

FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)TM

HORMIS NAGAR, MOOKKANNOOR

ANGAMALY-683577



‘FOCUS ON EXCELLENCE’

PYTHON PROGRAMMING

.....

LABORATORY RECORD

Name : AKSHAY B

Branch : MASTER OF COMPUTER APPLICATION

Semester : 1 Batch : SEMESTER -1 A

Roll No : 10

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University Exam.Reg. No:

CERTIFICATE

*This is to certify that this is a Bonafide record of the Practical work done and submitted to Kerala Technological University in partial fulfillment for the award of the Master Of Computer Applications is a record of the original research work done by AKSHAY B in the **PYTHONPROGRAMMINGLAB** Laboratory of the Federal Institute of Science and Technology during the academic year 2020-2021.*

Signature of Staff in Charge
Name:
Date:

Signature of H.O.D
Name:

Date of University practical examination

Signature of
Internal Examiner

Signature of
External Examiner

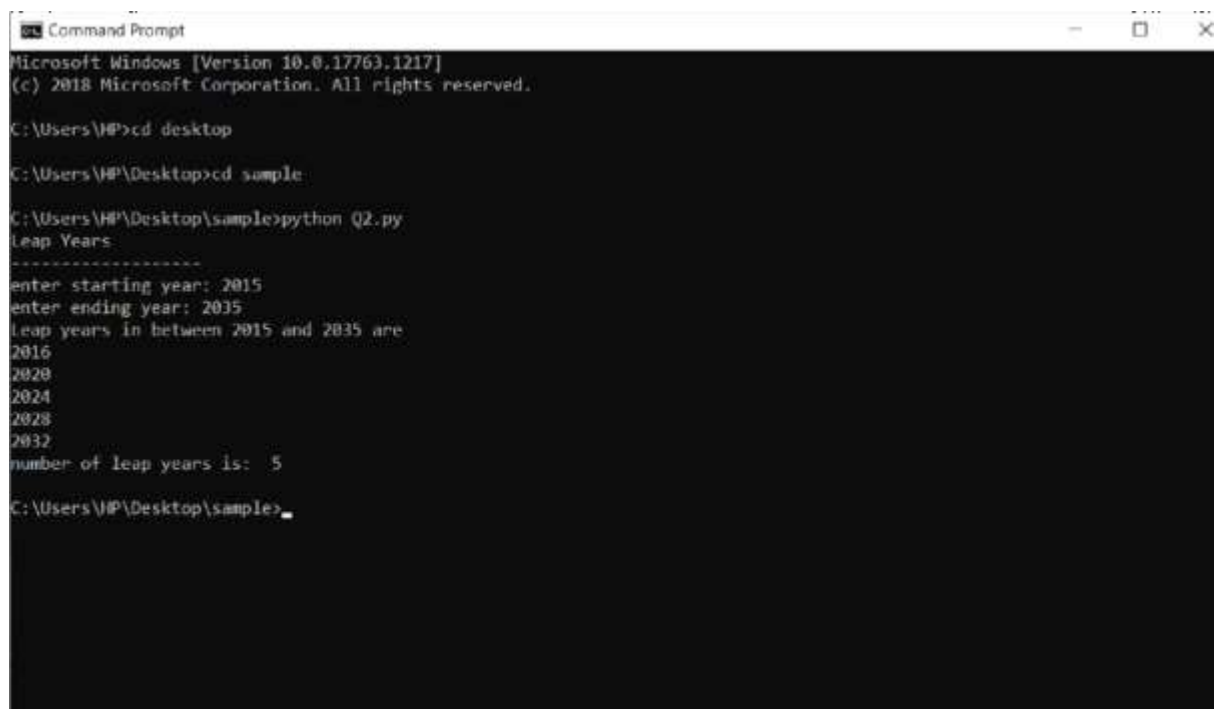
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1. Display future leap years from current year to a final year entered by user.**Program:**

```
print("Leap Years")
print(".....")
start=int(input("enter starting year: "))
end=int(input("enter ending year: "))
c=0
print("Leap years in between" ,start ,"and",end,"are")
while start <= end :
if start % 4 == 0 and start % 100 !=0 :
print(start)
c+=1
if start % 100 == 0 and start % 400 == 0 :
print(start)
start = start+1
print("number of leap years is: ",c)
```

Output:

```
Command Prompt
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\HP>cd desktop
C:\Users\HP\Desktop>cd sample
C:\Users\HP\Desktop\sample>python Q2.py
Leap Years
.....
enter starting year: 2015
enter ending year: 2035
Leap years in between 2015 and 2035 are
2016
2020
2024
2028
2032
number of leap years is: 5
C:\Users\HP\Desktop\sample>
```

2. List comprehensions**a. Generate positive list of numbers from a given list of integers.****Program:**

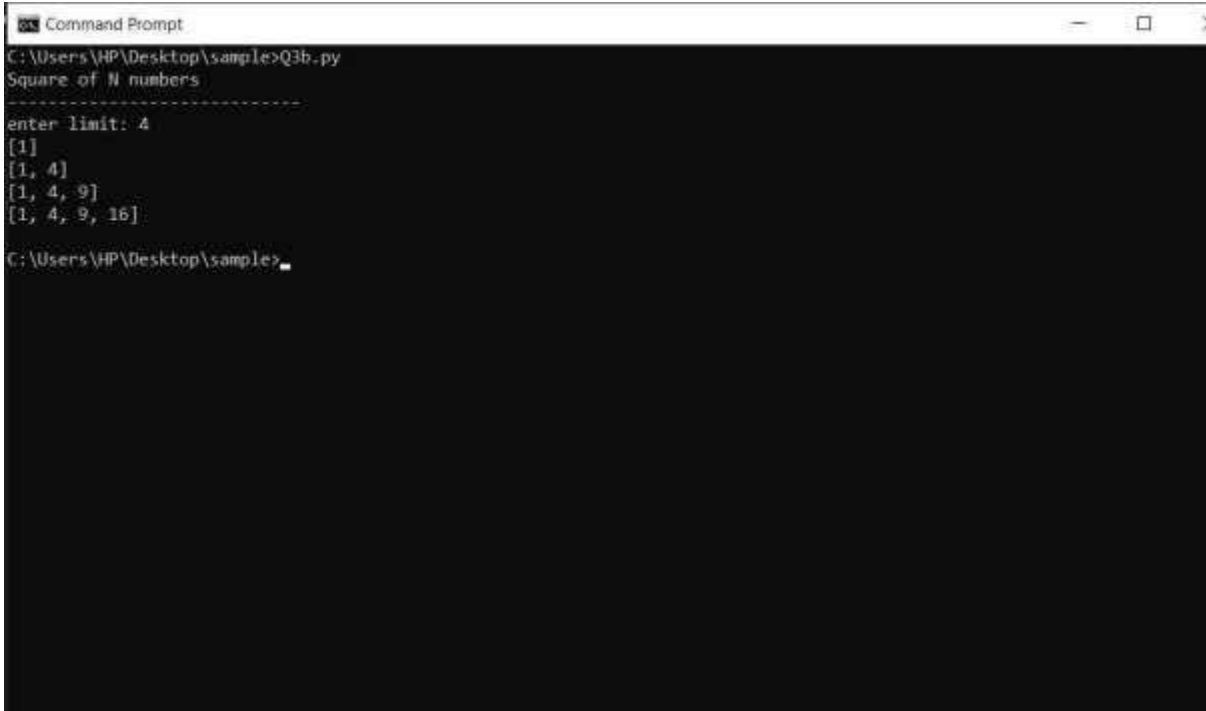
```
print("postive integers from a list")
print(".....")
list1=[9,-2,0,42,75,-33]
for num in list1:
    if num >=0 :
        print(num,end=" ")
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>Q3a.py
postive integers from a list
.....
9 0 42 75
C:\Users\HP\Desktop\sample>
```


b. Square of N numbers.**Program:**

```
print("Square of N numbers")
print(".....")
limit=int(input("enter limit: "))
list1=[]
for i in range(1,limit+1):
list1.append(i*i)
print(list1)
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>Q3b.py
Square of N numbers
.....
enter limit: 4
[1]
[1, 4]
[1, 4, 9]
[1, 4, 9, 16]
C:\Users\HP\Desktop\sample>
```

c. Form a list of vowels selected from a given word,**Program:**

```
print("Ordinal values")

print(" ----- ")

str=input("enter a word:")

vowels=0

for char in str :

if char in 'aeiouAEIOU' :

vowels=vowels+1

else :

continue

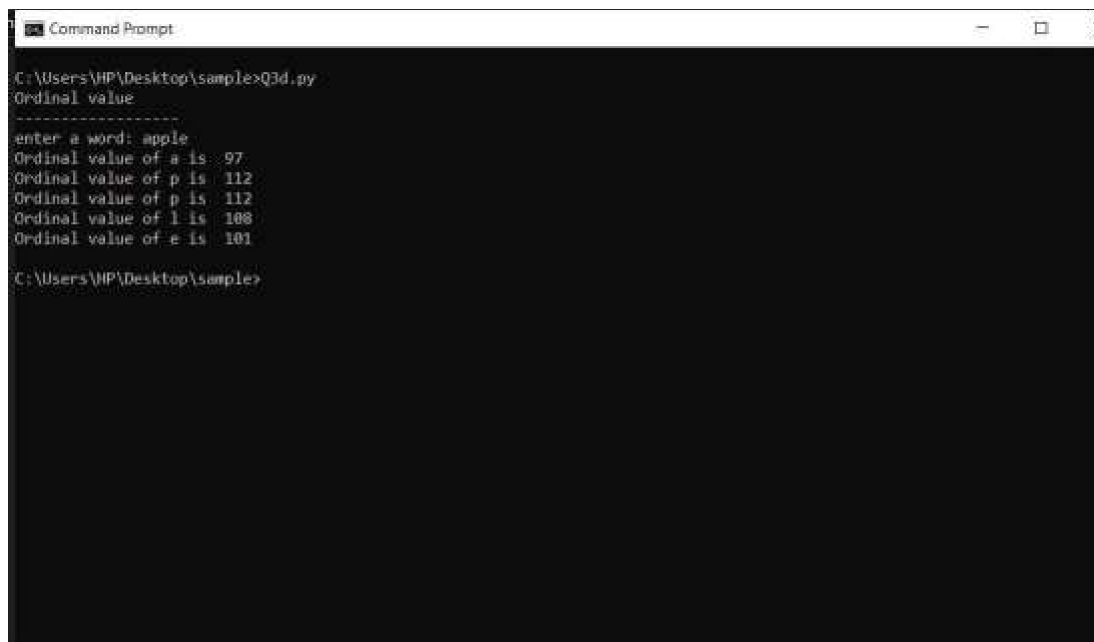
print(vowels)
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>python Q3.py
Ordinal values
-----
enter a word: database
4
C:\Users\HP\Desktop\sample>
```

d. List of ordinal values of each element of a word**Program:**

```
print("Ordinal value")
print(".....")
word=input("enter a word: ")
for ch in word:
print("Ordinal value of "+ch+" is ",ord(ch))
```

