```
In [2]: import random
          students = [
              'Tzwrtzina',
              'Andreas',
              'Xristos',
              'Andromaxh',
              'Danah',
              'Antwnia',
              'Aris',
              'Maria',
              'Sofia',
              'Iwanna',
              'Aggelos',
          ]
          def random_student():
              return random.choice(students)
         rs = random_student
In [14]: rs()
Out[14]: 'Sofia'
         'it' in 'Mitsos'
 In [4]:
 Out[4]: True
 In [6]: | 'a' in 'Mitsos'
 Out[6]: False
 In [8]: 3 in [3,4,5]
Out[8]: True
In [10]: 'mitsos' in [4,5,'mitsos']
Out[10]: True
In [11]: [2,3,4,5]
Out[11]: [2, 3, 4, 5]
In [13]: sum([2,3,4,5])
Out[13]: 14
```

```
In [15]: min([5,4,2,7])
Out[15]: 2
In [16]: max([5,4,2,7])
Out[16]: 7
In [17]: rs()
Out[17]: 'Tzwrtzina'
In [19]: | 'a' < 'b'
Out[19]: True
In [20]: | 43 < 3
Out[20]: False
In [21]: rs()
Out[21]: 'Xristos'
In [24]: | '23' < '3'
Out[24]: True
In [25]: '23 papadopoulos' < '3 papadoulos'</pre>
Out[25]: True
In [26]: '33' < '334'
Out[26]: True
In [ ]:
             zdfbgsdfgzdfg' < '3 sdfgsdfgsdfgsdfgsdfgsdfg'</pre>
In [23]: 23 < 3
Out[23]: False
In [27]: 'a' < 'A'
Out[27]: False
In [28]: | 'A' < 'a'
Out[28]: True
```

```
In [30]: min(['heraklion', 'athens', 'thessaloniki'])
Out[30]: 'athens'
In [31]: | max(['heraklion', 'athens', 'thessaloniki'])
Out[31]: 'thessaloniki'
In [32]: 3 < 4
Out[32]: True
In [34]: [3] < [4]
Out[34]: True
In [36]: [3,4,5] < [3,4,6]
Out[36]: True
In [37]: [3,4,5] < [3]
Out[37]: False
In [38]: [3,4] < [3,4,1]
Out[38]: True
In [39]: [3,4] < [1,4,3]
Out[39]: False
In [41]: [3,4,1] < [1]
Out[41]: False
In [42]: 'a' + 3
         TypeError
                                                   Traceback (most recen
         t call last)
         <ipython-input-42-f701e8780759> in <module>()
         ---> 1 'a' + 3
         TypeError: can only concatenate str (not "int") to str
```

```
In [43]:
         _____
                                                    Traceback (most recen
         TypeError
         t call last)
         <ipython-input-43-5e7599499276> in <module>()
         ---> 1 'a' < 3
         TypeError: '<' not supported between instances of 'str' and 'in
         t'
In [44]: | [3] < ['3']
         TypeError
                                                    Traceback (most recen
         t call last)
         <ipython-input-44-c4b523518bef> in <module>()
         ----> 1 [3] < ['3']
         TypeError: '<' not supported between instances of 'int' and 'st
         r'
In [45]: [3,2] < [1,'3']
Out[45]: False
In [46]: [3,2] < [3,'3']
         TypeError
                                                    Traceback (most recen
         t call last)
         <ipython-input-46-59268e29ed38> in <module>()
         ----> 1 [3,2] < [3,'3']
         TypeError: '<' not supported between instances of 'int' and 'st
         r'
In [47]: | min(['heraklion', 'athens', 'thessaloniki'])
Out[47]: 'athens'
```

```
In [48]: min(['heraklion', 'athens', 'thessaloniki', 4])
                                                     Traceback (most recen
         TypeError
         t call last)
         <ipython-input-48-710c425e4910> in <module>()
         ---> 1 min(['heraklion', 'athens', 'thessaloniki', 4])
         TypeError: '<' not supported between instances of 'int' and 'st
         r'
In [49]: min(['heraklion', 'athens', 'thessaloniki', '4'])
Out[49]: '4'
In [51]: list(range(1,10))
Out[51]: [1, 2, 3, 4, 5, 6, 7, 8, 9]
In [52]: list(range(1,10,2))
Out[52]: [1, 3, 5, 7, 9]
In [53]: list(range(10,1,-2))
Out[53]: [10, 8, 6, 4, 2]
In [55]: if 3<4:
             print ('hello')
         hello
In [56]: if 4<3:
             print ('hello')
In [58]: | if 3<4: print ('hello') # Iououououou</pre>
