

# Re

## RE

很容易可以找到主函数，如下：

```
// positive sp value has been detected, the output may be wrong!
int __cdecl __noreturn main_0(int argc, const char **argv, const char **envp)
{
    int v3; // eax
    char v4[40]; // [esp+78h] [ebp-84h] BYREF
    char Destination[40]; // [esp+A0h] [ebp-5Ch] BYREF
    char Str[43]; // [esp+C8h] [ebp-34h] BYREF

    sub_40100A();
    printf("input your flag:\n");
    (gets)(Str);
    if ( strlen(Str) == 42 )
    {
        sub_40105A(Str); // 检查首尾 #1
        sub_401014();
        sub_401023(Str, '-'); // 移除 '-'
        sub_401014();
        strncpy(Destination, &Str[5], 32u);
        Destination[32] = 0;
        sub_40101E(Destination); // 设置前十三个 f61703f250b74 #2
        strncpy(v4, &Str[18], 0x12u);
        v4[18] = 0;
        sub_401046(v4); // v4=f47813c26594c0 #3
        sub_401005(v4); // #4
        strncpy(v4, &Str[40], 1u);
        v4[1] = 0;
        v3 = sub_401019(v4); // 设置一字节
        sub_401032(v3);
        worn_flag();
    }
    worn_flag();
}
```

#1处的代码如下

```
int __cdecl sub_402B40(char *Source)
{
    int result; // eax
    int v2; // [esp+4Ch] [ebp-10h]
    char Destination; // [esp+50h] [ebp-Ch] BYREF
    char v4; // [esp+51h] [ebp-Bh]
    char Str1; // [esp+54h] [ebp-8h] BYREF
    int v6; // [esp+55h] [ebp-7h]
    char v7; // [esp+59h] [ebp-3h]

    Str1 = 0;
    v6 = 0;
```

```

v7 = 0;
Destination = 0;
v4 = 0;
v2 = 13;
strncpy(&Str1, Source, 5u);
strncpy(&Destination, Source + 41, 1u);
v7 = 0;
v4 = 0;
if ( strcmp(&Str1, "flag{") || (result = Destination, Destination != '}') ) //
开头结尾设定
    worn_flag();
while ( v2 <= 28 )
{
    if ( !sub_40104B(Source[v2]) )                //判断是否为'-'
        worn_flag();
    result = v2 + 5;
    v2 += 5;
}
return result;
}

```

#2处代码 根据奇偶性比对不同的v3, 简单逆向

```

int __cdecl sub_402CE0(int a1)
{
    int result; // eax
    int i; // [esp+4Ch] [ebp-3Ch]
    int v3[13]; // [esp+54h] [ebp-34h]

    v3[0] = 0x66;v3[1] = 52;v3[2] = 51; v3[3] = 49; v3[4] = 52; v3[5] = 57;
    v3[6] = 96;
    v3[7] = 60; v3[8] = 61;v3[9] = 34; v3[10] = 104; v3[11] = 33; v3[12] = 56;
    for ( i = 0; i < 13; ++i )
    {
        if ( i % 2 )
        {
            if ( ((2 * i) ^ *(i + a1)) != v3[i] )
                worn_flag();
        }
        else if ( (i ^ *(i + a1)) != v3[i] )
        {
            worn_flag();
        }
        result = i + 1;
    }
    return result;
}
// 对应脚本:
>>> v2=[0x66, 52, 51, 49, 52, 57, 96,60, 61, 34, 104, 33, 56]
>>> for i in range(len(v2)):
    if(i%2):
        print(chr(v2[i]^*(i*2)),end='')
    else:
        print(chr(v2[i]^i),end='')

```

f61703f250b74

#3处 包含两个功能，分别是求MD5和比较，结合#4处代码进行分析，#4则取前14字节和一个字符串按base64解码的值比较。

因此，只需要爆破4字节的MD5。

```
#3
int __cdecl sub_4030E0(char *Str)
{
    int len_Str; // eax
    int result; // eax
    int v3[22]; // [esp+4Ch] [ebp-7Ch] BYREF
    char v4[16]; // [esp+A4h] [ebp-24h] BYREF
    char v5[16]; // [esp+B4h] [ebp-14h]
    int i; // [esp+C4h] [ebp-4h]

    v5[0] = 0x3F;v5[1] = 0xBA;v5[2] = 0xC4;v5[3] = 0x91;v5[4] = 0xC4;v5[5] =
0x74;v5[6] = 2;
    v5[7] = 0x26;v5[8] = 0xEC;v5[9] = 0x92;v5[10] = 0x38;v5[11] = 0xC2;
    v5[12] = 0xB;v5[13] = 0x6D;v5[14] = 0x27;v5[15] = 0xD3;//比较对象

    sub_40102D(v3);
    len_Str = strlen(Str);
    sub_401041(v3, Str, len_Str); // MD5
    result = sub_40105F(v3, v4);
    for ( i = 0; i < 16; ++i )
    {
        if ( v5[i] != v4[i] )
            worn_flag();
        result = i + 1;
    }
    return result;
}

#4
int __cdecl sub_403200(char *Str)
{
    int result; // eax
    char Str1[24]; // [esp+4Ch] [ebp-98h] BYREF
    char Str2[128]; // [esp+64h] [ebp-80h] BYREF

    strcpy(Str1, "ZjQ3ODEzYzI2NTk0YzA=");
    Str[14] = 0;
    base64_encode(Str, Str2);
    result = strcmp(Str1, Str2);
    if ( result )
        worn_flag();
    return result;
}
```

爆破代码如下：

```
import hashlib
import itertools
```

```

import string

target_hash = '3FBAC491C4740226EC9238C20B6D27D3'.lower() # 替换为您想要爆破的MD5哈希值
string_length = 4
cnt = 0

for candidate_string in itertools.product(string.ascii_lowercase + string.digits,
repeat=string_length):
    cnt += 1
    candidate_string = 'f47813c26594c0'+'.join(candidate_string)
    md5_hash = hashlib.md5(candidate_string.encode()).hexdigest()
    if md5_hash == target_hash:
        print(f"Matching string found: {candidate_string}")
        break
    if cnt % 1000 == 0:
        print(cnt)

# flag{f61703f2-50b7-4f47-813c-26594c0e581?}

```

最后猜测一位即可

## ncar

首先是看到jiagu.so一眼360壳，用frida-dexdump脱壳，脱壳后的文件拖入jeb

通过登录时报错 Login fail1111111111111111 快速锁定到关键代码：

```

String s = ipt_username.getText().toString();
String s1 = ipt_password.getText().toString();
if(("4dmin".equals(s)) &&
("u203p2v2f3y2937383n2q2p223v2n2r263p2r2z2n2w2p2a3t2n2u29323h3".equals(NotificationsFragment.trans(s1))))
{
    NotificationsFragment.this.isLogin = true;
    System.out.println("Login ok");
    Toast.makeText(NotificationsFragment.this.getContext(), "Login ok",
1).show();
    textView.setText("Login OK~");
    return;
}

static {NotificationsFragment.seed = "0123456789abcdefghijklmnopqrstuvwxyz";}
public static String trans(String _ipt) {
    byte[] arr_b = _ipt.getBytes();
    StringBuffer buff = new StringBuffer();
    int i;
    for(i = 0; i < arr_b.length / 3; ++i) {
        int sum = 0;
        int j;
        for(j = 0; j < 3; ++j) {
            sum = (sum + (arr_b[i * 3 + j] - 0x30)) * 10;
        }

        int v3 = sum / 10;
    }
}

```

```

        buff.insert(i * 2,
String.valueOf(((char)NotificationsFragment.seed.charAt(v3 % 36))));
        buff.insert(i * 2 + 1,
String.valueOf(((char)NotificationsFragment.seed.charAt(v3 / 36))));
    }

    return buff.toString();
}

