Практическая работа 8

Задача 1

In [19]:
```
n = int(input())
sum = 0
for i in range(1,n+1):
    sum +=i**2
print(sum)
```

```
3
14
```

Задача 2

In [27]:
```
n = int(input())
print('+___ ' * n)
for i in range(1, n + 1):
    print('|', i, ' / ', sep='', end='')
print()
print('|__\\ ' * n)
print('|    ' * n)
```

```
6
+___ +___ +___ +___ +___ +___
|1 / |2 / |3 / |4 / |5 / |6 /
|__\ |__\ |__\ |__\ |__\ |__\
|    |    |    |    |    |
```

Задача 3

In [34]:
```
s = list(input().split(' '))
for i in reversed(s):
    print(i, end=' ')
```

```
4 5 6 23 5
5 23 6 5 4
```

Задача 4

In [38]:
```
Str = [int(s) for s in input().split()]
k = int(input())
for i in range(k + 1, len(Str)):
    Str[i - 1] = Str[i]
Str.pop()
print(' '.join([str(i) for i in Str]))
```

```
4 -3 5 2 -5
2
4 -3 2 -5
```

Задача 5

In [39]:
```
Str = [int(i) for i in input().split()]
for i in range(1, len(Str), 2):
    Str[i - 1], Str[i] = Str[i], Str[i - 1]

print(' '.join([str(i) for i in Str]))
```

```
1 2 3 4 5
2 1 4 3 5
```

Задача 6

In [40]:
```
lst = input().split()
for i in reversed(range(len(lst))):
    if lst[i] == '0':
        lst.append(lst.pop(i))
print(*lst)
```

```
4 0 5 0 3 0 5 5
4 5 3 5 5 0 0 0
```

Задача 7

In [53]:
```
k = int(input())
N = [int(input()) for i in range(k)]
print(*sorted(N))
```

```
3
3
2
1
1 2 3
```

Задача 8

In [57]:
```
n = list(map(int, input().split()))
s = []
for i in range(n[1]):
    s.append(int(input()))
s.sort()
d, c = 0, 0
for i in s:
    d += i
    if d <= n[0]:
        c += 1
print(c)
```

```
100 3
50
30
50
2
```

Задача 9

In [60]:
```
def kv(n, a, m):
    Count = [0] * n
    for cl in a:
        Count[cl - 1] += 1
    for i in range(n):
        if m[i] < Count[i]:
            print('YES')
        else:
            print('NO')
n = int(input())
m = [int(i) for i in input().split()]
k = int(input())
a = [int(i) for i in input().split()]
kv(n, a, m)
```

```
5
1 50 3 4 3
16
1 2 3 4 5 1 3 3 4 5 5 5 5 5 4 5
YES
NO
NO
NO
YES
```

Задача 10

In [66]:
```
def CountSort(list):
    sort= [0] * 101
    for i in list:
        sort[i] += 1
    for i in range(101):
        print((str(i) + ' ') * sort[i], end='')
list = [int(i) for i in input().split()]
CountSort(list)
```

```
9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9
```

Задача 11

In [71]:
```
n = int(input())
a = [input().split() for _ in range(n)]
for i in sorted(a, key=lambda x: int(x[1]), reverse=True):
    print(i[0])
```

```
3
Def 5
Der 10
Dev 15
Dev
Der
Def
```

Задача 12

In [32]:
```
rate = sorted([int(s) for s in input().split()])
length = sorted([int(s) for s in input().split()], reverse=True)

print(sum(t*d for t, d in zip(rate, length)))
```

```
1 2 3
1 2 3
10
```

Задача 13

In [80]:
```
def rv(string):
    string = string.replace('-', '').replace('(', '').replace(')', '')
    return string[-10:] if len(string)>7 else '495' + string[-7:]

n = 4
notes = [input() for _ in range(n)]
for note in notes[1:]:
    print('YES' if rv(notes[0]) == rv(note) else 'NO')
```

```
8(495)430-23-97
+7-4-9-5-43-023-97
4-3-0-2-3-9-7
8-495-430
YES
YES
NO
```

Задача 14

In [85]:
```
A = dict()
D = []
F = []
x = int(input())
for n in range (x):
    F = input().split()
    key = F[0]
    del F[0]
    val = F
    A[key]=val
word = int(input())
for i in range (word):
    D.append(input())
for i in range(word):
    for key, val in A.items():
        if D[i] in val:
            print(key)
```

```
2
Russia Moscow Petersburg Novgorod Kaluga
Ukraine Kiev Donetsk Odessa
3
Odessa
Moscow
Novgorod
Ukraine
Russia
Russia
```

