```python
#PES Python Assignments SET 1
#1 Python program Basics
#Python program Basics  Write a program to Add, Subtract, Multiply, and Divide 2 numbers
#Manoj Dixit - 20141404
#Python 3.9.0


while True:
    a=input("Please enter the first number/or complete expression in the format a+b  - ")
    if not (a.isnumeric() or a.replace('.','',1).isdigit()): #for checking whether its
    a valid number
        if (a.find('+')>0) or (a.find('-')>0) or (a.find('*')>0) or (a.find('/')>0):
            try:
                print(eval(a))
            except Exception as msg:
                print(msg)
                continue
        else:
            print('Expression not supported')
            continue
    else:
        b=input("Please enter operator - ")
        if b in {'+','-','*','/'}:
            oper=a+b+input("Please enter 2nd number - ")
            try:
                print(eval(oper))
            except Exception as msg:
                print(msg)
                continue
        else:
            print('Operator invalid')
            continue

## Results
        #Supports both int and float as arguments
        #Supports expression input or operand and operator input one by one
        #Exceptions handled

#***********Integer operation************************************
##Please enter the first number/or complete expression in the format a+b  - 22
##Please enter operator - +
##Please enter 2nd number - 2
##24
##Please enter the first number/or complete expression in the format a+b  - 22
##Please enter operator - -
##Please enter 2nd number - 2
##20
##Please enter the first number/or complete expression in the format a+b  - 22
##Please enter operator - *
##Please enter 2nd number - 2
##44
##Please enter the first number/or complete expression in the format a+b  - 22
##Please enter operator - /
##Please enter 2nd number - 2
##11.0

#***********Float operation**************************************
##Please enter the first number/or complete expression in the format a+b  - 22.2
##Please enter operator - /
##Please enter 2nd number - 2
##11.1

#***********Expression input**************************************
##Please enter the first number/or complete expression in the format a+b  - 22.2+2
##24.2
##Please enter the first number/or complete expression in the format a+b  - 22*0.2
##4.4
```

```
##Please enter the first number/or complete expression in the format a+b  - -3.4+2
##-1.4

#***********Exception Handling**********************************
##Please enter the first number/or complete expression in the format a+b  - 22.2,2
##Expression not supported
##Please enter the first number/or complete expression in the format a+b  - 34
##Please enter operator - &
##Operator invalid

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#PES Python Assignments SET 1
#2 Python program Basics
#Python program Basics  - Write a program to find the biggest of 3 numbers (Use If Condition)
#Manoj Dixit - 20141404
#Python 3.9.0

while True:
    a=input('Enter number 1- ')
    if a.isnumeric() or a.replace('.','',1).isdigit(): #for checking if its a valid number
        b=input('Enter number 2- ')
        if b.isnumeric() or b.replace('.','',1).isdigit():
            c=input('Enter number 3- ')
            if c.isnumeric() or c.replace('.','',1).isdigit():
                if a>b:
                    if a>c:
                       print(a,'is greater than all')
                    else:
                        print(c, 'is greater than all')
                else:
                    if b>c:
                       print(b,'is greater than all')
                    else:
                        print(c, 'is greater than all')
            else:
                print('invalid number')
                continue
        else:
            print('invalid number')
            continue
    else:
        print('invalid number')
        continue

##Results
##    Support comparision of both int and float values
##
##Enter number 1- 5
##Enter number 2- 6
##Enter number 3- 3
##6 is greater than all
##Enter number 1- 3
##Enter number 2- 3.1
##Enter number 3- 2
##3.1 is greater than all
##Enter number 1- 2
##Enter number 2- 2
##Enter number 3- 2
##2 is greater than all
##Enter number 1- 3
##Enter number 2- 6
##Enter number 3- 4
##6 is greater than all
```

```
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#PES Python Assignments SET 1
#3 Python program Basics
#Python program - Write a program to find given number is odd or Even
#Manoj Dixit - 20141404
#Python 3.9.0

while True:
    a=input('Please enter an integer - ')
    try:
        a=int(a)
    except:
        print('not an integer')
        continue
    if a%2==0:
        print(a,'is an even number')
    else:
        print(a,'is an odd number')


##Results
##
##Please enter an integer - 4
##4 is an even number
##Please enter an integer - 6
##6 is an even number
##Please enter an integer - 5
##5 is an odd number
##Please enter an integer - 1
##1 is an odd number
##Please enter an integer - 8
##8 is an even number
##Please enter an integer - 0
##0 is an even number
##Please enter an integer - 2
##2 is an even number
##Please enter an integer - 11
##11 is an odd number
##Please enter an integer - 11
##11 is an odd number
##Please enter an integer - 11111
##11111 is an odd number
##Please enter an integer - 1.5
##not an integer

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#PES Python Assignments SET 1
#4 Python program Basics
#Python program - Write a program to find the number is Prime or not.