```

由此可以写出我们的注册机代码：

```

import itertools

def trans(origin_s):
    seed = "0123456789abcdefghijklmnopqrstuvwxyz"
    arr_b = [ord(i) for i in origin_s]
    buffer = ['0']*36
    try:
        for i in range(len(arr_b)//3):
            sum = 0
            for j in range(3):
                sum = (sum + arr_b[i*3+j]-0x30)*10
            v3 = sum // 10
            buffer[i*2] = seed[v3%36]
            buffer[i*2+1] = seed[v3//36]
    except:
        return ""
    return buffer

dictionary = {}

for i in itertools.product("0123456789",repeat=3):
    out = trans(i)
    if out == "":
        continue
    dictionary.update({''.join(out[:2]) : ''.join(i)})
l = "u203p2v2f3y2937383n2q2p223v2n2r263p2r2z2n2w2p2a3t2n2u29323h3"
target = [l[i:i+2] for i in range(0,60,2)]
for i in target:
    print(dictionary[i] ,end = '')

```

# Crypto

## EzRSA

给出了素数p和power(flag, 2, p)，典型的有限域下开方问题，可以使用sagemath求解（sagemath yyds!）

```

p =
131079395635074597746162041412537474892320633362041739441232632845076043288856800
72478669016969428366667381358004059204207134817952620014738665450753147857

c =
412482079973710723630883700852439735510778695041476999618132433355695015420698005
9406402767327725312238673053581148641438494212320157665395208337575556385

R.<x> = PolynomialRing(Zmod(p)) # 设置未知数

f = x^2 - c

f.roots() #! 求解

```

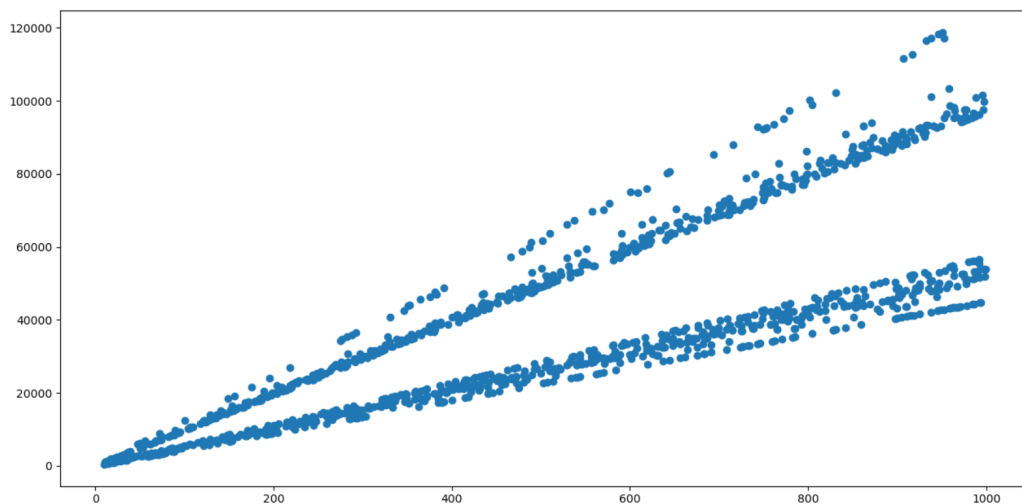
## Misc

## Secret

首先是phpjm混淆，解混淆脚本见：<https://www.myitmx.com/39.html>

分析给出的数据具有明显结构，每组包含两个数组，两个数组长度是相同的，通过画图也可以发现每组斜率固定

Figure 1



不妨尝试求解斜率，102, 107, 97, 103多么明显的特征啊

```

C:\Users\silence\Desktop> cd C:\Users\silence\Desktop & python python.exe C:\Users\silence\code\extensions\lib\python\python-2023-11-16\pyc
honFiles\lib\python\debugpy\adapter\../.debugpy\launcher '30081' '-c' 'c:\Users\silence\Desktop\mat.py'
[102.00553759428318, 107.99600442327412, 97.00180981686017, 103.0064422528785, 123.00109867584246, 99.00178677891115, 98.00280576494187, 57.00223996990389, 5
0.999823984180864, 51.000349149878915, 96.99619681686382, 50.99690931438233, 98.00050222071212, 45.00482696171813, 52.00028658761649, 99.99882014456786, 49.0
03647144838524, 100.99519785851355, 44.99755185269503, 52.00323514383507, 52.00171634580494, 99.00102910379255, 51.996137751135095, 45.00126866921975, 55.990
21152402822, 99.99954939478827, 55.99801625334367, 98.00166839723875, 45.00345703898365, 50.997197608271165, 100.00562730613953, 47.99870844484773, 53.996507
76387973, 54.00384862486804, 56.99778147678793, 102.00329384986938, 54.003046302635475, 98.00685100533042, 57.00056182654126, 52.998691867423375, 98.00077095
907655, 124.99797306816139]

```

重新写一下代码：

```

import matplotlib.pyplot as plt
import math
flag = [

```

['456.61134301', '228.8121183', '375.39044', '297.86794673', '248.66714823',  
'784.22596863', '812.98342231', '406.78263537', '35.73921059', '613.27931755',  
'632.79721751', '655.40166766', '860.00519286', '590.93471959', '707.12666428',  
'491.0426586', '687.57218033', '121.24455166', '190.56738905', '700.07764788',  
'374.66923089', '433.02427558', '405.81965084', '652.22499664', '419.21497063',  
'171.96511012', '513.28596285', '521.70259412', '354.72313758', '309.22994338'],

['46565.76287099', '23349.74961323', '38289.34638542', '30384.20775585',  
'25380.63238464', '79990.53060101', '82913.60862552', '41491.95428502',  
'3640.73310477', '62565.86407349', '64552.50361754', '66844.99872278',  
'87712.88004986', '60266.98851901', '72139.21601677', '50083.98985525',  
'70145.9022877', '12375.84383358', '19447.63652095', '71415.29681795',  
'38229.46356045', '44156.70058983', '41409.41585533', '66535.12220916',  
'42783.44278313', '17539.29680757', '52357.22601081', '53189.5192368',  
'36177.3852584', '31547.51140301'],

['957.68347531', '870.77886831', '140.52188462', '528.94553194',  
'730.68859451', '328.23282604', '861.79518827', '129.12458951', '551.01621792',  
'501.11880243', '937.48562032', '74.45982313', '740.12252758', '436.30630981',  
'842.17041802', '767.27622449', '283.62338203', '89.77771324', '651.36313868',  
'203.89482956', '613.2786159', '797.65200977', '153.1180229', '189.49688512',  
'861.97470008', '541.10107404', '624.84191838', '490.28921359', '434.20291437',  
'590.56679712'],

['103439.42714156', '94036.32581459', '15175.30102439', '57118.40784578',  
'78902.10120647', '35430.62056988', '93060.79186169', '13940.23504849',  
'59520.57330641', '54111.11602992', '101237.33971961', '8041.12505815',  
'79941.95104624', '47116.76270804', '90957.11652803', '82874.58693049',  
'30630.97464516', '9688.17380683', '70346.21381346', '22018.83770254',  
'66248.63047086', '86136.25963392', '16521.51463005', '20466.64986615',  
'93082.78957774', '58443.90366145', '67475.01565394', '52959.05113491',  
'46891.75999816', '63796.89899893'],

['186.64092777', '977.54350304', '243.69760528', '213.70327662', '986.83767855',  
'795.05979349', '983.35339094', '123.87916649', '134.85268368', '735.11825704',  
'62.1865278', '407.4270693', '165.99305739', '979.019664', '894.21427948',  
'905.16077705', '477.0283238', '588.47739677', '853.27653707', '672.15492419',  
'709.50348193', '217.02777463', '244.37798547', '749.90898778', '987.17919946',  
'710.83397444', '793.77542749', '154.84185509', '279.4292333', '50.12842765'],

