

**Python Laboratory**

**(BTCS 513-18)**

**B.Tech CSE 5th**

**2022 Odd**

**CT GROUP OF INSTITUTIONS,**

**Maqsudan**

**Prepared by:**

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**Class: Btech CSE**

**Roll no: 2021963**

**College: Ct group of institutions, Maqsudan**

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| **Subject Name: Python Lab** | **Subject Code:**  **BTCS 513-18** |
| **Course-Semester: B.TECH CSE 5th** | **Faculty Name/Lab Instructor: Mrs. Priyanka Gotter**  **Mr. Prince Verma** |

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| **2** | **Write a program to perform different Arithmetic Operations on numbers in Python**. | **cT-Python Lab-02** |  |  |
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| **17** | **Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.** | **cT-Python LAB-17** |  |  |
| **18** | **Write a Python class to convert an integer to a roman numeral.** | **cT-Python LAB-18** |  |  |
| **19** | **Write a Python class to implement pow(x, n).** | **cT-Python LAB-19** |  |  |
| **20** | **Write a Python class to reverse a string word by word.** | **cT-Python LAB-20** |  |  |

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| **Experiment Title:**  **Write a program to demonstrate different number data types in Python**. | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 1** | **Semester: 5th** | **Page:** 01 |

**Program:**

#Number data types

#1

a=5

print(f"type of {a} is ",type(a))

#2

a=3.2

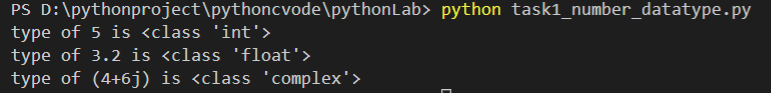
print(f"type of {a} is ",type(a))

#3

c=4+6j

print(f"type of {c} is",type(c))

**Screenshot:**

****

**Program:**

#Taking two inputs from user

first\_number=int(input("enter first number:"))

second\_number=int(input("enter second number:"))

#Addition

sum=first\_number+second\_number

print(f"sum of {first\_number} and {second\_number} is ",sum)

#Substarction

sub=first\_number-second\_number

print(f"substraction of {first\_number} and {second\_number} is",sub)

#Multiplication

mul=first\_number\*second\_number

print(f"multiplication of {first\_number} and {second\_number} is",mul)

#Division

division = first\_number/second\_number

print(f"division of {first\_number} and {second\_number} is", division)

#Floor division

fdivision=first\_number//second\_number

print(f"floor division of {first\_number} and {second\_number} is ",fdivision)

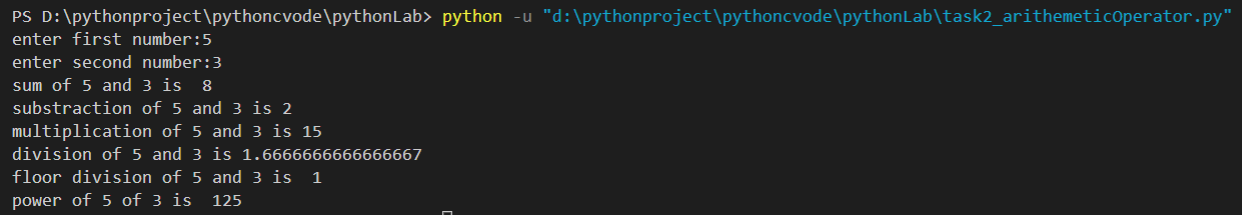
#Power

power=first\_number\*\*second\_number

print(f"power of {first\_number} of {second\_number} is ",power)

**Screenshot:**

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| **Experiment Title: Write a program to perform different Arithmetic Operations on numbers in Python.** | |
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| **Experiment Title: Write a program to create, concatenate and print a string and accessing sub-string from a given string**. | |
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**Program:**

**#**string creating

first\_name="Ankush"

last\_name="Kumar"

#concatenation strings

full\_name=first\_name+" "+last\_name

#print after concatenation strings

print(full\_name)

#Accesing sub string from strings

college\_name="ct group of institutions"

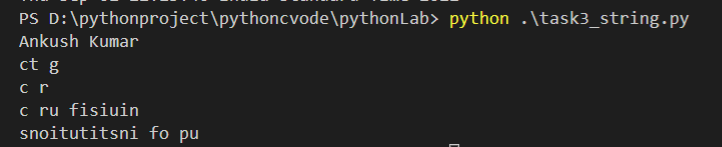
print(college\_name[0:4])

print(college\_name[0:5:2])

print(college\_name[0::2])

print(college\_name[:5:-1])

