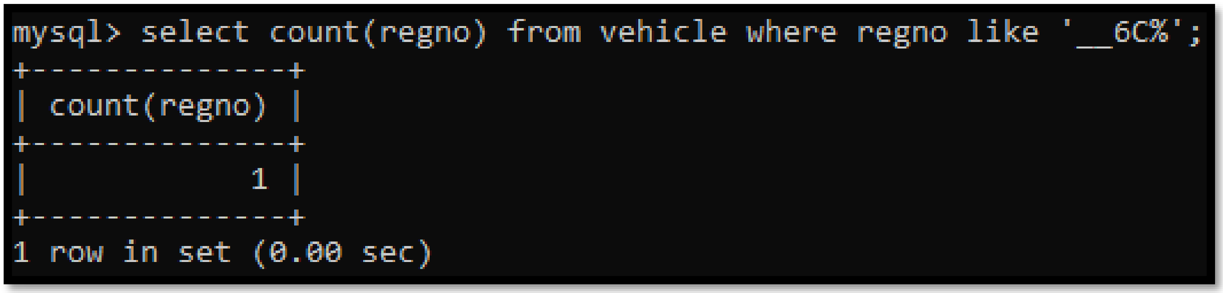
```
mysql> select count(challan_no),ch_date from challan group by ch_date;
+-------------------+------------+
| count(challan_no) | ch_date    |
+-------------------+------------+
|                 1 | 2015-05-26 |
|                 1 | 2020-05-26 |
|                 1 | 2019-05-26 |
|                 1 | 2010-04-03 |
|                 1 | 2019-08-26 |
+-------------------+------------+
5 rows in set (0.00 sec)
```

3. Select count(offence),offense_desc,offence from challan C,offense O where C.offence=O.offence_code group by offence;.



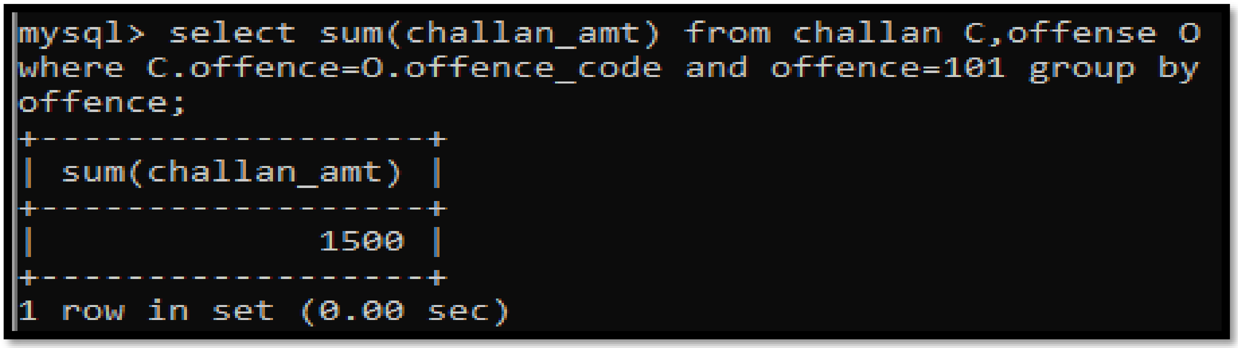
```
mysql> select count(offence),offense_desc,offence from c
hallan C,offense O where C.offence=O.offence_code group
by offence;
+----------------+--------------------------+---------+
| count(offence) | offense_desc             | offence |
+----------------+--------------------------+---------+
|              1 | overspeeding             |     100 |
|              1 | driving without license  |     101 |
|              3 | wrong parking            |     102 |
+----------------+--------------------------+---------+
3 rows in set (0.00 sec)
```