['18095.90031703', '94819.2290643', '23645.72336224', '20712.20542744',  
'95728.25607617', '77114.75331323', '95385.94748076', '12030.69570165',  
'13070.8716275', '71294.09811942', '6058.90242174', '39531.06494041',  
'16100.50059025', '94955.12266694', '86749.72345259', '87806.57602642',  
'46271.60415157', '57085.48607751', '82763.29463031', '65200.35038317',  
'68842.19007268', '21057.28430324', '23704.43516321', '72741.13733351',  
'95756.22270299', '68938.33819061', '76991.14299032', '15038.97030202',  
'27094.71533216', '4859.95149709'],

['330.04625461', '276.06959668', '167.95836604', '435.3450266', '37.82740871',  
'813.27762581', '269.54602101', '752.34108657', '639.99382223', '297.04388284',  
'380.80307797', '663.03693292', '850.39262405', '470.79298365', '959.0236506',  
'531.44943889', '67.82403192', '421.87094922', '209.35142623', '505.38589977',  
'337.97356718', '705.20998648', '873.33277703', '132.70071532', '451.9677983',  
'757.1249999', '711.03250149', '767.92272454', '798.55995037', '135.89344095'],

['33992.91492563', '28428.03381957', '17298.71763966', '44854.16091292',  
'3887.95038334', '83752.0098236', '27755.64602071', '77486.2977349',  
'65914.87942164', '30635.51122839', '39234.82946108', '68289.91845691',  
'87585.60044367', '48481.94465931', '98783.88722846', '54732.03234491',  
'6987.33883597', '43465.84517695', '21556.58967142', '52080.68139201',  
'34828.7240257', '72631.37418129', '89962.53213869', '13669.06031107',  
'46546.41355878', '77998.87263596', '73231.47224108', '79121.14319768',  
'82259.03886801', '14004.76205954'],  
['375.77784926', '345.9897416', '753.11042118', '218.61523979', '693.54593032',  
'466.21014008', '478.78110707', '752.09592248', '383.04415037', '195.27272492',  
'804.28696373', '175.00224923', '55.89979772', '156.26230457', '100.58279768',  
'906.88620162', '917.22385506', '831.21269239', '570.03679366', '952.21259823',  
'715.74905544', '501.31407764', '608.70620239', '71.64846652', '761.34717053',  
'772.52358607', '749.47361793', '618.32830363', '330.87620467', '486.98236629'],  
['46222.33428038', '42547.98276395', '92628.69173827', '26882.61610513',  
'85314.89505355', '57344.25167322', '58898.20103092', '92491.68513252',  
'47108.09745439', '24013.47351128', '98917.3298778', '21520.44861225',  
'6871.43767972', '19233.13581866', '12389.85750772', '111550.07019753',  
'112823.46481465', '102244.37159', '70116.70044304', '117129.41133218',  
'88021.66221152', '61667.0301142', '74856.96362069', '8820.78953185',  
'93651.85465813', '95039.12524982', '92178.85966189', '76063.07063659',  
'40697.49406277', '59898.81612422'],  
['416.15169414', '95.35742822', '532.92556642', '738.21993399', '585.37521752',  
'966.18550004', '474.46432458', '130.34623716', '715.55721098', '219.45212787',  
'409.09883053', '331.7094271', '10.8178897', '940.34804432', '712.12267427',  
'940.89541333', '731.81680796', '106.36805423', '262.90949643', '180.26771122',  
'623.37309869', '278.56545225', '642.30048495', '728.62887851', '909.84512701',  
'497.49478714', '656.12063593', '807.30333867', '157.80591737', '517.41918893'],  
['41193.25282715', '9443.44447981', '52745.30244601', '73082.26922045',  
'57954.36410408', '95645.18472073', '46974.8428437', '12906.49289197',  
'70854.98401661', '21738.80326286', '40504.95248262', '32840.48178824',  
'1062.25170533', '93095.67055827', '70512.43646009', '93163.4811808',  
'72466.48568037', '10550.00761821', '26020.36888387', '17849.0015925',  
'61707.33701863', '27570.7478196', '63574.0520794', '72133.24337463',  
'90073.0098793', '49247.07219546', '64961.62821694', '79933.56929305',  
'15619.91558245', '51208.12132999'],  
['855.71863743', '419.61608441', '17.01260592', '324.0547744', '716.31114864',  
'863.30004749', '84.29790543', '976.22426757', '104.46993086', '109.25966444',  
'82.25907239', '414.64722557', '615.78921442', '126.72099488', '560.10953048',  
'866.15214083', '486.64922971', '508.83966141', '808.94477888', '254.43000975',  
'668.10930731', '500.25852514', '544.08088238', '797.06979858', '61.5539598',  
'931.34004699', '478.53692389', '133.7822445', '93.96596101', '166.26126074'],  
['83873.81086785', '41117.0260471', '1666.20493478', '31754.0452445',  
'70197.68788058', '84595.19096153', '8245.03933414', '95680.60220984',  
'10243.12217593', '10703.96771375', '8061.74530238', '40645.67067054',  
'60346.78763634', '12420.91195125', '54908.28977981', '84877.54068351',  
'47706.27810409', '49863.23589629', '79267.73779947', '24955.15935837',  
'65472.49724977', '49025.30593741', '53322.47361605', '78114.17034298',  
'6026.78746328', '91282.32303981', '46909.6045508', '13105.00051784',  
'9201.76467756', '16285.1434802'],  
['961.42896613', '880.01559014', '83.22275402', '395.57239761', '780.01032713',  
'282.33068203', '842.79608186', '553.73351567', '193.51170801', '178.07431503',  
'826.76686821', '86.19919086', '686.69814062', '74.33370743', '647.99315154',  
'473.88015576', '616.64234296', '171.16680385', '773.68443895', '332.8139611',  
'930.19121058', '99.36359309', '270.62913407', '635.07681838', '86.95727186',  
'833.71170205', '343.05077439', '120.4172826', '128.45077139', '336.35063368'],



