



# Python Practical File



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Class: XII - 'A'

Roll no: 18

## PYTHON

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## DJANGO AND DATA STRUCTURE

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## **\*\*CHAPTER-1 and 2\*\***

**#WAP THAT CHECK STRING IS PALINDROME OR NOT.**

### **CODE**

```
a=input("enter a string:")
b=reversed(a)
if list(a) == list(b) :
    print("This is a palindrome")
else:
    print("This is not a palindrome")
```

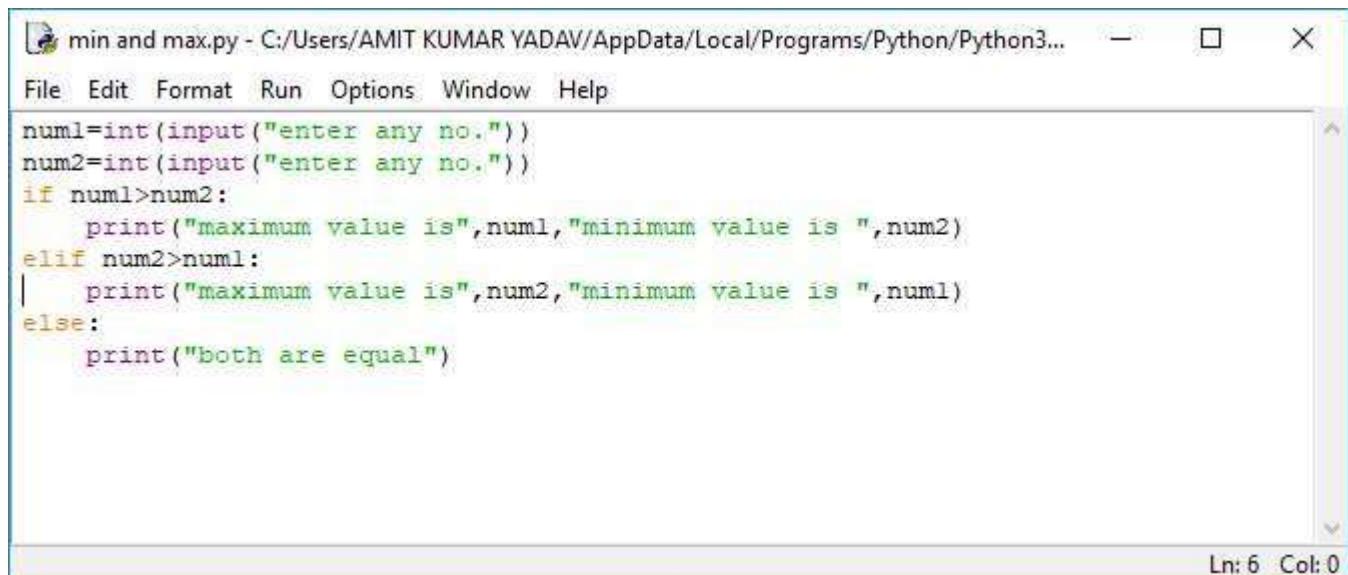
### **OUTPUT**

```
/data/user/0/org.qpython.qpy3/files/bin-android5.sh "/storage/emulated/0/qpython/.last_tmp.py" && exit
ulated/0/qpython/.last_tmp.py" && exit
enter a string:"betteb"
This is a palindrome

#[QPython] Press enter to exit
```

## #WAP TO DISPLAY MAX AND MIN VALUE.

### Code:

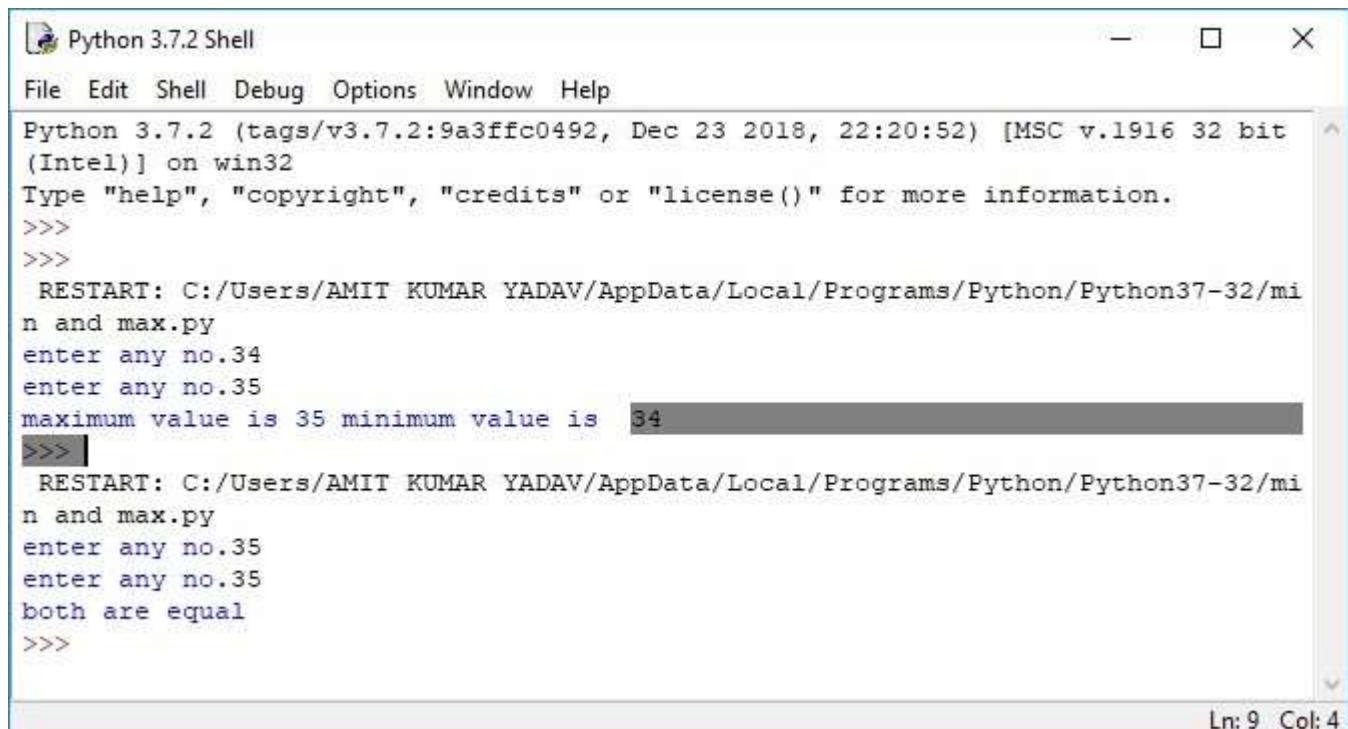


The screenshot shows a window titled "min and max.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python3...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code area contains the following Python script:

```
num1=int(input("enter any no."))
num2=int(input("enter any no."))
if num1>num2:
    print("maximum value is",num1,"minimum value is ",num2)
elif num2>num1:
    print("maximum value is",num2,"minimum value is ",num1)
else:
    print("both are equal")
```

The status bar at the bottom right indicates "Ln: 6 Col: 0".

### Output:



The screenshot shows a window titled "Python 3.7.2 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell displays the Python version and build information, followed by a prompt for help. The user then runs the script "min and max.py" and enters two values, 34 and 35. The output shows the maximum and minimum values printed to the console.

```
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/mi
n and max.py
enter any no.34
enter any no.35
maximum value is 35 minimum value is 34
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/mi
n and max.py
enter any no.35
enter any no.35
both are equal
>>>
```

The status bar at the bottom right indicates "Ln: 9 Col: 4".

## #WAP TO INTERCHANGE TUPLE AND COMPARE THEM

### CODE:

```
t1=(10,102,348,43)
t2=(746,7346,6789,63764)
t1,t2=t2,t1
if t1>t2:
    print("first tuple",t1,"is greater tuple")
else:
    print("second tuple",t2,"is greater tuple")
```

Ln: 8 Col: 0

### Output:

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [M
SC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more inf
ormation.
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Pyth
on/Python37-32/tuple.py
first tuple (746, 7346, 6789, 63764) is greater tuple
>>> |
```

Ln: 6 Col: 4

## # WAP TO CHECK RESULT OF STUDENT AND GET OUTPUT AS:

```
Marskheet of Student
Enter NameABHISHEK
Enter Roll Nol
Year=2017-18
Board- Central Board of Secondary Education
Enter English marks78
Enter Maths marks90
Enter Hindi marks79
Enter Social Science marks75
Enter Science marks88
total 410
Your grade is A1
Percentage 82.0
RESULT- PASS
Congratulations. Promoted to Senior Secondary.
>>> |
```

## PROGRAM:

The screenshot shows a window titled "RESULT.py - C:/Users/Ankush/AppData/Local/Programs/Python/Python37-32/RESULT.py (3.7...)" with a standard Windows-style title bar. Below the title bar is a menu bar with options: File, Edit, Format, Run, Options, Window, Help. The main area of the window contains the following Python code:

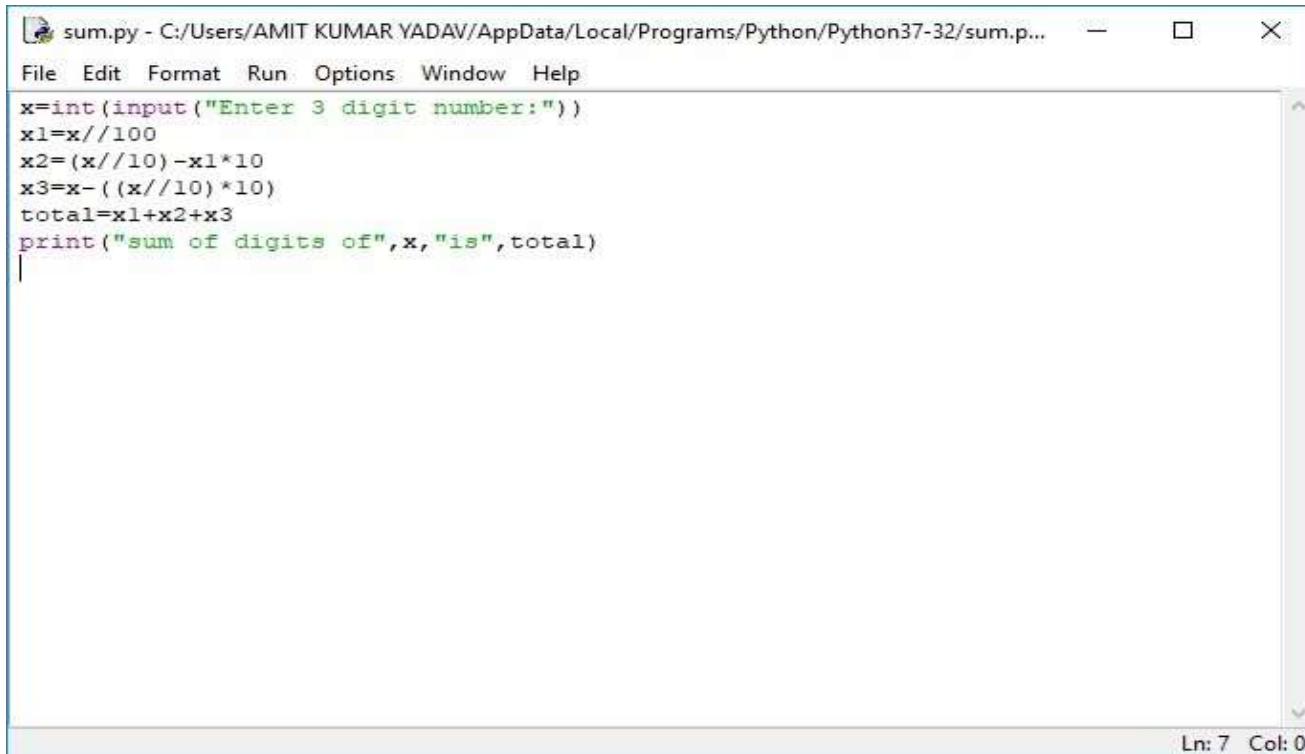
```
print("Marskheet of Student")
Name=()
Name=input("Enter Name")
Roll_Number=()
Roll_Number=input("Enter Roll No")
print("Year=2017-18")
print("Board- Central Board of Secondary Education")
Sub1=int(input("Enter English marks"))
Sub2=int(input("Enter Maths marks"))
Sub3=int(input("Enter Hindi marks"))
Sub4=int(input("Enter Social Science marks"))
Sub5=int(input("Enter Science marks"))
total=(Sub1+Sub2+Sub3+Sub4+Sub5)
print("total", total)
avg=(Sub1+Sub2+Sub3+Sub4+Sub5/5)
if avg>90: print("Your grade is A1")
elif avg>80: print("Your grade is A2")
elif avg>70: print("Your grade is B1")
elif avg>60: print("Your grade is B2")
else: print("Your grade is E")
Percentage=(total/500*100)
print("Percentage", Percentage)
if avg<60:
    print("RESULT- FAIL")
else:
    print("RESULT- PASS")
print("Congratulations. Promoted to Senior Secondary.")
```

The code is a script named "RESULT.py" that prompts the user for their name, roll number, and five subject marks. It calculates the total marks, average, and percentage. It then prints the total, average, and percentage, and determines the grade based on the average. Finally, it prints a message indicating whether the student has failed or passed and whether they have been promoted to senior secondary.

Ln: 36 Col: 0

# # WAP TO FIND THE SUM OF DIGITS OF A 3 DIGIT NUMBER.

## CODE:

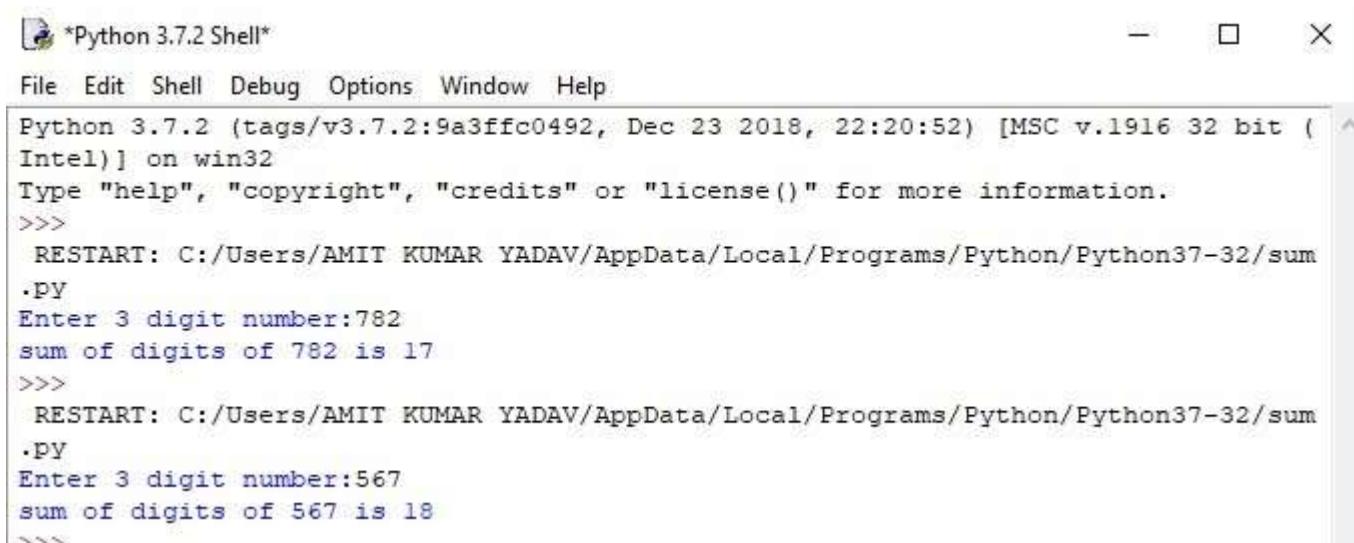


The screenshot shows a window titled "sum.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sum.p...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code area contains the following Python script:

```
x=int(input("Enter 3 digit number:"))
x1=x//100
x2=(x//10)-x1*10
x3=x-((x//10)*10)
total=x1+x2+x3
print("sum of digits of",x,"is",total)
```

The status bar at the bottom right indicates "Ln: 7 Col: 0".

## OUTPUT:

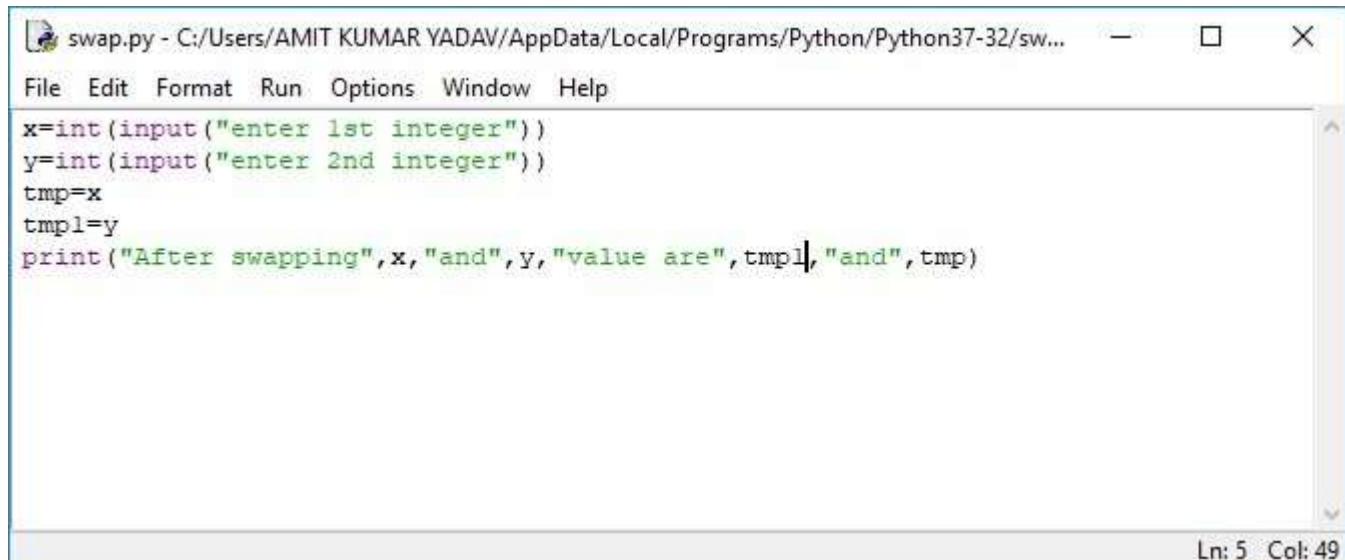


The screenshot shows a window titled "\*Python 3.7.2 Shell\*". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The Python version information is displayed: "Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit (Intel)] on win32". The shell prompt shows the following interaction:

```
Type "help", "copyright", "credits" or "license()" for more information.
>>> RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sum.py
Enter 3 digit number:782
sum of digits of 782 is 17
>>> RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sum.py
Enter 3 digit number:567
sum of digits of 567 is 18
>>>
```

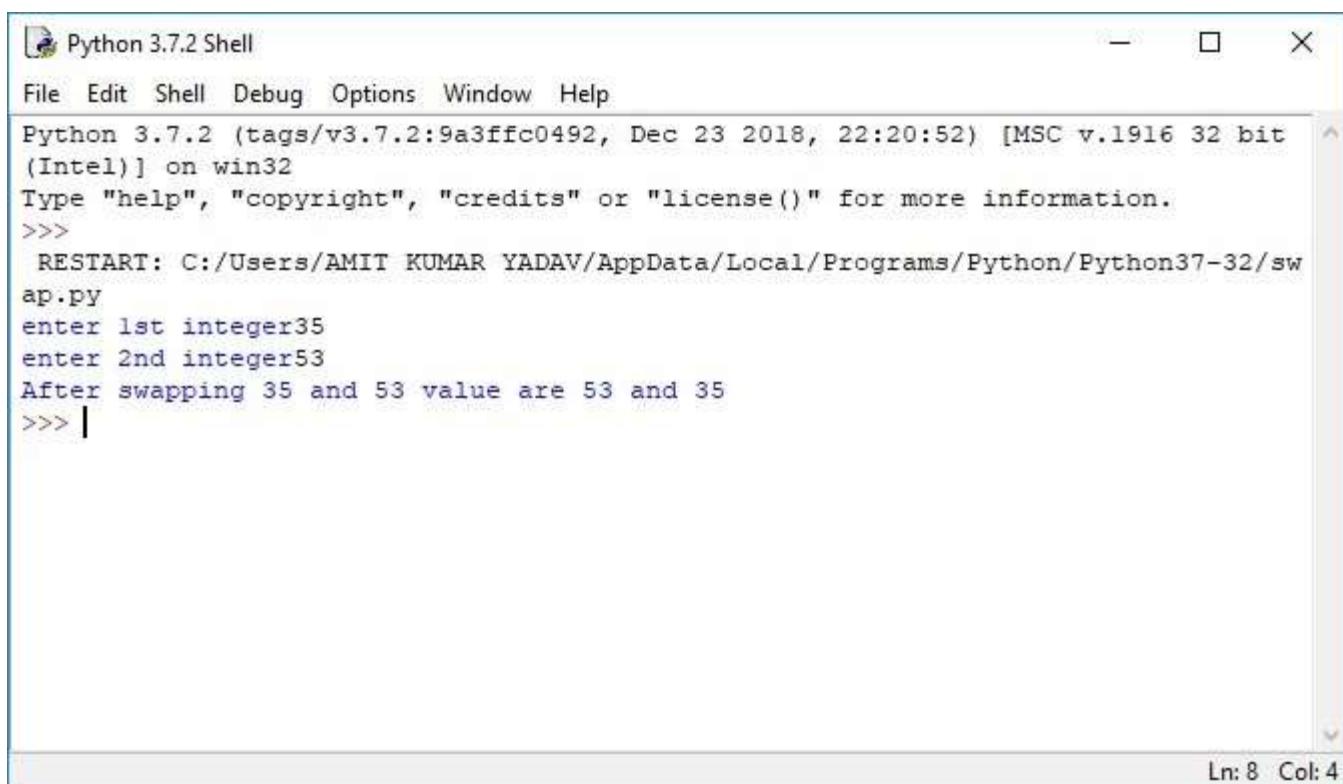
# # SWAPPING PROGRAM

## Code:



```
swap.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sw... ━ ━ X
File Edit Format Run Options Window Help
x=int(input("enter 1st integer"))
y=int(input("enter 2nd integer"))
tmp=x
tmp1=y
print("After swapping",x,"and",y,"value are",tmp1,"and",tmp)
Ln: 5 Col: 49
```

## Output:



```
Python 3.7.2 Shell ━ ━ X
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sw
ap.py
enter 1st integer35
enter 2nd integer53
After swapping 35 and 53 value are 53 and 35
>>> |
Ln: 8 Col: 4
```

## # WAP TO CALCULATE THE BMI

### CODE:

```
bmi.py - C:/Users/Ankush/AppData/Local/Programs/Python/Python37-32/bmi.py
File Edit Format Run Options Window Help
h=float(input("Enter height in metres(in decimals):"))
w=int(input("Enter weight in kgs:"))
bmi=w/(h*h)
print("The bmi is ",bmi)
print("less than 19 = underweight")
print(" 19-25 = normal weight")
print(" more than 25 = overweight")
```

### OUTPUT:

```
--> Enter height in metres(in decimals):1.7
Enter weight in kgs:55
The bmi is  19.031141868512112
less than 19 = underweight
 19-25 = normal weight
 more than 25 = overweight
~~~ |
```

