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1 #PES Python Assignments SET 1
2 #1 Python program Basics
3 #Python program Basics Write a program to Add, Subtract, Multiply, and Divide 2 numbers
4 #Manoj Dixit - 20141404
5 #Python 3.9.0
6
7
8 while True:
9     a=input("Please enter the first number/or complete expression in the format a+b - ")
10    if not (a.isnumeric() or a.replace('.', '', 1).isdigit()): #for checking whether its
    a valid number
11        if (a.find('+')>0) or (a.find('-')>0) or (a.find('*')>0) or (a.find('/')>0):
12            try:
13                print(eval(a))
14            except Exception as msg:
15                print(msg)
16                continue
17        else:
18            print('Expression not supported')
19            continue
20    else:
21        b=input("Please enter operator - ")
22        if b in {'+', '-', '*', '/'}:
23            oper=a+b+input("Please enter 2nd number - ")
24            try:
25                print(eval(oper))
26            except Exception as msg:
27                print(msg)
28                continue
29        else:
30            print('Operator invalid')
31            continue
32
33 ## Results
34     #Supports both int and float as arguments
35     #Supports expression input or operand and operator input one by one
36     #Exceptions handled
37
38 *****Integer operation*****
39 ##Please enter the first number/or complete expression in the format a+b - 22
40 ##Please enter operator - +
41 ##Please enter 2nd number - 2
42 ##24
43 ##Please enter the first number/or complete expression in the format a+b - 22
44 ##Please enter operator - -
45 ##Please enter 2nd number - 2
46 ##20
47 ##Please enter the first number/or complete expression in the format a+b - 22
48 ##Please enter operator - *
49 ##Please enter 2nd number - 2
50 ##44
51 ##Please enter the first number/or complete expression in the format a+b - 22
52 ##Please enter operator - /
53 ##Please enter 2nd number - 2
54 ##11.0
55
56 *****Float operation*****
57 ##Please enter the first number/or complete expression in the format a+b - 22.2
58 ##Please enter operator - /
59 ##Please enter 2nd number - 2
60 ##11.1
61
62 *****Expression input*****
63 ##Please enter the first number/or complete expression in the format a+b - 22.2+2
64 ##24.2
65 ##Please enter the first number/or complete expression in the format a+b - 22*0.2
66 ##4.4

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67  ##Please enter the first number/or complete expression in the format a+b  - -3.4+2
68  ##-1.4
69
70  #####Exception Handling#####
71  ##Please enter the first number/or complete expression in the format a+b  - 22.2,2
72  ##Expression not supported
73  ##Please enter the first number/or complete expression in the format a+b  - 34
74  ##Please enter operator - &
75  ##Operator invalid
76
77  -----
78
79  #PES Python Assignments SET 1
80  #2 Python program Basics
81  #Python program Basics - Write a program to find the biggest of 3 numbers (Use If
    Condition)
82  #Manoj Dixit - 20141404
83  #Python 3.9.0
84
85  while True:
86      a=input('Enter number 1- ')
87      if a.isnumeric() or a.replace('.', '', 1).isdigit(): #for checking if its a valid
        number
88          b=input('Enter number 2- ')
89          if b.isnumeric() or b.replace('.', '', 1).isdigit():
90              c=input('Enter number 3- ')
91              if c.isnumeric() or c.replace('.', '', 1).isdigit():
92                  if a>b:
93                      if a>c:
94                          print(a, 'is greater than all')
95                      else:
96                          print(c, 'is greater than all')
97                  else:
98                      if b>c:
99                          print(b, 'is greater than all')
100                     else:
101                         print(c, 'is greater than all')
102                 else:
103                     print('invalid number')
104                     continue
105             else:
106                 print('invalid number')
107                 continue
108         else:
109             print('invalid number')
110             continue
111
112  ##Results
113  ##      Support comparision of both int and float values
114  ##
115  ##Enter number 1- 5
116  ##Enter number 2- 6
117  ##Enter number 3- 3
118  ##6 is greater than all
