

实验吧编程WP（一）

原创

Neil-Yale 于 2017-03-27 21:58:16 发布 1894 收藏

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1.生日蜡烛 (<http://www.shiyanbar.com/ctf/1933>)

根据题目要求跑个python或者手算也行

```
s=1
sum=328
for s in range(sum):
    i = 0
    add=0
    while add<sum:
        e = s + i
        add += e
        i += 1
    if add%sum == 0:
        print s,e,add
```

1 2

C:\Python27\python.exe C
13 28 328

g.csdn.net/yalecaltech
Process finished with ex

2. 奖券(<http://www.shiyanbar.com/ctf/1932>)

还是跑python

```
def include(n):
    temp=str(n)
    for i in range(len(temp)):
        if temp[i]=='4':
            return False
    return True
num=0
for i in range(100000,1000000):
    if include(i)==True:
        num+=1
print num
```

1 2

C:\Python27\python.exe C:/Users/hase
472392
<http://blog.csdn.net/valecaltech>
Process finished with exit code 0

3. 三羊献瑞(<http://www.shiyanbar.com/ctf/1924>)

PPC题型就是这样，还是python

```
def check(n):
    s = str(n)
    a=[s.count(str(i)) for i in s]
    for i in a:
        if i >=2:
            return False
        else :pass
    return True
for n1 in range(8000,9999):
    if check(n1):
        for n2 in range(1000,1999):
            if check(n2) and str(n2)[3]==str(n1)[1]:
                sum =n1+n2
                if len(str(sum))==5 and check(sum) and check(str(n1)+str(n2)[0:3]+str(s):
                    print 'CTF{%s}' % (n2)
```

4.找素数(<http://www.shiyanbar.com/ctf/1922>)

PYTHON:

```
def judge(n):
    m=range(2,int(n/2+1))
    for i in m:
        if n%i==0:
            return 0
    return 1
num=367
count=0
while True:
    n=judge(num)
    if n==1:
        count+=1
    if count==151:
        break
    num+=186
print(num)
```

5.循环(<http://www.shiyanbar.com/ctf/1921>)

```
def judge(n):
    if n%2==0:
        return 0
    else :
        return 1
def cal(n):
    if judge(n)==0:
        n=n/2
    elif judge(n)==1:
        n=3*n+1
    return n
num=range(900,1001)
count=0
max=0
for n in num:
    count=0
    while True:
        n=cal(n)
        count+=1
        if n==1:
            break
        else :
            n=cal(n)
            count+=1
    if count>max:
        max=count
max+=1
print(max)
```

6.迷宫大逃亡(<http://www.shiyanbar.com/ctf/1934>)

这题算法的关系还要跑几分钟

```
def indexes(x, y, n):
    return x * n + y
```

```

def isin(x, y, n):
    if x < 0 or x >= n:
        return 0
    if y < 0 or y >= n:
        return 0
    return 1

def seek2(x, y, n, maze, accessible):
    accessible[indexes(x, y, n)] = '0'
    for num in xrange(n):
        for cd_x in xrange(0, n):
            for cd_y in xrange(0, n):
                if accessible[indexes(cd_x, cd_y, n)] == '0':
                    if isin(cd_x + 1, cd_y, n):
                        if maze[indexes(cd_x + 1, cd_y, n)] == '0':
                            accessible[indexes(cd_x + 1, cd_y, n)] = '0'
                    if isin(cd_x - 1, cd_y, n):
                        if maze[indexes(cd_x - 1, cd_y, n)] == '0':
                            accessible[indexes(cd_x - 1, cd_y, n)] = '0'
                    if isin(cd_x, cd_y + 1, n):
                        if maze[indexes(cd_x, cd_y + 1, n)] == '0':
                            accessible[indexes(cd_x, cd_y + 1, n)] = '0'
                    if isin(cd_x, cd_y - 1, n):
                        if maze[indexes(cd_x, cd_y - 1, n)] == '0':
                            accessible[indexes(cd_x, cd_y - 1, n)] = '0'

filename = 'in.txt'
filename = filename.decode('utf-8')
fi = open(filename)
ctf = ''
T = int(fi.readline())
for i in xrange(T):
    print 'T= ', i
    n = int(fi.readline())
    incd = fi.readline().split(' ')
    outcd = fi.readline().split(' ')
    for j in xrange(2):
        incd[j] = int(incd[j]) - 1
        outcd[j] = int(outcd[j]) - 1
    maze = []
    accessible = []
    line = ''
    for x in xrange(n):
        line = fi.readline()
        for y in xrange(n):
            maze.append(line[y])
            accessible.append('X')
    seek2(incd[0], incd[1], n, maze, accessible)
    if accessible[indexes(outcd[0], outcd[1], n)] == '0':
        ctf += '1'
    else:
        ctf += '0'
flag = ''
for i in xrange(0, len(ctf), 8):
    flag += chr(int(ctf[i:i + 8], 2))

```

```
print flag
print flag.decode('base64')
```

```
def judge(n):
    if n%2==0:
        return 0
    else:
        return 1
def cal(n):
    if judge(n)==0:
        n=n/2
    elif judge(n)==1:
        n=3*n+1
    return n
num=range(900,1001)
count=0
max=0
for n in num:
    count=0
    while True:
        n=cal(n)
        count+=1
        if n==1:
            break
        else:
            n=cal(n)
            count+=1
    if count>max:
        max=count
max+=1
print(max)
```

```
T= 472
T= 473
T= 474
T= 475
T= 476
T= 477
T= 478
T= 479
```

```
aHR0cDovL3d3dy5zaG15YW5iYXluY29tL2N0Zi8xODI0RmxhZ0lzYVVSTA==
http://www.shiyanbar.com/ctf/1824FlagIsaURL
```

<http://blog.csdn.net/yalecaltech>

7. 小球下落 (<http://www.shiyanbar.com/ctf/1913>)

```
a = [0 for x in range(65536)]
for i in range(0,12345):
    tmp=1
    for x in range(0,15):

        if(a[tmp]==0):
            a[tmp]=~a[tmp]
            tmp=tmp*2
        else:
            a[tmp]=~a[tmp]
            tmp=tmp*2+1

    if(i==12344):
        print tmp
```

8.求底运算 (<http://www.shiyanbar.com/ctf/1912>)

```
for i in range(1, 1500):
    p = i ** 7
    if p == 4357186184021382204544:
        print i

    break
```