# exp 1  
print('Experiment 1:')  
 How to install pycharm.  
Open browser and search 'pycharm'.  
Choose pycharm for windows(python 3.2 or updated version).  
Click on the download button.  
Install pycharm on desktop.  
Set the enviroment of pycharm.  
Now click on finish button.   
  
  
#exp 2  
print('Experiment 2 :')  
num1=int(input('Enter frist number :'))  
num2=int(input('Enter second number :'))  
sum=num1+num2  
print('Addition of two numbers is:',sum)  
str1=str(input('Enter your frist name :'))  
str2=str(input('Enter your second name :'))  
name=str1+str2  
print('User name is :',name)  
  
  
a=10  
b=12  
c=15  
d=2  
e=(a+b)\*(a-b)/d  
print(e)  
f=(c/d)\*b  
print(f)  
g=(d+b)/(a-d)  
print(g)  
  
#exp 3  
print('Experiment 3')  
  
#largest number using if statement  
a=20  
b=40  
if a>b:  
 print("a is greater")  
else:  
 print("b is greater")  
  
num=int(input('Enter your number :'))  
if num % 2 == 0:  
 print("This number is even")  
else:  
 print("This number is odd")  
  
#compare two number using elif statement  
a=50  
b=60  
if a>b:  
 print("a is greater than b")  
elif a==b:  
 print("a is equal to b")  
else:  
 print("b is greater a")  
  
  
#Code, execute and design program to check whether the x value is greater than 10 and 20 using nested if statement  
num=int(input("Enter you number :"))  
if num >10:  
 if num>20:  
 print("This number is greater than both 10 and 20")  
 else:  
 print("This number is greater than 10 but not 20")  
else:  
 print("This number is less than 10 and 20")  
  
  
#exp 4  
print("Experiment 4")  
#Write a Python program to print table of a given number using for loop and range function.  
  
num=int(input("Enter the number to print table:"))  
  
for x in range(0,10):  
 x=x+1  
 print(f"{num} X {x} = {num\*x}")  
  
# Write a Python program to add number 3 to the values using while loop.  
num=0  
while num<20:  
 num=num+3  
 print(num)  
  
# Write a Python program to demonstrate for loop and conditional statement.  
for i in range(0,5):  
 print(i)  
else:  
 print("somthing is wrong ")  
  
# Write a Python program to print Fibonacci series using while loop and conditional statement.  
terms = int (input("enter the terms"))  
a = 0  
b = 1  
count = 0  
if (terms <=0):  
 print("please enter a valid integer")  
elif(terms==1):  
 print("fibonacci sequence upto", limit,":")  
 print(a)  
else:  
 print("finacci sequence:")  
   
 while(count < terms):  
 print (a,end ='')  
 c = a+b  
 a = b  
 b = c  
 count +=1  
  
print('experiment 5')  
#Code, execute and debug programs to perform set operations (a)  
set1={1,2,3,4,5}  
set2={4,5,6,7,8}  
print(set1)  
set1.add(0)  
print(set1)  
set2.remove(8)  
print(set2)  
set2.union(set1)  
print(set2)  
set1.update(set2)  
print(set1)  
set1.intersection(set2)  
print(set1)  
set1.clear()  
  
# Write a python program to print repeated values using set comprehension. (b)  
inputlist=[1,2,3,3,4,4,4,5,5,6,7,7,7,7]  
setcomp={x for x in inputlist if x%2==0}  
print(setcomp)  
  
#Code execute and debug programs do performs basic operations on tuples. (c)  
tup1=('one','two','three',4,5,6)  
tup2=('seven','eight','nine',10,11,12)  
print(tup1)  
tup3=tup1+tup2  
print(tup3)  
del tup1  
print("After deleting tuple,it show Name error")  
#print(tup1)  
  
  
# Code, execute and debug programs to perform tuple indexing and slicing. (d)  
tup1=('a','b','c','d','e')  
print(tup1[1])  
print(tup1[3])  
print(tup1[1:3])  
print(tup1[:2])  
  
  
print('Expeeriment 6')  
#: Write a code snippet to perform basic operations on list (a)  
list1=[1,2,3,4,5]  
list2=[5,6,7,8,9]  
print(list2)  
list1.count(5)  
print(list1)  
list2.append(10)  
print(list2)  
list1.sort(reverse=True)  
print(list1)  
list2.remove(5)  
print(list2)  
  
#Write a code snippet to perform indexing and slicing on list. (b)  
list3=['a','b','c','d','e']  
print(list3)  
print(list3[1])  
print(list3[2:])  
print(list3[:3])  
print(list3[1:4])  
  
#Write a code snippet to perform list compression . (c)  
fruite=['apple','banana','pear','orange']  
listcomp=[x for x in fruite if 'apple' in x]  
print(listcomp)  
  
  
print("Expriment 7 dictnory")  
#Code, execute and debug program to perform basic operations on dictionary (a)  
dict1={1:'one',2:'two',3:'three'}  
dict2={4:'four',5:'five',6:'six'}  
print(dict2)  
print(dict1.get(1))  
print(dict1.values())  
print(dict2.keys())  
print(dict2.items())  
  
  
#Code, execute and debug program to perform dictionary indexing. (b)  
dict3={1:'hello',2:'good',3:'morning'}  
newdict=list(dict3)  
print(newdict)  
print(newdict[2])  
  
#Code, execute and debug program to perform basic operations on dictionary iterating. (c)  
stateandcapital={'bihar':'patna','assam':'dispur','maharastra':'mumbai'}  
print("these are some state and capitals\n")  
for state in stateandcapital:  
 print(state)  
  
#: Code, execute and debug program to perform dictionary comprehension (d)  
dictcom={x:x\*\*2 for x in [1,2,3,4]}  
print(dictcom)  
  
print('Experiment 8 string and array')  
# Code, execute and debug programs to perform string manipulation. (a)  
str1='hello sir how are you?'  
print(str1)  
print(type(str1))  
print(str1.count('e'))  
print(str1.find('o'))  
print(str1.replace('sir','maam'))  
print(str1.upper())  
print(str1.lower())  
print(str1.startswith('h'))  
print(str1.endswith('?'))  
  
