

PRACTICAL FILE

COMPUTER SCIENCE

(PYTHON)



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11A

INDIAN SCHOOL AL GHUBRA

ROLL NO: 45

INDEX

| SNO. | NAME OF PRACTICAL | DATE | PAGE NO | TEACHER SIGN | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|-------------------------|-------------------|-------------------------|---|-------------|--------|---|------------|--------|---|------------|-------|---|------------|-----|--------------|------------|----------|----|----------------------|----|----------------------|----|---------|----|-----------|----|--|
| 1 | WAP to read an amount in Rial and determine the least number of currency notes used for the transactions. Assume that you have currency notes of denominations RO50, RO20, RO10, RO5 and RO1. | 22-4-2019 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Witness at the scene of a crime gave descriptions about two suspects who were leaving in a hurry .The first suspect was described as being short and very over weight (height<65cm and weight >90 kg) and the second suspect was described as tall and very thin (height>190cm and weight >60 kg). Write a program in PYTHON, which inputs the height and weight of known criminals in your area and display whether he is a suspect or not. | 22-4-2019 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | A student studying computer science at a school is examined by the practical work done during the course and the final written examination. Both components of the assessment carry a maximum 50 marks each. The following rules are used by the examiners in preparation. | 22-4-2019 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | <p>A manufacturing company has classified its executives into four grades for the benefit of certain allowances. The allowances are shown below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>GRADE</th> <th>SPECIAL ALLOWANCE</th> <th>ENTERTAINMENT ALLOWANCE</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1000 RUPEES</td> <td>RS 500</td> </tr> <tr> <td>B</td> <td>750 RUPEES</td> <td>RS 100</td> </tr> <tr> <td>C</td> <td>500 RUPEES</td> <td>RS 50</td> </tr> <tr> <td>D</td> <td>250 RUPEES</td> <td>NIL</td> </tr> </tbody> </table> <p>An executive gross salary includes basic salary, HRA as 25% of basic salary and the allowances. Income tax is withheld from the gross salary on percentage basis.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>GROSS SALARY</th> <th>INCOME TAX</th> </tr> </thead> <tbody> <tr> <td><=RS2000</td> <td>NA</td> </tr> <tr> <td>>RS2000 AND <=RS4000</td> <td>3%</td> </tr> <tr> <td>>RS4000 AND <=RS5000</td> <td>5%</td> </tr> <tr> <td>>RS5000</td> <td>8%</td> </tr> </tbody> </table> <p>WAP in python to calculate the gross salary and income tax.</p> | GRADE | SPECIAL ALLOWANCE | ENTERTAINMENT ALLOWANCE | A | 1000 RUPEES | RS 500 | B | 750 RUPEES | RS 100 | C | 500 RUPEES | RS 50 | D | 250 RUPEES | NIL | GROSS SALARY | INCOME TAX | <=RS2000 | NA | >RS2000 AND <=RS4000 | 3% | >RS4000 AND <=RS5000 | 5% | >RS5000 | 8% | 22-4-2019 | 10 | |
| GRADE | SPECIAL ALLOWANCE | ENTERTAINMENT ALLOWANCE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 1000 RUPEES | RS 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 750 RUPEES | RS 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 500 RUPEES | RS 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | 250 RUPEES | NIL | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GROSS SALARY | INCOME TAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <=RS2000 | NA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >RS2000 AND <=RS4000 | 3% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >RS4000 AND <=RS5000 | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >RS5000 | 8% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | |
|----|--|-----------|----|--|
| 5 | Suppose the values of variable day, month and year together represent a date. The value of day is the date of the month and the value of month is between 1 and 12 where 1=January and 12=December. WAP in python to convert this date to Julian date. For example, Julian date of 15 th February is 46. Also check whether it is a leap year or not. | 22-4-2019 | 11 | |
| 6 | Write a menu driven program to generate an arithmetic calculator. Addition 'A', Subtraction 'S', Multiplication 'M', Division 'D', Modulus 'R', Quit 'Q'. | 29-4-2019 | 12 | |
| 7 | Write a program to find out the sum of following series: $1 + x + x^2/2! + x^3/3! + x^4/4! + \dots + x^n/n!$ | 29-4-2019 | 13 | |
| 8 | Buzz is an old and well-known car travel name. Here's the simplest variation. The players begin counting upwards, speaking consecutive integers aloud. If, however the number is evenly divisible by seven or has a seven in it, you say "buzz" instead of the number. If you make a mistake or hesitate too long, you lose. The first several buzz nos. are 7, 14, 17, 21, 27, and 28. The game gets tricky when you reach the 70s and have to count precisely which no. is being omitted as the buzzes travel around the vehicle. WAP to stimulate the buzz game and generate the following output: 1 2 3 4 5 6 buzz 8 9 10 11 12 13 buzz 15 16 buzz..... 100 | 29-4-2019 | 14 | |
| 9 | WAP to find the sum of the following series: $Y + Y^3/2! + Y^5/3! + Y^7/4! + Y^{2M-1}/M!$ | 29-4-2019 | 15 | |
| 10 | WAP in python to accept a character(say '&') and print it in the following format: & && &&& &&&&& N | 13-5-2019 | 16 | |

| | | | | |
|----|---|-----------|-------|--|
| 11 | <p>WAP to display multiplication tables from 1 to 10 using nested loops in proper format.</p> <p>1 2 3 4 5 6 7 8 9 10</p> <p>.....</p> <p>.....</p> <p>10 20 30 40 50 60 70 80 90 100</p> | 13-5-2019 | 17 | |
| 12 | <p>A happy number is defined by the following process: starting with any positive integer, replace the no. by the sum of the squares of its digits in base 10 and repeat the process until the no. either = 1 (where it says) or continuously loops in an endless cycle.</p> <p>For example 19 is a happy no.</p> <p>$1^2 + 9^2 = 82$</p> <p>$8^2 + 2^2 = 68$</p> <p>$6^2 + 8^2 = 100$</p> <p>$1^2 + 0^2 + 0^2 = 1$</p> <p>WAP in python to check whether a no. is happy or not</p> | 13-5-2019 | 18 | |
| 13 | WAP to display all prime nos. between 1 and 100. | 13-5-2019 | 19 | |
| 14 | WAP to accept a string and count the vowels characters separately and display the count in histogram format. | 20-5-2019 | 20 | |
| 15 | WAP in python to input a string and count the no. of lowercase, uppercase, numeric characters and special characters and display the count in a neat format. | 20-5-2019 | 21 | |
| 16 | WAP to check whether a string is palindrome. | 20-5-2019 | 22 | |
| 17 | <p>WAP to accept a string (say 'WELCOME') and display it in the following format:</p> <p>W WE WEL WELC WELCO WELCOM WELCOME</p> | 20-5-2019 | 23 | |
| 18 | WAP in python to assign a secret word and accept the guess word and count the no. of COWS AND BULLS. | 20-5-2019 | 24 | |
| 19 | WAP that finds the greatest element in a list and its position. | 27-5-2019 | 25 | |
| 20 | WAP to accept N no. of employees monthly salary in a 1D list and count the no. of employees earning more than 1 lakh rupees per annum. | 27-5-2019 | 26 | |
| 21 | <p>Given two list X and Y of size M and N, WAP to produce a third list Z that contains:</p> <p>1)all odd elements of X from left to right in Z from left to right</p> | 27-5-2019 | 27,28 | |

| | | | | |
|----|--|-----------|--------------------|--|
| | 2)all even elements of X from left to right in Z from right to left 3)all even elements of Y from left to right in Z from left to right 4)all odd elements of Y from left to right in Z from right to left | | | |
| 22 | WAP in python to accept an integer between 1 and 20 and print its roman numeral equivalent. Validation- do not accept scores less than 0 or more than 20. | 27-5-2019 | 29 | |
| 23 | An amateur meteorologist wants to keep track of weather conditions during the past years three month summer season and has designated each day as either rainy (R), cloudy (C), or sunny (S). Write a program that stores this information in a 3*30 array of character's, where the row indicates the month (0=June, 1=July, 2=August) and the column indicates the day of the month. Note that data is not being collected for the 31 st of any month. The program should begin by reading the weather data in from a standard input device. Then it should create a report that displays for each month and for the whole three-month period, how many days were rainy, how many were cloudy, and how many were sunny. It should also report which of the three months had the largest number of rainy days. | 5-8-2019 | 30,31,32, 33,34 | |
| 24 | Write a program in python to create a square matrix and find the sum of the main diagonal and secondary diagonal elements. Also display the main and the secondary diagonal elements. For example: 1 2 3 4 5 6 7 8 9 Output is: Sum of diagonal elements:30 Diagonal elements:1 5 9 3 5 7 | 5-8-2019 | 35 | |
| 25 | WAP in python to create a 2D list from 1D list in the following format: if 23 45 67 are the inputs, 23 0 0 23 45 0 23 45 67 | 5-8-2019 | 36 | |
| 26 | WAP to find the binary equivalent of an integer no. | 19-8-2019 | 37 | |
| 27 | WAP to arrange a list of nos. in ascending order using bubble/insertion/selection sorting depending upon the user. | 19-8-2019 | 38 | |

| | | | | |
|----|--|-----------|-------|--|
| 28 | Twisted Pig Latin. Prompt the user to enter a single word. They form a new word by taking the first letter of the original word, moving it to the end, and adding "ay". Thus "school" becomes "choolsay". | 26-8-2019 | 39 | |
| 29 | Write a program that prompts the user for two strings and check if one of the string is a prefix of the other .For example, if the user input "evergreen" and "ever" , the program would respond :"ever" is a prefix of "evergreen". | 26-8-2019 | 40 | |
| 30 | Write a program that prompts the user for a string S and a character C, and outputs the string produced from S by capitalizing each occurrence of the character C in S and making other character's lowercase. For example, if the user inputs, "Mississippi" and 's' the program outputs "miSSiSSippi". | 26-8-2019 | 41 | |
| 31 | Write a program that prompts the user for their password and then determines if the password is valid or not. A password is said to be valid if it starts with a digit and it has length 6 or more. If your program determines that the user entered password is not valid, it should print a message saying so. Otherwise it should print a message saying that it has accepted the user entered password. | 26-8-2019 | 42 | |
| 32 | An international business with several branches sells educational products to schools. Each branch keeps details about the school to which it sells. The data, which consists of schools unique IB code and its country is stored in two parallel string lists. WAP to accept a country user and perform a linear sequential search to display all the school codes in that country. | 30-9-2019 | 43,44 | |
| 33 | In a rental shop, bike ID and time out are stored in two parallel arrays. When a bike is returned, following operations are performed: <ul style="list-style-type: none">• ID is looked up in ID list• If ID doesn't exist, error message is output• Time out is found• The current time is input and difference between this time and time out is displayed WAP in python to carry out the above process | 30-9-2019 | 45 | |
| 34 | WAP to display the following structure: A BC DEF GHIJ KLMNO | 30-9-2019 | 46 | |

PYTHON PROGRAMS

1. WAP to read an amount in Rial and determine the least number of currency notes used for the transactions. Assume that you have currency notes of denominations RO50, RO20, RO10, RO5 and RO1.

Code:

```
1.py - C:\Users\User\Desktop\python\part 1\1.py (3.7.3) - X
File Edit Format Run Options Window Help
x=int(input('enter the amount'))
y=x//50
z=x-(y*50)
a=z//20
b=z-(a*20)
c=b//5
d=b-(c*5)
e=d//1
print('RO 50-',y)
print('RO 20-',a)
print('RO 5-',c)
print('RO 1-',e)
Ln: 1 Col: 0
```

*****Output of program*****

```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Inte
1)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\1.py =====
enter the amount478
RO 50- 9
RO 20- 1
RO 5- 1
RO 1- 3
>>> |
Ln: 10 Col: 4
```

2. Witness at the scene of a crime gave descriptions about two suspects who were leaving in a hurry .The first suspect was described as being short and very over weight (height<65cm and weight >90 kg) and the second suspect was described as tall and very thin (height>190cm and weight >60 kg). Write a program in PYTHON, which inputs the height and weight of known criminals in your area and display whether he is a suspect or not.

Code:

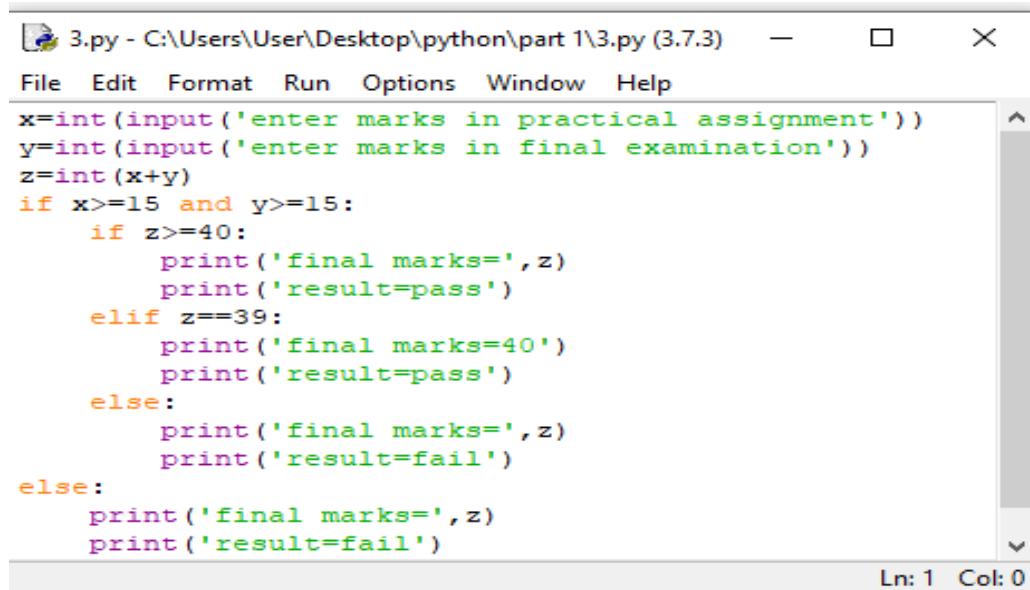
```
x=int(input('enter the height in cm'))
y=int(input('enter the weight in kg'))
if (x<65 and y>90) or (x>190 and y<60):
    print('suspect')
else:
    print('not suspect')
```

*****Output of program*****

```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)]
on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\2.py =====
enter the height in cm165
enter the weight in kg70
not suspect
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\2.py =====
enter the height in cm195
enter the weight in kg59
suspect
>>>
```

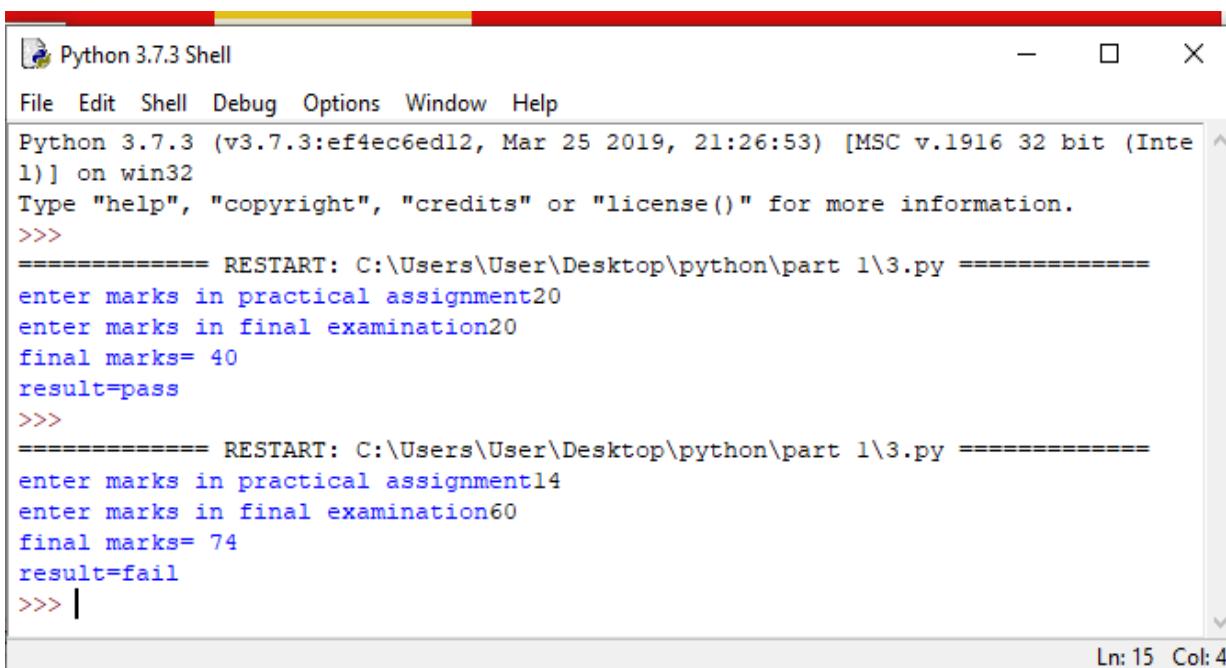
3. A student studying computer science at a school is examined by the practical work done during the course and the final written examination. Both components of the assessment carry a maximum 50 marks each. The following rules are used by the examiners in preparation.

Code:



```
3.py - C:\Users\User\Desktop\python\part 1\3.py (3.7.3)
File Edit Format Run Options Window Help
x=int(input('enter marks in practical assignment'))
y=int(input('enter marks in final examination'))
z=int(x+y)
if x>=15 and y>=15:
    if z>=40:
        print('final marks=',z)
        print('result=pass')
    elif z==39:
        print('final marks=40')
        print('result=pass')
    else:
        print('final marks=',z)
        print('result=fail')
else:
    print('final marks=',z)
    print('result=fail')
Ln: 1 Col: 0
```

*****Output of program*****



```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Inte
1)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\3.py ======
enter marks in practical assignment20
enter marks in final examination20
final marks= 40
result=pass
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\3.py ======
enter marks in practical assignment14
enter marks in final examination60
final marks= 74
result=fail
>>> |
Ln: 15 Col: 4
```

4. A manufacturing company has classified its executives into four grades for the benefit of certain allowances. The allowances are shown below.