4. Select count(regno) from vehicle where regno like ‘__6C%’;



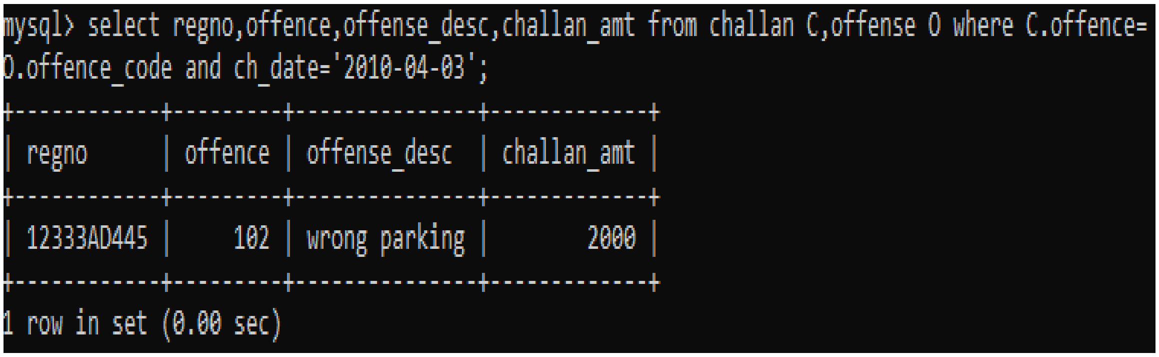
```
mysql> select count(regno) from vehicle where regno like '__6C%';
+--------------+
| count(regno) |
+--------------+
|            1 |
+--------------+
1 row in set (0.00 sec)
```

5. Select sum(challan_amt) from challan C,offense O where C.offence=O.offence_code and offence=101 group by offence;



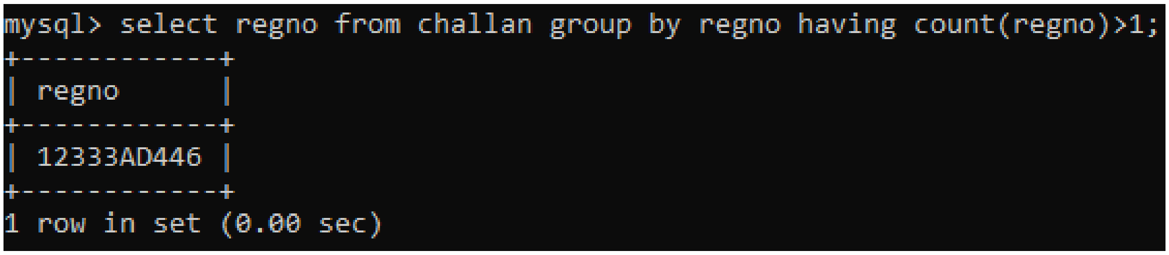
```
mysql> select sum(challan_amt) from challan C,offense O
where C.offence=O.offence_code and offence=101 group by
offence;
+------------------+
| sum(challan_amt) |
+------------------+
|             1500 |
+------------------+
1 row in set (0.00 sec)
```

6. Select regno,offence,offense_desc,challan_amt from challan C,offense O where C.offence=O.offence_code and ch_date=’2010-04-03’;