119  ##Enter number 1- 3
120  ##Enter number 2- 3.1
121  ##Enter number 3- 2
122  ##3.1 is greater than all
123  ##Enter number 1- 2
124  ##Enter number 2- 2
125  ##Enter number 3- 2
126  ##2 is greater than all
127  ##Enter number 1- 3
128  ##Enter number 2- 6
129  ##Enter number 3- 4
130  ##6 is greater than all
131

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132 -----
133
134 #PES Python Assignments SET 1
135 #3 Python program Basics
136 #Python program - Write a program to find given number is odd or Even
137 #Manoj Dixit - 20141404
138 #Python 3.9.0
139
```

```
140 while True:
141     a=input('Please enter an integer - ')
142     try:
143         a=int(a)
144     except:
145         print('not an integer')
146         continue
147     if a%2==0:
148         print(a,'is an even number')
149     else:
150         print(a,'is an odd number')
151
```

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152
153 ##Results
154 ##
155 ##Please enter an integer - 4
156 ##4 is an even number
157 ##Please enter an integer - 6
158 ##6 is an even number
159 ##Please enter an integer - 5
160 ##5 is an odd number
161 ##Please enter an integer - 1
162 ##1 is an odd number
163 ##Please enter an integer - 8
164 ##8 is an even number
165 ##Please enter an integer - 0
166 ##0 is an even number
167 ##Please enter an integer - 2
168 ##2 is an even number
169 ##Please enter an integer - 11
170 ##11 is an odd number
171 ##Please enter an integer - 11
172 ##11 is an odd number
173 ##Please enter an integer - 11111
174 ##11111 is an odd number
175 ##Please enter an integer - 1.5
176 ##not an integer
177
```

```
178 -----
179
180
181 #PES Python Assignments SET 1
182 #4 Python program Basics
183 #Python program - Write a program to find the number is Prime or not.
184 #Manoj Dixit - 20141404
185 #Python 3.9.0
186
```

```
187 while True:
188     count=0
189     a=input('Please enter an integer - ')
190     try:
191         a=int(a)
192     except:
193         print('not an integer')
194         continue
195     if a==1:
196         print('1 is niether prime nor non prime')
197     elif a==0:
198         print('0 is niether prime nor non prime')
199
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199     else:
200         for i in range(2,int(a**0.5+1)): #iterating only till square root of number
            to optimize time complexity
201             if a%i==0:
202                 count+=1
203                 #print('i',i,'count',count)
204                 if count>=1:
205                     break
206             if count>=1:
207                 print(a,'is non prime number')
208         else:
209             print(a,'is prime number')
210
211 ##Result:
212 ##Please enter an integer - 0
213 ##0 is niether prime nor non prime
214 ##Please enter an integer - 1
215 ##1 is niether prime nor non prime
216 ##Please enter an integer - 2
217 ##2 is prime number
218 ##Please enter an integer - 3
219 ##3 is prime number
220 ##Please enter an integer - 4
221 ##4 is non prime number
222 ##Please enter an integer - 5
223 ##5 is prime number
224 ##Please enter an integer - 6
225 ##6 is non prime number
226 ##Please enter an integer - 7
227 ##7 is prime number
228 ##Please enter an integer - 8
229 ##8 is non prime number
230 ##Please enter an integer - 9
231 ##9 is non prime number
232 ##Please enter an integer - 10
233 ##10 is non prime number
234 ##Please enter an integer - 11
235 ##11 is prime number
236 ##Please enter an integer - 12
237 ##12 is non prime number
238 ##Please enter an integer - 13
239 ##13 is prime number
240 ##Please enter an integer - 99
241 ##99 is non prime number
242 ##Please enter an integer - 97
243 ##97 is prime number
244 ##Please enter an integer - 55
245 ##55 is non prime number
246 ##Please enter an integer - 57
247 ##57 is non prime number
248 ##Please enter an integer - 59
249 ##59 is prime number
250
251 -----
252
253 #PES Python Assignments SET 1
254 #5 Python program Basics
255 #Python program -
256 ## Write a program to receive 5 command line arguments and print each argument
    separately.
257 ##Example: >> python test.py arg1 arg2 arg3 arg4 arg5
258 ##a) From the above statement your program should receive arguments and print them each
    of them.
259 ##b) Find the biggest of three numbers, where three numbers are passed as command line
    arguments.