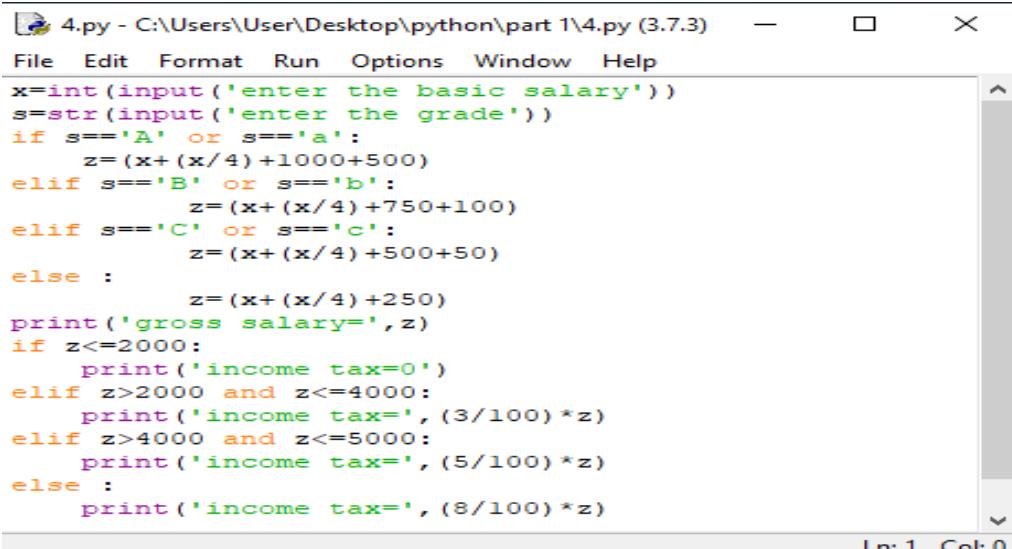
| GRADE | SPECIAL ALLOWANCE | ENTERTAINMENT ALLOWANCE |
|-------|-------------------|-------------------------|
| A | 1000 RUPEES | RS 500 |
| B | 750 RUPEES | RS 100 |
| C | 500 RUPEES | RS 50 |
| D | 250 RUPEES | NIL |

An executive gross salary includes basic salary, HRA as 25% of basic salary and the allowances. Income tax is withheld from the gross salary on percentage basis.

| GROSS SALARY | INCOME TAX |
|----------------------|------------|
| <=RS2000 | NA |
| >RS2000 AND <=RS4000 | 3% |
| >RS4000 AND <=RS5000 | 5% |
| >RS5000 | 8% |

WAP in python to calculate the gross salary and income tax.

Code:

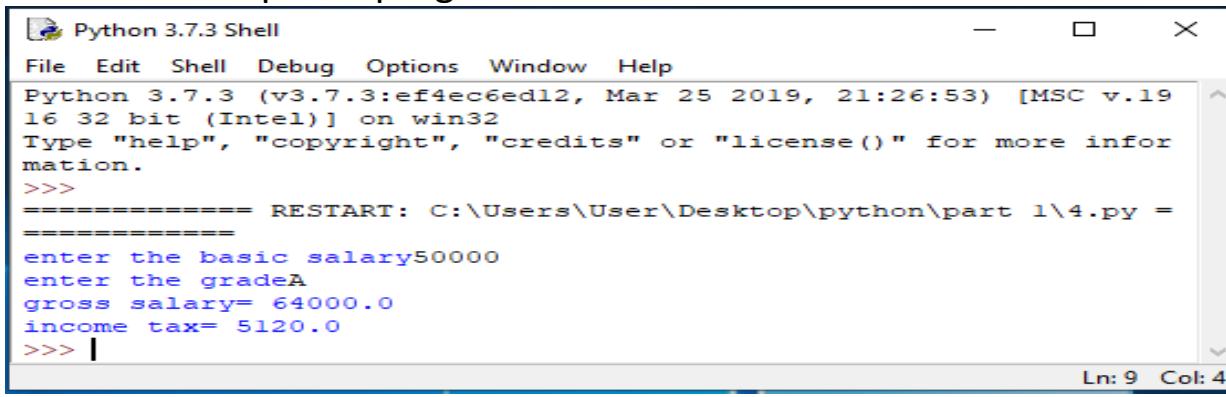


```

4.py - C:\Users\User\Desktop\python\part 1\4.py (3.7.3)
File Edit Format Run Options Window Help
x=int(input('enter the basic salary'))
s=str(input('enter the grade'))
if s=='A' or s=='a':
    z=(x+(x/4)+1000+500)
elif s=='B' or s=='b':
    z=(x+(x/4)+750+100)
elif s=='C' or s=='c':
    z=(x+(x/4)+500+50)
else :
    z=(x+(x/4)+250)
print('gross salary=',z)
if z<=2000:
    print('income tax=0')
elif z>2000 and z<=4000:
    print('income tax=',(3/100)*z)
elif z>4000 and z<=5000:
    print('income tax=',(5/100)*z)
else :
    print('income tax=',(8/100)*z)

```

*****Output of program*****



```

Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.19
16 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\4.py =
=====
enter the basic salary50000
enter the gradeA
gross salary= 64000.0
income tax= 5120.0
>>> |

```

5. Suppose the values of variable day, month and year together represent a date. The value of day is the date of the month and the value of month is between 1 and 12 where 1=January and 12=December. WAP in python to convert this date to Julian date. For example, Julian date of 15th February is 46. Also check whether it is a leap year or not.

Code:

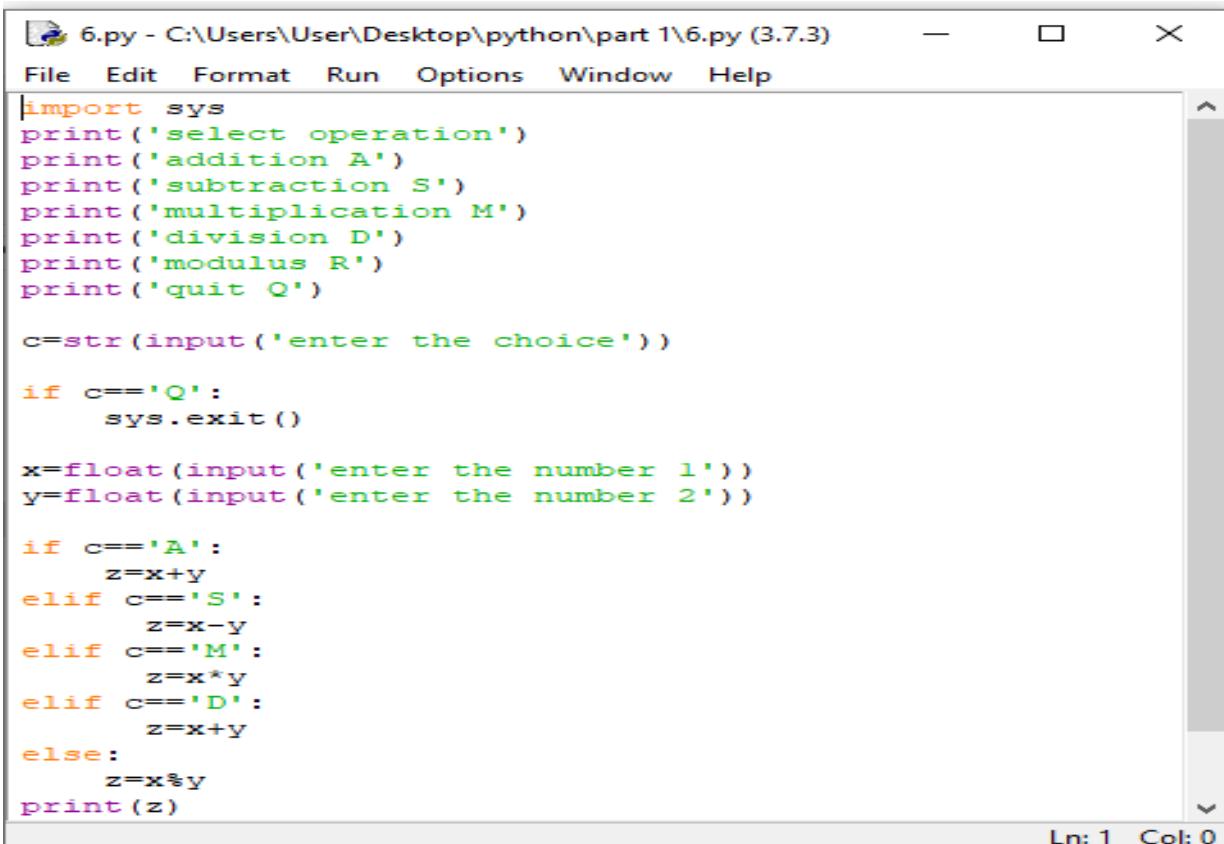
```
5.py - C:\Users\User\Desktop\python\part 1\5.py (3.7.3)
File Edit Format Run Options Window Help
import sys
d=int(input('enter the day'))
m=int(input('enter the month value between 1-12'))
if m==1:
    print('julian date=',d)
    sys.exit()
elif m==2:
    print('julian date=',int(31)+int(d))
    sys.exit()
z=input('is it a leap year(yes or no)')
if m%2==0:
    b=31+(30*((int(m/2))-2))+(31*((int(m/2))-1))+d
else:
    b=31+(30*((int(m/2))-1))+(31*((int(m/2))-1))+d
    if m==9 or m==11:
        b=b+1
    if z=='yes':
        b=b+29
    else:
        b=b+28
print('julian date=',b)
Ln: 1 Col: 0
```

*****Output of program*****

```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bi
t (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\5.py =====
=====
enter the day29
enter the month value between 1-1211
is it a leap year(yes or no)no
julian date= 333
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\5.py =====
=====
enter the day29
enter the month value between 1-129
is it a leap year(yes or no)yes
julian date= 273
>>> |
Ln: 15 Col: 4
```

6. Write a menu driven program to generate an arithmetic calculator. Addition 'A', Subtraction 'S', Multiplication 'M', Division 'D', Modulus 'R', Quit 'Q'.

Code:



```
6.py - C:\Users\User\Desktop\python\part 1\6.py (3.7.3)
File Edit Format Run Options Window Help
import sys
print('select operation')
print('addition A')
print('subtraction S')
print('multiplication M')
print('division D')
print('modulus R')
print('quit Q')

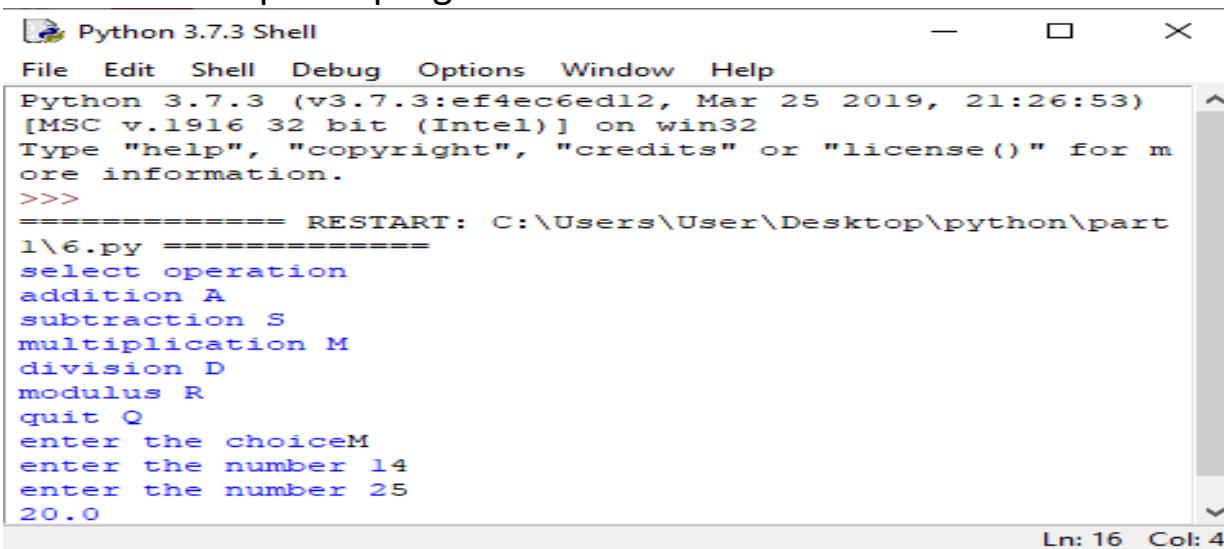
c=str(input('enter the choice'))

if c=='Q':
    sys.exit()

x=float(input('enter the number 1'))
y=float(input('enter the number 2'))

if c=='A':
    z=x+y
elif c=='S':
    z=x-y
elif c=='M':
    z=x*y
elif c=='D':
    z=x/y
else:
    z=x%y
print(z)
```

*****Output of program*****

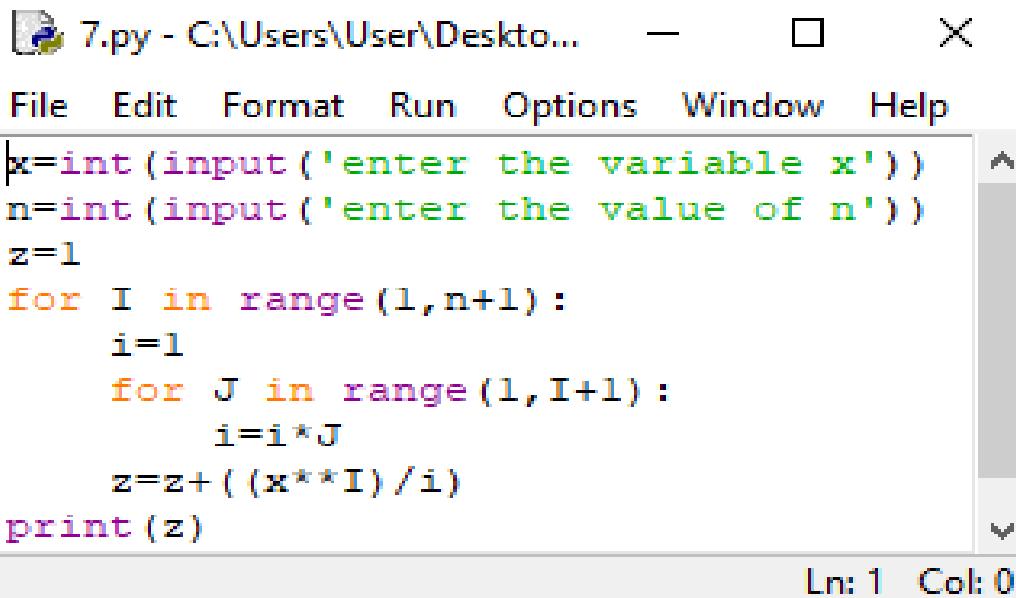


```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53)
[MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=====
RESTART: C:\Users\User\Desktop\python\part 1\6.py =====
select operation
addition A
subtraction S
multiplication M
division D
modulus R
quit Q
enter the choiceM
enter the number 14
enter the number 25
20.0
```

7. Write a program to find out the sum of following series:

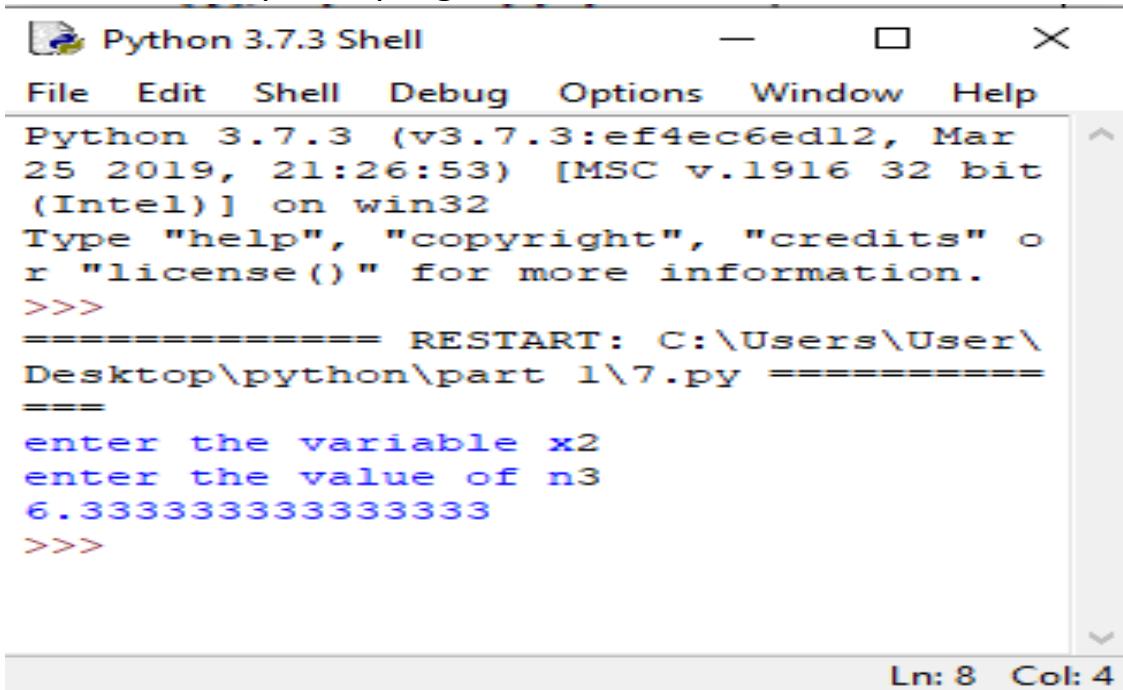
$$1 + x + x^2/2! + x^3/3! + x^4/4! + \dots + x^n/n!$$

Code:



```
File Edit Format Run Options Window Help
x=int(input('enter the variable x'))
n=int(input('enter the value of n'))
z=1
for I in range(1,n+1):
    i=1
    for J in range(1,I+1):
        i=i*J
    z=z+( (x**I) / i)
print(z)
Ln: 1 Col: 0
```

*****Output of program*****

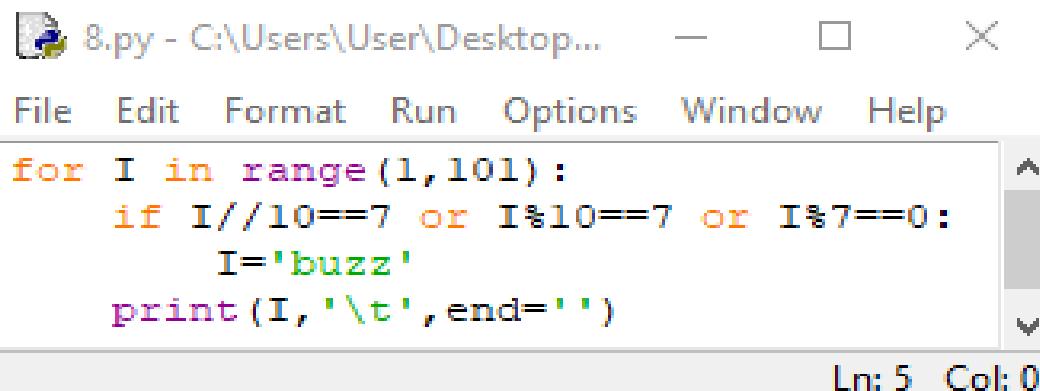


```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar
25 2019, 21:26:53) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" o
r "license()" for more information.
>>>
===== RESTART: C:\Users\User\
Desktop\python\part 1\7.py =====
===
enter the variable x2
enter the value of n3
6.333333333333333
>>>
Ln: 8 Col: 4
```

