

Assignment #1: 自主学习

Updated 0110 GMT+8 Sep 10, 2024

2024 fall, Compiled by ==汤伟杰, 信息管理系==

说明:

1) 请把每个题目解题思路（可选），源码 Python, 或者 C++（已经在 Codeforces/Openjudge 上 AC），截图（包含 Accepted），填写到下面作业模版中（推荐使用 typora <https://typoraio.cn>，或者用 word）。AC 或者没有 AC，都请标上每个题目大致花费时间。

3) 课程网站是 Canvas 平台, <https://pku.instructure.com>, 学校通知 9 月 19 日导入选课名单后启用。作业写好后，保留在自己手中，待 9 月 20 日提交。

提交时候先提交 pdf 文件，再把 md 或者 doc 文件上传到右侧“作业评论”。Canvas 需要有同学清晰头像、提交文件有 pdf、“作业评论”区有上传的 md 或者 doc 附件。

4) 如果不能在截止前提交作业，请写明原因。

1. 题目

02733: 判断闰年

<http://cs101.openjudge.cn/practice/02733/>

思路：用多个条件把不符合的过滤掉，剩余的就是闰年（用时 2min）

代码

```
a=int(input())
if a%100==0 and a%400!=0:
    print('N')
elif a%4!=0:
    print('N')
else:
    print('Y')
```

代码运行截图 ==（至少包含有"Accepted"）==

#46047756提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: **Accepted**

源代码

```
a=int(input())
if a%100==0 and a%400!=0:
    print('N')
elif a%4!=0:
    print('N')
else:
    print('Y')
```

基本信息

#: 46047756
题目: 02733
提交人: Tang Weijie
内存: 3592kB
时间: 20ms
语言: Python3
提交时间: 2024-09-11 15:29:02

02750: 鸡兔同笼

<http://cs101.openjudge.cn/practice/02750/>

思路:

首先排除所有奇数，再对偶数里面是否是 4 的倍数分类，不是 4 的倍数说明最小时有一只鸡（用时 5min

代码

```
a=int(input())
if a%2!=0:
    print('0 0')
else:
    if a%4!=0:
        x1=int(a//4+1)
    else:
        x1=int(a/4)
    x2=int(a/2)
    print(str(x1)+' '+str(x2))
```

代码运行截图 ==（至少包含有"Accepted"）==

#46047980提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: Accepted

源代码

```
a=int(input())
if a%2!=0:
    print('0 0')
else:
    if a%4!=0:
        x1=int(a//4+1)
    else:
        x1=int(a/4)
    x2=int(a/2)
    print(str(x1)+' '+str(x2))
```

基本信息

#: 46047980
题目: 02750
提交人: Tang Weijie
内存: 3632kB
时间: 20ms
语言: Python3
提交时间: 2024-09-11 15:46:33

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[English](#) [帮助](#) [关于](#)

50A. Domino piling

greedy, math, 800, <http://codeforces.com/problemset/problem/50/A>

思路: 考虑 m 列 n 行, 对 n 和 m 分别进行奇数偶数分类, 但是数学公式比较复杂。简单公式却想不到

（用时 10min

代码

```
M,N=map(int,input().split())
if N%2==0:
    print(int(M*(N/2)))
else:
    if M%2==0:
        print(int(M*((N-1)/2)+M/2))
```

```

else:
    print(int(M*((N-1)/2)+(M-1)/2))
#也可以直接用(M*N)//2