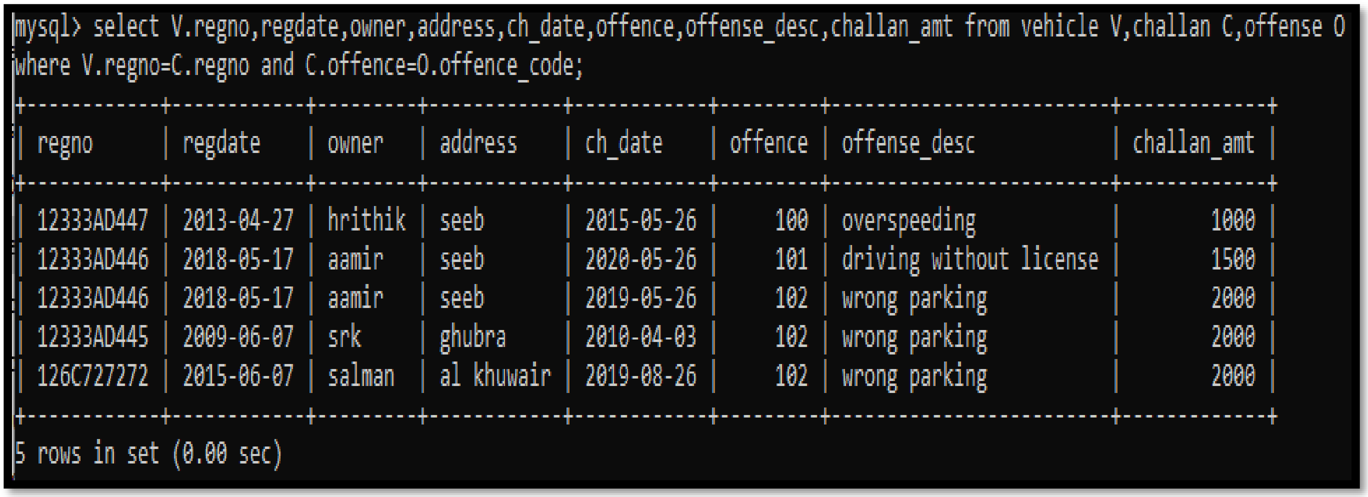
```
mysql> select regno,offence,offense_desc,challan_amt from challan C,offense O where C.offence=
O.offence_code and ch_date='2010-04-03';
+-----------+---------+--------------+-------------+
| regno     | offence | offense_desc | challan_amt |
+-----------+---------+--------------+-------------+
| 12333AD445 |     102 | wrong parking |        2000 |
+-----------+---------+--------------+-------------+
1 row in set (0.00 sec)
```

7. Select regno from challan group by regno having count(regno)>1;



```
mysql> select regno from challan group by regno having count(regno)>1;
+------------+
| regno      |
+------------+
| 12333AD446 |
+------------+
1 row in set (0.00 sec)
```

8. Select V.regno,regdate,owner,address,ch_date,offence,offense_desc,challan_amt from vehicle V,challan C,offense O where V.regno=C.regno and C.offence=O.offence_code;



```
mysql> select V.regno,regdate,owner,address,ch_date,offence,offense_desc,challan_amt from vehicle V,challan C,offense O
where V.regno=C.regno and C.offence=O.offence_code;
+------------+------------+---------+------------+------------+---------+------------------------+-------------+
| regno      | regdate    | owner   | address    | ch_date    | offence | offense_desc           | challan_amt |
+------------+------------+---------+------------+------------+---------+------------------------+-------------+
| 12333AD447 | 2013-04-27 | hrithik | seeb       | 2015-05-26 |     100 | overspeeding           |        1000 |
| 12333AD446 | 2018-05-17 | aamir   | seeb       | 2020-05-26 |     101 | driving without license |       1500 |
| 12333AD446 | 2018-05-17 | aamir   | seeb       | 2019-05-26 |     102 | wrong parking          |        2000 |
| 12333AD445 | 2009-06-07 | srk     | ghubra     | 2010-04-03 |     102 | wrong parking          |        2000 |
| 126C727272 | 2015-06-07 | salman  | al khuwair | 2019-08-26 |     102 | wrong parking          |        2000 |
+------------+------------+---------+------------+------------+---------+------------------------+-------------+
5 rows in set (0.00 sec)
```