#Manoj Dixit - 20141404
#Python 3.9.0

while True:
    count=0
    a=input('Please enter an integer - ')
    try:
        a=int(a)
    except:
        print('not an integer')
        continue
    if a==1:
        print('1 is niether prime nor non prime')
    elif a==0:
        print('0 is niether prime nor non prime')
```

```
    else:
        for i in range(2,int(a**0.5+1)): #iteratering only till square root of number
        to optimize time complexity
            if a%i==0:
                count+=1
            #print('i',i,'count',count)
            if count>=1:
                break
        if count>=1:
            print(a,'is non prime number')
        else:
            print(a,'is prime number')

##Result:
##Please enter an integer - 0
##0 is niether prime nor non prime
##Please enter an integer - 1
##1 is niether prime nor non prime
##Please enter an integer - 2
##2 is prime number
##Please enter an integer - 3
##3 is prime number
##Please enter an integer - 4
##4 is non prime number
##Please enter an integer - 5
##5 is prime number
##Please enter an integer - 6
##6 is non prime number
##Please enter an integer - 7
##7 is prime number
##Please enter an integer - 8
##8 is non prime number
##Please enter an integer - 9
##9 is non prime number
##Please enter an integer - 10
##10 is non prime number
##Please enter an integer - 11
##11 is prime number
##Please enter an integer - 12
##12 is non prime number
##Please enter an integer - 13
##13 is prime number
##Please enter an integer - 99
##99 is non prime number
##Please enter an integer - 97
##97 is prime number
##Please enter an integer - 55
##55 is non prime number
##Please enter an integer - 57
##57 is non prime number
##Please enter an integer - 59
##59 is prime number

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#PES Python Assignments SET 1
#5 Python program Basics
#Python program -
##    Write a program to receive 5 command line arguments and print each argument
separately.
##Example: >> python test.py arg1 arg2 arg3 arg4 arg5
##a) From the above statement your program should receive arguments and print them each
of them.
##b) Find the biggest of three numbers, where three numbers are passed as command line
arguments.

```

```python
#Manoj Dixit - 20141404
#Python 3.9.0

from sys import argv

#reusing prog2 for greatest among 3

def checknum(num):
    if num.isnumeric() or num.replace('.','',1).isdigit():
        return True
    else:
        return False

def checkgreat():
    a=argv[1];b=argv[2];c=argv[3]
    if checknum(a) and checknum(b) and checknum(c):
        a=eval(a);b=eval(b);c=eval(c)
        if a>b:
            if a>c:
               print(a,'is greater than first 3 arguments')
            else:
                print(c, 'is greater than first 3 arguments')
        else:
            if b>c:
               print(b,'is greater than first 3 arguments')
            else:
                print(c, 'is greater than first 3 arguments')
    else:
        print('invalid arguments')

for i in range(1,len(argv)):
    print(argv[i])

checkgreat()

##Result:
##    C:\Users\mndxt\OneDrive\Study\Python\Topgear\SET1>python 5.py 23 25 33 43 50
##23
##25
##33
##43
##50
##33 is greater than first 3 arguments
##
##C:\Users\mndxt\OneDrive\Study\Python\Topgear\SET1>python 5.py 45 gttc 56 43 1111
##45
##gttc
##56
##43
##1111
##invalid arguments
##
##C:\Users\mndxt\OneDrive\Study\Python\Topgear\SET1>python 5.py 45 99 102.13 gttc python
##45
##99
##102.13
##gttc
##python
##102.13 is greater than first 3 arguments

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#PES Python Assignments SET 1
#6 Python program Basics
#Python program -
##Write a program to read string and print each character separately.