#Code, execute and debug programs to perform Array manipulation. (b)  
array1=['BMW','AUDI','MURCEDISE','TOYTA','SWIFT']  
print(array1)  
print(type(array1))  
print(array1.count('AUDI'))  
print(array1.remove('SWIFT'))  
print(array1.append('SKODA'))  
print(array1.pop())  
for cars in array1:  
 print(cars)  
  
  
  
print('Experiment 9 function')  
#Write a Python program to convert the decimal number into hexadecimal, octal and binary using built-in functions. (a)  
x=bin(36)  
print(x)  
y=hex(36)  
print(y)  
z=oct(36)  
print(z)  
  
# Write a Python program to print factorial of a number using recursion.  
n=int(input('Enter your number to find the factrioal :'))  
def factroial(n):  
 if n<=1:  
 return 1  
 else:  
 return n\*factroial(n-1)  
print(factroial(n))  
  
#: Program to define doubler and tripler of any number using anonymous function (c)  
def myfun(n):  
 return lambda a:a\*n  
doubole=myfun(2)  
tripple=myfun(3)  
print(doubole(11))  
print(tripple(11))  
  
print('Experinemt 10 module ')  
#Create modules and packages using Python.mymodule.py (a)  
  
import demo  
person1={  
 'name':'umar',  
 'roll':'400sc22032',  
 'sem':'3rd semeste'  
}  
x=demo.person1['name']  
print(x)  
y=demo.person1['sem']  
print(y)  
  
#: Code, execute and debug programs using built-in modules. (b)  
import platform  
x=platform.system()  
print(x)  
y=dir(platform)  
print(y)  
  
  
  
print('Experiment 11')  
#Python program to demonstrate basic operations on single array using NumPy module. (a)  
import numpy as np  
x=np.array([[1,2],[1,3]])  
y=np.array([[3,4],[5,4]])  
print('Additioal in array:',x+1)  
print('subtract in array :',y-1)  
print(x.sum())  
print('Sum of two array',x\*y)  
  
#Write a python program to assign your own index to the data using series. (b)  
import pandas as pd  
from pandas import Series  
arr=Series([1,2,3],index=[2,3,4])  
print(arr)  
print(arr.values)  
print(arr.index)  
  
#Write a code snippet to select columns using dataframes.  
import pandas as pd  
data={  
 'name':['umar','khan','sonu','raj'],  
 'dept':['CS','IS','EEE','ME'],  
 'sem':['3rd','1st','6th','2nd']  
}  
df=pd.DataFrame(data)  
print(df)  
  
print("Experiment 12")  
#Write a code snippet to perform following operations on different type of files(read file, write to file). (a)  
  
file=open("C:/Users/Jamal Khan/Desktop/myfile.txt","r")  
lines=file.readlines()  
for f in lines:  
 print(f)  
file.close()  
  
#write the file.  
file=open('C:/Users/Jamal Khan/Desktop/myfile.txt','w')  
l=['umar khan\n','saquib javed\n','rafizul hoque']  
write=file.writelines(l)  
file.close()  
  
file=open("C:/Users/Jamal Khan/Desktop/myfile.txt","r")  
lines=file.readlines()  
for f in lines:  
 print(f)  
file.close()  
  
  
#Write code to perform file operations using dataframes on different file types.  
import pandas as pd  
data={  
 'INDIA':{'state':29,'P.M':'Modi','population':'42cr'},  
 'UAE':{'state':15,'P.M':'abcde','population':'32cr'},  
 'UK':{'state':18,'P.M':'Jong jon','population':'20cr'}  
}  
column=('state','P.M','population')  
df=pd.DataFrame(data=data,index=column).T  
df.to\_csv('data.csv')  
df=pd.read\_csv('data.csv' ,index\_col=0)  
print(df)  
  
  
  
print("Experiment 13")  
#Write a Python program to handle NameError and ZeroDivisionError.  
try :  
 print(x)  
except NameError:  
 print("Variable x is not defined")  
except :  
 print("Something else went wrong")  
  
try:  
 print(6/0)  
except ZeroDivisionError:  
 print("You can’t divide by zero!")  
  
  
#Write a code snippet to handle FileNotFoundError.  
try:  
 file = open("C:/Users/Jamal Khan/Desktop/myfile.txt", "r")  
 lines = file.readlines()  
 for f in lines:  
 print(f)  
 file.close()  
except FileNotFoundError:  
 print("Somthing is wrong while file is finding.")  
  
# Write a code snippet to raise exceptions and stop the program if x is less than 0.  
x=-1  
if x<0:  
 raise Exception('sorry ,this number is less than zero')