8. Buzz is an old and well-known car travel name. Here's the simplest variation. The players begin counting upwards, speaking consecutive integers aloud. If, however the number is evenly divisible by seven or has a seven in it, you say "buzz" instead of the number. If you make a mistake or hesitate too long, you lose. The first several buzz nos. are 7, 14, 17, 21, 27, and 28. The game gets tricky when you reach the 70s and have to count precisely which no. is being omitted as the buzzes travel around the vehicle. WAP to stimulate the buzz game and generate the following output:

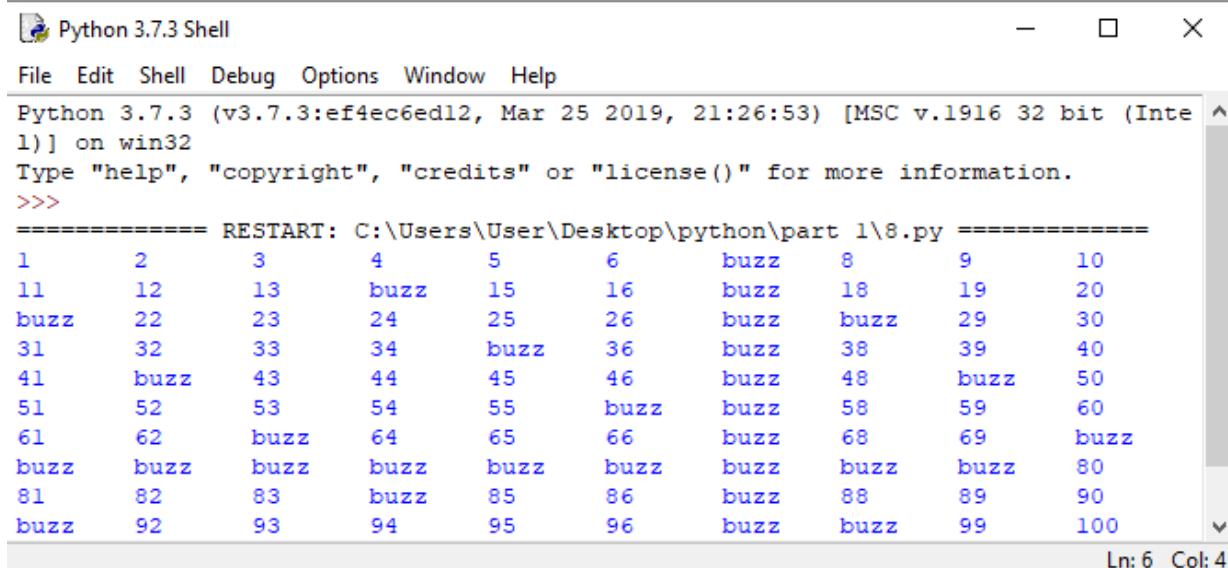
1 2 3 4 5 6 buzz 8 9 10 11 12 13 buzz 15 16 buzz..... 100

Code:



```
8.py - C:\Users\User\Desktop...
File Edit Format Run Options Window Help
for I in range(1,101):
    if I//10==7 or I%10==7 or I%7==0:
        I='buzz'
    print(I, '\t', end=' ')
Ln: 5 Col: 0
```

*****Output of program*****

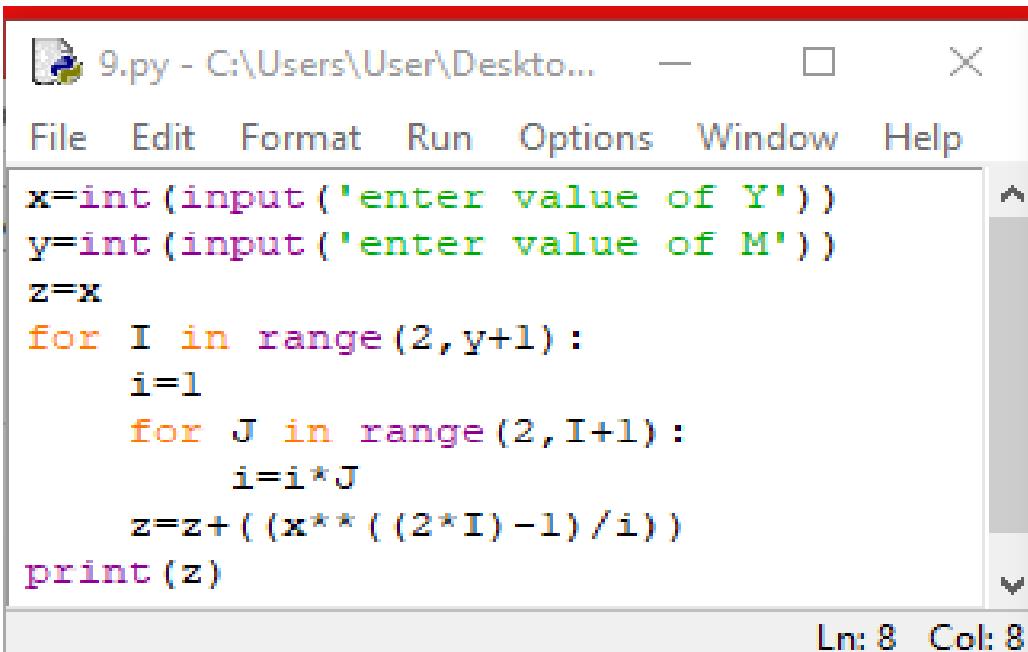


```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Inte
1]) on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\8.py ======
1      2      3      4      5      6      buzz    8      9      10
11     12     13     buzz   15     16     buzz   18     19     20
buzz   22     23     24     25     26     buzz   29     30
31     32     33     34     buzz   36     buzz   38     39     40
41     buzz   43     44     45     46     buzz   48     buzz   50
51     52     53     54     55     buzz   buzz   58     59     60
61     62     buzz   64     65     66     buzz   68     69     buzz
buzz   buzz   buzz   buzz   buzz   buzz   buzz   buzz   buzz   80
81     82     83     buzz   85     86     buzz   88     89     90
buzz   92     93     94     95     96     buzz   buzz   buzz   99     100
Ln: 6 Col: 4
```

9. WAP to find the sum of the following series:

$$Y + Y^3/2! + Y^5/3! + Y^7/4! + \dots + Y^{2M-1}/M!$$

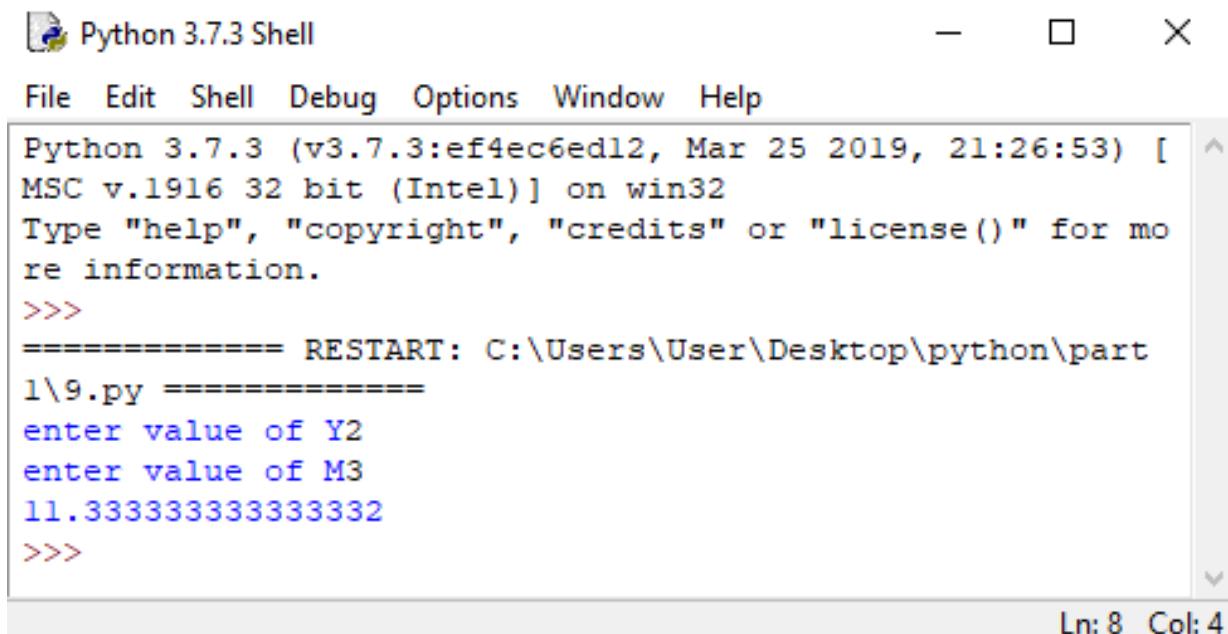
Code:



```
x=int(input('enter value of Y'))
y=int(input('enter value of M'))
z=x
for I in range(2,y+1):
    i=1
    for J in range(2,I+1):
        i=i*J
    z=z+( (x**((2*I)-1))/i)
print(z)
```

Ln: 8 Col: 8

*****Output of program*****



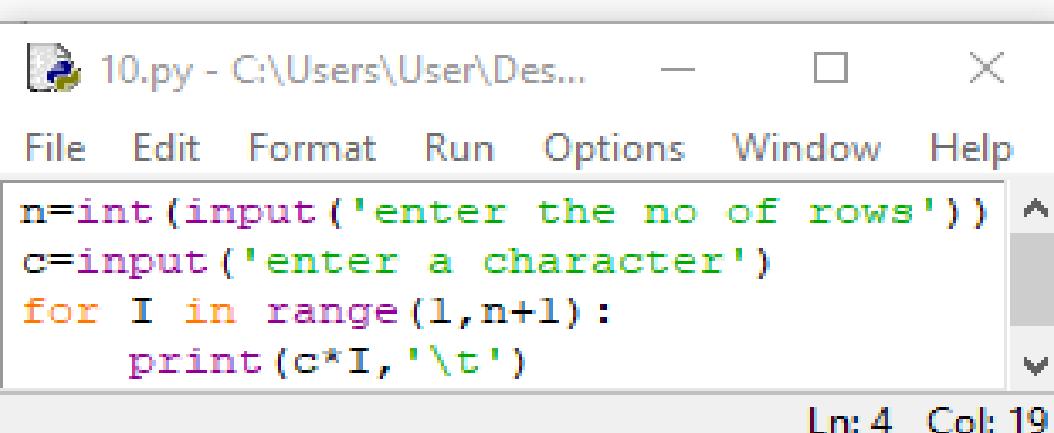
```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part1\9.py =====
enter value of Y2
enter value of M3
11.33333333333332
>>>
```

Ln: 8 Col: 4

10. WAP in python to accept a character(say '&') and print it in the following format:

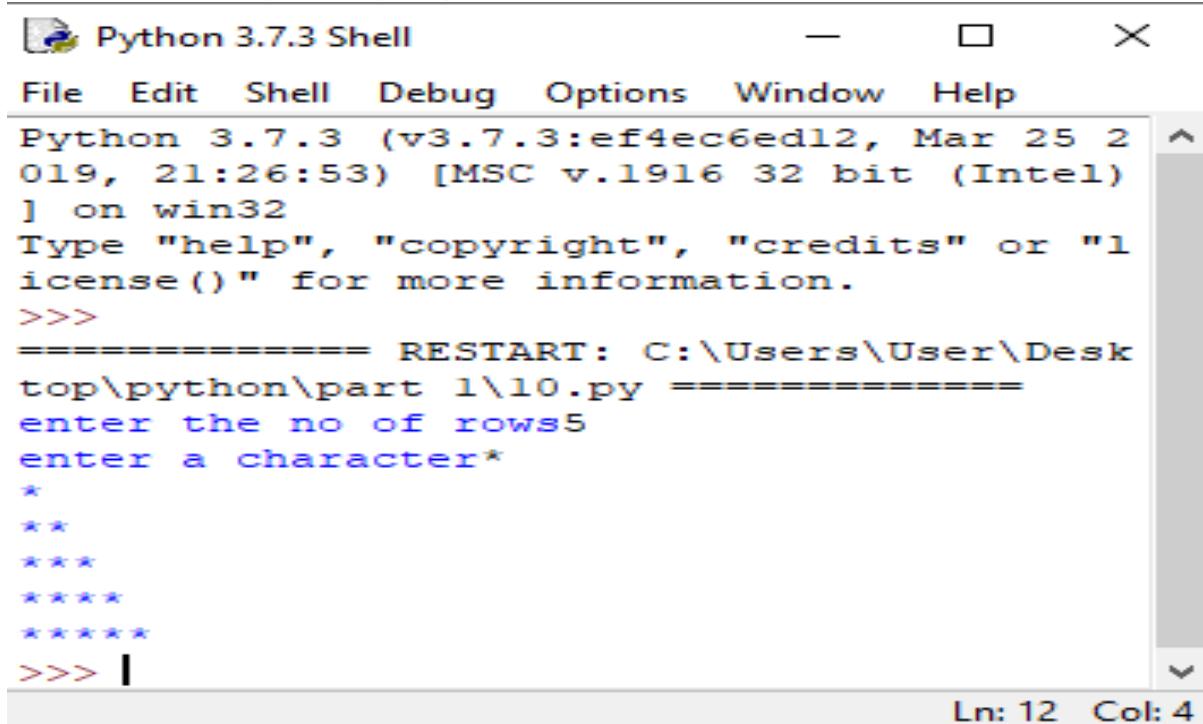
&
&&
&&&
.....
&&&&& N

Code:



```
10.py - C:\Users\User\Desktop\10.py
File Edit Format Run Options Window Help
n=int(input('enter the no of rows'))
c=input('enter a character')
for I in range(1,n+1):
    print(c*I, '\t')
Ln: 4 Col: 19
```

*****Output of program*****



```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)]
] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\top\python\part 1\10.py =====
enter the no of rows5
enter a character*
*
**
***
*****
>>> |
Ln: 12 Col: 4
```

11. WAP to display multiplication tables from 1 to 10 using nested loops in proper format.

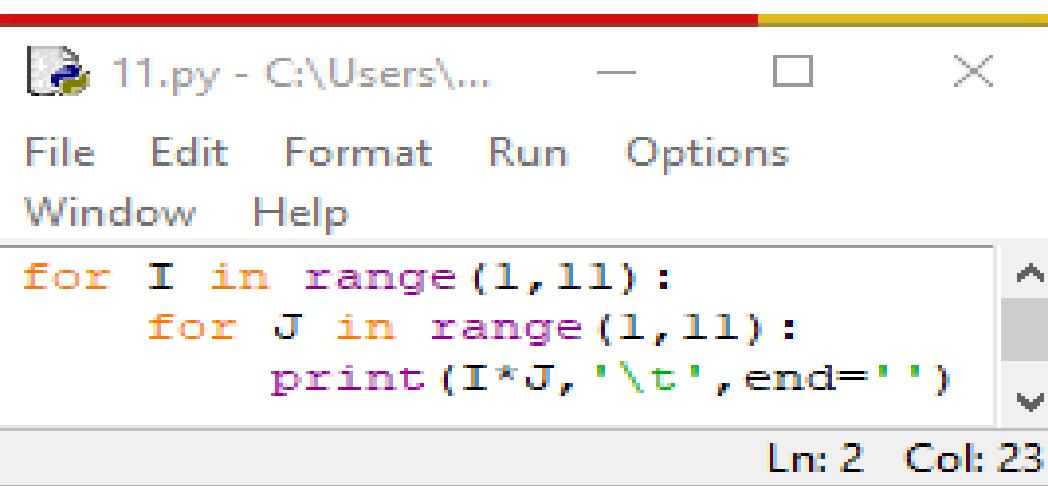
1 2 3 4 5 6 7 8 9 10

.....

.....

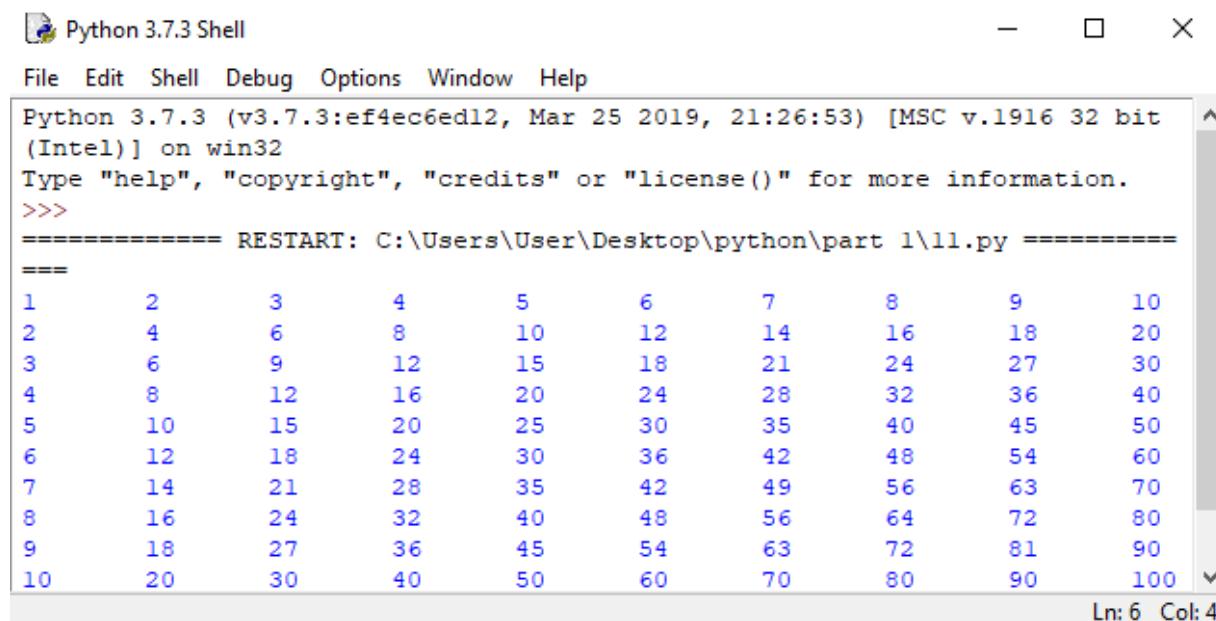
10 20 30 40 50 60 70 80 90 100

Code:



```
11.py - C:\Users\...
File Edit Format Run Options
Window Help
for I in range(1,11):
    for J in range(1,11):
        print(I*j, '\t', end=' ')
Ln: 2 Col: 23
```

*****Output of program*****



```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\11.py =====
===
 1   2   3   4   5   6   7   8   9   10
 2   4   6   8   10  12  14  16  18  20
 3   6   9   12  15  18  21  24  27  30
 4   8   12  16  20  24  28  32  36  40
 5   10  15  20  25  30  35  40  45  50
 6   12  18  24  30  36  42  48  54  60
 7   14  21  28  35  42  49  56  63  70
 8   16  24  32  40  48  56  64  72  80
 9   18  27  36  45  54  63  72  81  90
10   20  30  40  50  60  70  80  90  100
Ln: 6 Col: 4
```

12. A happy number is defined by the following process: starting with any positive integer, replace the no. by the sum of the squares of its digits in base 10 and repeat the process until the no. either = 1 (where it says) or continuously loops in an endless cycle.