         hello
In [59]: | if 3<4:
             print ('hello')
         hello
In [61]: if 'el' in 'Hello':
             print (57)
         57
```

```
In [63]: a=3
         if a < 10 or a > 100:
             print (100)
         100
In [65]:
         a=3
         if
                   <
                         10
                                                      100
              а
                               or
                                         a
             print (100)
         100
In [66]:
         a=3
         if a < 10 or \
            a > 100:
             print (100)
         100
In [68]:
         if ['a', 4] > ['b', 7]:
             print ('hello')
In [71]:
         if 3<4:
             print ('hello')
             print ('world')
         hello
         world
In [74]:
         if 3<2:
             print ('hello')
         print ('world')
         world
In [75]: if 3<4:
             print ('hello')
         print ('world')
         hello
         world
```

```
In [76]:
         if 3<4:
              print ('hello')
             print ('mitsos')
         print ('world')
         hello
         mitsos
         world
In [77]: if 4<3:
             print ('hello')
             print ('mitsos')
         print ('world')
         world
In [79]:
         if 3<4:
             print ('hello')
             if 'a' < 'b':
                  print ('mitsos')
         print ('world')
         hello
         mitsos
         world
In [80]:
         if 3<4:
             print ('hello')
              if 'a' > 'b':
                  print ('mitsos')
         print ('world')
         hello
         world
         if 3>4:
In [82]:
             print ('hello')
         else:
             print ('world')
         world
In [83]:
         if 4>3:
             print ('hello')
         else:
             print ('world')
         hello
```

```
In [85]: a = 1
         if a == 1:
             print ('hello')
         elif a == 2:
             print ('mitsos')
             print ('world')
         hello
In [86]: a = 2
         if a == 1:
            print ('hello')
         elif a == 2:
             print ('mitsos')
         else:
             print ('world')
         mitsos
In [87]: a = '`,sdjfnsdkjfgldkjgbzdlkgblsdkjfgh'
         if a == 1:
             print ('hello')
         elif a == 2:
             print ('mitsos')
         else:
             print ('world')
         world
In [90]: a = 'Heraklion'
         if 'e' in a:
             print ('hello')
         elif 'a' in a:
             print ('mitsos')
         else:
             print ('world')
         hello
```

```
In [92]: a = 'Heraklion'
         if 'e' in a:
             print ('hello')
         if 'a' in a:
             print ('mitsos')
         else:
             print ('world')
         hello
         mitsos
In [93]: a = 'Heraklion'
         if 'e' in a:
             print ('hello')
             if 'a' in a:
                 print ('mitsos')
         #if 'a' in a:
             print ('mitsos')
         #else:
         # print ('world')
         hello
         mitsos
In [94]: else:
             print ('sdfg')
           File "<ipython-input-94-f4a9373cd266>", line 1
             else:
         SyntaxError: invalid syntax
In [95]: for x in [3,5,7]:
             print (x)
         3
         5
         7
```

```
In [96]:
          for x in range(1,30):
              print (x)
          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
In [97]: for x in 'Heraklion':
              print (x)
          Η
          е
          r
          а
          k
          1
          i
In [99]:
          for x in [[1,2,3], [4,5,6]
                                               ]:
              print (x)
          [1, 2, 3]
          [4, 5, 6]
```