**# WRITE A PYTHON PROGRAM TO MAKE A 1 DIGIT NO. INTO 3 DIGIT NO. AND TAKE ITS SUCCEEDING AND PRECEDING DIGIT AS ONES AND HUNDREDS PLACE.**

## Code:

---



\*HH.py - C:/Users/Ankush/AppData/Local/Programs

```
File Edit Format Run Options Window Help
n=int(input("Enter 1 digit number:"))
n1=n+1
n2=n-1
x=n*100+(n1)*10)+n2
print("3 digit number is",x)
```

## OUTPUT:

---



Python 3.7.4 Shell

```
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, (Intel) on win32
Type "help", "copyright", "credits" or
>>>
== RESTART: C:/Users/Ankush/AppData/L
Enter 1 digit number:1
3 digit number is 120
>>> |
```

## #WAP TO DETERMINE A LEAP YEAR

### CODE:

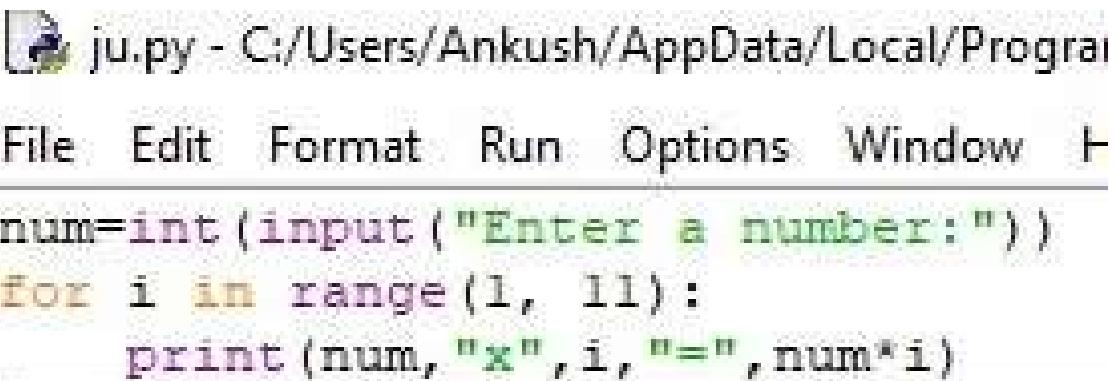
```
HH.py - C:/Users/Ankush/AppData/Local/Programs/Python/Python37-3  
File Edit Format Run Options Window Help  
year=int(input("Enter year to be checked:"))  
if(year%4==0 and year%100!=0 or year%400==0):  
    print("The year is a leap year!")  
else:  
    print("The year isn't a leap year!")  
|
```

### OUTPUT:

```
Enter year to be checked:2002  
The year isn't a leap year!  
>>>  
== RESTART: C:/Users/Ankush/Api  
>>>  
Enter year to be checked:2004  
The year is a leap year!  
|
```

## #WAP TO PRINT THE TABLE OF ANY NUMBER

Code:



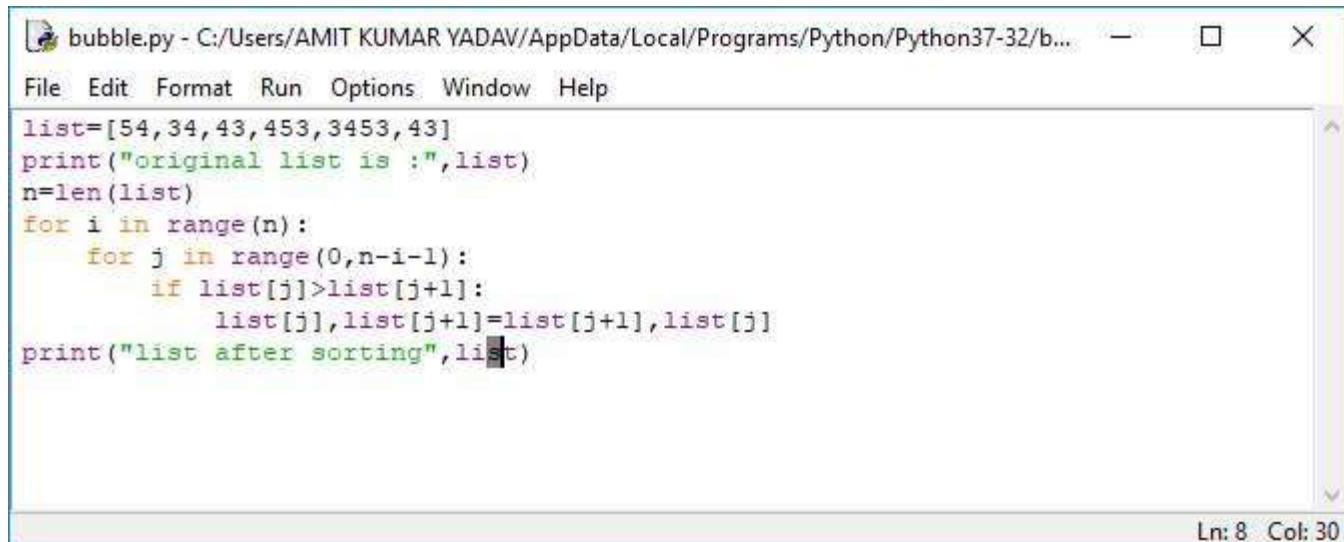
```
ju.py - C:/Users/Ankush/AppData/Local/Programs/Python/Python37-32/python.exe ju.py
File Edit Format Run Options Window Help
num=int(input("Enter a number:"))
for i in range(1, 11):
    print(num,"x",i,"=",num*i)
```

Output:

```
ju.py - C:/Users/Ankush/AppData/Local/Programs/Python/Python37-32/python.exe ju.py
Enter a number:12
12 x 1 = 12
12 x 2 = 24
12 x 3 = 36
12 x 4 = 48
12 x 5 = 60
12 x 6 = 72
12 x 7 = 84
12 x 8 = 96
12 x 9 = 108
12 x 10 = 120
```

## # WAP TO SORT A LIST USING BUBBLE SORT.

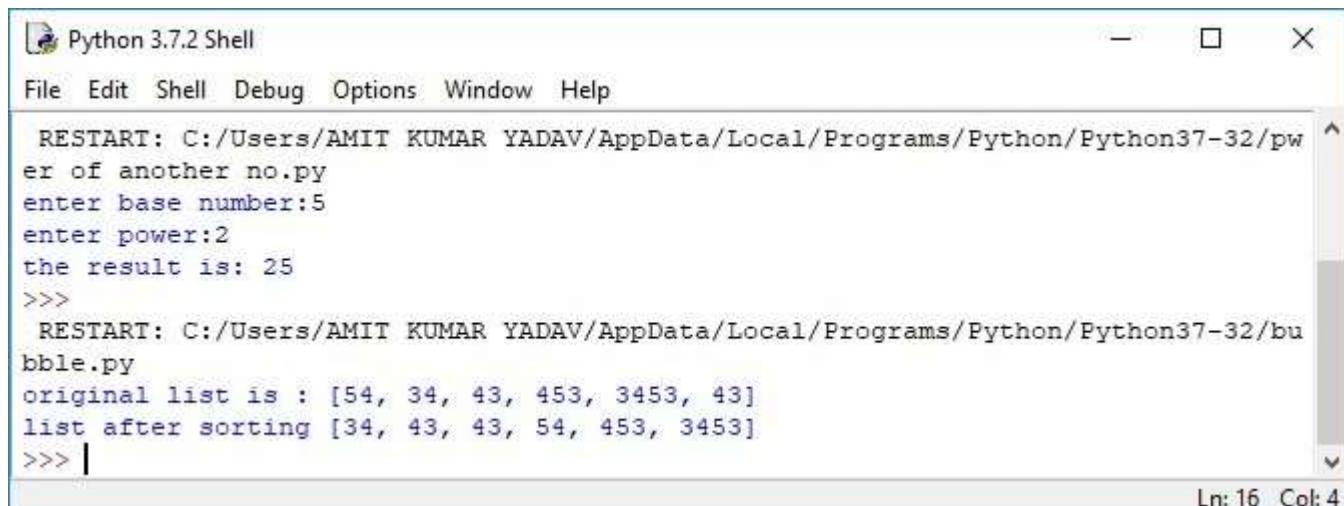
### CODE:



```
bubble.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/b...
File Edit Format Run Options Window Help
list=[54,34,43,453,3453,43]
print("original list is :",list)
n=len(list)
for i in range(n):
    for j in range(0,n-i-1):
        if list[j]>list[j+1]:
            list[j],list[j+1]=list[j+1],list[j]
print("list after sorting",list)

Ln: 8 Col: 30
```

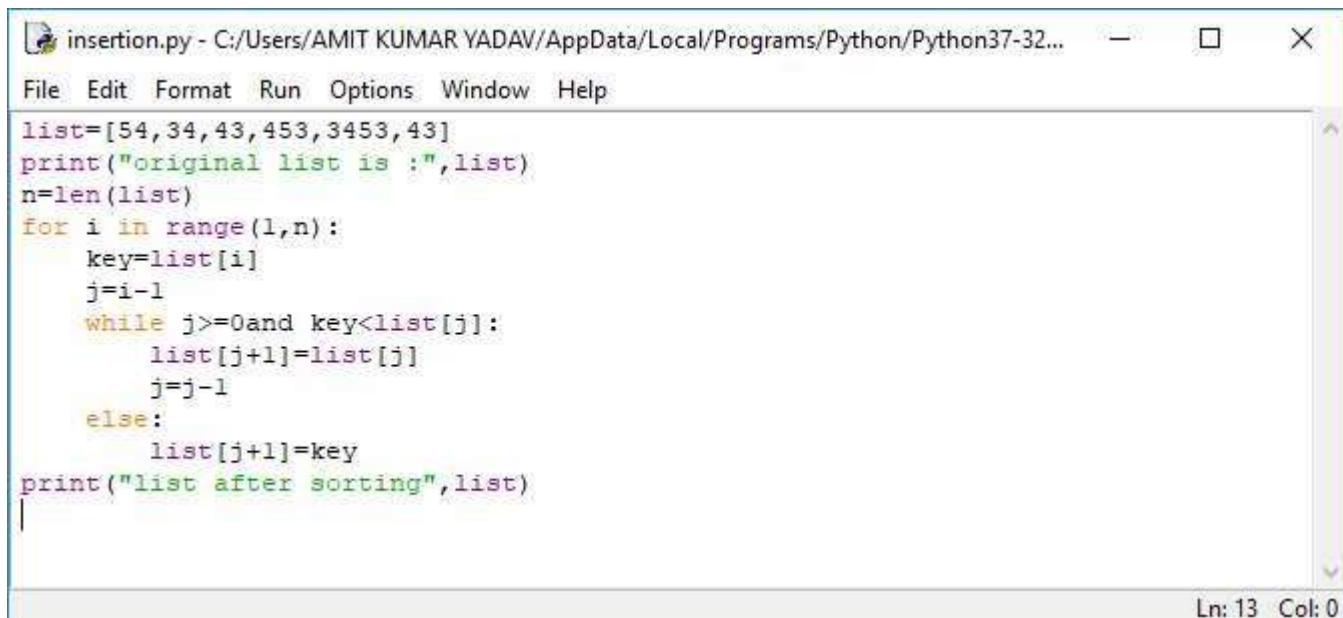
### OUTPUT:



```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/pw
er of another no.py
enter base number:5
enter power:2
the result is: 25
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/bu
bble.py
original list is : [54, 34, 43, 453, 3453, 43]
list after sorting [34, 43, 43, 54, 453, 3453]
>>> |
```

## # WAP TO SORT A LIST USING INSERTION SORT.

### Code:

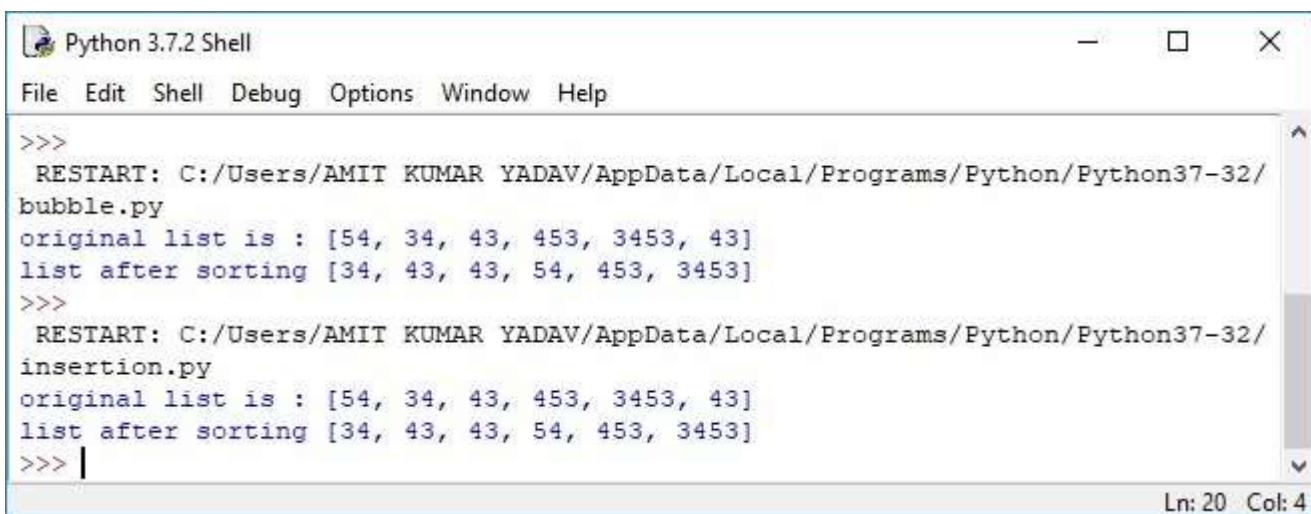


A screenshot of a Windows-style code editor window titled "insertion.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code in the editor is as follows:

```
list=[54,34,43,453,3453,43]
print("original list is :",list)
n=len(list)
for i in range(1,n):
    key=list[i]
    j=i-1
    while j>=0and key<list[j]:
        list[j+1]=list[j]
        j=j-1
    else:
        list[j+1]=key
print("list after sorting",list)
```

The status bar at the bottom right shows "Ln: 13 Col: 0".

### Output:



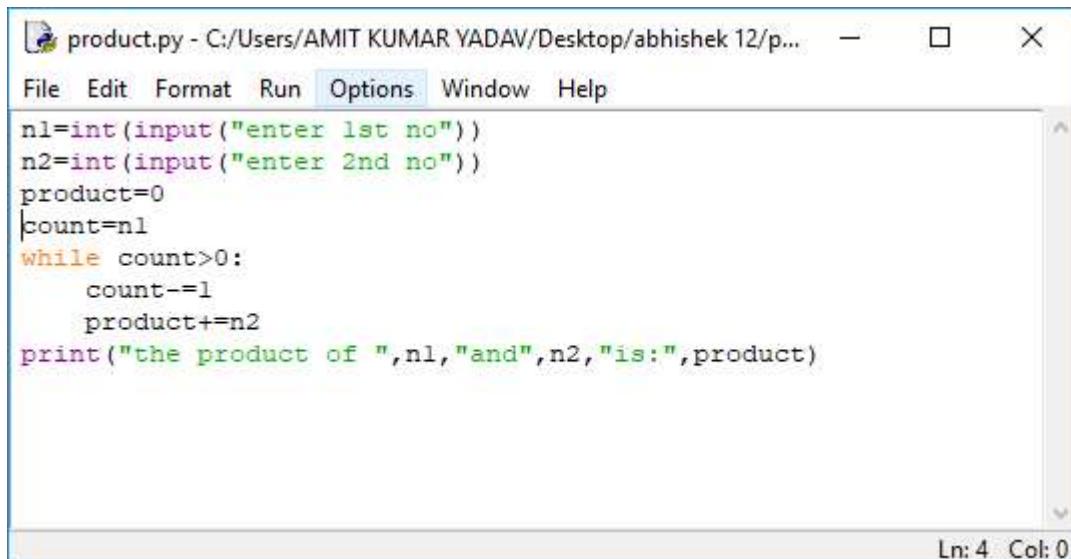
A screenshot of a Windows-style terminal window titled "Python 3.7.2 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The session starts with ">>>" and shows two runs of the program:

```
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/
bubble.py
original list is : [54, 34, 43, 453, 3453, 43]
list after sorting [34, 43, 43, 54, 453, 3453]
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/
insertion.py
original list is : [54, 34, 43, 453, 3453, 43]
list after sorting [34, 43, 43, 54, 453, 3453]
>>> |
```

The status bar at the bottom right shows "Ln: 20 Col: 4".

# wap to multiply two no using repeated addition method.

Code:

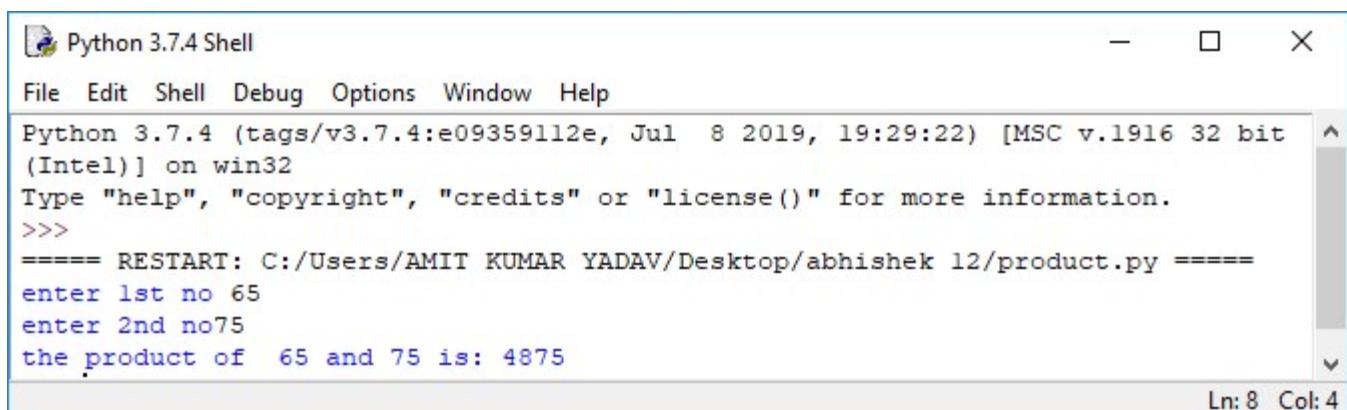


A screenshot of a Windows-style application window titled "product.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/p...". The window contains a menu bar with File, Edit, Format, Run, Options, Window, and Help. The main area displays the following Python code:

```
n1=int(input("enter 1st no"))
n2=int(input("enter 2nd no"))
product=0
count=n1
while count>0:
    count-=1
    product+=n2
print("the product of ",n1,"and",n2,"is:",product)
```

The status bar at the bottom right shows "Ln: 4 Col: 0".

Output:



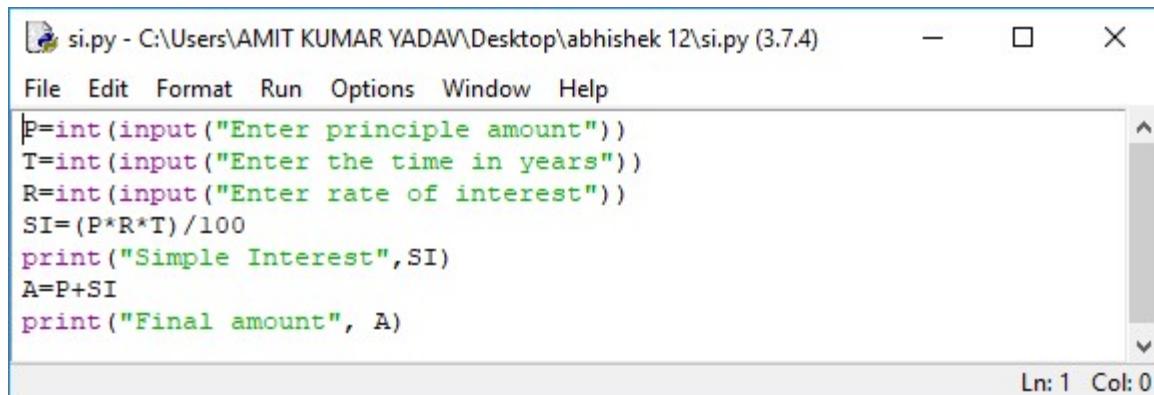
A screenshot of a "Python 3.7.4 Shell" window. The window title is "Python 3.7.4 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell displays the Python version information and a welcome message. It then shows the execution of the script "product.py" with user input and the resulting output:

```
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/product.py =====
enter 1st no 65
enter 2nd no75
the product of  65 and 75 is: 4875
```

The status bar at the bottom right shows "Ln: 8 Col: 4".

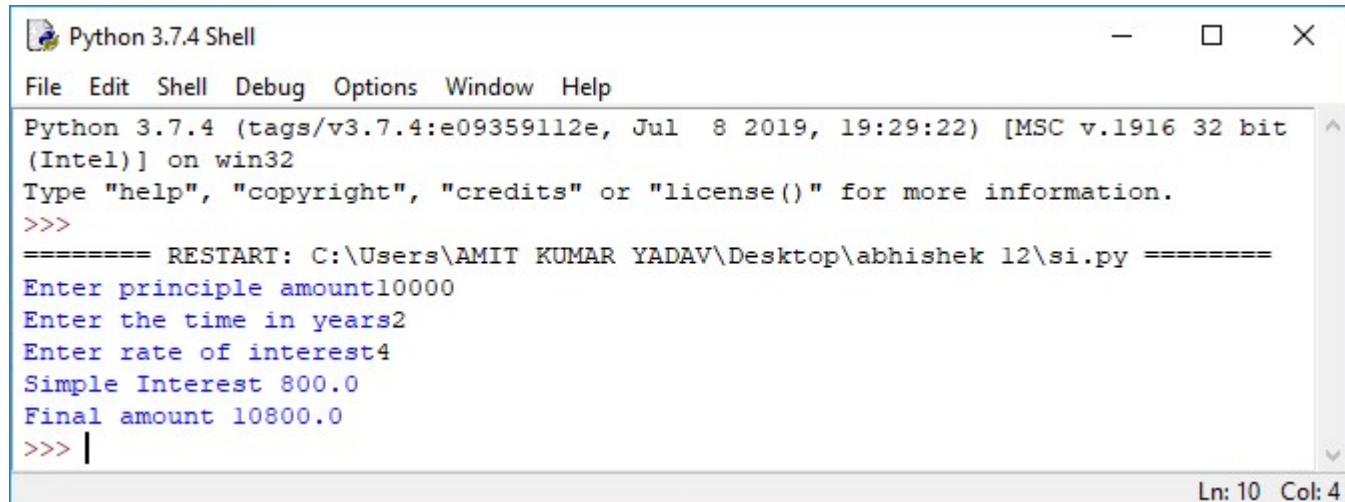
# wap to calculate simple interest.