For example 19 is a happy no.

$$12 + 9^2 = 82$$

$$82 + 2^2 = 68$$

$$62 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

WAP in python to check whether a no. is happy or not

Code:

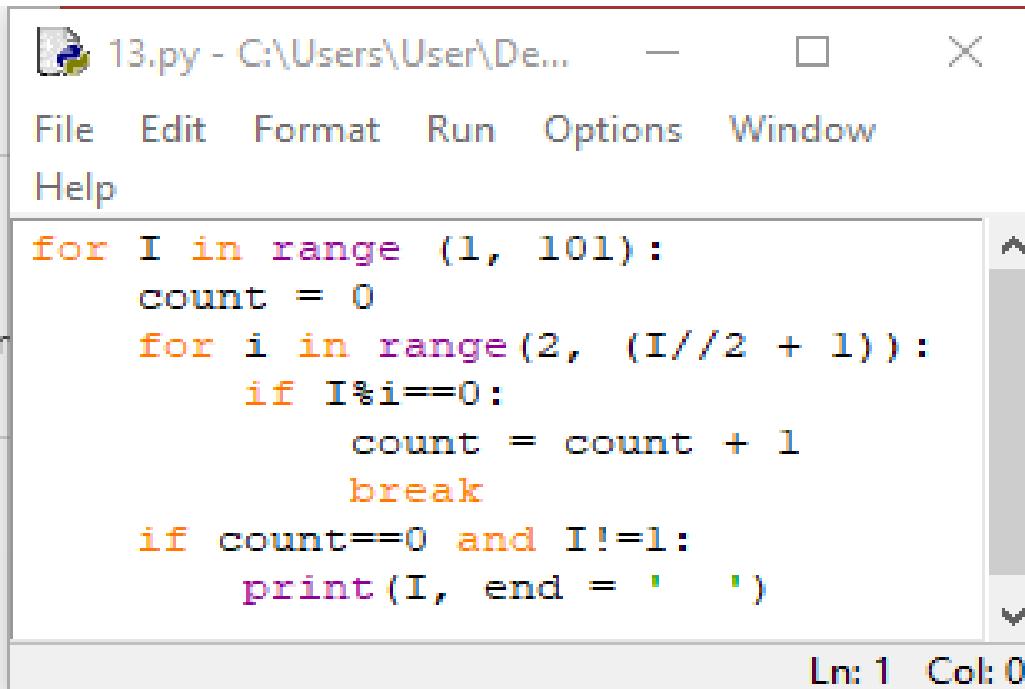
```
12.py - C:\User...
File Edit Format Run Options
Window Help
z=int(input('enter the no'))
k=z
m=0
while m==0:
    tot=0
    while k!=0:
        r=k%10
        tot+=r**r
        k=k//10
    if tot>9:
        k=tot
    else:
        m=1
if tot==1:
    print('happy no')
else:
    print('unhappy no')
Ln: 1 Col: 0
```

*****Output of program*****

```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\12
.PY =====
enter the no19
happy no
>>> |
Ln: 7 Col: 4
```

13. WAP to display all prime nos. between 1 and 100.

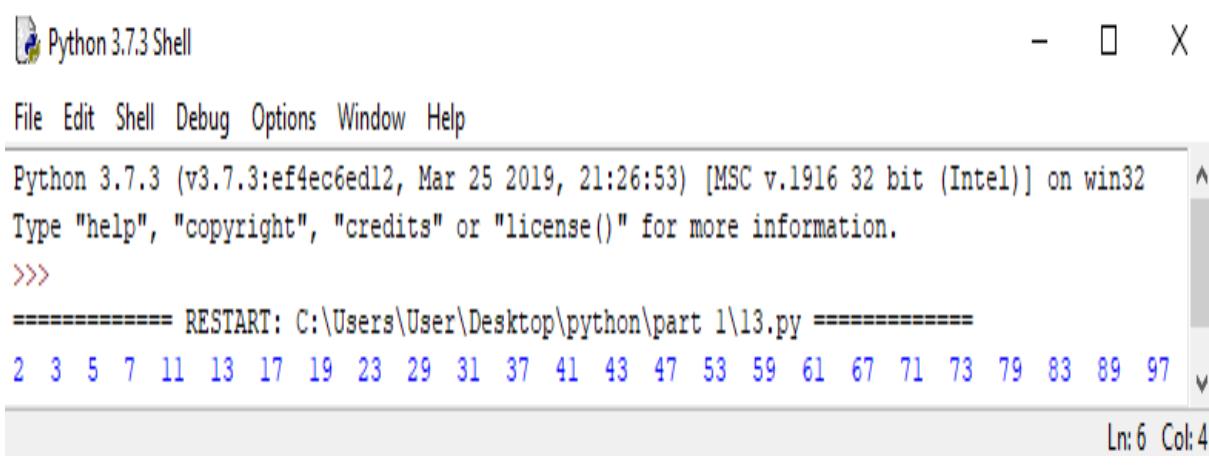
Code:



```
13.py - C:\Users\User\Desktop\part 1\13.py
File Edit Format Run Options Window
Help
for I in range (1, 101):
    count = 0
    for i in range(2, (I//2 + 1)):
        if I%i==0:
            count = count + 1
            break
    if count==0 and I!=1:
        print(I, end = ' ')
```

Ln: 1 Col: 0

*****Output of program*****

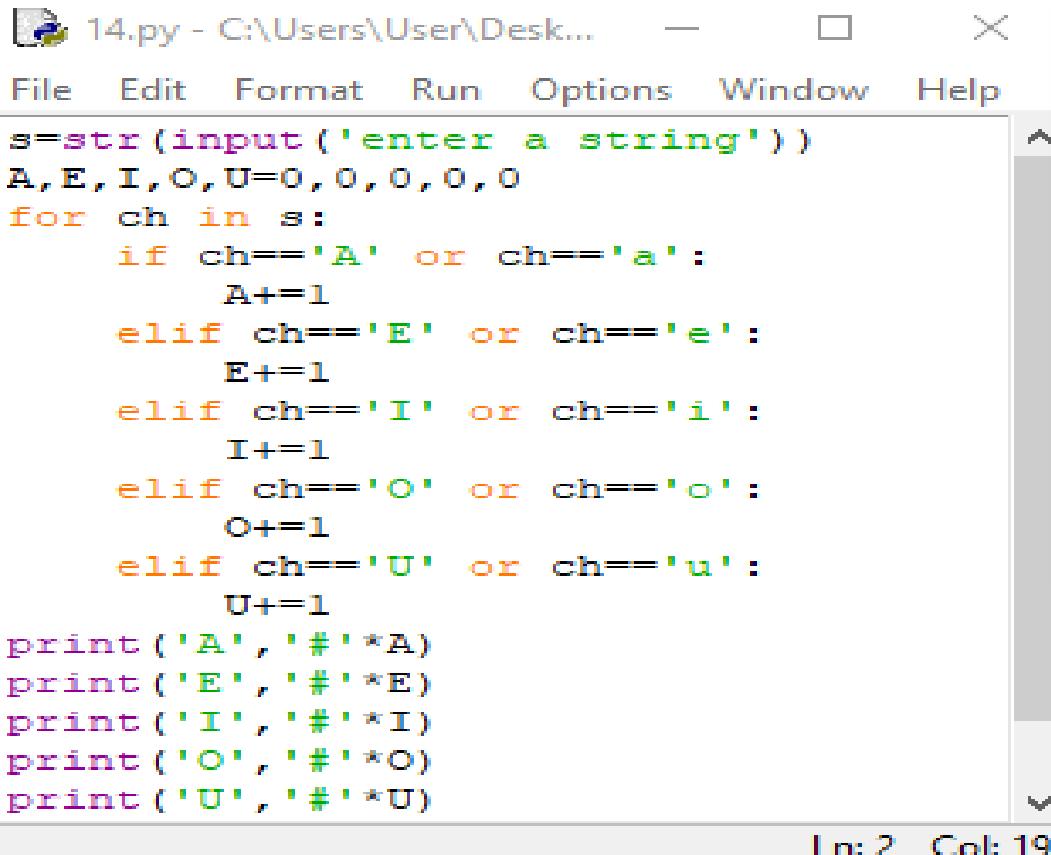


```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\13.py =====
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
```

Ln: 6 Col: 4

14. WAP to accept a string and count the vowels characters separately and display the count in histogram format.

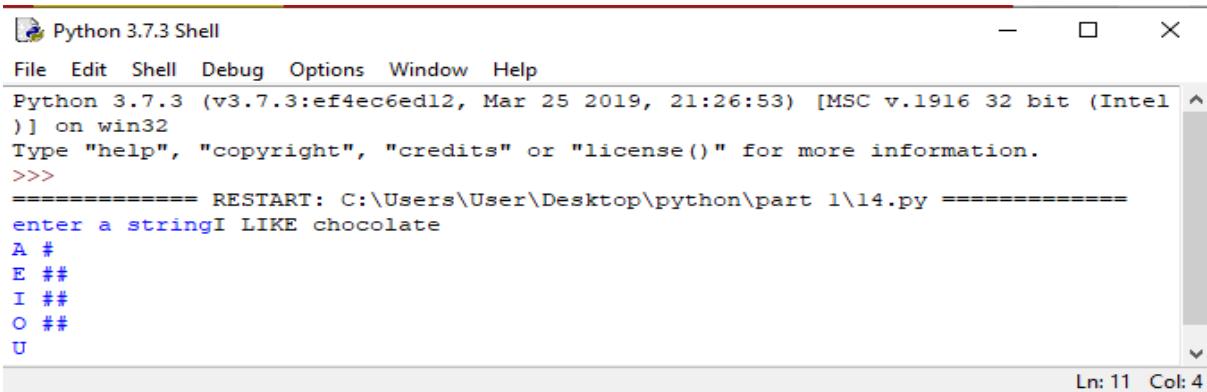
Code:



```
s=str(input('enter a string'))
A,E,I,O,U=0,0,0,0,0
for ch in s:
    if ch=='A' or ch=='a':
        A+=1
    elif ch=='E' or ch=='e':
        E+=1
    elif ch=='I' or ch=='i':
        I+=1
    elif ch=='O' or ch=='o':
        O+=1
    elif ch=='U' or ch=='u':
        U+=1
print('A', '#'*A)
print('E', '#'*E)
print('I', '#'*I)
print('O', '#'*O)
print('U', '#'*U)
```

Ln: 2 Col: 19

*****Output of program*****



```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)]
] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\14.py =====
enter a stringI LIKE chocolate
A #
E ##
I ##
O ##
U
```

Ln: 11 Col: 4

15. WAP in python to input a string and count the no. of lowercases uppercase, numeric characters and special characters and display the count in a neat format.

Code:

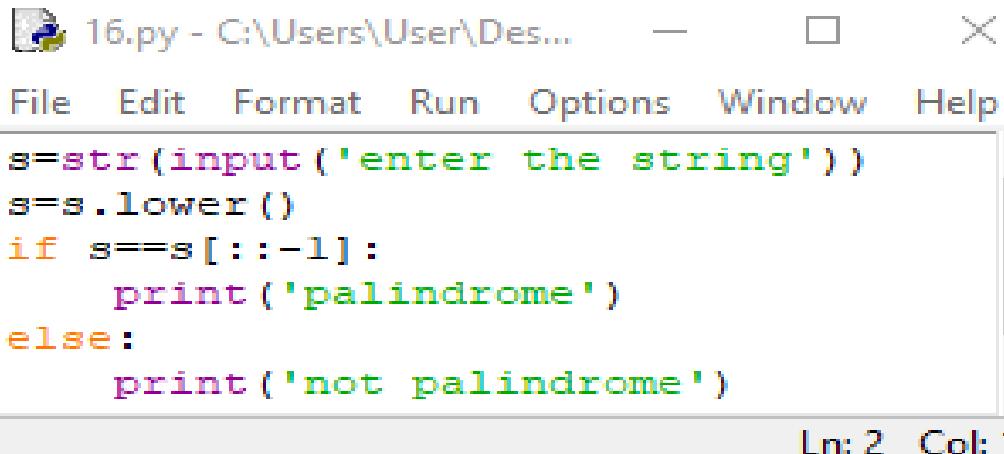
```
15.py - C:\Users\User\Desktop\... ━ ━ ×
File Edit Format Run Options Window Help
str1=str(input('enter a string'))
x,y,z,s=0,0,0,0
for I in range(len(str1)):
    if str1[I]>='A' and str1[I]<='Z':
        x+=1
    elif str1[I]>='a' and str1[I]<='z':
        y+=1
    elif str1[I]>='0' and str1[I]<='9':
        z+=1
    else:
        s+=1
print('uppercase=',x)
print('lowercase=',y)
print('numeric digits=',z)
print('special characters=',s)
```

*****Output of program*****

```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=====
RESTART: C:\Users\User\Desktop\python\part 1\15.py =====
enter a stringfellASDE%^%^123
uppercase= 4
lowercase= 4
numeric digits= 3
special characters= 4
Ln: 10 Col: 4
```

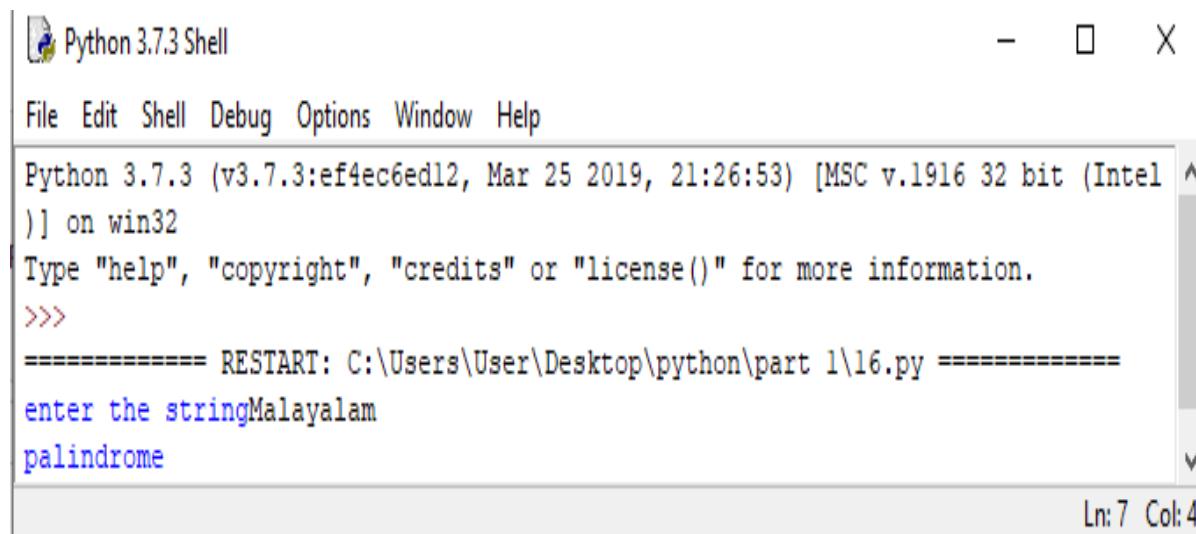
16. WAP to check whether a string is palindrome.

Code:



```
16.py - C:\Users\User\Desktop\16.py
File Edit Format Run Options Window Help
s=str(input('enter the string'))
s=s.lower()
if s==s[::-1]:
    print('palindrome')
else:
    print('not palindrome')
Ln: 2 Col: 11
```

*****Output of program*****

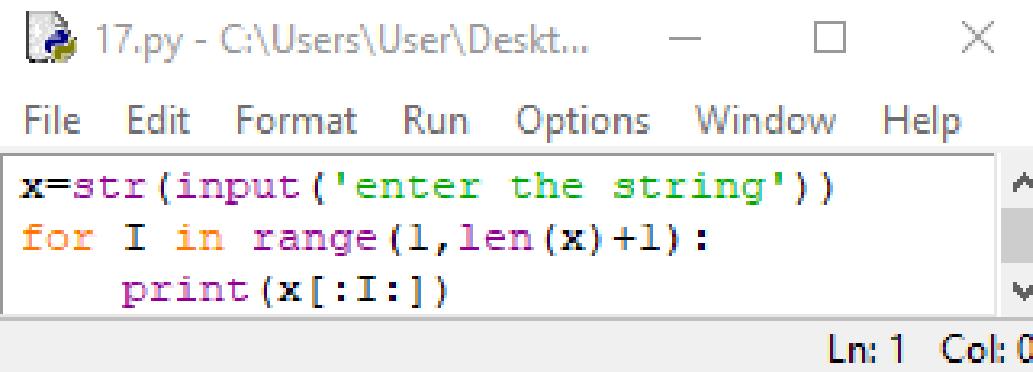


```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel
)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\16.py ======
enter the stringMalayalam
palindrome
Ln: 7 Col: 4
```