Ex.27

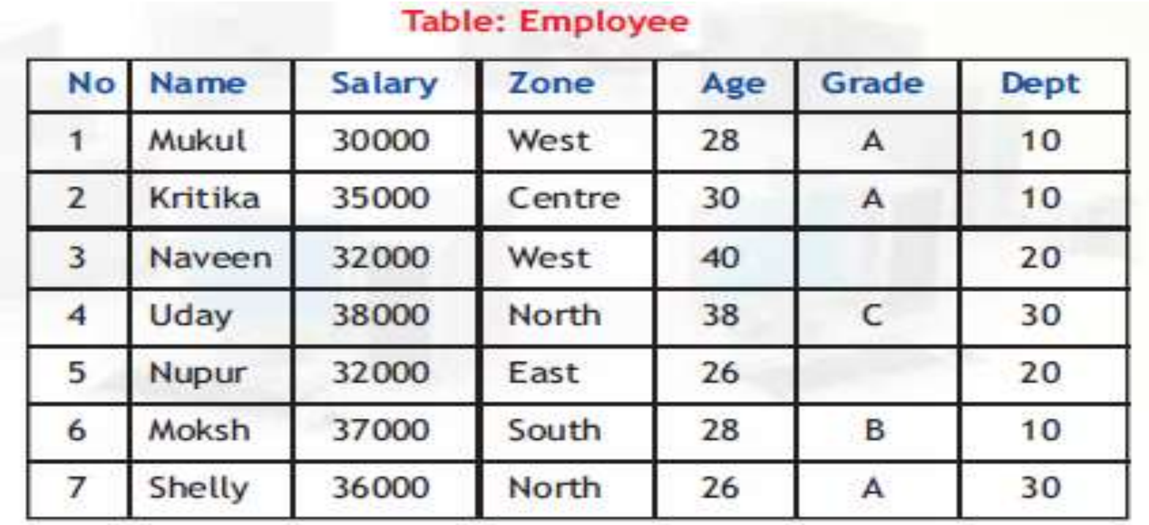


Table: Employee

No	Name	Salary	Zone	Age	Grade	Dept
1	Mukul	30000	West	28	A	10
2	Kritika	35000	Centre	30	A	10
3	Naveen	32000	West	40		20
4	Uday	38000	North	38	C	30
5	Nupur	32000	East	26		20
6	Moksh	37000	South	28	B	10
7	Shelly	36000	North	26	A	30

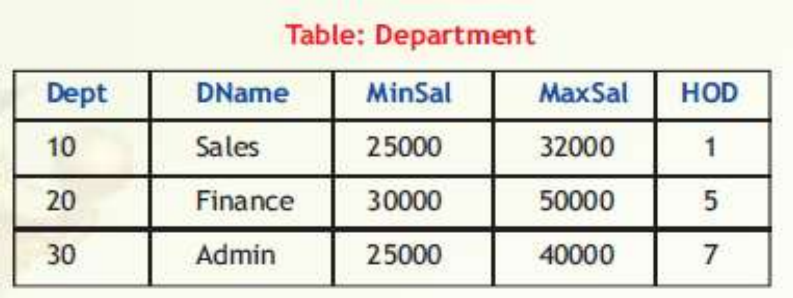


Table: Department

Dept	DName	MinSal	MaxSal	HOD
10	Sales	25000	32000	1
20	Finance	30000	50000	5
30	Admin	25000	40000	7

Based on these tables write SQL statements for the following queries:

i. Display the details of all the employees who work in Sales department.

ii. Display the Salary, Zone, and Grade of all the employees whose HOD is Nupur.

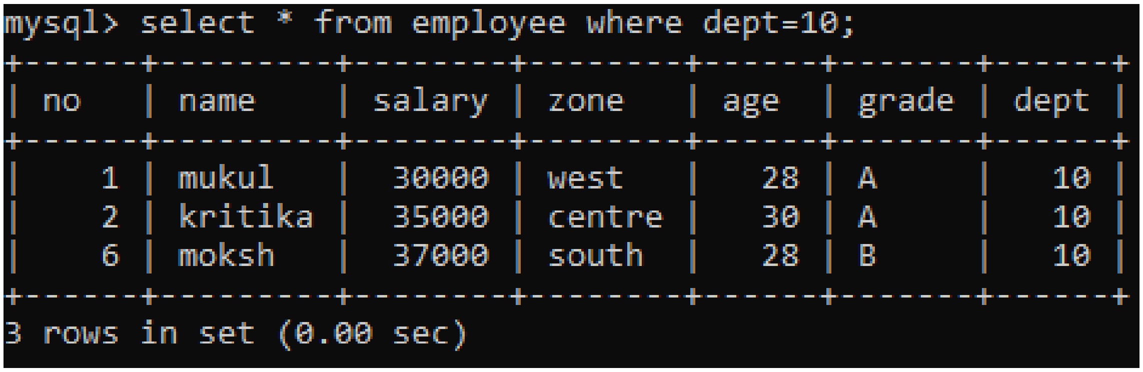
iii. Display the Name and Department Name of all the employees.

iv. Display the names of all the employees whose salary is not within the specified range for the corresponding department.

v. Display the name of the department and the name of the corresponding HOD for all the departments.