Τύπωσε όλους τους μονούς αριθμούς από 1 μέχρι το 20

```
In [101]:
           for x in range(1,20,2):
                print (x)
           1
           3
           5
           7
           9
           11
           13
           15
           17
           19
  In [ ]:
In [103]:
           for x in range(1,20):
                if x%2 == 1:
                    print (x)
           1
           3
           5
           7
           9
           11
           13
           15
           17
           19
```

```
In [105]:
           for x in range(0,19):
                print (x+1)
           1
           2
           3
           4
           5
           6
           7
           8
           9
           10
           11
           12
           13
           14
           15
           16
           17
           18
           19
In [106]:
           for x in range(1,20):
                if x%2 == 1:
                    print (x)
           1
           3
           5
           7
           9
           11
           13
           15
           17
           19
```

```
In [107]: for x in range(1,20):
    if x%2 == 0:
        continue

    print (x)

1
3
5
7
9
11
13
15
17
19
```

```
In [116]: for x in range(1,40):
    print ('x=',x)

if x%2 == 0:
    print ('x is ' + str(x) + ' even.. CONTINUE!')
    continue

if x > 19:
    print ('x is ' + str(x) + ' greater than 19. BREAK!')
    break

print (x)

print ('====> ' + str(x))
```

x=1

```
1
          x=2
          x is 2 even.. CONTINUE!
          3
          x=4
          x is 4 even.. CONTINUE!
          x = 5
          5
          x = 6
          x is 6 even.. CONTINUE!
          x = 7
          7
          x = 8
          x is 8 even.. CONTINUE!
          x = 9
          9
          x=10
          x is 10 even.. CONTINUE!
          x=11
          11
          x=12
          x is 12 even.. CONTINUE!
          x=13
          13
          x= 14
          x is 14 even.. CONTINUE!
          x = 15
          15
          x = 16
          x is 16 even.. CONTINUE!
          x = 17
          17
          x = 18
          x is 18 even.. CONTINUE!
          x = 19
          19
          x = 20
          x is 20 even.. CONTINUE!
          x is 21 greater than 19. BREAK!
          ===> 21
In [122]: for x in [4,5,6]:
               a = x + 4
               print (x, a)
          print (a) # Τυπώνει τη τελευταία τιμή που έχει πάρει η a !
          4 8
          5 9
          6 10
          10
```

```
In [127]: a=1
           while a<=19:
               print (a)
               a += 2 \# a=a+2
           print ('==>', a)
          1
           3
           5
           7
           9
           11
           13
           15
           17
           19
           ==> 21
In [131]:
          a=0
           while a<=19:
               a += 1 # a=a+1
               if a %2 == 0:
                   continue
               print (a)
           print ('==>', a)
           1
           3
           5
           7
           9
           11
           13
           15
           17
           19
           ==> 20
```

```
In [132]: a=0
           while a<=100:
               a += 1 # a=a+1
               if a %2 == 0:
                   continue
               print (a)
               if a > = 19:
                   break
           print ('==>', a)
           1
           3
           5
           7
           9
           11
           13
           15
           17
           19
           ==> 19
In [133]: a=0
           while 'mitsos' == 'mitsos':
               a += 1 \# a=a+1
               if a %2 == 0:
                   continue
               print (a)
               if a > = 19:
                   break
           print ('==>', a)
           1
           3
           5
           7
           9
           11
           13
           15
           17
           19
           ==> 19
```

```
In [134]: rs()
Out[134]: 'Aggelos'
```

Όλους τους ζυγούς από το 20 μέχρι και το 0, με while!

```
In [139]: a=21
           while a<=21:
                a-=1
                if a%2 == 0:
                    print (a)
                if a == 0:
                    break
           20
           18
           16
           14
           12
           10
           8
           6
           4
           2
In [140]:
           a=21
           while True:
                a-=1
                if a%2 == 0:
                    print (a)
                if a == 0:
                    break
           20
           18
           16
           14
           12
           10
           8
           6
           4
           2
           0
```

```
In [138]:
           a=21
           while a>0:
               a-=1
               if a%2 == 0:
                    print (a)
           20
           18
           16
           14
           12
           10
           8
           6
           4
           2
In [141]: rs()
Out[141]: 'Sofia'
```