17. WAP to accept a string (say 'WELCOME') and display it in the following format:

W
WE
WEL
WELC
WELCO
WELCOM
WELCOME

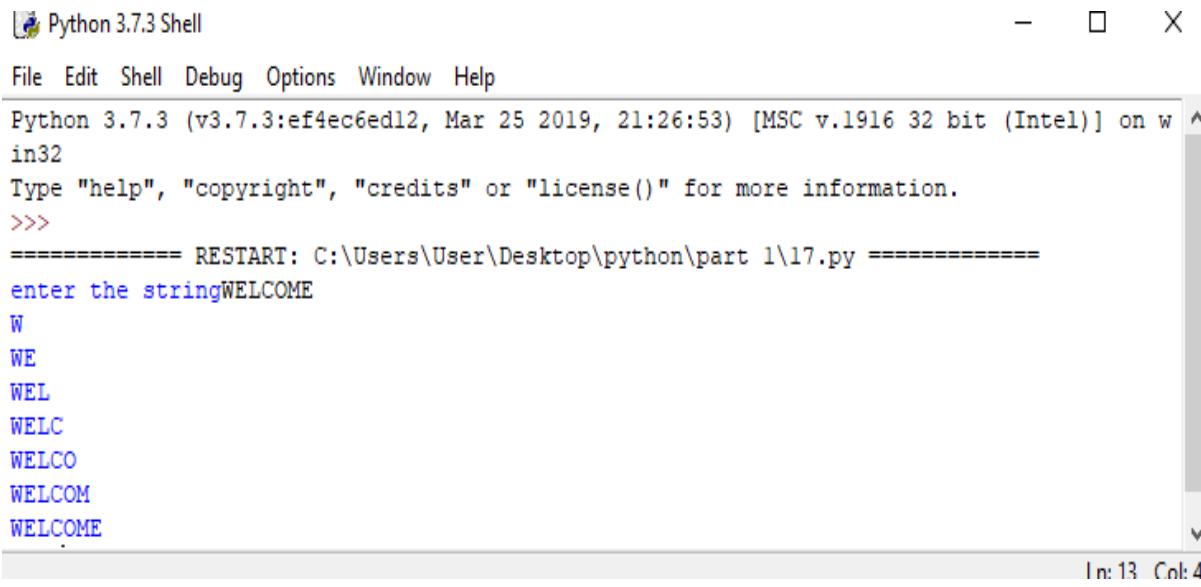
Code:



```
x=str(input('enter the string'))  
for I in range(1,len(x)+1):  
    print(x[:I:])
```

Ln: 1 Col: 0

*****Output of program*****

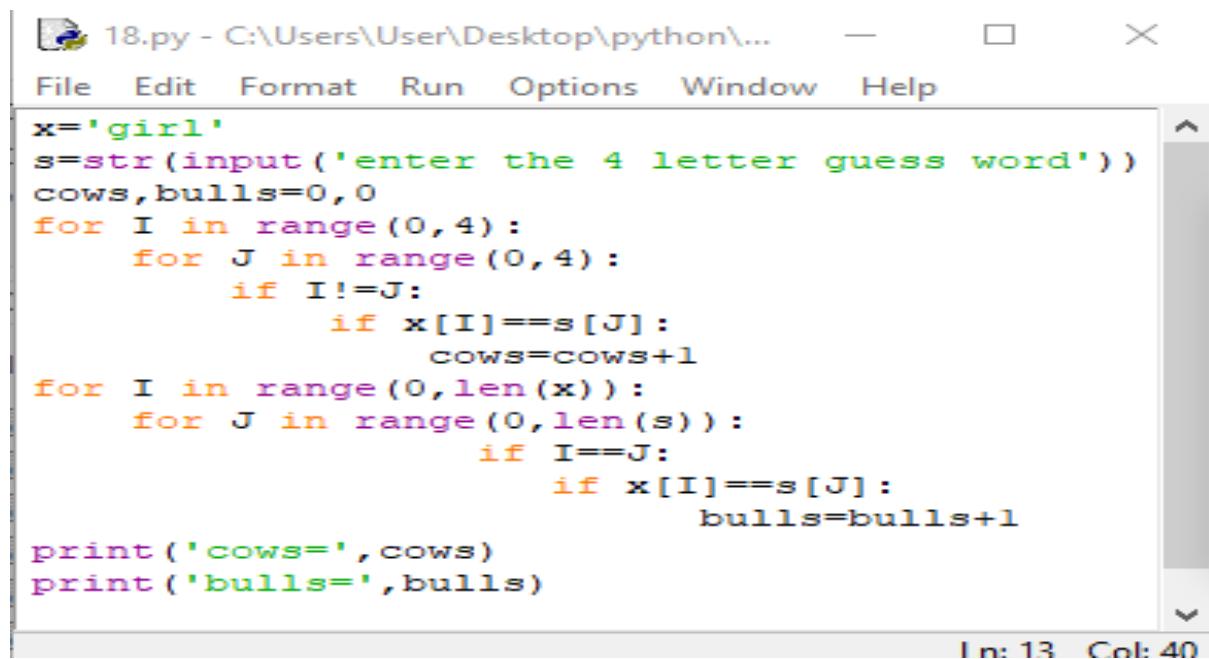


```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on w  
in32  
Type "help", "copyright", "credits" or "license()" for more information.  
>>>  
===== RESTART: C:\Users\User\Desktop\python\part 1\17.py ======  
enter the stringWELCOME  
W  
WE  
WEL  
WELC  
WELCO  
WELCOM  
WELCOME
```

In: 13 Col: 4

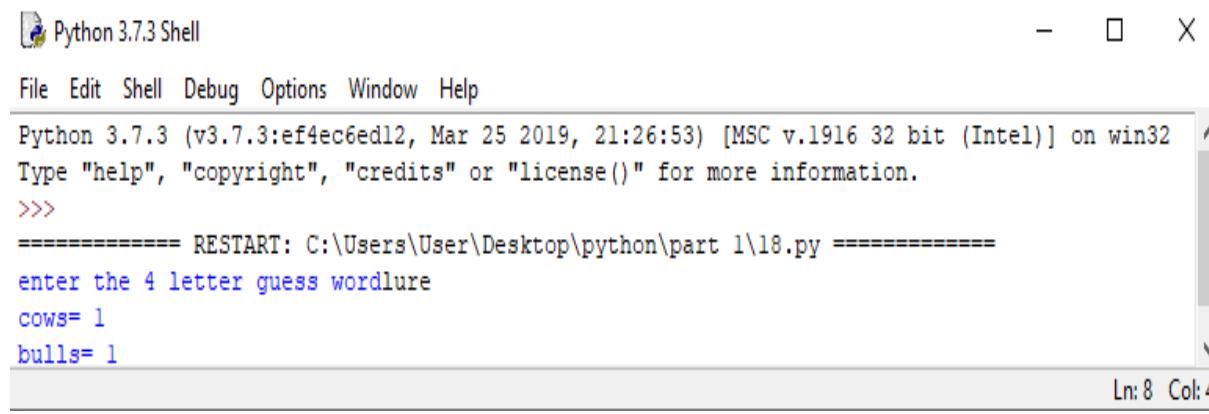
18. WAP in python to assign a secret word and accept the guess word and count the no. of COWS AND BULLS.

Code:



```
x='girl'
s=str(input('enter the 4 letter guess word'))
cows,bulls=0,0
for I in range(0,4):
    for J in range(0,4):
        if I!=J:
            if x[I]==s[J]:
                cows=cows+1
for I in range(0,len(x)):
    for J in range(0,len(s)):
        if I==J:
            if x[I]==s[J]:
                bulls=bulls+1
print ('cows=',cows)
print ('bulls=',bulls)
```

*****Output of program*****



```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\18.py ======
enter the 4 letter guess wordlure
cows= 1
bulls= 1
```

19. WAP that finds the greatest element in a list and its position.

Code:

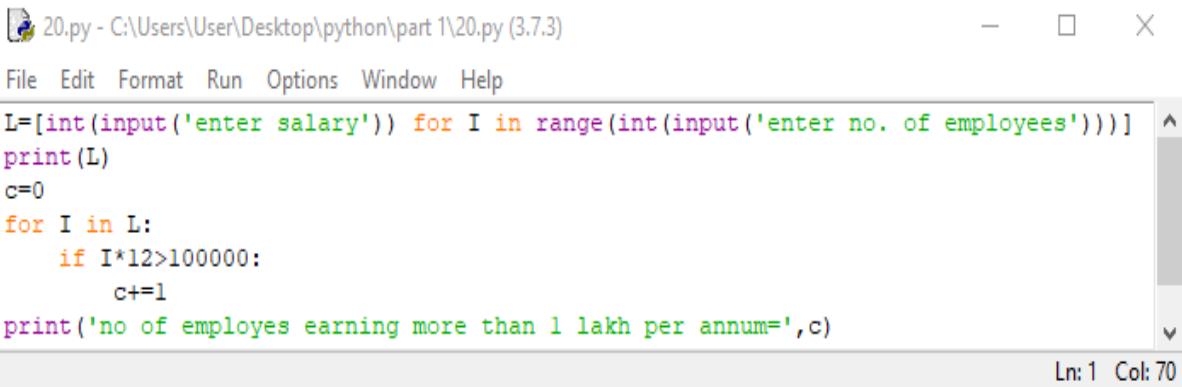
```
19.py - C:\Users\User\Desktop\python\part 1\19.py (3.7.3)
File Edit Format Run Options Window Help
L=[input('enter the element') for i in range(int(input('enter the size of list')))]
print(L)
print('max=',max(L),'position in list=',L.index(max(L)))
Ln: 3 Col: 56
```

*****Output of program*****

```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)]
] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\19.py ======
enter the size of list5
enter the element7
enter the element3
enter the element7
enter the element3
enter the element9
['7', '3', '7', '3', '9']
max= 9 position in list= 4
Ln: 13 Col: 4
```

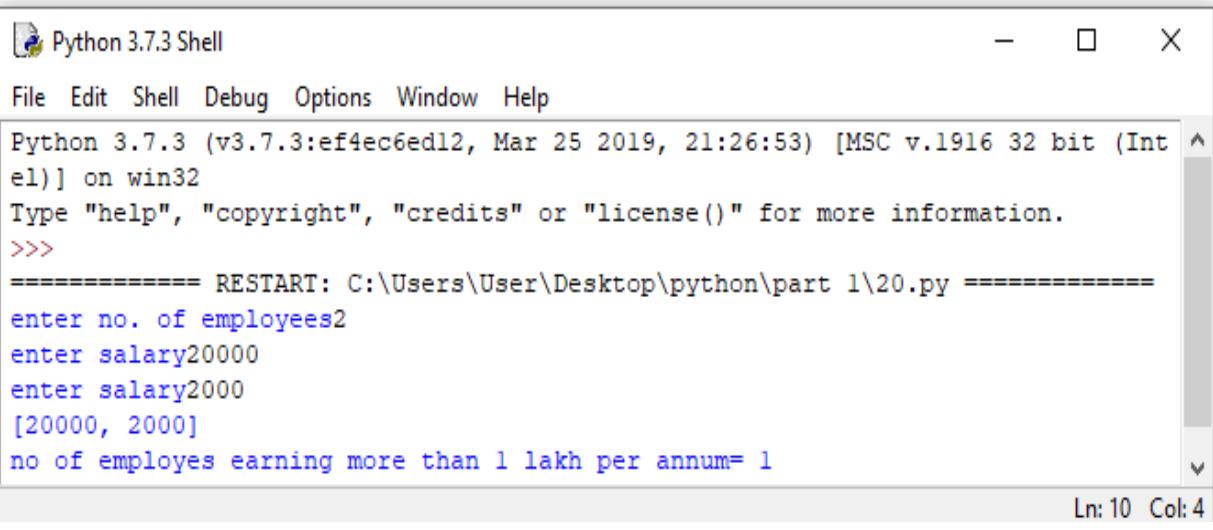
20. WAP to accept N no. of employees monthly salary in a 1D list and count the no. of employees earning more than 1 lakh rupees per annum.

Code:



```
L=[int(input('enter salary')) for I in range(int(input('enter no. of employees')))]
print(L)
c=0
for I in L:
    if I*12>100000:
        c+=1
print('no of employes earning more than 1 lakh per annum=',c)
```

*****Output of program*****

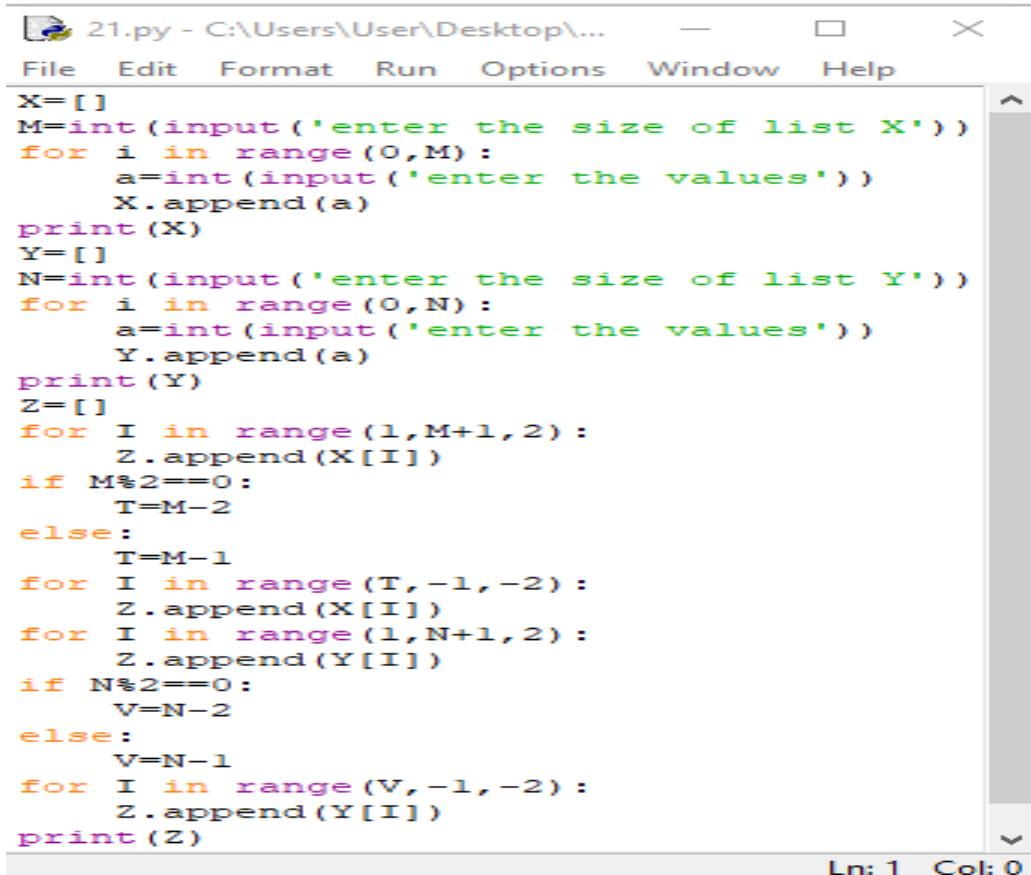


```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Int
el)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\20.py ======
enter no. of employees2
enter salary20000
enter salary2000
[20000, 2000]
no of employes earning more than 1 lakh per annum= 1
```

21. Given two list X and Y of size M and N, WAP to produce a third list Z that contains:

- 1) all odd elements of X from left to right in Z from left to right
- 2) all even elements of X from left to right in Z from right to left
- 3) all even elements of Y from left to right in Z from left to right
- 4) all odd elements of Y from left to right in Z from right to left

Code:



The screenshot shows a window titled "21.py - C:\Users\User\Desktop\...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code itself is as follows:

```
X=[]
M=int(input('enter the size of list X'))
for i in range(0,M):
    a=int(input('enter the values'))
    X.append(a)
print(X)
Y=[]
N=int(input('enter the size of list Y'))
for i in range(0,N):
    a=int(input('enter the values'))
    Y.append(a)
print(Y)
Z=[]
for I in range(1,M+1,2):
    Z.append(X[I])
if M%2==0:
    T=M-2
else:
    T=M-1
for I in range(T,-1,-2):
    Z.append(X[I])
for I in range(1,N+1,2):
    Z.append(Y[I])
if N%2==0:
    V=N-2
else:
    V=N-1
for I in range(V,-1,-2):
    Z.append(Y[I])
print(Z)
```

The status bar at the bottom indicates "Ln: 1 Col: 0".

*****Output of program*****

Python 3.7.3 Shell

- X

File Edit Shell Debug Options Window Help

Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Inte
1)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: C:\Users\User\Desktop\python\part 1\21.py =====

enter the size of list X4

enter the values1

enter the values2

enter the values3

enter the values4

[1, 2, 3, 4]

enter the size of list Y4

enter the values5

enter the values6

enter the values7

enter the values8

[5, 6, 7, 8]

[2, 4, 3, 1, 6, 8, 7, 5]

In: 18 Col: 4

22. WAP in python to accept an integer between 1 and 20 and print its roman numeral equivalent. Validation- do not accept scores less than 0 or more than 20.

Code:

```
22.py - C:\Users\User\Desktop\python\part 1\22.py [3.7]

File Edit Format Run Options Window Help

import sys
roman=[0,'I','II','III','IV','V','VI','VII','VIII','IX','X','XI','XII','XIII','XIV','XV','XVI','XVII','XVIII','XIX','XX']
n=int(input('enter the no'))
if n>20 or n==0 or n<0:
    print('invalid')
    sys.exit()
ans=roman[n]
print(ans)

Ln:1 Col:0
```

*****Output of program*****

```
Python 3.7.3 Shell

File Edit Shell Debug Options Window Help

Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Int
el)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\22.py ======
enter the no23
invalid
>>>
===== RESTART: C:\Users\User\Desktop\python\part 1\22.py ======
enter the no7
VII

Ln:11 Col:4
```

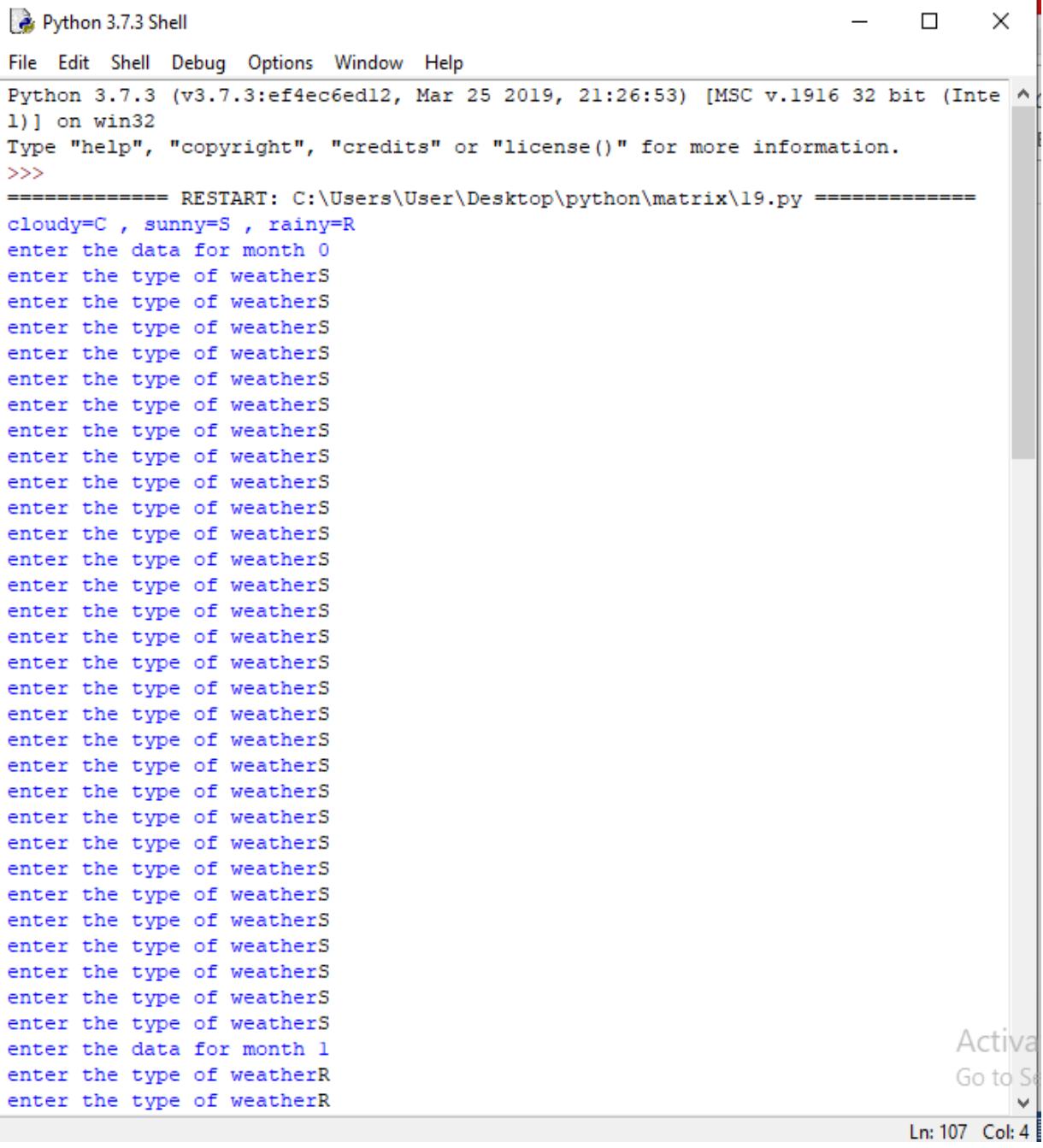
23. An amateur meteorologist wants to keep track of weather conditions during the past years three month summer season and has designated each day as either rainy (R), cloudy (C), or sunny (S). Write a program that stores this information in a 3*30 array of character's, where the row indicates the month (0=June, 1=July, 2=August) and the column indicates the day of the month. Note that data is not being collected for the 31st of any month. The program should begin by reading the weather data in from a standard input device. Then it should create a report that displays for each month and for the whole three-month period, how many days were rainy, how many were cloudy, and how many were sunny. It should also report which of the three months had the largest number of rainy days.