**Output:**



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| **Experiment Title: Write a python script to print the current date in the following format “Sun May 29 02:26:23 IST 2017”**. | |
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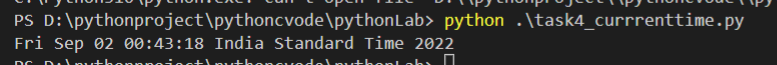
**Program:**

import time

current\_time=time.localtime()

print(time.strftime("%a %b %d %H:%M:%S %Z %Y",current\_time))

**Output:**



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| **Experiment Title: Write a program to create, append, and remove lists in python.** | |
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**Program:**

#create list of number type

number=[1,5,7.5,11]

# a list of string type

words=['os','python','dbms','flat']

#a list of mixed type

mixed=['mathe',1,"datastructure",2]

#append method

subjects=["Flat","Software Engineering","Math","Computer Network"]

subjects.append("Python")

subjects.append("DBMS")

print("after appending ",subjects)

#remove method

subjects.remove("Math")

print("after romoving math from sujects:\n", subjects)

#append a list into new empty list

new\_subject = []

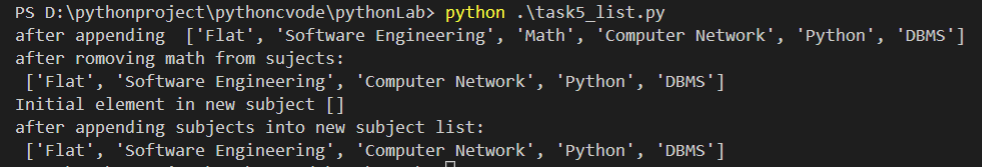
print("Initial element in new subject",new\_subject)

for suject in subjects:

new\_subject.append(suject)

print("after appending subjects into new subject list:\n",new\_subject)

**Output:**



|  |  |  |
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| **Experiment Title: Write a program to demonstrate working with tuples in python.** | |
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| **Experiment No: 6** | **Semester: 5th** | **Page: 01** |

**Program:**

days=('sunday','monday','tuesday','wednesday','thrusday','friday','saturday')

#tuple unpacking -->we need same amout of variables as tuples have

day1,day2,day3,day4,day5,day6,day7=(days)

print("day one is",day1)

#tuple slicing

print(days[:2])

#tuple with one element

names=('karina',)

print(type(names))

#tuples without parenthesis

nums='one','two','three'

print("type of nums is",type(nums))

#min,max and sum method in tuples

grades=(2,5.6,7.5,4,8)

print("minimum gade is",min(grades))

print("maximum grade is",max(grades))

print("total grades are",sum(grades))

#loop in tuple

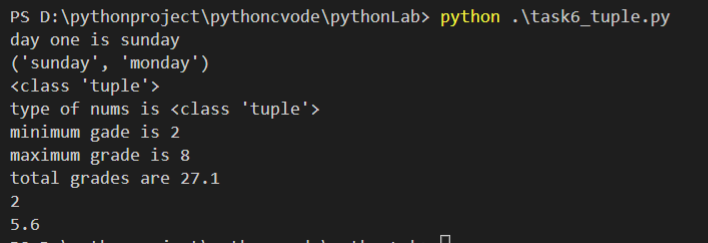
for i in grades:

    if i>7:

        break

    print(i)

**Output:**



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| **Experiment Title: Write a program to demonstrate working with dictionaries in python.** | |
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| **Experiment No: 7** | **Semester: 5th** | **Page: 01** |