5..10..15..20..25..100..Φτου και βγαίνω

```
In [146]: a=0
           while a<100:</pre>
                a += 1
                if a%5 == 0:
                    print (a)
           print ('Φτου και βγαίνω!')
           5
           10
           15
           20
           25
           30
           35
           40
           45
           50
           55
           60
           65
           70
           75
           80
           85
           90
           95
           100
           Φτου και βγαίνω!
In [147]: ## Χωρίς if!
```

```
In [149]:
           a=0
           while a<100:</pre>
                a += 5
                print (a)
           print ('Φτου και βγαίνω!')
           5
           10
           15
           20
           25
           30
           35
           40
           45
           50
           55
           60
           65
           70
           75
           80
           85
           90
           95
           100
           Φτου και βγαίνω!
In [150]:
           for a in range(5,105,5):
                print (a)
           5
           10
           15
           20
           25
           30
           35
           40
           45
           50
           55
           60
           65
           70
           75
           80
           85
           90
           95
           100
```

```
In [153]: | t=0
           while t in [4,5,6]:
               print (t)
In [154]: while False:
               print ('PAPADES')
  In [ ]: | t=4
           while t in [4,5,6]:
               print (t)
In [159]: t=5
           while t in range(5,105,5):
               print (t)
               t += 5
           5
           10
           15
           20
           25
           30
           35
           40
           45
           50
           55
           60
           65
           70
           75
           80
           85
           90
           95
           100
  In [ ]: t=5
           while t<100:</pre>
               print (t)
               t += 5
  In [ ]:
In [156]: 5 in range(0,100)
Out[156]: True
In [157]: 105 in range(0,100)
Out[157]: False
```

```
In [ ]:
In [151]: rs()
Out[151]: 'Andreas'
In [125]: | for b in [1,2,3]:
              print (b)
          1
          2
          3
In [126]: while c < 10:
              print (c)
          -----
          NameError
                                                    Traceback (most recen
          t call last)
          <ipython-input-126-c3f75e9b58ee> in <module>()
          ---> 1 while c < 10:
                2
                     print (c)
          NameError: name 'c' is not defined
   1
   1 2
   1 2 3
   1 2 3 4
   1 2 3 4 5 6 7 8 9 10
```

```
In [176]:
          for x in range(1,11):
               #print(1, x)
               s = ''
               for y in range(1, x+1):
                   #print (' ', y)
                   s += str(y) + ' '
               print (s)
          1
          1 2
          1 2 3
          1 2 3 4
          1 2 3 4 5
          1 2 3 4 5 6
          1 2 3 4 5 6 7
          1 2 3 4 5 6 7 8
          1 2 3 4 5 6 7 8 9
           1 2 3 4 5 6 7 8 9 10
          s = ''
In [178]:
           for i in range(1,11):
               s += str(i) + '
               print (s)
          1
          1 2
          1 2 3
          1 2 3 4
          1 2 3 4 5
          1 2 3 4 5 6
          1 2 3 4 5 6 7
          1 2 3 4 5 6 7 8
          1 2 3 4 5 6 7 8 9
          1 2 3 4 5 6 7 8 9 10
In [181]: | s = ''
           i = 1
          while i<11:</pre>
               s += str(i) + ' '
               print (s)
               i += 1
          1
          1 2
          1 2 3
          1 2 3 4
          1 2 3 4 5
          1 2 3 4 5 6
          1 2 3 4 5 6 7
          1 2 3 4 5 6 7 8
          1 2 3 4 5 6 7 8 9
          1 2 3 4 5 6 7 8 9 10
```

Τυπώσει τη προπαίδεια του 7

```
1 \times 7 = 7
   2 \times 7 = 14
   3 \times 7 = 21
   10 \times 7 = 70
In [185]: for i in range(1,11):
                  result = i*7
                  #print (result)
                  print (str(i) + ' X 7 = ' + str(result))
             1 \ X \ 7 = 7
             2 \times 7 = 14
             3 \times 7 = 21
             4 \times 7 = 28
             5 \times 7 = 35
             6 \times 7 = 42
             7 \times 7 = 49
             8 \times 7 = 56
             9 \times 7 = 63
             10 \times 7 = 70
```

Τυπώσε τη προπαίδεια όλως των αριθμών από το 1 .. 10

```
In [189]: for x in range(1,11):
    for i in range (1,11):
        result = i*x
        print (str(i) + ' X ' + str(x) + ' = ' + str(result))
```