Output :

```
Command Prompt
C:\Users\HP\Desktop\sample>python sample.py
Ordinal value
.....
enter a word: apple
Ordinal value of a is 97
Ordinal value of p is 112
Ordinal value of p is 112
Ordinal value of l is 108
Ordinal value of e is 101
C:\Users\HP\Desktop\sample>
```

3.Count the occurrences of each word in a line of text.**Program:**

```
print("occurence of eachword")
print(".....")

str=input("enter a text: ")

counts={}

words=str.split()

for word in words :

if word in counts :

counts[word]+=1

else :

counts[word]=1

for k,v in counts.items():

print(k,v)
```

Output:

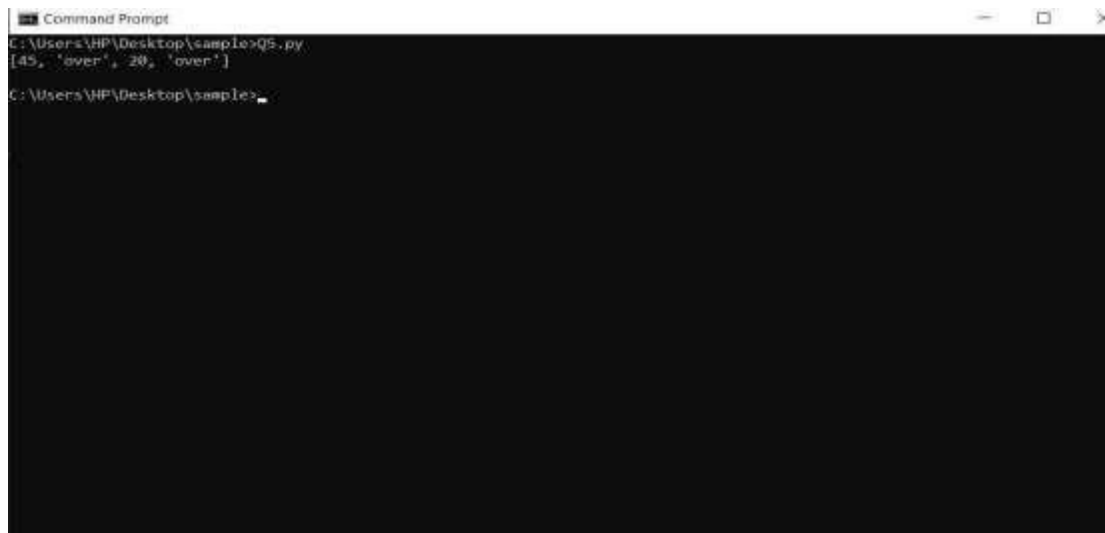
```
Command Prompt
C:\Users\HP\Desktop\sample>python Q4.py
occurence of each word
.....
enter a text: hello i am hello
hello 2
i 1
am 1
C:\Users\HP\Desktop\sample>
```

4.Prompt the user for a list of integers. For all values greater than 100, store 'over' instead.

Program:

```
list=[45,102,20,120]
new_list=[]
for i in list:
    if i>100:
        new_list.append("over")
    else:
        new_list.append(i)
print(new_list)
```

Output:



```
Command Prompt
C:\Users\HP\Desktop\sample>Q5.py
[45, 'over', 20, 'over']
C:\Users\HP\Desktop\sample>
```

5. Store a list of first names. Count the occurrences of 'a' within the list.

Program:

```
list=input("enter names: ")
words=list.split()
print(words)

c=0

for word in words :
    for char in word :
        if char in 'a' :
            c=c+1
        else :
            continue
print(c)
```

Output:

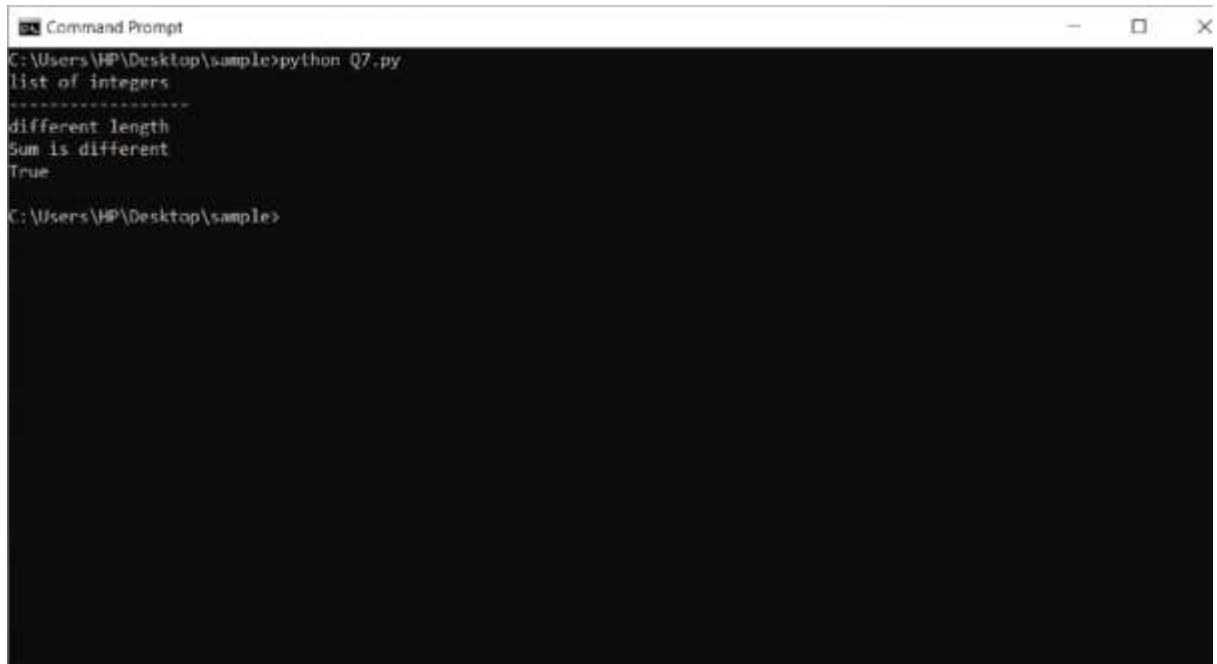


```
Command Prompt
C:\Users\HP\Desktop\sample>python Q6.py
enter names: Gayathri Aparna Amal
['Gayathri', 'Aparna', 'Amal']
5
C:\Users\HP\Desktop\sample>
```

6. Enter 2 list of integers. Check (a) Whether lists are of same length (b) Whether lists sums to same value (c) Whether any value occur in both

Program:

```
print("list of integers")
print(".....")
list1=[1,23,34,26]
list2=[1,56,39,2,67]
if len(list1)==len(list2):
    print("lists are of samelength")
else :
    print("different length")
    if sum(list1)==sum(list2) :
        print("Sum is same")
    else :
        print("Sum isdifferent")
f=0
for elem in list2 :
    if elem in list1 :
        f=1
if f==1 :
    print('True')
else :
    print(False)
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>python Q7.py
list of integers
-----
different length
Sum is different
True
C:\Users\HP\Desktop\sample>
```


7. Get a string from an input string where all occurrences of first character replaced with '\$', except first character.

Program:

```
str=input("enter a string: ")
first_letter=str[0]
replace_str="$"
new_str=str.replace(first_letter,replace_str)
print(new_str.replace(replace_str,first_letter,1))
```

Output:



```
Command Prompt
enter a string: cupcake
cup$ake
C:\Users\HP\Desktop\sample>
```

8.Create a string from given string where first and last characters exchanged.