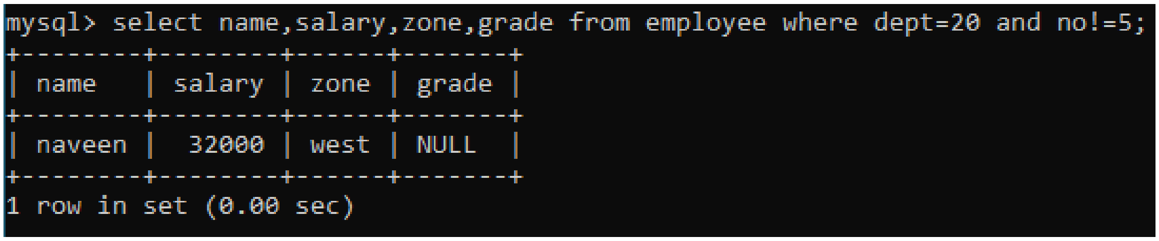
********OUTPUTS********

i. Select * from employee where dept=10;.



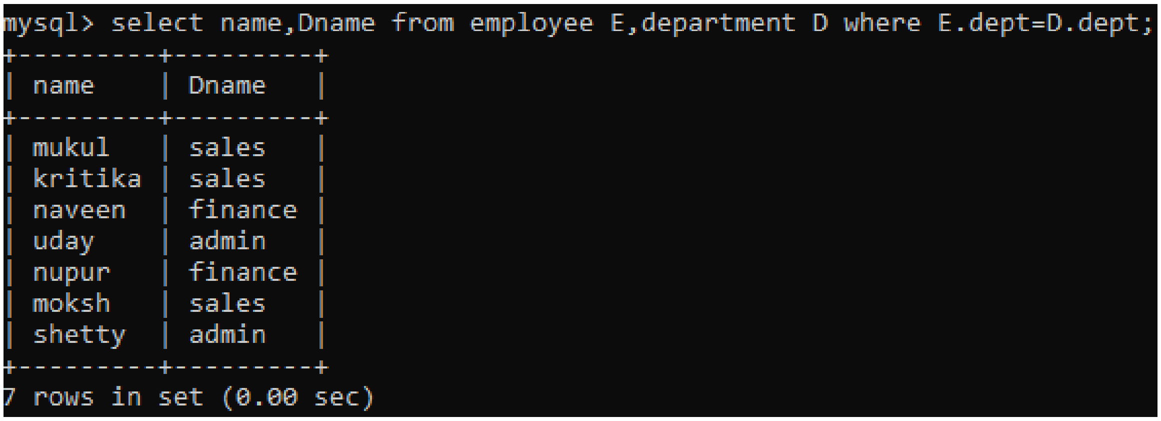
```
mysql> select * from employee where dept=10;
+------+---------+--------+--------+------+-------+------+
| no   | name    | salary | zone   | age  | grade | dept |
+------+---------+--------+--------+------+-------+------+
|    1 | mukul   |  30000 | west   |   28 | A     |   10 |
|    2 | kritika |  35000 | centre |   30 | A     |   10 |
|    6 | moksh   |  37000 | south  |   28 | B     |   10 |
+------+---------+--------+--------+------+-------+------+
3 rows in set (0.00 sec)
```

ii. Select name,salary,zone,grade from employee where dept=20 and no!=5;