**Program:**

**student\_detail={ "name":"karina", "age":20,  "rollno":2021,  "hobie":"study", "favperson":"ankush","favbook":"os"**

**}**

**#Accessing value**

**print("fav person is",student\_detail["favperson"]**

**#displaying all key value pair**

**for i in student\_detail:**

**print(i)**

**#add new key value pair in dictonary**

**student\_detail['contact']=7973742809**

**print(student\_detail)**

**#update dictionary**

**student\_detail["age"]=19**

**print(student\_detail)**

**#remove key value pair from dictionary**

**student\_detail.pop("favbook")**

**print(student\_detail)**

**#length of dictionary**

**print("length of dictionary is",len(student\_detail))**

**#copy a dictionay**

**karina\_detail=student\_detail.copy()**

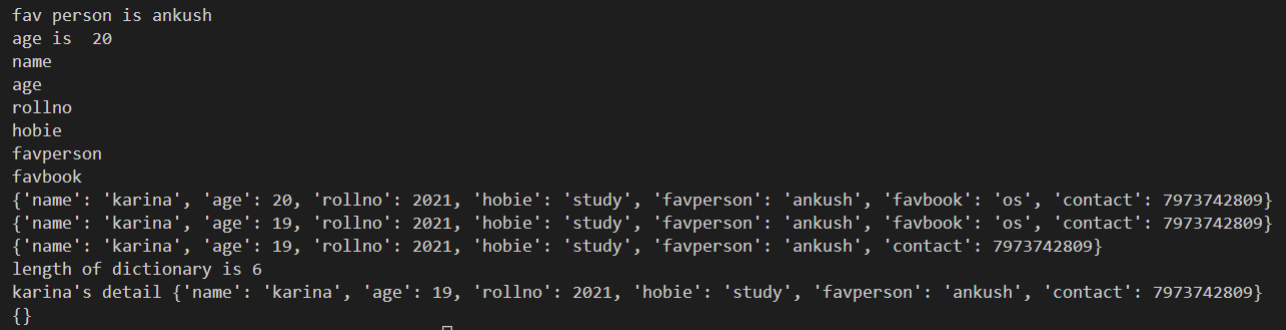
**print("karina's detail",karina\_detail)**

**#delete dictonary**

**student\_detail.clear()**

**print(student\_detail)**

**Output:**

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| **Experiment Title: Write a python program to find largest of three numbers**. | |
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**Program:**

a=int(input("enter 1st number"))

b=int(input("enter 2nd number"))

c=int(input("enter 3rd number"))

max=a

if b>max:

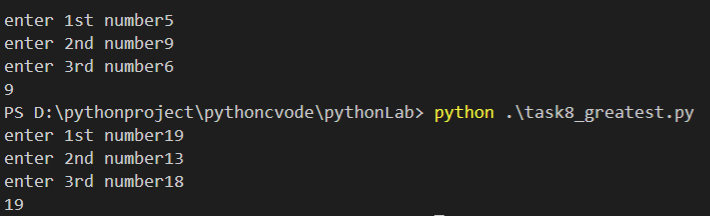
    max=b

if c>max:

    max=c

print(max)

**Output:**



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| **Experiment Title: Write a Python program to convert temperatures to and from Celsius, Fahrenheit.** | |
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| **Experiment No: 9** | **Semester: 5th** | **Page: 01** |

**Program:**

print("enter 1 for Celsius to f and 2 for fehrenheit to celsius")

over=False

#celsius to fahrenheit

while(over!=True):

    temp = input("enter your choice:")

#Celsius to Fahernheit

    if temp=="1":

        cel=int(input("enter tempreture in celsius:"))

        fah=(cel\*9/5)+32

        print("tempretures in fahernheit is",fah)

        over=True

    #fahrenheit to celsius

    elif temp=="2":

        fah =int(input("enter temperature in fahrenheit:"))

        cel=(fah-32)\*5/9

        print("Tempretures in celsius is",cel)

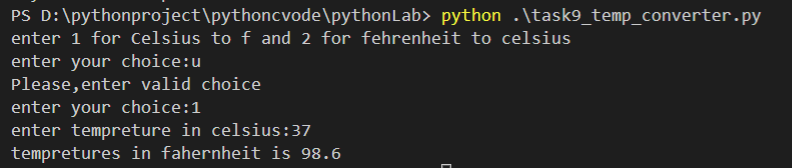
        over = True

    else:

        print("Please,enter valid choice")

        over = False

**Output:**



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| **Experiment Title: Write a Python program to construct the following pattern, using a nested for loop** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 10** | **Semester: 5th** | **Page: 01** |

**Program:**

n=5

#print first 5 \* in increasing order

for i in range(n+1):

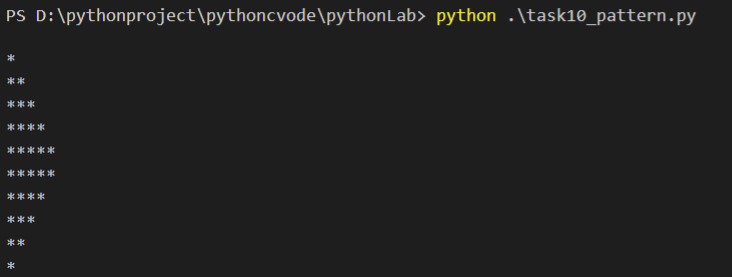
    print(i\*"\*")