260

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261 #Manoj Dixit - 20141404
262 #Python 3.9.0
263
264 from sys import argv
265
266 #reusing prog2 for greatest among 3
267
268 def checknum(num):
269     if num.isnumeric() or num.replace('.', '', 1).isdigit():
270         return True
271     else:
272         return False
273
274 def checkgreat():
275     a=argv[1];b=argv[2];c=argv[3]
276     if checknum(a) and checknum(b) and checknum(c):
277         a=eval(a);b=eval(b);c=eval(c)
278         if a>b:
279             if a>c:
280                 print(a,'is greater than first 3 arguments')
281             else:
282                 print(c, 'is greater than first 3 arguments')
283         else:
284             if b>c:
285                 print(b,'is greater than first 3 arguments')
286             else:
287                 print(c, 'is greater than first 3 arguments')
288     else:
289         print('invalid arguments')
290
291 for i in range(1,len(argv)):
292     print(argv[i])
293
294 checkgreat()
295
296 ##Result:
297 ## C:\Users\mndxt\OneDrive\Study\Python\Topgear\SET1>python 5.py 23 25 33 43 50
298 ##23
299 ##25
300 ##33
301 ##43
302 ##50
303 ##33 is greater than first 3 arguments
304 ##
305 ##C:\Users\mndxt\OneDrive\Study\Python\Topgear\SET1>python 5.py 45 gttc 56 43 1111
306 ##45
307 ##gttc
308 ##56
309 ##43
310 ##1111
311 ##invalid arguments
312 ##
313 ##C:\Users\mndxt\OneDrive\Study\Python\Topgear\SET1>python 5.py 45 99 102.13 gttc python
314 ##45
315 ##99
316 ##102.13
317 ##gttc
318 ##python
319 ##102.13 is greater than first 3 arguments
320
321 -----
322
323 #PES Python Assignments SET 1
324 #6 Python program Basics
325 #Python program -
326 ##Write a program to read string and print each character separately.
327 ## a) Slice the string using slice operator [:] slice the portion the strings to

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328     create a sub strings.
329     ##      b) Repeat the string 100 times using repeat operator *
330     ##      c) Read string 2 and concatenate with other string using + operator.
331     #Manoj Dixit - 20141404
332     #Python 3.9.0
333
334     while True:
335
336         string=input('please input a string - ')
337         print('This is first 5 chars : ',string[:5])
338         print('This is 5 chars from 3rd position : ',string[2:7])
339         print('This is string reversed:',string[::-1])
340         print('This is string multiplied to itself 3 times : ',string*3)
341         print('This is concantination using + operator : ',string+input('Enter another
342         string - '))
343
344     ##please input a string - Robotics
345     ##This is first 5 chars :  Robot
346     ##This is 5 chars from 3rd position :  botic
347     ##This is string reversed: scitoboR
348     ##This is string multiplied to itself 3 times :  RoboticsRoboticsRobotics
349     ##Enter another string -  Engineer
350     ##This is concantination using + operator :  Robotics Engineer
351
352     -----
353
354     #PES Python Assignments SET 1
355     #7 Python program Basics
356     #Python program -
357     ##Create a list with at least 10 elements having integer values in it;
358     ##      Print all elements
359     ##      Perform slicing operations
360     ##      Perform repetition with * operator
361     ##      Perform concatenation with other list.
362
363
364     #Manoj Dixit - 20141404
365     #Python 3.9.0
366
367     print('This is list 1')
368     list1=['list','is','Mutable','Heterogeneous','dynamic',"and","Extensible",123,55.5,True]
369
370     for item in list1:
371         print(item)
372
373     list2=list1[5:]
374     print('\n*****\nThis is list 2 with slicing list1[:7]')
375     for item in list2:
376         print(item)
377
378     print('\n*****\nThis is list1 multiplied 2\n',list1*2)
379
380     list3=list1+list2
381     print('\n*****\nThis is concatination of list1 and list2\n',list3)
382
383
384     ##This is list 1
385     ##list
386     ##is
387     ##Mutable
388     ##Heterogeneous
389     ##dynamic
390     ##and