Code:

```
19.py - C:\Users\User\Desktop\python\matrix\19.py (3.7.3)
File Edit Format Run Options Window Help
W=[]
print('cloudy=C , sunny=S , rainy=R')
for I in range(3):
    print('enter the data for month',I)
    r=[]
    for J in range(30):
        r.append(input('enter the type of weather'))
    W.append(r)
for I in range(3):
    for J in range(30):
        print(W[I][J],'\t',end='')
    print()
rainy,sunny,cloudy,S0,S1,S2,R0,R1,R2,C0,C1,C2=0,0,0,0,0,0,0,0,0,0,0,0
for I in range(3):
    for J in range(30):
        if W[I][J]=='S':
            sunny+=1
        elif W[I][J]=='R':
            rainy+=1
        elif W[I][J]=='C':
            cloudy+=1
    for J in range(30):
        if I==0:
            if W[I][J]=='S':
                S0+=1
            elif W[I][J]=='R':
                R0+=1
            elif W[I][J]=='C':
                C0+=1
        elif I==1:
            if W[I][J]=='S':
                S1+=1
            elif W[I][J]=='R':
                R1+=1
            elif W[I][J]=='C':
                C1+=1
```

```
    elif I==2:
        if W[I][J]=='S':
            S2+=1
        elif W[I][J]=='R':
            R2+=1
        elif W[I][J]=='C':
            C2+=1
print('no of rainy,cloudy,sunny days respectively=',rainy,',',cloudy,',',sunny)
print('no of rainy,cloudy,sunny days in june respectively=',R0,',',C0,',',S0)
print('no of rainy,cloudy,sunny days in july respectively=',R1,',',C1,',',S1)
print('no of rainy,cloudy,sunny days in august respectively=',R2,',',C2,',',S2)
L=[R0,R1,R2]
x=max(L)
y=L.index(x)
print('the month with most days of rain=',y,',no of days=',x)
```

*****Output of program*****



Python 3.7.3 Shell

File Edit Shell Debug Options Window Help

```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Inte
1)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\matrix\19.py ======
cloudy=C , sunny=S , rainy=R
enter the data for month 0
enter the type of weatherS
enter the data for month 1
enter the type of weatherR
enter the type of weatherR
```

Ln: 107 Col: 4

Python 3.7.3 Shell

File Edit Shell Debug Options Window Help

```
enter the type of weatherR
enter the data for month 2
enter the type of weatherC
```

Activ
Go to Se
▼

Ln: 107 Col: 4

Python 3.7.3 Shell

File Edit Shell Debug Options Window Help

```
enter the type of weatherC
S      S      S      S      S      S      S      S      S      S
S      S      S      S      S      S      S      S      S      S
S      S      S      S      S      S      S      S      S      S

R      R      R      R      R      R      R      R      R      R
R      R      R      R      R      R      R      R      R      R
R      R      R      R      R      R      R      R      R      R

C      C      C      C      C      C      C      C      C      C
C      C      C      C      C      C      C      C      C      C
C      C      C      C      C      C      C      C      C      C

no of rainy,cloudy,sunny days respectively= 30 , 30 , 30
no of rainy,cloudy,sunny days in june respectively= 0 , 0 , 30
no of rainy,cloudy,sunny days in july respectively= 30 , 0 , 0
no of rainy,cloudy,sunny days in august respectively= 0 , 30 , 0
the month with most days of rain= 1 ,no of days= 30
>>> |
```

Ln: 107 Col: 4

24. Write a program in python to create a square matrix and find the sum of the main diagonal and secondary diagonal elements. Also display the main and the secondary diagonal elements.

For example:

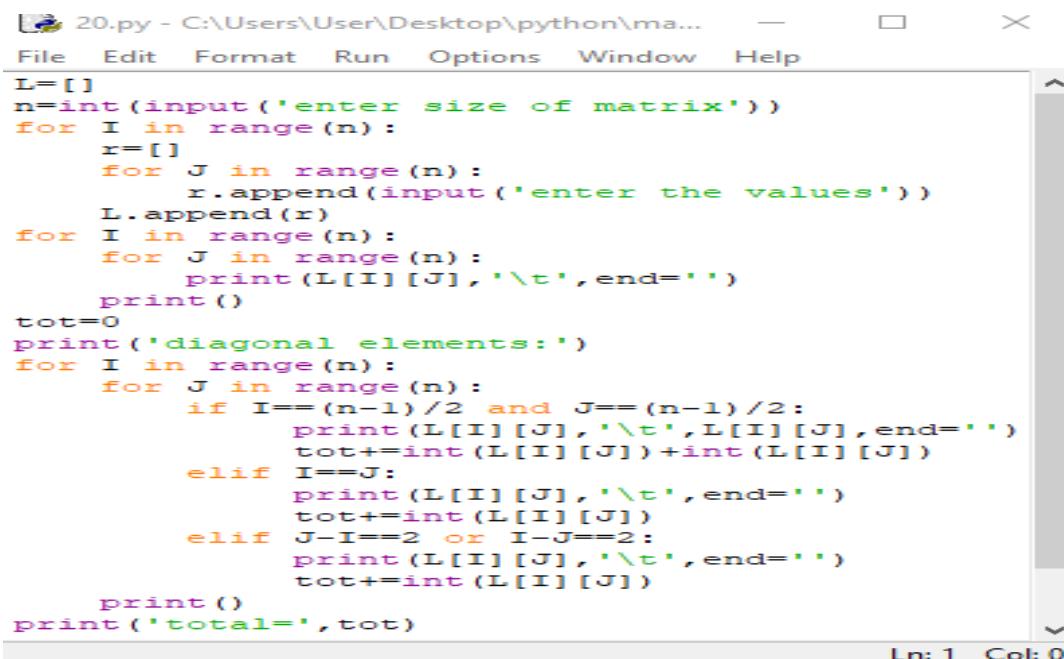
```
1 2 3  
4 5 6  
7 8 9
```

Output is:

Sum of diagonal elements:30

Diagonal elements:1 5 9 3 5 7

Code:



```
L=[ ]  
n=int(input('enter size of matrix'))  
for I in range(n):  
    r=[ ]  
    for J in range(n):  
        r.append(int(input('enter the values')))  
    L.append(r)  
for I in range(n):  
    for J in range(n):  
        print(L[I][J],'\t',end='')  
    print()  
tot=0  
print('diagonal elements:')  
for I in range(n):  
    for J in range(n):  
        if I==(n-1)/2 and J==(n-1)/2:  
            print(L[I][J],'\t',L[I][J],end=' ')  
            tot+=int(L[I][J])+int(L[I][J])  
        elif I==J:  
            print(L[I][J],'\t',end=' ')  
            tot+=int(L[I][J])  
        elif J-I==2 or I-J==2:  
            print(L[I][J],'\t',end=' ')  
            tot+=int(L[I][J])  
    print()  
print('total=',tot)
```

Ln: 1 Col: 0

*****Output of program*****



```
Python 3.7.3 Shell  
File Edit Shell Debug Options Window Help  
Python 3.7.3 (v3.7.3:efec6ed12, Mar 25 2019, 21:2  
6:53) [MSC v.1916 32 bit (Intel)] on win32  
Type "help", "copyright", "credits" or "license()" for  
more information.  
>>>  
===== RESTART: C:\Users\user\Desktop\pytho  
n\matrix\20.py ======  
enter size of matrix3  
enter the values1  
enter the values2  
enter the values3  
enter the values4  
enter the values5  
enter the values6  
enter the values7  
enter the values8  
enter the values9  
1      2      3  
4      5      6  
7      8      9  
diagonal elements:  
1      5      9  
total= 30
```

Ln: 23 Col: 4

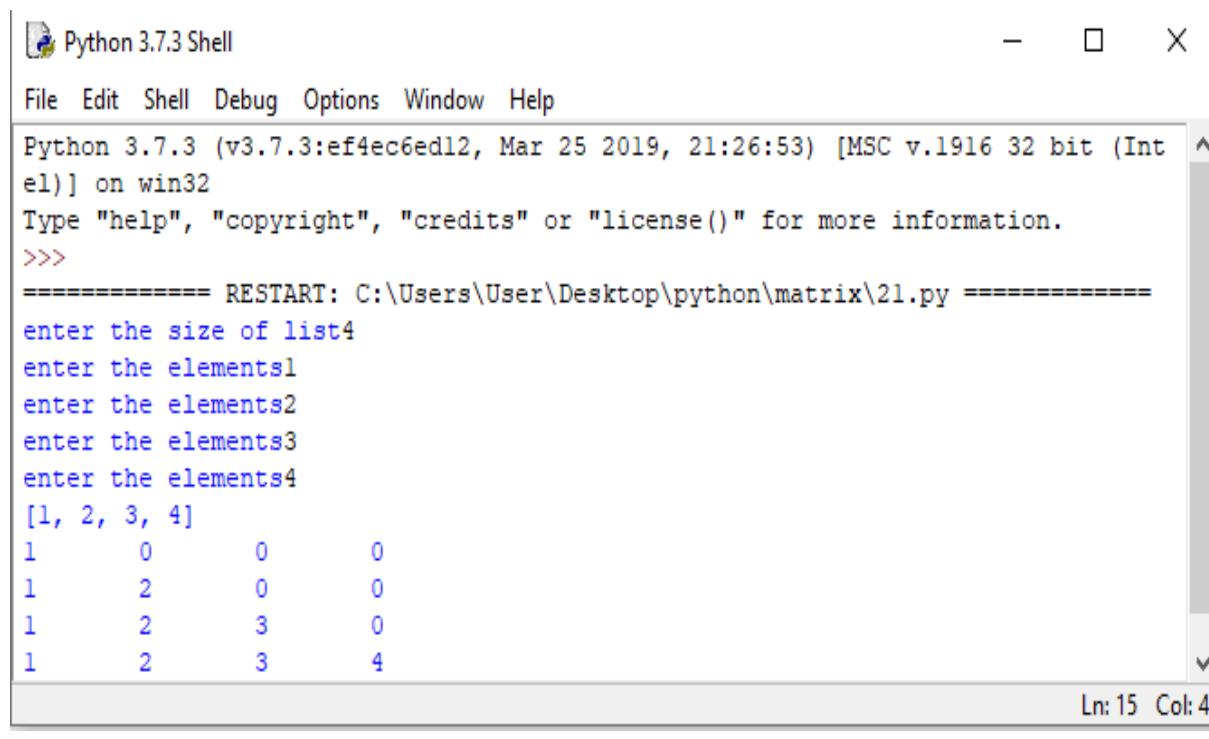
25. WAP in python to create a 2D list from 1D list in the following format: if
23 45 67 are the inputs,
23 0 0
23 45 0
23 45 67

Code:



```
21.py - C:\Users\User\Desktop\python\matrix\21.py (3.7.3)
File Edit Format Run Options Window Help
L=[int(input('enter the elements')) for I in range(int(input('enter the size of list')))]
print(L)
for I in range(len(L)):
    for J in range(len(L)):
        if L[I]==L[J]:
            print(L[I],'\t',end='')
        elif I>J:
            print(L[J],'\t',end='')
        else:
            print('0','\t',end='')
    print()
```

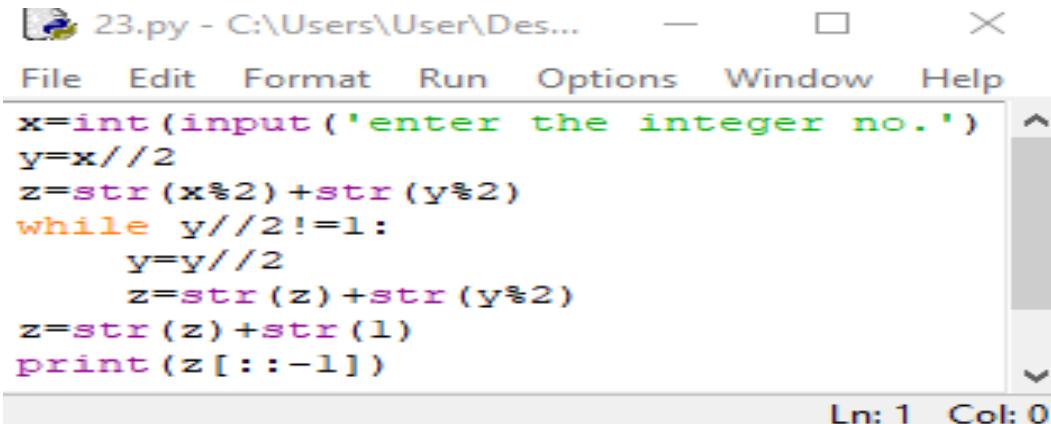
*****Output of program*****



```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Int
el)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\matrix\21.py ======
enter the size of list4
enter the elements1
enter the elements2
enter the elements3
enter the elements4
[1, 2, 3, 4]
1      0      0      0
1      2      0      0
1      2      3      0
1      2      3      4
```

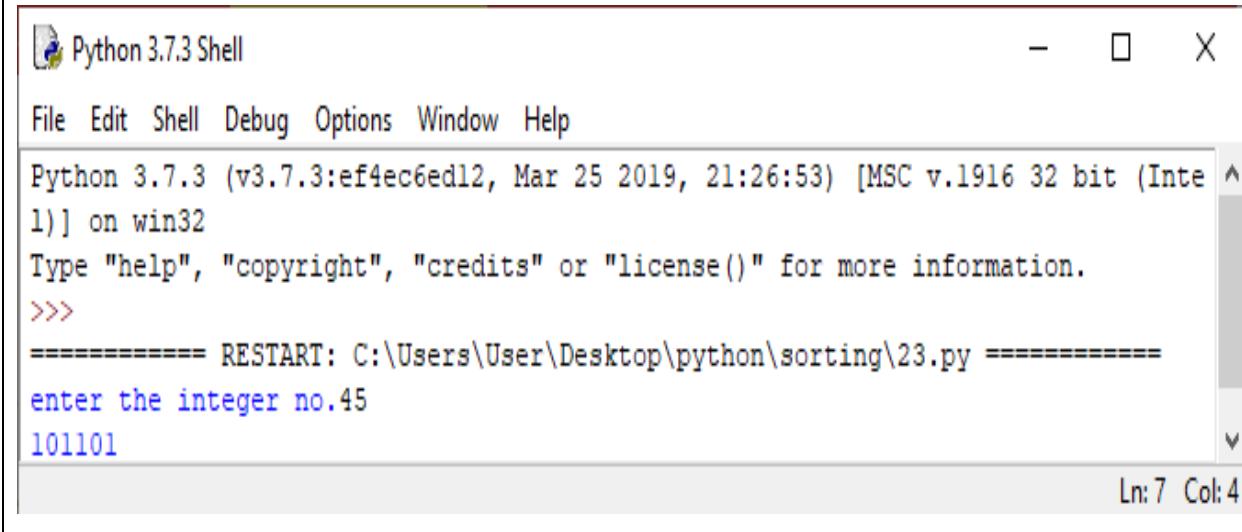
26. WAP to find the binary equivalent of an integer no.