Program:

```
str=input("Enter string: ")
letters=list()
for i in str:
    letters.append(i)
first_letter=letters[0]
letters[0]=letters[-1]
letters[-1]=first_letter
rev_str=" "
print(rev_str.join(letters))
```

Output:



```
Command Prompt
C:\Users\HP\Desktop\sample>python
Enter string: python
n y t h o p

C:\Users\HP\Desktop\sample>
```

9. Accept the radius from user and find area of circle.**Program:**

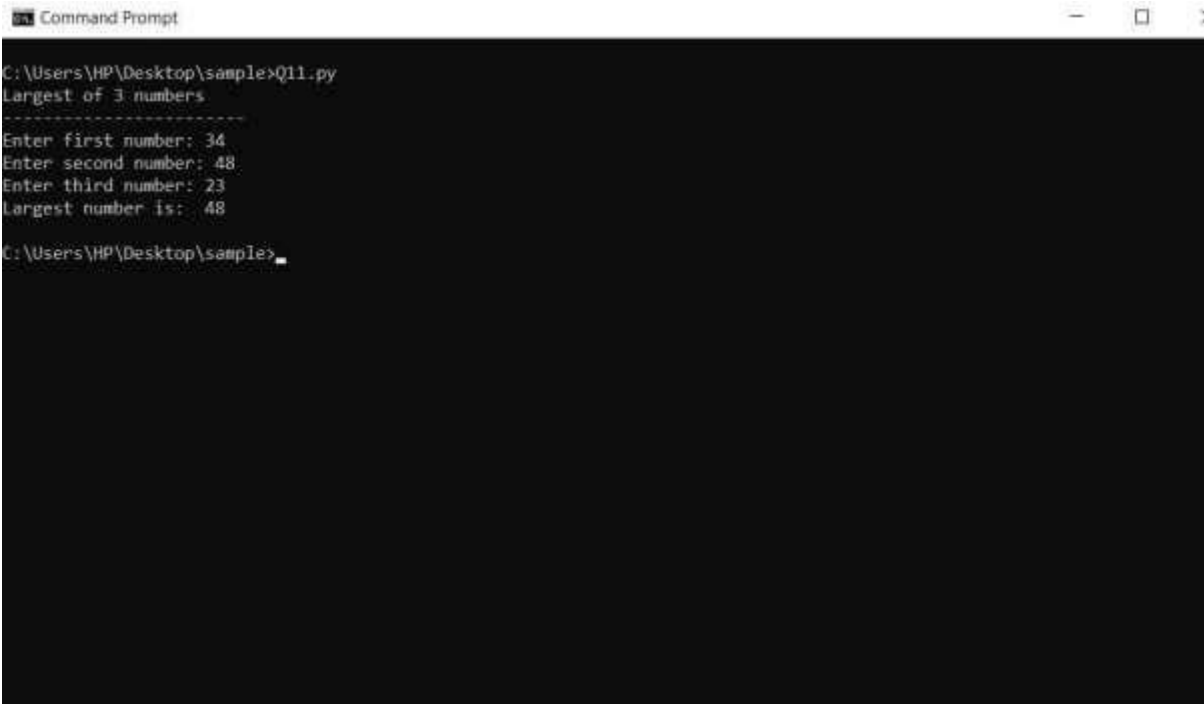
```
print("area of a circle")
r=float(input("enter radius of the circle:"))
area=3.14*r*r
print("area= ",area)
```

Output:A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The command prompt shows the execution of a Python script: "C:\Users\HP\Desktop\sample>Q10.py". The output of the script is displayed: "area of a circle", "enter radius of the circle: 2", and "area= 12.56". The prompt then returns to "C:\Users\HP\Desktop\sample>".

```
Command Prompt
C:\Users\HP\Desktop\sample>Q10.py
area of a circle
enter radius of the circle: 2
area= 12.56
C:\Users\HP\Desktop\sample>
```

10.Find the biggest of 3 numbers entered.**Program:**

```
print("Largest of 3 numbers")
print(".....")
n1=int(input("Enter first number: "))
n2=int(input("Enter second number: "))
n3=int(input("Enter third number: "))
if (n1>=n2) and (n1>=n3):
largest=n1
elif (n2>=n1)and(n2>=n3):
largest=n2
else :
largest=n3
print("Largest number is: ",largest)
```


Output:A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The command prompt shows the execution of a Python script: C:\Users\HP\Desktop\sample>Q11.py. The output of the script is displayed: Largest of 3 numbers, followed by a dashed line separator. Then, it prompts for three numbers: "Enter first number: 34", "Enter second number: 48", and "Enter third number: 23". Finally, it outputs "Largest number is: 48". The prompt returns to C:\Users\HP\Desktop\sample>.

```
Command Prompt
C:\Users\HP\Desktop\sample>Q11.py
Largest of 3 numbers
-----
Enter first number: 34
Enter second number: 48
Enter third number: 23
Largest number is: 48
C:\Users\HP\Desktop\sample>
```

11. Accept a file name from user and print extension of that. Program:

```
print("Extension of file")
print(".....")
file=input("enter file name: ")
l=list()
l=file.split(".")
print(l[-1])
```

Output:



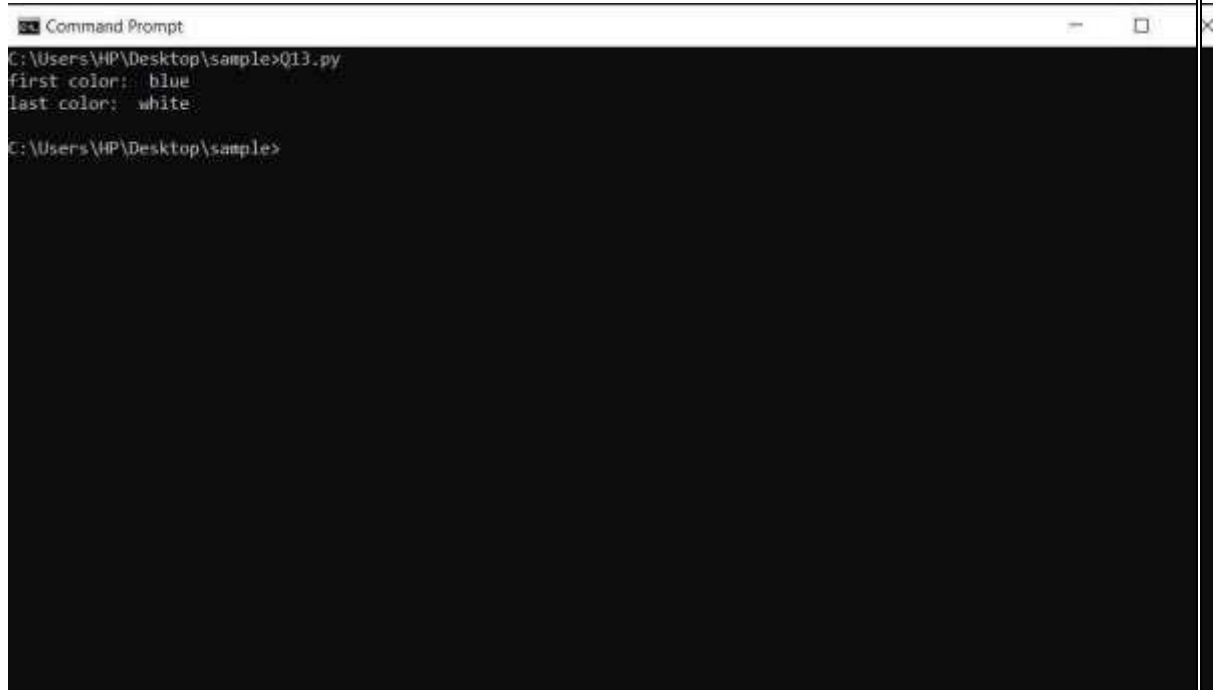
```
C:\Users\HP\Desktop\sample>
Extension of file
.....
enter file name: file1.php
php
C:\Users\HP\Desktop\sample>
```

12. Create a list of colors from comma-separated color names entered by user. Display first and last colors.

Program:

```
List1=['blue','black','yellow','red','white']  
print("first color",List1[0])  
print("last color: ",List1[4])
```

Output:



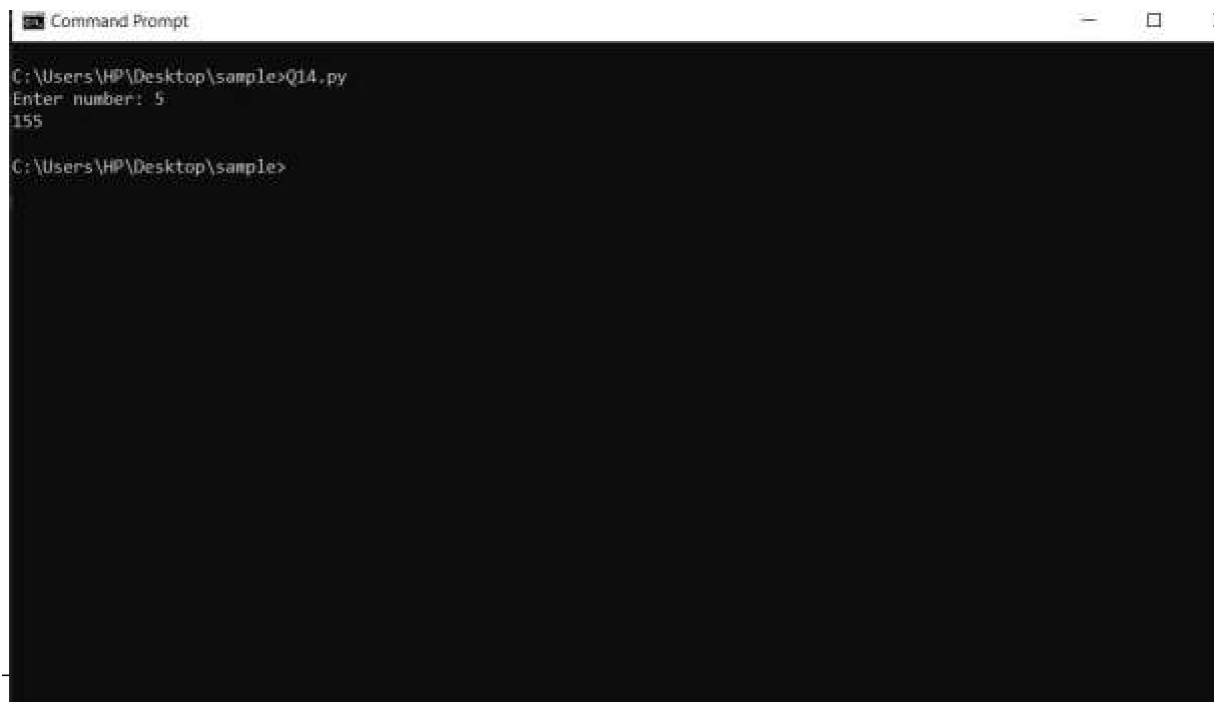
```
Command Prompt  
C:\Users\HP\Desktop\sample>Q13.py  
first color: blue  
last color: white  
C:\Users\HP\Desktop\sample>
```