['54789.37910853', '50169.34226211', '4731.85686327', '22558.6696445',  
'44443.12745029', '16095.97911837', '48034.69140238', '31569.35724613',  
'11029.14090833', '10151.87233168', '47121.57926931', '4924.90439139',  
'39154.64723104', '4250.58900073', '36943.60631228', '27000.13664751',  
'35146.88660084', '9769.64353876', '44085.97494245', '18957.84883987',  
'53050.23231598', '5666.25962647', '15432.26784473', '36189.26751266',  
'4964.34334332', '47507.09414569', '19558.08356347', '6860.79987596',  
'7333.60029196', '19168.57271334'],  
['550.45902105', '228.12550325', '68.80203824', '683.5233333', '889.10845278',  
'861.56808757', '518.63411754', '364.41906234', '572.8304435', '159.47855322',  
'556.45949151', '917.23698072', '757.91285115', '787.16231057', '737.99844728',  
'245.0405211', '52.0756283', '28.55323609', '225.46894865', '686.58505321',  
'14.90142937', '460.22570195', '599.8862689', '96.69859847', '869.19955622',  
'471.00773911', '454.74521275', '738.28451867', '382.72997792', '619.1680494'],  
['28059.40170912', '11622.42159984', '3521.09309215', '34856.42496288',  
'45343.85696683', '43932.31721457', '26459.97797188', '18592.76201999',  
'29227.06926704', '8127.30435642', '28366.60357504', '46791.22601805',  
'38653.91904714', '40145.90592943', '37637.37673707', '12512.08393034',  
'2662.70816418', '1452.67853391', '11497.0264228', '35024.24491859',  
'745.58581837', '23475.79859285', '30597.49587161', '4922.08558025',  
'44319.29345767', '24017.90012774', '23204.79821327', '37649.07968082',  
'19522.04271859', '31569.69381237'],  
['293.03333335', '977.25759321', '946.83114746', '670.01802651', '326.5535092',  
'604.97299156', '180.45137139', '510.69830952', '270.10097122', '153.58315123',  
'954.89694369', '801.50611192', '623.35083773', '184.51612842', '142.73574561',  
'428.17838663', '943.38752374', '467.03410215', '308.14449643', '149.58294481',  
'540.50772788', '490.30537934', '299.88397286', '73.56497957', '246.96651229',  
'702.61076357', '762.09063089', '237.11309292', '363.69929786', '96.56159396'],  
['14948.47521171', '49830.43348593', '48299.43274742', '34180.56494734',  
'16642.6039895', '30856.3736512', '9203.25535631', '26041.68620997',  
'13781.09475635', '7824.80127194', '48708.52933662', '40867.8058413',  
'31806.54725431', '9414.92659058', '7273.52356735', '21824.83042706',  
'48114.40197201', '23815.02203589', '15704.75689317', '7634.03075931',  
'27573.13193637', '24999.25704268', '15284.12657825', '3761.70338164',  
'12586.2854194', '35852.3907001', '38876.82982123', '12090.0894127',  
'18539.83568853', '4925.07099562'],  
['488.89030502', '974.81018407', '305.42764086', '711.45044485', '532.69748834',  
'639.41714947', '781.30973548', '991.63449229', '244.49169062', '910.54538352',  
'164.79162301', '474.2935062', '88.2978082', '605.52996107', '280.12066976',  
'663.13052706', '250.03575536', '919.93577493', '311.33287269', '379.94592394',  
'930.98531695', '886.64328293', '492.6706195', '73.84321619', '722.75660439',  
'489.60845817', '971.24835928', '184.64576622', '52.87204902', '580.98639941'],  
['47424.6697837', '94553.77650693', '29621.25919587', '69001.14325354',  
'51683.88728469', '62024.42843785', '75797.20302701', '96186.54475826',  
'23715.04357123', '88322.45429763', '15968.49389009', '46014.90104337',  
'8554.88330255', '58718.18915062', '27173.89109029', '64307.30951013',  
'24266.20946428', '89227.45915022', '30199.84200852', '36851.85198448',  
'90291.71051551', '86007.69745615', '47782.36454494', '7158.81480752',  
'70119.36261101', '47501.59664446', '94211.41783595', '17909.62241333',  
'5121.41251707', '56343.16600783'],  
['757.8311045', '636.2213215', '902.12505052', '499.75654218', '127.72950904',  
'882.64322555', '656.2953093', '21.42072804', '725.37210176', '457.74223273',  
'481.39951261', '792.85396703', '172.48900501', '394.29654435', '243.88110516',  
'852.54363923', '895.22270997', '469.13560721', '358.51570609', '854.75259534',  
'638.18261911', '420.86424855', '509.95363511', '431.86613506', '636.58649227',  
'123.97041299', '577.58844143', '262.99840121', '189.78868328', '787.41849954'],

['38649.17543316', '32457.20014554', '46010.30353712', '25488.35973732',  
'6502.42828169', '45011.01641967', '33480.71118294', '1088.92336328',  
'36995.93426516', '23323.7659937', '24562.13316771', '40436.17795611',  
'8792.89344394', '20113.02382694', '12443.89868014', '43473.10028117',  
'45662.35329587', '23926.72430618', '18274.25340859', '43571.01244684',  
'32554.18236133', '21458.45821785', '26004.81805105', '22012.25025337',  
'32467.78775331', '6325.82215388', '29453.76372959', '13417.43836004',  
'9666.94491302', '40160.13073102'],  
['944.47482894', '117.49353646', '702.63882875', '985.59950367', '375.18366279',  
'918.76121312', '608.35944217', '316.75716209', '949.17793461', '31.87996099',  
'381.24902237', '931.86609551', '354.76018132', '210.12094641', '181.76558967',  
'244.70043508', '85.82822306', '88.97548062', '441.62227137', '340.39773081',  
'929.51264826', '970.96899844', '928.60632447', '203.39310302', '193.13109238',  
'106.31608367', '291.46077106', '587.83605164', '701.25053337', '210.92363714'],  
['92556.50475888', '11503.68729362', '68844.86676944', '96599.2677088',  
'36766.78875663', '90028.05355339', '59621.45486491', '31054.97252431',  
'93028.26792127', '3124.23298676', '37371.02846717', '91337.92338139',  
'34767.83967172', '20593.24181793', '17807.79901922', '23980.95145731',  
'8407.21244031', '8739.84210758', '43273.63936166', '33338.40118579',  
'91082.4122946', '95153.77597119', '91004.36864182', '19930.01274677',  
'18929.17819519', '10418.36002098', '28563.58129806', '57603.48351866',  
'68726.26392842', '20680.89341528'],  
['191.20934676', '446.41874862', '538.85236416', '192.98532714', '952.40703407',  
'731.97678657', '18.65082206', '181.2250559', '28.18647297', '859.57035446',  
'637.40633048', '59.87074668', '915.95550971', '745.68830647', '10.01517188',  
'22.22873812', '841.96926455', '362.77657929', '87.72406291', '918.48054648',  
'285.66776373', '683.22402108', '619.94227577', '196.02088616', '245.08516482',  
'785.06527652', '388.43004186', '389.10863513', '415.17139249', '945.29286129'],  
['8596.79844099', '20094.52117883', '24246.78920588', '8685.21426075',  
'42866.63300235', '32953.759464', '851.33289486', '8163.23051206',  
'1278.21078809', '38670.21898225', '28678.33051064', '2682.24485544',  
'41215.6000657', '33577.14121889', '454.96595432', '1027.18389888',  
'37876.56342915', '16321.30465973', '3960.50035068', '41318.20157745',  
'12855.12955772', '30766.0333298', '27885.59735527', '8824.11692385',  
'11027.14878445', '35314.6252144', '17482.81720651', '17507.88886223',  
'18689.27209026', '42542.00338271'],  
['818.93824778', '274.4757318', '450.79308756', '852.9757658', '715.02366313',  
'561.94850884', '423.06200059', '232.94866203', '296.92962433', '381.36413035',  
'992.61205419', '80.79189577', '570.12911794', '697.60091571', '144.97415012',  
'588.18144054', '109.60435996', '441.61552187', '63.34431131', '736.85941108',  
'451.12027939', '991.7989743', '330.75275297', '452.54492048', '793.19470456',  
'466.9730178', '686.39928766', '82.3367839', '472.15688687', '515.31374619'],  
['42580.284625', '14270.91219747', '23444.18824629', '44359.14506048',  
'37183.67404722', '29205.80458529', '22004.50506608', '12108.03957818',  
'15441.72221063', '19832.68106969', '51601.86230329', '4196.84475886',  
'29645.35886464', '36277.23953429', '7552.25748111', '30578.74768128',  
'5710.87826543', '22953.95241986', '3287.74949901', '38331.42509288',  
'23457.89243016', '51574.76536411', '17189.43545631', '23536.82734928',  
'41248.14231057', '24285.71693456', '35695.54142166', '4298.58448011',  
'24549.64922035', '26792.10427535'],  
['53.42307981', '675.95398662', '934.33252674', '378.5590267', '382.26244355',  
'138.4870198', '486.12173807', '488.05663257', '901.30321412', '431.8898304',  
'509.24168834', '280.81295115', '369.16333091', '36.22458311', '770.78998851',  
'507.98097905', '848.27579273', '442.91204605', '830.51169842', '926.1206153',  
'898.71755568', '128.14900801', '897.11562576', '308.89483008', '237.71305663',  
'749.05677912', '799.05362056', '975.74768073', '362.40159343', '815.66956003'],