Code:



```
si.py - C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\si.py (3.7.4)
File Edit Format Run Options Window Help
P=int(input("Enter principle amount"))
T=int(input("Enter the time in years"))
R=int(input("Enter rate of interest"))
SI=(P*R*T)/100
print("Simple Interest",SI)
A=P+SI
print("Final amount", A)
Ln: 1 Col: 0
```

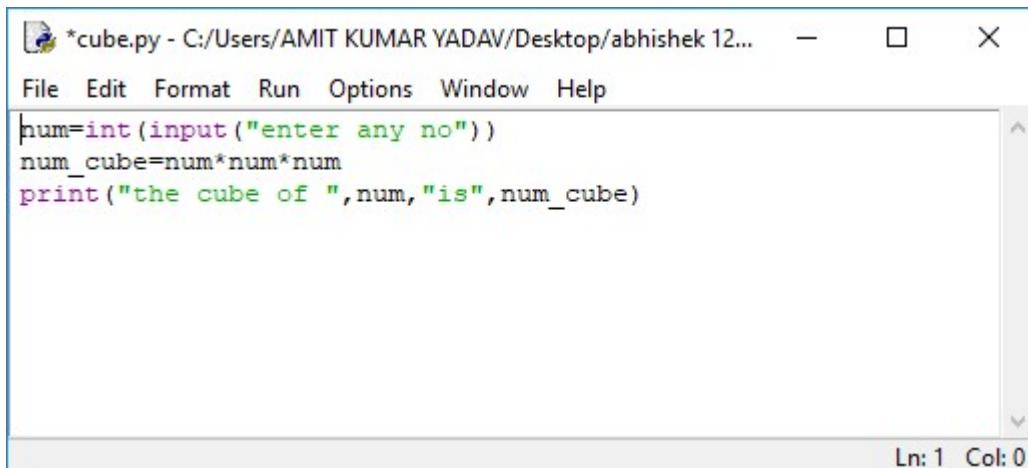
Output:



```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\si.py ======
Enter principle amount10000
Enter the time in years2
Enter rate of interest4
Simple Interest 800.0
Final amount 10800.0
>>> |
Ln: 10 Col: 4
```

# wap to print cube of a number.

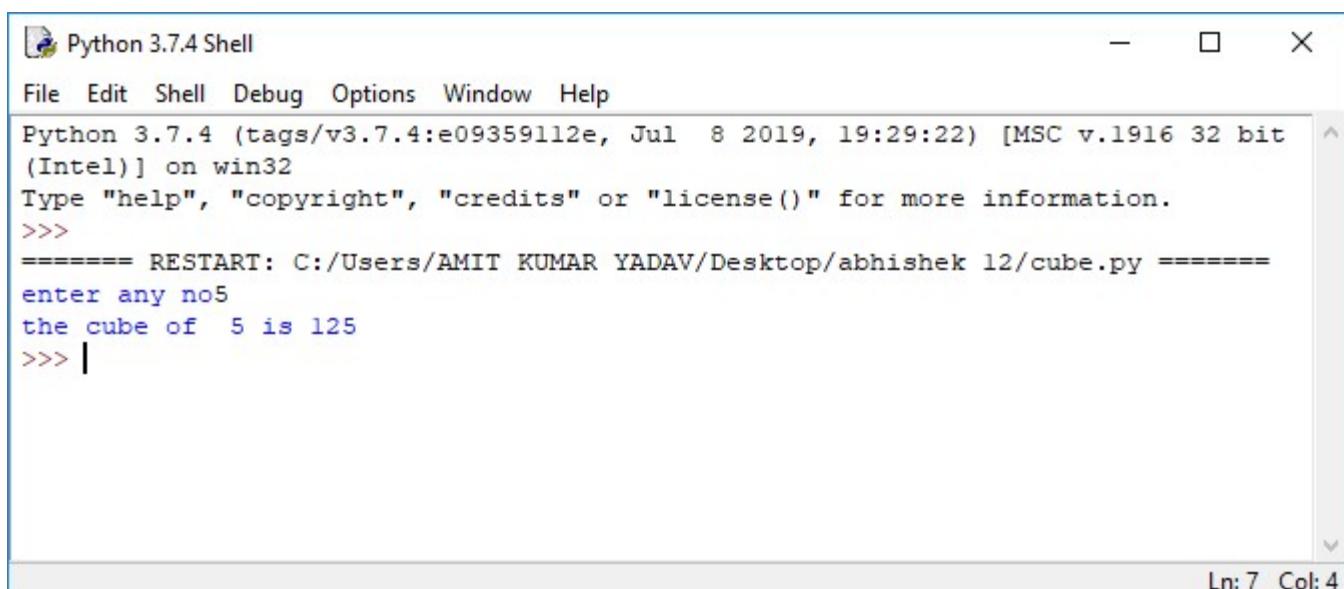
Code:



```
*cube.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12... — X
File Edit Format Run Options Window Help
num=int(input("enter any no"))
num_cube=num*num*num
print("the cube of ",num,"is",num_cube)

Ln: 1 Col: 0
```

Output:



```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/cube.py ======
enter any no5
the cube of  5 is 125
>>> |
```

# wap to print given no is + ve or - ve.

Code:

The screenshot shows a code editor window titled "neg or pos.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek...". The code is as follows:

```
num=int(input("enter any no"))
if num>0:
    print("it is +ve no")
else:
    print("it is -ve no")
```

The status bar at the bottom right indicates "Ln: 7 Col: 0".

Output:

The screenshot shows the Python 3.7.4 Shell window. The session starts with the Python interpreter's prompt and information about the version and build date. It then runs the script "neg or pos.py" twice, each time prompting for input and printing the result.

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/neg or pos.py =====
enter any no46
it is +ve no
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/neg or pos.py =====
enter any no33
it is +ve no
>>> |
```

The status bar at the bottom right indicates "Ln: 11 Col: 4".

# wap to read a line and print its statistics.

## Code:

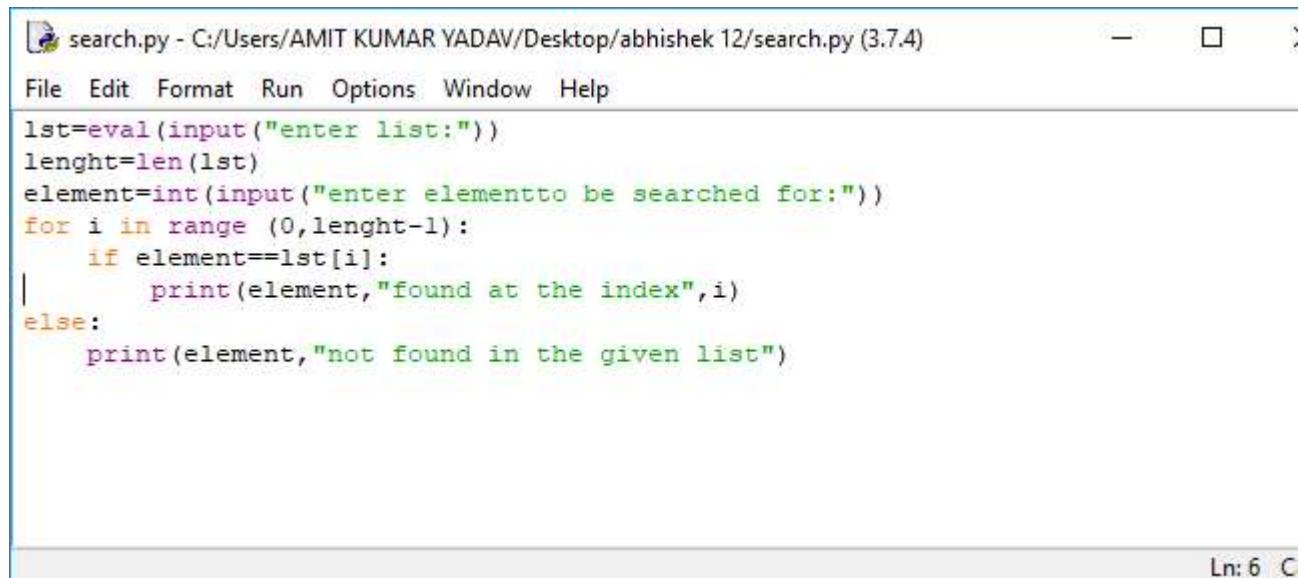
```
statistics.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/statistics.py (3.7.4)
File Edit Format Run Options Window Help
line=input("enter a line:")
lcoutn=ucount=dcount=alphacount=0
for a in line:
    if a.islower():
        lcoutn+=1
    elif a.isupper():
        ucount+=1
    elif a.isdigit():
        dcount+=1
    elif a.isalpha():
        alpha+=1
print("nu of lowercase charcter:",lcoutn)
print("nu of uppercase charcter:",ucount)
print("nu of digit:",dcount)
print("nu of alphabets:",alphacount)
```

## Output:

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/statistics.py ====
enter a line:Hellow World 44
nu of lowercase charcter: 9
nu of uppercase charcter: 2
nu of digit: 2
nu of alphabets: 0
>>> |
```

## # wap to search an element in a list

### Code:

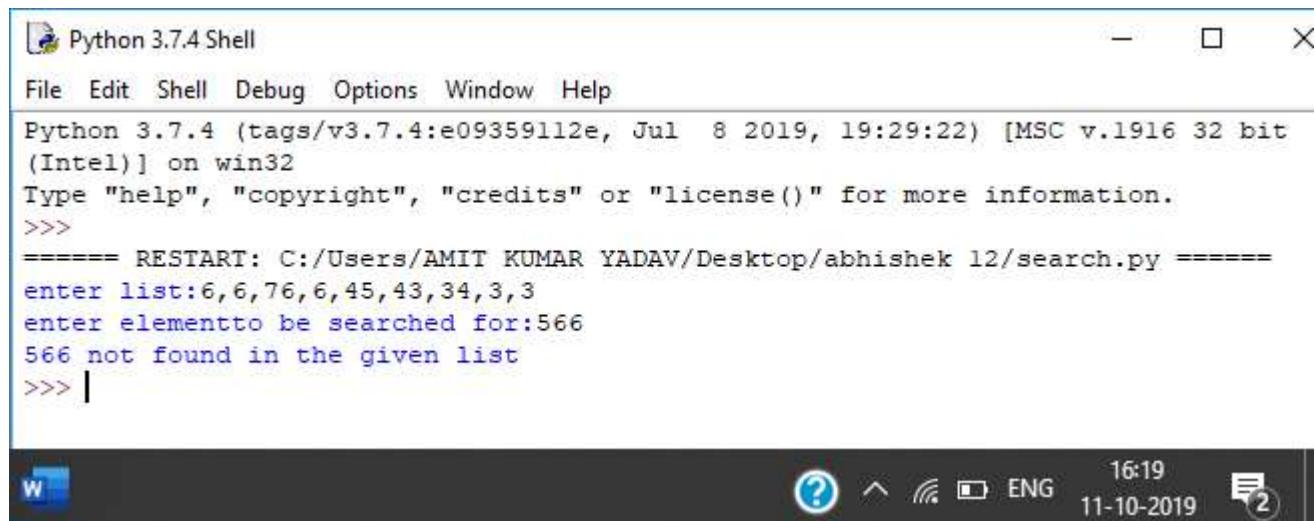


search.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/search.py (3.7.4)

```
File Edit Format Run Options Window Help
lst=eval(input("enter list:"))
length=len(lst)
element=int(input("enter element to be searched for:"))
for i in range (0,length-1):
    if element==lst[i]:
        print(element,"found at the index",i)
else:
    print(element,"not found in the given list")
```

Ln: 6 C

### Output:



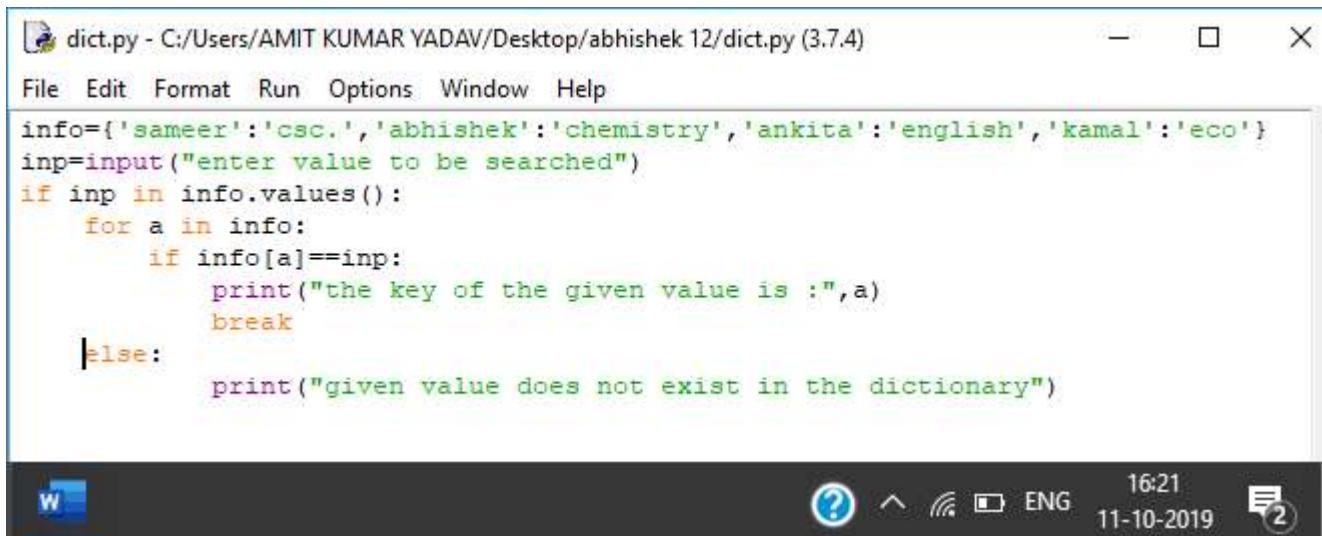
Python 3.7.4 Shell

```
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/search.py =====
enter list:6,6,76,6,45,43,34,3,3
enter element to be searched for:566
566 not found in the given list
>>> |
```

W 16:19 11-10-2019

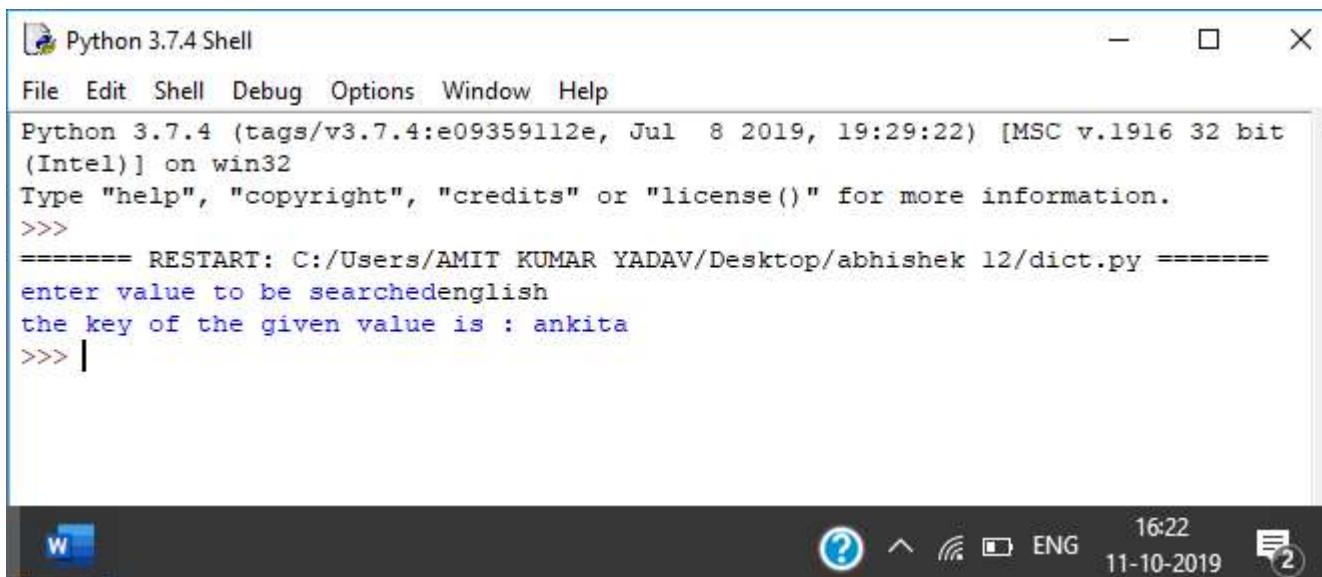
# wap to check the presence of value inside the dictionary

Code:



```
dict.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/dict.py (3.7.4)
File Edit Format Run Options Window Help
info={'sameer':'csc','abhishek':'chemistry','ankita':'english','kamal':'eco'}
inp=input("enter value to be searched")
if inp in info.values():
    for a in info:
        if info[a]==inp:
            print("the key of the given value is :",a)
            break
else:
    print("given value does not exist in the dictionary")
```

Output:

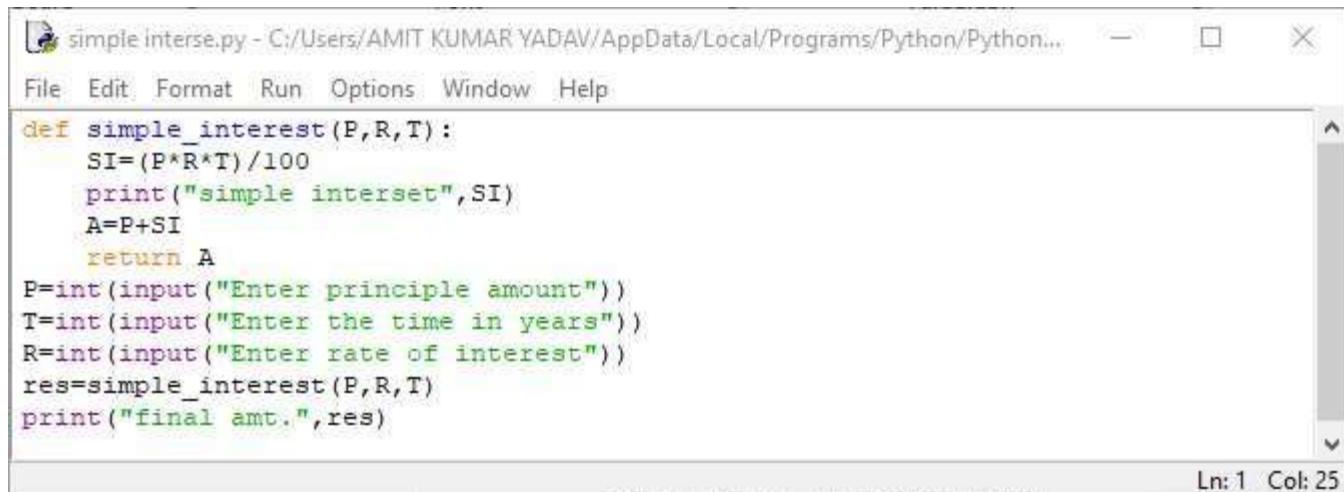


```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/dict.py ======
enter value to be searchedenglish
the key of the given value is : ankita
>>> |
```

## **\*\* CHAPTER-3\*\***

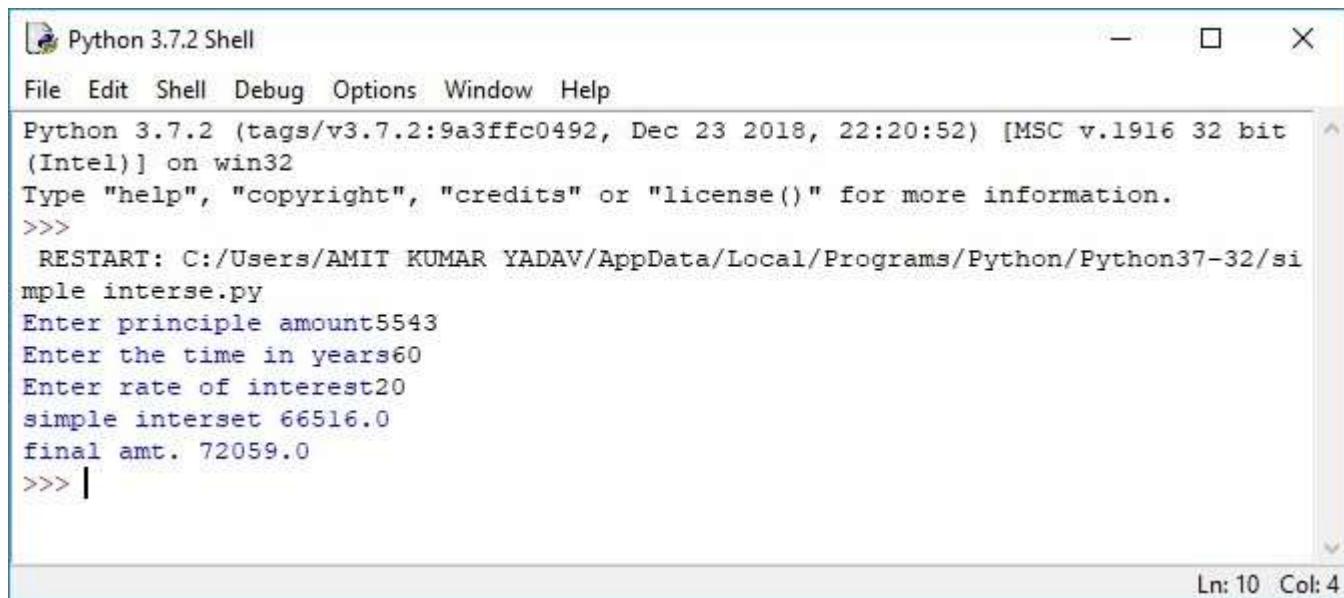
### **# WAP TO CALCULATE SIMPLE INTEREST BY FUNTION**

#### **CODE:**



```
simple_interse.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python... ━ □ ×
File Edit Format Run Options Window Help
def simple_interest(P,R,T):
    SI=(P*R*T)/100
    print("simple interset",SI)
    A=P+SI
    return A
P=int(input("Enter principle amount"))
T=int(input("Enter the time in years"))
R=int(input("Enter rate of interest"))
res=simple_interest(P,R,T)
print("final amt.",res)
Ln: 1 Col: 25
```

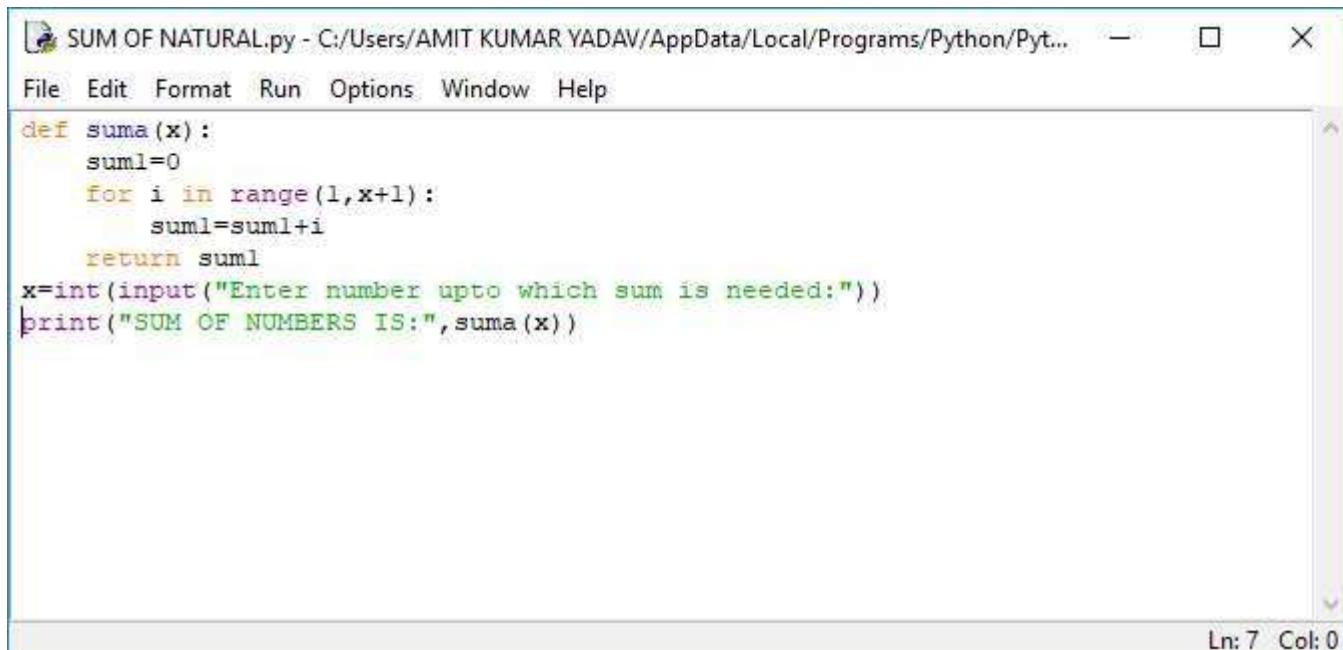
#### **OUTPUT:**



```
Python 3.7.2 Shell ━ □ ×
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/si
mple_interse.py
Enter principle amount5543
Enter the time in years60
Enter rate of interest20
simple interset 66516.0
final amt. 72059.0
>>> |
Ln: 10 Col: 4
```