13. Accept an integer n and compute $n+nn+nnn$.

Program:

```
n=int(input("Enter number: "))  
num=n + n * n + n * n * n  
print(num)
```

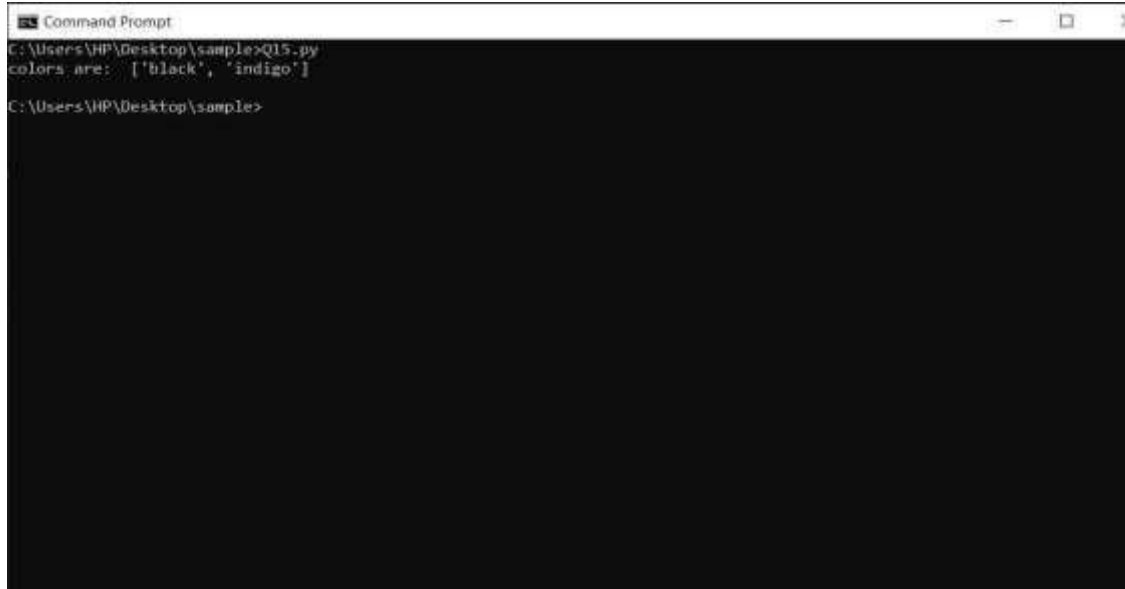
Output:



```
Command Prompt  
C:\Users\HP\Desktop\sample>Q14.py  
Enter number: 5  
155  
C:\Users\HP\Desktop\sample>
```

14 .Print out all colors from color-list1 not contained in color-list2.**Program:**

```
color_list1=['blue','white','black','green','indigo']  
color_list2=['green','red','blue','white','yellow'] sorted_list=list(set(color_list1) -  
set(color_list2))  
print("colors are: ",sorted_list)
```

Output:

```
Command Prompt  
C:\Users\HP\Desktop\sample>Q15.py  
colors are: ['black', 'indigo']  
C:\Users\HP\Desktop\sample>
```


15. Create a single string separated with space from two strings by swapping the character at position 1.

Program:

```
str1=input("enter first string: ")
str2=input("enter second string: ")
new_str1=str2[:1] + str1[1:]
new_str2=str1[:1] + str2[1:]
print("After swapping: ",new_str1 + ' ' + new_str2)
```

Output:



```
Command Prompt
C:\Users\HP\Desktop\sample>Q16.py
enter first string: google
enter second string: chrome
After swapping: coogle ghrome
C:\Users\HP\Desktop\sample>
```

16.Sort dictionary in ascending and descending order,**Program:**

```
print("Dictionary sorting")
print(".....")
D={'alan':12,'susan':75,'elizabeth':30,'joe':32}
print("Original dictionary is: ",D)
l=list(D.items())
l.sort()
print("Ascending order is: ",l)
l=list(D.items())
l.sort(reverse=True)
print("Descending order is: ",l)
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>Q17.py
Dictionary sorting
.....
Original dictionary is: {'alan': 12, 'susan': 75, 'elizabeth': 30, 'joe': 32}
Ascending order is: [('alan', 12), ('elizabeth', 30), ('joe', 32), ('susan', 75)]
Descending order is: [('susan', 75), ('joe', 32), ('elizabeth', 30), ('alan', 12)]
C:\Users\HP\Desktop\sample>
```

17. Merge two dictionaries**Program:**

```
print("Dictionarymerging")
print(".....")
d1={'a':10,'b':8,'c':6,'d':4}
d2={'m':5,'n':3,'o':2,'p':1}
print('Before merging\n')
print("Dictionary 1: ",d1)
print("Dictionary 2: ",d2)
d1.update(d2)
print('After merging\n',d1)
```

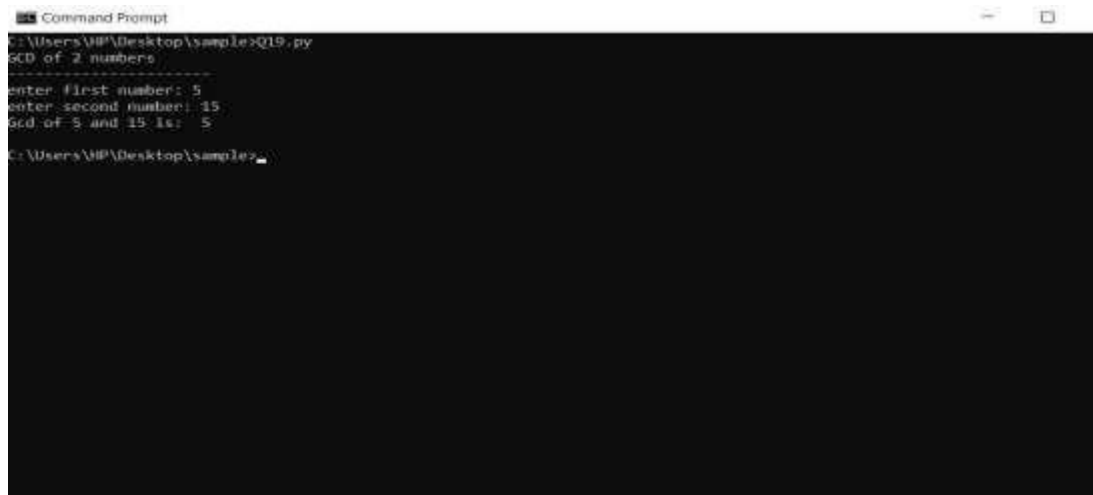
Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>Q18.py
Dictionary merging
.....
Before merging

Dictionary 1: {'a': 10, 'b': 8, 'c': 6, 'd': 4}
Dictionary 2: {'m': 5, 'n': 3, 'o': 2, 'p': 1}
After merging
{'a': 10, 'b': 8, 'c': 6, 'd': 4, 'm': 5, 'n': 3, 'o': 2, 'p': 1}
C:\Users\HP\Desktop\sample>
```

18.Find gcd of 2 numbers.**Program:**

```
print("GCD of 2 numbers")
print(".....")
n1=int(input("enter first number: "))
n2=int(input("enter second number: "))
def gcd(a,b):
    if(b==0):
        return a
    else:
        return gcd(b,a%b)
result=gcd(n1,n2)
print("Gcd of" ,n1, "and" ,n2, "is:",result)
```

Output:A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The command prompt shows the execution of a Python script: `C:\Users\VIP\Desktop\sample>Q19.py`. The output of the script is displayed: `GCD of 2 numbers`, followed by a dashed line `-----`. Then, it prompts for input: `enter first number: 5` and `enter second number: 15`. Finally, it displays the result: `Gcd of 5 and 15 is: 5`. The prompt then returns to `C:\Users\VIP\Desktop\sample>`.

19. From a list of integers, create a list removing even numbers.**Program:**

```
limit=int(input("enter limit: "))
n=[]
for i in range(1,limit+1):
    num=int(input(f"enter the {i} th number:"))
    n.append(num)
print("entered list: ",n)
odd_list=[]
for i in n:
    if i%2!=0:
        odd_list.append(i)
print("list after removing even numbers",odd_list)
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>Q20.py
enter limit: 4
enter the 1 th number:2
enter the 2 th number:5
enter the 3 th number:8
enter the 4 th number:13
entered list: [2, 5, 8, 13]
list after removing even numbers [5, 13]
C:\Users\HP\Desktop\sample>
```

20. Program to find the factorial of a number.**Program:**

```
print("factorial of a number")
print(".....")
num=int(input("enter a number: "))
fact=1
if num < 0:
    print("enter a positive number")
else:
    for i in range(1,num+1):
        fact=fact*i
    print("factorial of",num,"is",fact)
```

Output:

```
Command Prompt
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\HP>cd desktop
C:\Users\HP\Desktop>cd sample
C:\Users\HP\Desktop\sample>python p1.py
factorial of a number
.....
enter a number: 5
factorial of 5 is 120

C:\Users\HP\Desktop\sample>
```

21. Generate Fibonacci series of N terms**Program:**