391     ##Extensible
392     ##123

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393  ##55.5
394  ##True
395  ##
396  ##*****
397  ##This is list 2 with slicing list1[:7]
398  ##and
399  ##Extensible
400  ##123
401  ##55.5
402  ##True
403  ##
404  ##*****
405  ##This is list1 multiplied 2
406  ## ['list', 'is', 'Mutable', 'Heterogeneous', 'dynamic', 'and', 'Extensible', 123,
55.5, True, 'list', 'is', 'Mutable', 'Heterogeneous', 'dynamic', 'and', 'Extensible',
123, 55.5, True]
407  ##
408  ##*****
409  ##This is concatenation of list1 and list2
410  ## ['list', 'is', 'Mutable', 'Heterogeneous', 'dynamic', 'and', 'Extensible', 123,
55.5, True, 'and', 'Extensible', 123, 55.5, True]
411
412  -----
413
414  #PES Python Assignments SET 1
415  #8 Python program Basics
416  #Python program -
417  ##Repeat program 7 with Tuples (Take example from Tutorial)
418
419
420  #Manoj Dixit - 20141404
421  #Python 3.9.0
422
423  print('This is Tuple 1')
424  tup1=('tuple','is','Not mutable','Heterogeneous','can','be indexed',123,55.5,True)
425
426  for item in tup1:
427      print(item)
428
429  tup2=tup1[5:]
430  print('\n*****\nThis is Tuple 2 with slicing Tuple 1[:7]')
431  for item in tup2:
432      print(item)
433
434  print('\n*****\nThis is Tuple multiplied 2\n',tup1*2)
435
436  tup3=tup1+tup2
437  print('\n*****\nThis is concatenation of Tuple1 and Tuple2\n',tup3)
438
439  input('Press any key to continue')
440
441  ##Result:
442  ##     This is Tuple 1
443  ##     tuple
444  ##     is
445  ##     Not mutable
446  ##     Heterogeneous
447  ##     can
448  ##     be indexed
449  ##     123
450  ##     55.5
451  ##     True
452  ##
453  ##     *****
454  ##     This is Tuple 2 with slicing Tuple 1[:7]
455  ##     be indexed
456  ##     123

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```

457  ##      55.5
458  ##      True
459  ##
460  ##      *****
461  ##      This is Tuple multiplied 2
462  ##      ('tuple', 'is', 'Not mutable', 'Heterogeneous', 'can', 'be indexed', 123, 55.5,
True, 'tuple', 'is', 'Not mutable', 'Heterogeneous', 'can', 'be indexed', 123, 55.5,
True)
463  ##
464  ##      *****
465  ##      This is concatenation of Tuple1 and Tuple2
466  ##      ('tuple', 'is', 'Not mutable', 'Heterogeneous', 'can', 'be indexed', 123, 55.5,
True, 'be indexed', 123, 55.5, True)
467  ##      Press any key to continue
468
469
470  -----
471
472  #PES Python Assignments SET 1
473  #9 Python program Basics
474  #Python program -
475  ##Write program to Add, Subtract, Multiply, Divide 2 Complex numbers
476
477
478  #Manoj Dixit - 20141404
479  #Python 3.9.0
480
481  #A complex number is a number of the form  $a + bi$ , where  $a$  and  $b$  are real numbers, and  $i$ 
is an indeterminate satisfying  $i^2 = -1$ . For example,  $2 + 3i$  is a complex number
482  #https://en.wikipedia.org/wiki/Complex\_number
483
484  a=3+8j
485  b=9+16j
486
487  print(a,'and',b,'are 2 complex numbers')
488  print('Addition of a and b',a+b)
489  print('Substraction of a and b',a-b)
490  print('Multiplication of a and b',a*b)
491  print('Division of a and b',a/b)
492  input('Press any key to continue')
493
494  ##Result:
495  ##      (3+8j) and (9+16j) are 2 complex numbers
496  ##      Addition of a and b (12+24j)
497  ##      Substraction of a and b (-6-8j)
498  ##      Multiplication of a and b (-101+120j)
499  ##      Division of a and b (0.4599406528189911+0.0712166172106825j)
500  ##      Press any key to continue
501
502
503  -----
504
505  #PES Python Assignments SET 1
506  #10 Python program Basics
507  #Python program Basics -
508  ##Using assignment operators, perform following operations
509  #Addition, Substation, Multiplication, Division, Modulus, Exponent and Floor division
operations
510
511  #Manoj Dixit - 20141404
512  #Python 3.9.0
513
514  while True:
515      a=input('Enter number 1- ')
516      if a.isnumeric() or a.replace('.', '', 1).isdigit(): #for checking if its a valid
number
517          b=input('Enter number 2- ')

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```