#print \* 6 to 10 in decreasing order

for i in range(n,0,-1):

    print(i\*"\*")

**Output:**



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| **Experiment Title: Write a Python script that prints prime numbers less than 20.** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 11** | **Semester: 5th** | **Page:** |

**Program:**

number=20

print("primes number less than 20 are:")

for num in range(rang):

    if num>1:

        for i in range(2,num):

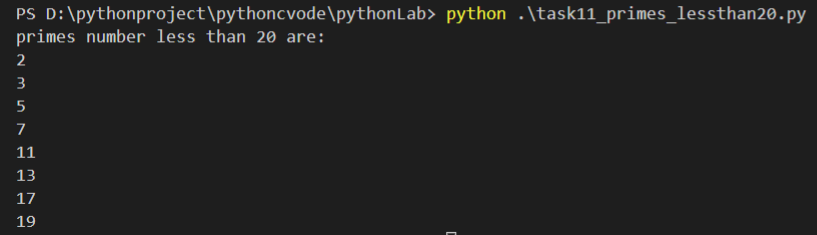
            if(num%i)==0:

                break

        else:

            print(num)

**Output:**



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| **Experiment Title: Write a python program to find factorial of a number using Recursion.** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 12** | **Semester: 5th** | **Page:** |

**Program:**

def factorial(num):

    if num>=2:

        return num\*factorial(num-1)

    else:

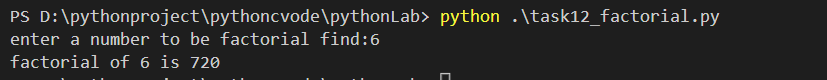
        return 1

number=int(input("enter a number to be factorial find:"))

result=factorial(number)

print(f"factorial of {number} is",result)

**Output:**

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| **Experiment Title: Write a program that accepts the lengths of three sides of a triangle as inputs. The program output should indicate whether or not the triangle is a right triangle** | |
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| **Experiment No: 13** | **Semester: 5th** | **Page:** |

**Program:**

def right\_trinle(p, b, h):

    if (h\*\*2 == (p\*\*2+b\*\*2)):

        print("triangle is right triangle")

    else:

        print("triangle is not right triangle")

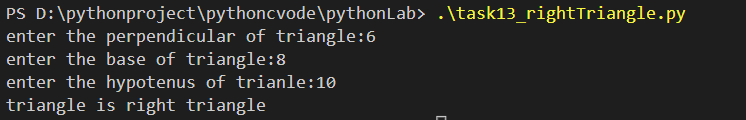
p = int(input("enter the perpendicular of triangle:"))

b = int(input("enter the base of triangle:"))

h = int(input("enter the hypotenus of trianle:"))

right\_trinle(p, b, h)

**Output:**



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| **Experiment Title: Write a python program to define a module to find Fibonacci Numbers and import the module to another program**. | |
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| **Experiment No: 14** | **Semester: 5th** | **Page:** |

**Program:**

//Program for Fibonacci Number

def fibonacci(n):

    a=0

    b=1

    print(a, end=" ")

    for i in range (n-1):

        c=a+b

        print(c , end=" ")

        a=b

        b=c

//import

import task14\_fibonacci

task14\_fibonacci.fibonacci(10)

**Output:**



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| **Experiment Title: Write a python program to define a module and import a specific function in that module to another program. .** | |
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| **Experiment No: 15** | **Semester: 5th** | **Page:** |

**Program:**

**task15\_calculator\_import.py**

#Create module for a calculator

def add (a,b):

    print( a+b )

def substract(a,b):

    print( a-b )

def multiplication(a,b):

   print( a\*b )

def division(a,b):

    if b==0:

        print("number can't be divided by zero")

    else:

        print( a/b )

def modules(a,b):

   print( a%b )

def power(a,b):

   print( a\*\*b )

def square(num):

    print( num\*\*2 )

def squareroot(num):

    print( num\*\*(1/2) )

**task15\_import.py**

**#Import module**

import task15\_calculator\_import as karush

karush.multiplication(23,89)

karush.power(2, 5)