```
print("fibonacci series")
print(".....")
limit=int(input("enter limit: "))
n1=0
n2=1
count=1
while count < limit:
print(n1)
n=n1+n2
n1=n2
n2=n
count=count+1
```

Output:

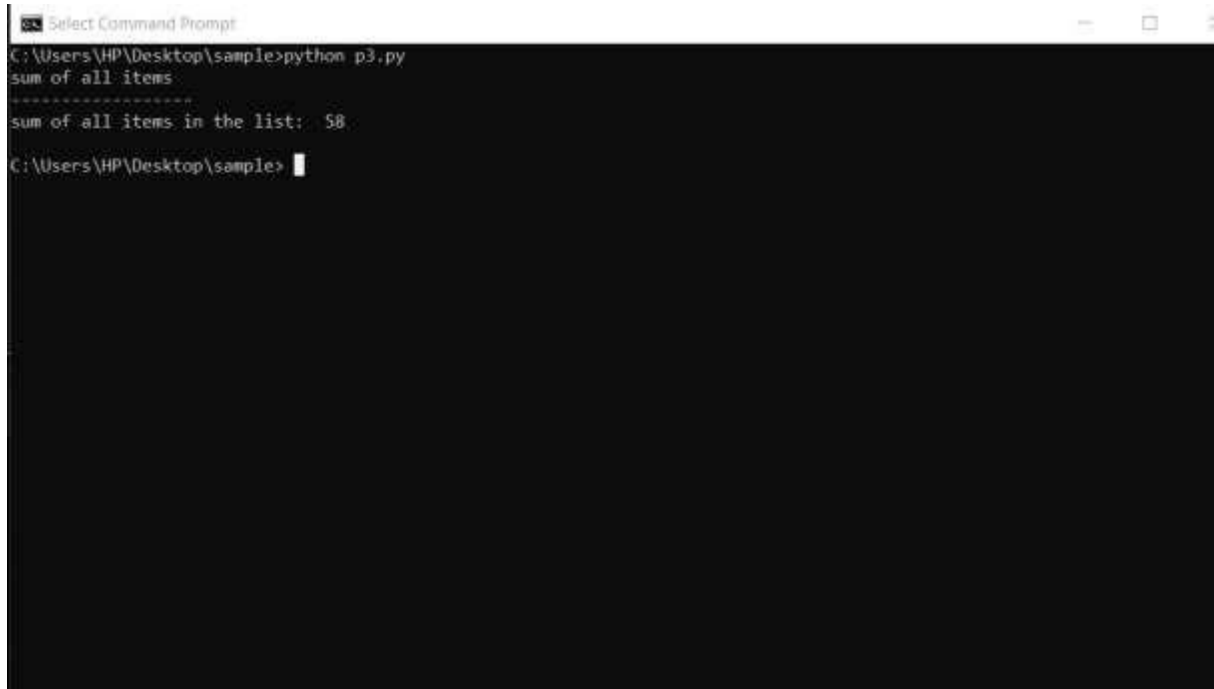
The screenshot shows a Windows Command Prompt window titled "Select Command Prompt:". The command prompt shows the following text:

```
C:\Users\HP\Desktop\sample>python p2.py
fibonacci series
.....
enter limit: 6
0
1
1
2
3
```

The output displays the first five terms of the Fibonacci series (0, 1, 1, 2, 3) for a limit of 6. The prompt is currently at the end of the line "C:\Users\HP\Desktop\sample>".

22. Find the sum of all items in a list**Program:**

```
print("sum of all items")
print(".....")
total=0 list1=[11,10,12,20,5]
for ele in range(0,len(list1)):
    total = total + list1[ele]
print("sum of all items in the list: ",total)
```

Output:

```
Select Command Prompt
C:\Users\HP\Desktop\sample>python p3.py
sum of all items
.....
sum of all items in the list: 58
C:\Users\HP\Desktop\sample>
```


23. Generate a list of four digit numbers in a given range with all their digits even and the number is a perfect square.

Program:

```
sq_list=[]
limit=int(input("enter the range: "))
if(limit<1000 or limit>9999):
    print("enter a range between 1000 to 9999")
else:
    for i in range(32,99):
        s=0
        if(i*i>limit):
            break
        else:
            for k in str(i*i):
                if(int(k)%2==0):
                    s=s+1
            if(s==4):
                sq_list.append(i*i)
            if(len(sq_list)==0):
                print("No numbers satisfying both conditions found in the range")
        else:
            print(f"Numbers satisfying both conditons are->{sq_list}")
```

Output:



```
Command Prompt
C:\Users\HP\Desktop\sample>python p4.py
enter the range: 7888
Numbers satisfying both conditons are->[4624, 6084, 6400]
C:\Users\HP\Desktop\sample>
```

24. Display the given pyramid with step number accepted from user.

Eg: N=4

1
2 4
3 6 9
4 8 12 16

Program:

```
sum=0  
  
limit=int(input("enter limit:"))  
for i in range(1,limit+1):  
    print("\n")  
    for j in range(1,i+1):  
        sum=i*j  
        print(sum,end=' ')  
    print("\n")
```

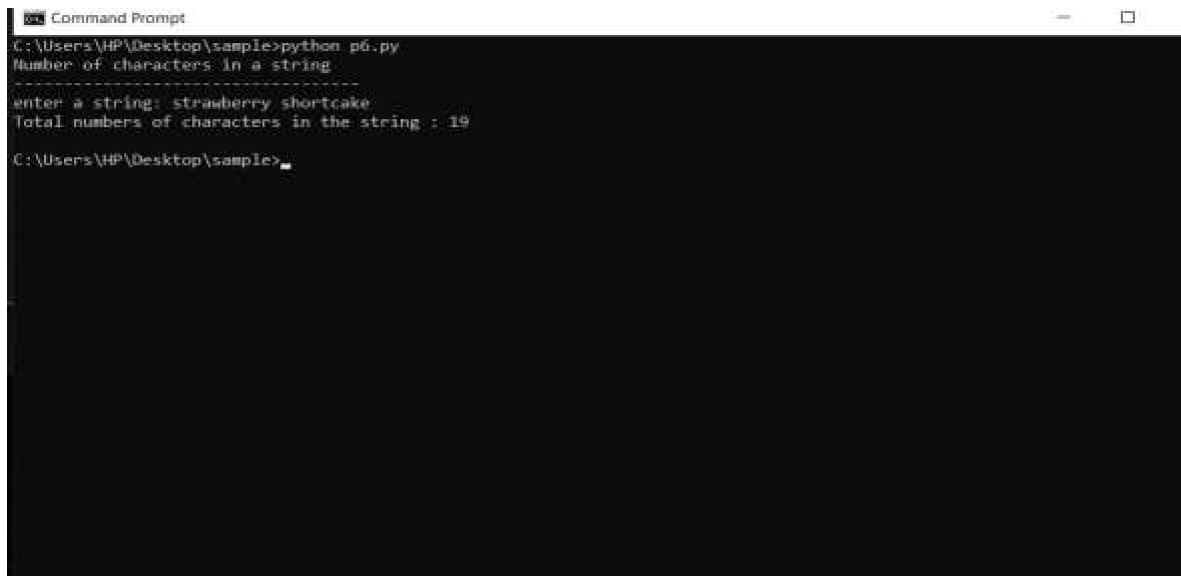
Output :



```
Command Prompt  
C:\Users\HP\Desktop\sample>python p5.py  
enter limit: 5  
  
1  
2 4  
3 6 9  
4 8 12 16  
5 10 15 20 25  
  
C:\Users\HP\Desktop\sample>
```

25.Count the number of characters (character frequency) in a string..**Program:**

```
print("Number of characters in a string")
print(".....")
string=input("enter a string: ")
count=0
for i in range(0,len(string)):
    if(string[i]!=' '):
        count = count + 1
print("Total numbers of characters in the string : "+str(count))
```

Output:

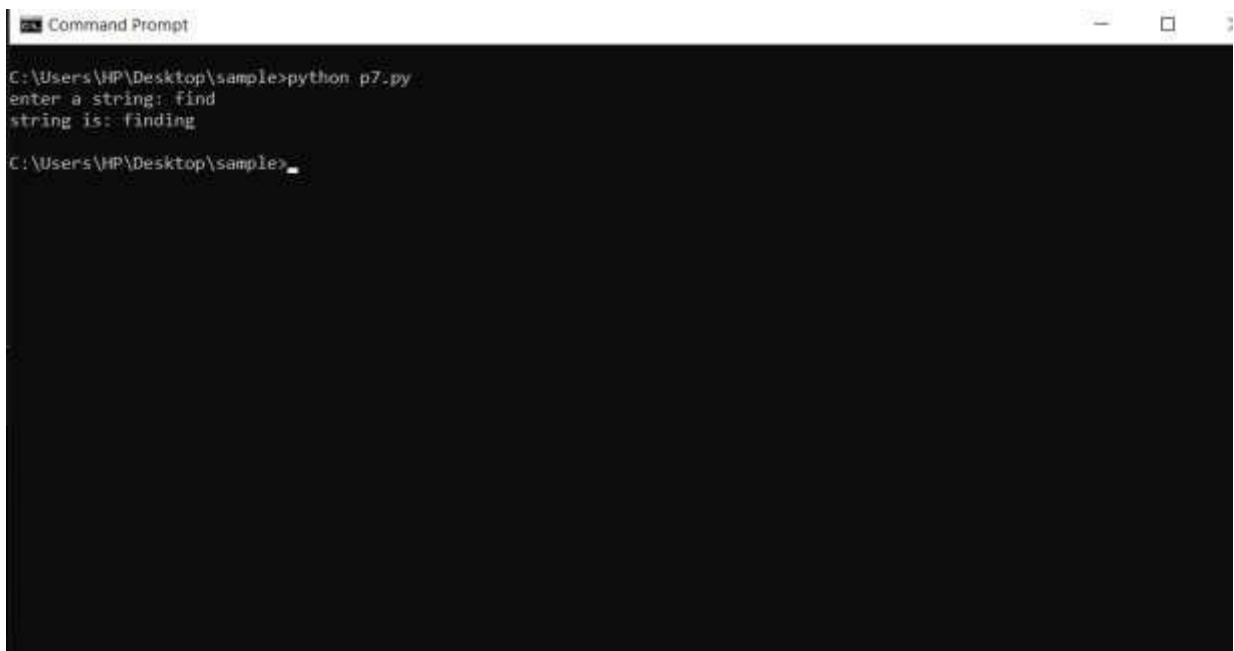
```
Command Prompt
C:\Users\HP\Desktop\sample>python p6.py
Number of characters in a string
.....
enter a string: strawberry shortcake
Total numbers of characters in the string : 19
C:\Users\HP\Desktop\sample>
```

26. Add 'ing' at the end of a given string. If it already ends with 'ing', then add 'ly'.

Program:

```
string1=input("enter a string: ")
str1="ly"
str2="ing"
last=string1[-3:]
if last in 'ing':
string1=string1+str1
print("string is: "+string1)
else:
string1=string1+str2
print("string is: "+string1)
```

Output:



```
Command Prompt
C:\Users\HP\Desktop\sample>python p7.py
enter a string: find
string is: finding
C:\Users\HP\Desktop\sample>
```

27. Accept a list of words and return length of longest word,**Program:**

```
str_list=list() long=0
string=' '
lim=int(input("enter the limit: "))
for i in range(1,lim+1):
    item=str(input(f"enter the string {i}:"))
    str_list.append(item)
for i in str_list:
    if(long<=len(i)):
        long=len(i)
        string=i
print(f"Longest word in the list is {string} and its length is {long}")
```

Output:

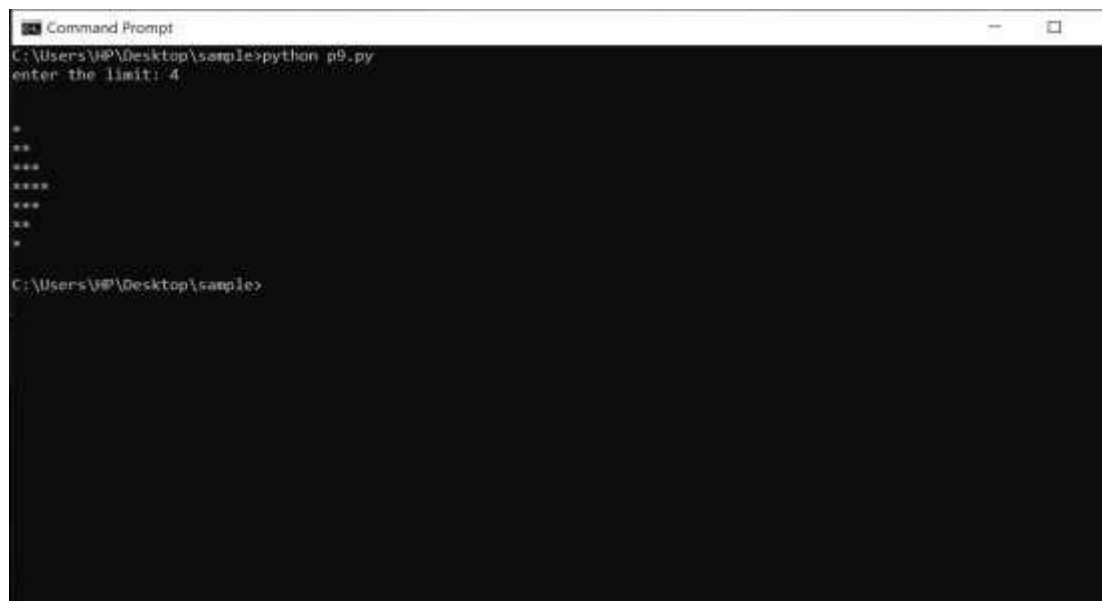
```
C:\Users\HP\Desktop\sample>python p8.py
enter the limit: 3
enter the string1:python
enter the string2:hutlin
enter the string3:juvie
Longest word in the list is hutlin and its length is 6
C:\Users\HP\Desktop\sample>
```

28. Construct following pattern using nested loop.

```
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*
```

Program:

```
lim=int(input("enter the limit: "))
print("\n")
for i in range(1,lim+1):
    print('*'*i)
    j=lim-i
    while(j!=0):
        print('*'*j)
        j=j-1
```

Output:

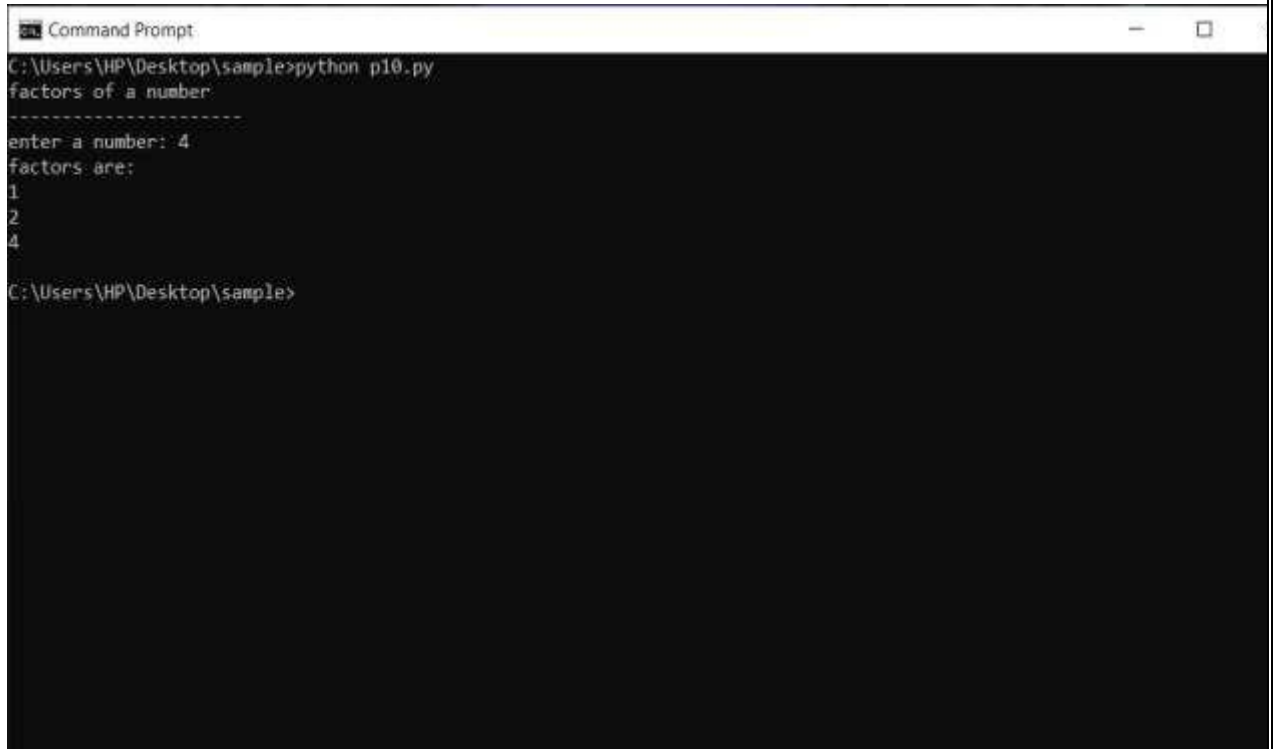
```
Command Prompt
C:\Users\VP\Desktop\sample>python p9.py
enter the limit: 4

*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*

C:\Users\VP\Desktop\sample>
```


29. Generate all factors of a number.**Program:**

```
print("factors of a number")
print(".....")
num=int(input("enter a number: "))
print("factors are: ")
for i in range(1,num+1):
    if num % i ==0:
        print(i)
```

Output:A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The command prompt shows the following text:
C:\Users\HP\Desktop\sample>python p10.py
factors of a number
.....
enter a number: 4
factors are:
1
2
4
C:\Users\HP\Desktop\sample>

30. Write lambda functions to find area of square, rectangle and triangle.**Program:**

```
square=lambda x: x ** 2
rectangle=lambda x,y: x*y
triangle=lambda x,y: 0.5*(x*y)
print("1.Area of square")
print("2.Area of rectangle")
print("3.Area of triangle")
print("\n")
ch=int(input("enter a choice: "))
if(ch==1):
    side = int(input("enter one side: "))
    print("\n")
    print(f"Area of the square is {square(side)}")
elif(ch==2):
    length=int(input("enter the length: "))
    breadth=int(input("enter the breadth: "))
    print("\n")
    print(f"Area of the rectangle is {rectangle(length,breadth)}")
elif(ch==3):
    height=int(input("enter the height: "))
    breadth=int(input("enter the breadth: "))
    print("\n")
    print(f"Area of triangle is {int(triangle(height,breadth))}")
else:
    print("Invalid input")
```

Output:

```
Command Prompt
C:\Users\HP\Desktop\sample>python p11.py
1.Area of square
2.Area of rectangle
3.Area of triangle

enter a choice: 1
enter one side: 4

Area of the square is 16
C:\Users\HP\Desktop\sample>
```


31. Work with built-in packages.**Program:**

```
import time
```

```
import datetime
```

```
today=datetime.date.today()
```

```
print(f"The time is {time.ctime()} and date is {today}")
```

Output:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\owner\Desktop\LAB MCA\PYTHON\record\co3>1.py
The time is Sat Mar 27 19:30:04 2021 and date is 2021-03-27

C:\Users\owner\Desktop\LAB MCA\PYTHON\record\co3>
```

32. Create a package graphics with modules rectangle,circle.include method to find area and perimeter of respective figures in each.Write a program to find area and perimeter of figure by different importing statements