## #FUNCTION TO PRINT A SUM OF NATURAL NUMBERS

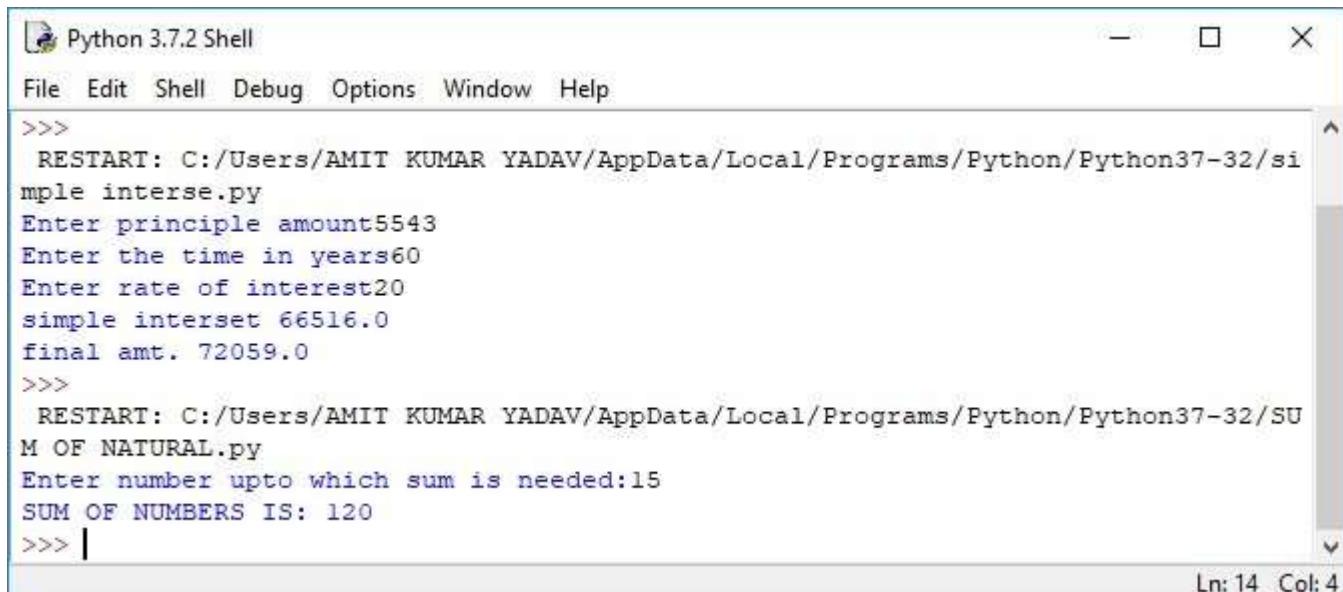
### Code:



```
SUM OF NATURAL.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Pyt... ━ ━ X
File Edit Format Run Options Window Help
def suma(x):
    suml=0
    for i in range(1,x+1):
        suml=suml+i
    return suml
x=int(input("Enter number upto which sum is needed:"))
print("SUM OF NUMBERS IS:",suma(x))

Ln: 7 Col: 0
```

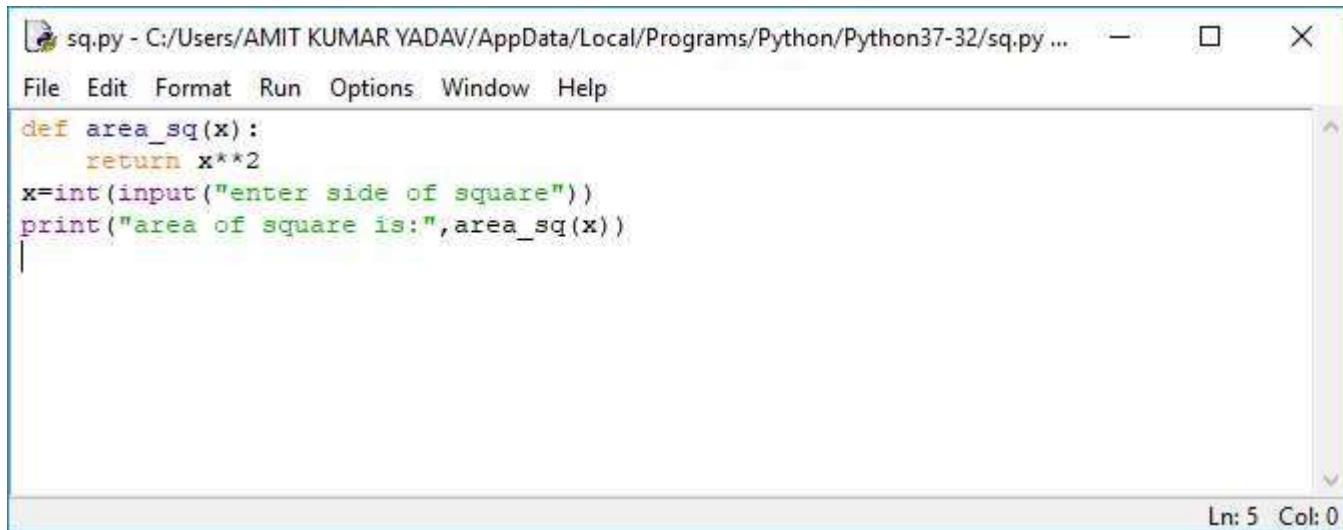
### Output:



```
Python 3.7.2 Shell ━ ━ X
File Edit Shell Debug Options Window Help
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/simple interest.py
Enter principle amount5543
Enter the time in years60
Enter rate of interest20
simple interest 66516.0
final amt. 72059.0
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/SUM OF NATURAL.py
Enter number upto which sum is needed:15
SUM OF NUMBERS IS: 120
>>> |
Ln: 14 Col: 4
```

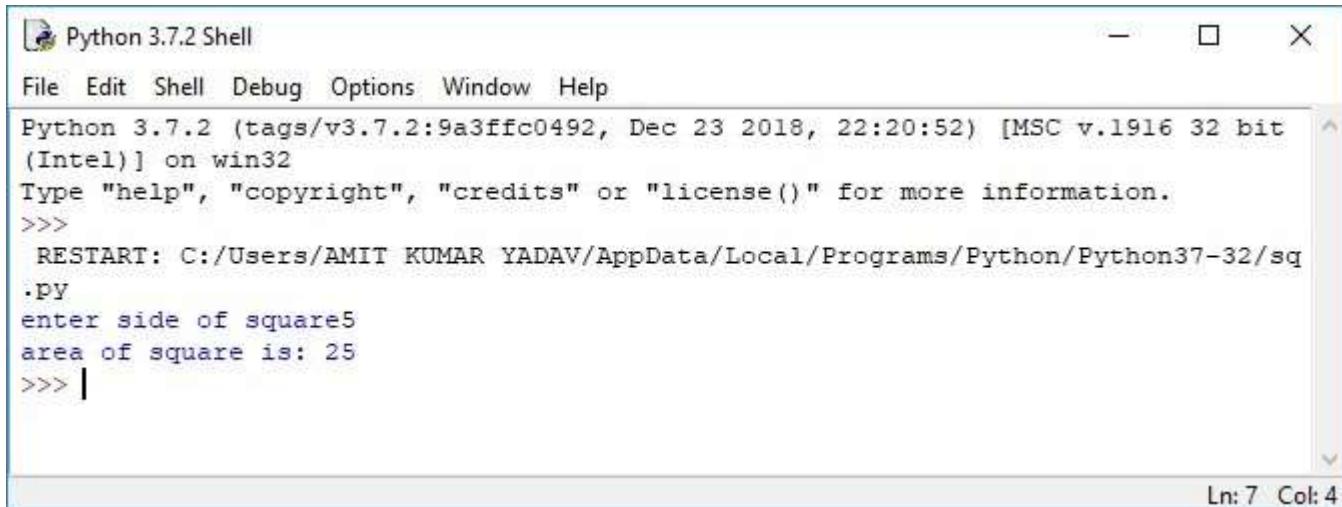
## # FUNCTION TO CALCULATE AREA OF SQUARE

### Code:



```
sq.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sq.py ...
File Edit Format Run Options Window Help
def area_sq(x):
    return x**2
x=int(input("enter side of square"))
print("area of square is:",area_sq(x))
|
Ln: 5 Col: 0
```

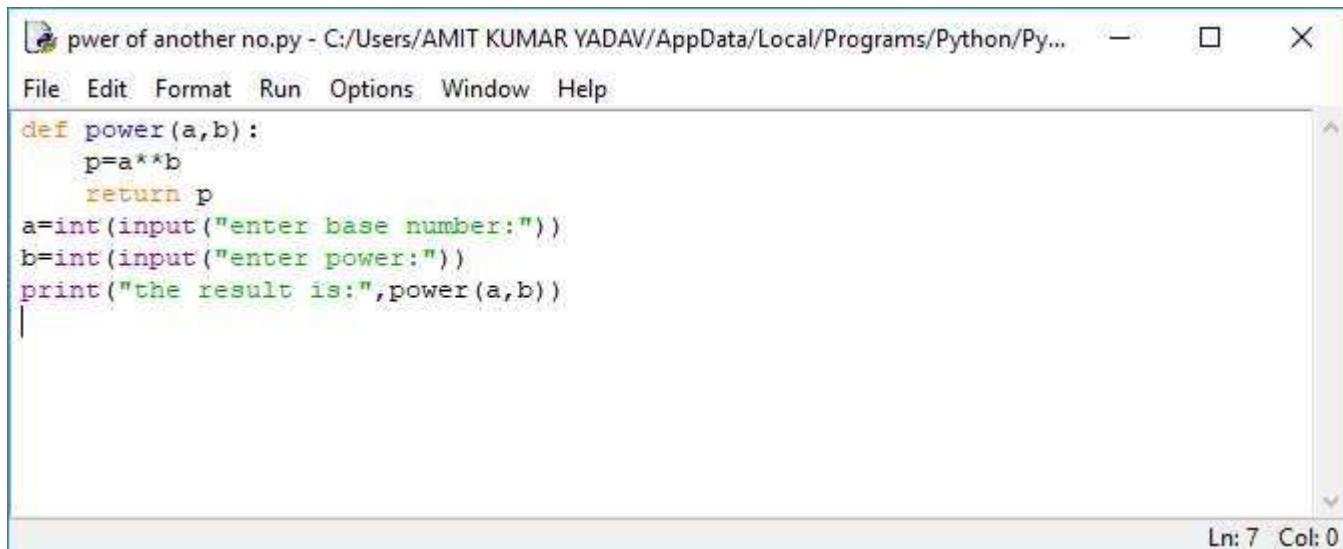
### Output:



```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sq
.PY
enter side of square5
area of square is: 25
>>> |
|
Ln: 7 Col: 4
```

# # FUNCTION TO CALCULATE EXPONENTIAL POWER

## Code:

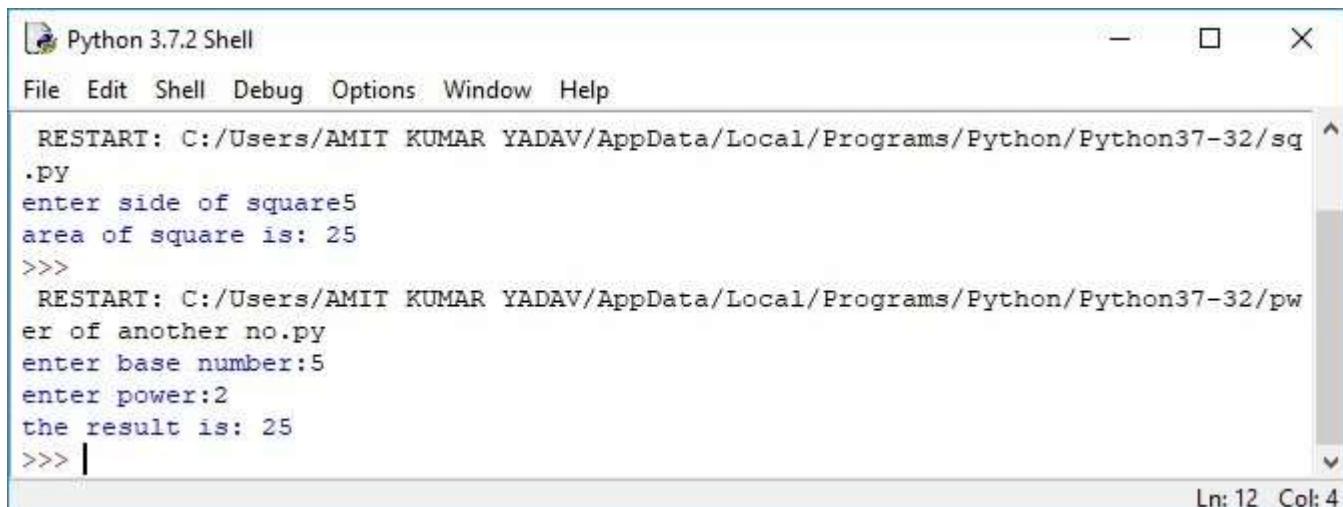


The screenshot shows a Python code editor window titled "pwer of another no.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Py...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code in the editor is as follows:

```
def power(a,b):
    p=a**b
    return p
a=int(input("enter base number:"))
b=int(input("enter power:"))
print("the result is:",power(a,b))
```

Ln: 7 Col: 0

## Output:



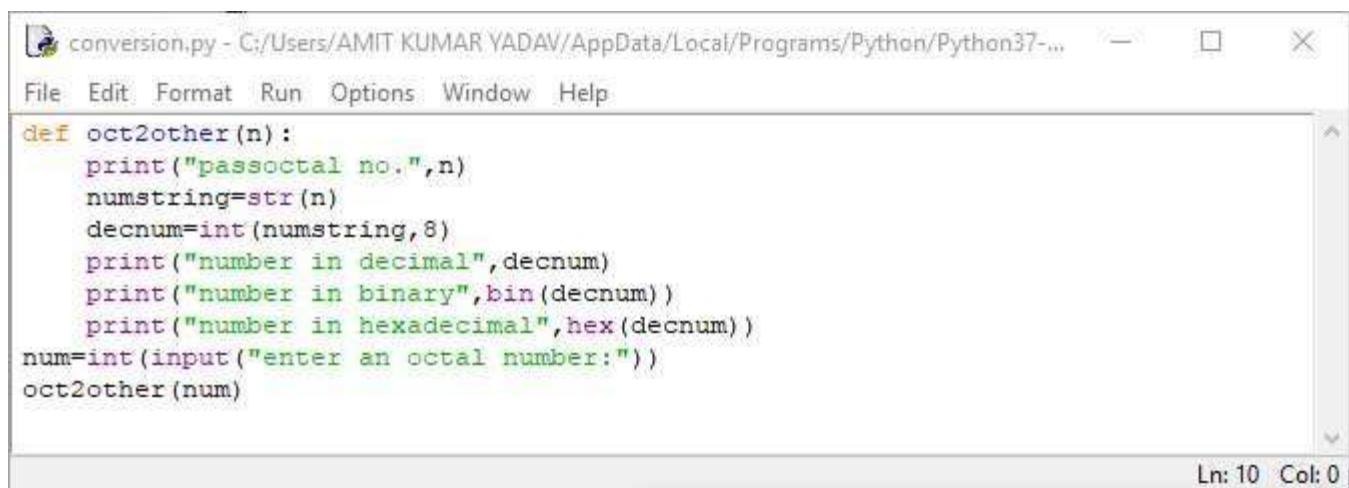
The screenshot shows a Python 3.7.2 Shell window titled "Python 3.7.2 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell output is as follows:

```
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/sq
.PY
enter side of square5
area of square is: 25
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/pw
er of another no.py
enter base number:5
enter power:2
the result is: 25
>>> |
```

Ln: 12 Col: 4

## #WAP TO CONVERT DECIMAL TO BINARY AND HEXADECIMAL.

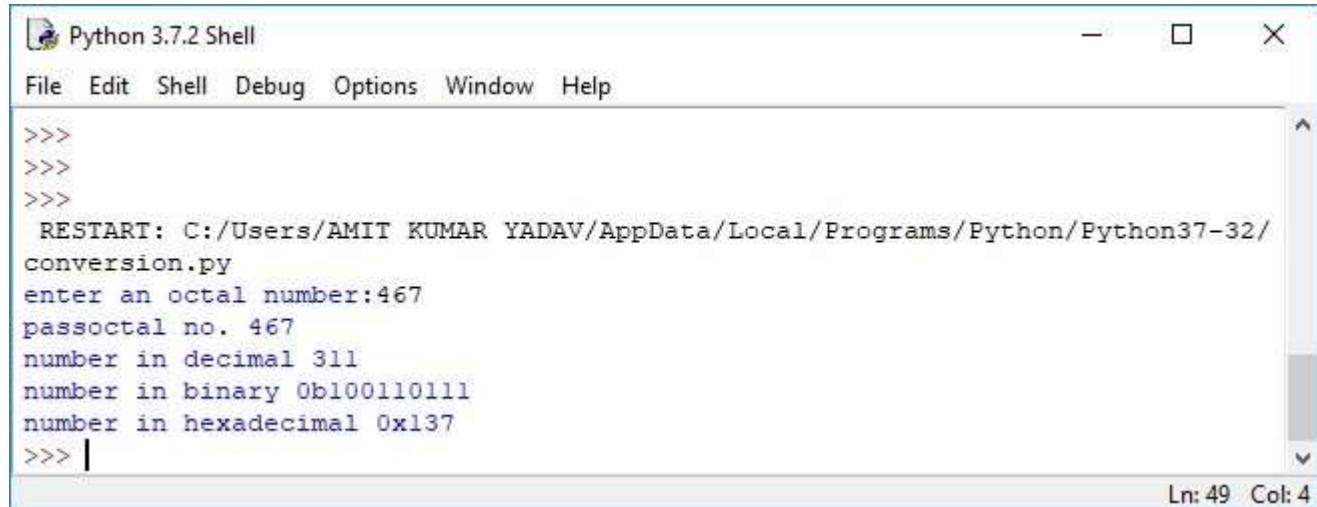
### Code:



```
conversion.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-...
File Edit Format Run Options Window Help
def oct2other(n):
    print("passoctal no.",n)
    numstring=str(n)
    decnum=int(numstring,8)
    print("number in decimal",decnum)
    print("number in binary",bin(decnum))
    print("number in hexadecimal",hex(decnum))
num=int(input("enter an octal number:"))
oct2other(num)

Ln: 10 Col: 0
```

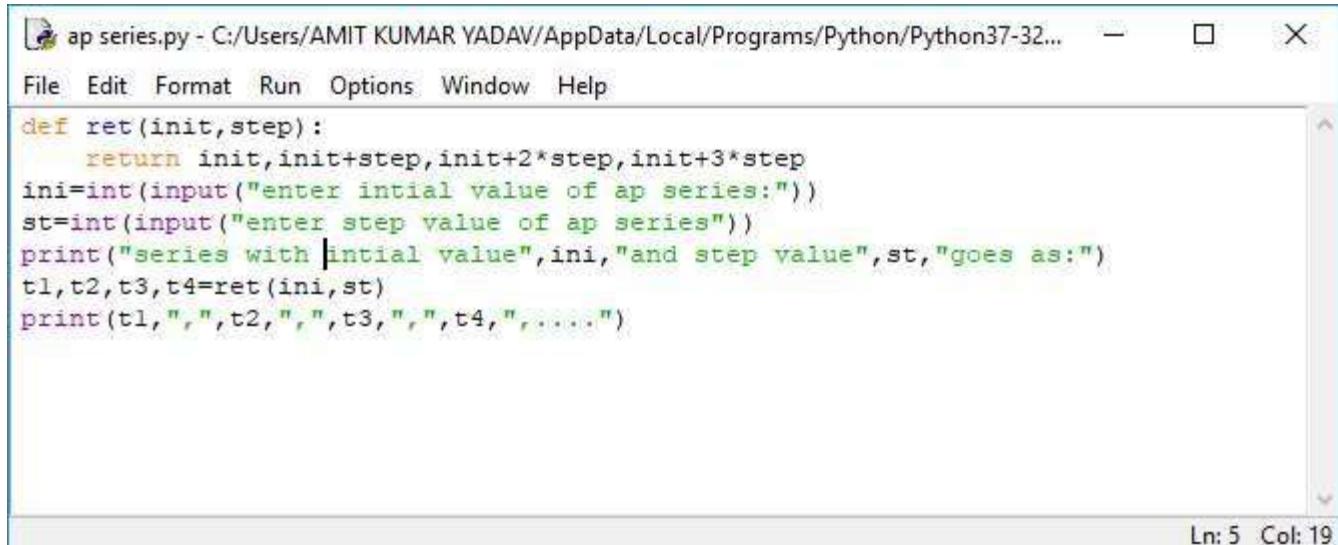
### Output:



```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
>>>
>>>
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/
conversion.py
enter an octal number:467
passoctal no. 467
number in decimal 311
number in binary 0b100110111
number in hexadecimal 0x137
>>> |
```

## #WAP TO PRINT AP SERIES BY FUNTION.

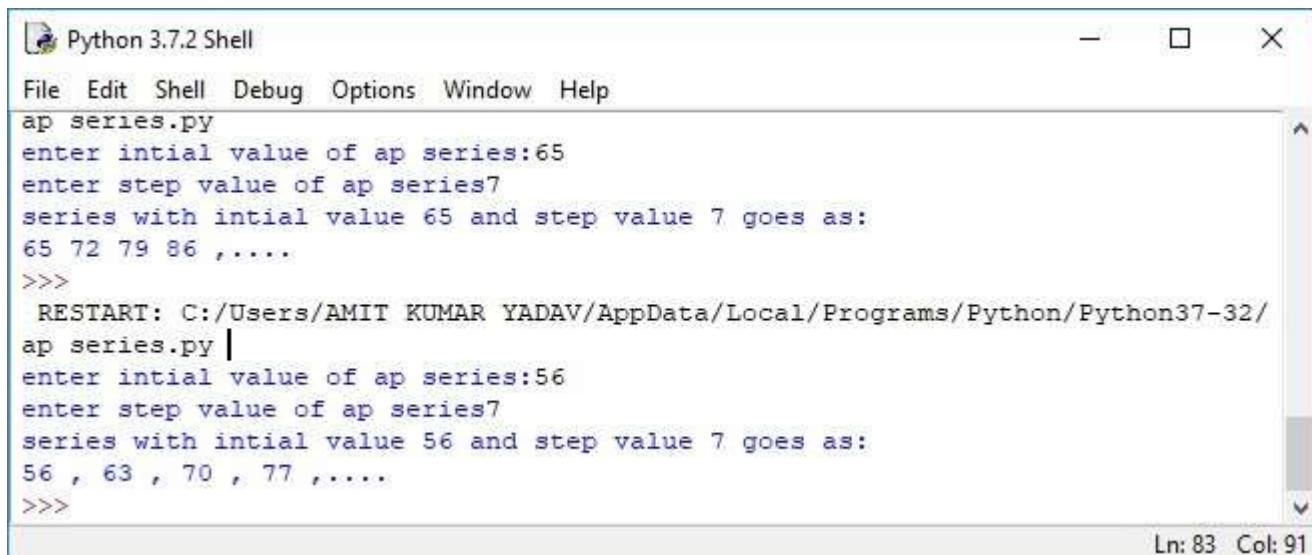
### CODE:



```
ap series.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32...
File Edit Format Run Options Window Help
def ret(init,step):
    return init,init+step,init+2*step,init+3*step
ini=int(input("enter intial value of ap series:"))
st=int(input("enter step value of ap series"))
print("series with intial value",ini,"and step value",st,"goes as:")
t1,t2,t3,t4=ret(ini,st)
print(t1,",",t2,",",t3,",",t4,",.....")
```