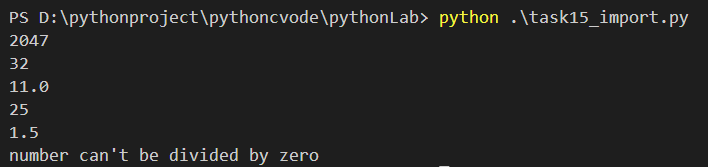
karush.squareroot(121)

karush.square(5)

karush.division(9,6)

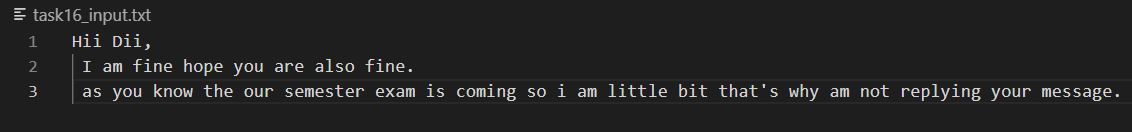
karush.division(5,0)

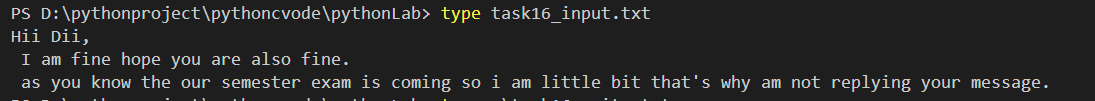
**Output:**

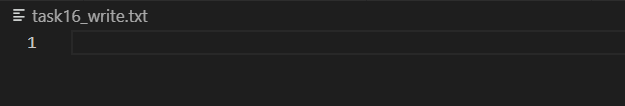


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| **Experiment Title: Write a script named copyfile.py. This script should prompt the user for the names of two text files. The contents of the first file should be input and written to the second file.** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 16** | **Semester: 5th** | **Page:** |

**//Before executing script**







**Program:**

file=open("task16\_input.txt",'r')

f=file.read()

# print(f)

fo=open("task16\_write.txt",'w')

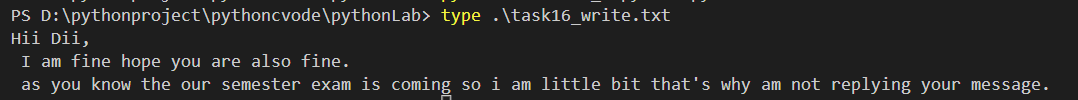
fo.write(f)

file.close()

**Output:**

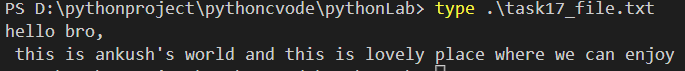


**//After executing script**



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| **Experiment Title: Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order**. | |
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**>Sample Input file**



**Program:**

fname=input("enter file name:")

file=open(fname)

words=[]

for line in file:

    words+=line.split()

    words.sort()

# print(words)

li=list()

for word in words:

    if word in li:

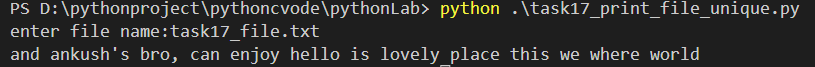
        continue

    else:

        li.append(word)

        print(word,end=" ")

**Output:**



|  |  |  |
| --- | --- | --- |
| http://www.ctgroup.in/images/audi/cell/CT%20Logo%20Final.png | **CT Group of Institutions, Maqsudan** | |
| **Experiment Title:**  **Write a Python class to convert an integer to a roman numeral.** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 18** | **Semester: 5th** | **Page:** |

**Program:**

**Output:**

|  |  |  |
| --- | --- | --- |
| http://www.ctgroup.in/images/audi/cell/CT%20Logo%20Final.png | **CT Group of Institutions, Maqsudan** | |
| **Experiment Title: Write a Python class to implement pow(x, n)** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 19** | **Semester: 5th** | **Page:** |

**Program:**

**Output:**

|  |  |  |
| --- | --- | --- |
| http://www.ctgroup.in/images/audi/cell/CT%20Logo%20Final.png | **CT Group of Institutions, Maqsudan** | |
| **Experiment Title: Write a Python class to reverse a string word by word.** | |
| **Laboratory: Python Lab ( BTCS 513-18 )** | **Department: B.TECH CSE** |
| **Experiment No: 20** | **Semester: 5th** | **Page:** |

**Program:**

**Output:**