['5348.09252826', '67575.32411346', '93440.35028585', '37874.27191097',  
'38215.91829313', '13862.60774978', '48589.46184041', '48806.1795766',  
'90111.35871323', '43190.76939844', '50920.26960822', '28074.39856272',  
'36897.95163819', '3638.91493539', '77070.64430093', '50802.13920361',  
'84840.03802198', '44298.46572081', '83044.32474058', '92625.11827772',  
'89858.67147479', '12827.8411816', '89707.37667697', '30904.99710507',  
'23777.44120018', '74896.35919481', '79893.27085793', '97581.0323544',  
'36230.33091825', '81570.78357635'],  
['877.59674394', '185.24024857', '456.21621288', '146.23925175', '459.59988169',  
'625.63850593', '516.54388019', '944.09935684', '483.62906213', '431.27815144',  
'484.69225339', '351.49849812', '76.79647987', '819.93216517', '894.70860029',  
'792.71598066', '765.34263274', '681.82353009', '600.98893931', '440.38941172',  
'613.82139532', '247.67200209', '122.30622338', '421.0813017', '366.01771191',  
'919.80533196', '168.2054416', '184.35997578', '571.63597571', '764.92960641'],  
['43006.52120426', '9095.04885473', '22336.69061494', '7177.85284139',  
'22518.17139386', '30655.28025862', '25310.62774638', '46268.22383685',  
'23714.32724714', '21131.63568556', '23760.08763086', '17221.69069598',  
'3769.99830703', '40179.12445431', '43836.605519', '38840.90206389',  
'37519.55592243', '33393.20444189', '29441.79824858', '21602.23261919',  
'30088.63519035', '12160.35798562', '5992.01249704', '20623.25061944',  
'17946.98429129', '45064.69175641', '8223.58141254', '9031.11312872',  
'28004.70961776', '37466.73681595'],  
['208.51322415', '896.8960614', '603.81428726', '955.03766264', '264.83369037',  
'217.97892771', '151.92055669', '342.05551493', '290.12797931', '198.5858142',  
'137.73346902', '702.61699035', '822.13801851', '313.20646004', '186.1813904',  
'38.94095262', '964.31720247', '24.48502425', '823.36333494', '545.70714263',  
'616.14704533', '882.54935963', '185.93132101', '670.30953158', '21.39591895',  
'139.55573893', '282.9207117', '439.96718584', '13.07635302', '905.80926894'],  
['21047.21370552', '90583.62863211', '60974.77347813', '96452.51366545',  
'26749.97211762', '22015.54629726', '15346.74617479', '34561.42546613',  
'29300.66938782', '20056.26749321', '13906.49420263', '70973.37160252',  
'83035.37226597', '31617.97628053', '18794.72904003', '3931.63136727',  
'97397.18803703', '2477.82634139', '83126.70227598', '55116.51846391',  
'62225.96432641', '89118.21144422', '18775.0624185', '67710.19835264',  
'2173.52642551', '14096.94636606', '28573.37632377', '44440.37196066',  
'1315.89865859', '91499.91858191'],  
['584.02449351', '391.26551561', '733.74737743', '900.0968745', '770.35688391',  
'977.64292829', '726.89020465', '782.40023803', '418.65778781', '904.96907539',  
'541.51631925', '830.95898303', '284.65446273', '675.41033512', '897.35356196',  
'303.00341675', '966.25305135', '743.24969091', '291.4445655', '78.70363567',  
'88.71531771', '963.23607037', '204.41131395', '804.68579082', '970.65756385',  
'533.92045771', '958.91120401', '121.05775893', '656.47429935', '474.93382532'],  
['26277.06803339', '17622.60419167', '33000.92816893', '40515.88930231',  
'34656.00019857', '43992.67356193', '32710.27096925', '35203.82015985',  
'18833.48479408', '40708.52565769', '24350.27983934', '37383.62489025',  
'12812.04366077', '30392.96230355', '40381.81139034', '13636.98816515',  
'43471.80167674', '33451.04240553', '13105.47691121', '3545.74219647',  
'3994.68033072', '43329.15284088', '9202.57407449', '36209.42256306',  
'43688.67430735', '24043.81132172', '43154.95621293', '5462.23237486',  
'29528.02414782', '21370.08289803'],  
['987.2807587', '923.40130607', '812.67105546', '666.86197186', '294.96518821',  
'800.11183335', '674.22460765', '844.3531141', '259.23498622', '542.51688087',  
'510.56059077', '618.91604856', '91.65626306', '945.42567307', '428.78917287',  
'306.50088155', '28.73107729', '282.66902364', '840.03581418', '778.50358078',  
'905.26104374', '290.1228754', '852.36673957', '580.57854234', '392.46855985',  
'850.36463095', '556.77848585', '957.65205086', '655.79215776', '80.46228054'],

['51360.41459062', '48022.8325111', '42254.03735711', '34702.26177396',  
'15350.04312836', '41601.4593912', '35059.53957935', '43921.40295841',  
'13477.21511147', '28202.96374337', '26539.27504014', '32191.617693',  
'4764.24146894', '49161.71026561', '22291.97172079', '15935.96965391',  
'1504.57237659', '14692.10123514', '43695.05145267', '40491.91104884',  
'47084.49800857', '15093.47685642', '44308.4989035', '30176.84066109',  
'20404.14020953', '44210.27672895', '28938.29296864', '49807.36801307',  
'34113.53867696', '4181.30477036'],  
['92.67921739', '737.64728495', '860.01527045', '58.14704066', '459.84727926',  
'567.4106393', '66.39394715', '90.56254195', '136.98106115', '318.31756702',  
'132.77413077', '395.56918178', '432.19676849', '347.94112088', '135.75808826',  
'919.47785454', '323.01290671', '413.66299151', '237.7125053', '745.89872402',  
'670.56596472', '693.64183225', '407.90648025', '979.06750321', '985.15054185',  
'371.60283595', '630.55397044', '671.06613765', '977.54535003', '998.57929297'],  
['4827.67429944', '38371.96511998', '44721.01811185', '3018.62705297',  
'23901.73110226', '29513.93615518', '3461.18757649', '4704.01380308',  
'7129.7096811', '16547.80729219', '6907.99524063', '20573.10303591',  
'22472.81527933', '18092.9517047', '7055.66825614', '47801.69369497',  
'16803.44619417', '21489.73150483', '12360.13407788', '38791.37049045',  
'34858.13302077', '36082.72475785', '21215.52329256', '50909.23618915',  
'51214.25325353', '19332.31329805', '32787.74893356', '34924.00452669',  
'50834.56231553', '51920.09527057'],  
['451.07143076', '859.62113436', '877.20512262', '886.57613008', '303.75566151',  
'755.42386015', '465.70349963', '845.45408065', '313.60379848', '645.78588616',  
'298.07507362', '774.74606571', '963.59287287', '607.79738216', '345.17363494',  
'417.0439652', '72.3836144', '16.80894541', '212.52785396', '52.45865385',  
'491.05075178', '855.39995212', '836.01577767', '793.55187149', '477.51116822',  
'300.38391177', '375.97973927', '428.07148391', '341.73155246', '365.91436395'],  
['44648.58982315', '85100.91151148', '86861.29192878', '87771.97396911',  
'30074.8825098', '74786.71338908', '46100.26547683', '83700.88159577',  
'31041.9419444', '63930.40650431', '29504.6590559', '76690.95098092',  
'95389.64170203', '60171.57698412', '34178.56463676', '41271.89743128',  
'7170.20873483', '1665.55902983', '21030.16240135', '5193.30989589',  
'48610.31008303', '84706.29880054', '82778.05704932', '78566.64195045',  
'47267.98350747', '29743.74945031', '37220.68366209', '42390.59970454',  
'33825.13993837', '36233.53052806'],  
['852.42082579', '279.70742403', '623.07878522', '957.12621419', '471.80959692',  
'121.94478512', '312.80800524', '529.42224754', '647.82875061', '769.45273388',  
'193.88759777', '386.1365865', '540.21581717', '93.12064523', '23.4601243',  
'772.31540463', '150.45730182', '776.30981847', '934.77108156', '451.18414804',  
'400.88028728', '480.7449284', '739.7560134', '306.05321005', '901.66236446',  
'668.29939717', '714.81334529', '379.78648543', '520.37586959', '672.87488744'],  
['44324.1868112', '14555.06922309', '32383.72916071', '49770.22522125',  
'24524.75910538', '6337.90338072', '16272.36948841', '27537.54245669',  
'33699.48830509', '39995.38360825', '10065.577973', '20085.69113215',  
'28099.3892566', '4837.59497265', '1229.43306659', '40177.12480118',  
'7813.62890907', '40349.10914505', '48618.37446964', '23462.53653533',  
'20834.99794579', '24989.32508663', '38464.25199006', '15907.14198731',  
'46884.01582799', '34740.61342863', '37156.67789789', '19754.67988977',  
'27056.21872493', '34993.07180516'],  
['88.69913455', '440.61268638', '566.0817798', '661.46258125', '58.56920579',  
'32.50484224', '724.16147152', '726.59740794', '384.99476605', '197.8044525',  
'60.01011905', '913.71928442', '191.94831434', '153.04875804', '708.41077254',  
'828.44410391', '127.47144088', '35.14448629', '20.57272798', '962.89556667',  
'75.30008471', '64.20040537', '993.88402474', '759.29242314', '513.80442281',  
'984.83972193', '235.25577744', '644.61202242', '197.44285846', '70.73980681'],