Program:

```
from graphics import rectangle as r, circle as c

from graphics.three_d_graphics import sphere as s, cuboid as cu

print(f"Area of rectangle :{r.area(12,12)}")

print(f"Area of circle :{c.area(6)}")

print(f"Area of sphere :{s.area(12)}")

print(f"Area of cuboid :{cu.area(12,16,18)}")

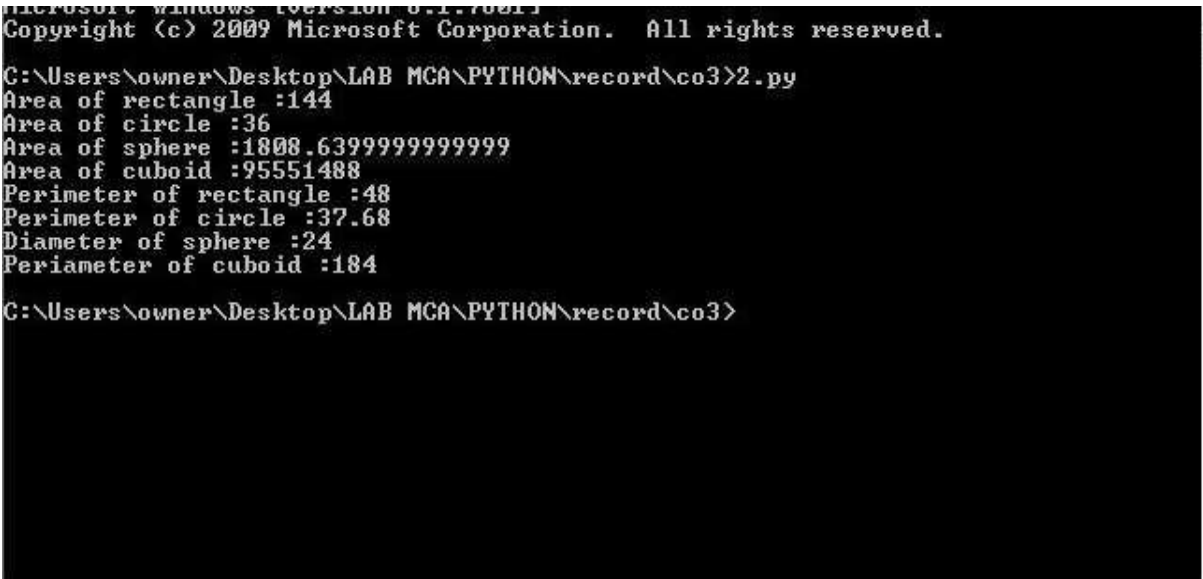
print(f"Perimeter of rectangle :{r.perimeter(12,12)}")

print(f"Perimeter of circle :{c.perimeter(6)}")

print(f"Diameter of sphere :{s.diameter(12)}")

print(f"Periameter of cuboid :{cu.perimeter(12,16,18)}")
```

Output:



```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\owner\Desktop\LAB MCA\PYTHON\record\co3>2.py
Area of rectangle :144
Area of circle :36
Area of sphere :1808.6399999999999
Area of cuboid :95551488
Perimeter of rectangle :48
Perimeter of circle :37.68
Diameter of sphere :24
Periameter of cuboid :184

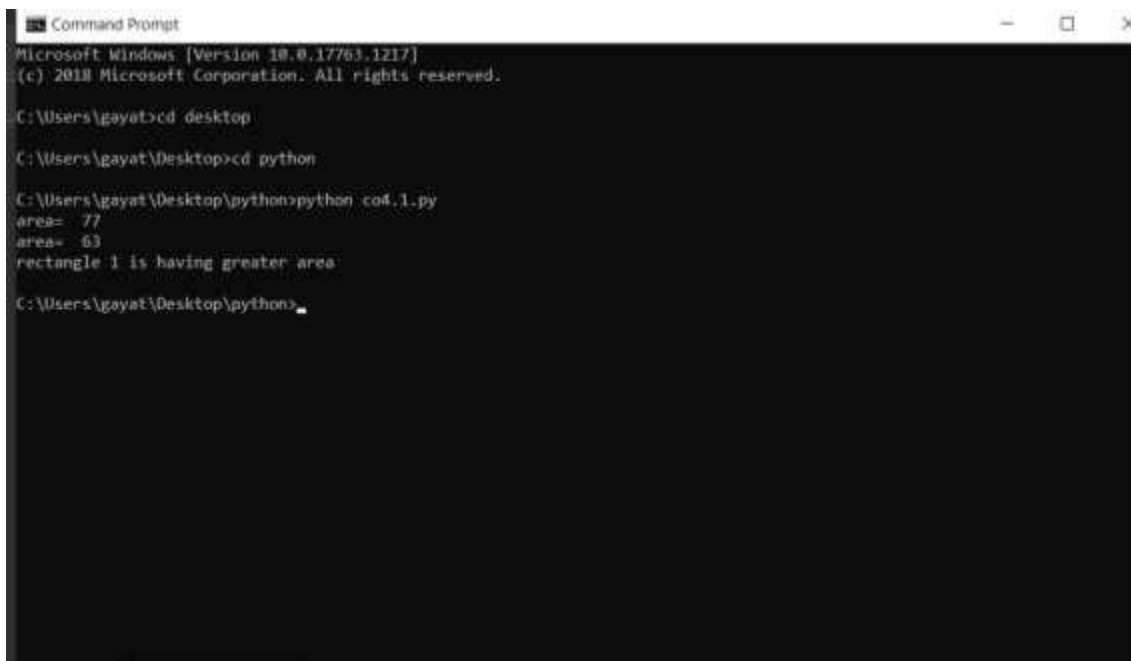
C:\Users\owner\Desktop\LAB MCA\PYTHON\record\co3>
```

33. Create Rectangle class with attributes length and breadth and methods to find area and perimeter. Compare two Rectangle objects by their area.

Program:

```
class Rectangle:
    def arearect(self,l,w):
        self.l=l
        self.w=w
        self.area=self.l*self.w
        print("area= ",self.area)
rect1=Rectangle()
rect2=Rectangle()
rect1.arearect(11,7)
rect2.arearect(9,7)
if(rect1.area<rect2.area):
    print("rectangle 2 is having greater area")
elif(rect1.area==rect2.area):
    print("both rectangles have same area")
else:
    print("rectangle 1 is having greater area")
```

Output:



```
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

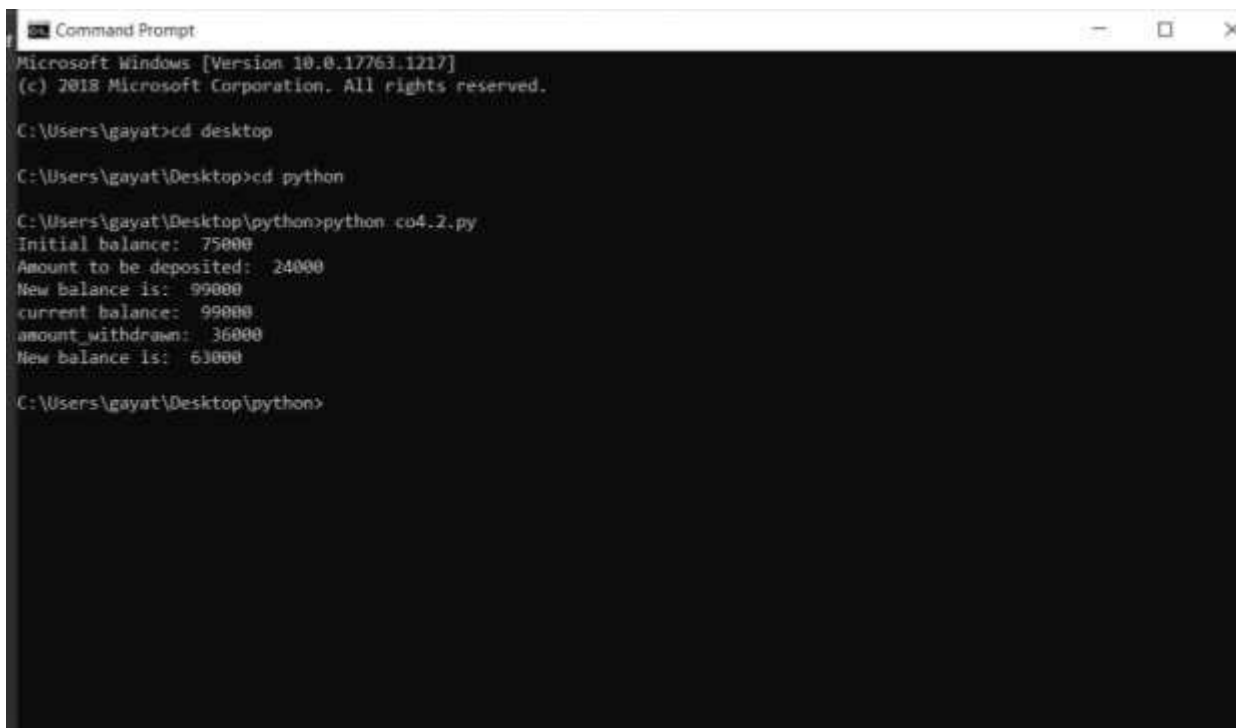
C:\Users\gayat>cd desktop
C:\Users\gayat\Desktop>cd python
C:\Users\gayat\Desktop\python>python co4.1.py
area= 77
area= 63
rectangle 1 is having greater area
C:\Users\gayat\Desktop\python>
```

34. Create a Bank account with members account number, name, type of account and balance. Write constructor and methods to deposit at the bank and withdraw an amount from the bank.

Program:

```
class Bank_account:
    def __init__(self, acc_no, name, acc_type, balance):
        self.acc_no = acc_no
        self.name = name
        self.acc_type = acc_type
        self.balance = balance
    def deposit(self, deposit_am):
        print("Initial balance: ", self.balance)
        print("Amount to be deposited: ", deposit_am)
        self.balance = self.balance + deposit_am
        print("New balance is: ", self.balance)
    def withdraw(self, withdrawn_am):
        print("current balance: ", self.balance)
        print("amount withdrawn: ", withdrawn_am)
        self.balance = self.balance - withdrawn_am
        print("New balance is: ", self.balance)
P = Bank_account(1234, 'Rose', 'savings', 75000)
P.deposit(24000)
P.withdraw(36000)
```

Output:



```
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\gayat>cd desktop
C:\Users\gayat\Desktop>cd python
C:\Users\gayat\Desktop\python>python co4.2.py
Initial balance: 75000
Amount to be deposited: 24000
New balance is: 99000
current balance: 99000
amount withdrawn: 36000
New balance is: 63000
C:\Users\gayat\Desktop\python>
```

35. Create a class Rectangle with private attributes length and width. Overload '<' operator to compare the area of 2 rectangles.