518         if b.isnumeric() or b.lstrip('-').replace('.', '', 1).isdigit():
519             a=eval(a)
520             b=eval(b)
521             print('Addition of',a,'and',b,'=',a+b)
522             print('Substraction of',a,'and',b,'=',a-b)
523             print('Multiplication of',a,'and',b,'=',a*b)
524             print('Division of',a,'and',b,'=',a/b)
525             print('Modulus of',a,'and',b,'=',a%b)
526             print('Exponent of',a,'and',b,'=',a**b)
527             print('Floor division of',a,'and',b,'=',a//b)
528         else:
529             print('Invalid number')
530     else:
531         print('Invalid number')
532
533
534 ##Result
535 ##     Enter number 1- 7.0
536 ##     Enter number 2- 2.0
537 ##     Addition of 7.0 and 2.0 = 9.0
538 ##     Substraction of 7.0 and 2.0 = 5.0
539 ##     Multiplication of 7.0 and 2.0 = 14.0
540 ##     Division of 7.0 and 2.0 = 3.5
541 ##     Modulus of 7.0 and 2.0 = 1.0
542 ##     Exponent of 7.0 and 2.0 = 49.0
543 ##     Floor division of 7.0 and 2.0 = 3.0
544 ##     Enter number 1- 7
545 ##     Enter number 2- 2
546 ##     Addition of 7 and 2 = 9
547 ##     Substraction of 7 and 2 = 5
548 ##     Multiplication of 7 and 2 = 14
549 ##     Division of 7 and 2 = 3.5
550 ##     Modulus of 7 and 2 = 1
551 ##     Exponent of 7 and 2 = 49
552 ##     Floor division of 7 and 2 = 3
553
554 -----
555
556 #PES Python Assignments SET 1
557 #10 Python program Basics
558 #Python program Basics -
559 #Read 2 numbers to variable a and b and perform all bitwise operations on that numbers.
560 #Manoj Dixit - 20141404
561 #Python 3.9.0
562
563 a=0b11110000
564 b=0b10101010
565
566 print(bin(a),'and',bin(b),'are two binary numbers, or',a,'and',b,'in decimal')
567
568 print(bin(a),'&(Binary AND)',bin(b),'=',bin(a&b),'or',a&b,'in decimal')
569 print(bin(a),'|(Binary OR)',bin(b),'=',bin(a|b),'or',a|b,'in decimal')
570 print(bin(a),'^(Binary XOR)',bin(b),'=',bin(a^b),'or',a^b,'in decimal')
571 print(bin(a),'~(Binary Ones Complement)=',bin(~a),'or',~a,'in decimal')
572 print(bin(a),'<< Binary Left Shift by 1 bit=',bin(a<<1),'or',a<<1,'in decimal')
573 print(bin(a),'>> Binary Right Shift by 1 bit=',bin(a>>1),'or',a>>1,'in decimal')
574
575 input('Press any key to continue')
576
577 ##Result:
578 ##     0b11110000 and 0b10101010 are two binary numbers, or 240 and 170 in decimal
579 ##     0b11110000 &(Binary AND) 0b10101010 = 0b10100000 or 160 in decimal
580 ##     0b11110000 |(Binary OR) 0b10101010 = 0b11111010 or 250 in decimal
581 ##     0b11110000 ^ (Binary XOR) 0b10101010 = 0b10111010 or 90 in decimal
582 ##     0b11110000 ~(Binary Ones Complement)= -0b11110001 or -241 in decimal
583 ##     0b11110000 << Binary Left Shift by 1 bit= 0b111100000 or 480 in decimal
584 ##     0b11110000 >> Binary Right Shift by 1 bit= 0b1111000 or 120 in decimal

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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 delimited by space:\n')
601 0
602 b=a.split(' ')
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 delimited 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 delimited by space:
647 ##     10 20 30
648 ##     Average of numbers = 20.0

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649  ##      Numbers less than average
650  ##          [10]
651  ##      Numbers more than average
652  ##          [30]
653  ##      Numbers equal to average
654  ##          [20]
655  ##      ===== RESTART: C:/Users/mndxt/OneDrive/Study/Python/Topgear/SET1/12.py =====
656  ##      Please enter 10 numbers delimited by space:
657  ##      10 20 b 30 40 50
658  ##      b is invalid
659  ##      b is invalid
660  ##      Average of numbers = 25.0
661  ##      Numbers less than average
662  ##          [10, 20]
663  ##      Numbers more than average
664  ##          [30, 40, 50]
665  ##      Numbers equal to average
666  ##          []
667
668
669  -----
670
671  #PES Python Assignments SET 1
672  #13 Python program Basics
673  #Python program Basics -
674  ##Write a program to find the biggest of 4 numbers.