##    a) Slice the string using slice operator [:] slice the portion the strings to
```

```
    create a sub strings.
##    b) Repeat the string 100 times using repeat operator *
##    c) Read string 2 and concatenate with other string using + operator.

#Manoj Dixit - 20141404
#Python 3.9.0

while True:

    string=input('please input a string - ')
    print('This is first 5 chars : ',string[:5])
    print('This is 5 chars from 3rd position : ',string[2:7])
    print('This is string reversed:',string[::-1])
    print('This is string multiplied to itself 3 times : ',string*3)
    print('This is concantination using + operator : ',string+input('Enter another
    string - '))


##please input a string - Robotics
##This is first 5 chars :  Robot
##This is 5 chars from 3rd position :  botic
##This is string reversed: scitoboR
##This is string multiplied to itself 3 times :  RoboticsRoboticsRobotics
##Enter another string -  Engineer
##This is concantination using + operator :  Robotics Engineer

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#PES Python Assignments SET 1
#7 Python program Basics
#Python program -
##Create a list with at least 10 elements having integer values in it;
##       Print all elements
##       Perform slicing operations
##       Perform repetition with * operator
##       Perform concatenation with other list.


#Manoj Dixit - 20141404
#Python 3.9.0

print('This is list 1')
list1=['list','is','Mutable','Heterogeneous','dynamic',"and","Extensible",123,55.5,True]

for item in list1:
    print(item)

list2=list1[5:]
print('\n**********************\nThis is list 2 with slicing list1[:7]')
for item in list2:
    print(item)

print('\n**********************\nThis is list1 multiplied 2\n',list1*2)

list3=list1+list2
print('\n**********************\nThis is concatination of list1 and list2\n',list3)


##This is list 1
##list
##is
##Mutable
##Heterogeneous
##dynamic
##and
##Extensible
##123
```

```
##55.5
##True
##
##**********************
##This is list 2 with slicing list1[:7]
##and
##Extensible
##123
##55.5
##True
##
##**********************
##This is list1 multiplied 2
## ['list', 'is', 'Mutable', 'Heterogeneous', 'dynamic', 'and', 'Extensible', 123,
55.5, True, 'list', 'is', 'Mutable', 'Heterogeneous', 'dynamic', 'and', 'Extensible',
123, 55.5, True]
##
##**********************
##This is concatination of list1 and list2
## ['list', 'is', 'Mutable', 'Heterogeneous', 'dynamic', 'and', 'Extensible', 123,
55.5, True, 'and', 'Extensible', 123, 55.5, True]

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#PES Python Assignments SET 1
#8 Python program Basics
#Python program -
##Repeat program 7 with Tuples (Take example from Tutorial)


#Manoj Dixit - 20141404
#Python 3.9.0

print('This is Tuple 1')
tup1=('tuple','is','Not mutable','Heterogeneous','can','be indexed',123,55.5,True)

for item in tup1:
    print(item)

tup2=tup1[5:]
print('\n**********************\nThis is Tuple 2 with slicing Tuple 1[:7]')
for item in tup2:
    print(item)

print('\n**********************\nThis is Tuple multiplied 2\n',tup1*2)

tup3=tup1+tup2
print('\n**********************\nThis is concatination of Tuple1 and Tuple2\n',tup3)

input('Press any key to continue')

##Result:
##    This is Tuple 1
##    tuple
##    is
##    Not mutable
##    Heterogeneous
##    can
##    be indexed
##    123
##    55.5
##    True
##
##    ********************
##    This is Tuple 2 with slicing Tuple 1[:7]
##    be indexed
##    123
```