Задача 15

In [112]:
```
from collections import Counter
text = input()
c = collections.Counter(text.split())
max(c, key=lambda i: c[i])
```

```
add ref add freg qef
```

Out[112]:
```
'add'
```

Задача 16

In [111]:
```
from collections import Counter
text = input()
c = Counter(sorted(text.split()))
print(*sorted(c.keys(), key=c.get, reverse=True), sep='\n')
```

```
oh you touch my tralala
my
oh
touch
tralala
you
```

Задача 17

In [39]:
```
def deposit(name, sum):
    bank[name] = bank.get(name, 0) + int(sum)


def withdraw(name, sum):
    bank[name] = bank.get(name, 0) - int(sum)


def balance(name):
    if name not in bank:
        print('ERROR')
    else:
        print(bank[name])


def income(percent):
    for k, v in bank.items():
        if v > 0:
            bank[k] = int(v * ((int(percent)/100) + 1))


bank = dict()
Zadacha = open('17_zadanie.txt')
for line in Zadacha:
    line = line.split()
    if 'BALANCE' in line:
        balance(line[1])
    elif 'DEPOSIT' in line:
        deposit(line[1], line[2])
    elif 'WITHDRAW' in line:
        withdraw(line[1], line[2])
    elif 'INCOME' in line:
        income(line[1])
    else:
        withdraw(line[1], line[3])
        deposit(line[2], line[3])
Zadacha.close()
```

```
ERROR
ERROR
100
ERROR
150
110
165
156
165
156
179
```

Задача 18

In [126]:
```
def k(r):
    if r not in hy:
        return 0
    else:
        return 1 + k(hy[r])
hy = {}
n = int(input())
for i in range(n - 1):
    child, parent = input().split()
    hy[child] = parent
heights = {}
for r in set(hy.keys()).union(set(hy.values())):
    heights[r] = k(r)
for key, value in sorted(heights.items()):
    print(key, value)
```

```
10
AQHFYP MKFXCLZBT
AYKOTYQ QIUKGHWCDC
IWCGKHMFM WPLHJL
MJVAURUDN QIUKGHWCDC
MKFXCLZBT IWCGKHMFM
PUTRIPYHNQ UQNGAXNP
QIUKGHWCDC WPLHJL
UQNGAXNP WPLHJL
YURTPJNR QIUKGHWCDC
AQHFYP 3
AYKOTYQ 2
IWCGKHMFM 1
MJVAURUDN 2
MKFXCLZBT 2
PUTRIPYHNQ 2
QIUKGHWCDC 1
UQNGAXNP 1
WPLHJL 0
YURTPJNR 2
```

Задача 19

In [128]:
```
print(len(set(input().split())))
```

```
1 2 3 4 5 1 2 1 2 7 3
6
```

Задача 20

In [134]:
```
s = input()
kol = 0
prev = True
for i in s:
    rez = str.isspace(i)
    if (prev and not rez):
        kol += 1
    prev = rez
print(kol)
```

```
f erg reg erg wfg reger  df fg ergre ger  g reg erg sd f fger .
17
```

Задача 21

In [139]:
```
print(*map(lambda a, b: int(a != b), input().split(), input().split()))
```

```
0 0 1 1
0 1 0 1
0 1 1 0
```

Задача 22

In [36]:
```
from math import factorial
n = int(input())
for i in range(n+1):
    numbers = [i]
    print(*map(factorial,numbers), end=' ')
```

```
4
1 1 2 6 24
```

Задача 23

In [25]:
```
i=2
n = int(input())
while i<=n:
    f=True
    j=2
    while f and j<i:
        if not i%j:
            f=False
        j+=1
    if f:
        print(i,end=' ')
    i+=1
```

```
8
2 3 5 7
```

Задача 24

In [41]:
```
import itertools
import functools
print(*(tuple([[[0]]]) + tuple(*map(lambda data: filter(lambda x: tuple(x[0])
== x[1],
    map(lambda var: (filter(lambda sta: ((var.index(sta[0]) >= var.index(sta[
1])) ^ (var.index(sta[2]) >= var.index(sta[3]))),
    data[1]),data[1], var + data[2]), data[0])),
map(lambda x: (itertools.permutations(set(functools.reduce(lambda x,y: x + y
,x[1]))),
x[1], tuple(set(range(1, x[0] + 1)) - set(functools.reduce(lambda x,y: x + y
,x[1])))),
map(lambda vvod: (next(vvod), tuple(set(map(lambda y: tuple(y),
map(lambda x: map(int, input().split()), range(next(vvod))))))),
[map(int, input().split())])))))[-1][-1])
```

```
3 2
2 1 2 3
1 2 3 2
3 2 1
```