Code:



```
23.py - C:\Users\User\Desktop\python\sorting\23.py
File Edit Format Run Options Window Help
x=int(input('enter the integer no.'))
y=x//2
z=str(x%2)+str(y%2)
while y//2!=1:
    y=y//2
    z=str(z)+str(y%2)
z=str(z)+str(1)
print(z[::-1])
Ln: 1 Col: 0
```

*****Output of program*****



```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Inte
1)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\sorting\23.py ======
enter the integer no.45
101101
Ln: 7 Col: 4
```

27. WAP to arrange a list of nos. in ascending order using bubble insertion/selection sorting depending upon the user.

Code:

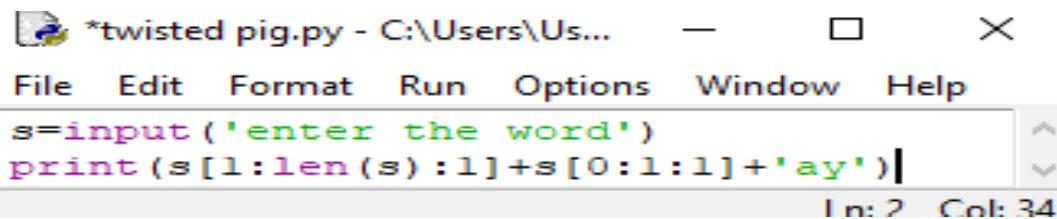
```
24.py - C:\Users\User\Desktop\python\sorting... — ×
File Edit Format Run Options Window Help
n=int(input('enter the size of list'))
for I in range(n):
    L.append(int(input('enter the values')))
print(L)
print('bubble sorting= B')
print('insertion sorting= I')
print('selection sorting= S')
c=input('enter the sorting technique')
if c=='B':
    for I in range(0,n-1):
        for I in range(0,n-1):
            x=L[I]
            if L[I]>L[I+1]:
                T=L[I]
                L[I]=L[I+1]
                L[I+1]=T
            print(L)
elif c=='I':
    for I in range(1,n):
        x=L[I]
        pos=I
        while pos>0 and x<L[pos-1]:
            L[pos]=L[pos-1]
            pos=pos-1
        L[pos]=x
        print(L)
else:
    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]
    print(L)
Ln: 22 Col: 0
```

*****Output of program*****

```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\sorting\24.py ======
enter the size of list4
enter the values4
enter the values3
enter the values2
enter the values1
[4, 3, 2, 1]
bubble sorting= B
insertion sorting= I
selection sorting= S
enter the sorting techniqueS
[1, 2, 3, 4]
Ln: 16 Col: 4
```

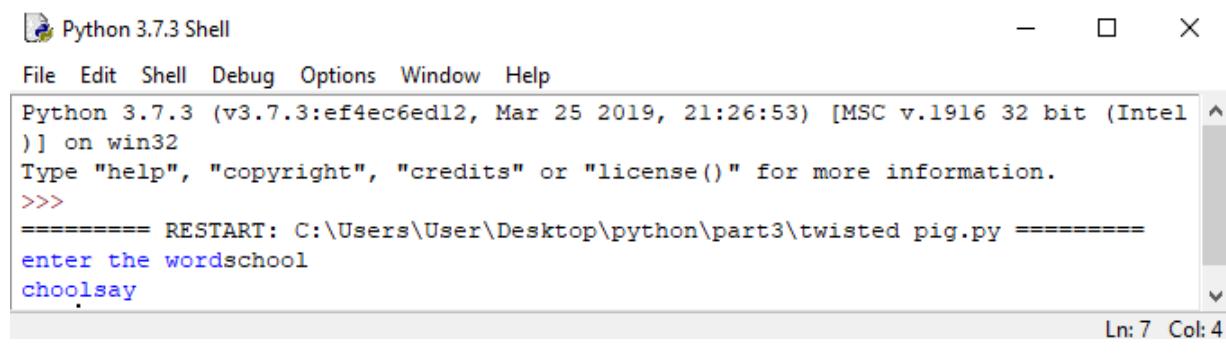
28. Twisted Pig Latin. Prompt the user to enter a single word. They form a new word by taking the first letter of the original word, moving it to the end, and adding "ay". Thus "school" becomes "choolsay".

Code:



```
*twisted pig.py - C:\Users\Us...
File Edit Format Run Options Window Help
s=input('enter the word')
print(s[1:len(s):1]+s[0:1:1]+'ay')
Ln: 2 Col: 34
```

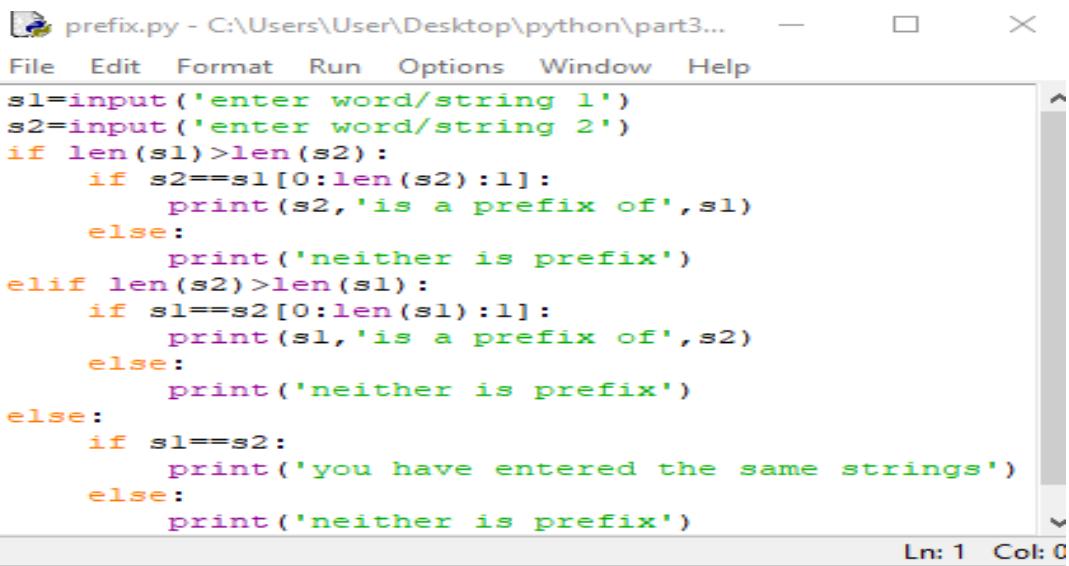
*****Output of program*****



```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel
)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part3\twisted pig.py ======
enter the wordschool
choolsay
Ln: 7 Col: 4
```

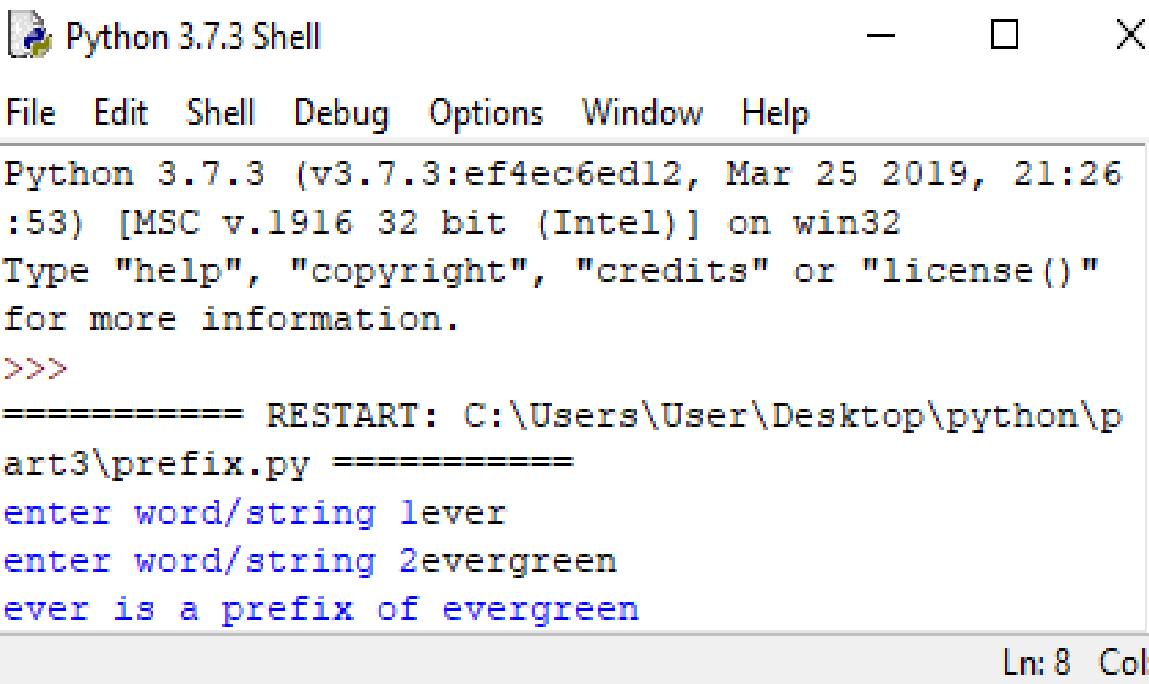
29. Write a program that prompts the user for two strings and check if one of the string is a prefix of the other .For example, if the user input “evergreen” and “ever” , the program would respond :“ever” is a prefix of “evergreen”.

Code:



```
prefix.py - C:\Users\User\Desktop\python\part3... — ×
File Edit Format Run Options Window Help
s1=input('enter word/string 1')
s2=input('enter word/string 2')
if len(s1)>len(s2):
    if s2==s1[0:len(s2):1]:
        print(s2,'is a prefix of',s1)
    else:
        print('neither is prefix')
elif len(s2)>len(s1):
    if s1==s2[0:len(s1):1]:
        print(s1,'is a prefix of',s2)
    else:
        print('neither is prefix')
else:
    if s1==s2:
        print('you have entered the same strings')
    else:
        print('neither is prefix')
Ln: 1 Col: 0
```

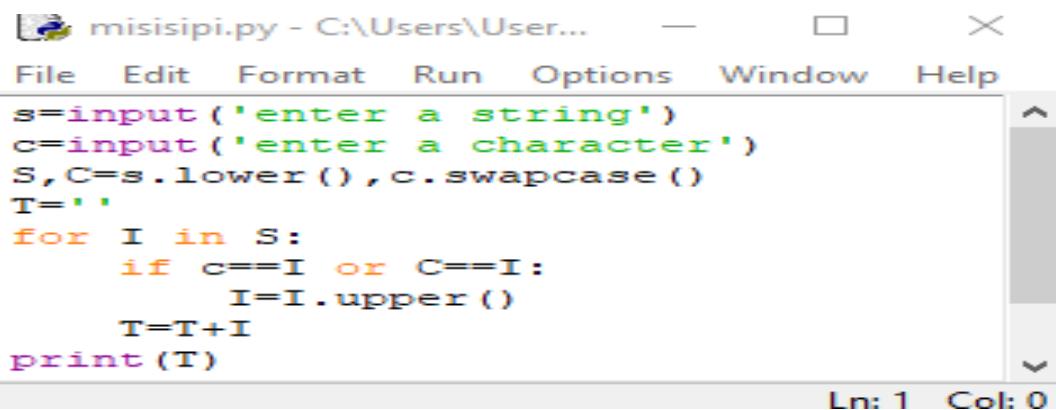
*****Output of program*****



```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26 :53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part3\prefix.py =====
enter word/string lever
enter word/string 2evergreen
ever is a prefix of evergreen
Ln: 8 Col: 4
```

30. Write a program that prompts the user for a string S and a character C, and outputs the string produced from S by capitalizing each occurrence of the character C in S and making other character's lowercase. For example, if the user inputs Mississippi and character's' the program outputs "miSSiSSippi".

Code:



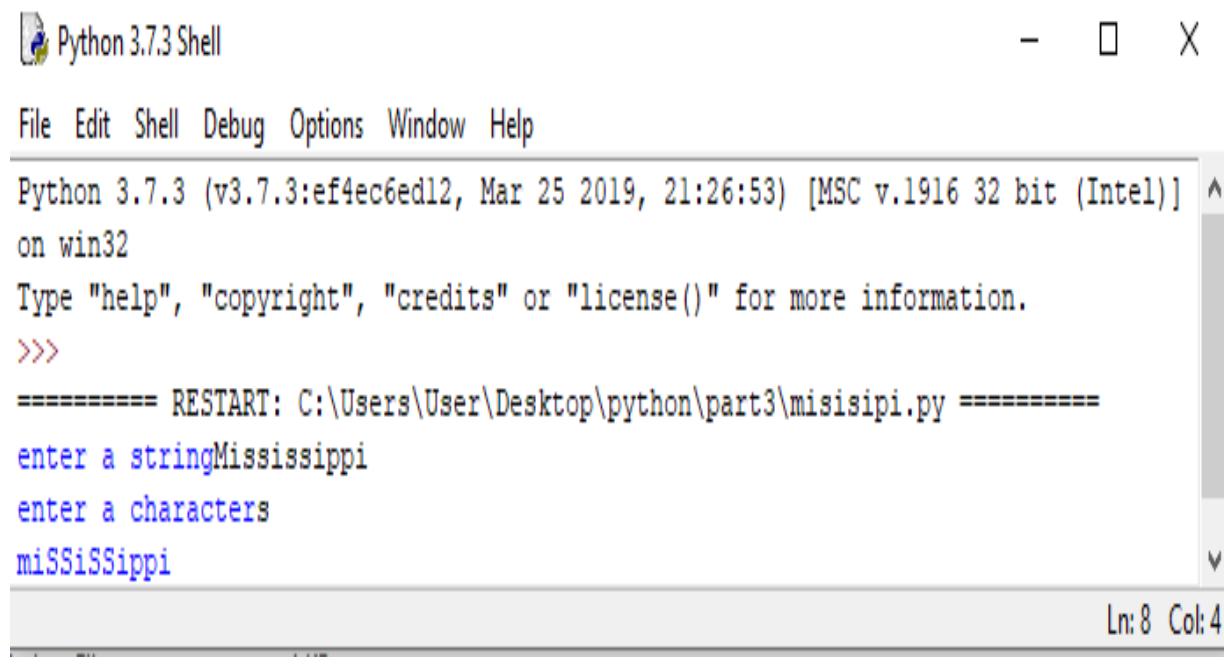
misisipi.py - C:\Users\User... — X

File Edit Format Run Options Window Help

```
s=input('enter a string')
c=input('enter a character')
S,C=s.lower(),c.swapcase()
T=''
for I in S:
    if c==I or C==I:
        I=I.upper()
    T=T+I
print(T)
```

Ln: 1 Col: 0

*****Output of program*****



Python 3.7.3 Shell — X

File Edit Shell Debug Options Window Help

Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)]

on win32

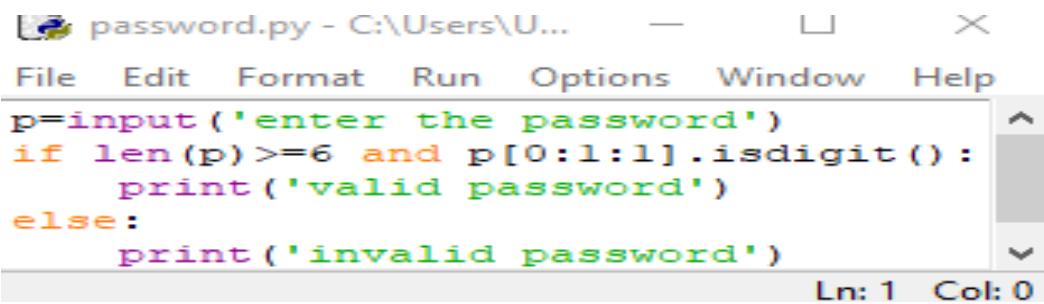
Type "help", "copyright", "credits" or "license()" for more information.

```
>>>
===== RESTART: C:\Users\User\Desktop\python\part3\misisipi.py =====
enter a stringMississippi
enter a characters
miSSiSSippi
```

Ln: 8 Col: 4

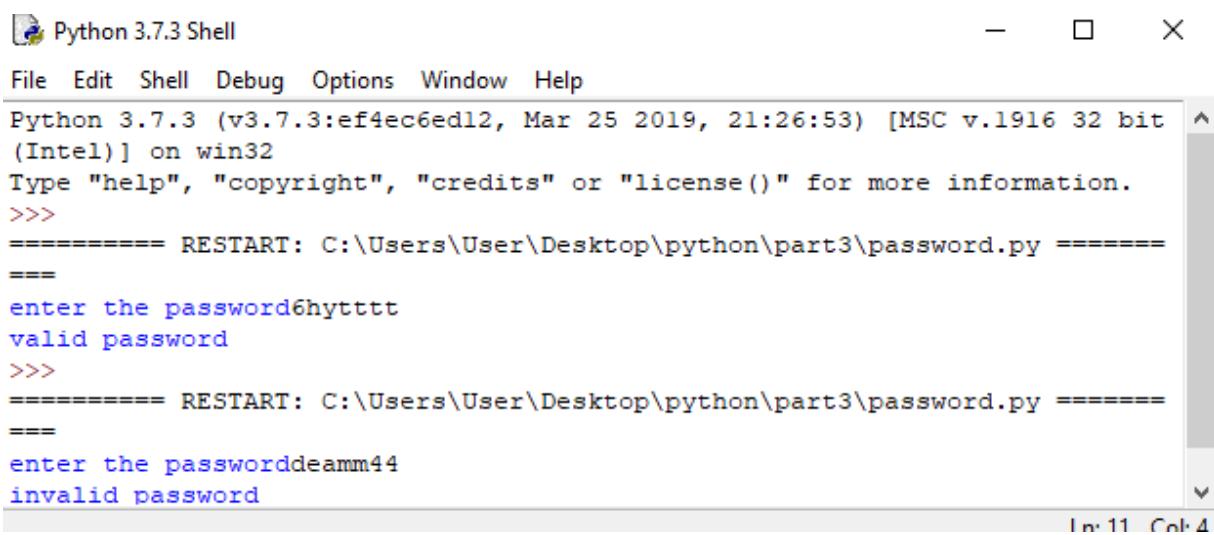
31. Write a program that prompts the user for their password and then determines if the password is valid or not. A password is said to be valid if it starts with a digit and it has length 6 or more. If your program determines that the user entered password is not valid, it should print a message saying so. Otherwise it should print a message saying that it has accepted the user entered password.