```
##    55.5
##    True
##
##    ********************
##    This is Tuple multiplied 2
##     ('tuple', 'is', 'Not mutable', 'Heterogeneous', 'can', 'be indexed', 123, 55.5, True, 'tuple', 'is', 'Not mutable', 'Heterogeneous', 'can', 'be indexed', 123, 55.5, True)
##
##    ********************
##    This is concatination of Tuple1 and Tuple2
##     ('tuple', 'is', 'Not mutable', 'Heterogeneous', 'can', 'be indexed', 123, 55.5, True, 'be indexed', 123, 55.5, True)
##    Press any key to continue


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#PES Python Assignments SET 1
#9 Python program Basics
#Python program -
##Write program to Add, Subtract, Multiply, Divide 2 Complex numbers


#Manoj Dixit - 20141404
#Python 3.9.0

#A complex number is a number of the form a + bi, where a and b are real numbers, and i is an indeterminate satisfying i2 = -1. For example, 2 + 3i is a complex number
#https://en.wikipedia.org/wiki/Complex_number

a=3+8j
b=9+16j

print(a,'and',b,'are 2 complex numbers')
print('Addition of a and b',a+b)
print('Substraction of a and b',a-b)
print('Multiplication of a and b',a*b)
print('Division of a and b',a/b)
input('Press any key to continue')

##Result:
##    (3+8j) and (9+16j) are 2 complex numbers
##    Addition of a and b (12+24j)
##    Substraction of a and b (-6-8j)
##    Multiplication of a and b (-101+120j)
##    Division of a and b (0.4599406528189911+0.0712166172106825j)
##    Press any key to continue


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#PES Python Assignments SET 1
#10 Python program Basics
#Python program Basics  -
##Using assignment operators, perform following operations
#Addition, Substation, Multiplication, Division, Modulus, Exponent and Floor division operations

#Manoj Dixit - 20141404
#Python 3.9.0

while True:
    a=input('Enter number 1- ')
    if a.isnumeric() or a.replace('.','',1).isdigit(): #for checking if its a valid number
        b=input('Enter number 2- ')
```

```
        if b.isnumeric() or b.lstrip('-').replace('.','',1).isdigit():
            a=eval(a)
            b=eval(b)
            print('Addition of',a,'and',b,'=',a+b)
            print('Substraction of',a,'and',b,'=',a-b)
            print('Multiplication of',a,'and',b,'=',a*b)
            print('Division of',a,'and',b,'=',a/b)
            print('Modulus of',a,'and',b,'=',a%b)
            print('Exponent of',a,'and',b,'=',a**b)
            print('Floor division of',a,'and',b,'=',a//b)
        else:
            print('Invalid number')
    else:
        print('Invalid number')


##Result
##    Enter number 1- 7.0
##    Enter number 2- 2.0
##    Addition of 7.0 and 2.0 = 9.0
##    Substraction of 7.0 and 2.0 = 5.0
##    Multiplication of 7.0 and 2.0 = 14.0
##    Division of 7.0 and 2.0 = 3.5
##    Modulus of 7.0 and 2.0 = 1.0
##    Exponent of 7.0 and 2.0 = 49.0
##    Floor division of 7.0 and 2.0 = 3.0
##    Enter number 1- 7
##    Enter number 2- 2
##    Addition of 7 and 2 = 9
##    Substraction of 7 and 2 = 5
##    Multiplication of 7 and 2 = 14
##    Division of 7 and 2 = 3.5
##    Modulus of 7 and 2 = 1
##    Exponent of 7 and 2 = 49
##    Floor division of 7 and 2 = 3

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#PES Python Assignments SET 1
#10 Python program Basics
#Python program Basics  -
#Read 2 numbers to variable a and b and perform all bitwise operations on that numbers.