675  ##  a) Read 4 numbers from user using Input statement.
676  ##  b) extend the above program to find the biggest of 5 numbers.
677  ##(PS: Use IF and IF & Else, If and ELIf, and Nested IF)
678
679
680
681  #Manoj Dixit - 20141404
682  #Python 3.9.0
683
684  a=input('Please enter 4 numbers delimited by space:\n')
685  b=a.rsplit(' ')
686  big=0
687  #find avg
688  for item in b:
689      if item.isnumeric() or item.replace('.', '', 1).isdigit(): #to check whether the
        current number is valid or not
690          item=eval(item)
691          if item>big:
692              big=item
693      else:
694          print(item,'is invalid')
695
696  print(big,'is greater than all given numbers')
697
698  a=input('Please enter 5 numbers delimited by space:\n')
699  b=a.rsplit(' ')
700  big=0
701  #find avg
702  for item in b:
703      if item.isnumeric() or item.replace('.', '', 1).isdigit(): #to check whether the
        current number is valid or not
704          item=eval(item)
705          if item>big:
706              big=item
707      else:
708          print(item,'is invalid')
709
710  print(big,'is greater than all given numbers')
711
712  ##Result:
713  ##      Please enter 4 numbers delimited by space:

```

```

714  ##      7 8 9 2
715  ##      9 is greater than all given numbers
716  ##      Please enter 5 numbers delimited by space:
717  ##      11.0 6 11.1 22.3 22.2
718  ##      22.3 is greater than all given numbers
719
720
721  -----
722
723  #PES Python Assignments SET 1
724  #14 Python program Basics
725  #Python program Basics -
726  ##Write a program to create two list A & B such that List A contains Employee Id, List
727  B contain Employee name (minimum 10 entries in each list) & perform following operation
728  ##      a) Print all names on to screen
729  ##      b) Read the index from the user and print the corresponding name from both list.
730  ##      c) Print the names from 4th position to 9th position
731  ##      d) Print all names from 3rd position till end of the list
732  ##      e) Repeat list elements by specified number of times (N- times, where N is
733  entered by user)
734  ##      f) Concatenate two lists and print the output.
735  ##      g) Print element of list A and B side by side.(i.e. List-A First element, List-B
736  First element )
737  ##
738
739  #Manoj Dixit - 20141404
740  #Python 3.9.0
741
742  A = [1001,1002,1003,2001,2003,3001,3005,3006,3007,3010]
743  B = ['Suraj','Manoj','Sai','Ranajit','Swati','Amogh','Uday','Vandana','Praveen','Ajay']
744
745  def func1(i):
746      if i>-1 and i<10:
747          print('Emp Id at index',i,'is',A[i],'with name',B[i])
748      else:
749          print('invalid index')
750
751      print('*****\n Printing 4th position to 9th position')
752
753      for i in range(3,9):
754          print('Index - ',i,',Emp Id - ',A[i],',Emp Name - ',B[i])
755
756      print('*****\n Printing 3rd position till end of list')
757
758      for i in range(3,len(A)):
759          print('Index - ',i,',Emp Name - ',B[i])
760
761      i=int(input('Enter a value to repeat the list : '))
762
763      print(A*i)
764
765      print('A and B lists concatenated using + operator\n',A+B)
766
767      for i in range(len(A)):
768          print(A[i],',',B[i])
769
770  print('Below are all the names')
771
772  for item in B:
773      print(item)
774
775  i=int(input('*****\nplease provide an index to print the Emp Id and Name
776  (0-9) : '))
777  func1(i)

```

```

777
778
779
780 ##Result:
781 ## Below are all the names
782 ## Suraj
783 ## Manoj
784 ## Sai
785 ## Ranajit
786 ## Swati
787 ## Amogh
788 ## Uday
789 ## Vandana
790 ## Praveen
791 ## Ajay
792 ## *****
793 ## please provide an index to print the Emp Id and Name (0-9) : 4
794 ## Emp Id at index 4 is 2003 with name Swati