Ln: 5 Col: 19

### OUTPUT:

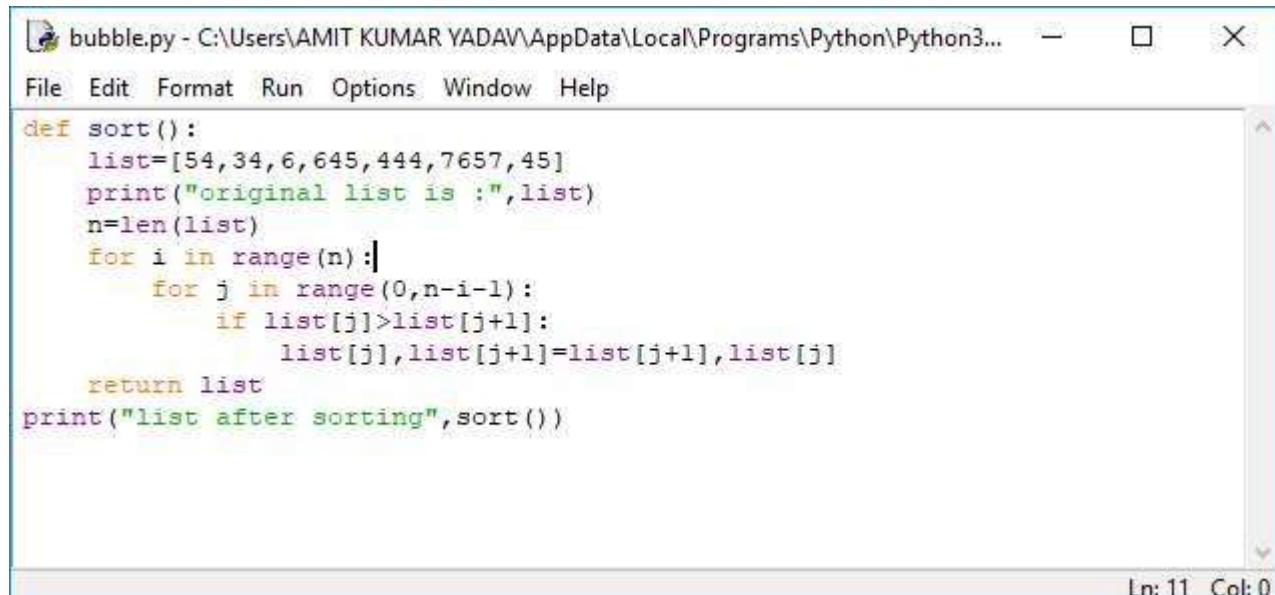


```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
ap series.py
enter intial value of ap series:65
enter step value of ap series7
series with intial value 65 and step value 7 goes as:
65 72 79 86 ,.....
>>>
RESTART: C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/
ap series.py |
enter intial value of ap series:56
enter step value of ap series7
series with intial value 56 and step value 7 goes as:
56 , 63 , 70 , 77 ,.....
>>>
```

Ln: 83 Col: 91

## #WAP TO SORT A LIST BY FUNTION.

### CODE:

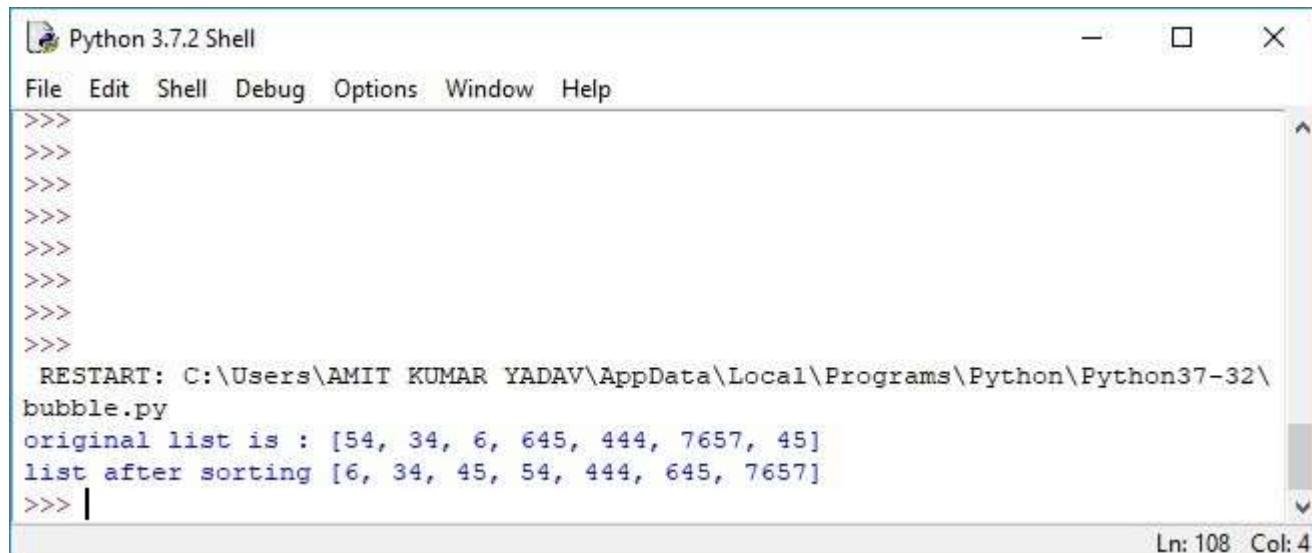


A screenshot of a Windows-style application window titled "bubble.py - C:\Users\AMIT KUMAR YADAV\AppData\Local\Programs\Python\Python3...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code area contains the following Python script:

```
def sort():
    list=[54,34,6,645,444,7657,45]
    print("original list is :",list)
    n=len(list)
    for i in range(n):
        for j in range(0,n-i-1):
            if list[j]>list[j+1]:
                list[j],list[j+1]=list[j+1],list[j]
    return list
print("list after sorting",sort())
```

The status bar at the bottom right shows "Ln: 11 Col: 0".

### Output:



A screenshot of the Python 3.7.2 Shell window. The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell prompt shows multiple ">>>>" entries. The output area displays the following text:

```
>>>
>>>
>>>
>>>
>>>
>>>
>>>
>>>
RESTART: C:\Users\AMIT KUMAR YADAV\AppData\Local\Programs\Python\Python37-32\
bubble.py
original list is : [54, 34, 6, 645, 444, 7657, 45]
list after sorting [6, 34, 45, 54, 444, 645, 7657]
>>> |
```

The status bar at the bottom right shows "Ln: 108 Col: 4".

## # WAP TO ADD TWO NO USING FUNCTION

### Input:

```
sum.py - C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\sum.py (3.7.4)
File Edit Format Run Options Window Help
def calcsum(a,b):
    s=a+b
    return s
num1=float(input("enter first no."))
num2=float(input("enter second no."))
print("sum of",num1,"and",num2,calcsum(num1,num2))
```

### Output:-

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:0
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for
>>>
===== RESTART: C:\Users\AMIT KUMAR YADAV\Desktop\abh
enter first no.535
enter second no.45
sum of 535.0 and 45.0 580.0
```

# # WAP TO CALCULATE EXPONENTIAL POWER OF A NO USING FUNCTION

## Input:

```
pow.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/pow
File Edit Format Run Options Window Help
def power(a,b):
    return a*b
a=int(input("enter a base no:"))
b=int(input("enter a power :"))
print("the result is:",power(a,b))
|
```

## OUTPUT:-

```
*Python 3.7.4 Shell*
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\sum.py ======
enter first no.535
enter second no.45
sum of 535.0 and 45.0 580.0
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/pow.py ======
enter a base no:3
enter a power :33
the result is: 99
>>>
```

## # WAP THAT ENCRYPT AND DECRYPT A STRING

### Input:

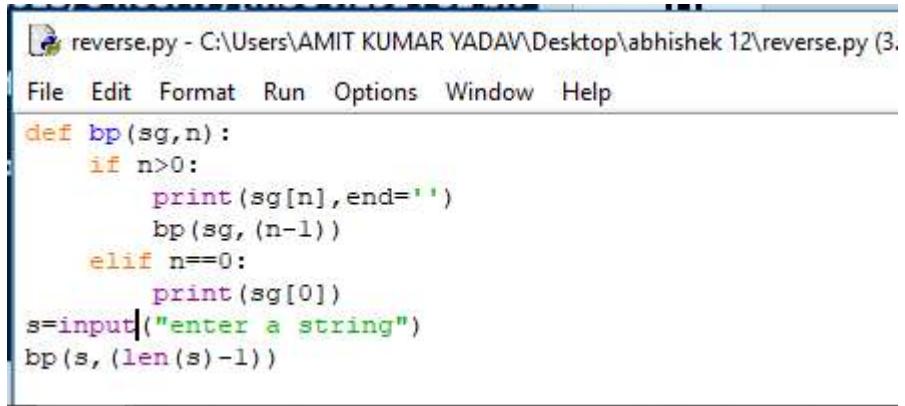
```
enc and denc.py - C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\enc and denc.py (3.7.4) —
File Edit Format Run Options Window Help
def encrypt(strr,enkey):
    return enkey.join(strr)
def decrypt(strr,enkey):
    return strr.split(enkey)
string=input("enter a string")
encstr=input("enter ENCRYPTION KEY")
enstr=encrypt(string,encstr)
delsrt=decrypt(enstr,encstr)
destr="".join(delsrt)
print("the encrypted string is:",enstr)
print("the decrypted string is:",destr)
```

### OUTPUT:-

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [ 
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more in
>>>
== RESTART: C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\enc
enter a stringABHISHEK
enter ENCRYPTION KEY##
the encrypted string is: A##B##H##I##S##H##E##K
the decrypted string is: ABHISHEK
>>>
```

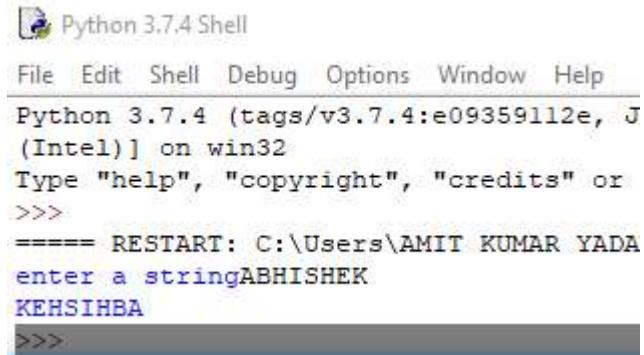
## # WAP TO PRINT A STRING IN REVERSE ORDER USING . RECURSION

### Input:



```
reverse.py - C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\reverse.py (3.  
File Edit Format Run Options Window Help  
  
def bp(sg,n):  
    if n>0:  
        print(sg[n],end=' ')  
        bp(sg,(n-1))  
    elif n==0:  
        print(sg[0])  
s=input("enter a string")  
bp(s,(len(s)-1))
```

### OUTPUT:-



```
Python 3.7.4 Shell  
File Edit Shell Debug Options Window Help  
Python 3.7.4 (tags/v3.7.4:e09359112e, J  
(Intel)] on win32  
Type "help", "copyright", "credits" or  
>>>  
===== RESTART: C:\Users\AMIT KUMAR YADA  
enter a stringABHISHEK  
KEHSIHBA  
>>>
```

## **\*\*USING PYTHON LABRARIES\*\***

**#WAP TO CHOOSE RANDOMLY THREE STUDENT FOR QUIZ.**

**CODE:**

```
In [3]: import random  
st1=random.randint(1,100)  
st2=random.randint(1,100)  
st3=random.randint(1,100)  
print("3 choosen students are")  
print(st1,st2,st3)
```

**OUTPUT:**

3 choosen students are

5 51 69

# WAP TO HTTP OPEN [WWW.TED.COM](http://www.ted.com) AND OPEN IT.

CODE:

```
In [5]: import urllib
import webbrowser
weburl=urllib.request.urlopen('http://www.ted.com/')
html=weburl.read()
data=weburl.getcode()
url=weburl.geturl()
hdweburl.headers
inf=weburl.info()
print("the url is",url)
print("http status code is:",data)
print("headers returned \n",hd)
print("the info returned :\n",inf)
print("now opening the url",url)
webbrowser.open_new(url)
```

OUTPUT:

The screenshot shows the TED website's homepage. At the top, there is a navigation bar with links for WATCH, DISCOVER, ATTEND, PARTICIPATE, ABOUT, and LOG IN. Below the navigation bar, there is a large, dark banner featuring a portrait of a man looking upwards. Overlaid on the banner is the text "TED Recommends" in large white letters, followed by the subtitle "Talks recommended just for you, delivered to your inbox". Below this, there is a search bar with the placeholder text "What interests you?".

Python 3.7.0 Shell

File Edit Shell Debug Options Window Help

Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32

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

```
>>>
RESTART: C:\Users\dell\AppData\Local\Programs\Python\Python37-32?url.py
The url is : https://www.ted.com/
HTTP status code is : 200
Headers returned
Content-Type: text/html; charset=utf-8
Status: 200 OK
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Cache-Control: max-age=0, public, s-maxage=30
ETag: W/"d17f6bbb3e88106206cc07560285e10d"
Strict-Transport-Security: max-age=15552000
Content-Length: 192951
Accept-Ranges: bytes
Date: Fri, 27 Sep 2019 15:58:47 GMT
Via: 1.1 varnish
Age: 31
Connection: close
X-Served-By: e01, cache-iad2138-IAD, cache-bom18227-BOM
X-Cache: HIT, MISS
X-Cache-Hits: 1, 0
Vary: Accept-Encoding, Accept-Encoding
Set-Cookie: _nu=1569599927; Expires=Wed, 25 Sep 2024 15:58:47 GMT; path=/
Set-Cookie: _abby=YxJ2OjT5XkkZn3P; Expires=Wed, 25 Sep 2024 15:58:47 GMT; Path=/; Domain=.ted.com
```

Ln: 19 Col: 0

Python 3.7.0 Shell

File Edit Shell Debug Options Window Help

**The info() returned**

```
Content-Type: text/html; charset=utf-8
Status: 200 OK
X-Frame-Options: SAMEORIGIN
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Cache-Control: max-age=0, public, s-maxage=30
ETag: W/"d17f6bbb3e88106206cc07560285e10d"
Strict-Transport-Security: max-age=15552000
Content-Length: 192951
Accept-Ranges: bytes
Date: Fri, 27 Sep 2019 15:58:47 GMT
Via: 1.1 varnish
Age: 31
Connection: close
X-Served-By: e01, cache-iad2138-IAD, cache-bom18227-BOM
X-Cache: HIT, MISS
X-Cache-Hits: 1, 0
Vary: Accept-Encoding, Accept-Encoding
Set-Cookie: _nu=1569599927; Expires=Wed, 25 Sep 2024 15:58:47 GMT; path=/
Set-Cookie: _abby=YxJ2OjT5XkkZn3P; Expires=Wed, 25 Sep 2024 15:58:47 GMT; Path=/; Domain=.ted.com

Now opening the url https://www.ted.com/
>>>
```

Ln: 19 Col: 0

# # WAP THAT GENERATE A RANDOM NO BETWEEN 1-6 LIKE A DIE

## INPUT:

```
rand.py - C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\rand.py (3.7)
File Edit Format Run Options Window Help
import random
a=random.randint(1,6)
print("random no b/w 1-6",int(a))
```

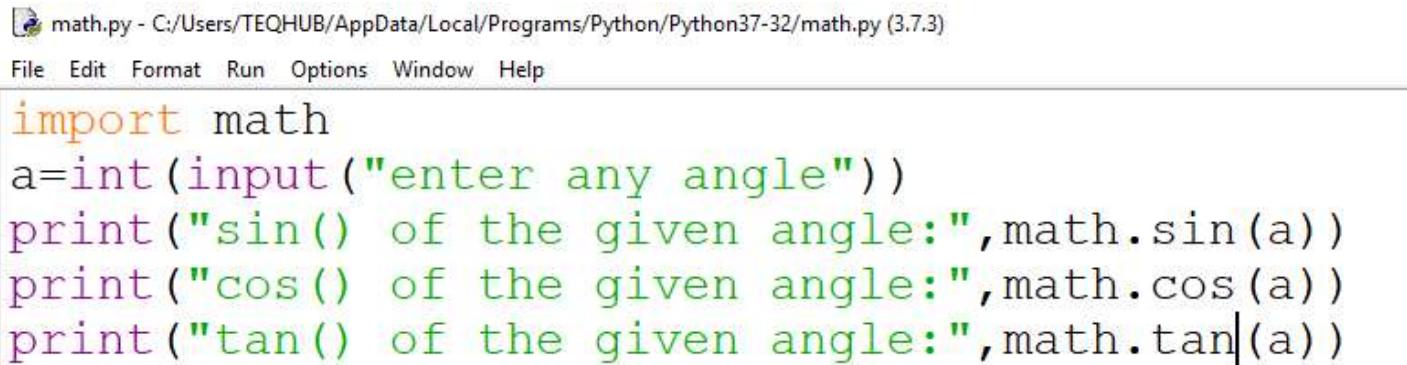
## OUTPUT:

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\AMIT KUMAR YADAV\Desktop\abhishek 12\rand.py ======5
random no b/w 1-6 4
>>> |
```

# # wap to do some mathematical calculation

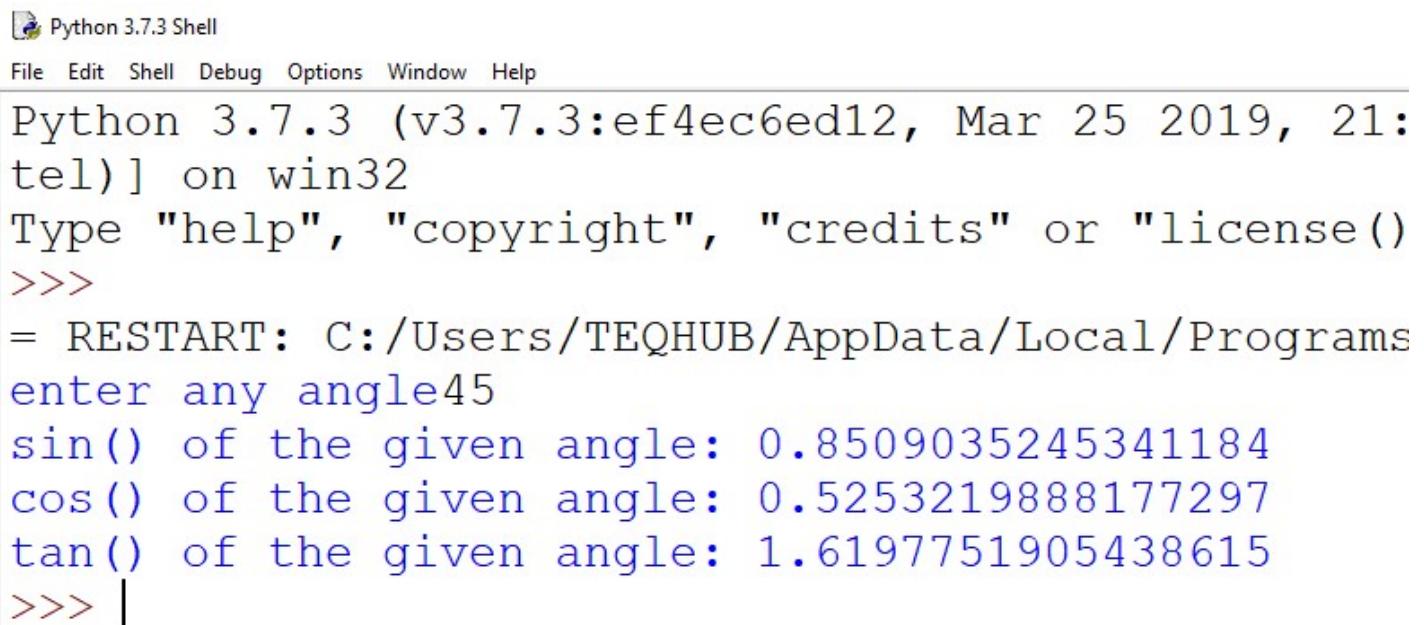
## . using math library

### INPUT:



```
math.py - C:/Users/TEQHUB/AppData/Local/Programs/Python/Python37-32/math.py (3.7.3)
File Edit Format Run Options Window Help
import math
a=int(input("enter any angle"))
print("sin() of the given angle:",math.sin(a))
print("cos() of the given angle:",math.cos(a))
print("tan() of the given angle:",math.tan(a))
```

### OUTPUT:

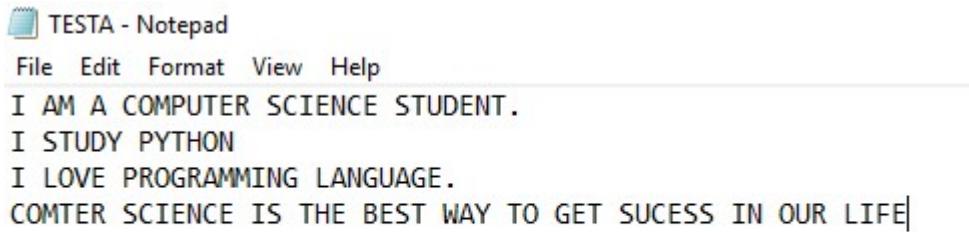


```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 21:tel) [on win32]
Type "help", "copyright", "credits" or "license()"
>>>
= RESTART: C:/Users/TEQHUB/AppData/Local/Programs
enter any angle45
sin() of the given angle: 0.8509035245341184
cos() of the given angle: 0.5253219888177297
tan() of the given angle: 1.6197751905438615
>>> |
```

## **\*\*FILE HANDLING\*\***

### **# PROGRAM TO COUNT THE NUMBER OF LINES IN A FILE**

#### **--VIEW OF NOTE PAD FOLDER--**



TESTA - Notepad  
File Edit Format View Help  
I AM A COMPUTER SCIENCE STUDENT.  
I STUDY PYTHON  
I LOVE PROGRAMMING LANGUAGE.  
COMTER SCIENCE IS THE BEST WAY TO GET SUCESS IN OUR LIFE|

Code:

```
fh=open("C:/Users/my pc/Desktop/TESTA.txt","r+")
s=fh.readlines()
lc=len(s)
print("Number of lines in the file is:",lc) |
```

OUTPUT:

>>> Number of lines in the file is: 4

## # PROGRAM TO READ COMPLETE FILE

### --VIEW OF NOTE PAD FOLDER--

 TESTA - Notepad  
File Edit Format View Help  
I AM A COMPUTER SCIENCE STUDENT.  
I STUDY PYTHON  
I LOVE PROGRAMMING LANGUAGE.  
COMTER SCIENCE IS THE BEST WAY TO GET SUCESS IN OUR LIFE|

Code:

---

```
fh=open("C:/Users/my pc/Desktop/TESTA.txt","r+")
s=fh.readlines()
print("Number of lines in the file is:",s)
```

Output:

>>Number of lines in the file is:4

I AM A COMPUTER SCIENCE STUDENT.

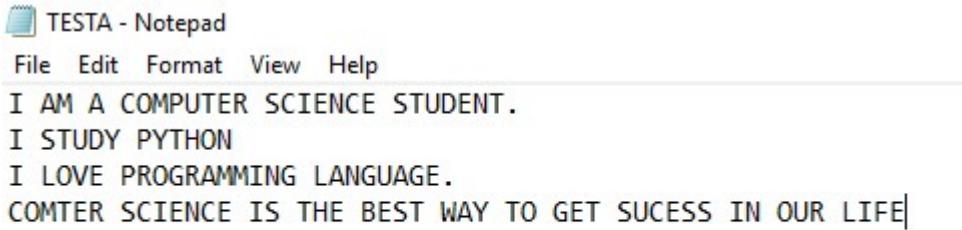
I STUDY PYTHON

I LOVE PROGRAMMING LANGUAGE.

COMTER SCIENCE IS THE BEST WAY TO GET SUCESS IN OUR LIFE

## # PROGRAM TO DISPLAY THE SIZE OF A FILE IN BYTES

--VIEW OF NOTE PAD FOLDER--



TESTA - Notepad  
File Edit Format View Help  
I AM A COMPUTER SCIENCE STUDENT.  
I STUDY PYTHON  
I LOVE PROGRAMMING LANGUAGE.  
COMTER SCIENCE IS THE BEST WAY TO GET SUCESS IN OUR LIFE|

### Code:

```
fh=open("C:/Users/my pc/Desktop/TESTA.txt","r+")
s=fh.read()
si=len(s)
print("Size of the file is:",si)
```

### Output:

>>> Size of the file is: 97

## # PROGRAM TO HOLD SOME DATA IN FILE

```
fh=open("C:/Users/my pc/Desktop/TESTA.txt","a+b")
for i in range(3):
    name=input("Enter name:")
    fh.write(name)
fh.close()
```

### Output:

### IT WOULD ADD NAME TO THE FILE###

## **\*\*RECUSION\*\***

### **# RECURSIVE PROGRAM TO CALCULATE SUM OF NUMBERS**

#### **CODE:**

```
def compute(n):
    if n==1:
        return 1
    else:
        return(n+compute(n-1))
n=int(input("Enter number upto which sum is needed:"))
print("The required sum is:",compute(n))
```

#### **OUTPUT:**

```
= RESTART: C:/Users/TEQHUB/AppData/Local/Programs/Python/Python37-32/SUM8.py =
Enter number upto which sum is needed:5
The required sum is: 15
>>> |
```

## # PROGRAM TO CALCULATE FACTORIAL RECURSIVELY

### CODE:

```
def factorial(n):
    if n<2:
        return 1
    return n*factorial(n-1)
n=int(input("Enter number:"))
print("The required factorial is",factorial(n))
```

### Output:

```
| Enter number:5
| The required factorial is 120
| >>> |
```

## # PROGRAM TO CALCULATE SUM OF SQUARES OF N NUMBERS RECURSIVELY.

### Code:

```
def sqsum(n):
    if n==0:
        return 1
    else:
        return n*n+sqsum(n-1)
n=int(input("Enter number upto which addition is needed:"))
print("Required Sum is:",sqsum(n))
```

### Output:

```
| Enter number upto which addition is needed:5
| Required Sum is: 56
```

## # PROGRAM TO CALCULATE HCF OF TWO NUMBERS RECURSIVELY

### CODE:

---

```
def hcf(a,b):
    if b==0:
        return a
    else:
        return hcf(b,a%b)
a=int(input("Enter first number:"))
b=int(input("Enter second number:"))
print("HCF IS:",hcf(a,b))
```

### OUTPUT:

```
Enter first number:50
Enter second number:4
HCF IS: 2
```

## #WAP TO DISPLAY FIBONACCI SERIES

### CODE:

```
fibonacci.py - C:/Users/TEQHUB/AppData/Local/Programs/Python/Python37-32/fibonacci.py (3.7.3)
File Edit Format Run Options Window Help
def fib(n):
    if n==1:
        return 0
    elif n==2:
        return 1
    else:
        return fib(n-1)+fib(n-2)
n=int(input("enter any no:"))
for i in range(1,n+1):
    print(fib(i),end=',')
print(".....")
```

### INPUT:

```
Python 3.7.3 Shell
File Edit Shell Debug Options Window Help
Python 3.7.3 (v3.7.3:ef4
tel) ] on win32
Type "help", "copyright"
>>>
RESTART: C:/Users/TEQHU
py
enter any no:8
0,1,1,2,3,5,8,13,.....
>>> |
```

## #WAP TO CALCULATE THE POWER OF A NO USING RECURSION

### INPUT:-

```
power.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/power.py (3.7.4)
File Edit Format Run Options Window Help
def power(a,b):
    res=1
    if b==0:
        return 1
    else:
        for i in range(b):
            res=res*a
    return res
print("enter only +ve no:")
a=int(input("enter base :"))
b=int(input("enter power :"))
print(power(a,b))
```

### OUTPUT:-

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/power.py =
enter only +ve no:
enter base :43
enter power :43
17343773367030267519903781288812032158308062539012091953077767198995507
>>>
```

# #WAP FOR BINARY SEARCH IN RECURSION

## INPUT:-

```
binary search.py - C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/binary search.py
File Edit Format Run Options Window Help
def binarysearch(arr,key):
    low=0
    high=len(arr)-1
    while low<=high:
        mid=int((low+high)/2)
        if key==arr[mid]:
            return mid
        elif key<arr[mid]:
            high=mid-1
        else:
            low=mid+1
    else:
        a="element not found"
    return a
arr=eval(input("enter a sorted list:"))
key=int(input("enter element to be searched"))
print("element found at index:")
print(binarysearch(arr,key))
```

## OUTPUT:-

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:/Users/AMIT KUMAR YADAV/Desktop/abhishek 12/binary search.py ==
enter a sorted list:[1,24,454,2422,5422]
enter element to be searched5422
element found at index:
4
>>>
```

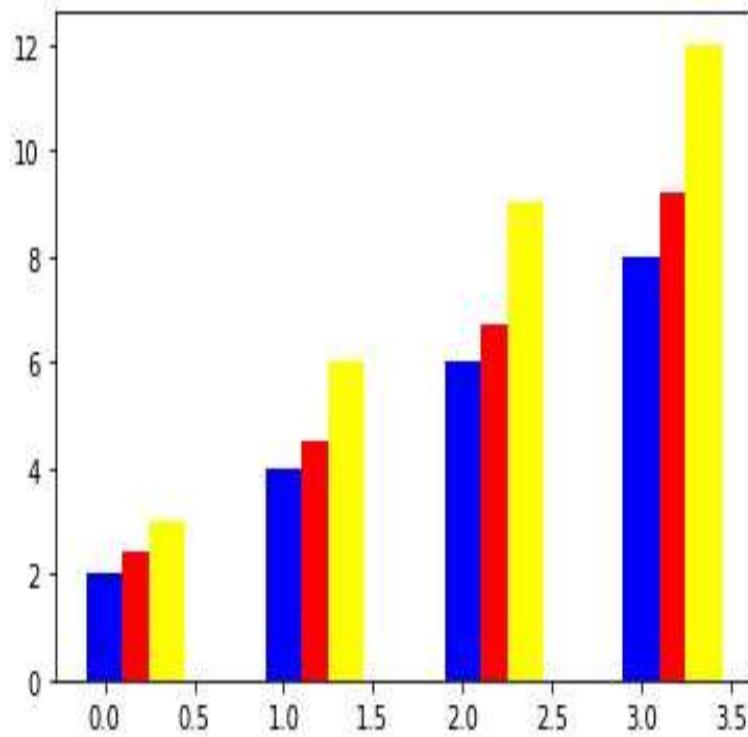
## \*\*DATAVUALISATION PYPLOT\*\*

# Create a bar chart of three lists. Keep the width=0.20

CODE:

```
In [6]: import numpy as np
import matplotlib.pyplot as plt
a=[2,4,6,8]
b=[2.4,4.5,6.7,9.2]
c=[3,6,9,12]
x=np.arange(len(a))
plt.bar(x,a,color='blue',width=0.20)
plt.bar(x+0.20,b,color='red',width=0.20)
plt.bar(x+0.35,c,color='yellow',width=0.20)
plt.show()
```

OUTPUT:

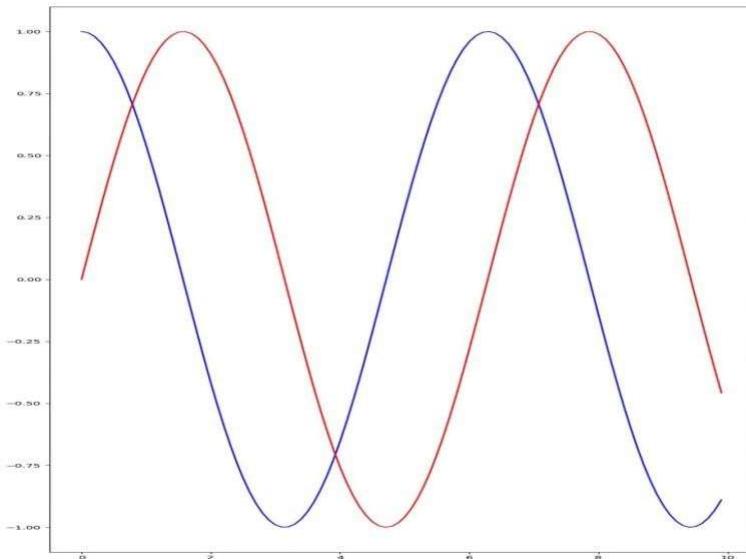


## # Showing values of cos and sin using matplotlib library.

CODE:

```
1 import matplotlib.pyplot as plt
2 import numpy as np
3 x=np.arange(0.,10,0.1)
4 a=np.cos(x)
5 b=np.sin(x)
6 plt.plot(x,a,'b')
7 plt.plot(x,b,'r')
8 plt.show()
```

OUTPUT :

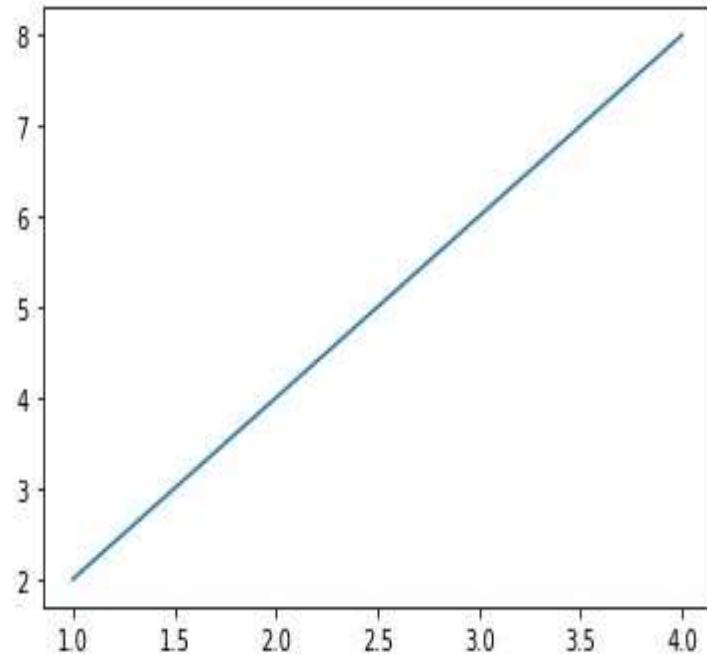


**# Create a line chart of two list using matplotlib library.**

**CODE:**

```
In [18]: import numpy as np  
import matplotlib.pyplot as plt  
a=[1,2,3,4]  
b=[2,4,6,8]  
plt.plot(a,b)  
plt.show()
```

**OUTPUT:**

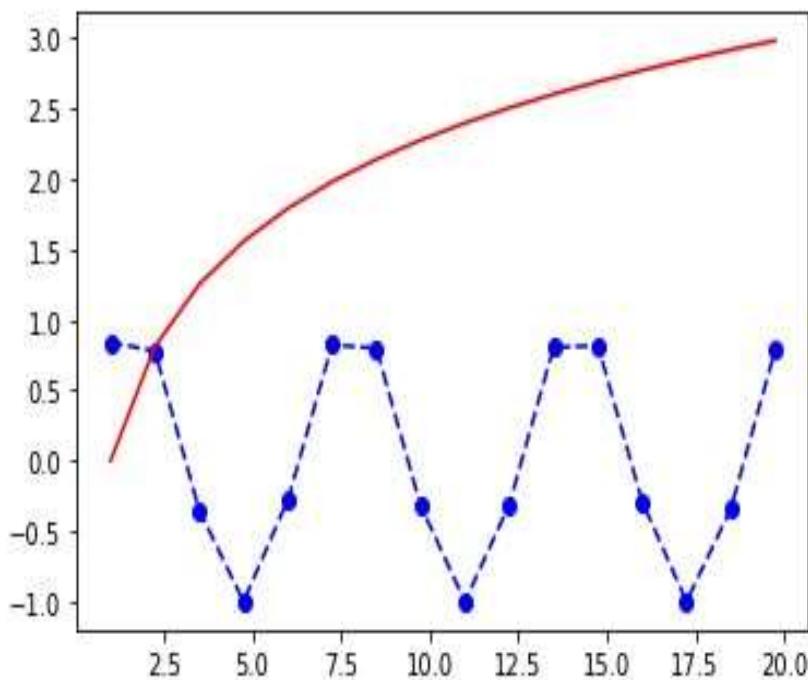


## # Showing values of log and cos values using matplotlib lib.

CODE:

```
In [16]: import numpy as np  
import matplotlib.pyplot as plt  
a=np.arange(1,20,1.25)  
b=np.log(a)  
c=np.sin(a)  
plt.plot(a,c,'bo',linestyle='--')  
plt.plot(a,b,'r')  
plt.show()
```

output:

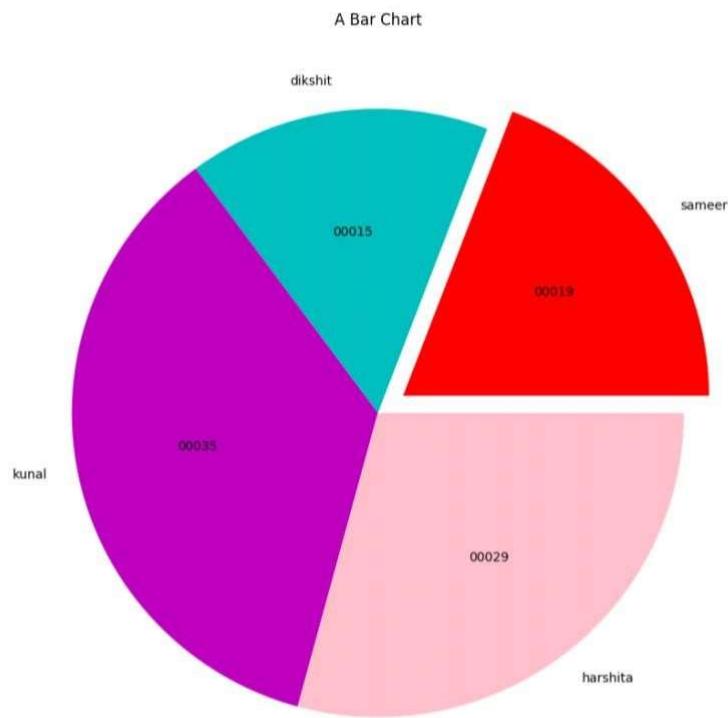


## # Plot values on a pie chart and exploding one part from it.

CODE:

```
1 import numpy as np
2 import matplotlib.pyplot as plt
3 contri=[42,35,78,64]
4 houses=['sameer','dikshit','kunal','harshita']
5 expl=[0.1,0,0,0]
6 col=['r','c','m','pink']
7 plt.title("A Bar Chart")
8 plt.pie(contri,labels=houses,autopct="%05d",
9 explode=expl,colors=col)
10 plt.show()
```

OUTPUT :

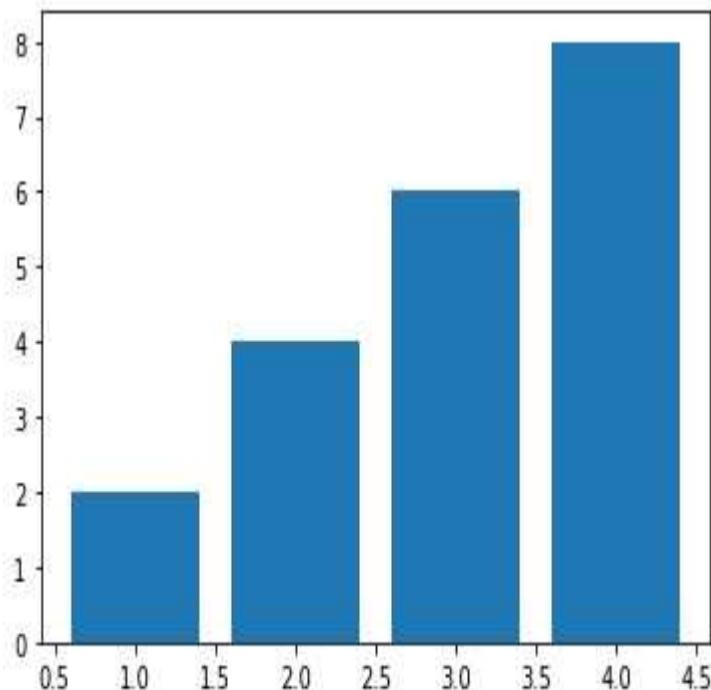


## # Plot a bar graph using matplotlib library.

CODE :

```
In [19]: import numpy as np  
import matplotlib.pyplot as plt  
a=[1,2,3,4]  
b=[2,4,6,8]  
plt.bar(a,b)  
plt.show()
```

OUTPUT :

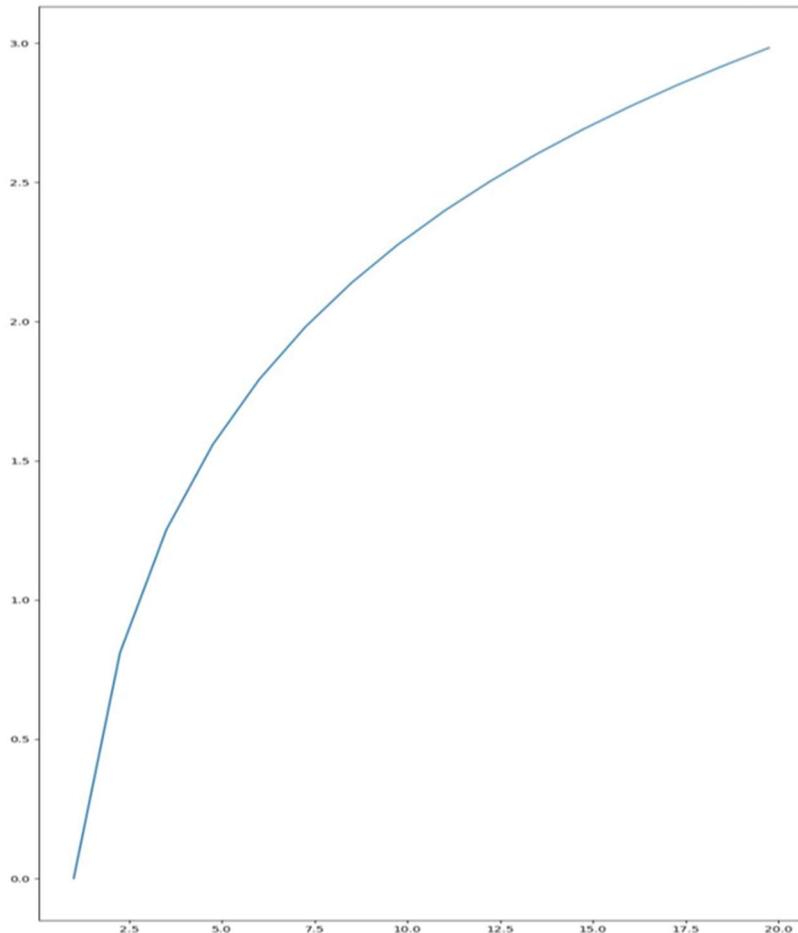


## # Labelling x and y axis and plot random logarithm values.

CODE :

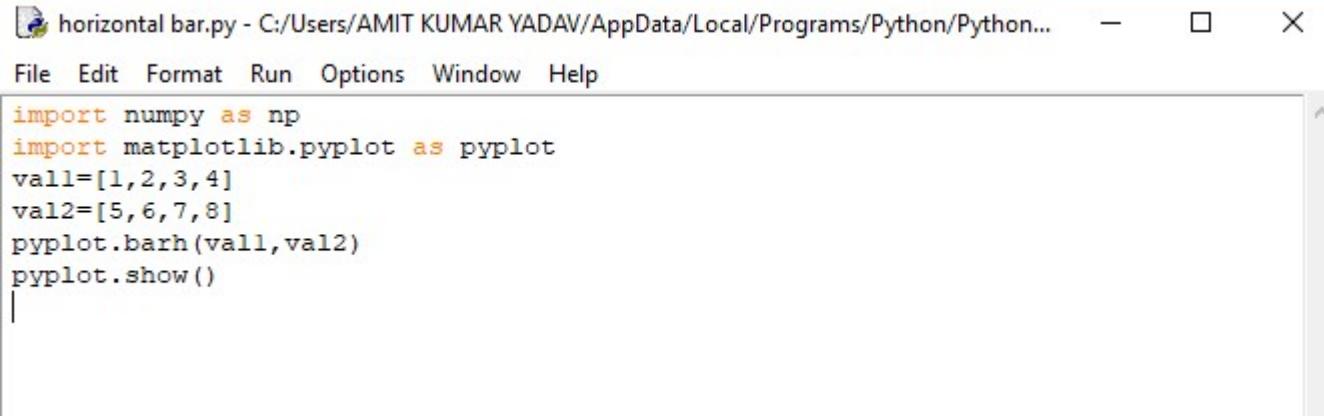
```
1 import numpy as np
2 import matplotlib.pyplot as plt
3 a=np.arange(1,20,1.25)
4 b=np.log(a)
5 plt.plot(a,b)
6 plt.show()
```

OUTPUT :



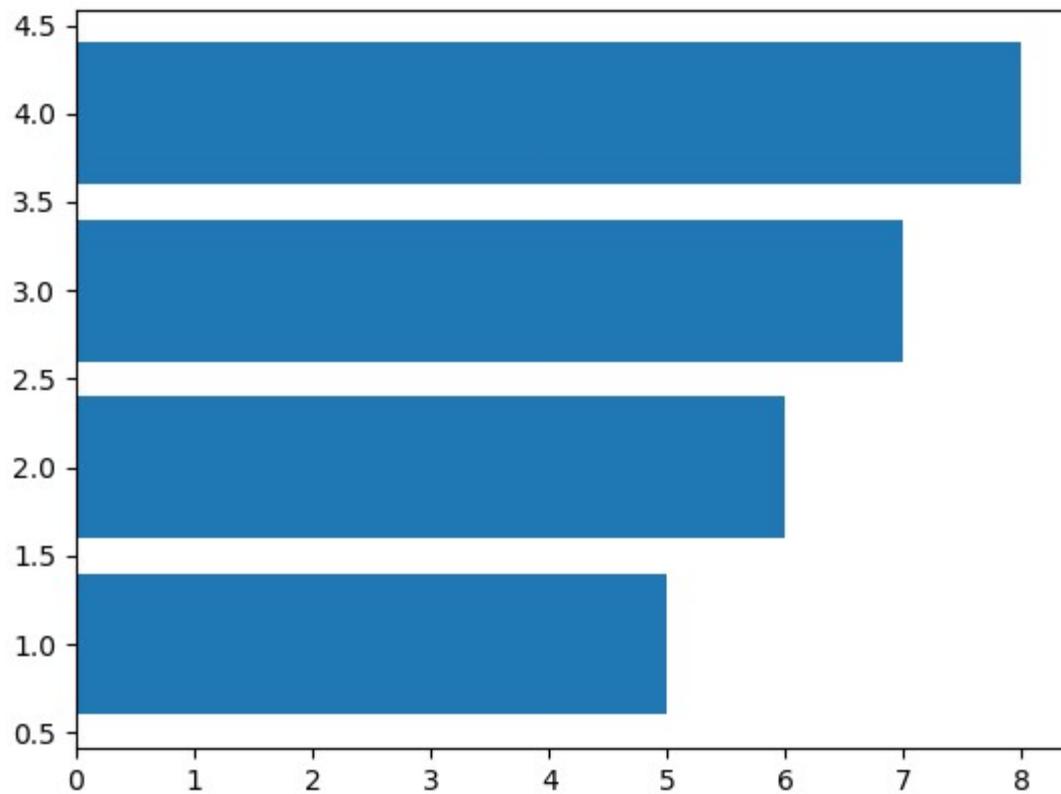
## # PROGRAM TO PLOT A HORIZONTAL BAR GRAPH

### Code:



```
horizontal bar.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python... — □ ×  
File Edit Format Run Options Window Help  
import numpy as np  
import matplotlib.pyplot as pyplot  
val1=[1,2,3,4]  
val2=[5,6,7,8]  
pyplot.bart(val1,val2)  
pyplot.show()
```

### Output:

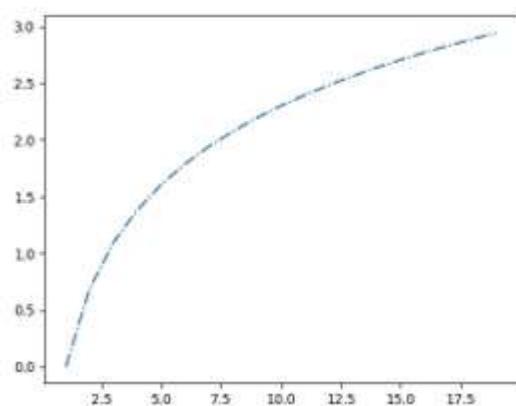


## # PROGRAM TO PLOT GRAPH USING DIFFERENT LINESTYLES

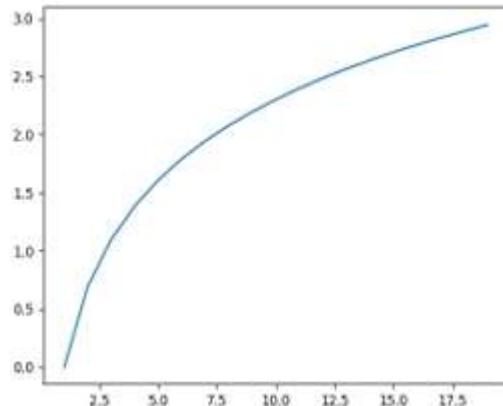
### Code:

```
*line graph.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-...
File Edit Format Run Options Window Help
import numpy as np
import matplotlib.pyplot as plt
a=np.arange(1,20)
b=np.log(a)
plt.plot(a,b,linestyle="dashdot")
plt.plot(a,b,linestyle="solid")
plt.plot(a,b,linestyle="dotted")
plt.show()
```

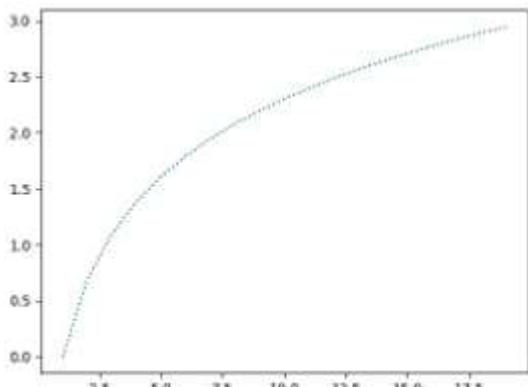
### Output:



DASHDOT



SOLID



## DOTTED

# # PROGRAM TO CREATE A PIE CHART USING MATPLOTLIB

## CODE:

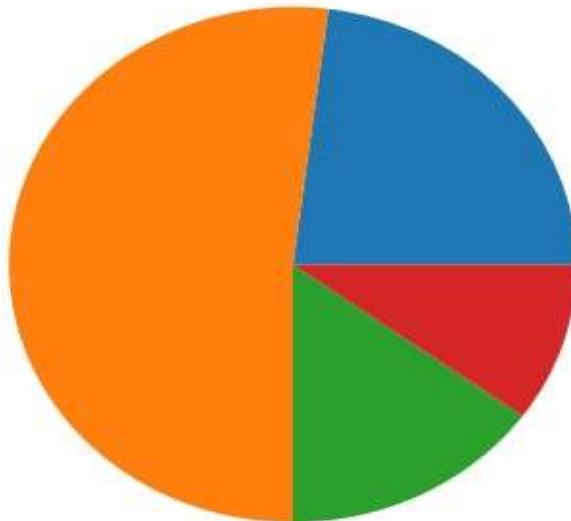


PIE.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python/Python37-32/PIE.p... ━ ━ X

File Edit Format Run Options Window Help

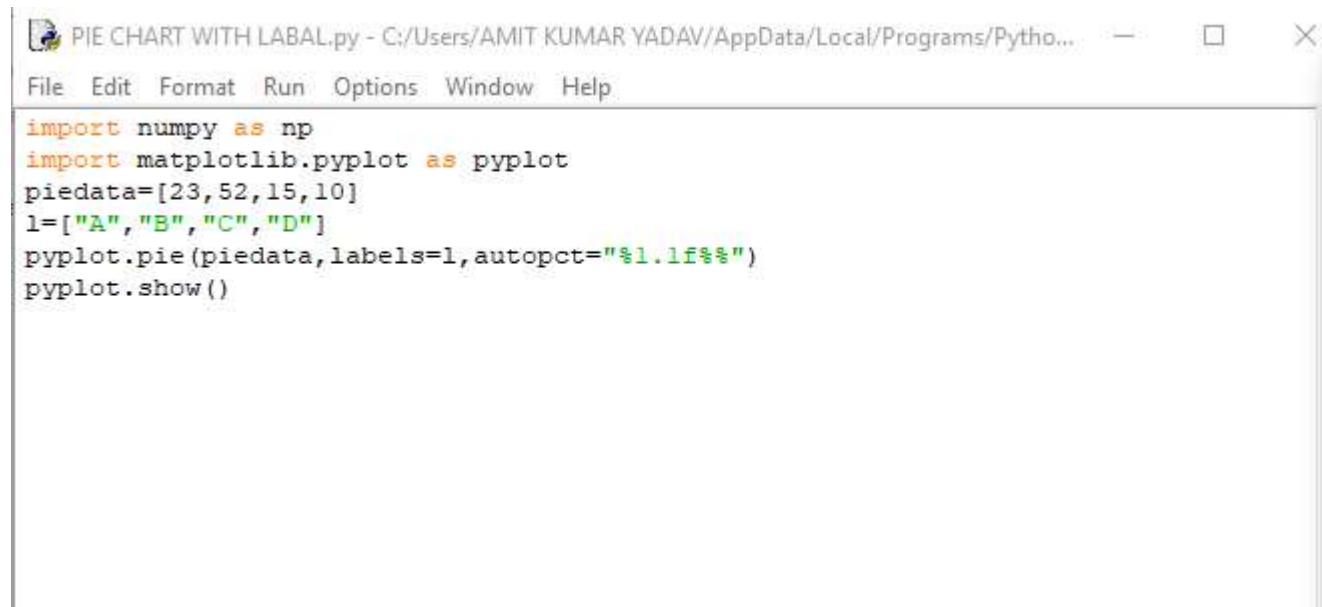
```
import numpy as np
import matplotlib.pyplot as pyplot
piedata=[23,52,15,10]
pyplot.pie(piedata)
pyplot.show()
```

## OUTPUT:



## # PROGRAM TO CREATE A PIE CHART WITH PERCENTAGE

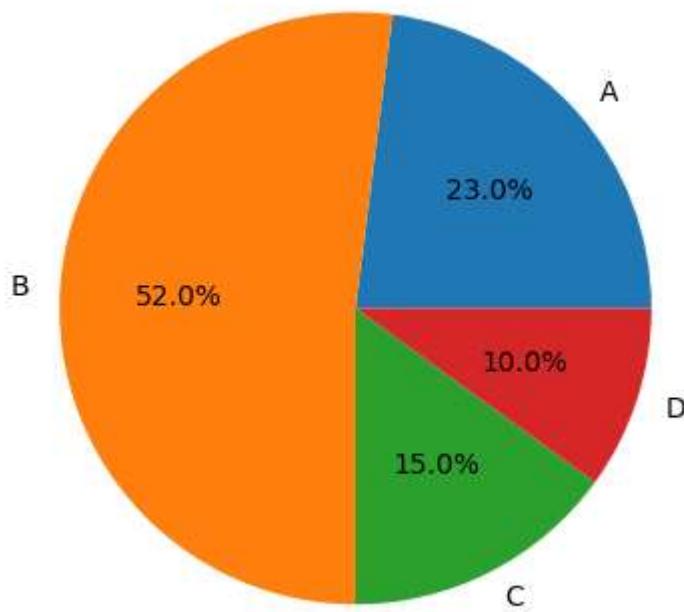
### CODE:



PIE CHART WITH LABAL.py - C:/Users/AMIT KUMAR YADAV/AppData/Local/Programs/Python... — X

```
File Edit Format Run Options Window Help
import numpy as np
import matplotlib.pyplot as pyplot
piedata=[23,52,15,10]
l=["A","B","C","D"]
pyplot.pie(piedata,labels=l,autopct="%1.1f%%")
pyplot.show()
```

### OUTPUT:

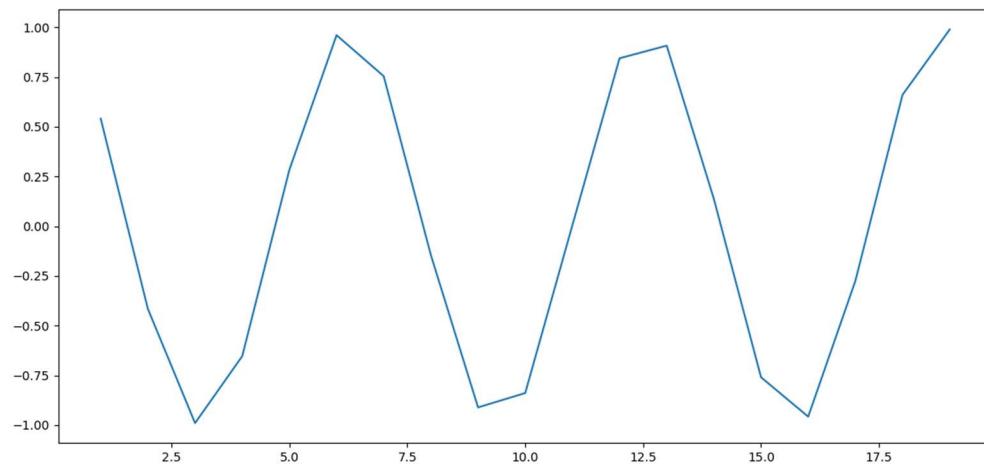


## # USING PYPLOT LIBRARY PLOTING LINE CHART WITH SOLID LINE

### Input:

```
In [2]: import numpy as np  
import matplotlib.pyplot as plt  
a=np.arange(1,20)  
b=np.cos(a)  
plt.plot(a,b,linestyle='solid')  
plt.show()
```

### OUTPUT:-

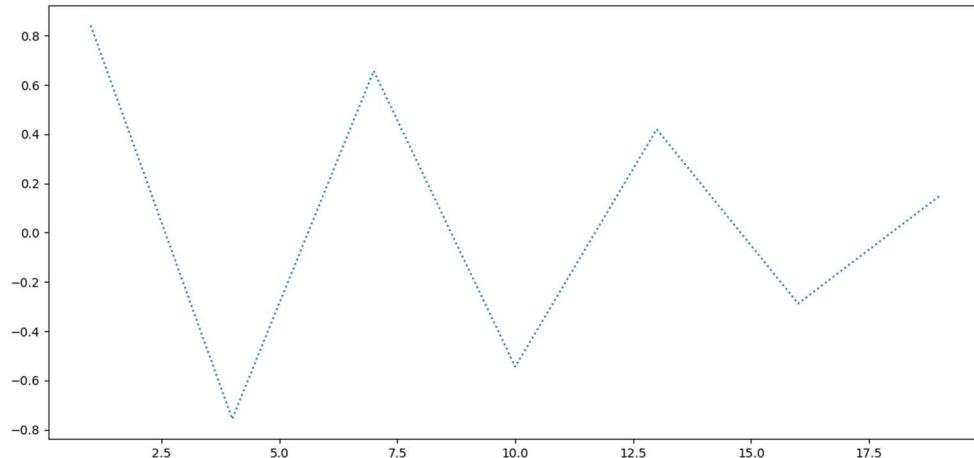


## # USING PYPLOT LIBRARY PLOTING LINE CHART WITH DOT LINE

### Input:

```
In [9]: import numpy as np  
import matplotlib.pyplot as plt  
a=np.arange(1,20,3)  
b=np.sin(a)  
plt.plot(a,b,linestyle='dotted')  
plt.show()
```

### OUTPUT:-

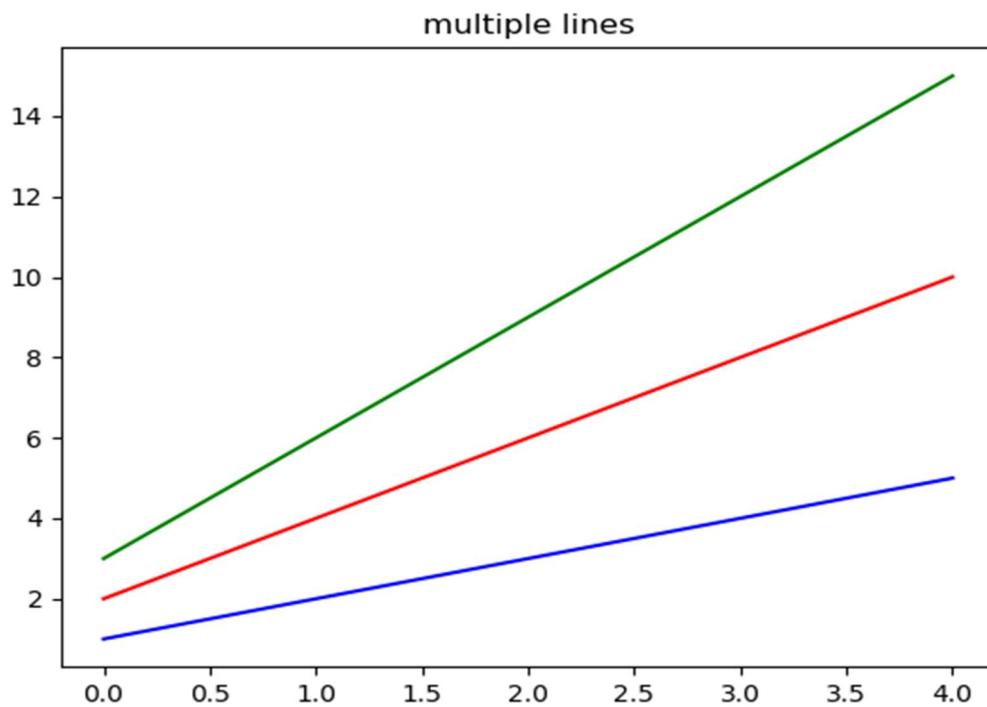


## # USING PYPLOT LIBRARY PLOTING LINE CHART WITH MULTIPLE LINE

**Input:**

```
In [3]: import numpy as np
import matplotlib.pyplot as plt
a=[[1,2,3,4,5],[2,4,6,8,10],[3,6,9,12,15]]
b=np.arange(5)
plt.plot(b,a[0],color='b')
plt.plot(b,a[1],color='r')
plt.plot(b,a[2],color='g')
plt.show()
```

**OUTPUT:-**

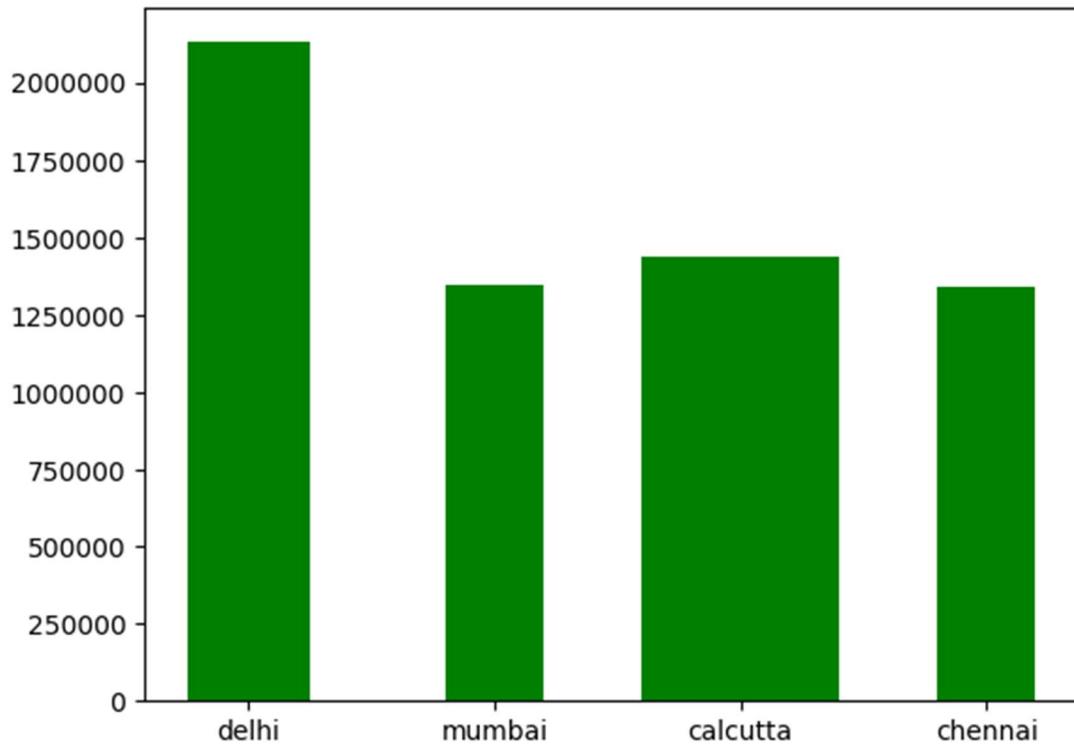


## # USING MATPLOTLIB PLOTING BAR CHART WITH DIFFERENT WIDTH

**Input:**

```
In [8]: import matplotlib.pyplot as plt  
a=['DELHI','MUMBAI','CALCUTTA','CHENNAI']  
b=[2134568,1346825,1436972,1342587]  
plt.bar(a,b,color='green',width=[0.5,0.4,0.8,0.4])  
plt.show()
```

**OUTPUT:-**



# \*\* DJANGO WEB APPLICATION\*\*

## HOW TO INSTALL DJANGO?

## THESE ARE THE STEPS TO INSTALL DJANGO.

```
Microsoft Windows [Version 10.0.10586]
(c) 2015 Microsoft Corporation. All rights reserved.

E:\python>d Scripts

E:\python\Scripts>pip install virtualenv
Requirement already satisfied: virtualenv in e:\python\lib\site-packages (16.7.3)
You are using pip version 19.0.3, however version 19.2.2 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.

E:\python\Scripts>dir
Volume in drive E has no label.
Volume Serial Number is FE21-1ED3

Directory of E:\python\Scripts

08/22/2019  01:18 PM    <DIR>          .
08/22/2019  01:18 PM    <DIR>          ..
08/22/2019  01:15 PM        93,031 easy_install-3.7.exe
08/22/2019  01:15 PM        93,031 easy_install.exe
08/22/2019  01:15 PM        93,013 pip.exe
08/22/2019  01:15 PM        93,013 pip3.7.exe
08/22/2019  01:15 PM        93,013 pip3.exe
08/22/2019  01:18 PM        93,010 virtualenv.exe
               6 File(s)      558,111 bytes
               2 Dir(s)   129,579,679,744 bytes free

E:\python\Scripts>cd\

E:\>cd homeworkshop

E:\homeworkshop>cd Scripts
The system cannot find the path specified.

E:\homeworkshop>virtualenv home
Using base prefix 'e:\python'
New python executable in E:\homeworkshop\home\Scripts\python.exe
Installing setuptools, pip, wheel...
done.

E:\homeworkshop>_
```

```
08/22/2019  01:18 PM    <DIR>          .
08/22/2019  01:15 PM        93,031 easy_install-3.7.exe
08/22/2019  01:15 PM        93,031 easy_install.exe
08/22/2019  01:15 PM        93,013 pip.exe
08/22/2019  01:15 PM        93,011 pip3.7.exe
08/22/2019  01:15 PM        93,013 pip3.exe
08/22/2019  01:18 PM        93,010 virtualenv.exe
               6 File(s)      558,111 bytes
               2 Dir(s)   129,579,679,744 bytes free

E:\python\Scripts>cd\

E:\>cd homeworkshop

E:\homeworkshop>cd Scripts
The system cannot find the path specified.

E:\homeworkshop>virtualenv home
Using base prefix 'e:\python'
New python executable in E:\homeworkshop\home\Scripts\python.exe
Installing setuptools, pip, wheel...
done.

E:\homeworkshop>cd home

E:\homeworkshop\home>cd Script
The system cannot find the path specified.

E:\homeworkshop\home>cd Scripts

E:\homeworkshop\home>Scripts>activate

(home) E:\homeworkshop\home\Scripts>pip install django
Collecting django
  Using cached https://files.pythonhosted.org/packages/db/57/bb907ca8ef17d2dbfbec0bb0bc6778095ffea04077ca8985928175da3fb/Django-2.2.4-py3-none-any.whl
Collecting sphinx (from django)
  Using cached https://files.pythonhosted.org/packages/e7/53/088f7d2a54557c6a37886585a01336520e5530e3a62423f1182da4f3a7/sphinx-0.3.8-py2.py3-none-any.whl
Collecting pytz (from django)
  Using cached https://files.pythonhosted.org/packages/87/76/46d697808a143e85f77be5a52ab#4e5da0fe61d63425b6ff4ba553b51f2/pytz-2019.2-py3-none-any.whl
Installing collected packages: sphinx, pytz, django
Successfully installed django-2.2.4 pytz-2019.2 sphinx-0.3.8

(home) E:\homeworkshop\home\Scripts>_
```

```

C:\Homeworkshop>cd Scripts
The system cannot find the path specified.