#Manoj Dixit - 20141404
#Python 3.9.0

a=0b11110000
b=0b10101010

print(bin(a),'and',bin(b),'are two binary numbers, or',a,'and',b,'in decimal')

print(bin(a),'&(Binary AND)',bin(b),'=',bin(a&b),'or',a&b,'in decimal')
print(bin(a),'|(Binary OR)',bin(b),'=',bin(a|b),'or',a|b,'in decimal')
print(bin(a),'^(Binary XOR)',bin(b),'=',bin(a^b),'or',a^b,'in decimal')
print(bin(a),'~(Binary Ones Complement)=',bin(~a),'or',~a,'in decimal')
print(bin(a),'<< Binary Left Shift by 1 bit=',bin(a<<1),'or',a<<1,'in decimal')
print(bin(a),'>> Binary Right Shift by 1 bit=',bin(a>>1),'or',a>>1,'in decimal')

input('Press any key to continue')

##Result:
##    0b11110000 and 0b10101010 are two binary numbers, or 240 and 170 in decimal
##    0b11110000 &(Binary AND) 0b10101010 = 0b10100000 or 160 in decimal
##    0b11110000 |(Binary OR) 0b10101010 = 0b11111010 or 250 in decimal
##    0b11110000 ^(Binary XOR) 0b10101010 = 0b1011010 or 90 in decimal
##    0b11110000 ~(Binary Ones Complement)= -0b11110001 or -241 in decimal
##    0b11110000 << Binary Left Shift by 1 bit= 0b111100000 or 480 in decimal
##    0b11110000 >> Binary Right Shift by 1 bit= 0b1111000 or 120 in decimal
```

```
585
586 --------------------------------------------------------------------------------
587
588 #PES Python Assignments SET 1
589 #12 Python program Basics
590 #Python program Basics  -
591 ##Read 10 numbers from user and find the average of all.
592 ##a) Use comparison operator to check how many numbers are less than average and print
    them
593 ##b) Check how many numbers are more than average.
594 ##c) How many are equal to average.
595
596
597 #Manoj Dixit - 20141404
598 #Python 3.9.0
599
600 a=input('Please enter 10 numbers delimated by space:\n')
601 0
602 b=a.rsplit(' ')
603 avg=0
604 #find avg
605 for item in b:
606     if item.isnumeric() or item.replace('.','',1).isdigit(): #to check whether the
    current number is valid or not
607         item=eval(item)
608         avg+=item
609     else:
610         print(item,'is invalid')
611
612 avg=avg/len(b)
613 lta=[]
614 mta=[]
615 eta=[]
616
617 for item in b:
618     if item.isnumeric() or item.lstrip('-').replace('.','',1).isdigit(): #to check
    whether the current number is valid or not
619         item=eval(item)
620         if item==avg:
621             eta.append(item)
622         elif item>avg:
623             mta.append(item)
624         else:
625             lta.append(item)
626     else:
627         print(item,'is invalid')
628 print('Average of numbers =',avg)
629 print('Numbers less than average\n\t',lta)
630 print('Numbers more than average\n\t',mta)
631 print('Numbers equal to average\n\t',eta)
632
633
634 ##Result:
635 ##    Please enter 10 numbers delimated by space:
636 ##    10 20 30 40 50 60 70 70 80 90
637 ##    Average of numbers = 52.0
638 ##    Numbers less than average
639 ##              [10, 20, 30, 40, 50]
640 ##    Numbers more than average
641 ##              [60, 70, 70, 80, 90]
642 ##    Numbers equal to average
643 ##              []
644 ##    >>>
645 ##    ======= RESTART: C:/Users/mndxt/OneDrive/Study/Python/Topgear/SET1/12.py =======
646 ##    Please enter 10 numbers delimated by space:
647 ##    10 20 30
648 ##    Average of numbers = 20.0
```

```
##    Numbers less than average
##              [10]
##    Numbers more than average
##              [30]
##    Numbers equal to average
##              [20]
##    ======= RESTART: C:/Users/mndxt/OneDrive/Study/Python/Topgear/SET1/12.py =======
##    Please enter 10 numbers delimated by space:
##    10 20 b 30 40 50
##    b is invalid
##    b is invalid
##    Average of numbers = 25.0
##    Numbers less than average
##              [10, 20]
##    Numbers more than average
##              [30, 40, 50]
##    Numbers equal to average
##              []


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#PES Python Assignments SET 1
#13 Python program Basics
#Python program Basics  -
##Write a program to find the biggest of 4 numbers.