795 ## *****
796 ## Printing 4th position to 9th position
797 ## Index - 3 ,Emp Id - 2001 ,Emp Name - Ranajit
798 ## Index - 4 ,Emp Id - 2003 ,Emp Name - Swati
799 ## Index - 5 ,Emp Id - 3001 ,Emp Name - Amogh
800 ## Index - 6 ,Emp Id - 3005 ,Emp Name - Uday
801 ## Index - 7 ,Emp Id - 3006 ,Emp Name - Vandana
802 ## Index - 8 ,Emp Id - 3007 ,Emp Name - Praveen
803 ## *****
804 ## Printing 3rd position till end of list
805 ## Index - 3 Emp Name - Ranajit
806 ## Index - 4 Emp Name - Swati
807 ## Index - 5 Emp Name - Amogh
808 ## Index - 6 Emp Name - Uday
809 ## Index - 7 Emp Name - Vandana
810 ## Index - 8 Emp Name - Praveen
811 ## Index - 9 Emp Name - Ajay
812 ## Enter a value to repeat the list : 2
813 ## [1001, 1002, 1003, 2001, 2003, 3001, 3005, 3006, 3007, 3010, 1001, 1002, 1003,
814 2001, 2003, 3001, 3005, 3006, 3007, 3010]
815 ## A and B lists concatenated using + operator
816 ## [1001, 1002, 1003, 2001, 2003, 3001, 3005, 3006, 3007, 3010, 'Suraj', 'Manoj',
817 'Sai', 'Ranajit', 'Swati', 'Amogh', 'Uday', 'Vandana', 'Praveen', 'Ajay']
818 ## 1001 , Suraj
819 ## 1002 , Manoj
820 ## 1003 , Sai
821 ## 2001 , Ranajit
822 ## 2003 , Swati
823 ## 3001 , Amogh
824 ## 3005 , Uday
825 ## 3006 , Vandana
826 ## 3007 , Praveen
827 ## 3010 , Ajay
828
829
830 #PES Python Assignments SET 1
831 #15 Python program Basics
832 #Python program Basics -
833 ##Create a list of 5 names and check given name exist in the List.
834 ## a) Use membership operator (IN) to check the presence of an element.
835 ## b) Perform above task without using membership operator.
836 ## c) Print the elements of the list in reverse direction.
837 ##
838
839
840 #Manoj Dixit - 20141404
841 #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)): #iterating 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')

```

```

908 else:
909     if a==1:
910         print('1 is niether prime nor non prime')
911     elif a==0:
912         print('0 is niether prime nor non prime')
913     else:
914         if prime(a):
915             print(a,'is a prime number')
916         else:
917             print(a,'is not a prime number')
918 b=int(input('Enter a range to for all prime numbers to be printed: '))
919 for j in range(2,b):
920     if prime(j):
921         print(j,end=' ')
922
923
924 ##Result:
925 ##     Please enter an integer : 9
926 ##     9 is not a prime number
927 ##     Enter a range to for all prime numbers to be printed: 111
928 ##     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
929     107 109
930
931 -----
932
933 #PES Python Assignments SET 1
934 #16 Python program Basics
935 #Python program Basics -
936 ##Write program to find the biggest and Smallest of N numbers.
937 ##     PS: Use the functions to find biggest and smallest numbers.
938
939 #Manoj Dixit - 20141404
940 #Python 3.9.0
941
942 a=input('Provide numbers delimited by space:\n\t')
943
944 b=a.rsplit(' ')
945 for i in range(len(b)):
946     if b[i].isnumeric() or b[i].replace('.', '', 1).isdigit():
947         b[i]=eval(b[i])
948     else:
949         print(b[i], 'is not a number')
950 b.sort()
951
952 print('Smallest number is',b[0])
953 print('Biggest number is',b[len(b)-1])
954
955 ##Result:
956 ##     Provide numbers delimited by space:
957 ##     10 10.1 9.9 15 25 32.1
958 ##     Smallest number is 9.9
959 ##     Biggest number is 32.1
960
961 -----
962
963 #PES Python Assignments SET 1
964 #16 Python program Basics
965 #Python program Basics -
966 ##Using loop structures print numbers from 1 to 100. and using the same loop print
967 numbers from 100 to 1 (reverse printing)
968 ##a) By using For loop
969 ##b) By using while loop
970 ##c) Let mystring ="Hello world"
971 ##print each character of mystring in to separate line using appropriate loop structure.