Program:

```
class Rectangle:
    def __init__(self,l,w):
        self.l=l
        self.w=w
    def __lt__(self,a):
        if((self.l*self.w)>(a.l*a.w)):
            print("rect1 is having greater area")
            return(self.l*self.w)
        else:
            print("rect2 is having greater area")
            return(a.l*a.w)
rect1=Rectangle(9,4)
rect2=Rectangle(8,5)
print(rect1<rect2)
```

Output:



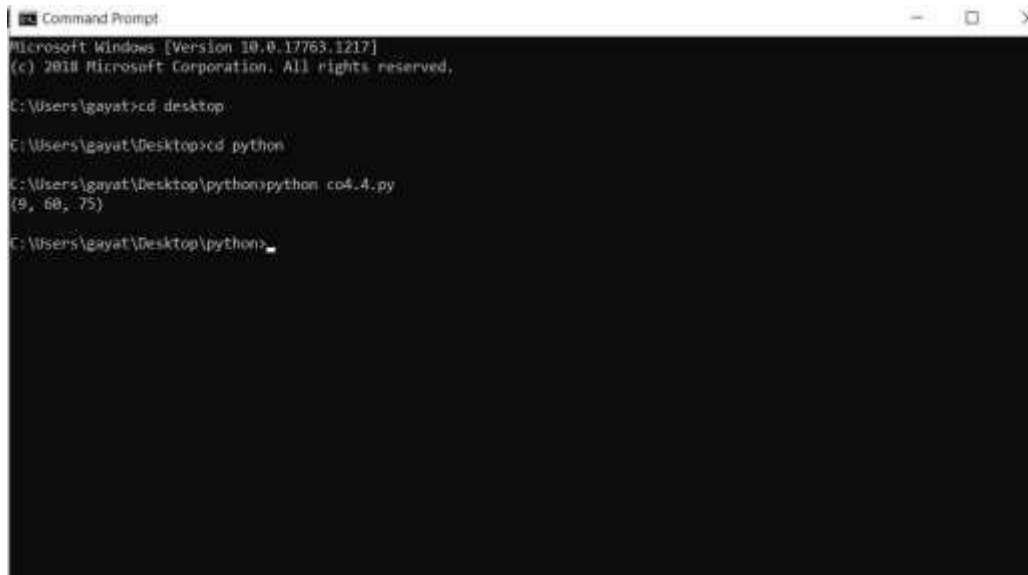
```
C:\Users\gayat\Desktop\python>python co4.3.py
rect2 is having greater area
40
C:\Users\gayat\Desktop\python>
```

36 .Create a class Time with private attributes hour, minute and second. Overload '+' operator to find sum of 2 time.

Program:

```
class Time:
    def __init__(self,hr,min,sec):
        self.hr=hr
        self.min=min
        self.sec=sec
    def __add__(self,t):
        return(self.hr+t.hr,self.min+t.min,self.sec+t.sec)
t1=Time(4,15,45)
t2=Time(5,45,30)
print(t1+t2)
```

Output:



```
Command Prompt
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\gayat>cd desktop
C:\Users\gayat\Desktop>cd python
C:\Users\gayat\Desktop\python>python co4.4.py
(9, 60, 75)
C:\Users\gayat\Desktop\python>
```

37. Create a class Publisher (name). Derive class Book from Publisher with attributes title and author. Derive class Python from Book with attributes price and no_of_pages. Write a program that displays information about a Python book. Use base class constructor invocation and method overriding.

Program:

```
class Publisher:
    def __init__(self,n):
        self.name=n
class Book(Publisher):
    def __init__(self,n,a,t):
        super().__init__(n)
        self.title=t
        self.author=a
class Python(Book):
    def __init__(self,n,a,t,p,pg):
        super().__init__(n,a,t)
        self.price=p
        self.pages=pg
    def Print(self):
        print(P.name)
        print(P.title)
        print(P.author)
        print(P.price)
        print(P.pages)
P=Python('dcbooks','programming','mark',500,200)
P.Print()
```

Output:



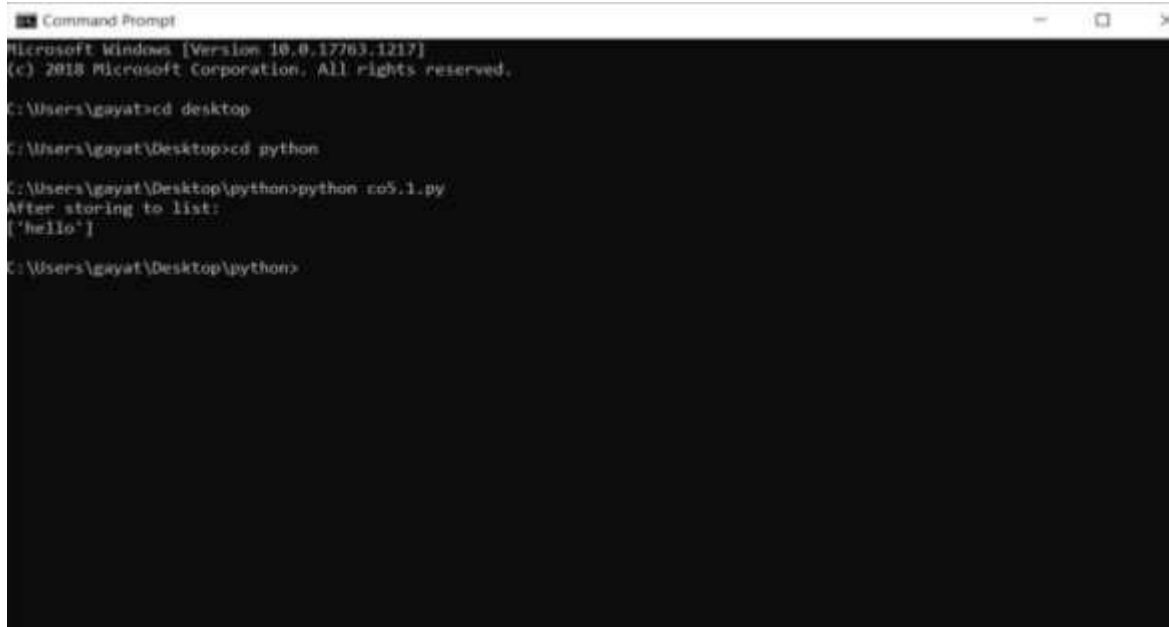
```
Command Prompt
C:\Users\gayat\Desktop\python>python co4.5.py
dcbooks
programming
500
200
C:\Users\gayat\Desktop\python>
```

38. Write a Python program to read a file line by line and store it into a list,

Program:

```
file1=open("demofile1.txt",'r')
list1=file1.readlines()
print(f"After storing to list:\n{list1}")
```

Output:

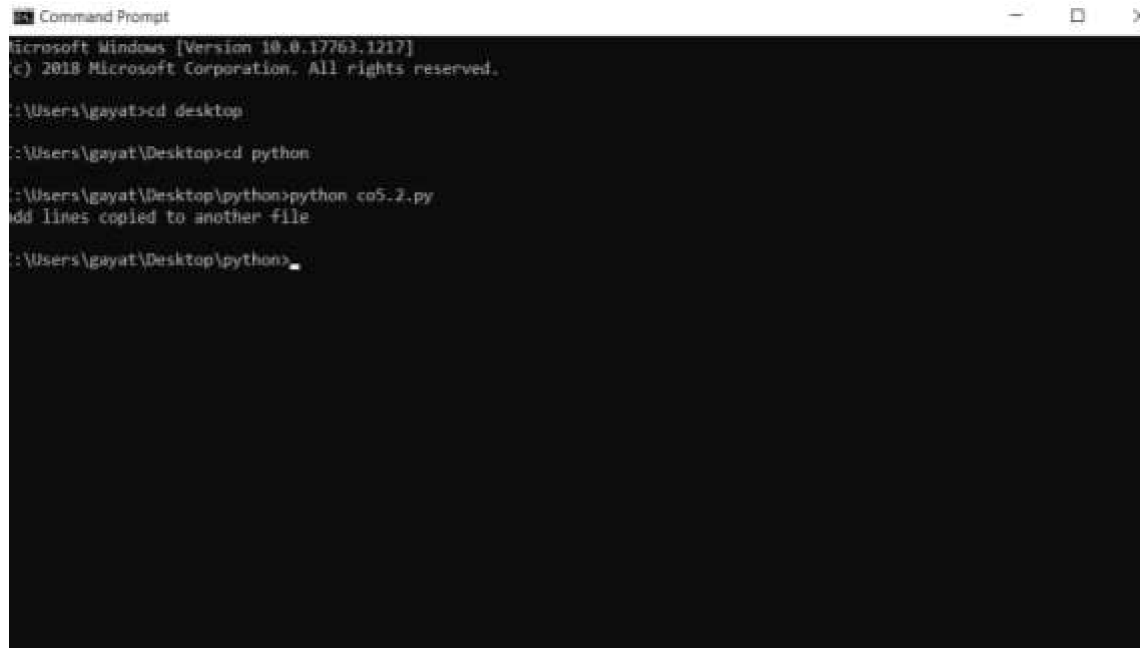


```
Command Prompt
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\gayat>cd desktop
C:\Users\gayat\Desktop>cd python
C:\Users\gayat\Desktop\python>python co5.1.py
After storing to list:
['hello']
C:\Users\gayat\Desktop\python>
```


39. Python program to copy odd lines of one file to other.**Program:**

```
file1=open("demofile1.txt",'r')
file2=open("demofile2.txt",'w+')
list1=file1.readlines()
for i in range(0,len(list1),2):
file2.write(list1[i])
print("odd lines copied to another file")
```

Output:

The screenshot shows a Windows Command Prompt window with the following text:

```
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\gayat>cd desktop
C:\Users\gayat\Desktop>cd python
C:\Users\gayat\Desktop\python>python co5.2.py
odd lines copied to another file
C:\Users\gayat\Desktop\python>
```