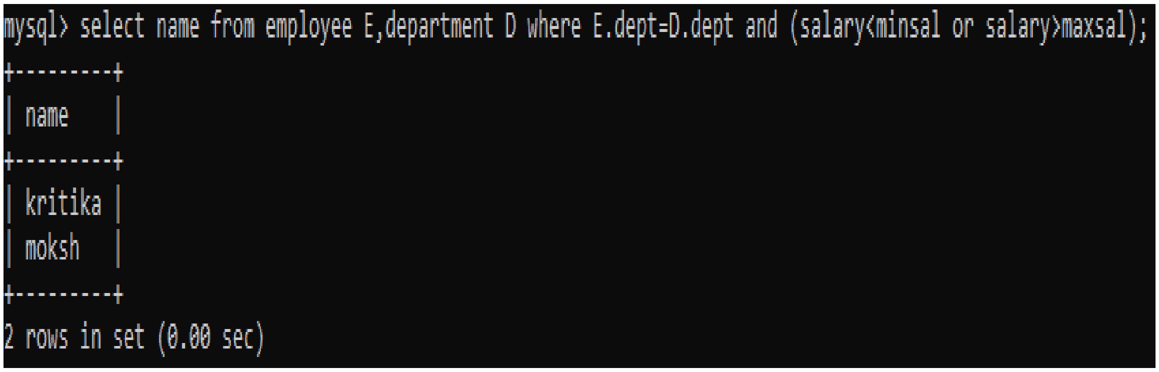
```
mysql> select name,salary,zone,grade from employee where dept=20 and no!=5;
+--------+--------+------+-------+
| name   | salary | zone | grade |
+--------+--------+------+-------+
| naveen |  32000 | west | NULL  |
+--------+--------+------+-------+
1 row in set (0.00 sec)
```

iii. Select name.Dname from employee E,department D where E.dept=D.dept;



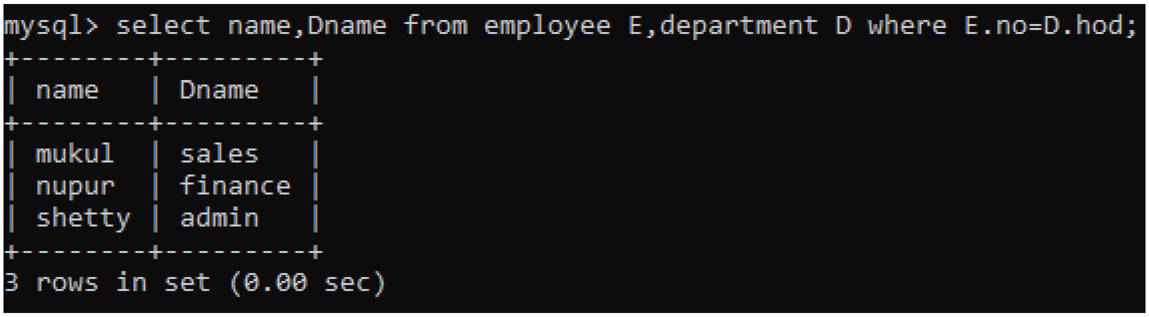
```
mysql> select name,Dname from employee E,department D where E.dept=D.dept;
+---------+---------+
| name    | Dname   |
+---------+---------+
| mukul   | sales   |
| kritika | sales   |
| naveen  | finance |
| uday    | admin   |
| nupur   | finance |
| moksh   | sales   |
| shetty  | admin   |
+---------+---------+
7 rows in set (0.00 sec)
```

iv. Select name from employee E,department D where E.dept=D.dept and (salary<minsal or salary>maxsal);



```
mysql> select name from employee E,department D where E.dept=D.dept and (salary<minsal or salary>maxsal);
+---------+
| name    |
+---------+
| kritika |
| moksh   |
+---------+
2 rows in set (0.00 sec)
```

v. Select name,Dname from employee E,department D where E.no=D.hod;



```
mysql> select name,Dname from employee E,department D where E.no=D.hod;
+--------+---------+
| name   | Dname   |
+--------+---------+
| mukul  | sales   |
| nupur  | finance |
| shetty | admin   |
+--------+---------+
3 rows in set (0.00 sec)
```