['3981.24339828', '19824.58695867', '25465.51969674', '29760.18446643',  
'2641.12890174', '1467.02496846', '32589.43420644', '32698.82338819',  
'17342.29596025', '8907.8054311', '2698.92264774', '41116.76024115',  
'8635.99449904', '6889.19912318', '31887.02882903', '37275.38863967',  
'5732.08974199', '1580.75499384', '906.78247626', '43333.71162029',  
'3398.12093191', '2895.65885796', '44731.81088532', '34160.66984946',  
'23118.35791598', '44322.25378385', '10591.29910288', '29010.49327537',  
'8892.36083421', '3173.69969889'],  
['148.48732369', '640.57060582', '253.39892316', '953.68839596', '607.23205998',  
'364.77248965', '358.04814078', '214.51356257', '749.48290964', '861.74878646',  
'424.0425894', '147.79975249', '660.22044711', '509.90377456', '732.57890372',  
'764.66064711', '243.75952797', '946.62120898', '728.23385368', '603.16762785',  
'776.49399096', '593.3909644', '215.19095461', '45.82394841', '507.10075123',  
'85.76415718', '963.12562582', '676.15360799', '536.09903958', '810.60038648'],  
['8310.02743579', '35866.51732311', '14182.2278855', '53406.42652936',  
'34019.54540969', '20411.40840471', '20046.20727168', '12015.59443431',  
'41961.05732732', '48249.24493864', '23730.69793196', '8255.5075167',  
'36954.4461673', '28538.9175999', '41004.9363515', '42821.52503139',  
'13642.51643158', '52997.8983299', '40779.21626595', '33758.65370275',  
'43477.16259564', '33224.96625719', '12048.82330106', '2569.25017739',  
'28402.08203188', '4809.62150555', '53940.07060929', '37866.6243539',  
'30030.65568776', '45390.15238032'],  
['533.19187473', '871.38284904', '613.76803423', '235.42175956', '320.16701592',  
'865.19782643', '133.05982777', '914.89527704', '714.84426119', '310.58079402',  
'924.13747585', '129.76986746', '932.65048794', '387.46612746', '478.13812551',  
'976.72910428', '769.19187119', '952.78423237', '770.02801385', '374.02305979',  
'759.07435817', '699.56508474', '924.25291415', '686.45683903', '755.60201472',  
'507.82693135', '294.70237867', '421.1336655', '785.99023479', '106.85691326'],  
['53306.41659469', '87137.59679141', '61369.34729484', '23541.29059092',  
'32026.19107648', '86522.66215535', '13298.88161512', '91481.93284058',  
'71502.76088117', '31075.89266225', '92393.04910592', '12975.77122042',  
'93271.87871233', '38760.75803539', '47813.02525068', '97673.92375961',  
'76918.17613688', '95271.18539749', '77014.20593999', '37408.38153135',  
'75891.3393158', '69970.33486296', '92432.52475018', '68642.30963658',  
'75549.50820461', '50777.20476298', '29469.09205274', '42109.31835416',  
'78598.37227231', '10677.41221174'],  
['321.99495043', '115.22586333', '413.80010058', '349.51467499', '58.10006132',  
'543.82314033', '824.79510942', '199.96354152', '897.52006936', '820.51897461',  
'105.92724094', '345.62285527', '687.1581457', '194.08523778', '590.44326656',  
'915.88251635', '830.37678659', '757.52669595', '597.29808196', '84.33198554',  
'534.83355969', '337.73184592', '739.78857026', '265.52042493', '723.0525694',  
'368.50891308', '933.73997952', '654.36909375', '991.47633078', '260.20271918'],  
['18039.25606868', '6447.81318761', '23158.88027889', '19573.91241618',  
'3251.75228973', '30455.08289641', '46182.79043197', '11192.81881032',  
'50247.53030852', '45957.40566228', '5936.65331162', '19362.80811744',  
'38474.96248418', '10861.13269551', '33059.42176971', '51303.58104934',  
'46496.53460036', '42430.05058474', '33445.64371847', '4738.31416266',  
'29940.433323', '18894.91055846', '41412.47090649', '14877.3522518',  
'40485.1304074', '20636.88155053', '52284.24496609', '36650.28354574',  
'55522.01688529', '14584.72090383'],  
['426.93142923', '197.33981884', '502.41690404', '408.27713394', '181.13456633',  
'12.33504466', '245.97012889', '395.43467064', '507.86359704', '727.79871062',  
'685.98885783', '895.7100344', '699.30274475', '715.78337009', '30.57656561',  
'891.65797364', '621.18153852', '476.99641883', '333.92580637', '342.93617772',  
'910.53723998', '496.63756414', '171.07468157', '441.26684004', '490.10091635',  
'881.91432734', '92.93885115', '365.57812918', '861.88463577', '487.6408872'],