```

代码运行截图 == (AC 代码截图, 至少包含有"Accepted") ==

#	When	Who	Problem	Lang	Verdict	Time	Memory
278737994	Aug/30/2024 16:49 UTC+8	twj_ink	266A - Stones on the Table	Python 3	Wrong answer on test 4	92 ms	0 KB
278737363	Aug/30/2024 16:42 UTC+8	twj_ink	266A - Stones on the Table	Python 3	Runtime error on test 1	92 ms	0 KB
278730555	By twj_ink, contest: Codeforces Beta Round 47, problem: (A) Domino piling, Accepted, #, Copy						0 KB
278729795	M, N = map(int, input().split())						0 KB
278729044	if N%2==0:						0 KB
278726701	print(int(M*(N/2)))						0 KB
278726555	else:						0 KB
278726036	if M%2==0:						0 KB
278718944	print(int(M*((N-1)/2)+M/2))						0 KB
278718944	else:						0 KB
278718944	print(int(M*((N-1)/2)+(M-1)/2))						0 KB
278717711	---Judgement Protocol						0 KB
278707824	Test: #1, time: 124 ms., memory: 8 KB, exit code: 0, checker exit code: 0, verdict: OK						0 KB
278707701	Input						0 KB
278707701	4 4						0 KB
278707214	Output						0 KB
278706920	4						0 KB
278706621	Answer						0 KB
278706621	4						0 KB
278705855	Checker Log						0 KB
278665110	ok 1 number(s): "4"						0 KB
278662777	Test: #2, time: 124 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK						0 KB
278660360	Input						0 KB
278660258	3 3						0 KB
278659555	Output						0 KB
278659090	4						0 KB
	Answer						0 KB
	4						0 KB
	Checker Log						0 KB
	ok 1 number(s): "4"						0 KB
	Test: #3, time: 92 ms., memory: 8 KB, exit code: 0, checker exit code: 0, verdict: OK						0 KB
	Input						0 KB
	11 5						0 KB
	Output						0 KB
	20						0 KB

1A. Theatre Square

math, 1000, <https://codeforces.com/problemset/problem/1/A>

思路: 对 m, n 分别与 a 整除考虑, 整除直接用, 非整除多一个, 最后两个数相乘即可
用时 10min

代码

```

n,m,a=map(int,input().split())
nums=[]
for i in [n,m]:
    if i%a==0:
        n_needed=int(i/a)
    else:
        n_needed=int(i//a+1)
    nums.append(n_needed)
print(int(nums[0]*nums[1]))

```

代码运行截图 == (AC 代码截图, 至少包含有"Accepted") ==

280683049	Sep/11/2024 12:59 UTC+8	twj_ink	1879A - Rigged!	Python 3	Runtime error on test 2	62 ms	0 KB
280681853	Sep/11/2024 12:40 UTC+8	twj_ink	1879B - Chips on the Board	Python 3	Accepted	265 ms	49700 KB
280681148	Sep/11/2024 12:29 UTC+8	twj_ink	1879B - Chips on the Board	Python 3	Wrong answer on test 2	218 ms	0 KB
280680957							0 KB
280678347	By twj_ink, contest: Codeforces Beta Round 1, problem: (A) Theatre Square, Accepted, #, Copy						29300 KB
280676187	<pre> n, m, a = map(int, input().split()) nums = [] for i in range(1, m+1): if i % a == 0: n_needed = int(i/a) else: n_needed = int(i//a + 1) nums.append(n_needed) print(int(nums[0]*nums[1])) </pre>						0 KB
280627214							0 KB
280625410							0 KB
280593877							0 KB
280579537							0 KB
280552467	--Judgement Protocol						0 KB
280551677	Test: #1, time: 61 ms., memory: 16 KB, exit code: 0, checker exit code: 0, verdict: OK						0 KB
280550777	Input						0 KB
280550197	6 6 4						0 KB
280549577	Output						0 KB
280548887	4						0 KB
280471037	Checker Log						0 KB
280470107	ok 1 number(s): "4"						0 KB
280464097	Test: #2, time: 46 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK						0 KB
280462987	Input						0 KB
280462877	1 1 1						0 KB
280277457	Output						0 KB
280276877	1						0 KB
280276707	Checker Log						0 KB
	ok 1 number(s): "1"						0 KB
	Test: #3, time: 46 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK						0 KB
	Input						0 KB
	2 1 1						0 KB
	Output						0 KB

112A. Petya and Strings

implementation, strings, 1000, <http://codeforces.com/problemset/problem/112/A>

思路：利用布尔值的 1 和 0 来比较字母对应的 ascii 数值大小，先都转换成小写，再用 (a>b)-(a<b)

用时 3min

代码

```

string1=input().lower()
string2=input().lower()
if string1 == string2:
    print(0)
elif string1 > string2:
    print(1)
elif string1 < string2:
    print(-1)
#也可直接用 print((a>b)-(a<b))

```

代码运行截图 == (AC 代码截图，至少包含有"Accepted") ==

By twj_ink, contest: Codeforces Beta Round 85 (Div. 2 Only), problem: (A) Petya and Strings, **Accepted**, [#, Copy](#)

```

27872655: string1=input().lower()
27872003: string2=input().lower()
27871894: if string1 == string2:
27871771:     print(0)
27870782: elif string1 > string2:
27870770:     print(1)
27870721: elif string1 < string2:
27870692:     print(-1)
27870662:
27870585:
27866511:
27866277:
27866036:
27866025:
27865955:
27865909:

```

Sort by: 1 2

Test: #1, time: 122 ms., memory: 12 KB, exit code: 0, checker exit code: 0, verdict: OK

Input

```

aaaa
aaab

```

Output

```

0

```

Answer

```

0

```

Checker Log

```

ok answer is 0

```

Test: #2, time: 92 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

Input

```

abs
abs

```

Output

```

-1

```

Answer

```

-1

```

Checker Log

```

ok answer is -1

```

Test: #3, time: 62 ms., memory: 16 KB, exit code: 0, checker exit code: 0, verdict: OK

Input

231A. Team

bruteforce, greedy, 800, <http://codeforces.com/problemset/problem/231/A>

思路：要把计数器 count 放在遍历外面，然后一旦符合就加 1，最后输出

用时 3min

代码

```

n=int(input())
count=0
for _ in range(n):
    a,b,c=map(int,input().split())
    if a+b+c>=2:
        count+=1
print(count)

```

代码运行截图 ==（AC 代码截图，至少包含有"Accepted"）==

278730559

Aug/30/2024 15:24 UTC+8

twj_ink

791A - Bear and Big Brother

Python 3

Accepted

77 ms

0 KB

278729799

Aug/30/2024 15:15 UTC+8

twj_ink

236A - Boy or Girl

Python 3

Accepted

186 ms

0 KB

278729041

By twj_ink, contest: Codeforces Round 143 (Div. 2), problem: (A) Team, Accepted, #, Copy

278726701

```
n=int(input())
count=0
for _ in range(n):
    a,b,c=map(int,input().split())
    if a+b+c>=2:
        count+=1
print(count)
```

278707821

---Judgement Protocol

278707701

Test: #1, time: 122 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

278706921

Input

3
1 1 0
1 1 1
1 0 0

278706621

Output

2

278705851

Answer

2

278665111

Checker Log

ok answer is 2

278662771

Test: #2, time: 154 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

278660361

Input

2
1 0 0
0 1 1

278660251

Output

1

278659551

Answer

1

278659091

Checker Log

ok answer is 1

278658391

Test: #3, time: 92 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

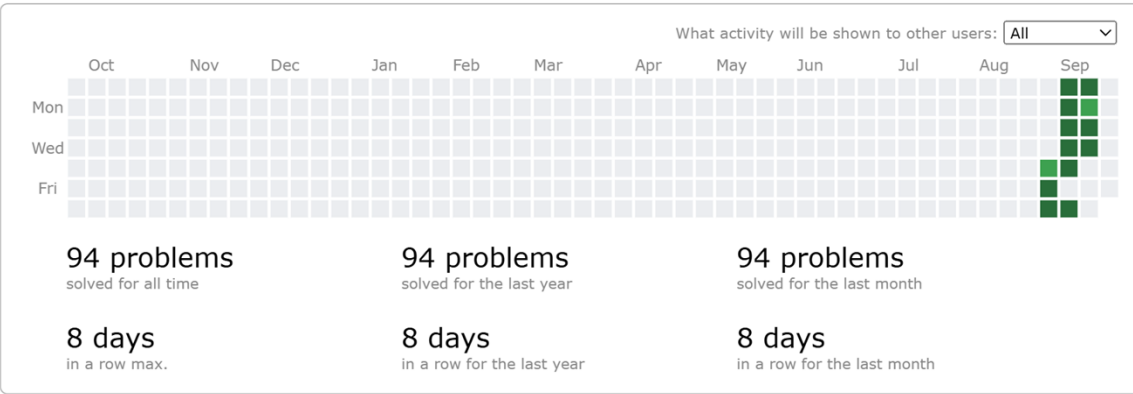
Sort by:

← 1 2

Execution Time

2. 学习总结和收获

==如果作业题目简单，有否额外练习题目，比如：OJ“计概 2024fall 每日选做”、CF、LeetCode、洛谷等网站题目。==



在 cf 刷了很多的难度 800 题目，感觉有的简单有的难的做不动一点，但是用 gpt 有很大帮助学到了很多新用法；但是发现 oj 上的题目风格和 cf 不同，oj 上的简单题目对我来说已经非常非常难了（感觉 oj 上 800 对应 cf 上 1000）。而且编程似乎是一个需要逆向思维的过程，有时候编写简单的代码也需要想半天。。。0 基础感觉很难但是费时间做出来还是有成就感的