##   a) Read 4 numbers from user using Input statement.
##   b) extend the above program to find the biggest of 5 numbers.
##(PS: Use IF and IF & Else, If and ELIf, and Nested IF)



#Manoj Dixit - 20141404
#Python 3.9.0

a=input('Please enter 4 numbers delimated by space:\n')
b=a.rsplit(' ')
big=0
#find avg
for item in b:
    if item.isnumeric() or item.replace('.','',1).isdigit(): #to check whether the
    current number is valid or not
        item=eval(item)
        if item>big:
            big=item
    else:
        print(item,'is invalid')

print(big,'is greater than all given numbers')

a=input('Please enter 5 numbers delimated by space:\n')
b=a.rsplit(' ')
big=0
#find avg
for item in b:
    if item.isnumeric() or item.replace('.','',1).isdigit(): #to check whether the
    current number is valid or not
        item=eval(item)
        if item>big:
            big=item
    else:
        print(item,'is invalid')

print(big,'is greater than all given numbers')

##Result:
##    Please enter 4 numbers delimated by space:
```

```
##    7 8 9 2
##    9 is greater than all given numbers
##    Please enter 5 numbers delimated by space:
##    11.0 6 11.1 22.3 22.2
##    22.3 is greater than all given numbers


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#PES Python Assignments SET 1
#14 Python program Basics
#Python program Basics  -
##Write a program to create two list A & B such that List A contains Employee Id, List B contain Employee name (minimum 10 entries in each list) & perform following operation
##     a) Print all names on to screen
##     b) Read the index from the  user and print the corresponding name from both list.
##     c) Print the names from 4th position to 9th position
##     d) Print all names from 3rd position till end of the list
##     e) Repeat list elements by specified number of times (N- times, where N is entered by user)
##     f)  Concatenate two lists and print the output.
##     g) Print element of list A and B side by side.(i.e. List-A First element, List-B First element )
##



#Manoj Dixit - 20141404
#Python 3.9.0

A = [1001,1002,1003,2001,2003,3001,3005,3006,3007,3010]
B = ['Suraj','Manoj','Sai','Ranajit','Swati','Amogh','Uday','Vandana','Praveen','Ajay']

def func1(i):
    if i>-1 and i<10:
        print('Emp Id at index',i,'is',A[i],'with name',B[i])
    else:
        print('invalid index')

    print('**********************\n Printing 4th position to 9th position')

    for i in range(3,9):
        print('Index - ',i,',Emp Id - ',A[i],',Emp Name - ',B[i])

    print('**********************\n Printing 3rd position till end of list')

    for i in range(3,len(A)):
        print('Index - ',i,'Emp Name - ',B[i])

    i=int(input('Enter a value to repeat the list : '))

    print(A*i)

    print('A and B lists concatinated using + operator\n',A+B)

    for i in range(len(A)):
        print(A[i],',',B[i])


print('Below are all the names')

for item in B:
    print(item)

i=int(input('***************\nplease provide an index to print the Emp Id and Name (0-9) : '))
func1(i)
```

```
##Result:
##    Below are all the names
##    Suraj
##    Manoj
##    Sai
##    Ranajit
##    Swati
##    Amogh
##    Uday
##    Vandana
##    Praveen
##    Ajay
##    ***************
##    please provide an index to print the Emp Id and Name (0-9) : 4
##    Emp Id at index 4 is 2003 with name Swati
##    ***********************
##     Printing 4th position to 9th position
##    Index -  3 ,Emp Id -  2001 ,Emp Name -  Ranajit
##    Index -  4 ,Emp Id -  2003 ,Emp Name -  Swati
##    Index -  5 ,Emp Id -  3001 ,Emp Name -  Amogh
##    Index -  6 ,Emp Id -  3005 ,Emp Name -  Uday
##    Index -  7 ,Emp Id -  3006 ,Emp Name -  Vandana
##    Index -  8 ,Emp Id -  3007 ,Emp Name -  Praveen
##    ***********************
##     Printing 3rd position till end of list
##    Index -  3 Emp Name -  Ranajit
##    Index -  4 Emp Name -  Swati
##    Index -  5 Emp Name -  Amogh
##    Index -  6 Emp Name -  Uday
##    Index -  7 Emp Name -  Vandana
##    Index -  8 Emp Name -  Praveen
##    Index -  9 Emp Name -  Ajay
##    Enter a value to repeat the list : 2
##    [1001, 1002, 1003, 2001, 2003, 3001, 3005, 3006, 3007, 3010, 1001, 1002, 1003,
    2001, 2003, 3001, 3005, 3006, 3007, 3010]
##    A and B lists concatinated using + operator
##     [1001, 1002, 1003, 2001, 2003, 3001, 3005, 3006, 3007, 3010, 'Suraj', 'Manoj',
    'Sai', 'Ranajit', 'Swati', 'Amogh', 'Uday', 'Vandana', 'Praveen', 'Ajay']
##    1001 , Suraj
##    1002 , Manoj
##    1003 , Sai
##    2001 , Ranajit
##    2003 , Swati
##    3001 , Amogh
##    3005 , Uday
##    3006 , Vandana
##    3007 , Praveen
##    3010 , Ajay

-------------------------------------------------------------------------------


#PES Python Assignments SET 1
#15 Python program Basics
#Python program Basics  -
##Create a list of 5 names and check given name exist in the List.