972

```

```

973 #Manoj Dixit - 20141404
974 #Python 3.9.0
975
976
977 print('*****Printing 1 to 100 using for loop')
978 for i in range(100):
979     print(i+1,end=' ')
980
981 print('\n*****Printing 100 to 1 using for loop')
982 for i in range(100,0,-1):
983     print(i,end=' ')
984
985 print('\n*****Printing 1 to 100 using While loop')
986 a=iter(range(100))
987 while True:
988     try:
989         print(next(a)+1,end=' ')
990     except Exception:
991         break
992
993 print('\n*****Printing 100 to 1 using While loop')
994 a=iter(range(100,0,-1))
995 while True:
996     try:
997         print(next(a),end=' ')
998     except Exception:
999         break
1000
1001 mystring ="Hello world"
1002 print('\n*****Printing each charater from mystring variable')
1003 for item in mystring:
1004     print(item)
1005
1006 ##Result:
1007 ##      *****Printing 1 to 100 using for loop
1008 ##      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
1009 ##      *****Printing 100 to 1 using for loop
1010 ##      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
1011 ##      *****Printing 1 to 100 using While loop
1012 ##      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
1013 ##      *****Printing 100 to 1 using While loop
1014 ##      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
1015 ##      *****Printing each charater from mystring variable
1016 ##      H
1017 ##      e
1018 ##      l
1019 ##      l
1020 ##      o
1021 ##
1022 ##      w
1023 ##      o
1024 ##      r
1025 ##      l
1026 ##      d
1027

```



```

1028 -----
1029
1030 #PES Python Assignments SET 1
1031 #19 Python program Basics
1032 #Python program Basics -
1033 ##Using loop structures print even numbers between 1 to 100.
1034 ##a) By using For loop, use continue/ break/ pass statement to skip odd numbers.
1035 ##    i) Break the loop if the value is 50
1036 ##    ii) Use continue for the values 10,20,30,40,50
1037 ##    b) By using while loop, use continue/ break/ pass statement to skip odd numbers.
1038 ##    i) Break the loop if the value is 90
1039 ##    ii) Use continue for the values 60,70,80,90
1040
1041
1042
1043 #Manoj Dixit - 20141404
1044 #Python 3.9.0
1045
1046 print('Using for loop')
1047 for i in range(1,101):
1048     if i==50:
1049         break
1050     elif i in (10,20,30,40,50):
1051         continue
1052     else:
1053         if i%2==0:
1054             print(i,end=' ')
1055         else:
1056             pass
1057
1058 a=iter(range(1,101))
1059 print('\nUsing while loop')
1060 while True:
1061     i=next(a)
1062     if i==90:
1063         break
1064     elif i in (60,70,80,90):
1065         continue
1066     else:
1067         if i%2==0:
1068             print(i,end=' ')
1069         else:
1070             pass
1071
1072 ##Result:
1073     ##Using for loop
1074     ##2 4 6 8 12 14 16 18 22 24 26 28 32 34 36 38 42 44 46 48
1075     ##Using while loop
1076     ##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
1077     56 58 62 64 66 68 72 74 76 78 82 84 86 88
1078 -----
1079
1080 #PES Python Assignments SET 1
1081 #20 Python program Basics
1082 #Python program Basics -
1083 ##Write a program to generate a Fibonacci series of numbers.
1084 ##Starting numbers are 0 and 1, new number in the series is generated by adding
1085 previous two numbers in the series.
1086 ##Example : 0, 1, 1, 2, 3, 5, 8,13,21,.....
1087 ##    a) Number of elements printed in the series should be N numbers, Where N is any
1088 +ve integer.
1089 ##    b) Generate the series until the element in the series is less than Max number.
1090
1091

```

```
1092 #Manoj Dixit - 20141404
1093 #Python 3.9.0
1094
1095 i=int(input('Please enter N value for Fibonacci series : '))
1096 f1=0
1097 f2=1
1098 print(f1,end=' ')
1099 print(f2,end=' ')
1100 count=0
1101 while True:
1102     if (count+2)==i:
1103         break
1104     f2=f1+f2
1105     print(f2,end=' ')
1106     f1=f2-f1
1107     count+=1
1108
1109
1110 ##Result:
1111 ## Please enter N value for Fibonacci series : 30
1112 ## 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711
1113 ## 28657 46368 75025 121393 196418 317811 514229
1114 ## Please enter N value for Fibonacci series : 8
1115 ## 0 1 1 2 3 5 8 13
1116
1117
1118
```