Code:



```
password.py - C:\Users\U... ━ ━ X
File Edit Format Run Options Window Help
p=input('enter the password')
if len(p)>=6 and p[0:1:1].isdigit():
    print('valid password')
else:
    print('invalid password')
Ln: 1 Col: 0
```

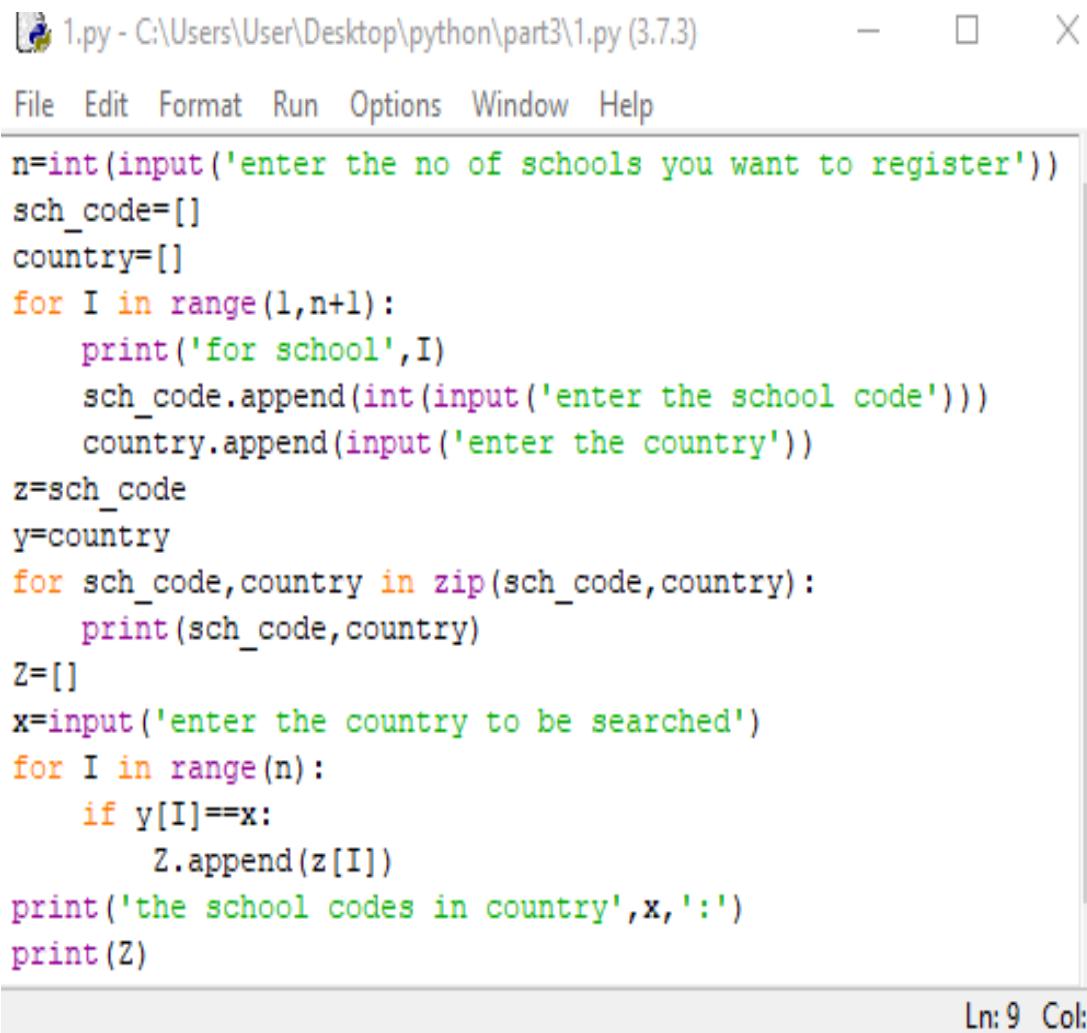
*****Output of program*****



```
Python 3.7.3 Shell ━ ━ X
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\User\Desktop\python\part3\password.py =====
===
enter the password6hyttt
valid password
>>>
===== RESTART: C:\Users\User\Desktop\python\part3\password.py =====
===
enter the passworddeamm44
invalid password
Ln: 11 Col: 4
```

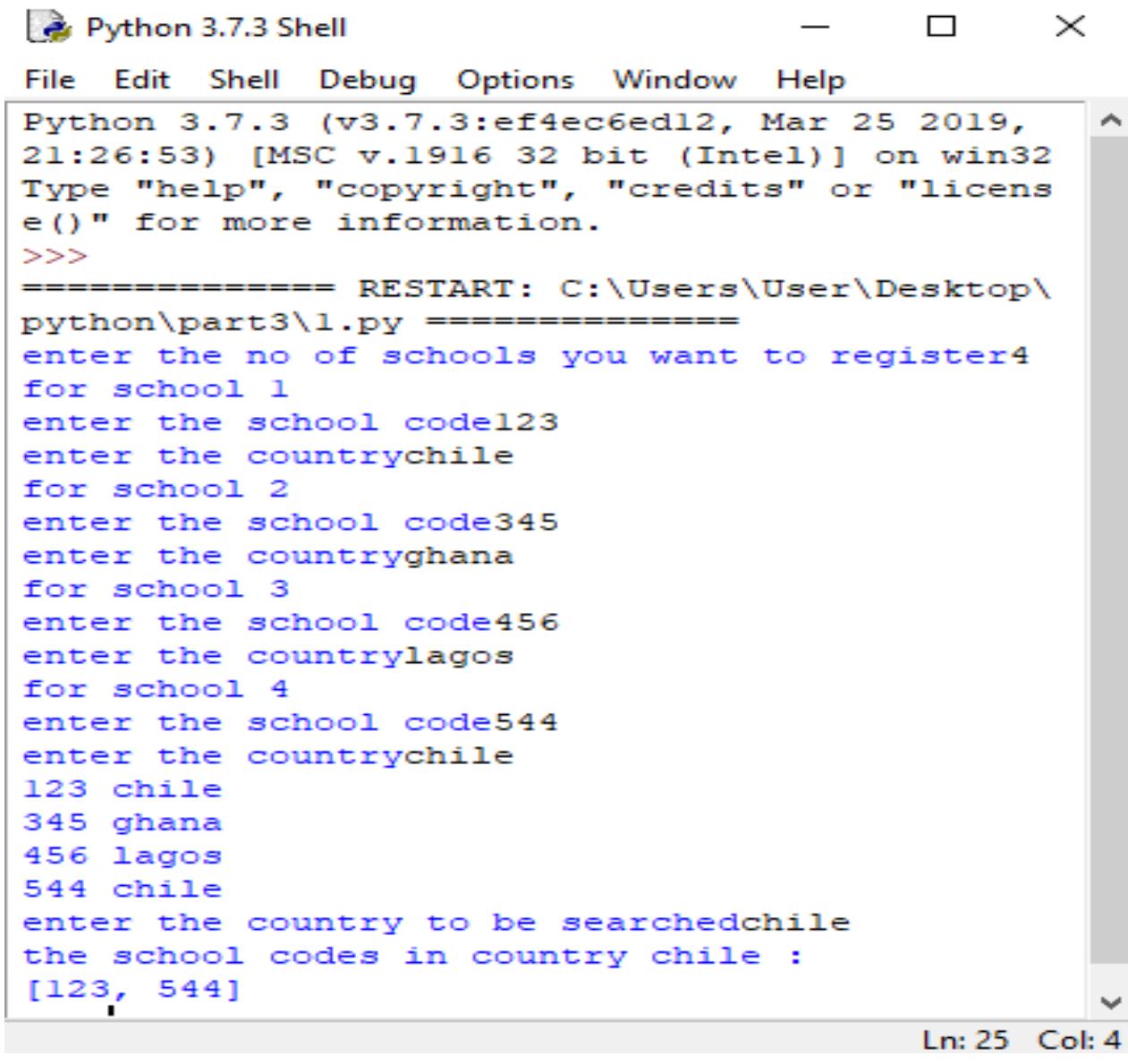
32. An international business with several branches sells educational products to schools. Each branch keeps details about the school to which it sells. The data, which consists of schools unique IB code and its country is stored in two parallel string lists.
WAP to accept a country user and perform a linear sequential search to display all the school codes in that country.

Code:



```
1.py - C:\Users\User\Desktop\python\part3\1.py (3.7.3) - X
File Edit Format Run Options Window Help
n=int(input('enter the no of schools you want to register'))
sch_code=[]
country=[]
for I in range(1,n+1):
    print('for school',I)
    sch_code.append(int(input('enter the school code')))
    country.append(input('enter the country'))
z=sch_code
y=country
for sch_code,country in zip(sch_code,country):
    print(sch_code,country)
Z=[]
x=input('enter the country to be searched')
for I in range(n):
    if y[I]==x:
        Z.append(z[I])
print('the school codes in country',x,':')
print(Z)
Ln: 9 Col: 5
```

*****Output of program*****



The image shows a screenshot of the Python 3.7.3 Shell window. The title bar reads "Python 3.7.3 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The main window displays the following text:

```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=====
RESTART: C:\Users\User\Desktop\python\part3\1.py =====
enter the no of schools you want to register4
for school 1
enter the school code123
enter the countrychile
for school 2
enter the school code345
enter the countryghana
for school 3
enter the school code456
enter the countrylagos
for school 4
enter the school code544
enter the countrychile
123 chile
345 ghana
456 lagos
544 chile
enter the country to be searchedchile
the school codes in country chile :
[123, 544]
```

The status bar at the bottom right shows "Ln: 25 Col: 4".

33. In a rental shop, bike ID and time out are stored in two parallel arrays. When a bike is returned, following operations are performed:

- ID is looked up in ID list
- If ID doesn't exist, error message is output
- Time out is found
- The current time is input and difference between this time and time out is displayed

WAP in python to carry out the above process

Code:

```
2.py - C:\Users\User\Desktop\python\part3\2.py (3.7.3)
File Edit Format Run Options Window Help
n=int(input('enter the no of bikes'))
ID=[]
time_out=[]
for I in range(1,n+1):
    print('for bike',I)
    ID.append(input('enter the bike ID'))
    time_out.append(float(input('enter time the bike was out')))
x,y=ID,time_out
for ID,time_out in zip(ID,time_out):
    print(ID,time_out)
a=input('enter bike ID')
while a not in x:
    print('error, bike ID is wrong')
    a=input('enter ID again')
else:
    t=float(input('enter the current time'))
    print('difference between current time and out time:')
    print(t-y[x.index(a)])
Ln: 1 Col: 0
```

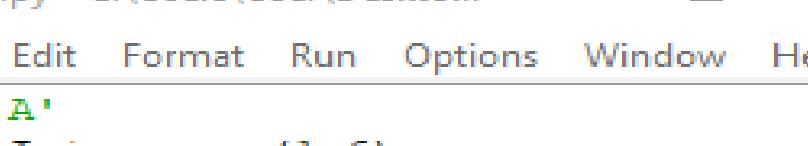
*****Output of program*****

```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ref4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1
616 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more info
>>>
----- RESTART: C:\Users\User\Desktop\python\part3\2.py
enter the no of bikes4
for bike 1
enter the bike IDABC
enter time the bike was out9
for bike 2
enter the bike>IDDEF
enter time the bike was out10
for bike 3
enter the bike>IDFGR
enter time the bike was out7
for bike 4
enter the bike>IDGHI
enter time the bike was out12
ABC 9.0
DEF 10.0
FGR 7.0
GHI 12.0
enter bike IDEEE
error, bike ID is wrong
enter ID againABC
enter the current time12
difference between current time and out time:
3.0
```

34. WAP to display the following structure:

A
BC
DEF
GHIJ
KLMNO

Code:



```
File Edit Format Run Options Window Help
ch='A'
for I in range(1,6):
    for J in range(I):
        print(ch, '\t', end='')
        ch= chr(ord(ch) + 1)
    print()
```

*****Output of program*****

```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:26:53) [MSC v.1
916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more info
rmation.
>>>
=====
RESTART: C:\Users\User\Desktop\python\part3\3.py
=====
A
B      C
D      E      F
G      H      I      J
K      L      M      N      O
Ln: 10 Col: 1
```

MySQL

30

QUERIES

1. Command for creating a database

```
mysql> create database company;  
Query OK, 1 row affected (0.03 sec)
```

2. Command for using database

```
mysql> use company;  
Database changed  
mysql>
```

3. Command for creating a table

```
mysql> create table employees(empid int,firstname varchar(15),lastname varchar(15),address varchar(15),city varchar(15))  
;  
Query OK, 0 rows affected (0.10 sec)
```

4. Command for showing the structure of a table

```
mysql> desc employees;  
+-----+-----+-----+-----+-----+  
| Field | Type | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+  
| empid | int(11) | YES | | NULL |  
| firstname | varchar(15) | YES | | NULL |  
| lastname | varchar(15) | YES | | NULL |  
| address | varchar(15) | YES | | NULL |  
| city | varchar(15) | YES | | NULL |  
+-----+-----+-----+-----+-----+  
5 rows in set (0.05 sec)
```

5. Command to show tables present in database

```
mysql> show tables;  
+-----+  
| Tables_in_company |  
+-----+  
| employees |  
+-----+  
1 row in set (0.01 sec)  
  
mysql>
```

6. Command for inserting data into a table

```
insert into employees values(010,'mary','jones','83 fine street','howard') at line 1
mysql> insert into employees values(010,'mary','jones','83 fine street','howard');
Query OK, 1 row affected (0.01 sec)

mysql> insert into employees values(105,'sam','smith','842 vine ave','lostaville');
Query OK, 1 row affected (0.01 sec)

mysql> insert into employees values(152,'george','tones','33 elm st','paris');
Query OK, 1 row affected (0.01 sec)

mysql> insert into employees values(215,'sarah','ackerman','440 us 110','upton');
Query OK, 1 row affected (0.01 sec)

mysql> insert into employees values(244,'manila','sengupta','24 friends st','new delhi');
Query OK, 1 row affected (0.01 sec)
```

7. Command to view contents of a table

```
mysql> select * from employees;
+-----+-----+-----+-----+
| empid | firstname | lastname | address      | city       |
+-----+-----+-----+-----+
|    10 | mary     | jones   | 83 fine street | howard    |
|   105 | sam      | smith   | 842 vine ave   | lostaville |
|   152 | george   | tones   | 33 elm st     | paris      |
|   215 | sarah    | ackerman | 440 us 110    | upton     |
|   244 | manila   | sengupta| 24 friends st | new delhi  |
+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

8. Command to retrieve data

```
mysql> select empid,lastname from employees;
+-----+-----+
| empid | lastname |
+-----+-----+
|    10 | jones   |
|   105 | smith   |
|   152 | tones   |
|   215 | ackerman |
|   244 | sengupta|
+-----+-----+
5 rows in set (0.00 sec)
```

9. Command for using WHERE clause

```
mysql> select empid,lastname from employees where city='upton';
+-----+-----+
| empid | lastname |
+-----+-----+
|    215 | ackerman |
+-----+
1 row in set (0.00 sec)
```

10 Command for using order by clause

```
mysql> select * from employees order by lastname;
+-----+-----+-----+-----+-----+
| empid | firstname | lastname | address      | city   |
+-----+-----+-----+-----+-----+
|    215 | sarah     | ackerman | 440 us 110   | upton |
|     10 | mary       | jones    | 83 fine street | howard |
|   244 | manila    | sengupta | 24 friends st | new delhi |
|   105 | sam        | smith    | 842 vine ave  | lostanville |
|   152 | george    | tones    | 33 elm st    | paris  |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

11 Command for using update

```
mysql> update employees set city='los angeles' where empid=215;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

12. Command for using alter

```
mysql> alter table employees modify address varchar(30);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

13. Command for using LIKE operator

```
mysql> select firstname from employees where lastname like '%s';
+-----+
| firstname |
+-----+
| mary     |
| george   |
+-----+
2 rows in set (0.00 sec)
```

14. Command for using DISTINCT keyword

```
mysql> select distinct designation from emp;
+-----+
| designation |
+-----+
| manager    |
| director   |
| clerk      |
+-----+
3 rows in set (0.00 sec)
```

15. Command for using aggregate functions

```
mysql> select avg(salary) from emp;
+-----+
| avg(salary) |
+-----+
| 24200.0000 |
+-----+
1 row in set (0.00 sec)
```

16. Command for using GROUP BY

```
mysql> select designation,benefits from emp group by designation;
+-----+-----+
| designation | benefits |
+-----+-----+
| manager     | 10000 |
| director    | 12000 |
| clerk       | 5000  |
+-----+-----+
3 rows in set (0.00 sec)
```

17. Command for using HAVING clause

```
mysql> select designation,max(salary) from emp group by designation having avg(benefits)>8000;
+-----+-----+
| designation | max(salary) |
+-----+-----+
| manager     | 27000 |
| director    | 30000 |
+-----+-----+
2 rows in set (0.00 sec)
```

18. Command for using group by with order by

```
mysql> select designation,max(salary)from emp group by designation order by max(salary) desc;
+-----+-----+
| designation | max(salary) |
+-----+-----+
| director    | 30000 |
| manager     | 27000 |
| clerk       | 15000 |
+-----+-----+
3 rows in set (0.00 sec)
```

19. Command for using group by and having clause with where clause

```
mysql> select designation,avg(salary),avg(benefits) from emp where salary>16000 group by designation having avg(benefits)>9000;
+-----+-----+
| designation | avg(salary) | avg(benefits) |
+-----+-----+
| director    | 30000.0000 | 12000.0000 |
+-----+-----+
1 row in set (0.00 sec)
```

20. Command for equijoin of two tables

```
mysql> select * from employees,emp where employees.empid=emp.empid;
+-----+-----+-----+-----+-----+-----+-----+
| empid | firstname | lastname | address      | city       | empid | salary | benefits | designation |
+-----+-----+-----+-----+-----+-----+-----+
|   10  | mary      | jones    | 83 fine street | howard    |   10  | 27000  | 10000    | manager     |
|  105  | sam       | smith    | 842 vine ave   | lostanville | 105  | 25000  | 7000     | manager     |
| 152   | george    | tones    | 33 elm st     | paris      | 152   | 30000  | 12000    | director    |
| 215   | sarah     | ackerman | 440 us 110    | los angeles| 215   | 24000  | 8000     | manager    |
| 244   | manila    | sengupta | 24 friends st  | new delhi  | 244   | 15000  | 5000     | clerk      |
+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

21. Command to retrieve data from two tables

```
mysql> select lastname,salary from employees,emp where employees.empid=emp.empid and designation='manager';
+-----+-----+
| lastname | salary |
+-----+-----+
| jones    | 27000  |
| smith    | 25000  |
| ackerman | 24000  |
+-----+-----+
3 rows in set (0.00 sec)
```

22. Command for using group by in equijoin

```
mysql> select firstname,max(salary) from employees,emp where employees.empid=emp.empid group by designation;
+-----+-----+
| firstname | max(salary) |
+-----+-----+
| mary      | 27000    |
| george    | 30000    |
| manila    | 15000    |
+-----+-----+
3 rows in set (0.00 sec)
```

23. Command for using group by and order by clause in equijoin

```
mysql> select firstname,max(salary) from employees,emp where employees.empid=emp.empid group by designation order by max(salary);
+-----+-----+
| firstname | max(salary) |
+-----+-----+
| monila   |      15000 |
| mary     |      27000 |
| george   |      30000 |
+-----+-----+
3 rows in set (0.00 sec)
```

24. Command for using where clause and group by

```
mysql> select designation,salary from emp where salary<16000;
+-----+-----+
| designation | salary |
+-----+-----+
| clerk      |    15000 |
+-----+-----+
1 row in set (0.00 sec)
```

25. Command for adding primary key

```
mysql> alter table employees add primary key(empid);
Query OK, 0 rows affected (0.22 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

26. Command to remove primary key

```
mysql> alter table employees drop primary key;
Query OK, 5 rows affected (0.10 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

27. Command delete a column

```
mysql> alter table employees drop city;
Query OK, 0 rows affected (0.23 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

28. Command to increase salary

```
mysql> update emp set salary=salary+500;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 0
```

29. Command for deleting a table

```
mysql> drop table employees;  
Query OK, 0 rows affected (0.03 sec)
```

30. Command for deleting database

```
mysql> drop database company;  
Query OK, 1 row affected (0.05 sec)  
  
mysql> -
```