C:\Homeworkshop>virtualenv home
Using base prefix 'C:\Python'
New python executable in C:\Homeworkshop\home\Scripts\python.exe
Installing setuptools, pip, wheel...
done.

C:\Homeworkshop>cd home
The system cannot find the path specified.

C:\Homeworkshop>home>cd Scripts
The system cannot find the path specified.

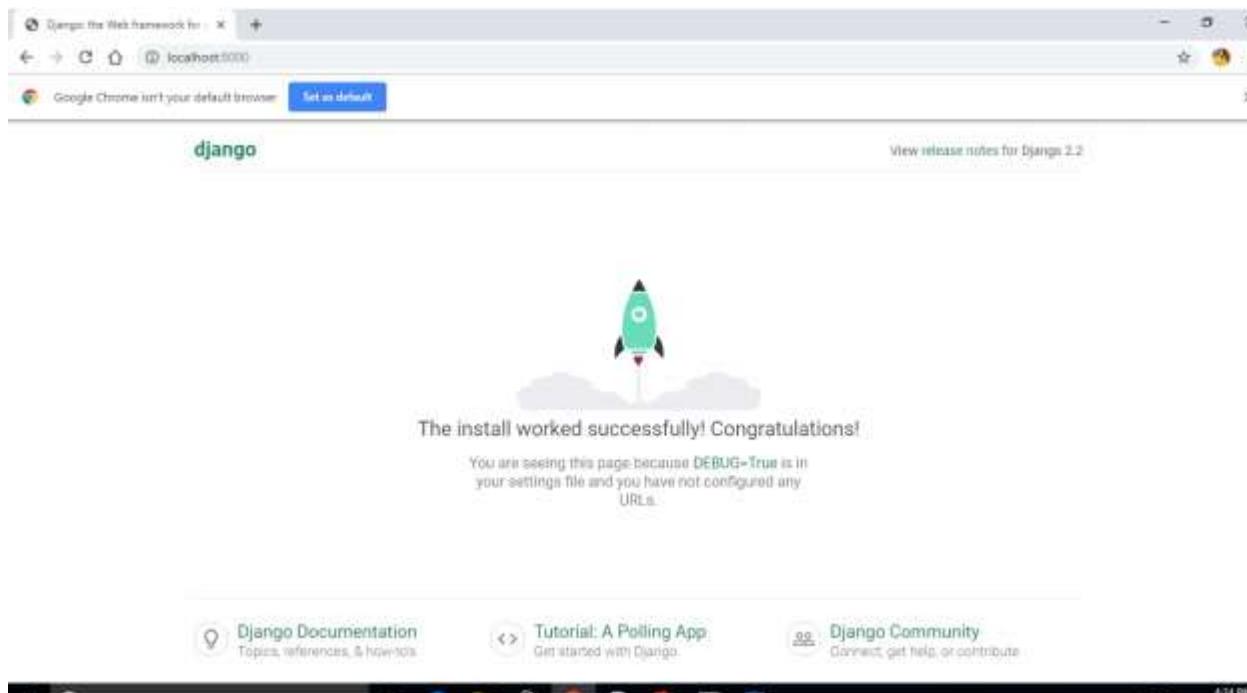
C:\Homeworkshop>home>Scripts>activate
(home) C:\Homeworkshop\home\Scripts>pip install django
Collecting django
  Using cached https://files.pythonhosted.org/packages/db/b7/b6997cabe17d20f0b6c0808c778895ffea877ca8985928175da35e/Django-2.2.4-py3-none-any.whl
Collecting sqlparse (from django)
  Using cached https://files.pythonhosted.org/packages/ef/53/7908f7d2a54557c6a37886589a01396520e5539e3ae2423ff1382d4af3a7/sqlparse-0.3.0-py2.py3-none-any.whl
Collecting pytz (from django)
  Using cached https://files.pythonhosted.org/packages/8f/76/46089709ba143e05f77bec5a528bf4e56a0be61d03425b68f4ba553b51#pytz-2019.2-py2.py3-none-any.whl
Installing collected packages: sqlparse, pytz, django
Successfully installed django-2.2.4 pytz-2019.2 sqlparse-0.3.0

(home) C:\Homeworkshop\home\Scripts>django-admin startproject demohome
(home) C:\Homeworkshop\home\Scripts>python manage.py runserver
python: can't open file 'manage.py': [Errno 2] No such file or directory.

(home) C:\Homeworkshop\home\Scripts>cd demohome
The system cannot find the path specified.

(home) C:\Homeworkshop\home\Scripts>cd demohome
(home) C:\Homeworkshop\home\Scripts\demohome>python manage.py runserver

```



**\*\*BY FOLLOWING THESE STEP YOU INSTALL DJANGO\*\***

**ROCKET FLYED DJANGO INSTALL**

## **\*\*MYSQL\*\***

### **# WRITE A SQL QUERY TO CREATE A TABLE**

#### **Program:**

```
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 3
Server version: 5.5.16 MySQL Community Server (GPL)

Copyright (c) 2000, 2011, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database Abhishek
      -> ;
Query OK, 1 row affected (0.00 sec)

mysql> use Abhishek;
Database changed
mysql> create table employee(icode int,ename char(20),
      -> sex char(1),grade char(2),gross decimal);
Query OK, 0 rows affected (0.36 sec)
```

## # WRITE A SQL QUERY TO DESCRIBE A TABLE

**Program:**

```
mysql> desc employee;
+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| ecode | int(11)   | YES  |     | NULL    |       |
| ename | char(20)  | YES  |     | NULL    |       |
| sex   | char(1)   | YES  |     | NULL    |       |
| grade | char(2)   | YES  |     | NULL    |       |
| gross | decimal(10,0)| YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
5 rows in set (0.13 sec)
```

## # WRITE A SQL QUERY TO INSERT DATA INTO A TABLE

### Program:

```
MySQL 5.5 Command Line Client
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database Abhishek
      -> ;
Query OK, 1 row affected (0.00 sec)

mysql> use Abhishek;
Database changed
mysql> create table employee(ecode int,ename char(20),
      -> sex char(1),grade char(2),gross decimal);
Query OK, 0 rows affected (0.36 sec)

mysql> desc employee;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| ecode | int(11) | YES  |      | NULL    |       |
| ename | char(20) | YES  |      | NULL    |       |
| sex   | char(1)  | YES  |      | NULL    |       |
| grade | char(2)  | YES  |      | NULL    |       |
| gross | decimal(10,0)| YES |      | NULL    |       |
+-----+-----+-----+-----+-----+
5 rows in set (0.13 sec)

mysql> insert into employee values(01,'abhishek','m','b1',4670.00);
Query OK, 1 row affected (0.09 sec)

mysql> insert into employee values(02,'pallavi','f','a1',4623.00);
Query OK, 1 row affected (0.05 sec)
```

## # WRITE A SQL QUERY TO RECEIVE DATA FROM A . . TABLE

### Program:

```
MySQL 5.5 Command Line Client
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database Abhishek
-> ;
Query OK, 1 row affected (0.00 sec)

mysql> use Abhishek;
Database changed
mysql> create table employee(ecode int,ename char(20),
-> sex char(1),grade char(2),gross decimal);
Query OK, 0 rows affected (0.36 sec)

mysql> desc employee;
+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| ecode | int(11)   | YES  |     | NULL    |       |
| ename | char(20)  | YES  |     | NULL    |       |
| sex   | char(1)   | YES  |     | NULL    |       |
| grade | char(2)   | YES  |     | NULL    |       |
| gross | decimal(10,0)| YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
5 rows in set (0.13 sec)

mysql> insert into employee values(01,'abhishek','m','b1',4670.00);
Query OK, 1 row affected (0.09 sec)

mysql> insert into employee values(02,'pallavi','f','a1',4623.00);
Query OK, 1 row affected (0.05 sec)
```

## # WRITE A SQL QUERY TO DELETE DATA FROM A TABLE

### Program:

```
MySQL 5.5 Command Line Client
+-----+-----+-----+-----+
| ecode | int(11) | YES   |      | NULL  |
| ename | char(20) | YES   |      | NULL  |
| sex   | char(1)  | YES   |      | NULL  |
| grade | char(2)  | YES   |      | NULL  |
| gross | decimal(10,0)| YES  |      | NULL  |
+-----+-----+-----+-----+
5 rows in set (0.13 sec)

mysql> insert into employee values(01,'abhishek','m','b1',4670.00);
Query OK, 1 row affected (0.09 sec)

mysql> insert into employee values(02,'pallavi','f','a1',4623.00);
Query OK, 1 row affected (0.05 sec)

mysql> select * from employee
-> ;
+-----+-----+-----+-----+
| ecode | ename   | sex   | grade | gross |
+-----+-----+-----+-----+
|    1  | abhishek | m     | b1    | 4670  |
|    2  | pallavi  | f     | a1    | 4623  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> delete from employee where sex is f;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'f' at line 1
mysql> delete from employee where sex='f';
Query OK, 1 row affected (0.13 sec)
```

## # WRITE A SQL QUERY TO UPDATE DATA IN A TABLE

### Program:

```
MySQL 5.5 Command Line Client
-> sex char(1),grade char(2),gross decimal);
Query OK, 0 rows affected (0.36 sec)

mysql> desc employee;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| ecode | int(11) | YES  |     | NULL    |       |
| ename | char(20) | YES  |     | NULL    |       |
| sex   | char(1)  | YES  |     | NULL    |       |
| grade | char(2)  | YES  |     | NULL    |       |
| gross | decimal(10,0)| YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
5 rows in set (0.13 sec)

mysql> insert into employee values(01,'abhishek','m','b1',4670.00);
Query OK, 1 row affected (0.09 sec)

mysql> insert into employee values(02,'pallavi','f','a1',4623.00);
Query OK, 1 row affected (0.05 sec)

mysql> select * from employee
-> ;
+-----+-----+-----+-----+
| ecode | ename | sex  | grade | gross |
+-----+-----+-----+-----+
|    1 | abhishek | m   | b1   | 4670  |
|    2 | pallavi  | f   | a1   | 4623  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

## # WRITE A SQL QUERY TO DROP A TABLE

### Program:

```
MySQL 5.5 Command Line Client
mysql> update employee set gross=2416 where ecode=3;
Query OK, 1 row affected (0.05 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from employee;
+-----+-----+-----+-----+
| ecode | ename   | sex   | grade  | gross |
+-----+-----+-----+-----+
|     1 | abhishek | m    | b1     | 4670  |
|     2 | nisha    | f    | a2     | 12324 |
|     3 | preeti   | f    | a1     | 2416  |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> drop table employee;
Query OK, 0 rows affected (0.08 sec)

mysql> show tables;
Empty set (0.00 sec)

mysql> select * from employee;
ERROR 1146 (42S02): Table 'abhishek.employee' doesn't exist
mysql>
```

## # WRITE AN SQL QUERY TO JOIN TWO TABLES USING LEFT JOIN

# Program:

## # WRITE AN SQL QUERY TO JOIN TWO TABLES USING RIGHT JOIN

## Program:

## # WRITE AN SQL QUERY TO JOIN TWO TABLES USING INNER JOIN

### Program:

```
MySQL 8.0 Command Line Client - Unicode
mysql> select dept,experience,basic from salary
    -> INNER JOIN staff
    -> ON staff.staffid=salary.staffid;
+-----+-----+-----+
| dept | experience | basic |
+-----+-----+-----+
| sales |          12 | 32000 |
| finance |        6 | 18900 |
| research |       3 | 12000 |
| sales |          8 | 12000 |
| finance |         10 | 42000 |
| sales |          7 | 23000 |
+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>
```

## # WRITE A SQL QUERY TO GET DATA ORDER WISE

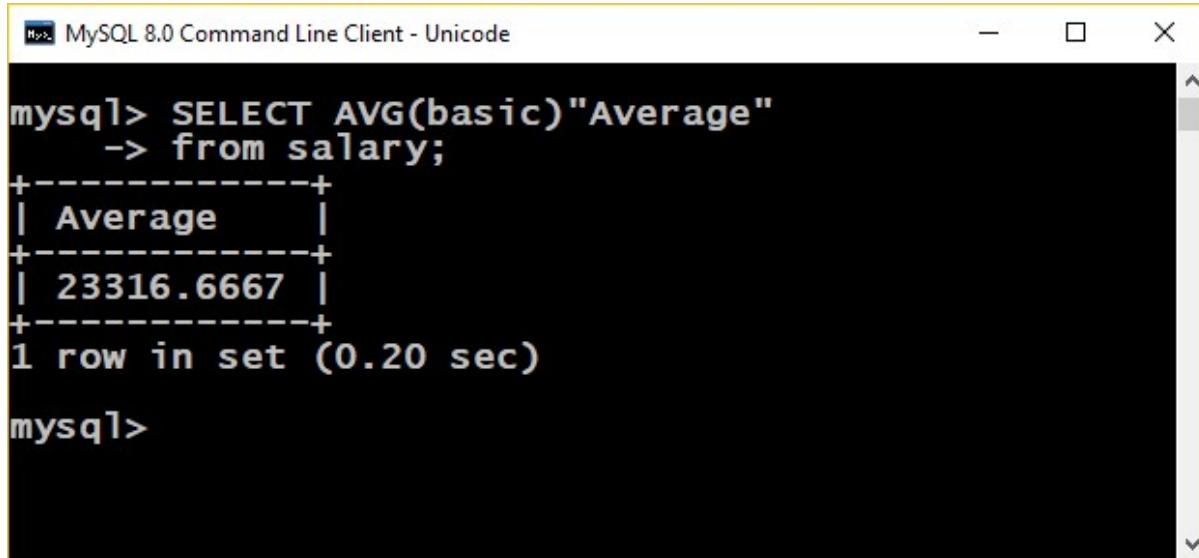
### Program:

```
MySQL 8.0 Command Line Client - Unicode
mysql> select staffid,name,dept
-> from staff
-> where experience>5
-> ORDER BY experience ASC,dept DESC;
+-----+-----+-----+
| staffid | name    | dept   |
+-----+-----+-----+
| A002    | Kartik  | finance|
| A006    | Krishna | sales  |
| A004    | Aryan   | sales  |
| A005    | Laxman  | finance|
| A001    | Nahira | sales  |
+-----+-----+-----+
5 rows in set (0.31 sec)

mysql>
```

## # WRITE A SQL QUERY TO GET AVERAGE SALARY OF ALL EMPLOYEE FROM SALARY TABLE

### Program:



The screenshot shows a terminal window titled "MySQL 8.0 Command Line Client - Unicode". The command entered is "SELECT AVG(basic) "Average" -> from salary;". The output displays a single row with the value "23316.6667" under the column "Average". The message "1 row in set (0.20 sec)" is also shown. The MySQL prompt "mysql>" appears at the bottom.

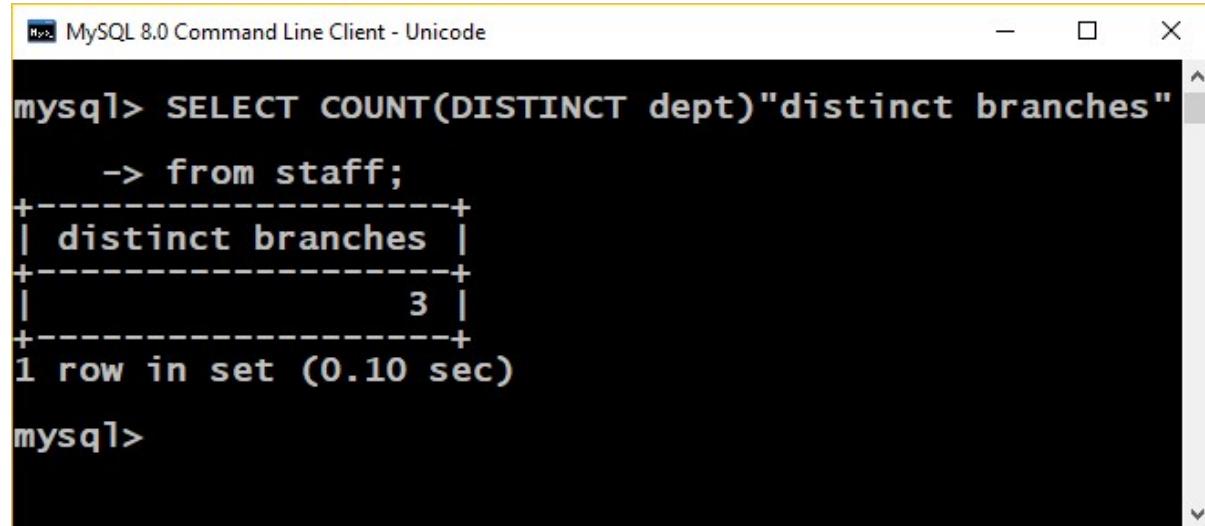
```
MySQL 8.0 Command Line Client - Unicode

mysql> SELECT AVG(basic) "Average"
      -> from salary;
+-----+
| Average |
+-----+
| 23316.6667 |
+-----+
1 row in set (0.20 sec)

mysql>
```

# WRITE A SQL QUERY TO COUNT NO OF DISTINCT BRANCH ARE LISTED IN STAFF TABLE

**Program:**



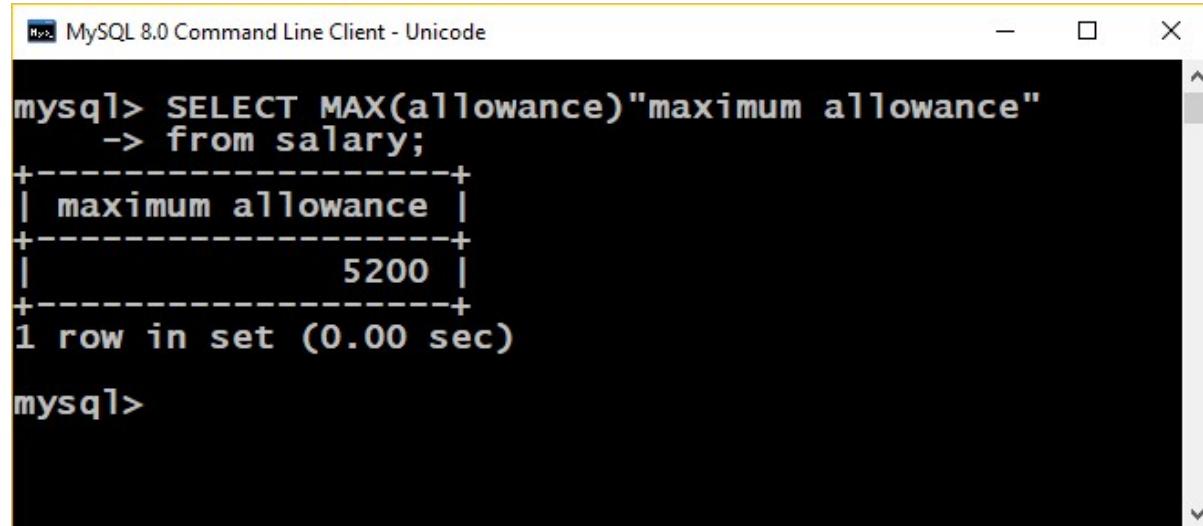
MySQL 8.0 Command Line Client - Unicode

```
mysql> SELECT COUNT(DISTINCT dept)"distinct branches"
      -> from staff;
+-----+
| distinct branches |
+-----+
|          3         |
+-----+
1 row in set (0.10 sec)

mysql>
```

## # WRITE A SQL QUERY TO DISPLAY MAXIMUM ALLOWANCE FROM SALARY TABLE

### Program:



The screenshot shows a terminal window titled "MySQL 8.0 Command Line Client - Unicode". The command entered is "SELECT MAX(allowance) "maximum allowance" -> from salary;". The output displays a single row with the value 5200 under the column "maximum allowance". The message "1 row in set (0.00 sec)" is shown below the result. The MySQL prompt "mysql>" is at the bottom.

```
MySQL 8.0 Command Line Client - Unicode

mysql> SELECT MAX(allowance) "maximum allowance"
      -> from salary;
+-----+
| maximum allowance |
+-----+
|           5200 |
+-----+
1 row in set (0.00 sec)

mysql>
```

## # WRITE A SQL QUERY TO DISPLAY MINIMUM ALLOWANCE FROM SALARY TABLE

### Program:

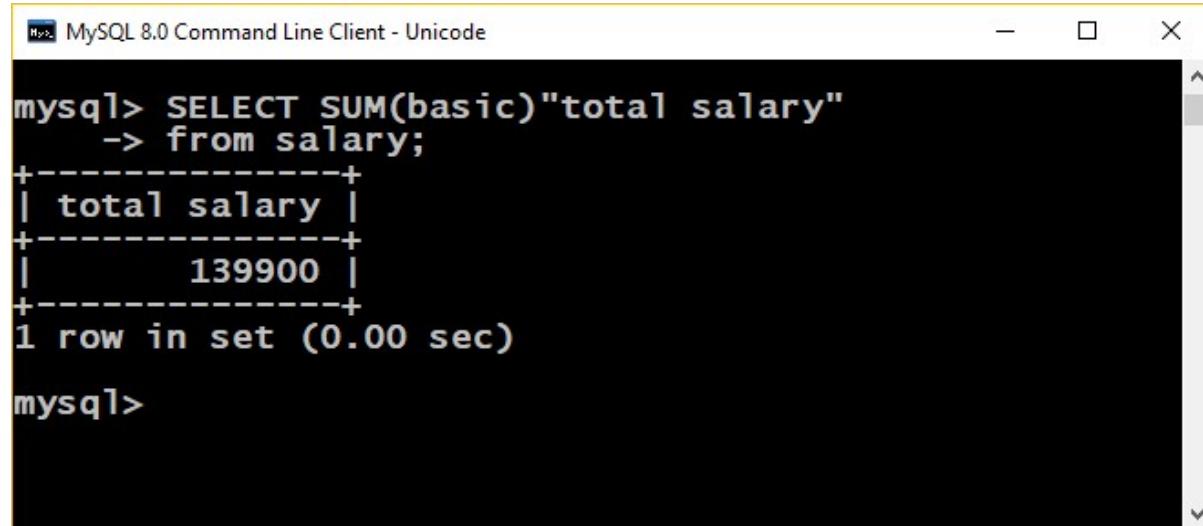
```
MySQL 8.0 Command Line Client - Unicode

mysql> SELECT MIN(allowance)"minimum allowance"
      -> from salary;
+-----+
| minimum allowance |
+-----+
|          1000 |
+-----+
1 row in set (0.10 sec)

mysql>
```

## # WRITE A SQL QUERY TO DISPLAY TOTAL BASIC PAY OF ALL THE EMPLOYEES FROM SALARY TABLE

### Program:



The screenshot shows a terminal window titled "MySQL 8.0 Command Line Client - Unicode". The command entered is:

```
mysql> SELECT SUM(basic)"total salary"  
      -> from salary;
```

The output is:

total salary
139900

Information about the result set:

```
1 row in set (0.00 sec)
```

The MySQL prompt "mysql>" appears at the bottom.

## # WRITE A SQL QUERY TO CALCULATE THE NO OF EMPLOYEE IN EACH GRADE USING GROUP BY CLAUSE

### Program:

```
MySQL 8.0 Command Line Client - Unicode

mysql> SELECT dept,count(*)
-> from staff
-> GROUP BY dept;
+-----+-----+
| dept | count(*) |
+-----+-----+
| sales |      3 |
| finance |    2 |
| research |   1 |
+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

\*\*\*\*\* THE END\*\*\*\*\*