['41855.38691221', '19337.12060339', '49225.94902518', '40017.38191093',  
'17754.61418428', '1206.38065562', '24127.04110192', '38752.82859268',  
'49778.30763522', '71323.55558861', '67233.10300276', '87783.00280545',  
'68541.57811709', '70147.45148865', '2977.46772889', '87385.38492798',  
'60862.85795049', '46744.33699358', '32726.31221096', '33612.62890021',  
'89244.61906943', '48679.6454454', '16767.83904413', '43237.99023235',  
'48028.59339371', '86428.68445874', '9094.34414801', '35832.85712914',  
'84452.05121732', '47780.16118499'],  
['569.90775258', '259.25767527', '690.91183044', '948.86849317', '544.06833254',  
'197.26779051', '298.61058713', '683.87193338', '294.33918705', '828.10151431',  
'924.68886503', '136.76843766', '418.8573734', '68.10712679', '399.85623771',  
'70.83339563', '910.1977888', '992.50387002', '762.69517814', '986.1849321',  
'967.88528941', '958.91727174', '503.08398388', '223.79012052', '453.17863034',  
'937.41160231', '150.44548532', '561.82521041', '293.5395797', '507.37754174'],  
['25645.07206701', '11664.34357045', '31114.01467688', '42692.25057414',  
'24500.86290162', '8883.78689457', '13420.56453766', '30781.6606039',  
'13234.15340717', '37266.88197604', '41614.55896474', '6152.13059248',  
'18849.97209229', '3070.59894962', '17988.7681866', '3205.69877817',  
'40967.70007434', '44672.97608754', '34317.93486745', '44382.10501461',  
'43547.90634749', '43155.30684744', '22646.17848203', '10075.06459743',  
'20392.9473377', '42179.35508423', '6783.06855925', '25271.53574604',  
'13191.64443657', '22839.03452719'],  
['559.26633423', '86.80616892', '413.11274096', '791.6304821', '70.92958063',  
'574.84837105', '25.70753872', '582.61701549', '888.11254541', '943.08872857',  
'937.72167346', '521.56153284', '94.78528309', '214.15037775', '776.72933515',  
'372.12098704', '545.40471806', '320.58868139', '285.62144486', '724.72813196',  
'346.92630345', '88.72413305', '518.71849395', '967.37529176', '348.06405913',  
'203.05951577', '586.37195114', '639.12107577', '647.8415526', '663.60920092'],  
['28518.47703666', '4413.21229899', '21056.26836123', '40368.94482964',  
'3606.76398815', '29312.65228235', '1334.48780528', '29718.90540865',  
'45293.1729968', '48082.8454693', '47827.05920971', '26602.34485199',  
'4837.71980141', '10931.09125902', '39606.97034085', '18975.62488143',  
'27820.22671927', '16356.24210803', '14561.91142635', '36972.43261884',  
'17685.84967055', '4536.48741769', '26441.83784418', '49329.4466024',  
'17758.03902778', '10341.59082036', '29906.10022077', '32583.35157145',  
'33053.50738919', '33831.63603829'],  
['514.81392442', '750.4926117', '551.41248496', '143.23584658', '252.51927666',  
'473.83951572', '450.32551976', '590.74875011', '506.80691297', '201.15882347',  
'419.25233175', '314.12928157', '522.36229832', '976.2011434', '552.62409941',  
'351.11891695', '853.48271342', '424.54521793', '36.59837522', '581.32363993',  
'356.01622993', '893.42913756', '997.17432501', '344.3513558', '70.77648998',  
'797.70592841', '161.14775159', '226.81424888', '599.64199139', '184.3533472'],  
['51495.84550328', '75050.51671005', '55135.85980991', '14330.40413551',  
'25255.73978691', '47380.05109344', '45028.88983019', '59078.80972778',  
'50691.57148587', '20126.89928205', '41925.16496648', '31417.20771259',  
'52245.33132314', '97610.95187679', '55242.52037433', '35095.4201429',  
'85352.84168882', '42469.14913978', '3675.50170851', '58135.1081977',  
'35605.18808367', '89371.08541104', '99706.06928978', '34433.87773337',  
'7096.73052244', '79775.69188309', '16124.46670203', '22672.5467619',  
'59952.82170551', '18437.32243803'],  
['784.64923271', '153.10650567', '691.29381902', '333.58764581', '664.19231467',  
'630.35820881', '588.62010284', '472.55681668', '631.68927914', '879.86346359',  
'266.29797046', '629.88601133', '195.36409094', '369.18727058', '430.73671884',  
'675.62221119', '85.34782058', '909.54679611', '851.09005519', '221.10353341',  
'909.9755529', '385.07106849', '291.50571137', '785.5003097', '710.73061379',  
'421.69598526', '516.2531702', '899.60901798', '480.30526037', '169.57538647'],

['37660.51312426', '7341.9212754', '33183.62717476', '15985.83249052',  
'31870.34369941', '30265.49931573', '28236.67170466', '22693.31586453',  
'30332.56833698', '42237.83544114', '12784.90299409', '30225.55678705',  
'9369.65498247', '17709.67288711', '20679.02126311', '32423.75381299',  
'4100.28106147', '43664.40040083', '40868.11947713', '10616.79677849',  
'43684.61620951', '18478.24138299', '13993.84048476', '37727.23061013',  
'34102.96264593', '20236.90717634', '24772.44050157', '43181.84595408',  
'23041.16537051', '8157.20489773'],

['446.62155977', '324.94253338', '102.43131776', '775.21218166', '854.65958916',  
'452.7726587', '777.58198753', '999.36457619', '864.20855758', '760.45466744',  
'39.88373107', '732.27365838', '399.90220761', '710.79778067', '196.63800797',  
'804.59047164', '748.59385962', '31.53645521', '836.41648784', '898.29072378',  
'170.19076437', '323.52214987', '681.48060974', '712.08829644', '937.32375816',  
'698.8897477', '20.91215789', '265.73873218', '401.74490155', '120.80415554'],

['24108.97395473', '17548.14517285', '5536.30679546', '41865.50241854',  
'46161.41435054', '24443.5830865', '41995.54827232', '53963.17695547',  
'46660.53231405', '41063.54693763', '2161.04163656', '39522.68730382',  
'21581.5060206', '38371.4859372', '10609.8891701', '43436.53977992',  
'40423.22088297', '1699.11287397', '45148.6380815', '48511.13790569',  
'9200.74172436', '17473.66911324', '36790.59641178', '38456.35384379',  
'50626.60918023', '37746.82172732', '1142.25550072', '14345.92697125',  
'21678.41346483', '6523.32005846'],

['772.75072158', '699.38526892', '769.57173725', '331.76316933', '416.17361279',  
'938.92709099', '986.58665644', '818.91916278', '796.51952057', '506.34167511',  
'532.95875904', '925.01141445', '504.26140076', '415.47379256', '618.13827602',  
'768.10269552', '563.40491088', '583.01351321', '482.1053506', '23.44412819',  
'972.31851577', '306.53893738', '561.37426789', '559.41090403', '246.12424347',  
'388.15517921', '66.50892585', '996.81624669', '901.42403628', '974.38057741'],

['41709.52982244', '37766.94508889', '41571.54218446', '17925.00498663',  
'22472.98055665', '50689.98544343', '53281.6803714', '44234.54162984',  
'43005.2956678', '27343.12939999', '28776.68475343', '49961.73838367',  
'27228.29746936', '22435.49967316', '33391.38620251', '41487.53632217',  
'30417.62248745', '31462.2891053', '26022.52835672', '1272.72076517',  
'52504.24020521', '16555.93530128', '30318.81814958', '30215.1786429',  
'13306.70751077', '20948.27366304', '3590.76708153', '53858.79024443',  
'48681.65709406', '52632.46114412'],

['962.14301264', '506.23196829', '120.64307737', '15.88908341', '961.66561455',  
'148.11527947', '434.71603729', '414.68496255', '886.8031691', '321.28122151',  
'56.84227256', '914.23959611', '979.50171915', '205.12283379', '984.79460607',  
'269.6719723', '986.5376834', '470.17333184', '918.21395488', '958.54397277',  
'747.40663785', '32.23958407', '289.74921695', '462.75090646', '372.21746943',  
'256.23212713', '150.78571508', '580.0809142', '235.98786201', '142.5226229'],

['54835.73746335', '28857.95040093', '6870.76365176', '907.22139555',  
'54819.88315771', '8456.46922896', '24779.28094006', '23651.64722329',  
'50531.58203543', '18310.24962515', '3241.08075483', '52103.50922595',  
'55827.76591627', '11688.91635096', '56137.67492903', '15384.32591036',  
'56232.40423483', '26799.08618741', '52308.94132533', '54653.31624881',  
'42603.89037375', '1832.15597673', '16518.1251477', '26390.02524971',  
'21206.29329104', '14605.29658974', '8584.23702949', '33065.71653955',  
'13447.63934958', '8105.95186432'],

['143.56482206', '620.21520718', '848.78978643', '269.14938319', '988.31464252',  
'547.0872599', '827.58196192', '861.08946317', '479.32623186', '266.85205538',  
'253.54239575', '489.88210525', '861.8079972', '400.07862409', '623.88492027',  
'634.20385675', '464.25807605', '995.77951579', '121.9899616', '549.26401286',  
'387.25987151', '869.1845083', '508.61339648', '749.5600671', '221.13792853',  
'224.83023838', '28.83916073', '963.57858598', '244.19917099', '325.67162043'],