1 X 1 = 12 X 1 = 2 $3 \times 1 = 3$ $4 \times 1 = 4$ $5 \times 1 = 5$ $6 \times 1 = 6$ $7 \times 1 = 7$ 8 X 1 = 89 X 1 = 9 $10 \times 1 = 10$ $1 \ X \ 2 = 2$ 2 X 2 = 43 X 2 = 6 $4 \times 2 = 8$ 5 X 2 = 10 $6 \times 2 = 12$ $7 \times 2 = 14$ $8 \times 2 = 16$ 9 X 2 = 18 $10 \times 2 = 20$ $1 \times 3 = 3$ 2 X 3 = 6 $3 \times 3 = 9$ $4 \times 3 = 12$ 5 X 3 = 15 $6 \times 3 = 18$ $7 \times 3 = 21$ $8 \times 3 = 24$ $9 \times 3 = 27$ $10 \times 3 = 30$ $1 \ X \ 4 = 4$ 2 X 4 = 8 $3 \times 4 = 12$ $4 \times 4 = 16$ $5 \ X \ 4 = 20$ 6 X 4 = 24 $7 \times 4 = 28$ 8 X 4 = 32 $9 \times 4 = 36$ $10 \ X \ 4 = 40$ $1 \times 5 = 5$ $2 \times 5 = 10$ $3 \times 5 = 15$ $4 \times 5 = 20$ $5 \times 5 = 25$ $6 \times 5 = 30$ $7 \times 5 = 35$ $8 \times 5 = 40$ $9 \times 5 = 45$ $10 \times 5 = 50$ $1 \times 6 = 6$ $2 \times 6 = 12$ $3 \times 6 = 18$ $4 \times 6 = 24$ $5 \times 6 = 30$

27 of 36

 $6 \times 6 = 36$

```
7 \times 6 = 42
8 \times 6 = 48
9 \times 6 = 54
10 \times 6 = 60
1 \times 7 = 7
2 \times 7 = 14
3 \times 7 = 21
4 \times 7 = 28
5 \times 7 = 35
6 \times 7 = 42
7 \times 7 = 49
8 \times 7 = 56
9 X 7 = 63
10 \times 7 = 70
1 \times 8 = 8
2 \times 8 = 16
3 \times 8 = 24
4 \times 8 = 32
5 \times 8 = 40
6 \times 8 = 48
7 \times 8 = 56
8 \ X \ 8 = 64
9 \times 8 = 72
10 \times 8 = 80
1 \times 9 = 9
2 \times 9 = 18
3 \times 9 = 27
4 \times 9 = 36
5 \times 9 = 45
6 \times 9 = 54
7 \times 9 = 63
8 \times 9 = 72
9 \times 9 = 81
10 \times 9 = 90
1 \times 10 = 10
2 \times 10 = 20
3 \times 10 = 30
4 \times 10 = 40
5 \times 10 = 50
6 \times 10 = 60
7 \times 10 = 70
8 \times 10 = 80
9 \times 10 = 90
```

Πόσα φωνήεντα έχει μία λέξη;;;;;

 $10 \times 10 = 100$

```
In [190]: f = 'αοειηυω'
In [191]: w = 'αλεξανδρος'
```

```
In [226]: # Σωστό αλλά πλεονάζων
          c=0
           for i in f:
               if i in w:
                   #print (i)
                   #c += 1
                   c += w.count(i)
          print (c)
           4
In [228]:
          c=0
           for i in f:
               c += w.count(i)
           print (c)
In [229]: 'hello'.count('w')
Out[229]: 0
  In [ ]:
In [205]: # Πόσα φωνήεντα έχει μία λέξη !
           c=0
           for i in w:
               if i in f:
                   c += 1
          print (c)
           # Πόσα διαφορετικά φωνήεντα έχει μία λέξη!
           c=0
           for i in f:
               if i in w:
                   c += 1
          print (c)
           4
           3
```

Το άθροισμα όλων των αριθμών από το 1 μέχρι και το 100 που διαιρούνται με 3 !!!!