##        a) Use membership operator (IN) to check the presence of an element.
##        b) Perform above task without using membership operator.
##        c) Print the elements of the list in reverse direction.
##


#Manoj Dixit - 20141404
#Python 3.9.0
```

```
842
843  a = ['Suraj','Manoj','Sai','Ranajit','Swati']
844
845  print('Below is the list\n',a)
846
847  b=input('Please enter a string to check whether it exists in list : ')
848
849  if b in a:
850      print(b,'Exists in the list (via IN operator)')
851  else:
852      print(b,'Does not exist in the list')
853
854  b=input('Please enter a string to check whether it exists in list : ')
855
856  for i in range(len(a)):
857      if a[i]==b:
858          print(b,'Exists in the list (without membership operator)')
859          break
860
861  a.reverse()
862  print('This is list reversed\n',a)
863
864  ##Result:
865  ##    Below is the list
866  ##     ['Suraj', 'Manoj', 'Sai', 'Ranajit', 'Swati']
867  ##    Please enter a string to check whether it exists in list : Manoj
868  ##    Manoj Exists in the list (via IN operator)
869  ##    Please enter a string to check whether it exists in list : Suraj
870  ##    Suraj Exists in the list (without membership operator)
871  ##    This is list reversed
872  ##     ['Swati', 'Ranajit', 'Sai', 'Manoj', 'Suraj']
873
874  ------------------------------------------------------------------------------
875
876  #PES Python Assignments SET 1
877  #16 Python program Basics
878  #Python program Basics  -
879  ##Write program to perform following:
880  ##     i) Check whether given number is prime or not.
881  ##    ii) Generate all the prime numbers between 1 to N where N is given number.
882
883
884  #Manoj Dixit - 20141404
885  #Python 3.9.0
886
887
888
889
890  def prime(a):
891      count=0
892      for i in range(2,int(a**0.5+1)): #iteratering only till square root of number to
     optimize time complexity
893              if a%i==0:
894                  count+=1
895              if count>=1:
896                  break
897      if count>=1:
898          return False
899      else:
900          return True
901
902
903  a=input('Please enter an integer : ')
904  try:
905      a=int(a)
906  except:
907      print('not an integer')
```

```
else:
    if a==1:
        print('1 is niether prime nor non prime')
    elif a==0:
        print('0 is niether prime nor non prime')
    else:
        if prime(a):
            print(a,'is a prime number')
        else:
            print(a,'is not a prime number')
    b=int(input('Enter a range to for all prime numbers to be printed: '))
    for j in range(2,b):
        if prime(j):
            print(j,end=' ')


##Result:
##    Please enter an integer : 9
##    9 is not a prime number
##    Enter a range to for all prime numbers to be printed: 111
##    2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103
107 109


--------------------------------------------------------------------------------

#PES Python Assignments SET 1
#16 Python program Basics
#Python program Basics  -
##Write program to find the biggest and Smallest of N numbers.
##      PS: Use the functions to find biggest and smallest numbers.

#Manoj Dixit - 20141404
#Python 3.9.0

a=input('Provide numbers delimated by space:\n\t')

b=a.rsplit(' ')
for i in range(len(b)):
    if b[i].isnumeric() or b[i].replace('.','',1).isdigit():
        b[i]=eval(b[i])
    else:
        print(b[i],'is not a number')
b.sort()

print('Smallest number is',b[0])
print('Biggest number is',b[len(b)-1])

##Result:
##    Provide numbers delimated by space:
##  10 10.1 9.9 15 25 32.1
##    Smallest number is 9.9
##    Biggest number is 32.1


--------------------------------------------------------------------------------

#PES Python Assignments SET 1
#16 Python program Basics
#Python program Basics  -
##Using loop structures print numbers from 1 to 100.  and using the same loop print
numbers from 100 to 1 (reverse printing)
##a) By using For loop
##b) By using while loop
##c) Let mystring ="Hello world"
##print each character of mystring in to separate line using appropriate loop structure.