['14654.37281922', '63266.06264815', '86582.60027253', '27448.69691838',  
'100815.42240857', '55809.95053539', '84401.12213349', '87839.22213036',  
'48900.30005292', '27211.88700325', '25860.54924124', '49974.40001781',  
'87904.06064496', '40808.0689886', '63648.99165597', '64675.57902001',  
'47377.05524929', '101567.95638227', '12438.40861465', '55999.32448575',  
'39496.41972381', '88668.89635615', '51869.058766', '76467.26161662',  
'22545.53491982', '22941.05288246', '2942.02729114', '98285.07433479',  
'24923.80465732', '33221.5371362'],  
['67.00831225', '936.92298573', '492.53365281', '94.82450665', '963.77556932',  
'635.87241304', '556.67831578', '436.48366795', '801.95752377', '145.22410379',  
'411.79037621', '990.77676123', '809.56095114', '762.81120359', '643.90453163',  
'402.07242445', '692.9145418', '543.97481384', '228.89712355', '783.0984647',  
'272.0841824', '495.24392794', '347.39843471', '178.06819413', '453.27736942',  
'292.54534316', '721.55910179', '128.31045132', '647.98867835', '722.76761842'],  
['3620.23653274', '50595.56585676', '26592.9886153', '5125.98352906',  
'52054.36107679', '34343.76102769', '30037.3011112', '23572.39583176',  
'43315.02222333', '7847.22583806', '22222.06061885', '53513.29700712',  
'43712.29003771', '41201.40412041', '34776.72371423', '21708.46717094',  
'37415.09081872', '29382.46917952', '12356.3371256', '42296.16430859',  
'14678.24755511', '26747.94810971', '18781.31600315', '9616.89703933',  
'24482.5919609', '15808.52764628', '38950.69045689', '6944.96645199',  
'34991.72923571', '39013.22531051'],  
['642.30618027', '353.39679833', '356.43345541', '435.86976169', '420.765589',  
'24.92595777', '840.57717256', '609.91824498', '297.49861501', '282.49954645',  
'274.68785114', '996.6075688', '865.13502437', '66.73109003', '407.92564635',  
'258.34192494', '238.22847328', '219.08047039', '105.07464072', '219.9841925',  
'619.78204111', '894.6951933', '762.9228058', '518.05176358', '321.90471022',  
'737.26620312', '821.9129189', '166.80235638', '710.76491893', '504.82577825'],  
['62946.29175722', '34651.95554715', '34932.16655399', '42703.64146901',  
'41242.41108901', '2447.76098585', '82383.65589857', '59782.6746587',  
'29154.79149298', '27702.46720548', '26914.82306054', '97674.68856434',  
'84791.76385855', '6549.51449412', '39967.28188721', '25326.1092059',  
'23351.77947987', '21475.88211437', '10320.95153142', '21542.70809418',  
'60726.21137179', '87695.70697902', '74774.57665348', '50774.45443106',  
'31541.33953643', '72257.71132592', '80537.03852073', '16330.28507748',  
'69673.5792102', '49463.3757464'],  
['662.68554621', '404.08367364', '592.903567', '326.26287949', '63.07231457',  
'650.80990254', '348.16793287', '443.32352572', '675.92642573', '492.4512925',  
'916.51120632', '359.23553248', '221.12930176', '701.13483174', '431.07872535',  
'872.90839455', '991.66525423', '42.78516875', '438.61121045', '807.38855042',  
'852.73450471', '581.29249043', '324.84934443', '559.23216601', '426.21043837',  
'416.30305077', '708.84191719', '386.67230183', '750.1832598', '49.38756023'],  
['37770.71510579', '23057.23898054', '33795.09980948', '18579.89098388',  
'3601.00373397', '37096.96036436', '19834.01712562', '25263.52518342',  
'38518.22989293', '28078.8463728', '52260.18155569', '20464.62787367',  
'12601.51891118', '39961.81903617', '24555.12731654', '49753.23535599',  
'56528.17830248', '2451.91694955', '24998.16601176', '46021.37979233',  
'48606.61632462', '33151.2230139', '18510.22141864', '31897.12028634',  
'24286.55213101', '23720.47500865', '40414.12737857', '22052.27140854',  
'42756.70498599', '2798.72587984'],



```

['920.59638946', '909.24970151', '363.02454901', '190.87983209',
'693.28045588', '399.27928663', '71.93522477', '162.99274399', '707.96609874',
'665.18162203', '457.67800037', '275.06939789', '829.13457085', '336.73869911',
'532.31024786', '974.95009188', '231.25848907', '724.74093463', '924.87352064',
'808.5517549', '810.05349091', '607.47604441', '453.04943732', '946.84868087',
'853.70103018', '838.9218865', '798.15053292', '409.48477497', '681.31879862',
'349.52652275'],
['48803.32803737', '48192.87455756', '19228.38053283', '10105.72606123',
'36743.54444424', '21147.90078156', '3814.40849611', '8638.7156096',
'37507.13743467', '35257.14449136', '24260.11958147', '14574.05297713',
'43955.0441772', '17847.61322167', '28201.62361003', '51674.44619929',
'12258.12862569', '38400.48972372', '49021.93991535', '42851.24631248',
'42935.91913196', '32190.73163241', '24016.30709255', '50177.22000761',
'45233.40771024', '44457.15637777', '42312.96730488', '21717.90407157',
'36116.95693414', '18529.92142429'],
['92.60596994', '828.85280813', '694.91149167', '121.91299286', '649.62295873',
'321.03498506', '644.1924657', '596.71282303', '151.29789358', '514.0159332',
'356.89815837', '428.33893783', '540.10844316', '348.34381777', '750.58142043',
'781.12688424', '909.76554206', '146.74152308', '702.42920282', '711.66237964',
'540.40867061', '591.52501614', '178.34395669', '462.83659117', '818.17639471',
'462.84530098', '558.83562392', '764.70129695', '168.36639643', '901.8005536'],
['9086.68141399', '81229.96770139', '68090.48790772', '11942.97935995',
'63666.52059291', '31487.32402399', '63114.66773517', '58487.30306149',
'14837.30886229', '50374.70370619', '34984.23958544', '41994.48615791',
'52925.49757238', '34156.65723132', '73543.20947925', '76554.37505817',
'89158.25209855', '14364.24453972', '68833.59316933', '69748.83672911',
'52962.28867873', '57959.08019169', '17487.79784523', '45354.25685977',
'80163.47238288', '45366.17405319', '54759.80229256', '74937.78857485',
'16486.05997533', '88375.72766666'],
['390.8635266', '946.27651883', '292.42320357', '287.61637123', '277.252075',
'557.66923266', '381.26791053', '576.44429816', '644.44946343', '275.36222639',
'801.5124642', '282.78873309', '489.26038402', '600.82073667', '742.79021501',
'350.9308702', '932.79984498', '642.06748827', '16.84622013', '528.90656953',
'950.47300914', '50.25016125', '537.61530095', '937.81245643', '509.75736003',
'47.64445008', '778.37203704', '352.44799155', '148.62550792', '364.89648415'],
['48857.26099922', '118294.30523412', '36537.91395294', '35955.79934941',
'34654.65876802', '69716.29647497', '47645.97321786', '72043.59882977',
'80542.09199718', '34410.55469637', '100197.69051681', '35355.01322482',
'61148.60537946', '75086.17710373', '92848.46497582', '43872.62229993',
'116608.40711687', '80254.70090759', '2097.4921553', '66119.32733167',
'118810.55565979', '6281.66491062', '67208.01994645', '117233.94217479',
'63720.7240375', '5963.30535428', '97282.99360667', '44045.66383548',
'18595.3546981', '45611.42184139']]

```

```
k = []
```

```

def to_int(t): # 处理函数, 选择最近的整数
    if abs(math.floor(t) - t) > abs(math.ceil(t) - t):
        return math.ceil(t)
    return math.floor(t)

for i in range(0, len(flag), 2):
    x = sum([float(j) for j in flag[i]])
    y = sum([float(j) for j in flag[i+1]]) #用整组求解比较靠谱
    k.append(chr(to_int(y/x)))

```

```
print(''.join(k))
```