Με πόσους (και ποιους) αριθμούς διαιρείται τέλεια το 1250;

```
In [224]:
          a=1
           c=0
           while a<1251:
               if 1250\%a == 0:
                   print (a)
                   c += 1 \# c = c + 1
               a += 1
           print (c)
           1
           2
           5
           10
           25
           50
           125
           250
           625
           1250
           10
In [219]: rs()
Out[219]: 'Aris'
```

```
In [220]: 10/0
          _____
          ZeroDivisionError
                                                     Traceback (most recen
          t call last)
          <ipython-input-220-e574edb36883> in <module>()
          ---> 1 10/0
          ZeroDivisionError: division by zero
In [221]: 10 % 0
          ZeroDivisionError
                                                     Traceback (most recen
          t call last)
          <ipython-input-221-b4eaad6685bc> in <module>()
          ---> 1 10 % 0
          ZeroDivisionError: integer division or modulo by zero
In [161]: for x in range(0, 10):
              print(x)
          0
          1
          2
          3
          4
          5
          7
          8
In [165]: for x in range(-10, -1):
              print(x)
          -10
          -9
          -8
          -7
          -6
          -5
          -4
          -3
          -2
In [171]: for x in range(5,6):
              print (x)
          5
```

In [230]: help(list)

```
Help on class list in module builtins:
class list(object)
    list(iterable=(), /)
    Built-in mutable sequence.
    If no argument is given, the constructor creates a new empt
y list.
    The argument must be an iterable if specified.
    Methods defined here:
    __add__(self, value, /)
        Return self+value.
    contains (self, key, /)
        Return key in self.
    __delitem__(self, key, /)
       Delete self[key].
    __eq__(self, value, /)
       Return self==value.
    __ge__(self, value, /)
        Return self>=value.
    __getattribute__(self, name, /)
        Return getattr(self, name).
    __getitem__(...)
        x._getitem_(y) \iff x[y]
    __gt__(self, value, /)
        Return self>value.
    __iadd__(self, value, /)
        Implement self+=value.
    __imul__(self, value, /)
        Implement self*=value.
    __init__(self, /, *args, **kwargs)
        Initialize self. See help(type(self)) for accurate sig
nature.
    __iter__(self, /)
        Implement iter(self).
    __le__(self, value, /)
        Return self<=value.
     len (self, /)
        Return len(self).
```

```
__lt__(self, value, /)
        Return self<value.
    __mul__(self, value, /)
        Return self*value.
     _ne__(self, value, /)
        Return self!=value.
    __repr__(self, /)
        Return repr(self).
     reversed (self, /)
        Return a reverse iterator over the list.
    __rmul__(self, value, /)
        Return value*self.
    __setitem__(self, key, value, /)
        Set self[key] to value.
    __sizeof__(self, /)
        Return the size of the list in memory, in bytes.
    append(self, object, /)
        Append object to the end of the list.
    clear(self, /)
        Remove all items from list.
    copy(self, /)
        Return a shallow copy of the list.
    count(self, value, /)
        Return number of occurrences of value.
    extend(self, iterable, /)
        Extend list by appending elements from the iterable.
    index(self, value, start=0, stop=9223372036854775807, /)
        Return first index of value.
        Raises ValueError if the value is not present.
    insert(self, index, object, /)
        Insert object before index.
    pop(self, index=-1, /)
        Remove and return item at index (default last).
        Raises IndexError if list is empty or index is out of r
ange.
    remove(self, value, /)
        Remove first occurrence of value.
```

```
Raises ValueError if the value is not present.
              reverse(self, /)
                  Reverse *IN PLACE*.
              sort(self, /, *, key=None, reverse=False)
                  Stable sort *IN PLACE*.
             Static methods defined here:
              __new__(*args, **kwargs) from builtins.type
                  Create and return a new object. See help(type) for acc
          urate signature.
           Data and other attributes defined here:
            __hash__ = None
In [232]: help([].count)
          Help on built-in function count:
          count(value, /) method of builtins.list instance
              Return number of occurrences of value.
In [98]: rs()
Out[98]: 'Andreas'
 In [ ]:
```