```

```python
#Manoj Dixit - 20141404
#Python 3.9.0


print('**********Printing 1 to 100 using for loop')
for i in range(100):
    print(i+1,end=' ')

print('\n*********Printing 100 to 1 using for loop')
for i in range(100,0,-1):
    print(i,end=' ')

print('\n*********Printing 1 to 100 using While loop')
a=iter(range(100))
while True:
    try:
        print(next(a)+1,end=' ')
    except Exception:
        break

print('\n*********Printing 100 to 1 using While loop')
a=iter(range(100,0,-1))
while True:
    try:
        print(next(a),end=' ')
    except Exception:
        break

mystring ="Hello world"
print('\n**********Printing each charater from mystring variable')
for item in mystring:
    print(item)

##Result:
##    **********Printing 1 to 100 using for loop
##    1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
    31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59
    60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
    89 90 91 92 93 94 95 96 97 98 99 100
##    *********Printing 100 to 1 using for loop
##    100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74
    73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45
    44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16
    15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
##    *********Printing 1 to 100 using While loop
##    1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
    31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59
    60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
    89 90 91 92 93 94 95 96 97 98 99 100
##    *********Printing 100 to 1 using While loop
##    100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74
    73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45
    44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16
    15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
##    **********Printing each charater from mystring variable
##    H
##    e
##    l
##    l
##    o
##
##    w
##    o
##    r
##    l
##    d

```

```
--------------------------------------------------------------------------------

#PES Python Assignments SET 1
#19 Python program Basics
#Python program Basics  -
##Using loop structures print even numbers between 1 to 100.
##a) By using For loop, use continue/ break/ pass statement to skip odd numbers.
##    i) Break the loop if the value is 50
##    ii) Use continue for the values 10,20,30,40,50
##      b) By using while loop, use continue/ break/ pass statement to skip odd numbers.
##      i) Break the loop if the value is 90
##      ii) Use continue for the values 60,70,80,90



#Manoj Dixit - 20141404
#Python 3.9.0

print('Using for loop')
for i in range(1,101):
    if i==50:
        break
    elif i in (10,20,30,40,50):
        continue
    else:
        if i%2==0:
            print(i,end=' ')
        else:
            pass

a=iter(range(1,101))
print('\nUsing while loop')
while True:
    i=next(a)
    if i==90:
        break
    elif i in (60,70,80,90):
        continue
    else:
        if i%2==0:
            print(i,end=' ')
        else:
            pass

##Result:
        ##Using for loop
        ##2 4 6 8 12 14 16 18 22 24 26 28 32 34 36 38 42 44 46 48
        ##Using while loop
        ##2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54
        56 58 62 64 66 68 72 74 76 78 82 84 86 88

--------------------------------------------------------------------------------

#PES Python Assignments SET 1
#20 Python program Basics
#Python program Basics  -
##Write a program to generate a Fibonacci series of numbers.
##Starting numbers are 0 and 1,  new number in the series is generated by adding
previous two numbers in the series.
##Example : 0, 1, 1, 2, 3, 5, 8,13,21,.....
##   a) Number of elements printed in the series should be N numbers, Where N is any
+ve integer.
##   b) Generate the series until the element in the series is less than Max number.
```

```python
#Manoj Dixit - 20141404
#Python 3.9.0

i=int(input('Please enter N value for Fibonacci series : '))
f1=0
f2=1
print(f1,end=' ')
print(f2,end=' ')
count=0
while True:
    if (count+2)==i:
        break
    f2=f1+f2
    print(f2,end=' ')
    f1=f2-f1
    count+=1


##Result:
##    Please enter N value for Fibonacci series : 30
##    0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711
28657 46368 75025 121393 196418 317811 514229
##    Please enter N value for Fibonacci series : 8
##    0 1 1 2 3 5 8 13
```