The Python Challenge

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Source: www.pythonchallenge.com

All's done in **Python 3.4**.
Learn it.
Then, use it.
Never ask for more.
Amazing!
Thus, **everything** will be ok.

Level 0　0

```
print(2**38)
```

Level 1　274877906944

```
# -*- coding: utf-8 -*-
import string

s="g fmnc wms bgblr rpylqjyrc gr zw fylb. rfyrq ufyr
   amknsrcpq ypc dmp. bmgle gr gl zw fylb gq glcddgagclr ylb
    rfyr'q ufw rfgq rcvr gq qm jmle. sqgle qrpgle.kyicrpylq
   () gq pcamkkclbcb. lmu ynnjw ml rfc spj."
l=string.ascii_lowercase
t=s.maketrans(l,l[2:]+l[:2])
print(s.translate(t))
print('map'.translate(t))
```

Level 2 ocr

```
import urllib.request,re

def getHtml(suf,pre='http://www.pythonchallenge.com/pc/'):
    url=pre+suf
    print(url)
    html=urllib.request.urlopen(url).read()
    return html

def getData(rule,html):
    pat=re.compile(rule,re.S)
    return pat.findall(html)

html=getHtml('def/ocr.html').decode('utf-8')
data=getData(r'<!--((?:[^-]+|-[^-]|--[^>])*)-->',html)[-1]
cnt={}
for i in data: cnt[i]=cnt.get(i,0)+1
print(cnt)
data=re.findall(r'([a-z])',data)
print(''.join(data))
```

Level 3 equality

```
html=getHtml('def/equality.html').decode('utf-8')
data=getData(r'[^A-Z][A-Z]{3}([a-z])[A-Z]{3}[^A-Z]',html)
print(''.join(data))
```

Level 4 linkedlist

```
def getNxtPg(x):
    html=getHtml('def/linkedlist.php?nothing='+str(x)).
       decode('utf-8')
    mat=re.match(r'and the next nothing is ([0-9]+)',html)
    if not mat:
        print(html)
```

```
        return 0
    return mat.group(1)

page=12345 #45439-94485,16044-8022,82682-63579,66831-peak
while int(page)>0: page=getNxtPg(page)
```

Level 5 peak

```
import pickle

html=getHtml('def/banner.p').decode('utf-8')
data=pickle.loads(html.encode('utf-8'))
print(data)
print('\n'.join([''.join([p[0]*p[1] for p in row]) for row
   in data]))
```

Level 6 channel

```
import zipfile,io

def getNxtTxt(x):
    text=z.read(str(x)+'.txt').decode('utf-8')
    mat=re.match(r'Next nothing is ([0-9]+)',text)
    if not mat:
        print(text)
        return -1
    return mat.group(1)

html=getHtml('def/channel.zip')
z=zipfile.ZipFile(io.BytesIO(html))
print(z.namelist())
print(z.read('readme.txt').decode('utf-8'))
txt=90052
order=[]
for i in range(len(z.namelist())-1):
    order.append(txt)
    txt=getNxtTxt(txt)
```

```
print(''.join([z.getinfo(str(p)+'.txt').comment.decode('utf
    -8') for p in order]))
```

Level 7 oxygen

```
from PIL import Image

im=Image.open(io.BytesIO(getHtml('def/oxygen.png')))
w,h=im.size
print(''.join([chr(im.getpixel((p,h//2))[0]) for p in range
    (0,w)]))
print(''.join([chr(im.getpixel((p,h//2))[0]) for p in range
    (0,w,7)]))
print(''.join(map(chr,[105, 110, 116, 101, 103, 114, 105,
    116, 121])))
```

Level 8 integrity

```
import bz2

un=b'BZh91AY&SYA\xaf\x82\r\x00\x00\x01\x01\x80\x02\xc0\x02\
    x00 \x00!\x9ah3M\x07<]\xc9\x14\xe1BA\x06\xbe\x084'
pw=b'BZh91AY&SY\x94$|\x0e\x00\x00\x00\x81\x00\x03$ \x00!\
    x9ah3M\x13<]\xc9\x14\xe1BBP\x91\xf08'
print(bz2.decompress(un).decode('utf-8'))
print(bz2.decompress(pw).decode('utf-8'))
```

Level 9 good

```
# -*- coding: utf-8 -*-
import urllib.request,re,io
from PIL import Image,ImageDraw

def getData(rule,html):
    pat=re.compile(rule,re.S)
```

```
    return pat.findall(html)

def getHtmlUn(suf):
    pre='http://www.pythonchallenge.com/pc/'
    url=pre+suf
    print(url)
    auth_handler=urllib.request.HTTPBasicAuthHandler()
    auth_handler.add_password(realm='inflate', uri=url, user
       ='huge', passwd='file')
    opener=urllib.request.build_opener(auth_handler)
    urllib.request.install_opener(opener)
    html=opener.open(url).read()
    return html

html=getHtmlUn('return/good.html').decode('utf-8')
data=getData(r'first:\n([\d,\n]+)\n\nsecond:\n([\d,\n]+)\n\n
   -->',html)[0]
first,second=[data[p].replace('\n','').split(',') for p in
   range(2)]
fir=[]
sec=[]
for i in first: fir.append(int(i))
for i in second: sec.append(int(i))
im=Image.new('RGB',(640,480))
draw=ImageDraw.Draw(im)
draw.line(fir)
draw.line(sec)
im.save('pych.png')
```

Level 10 bull

```
a=['1']
for i in range(0,30):
    cnt=1
    b=''
    for j in range(len(a[i])):
        if j==len(a[i])-1 or a[i][j]!=a[i][j+1]:
                b=b+str(cnt)+a[i][j]
```

```
                cnt=1
        else: cnt+=1
    a.append(b)
print(len(a[30]))
```

Level 11 5808

```
im=Image.open(io.BytesIO(getHtmlUn('return/cave.jpg')))
w,h=im.size
for i in range(w):
    for j in range(h):
        if (i+j)%2==1:
            im.putpixel((i,j),0)
im.save('pych.png')
```

Level 12 evil

```
html=open('evil2.gfx','rb+').read()
for i in range(5):
    open(str(i)+'.dat','wb+').write(html[i::5])
```

Level 13 disproportional

```
import xmlrpc.client

pb=xmlrpc.client.ServerProxy('http://www.pythonchallenge.com
   /pc/phonebook.php')
print(pb.phone('Bert'))
```

Level 14 italy

```
im=Image.open(io.BytesIO(getHtmlUn('return/wire.png')))
ni=Image.new('RGB',(100,100))
```

```
dx,dy=[1,0,-1,0],[0,1,0,-1]
x,y,z=-1,0,0
for i in range(199):
    k=i%4
    for j in range(100-(i+1)//2):
        x,y=x+dx[k],y+dy[k]
        ni.putpixel((x,y),im.getpixel((z,0)))
        z+=1
ni.save('pych.png')
```

Level 15 uzi

```
import datetime

for i in range(1996,1000,-20):
    if i%400==0: continue
    if(datetime.date(i,1,1).weekday()==3): print(i)
```

Level 16 mozart

```
im=Image.open(io.BytesIO(getHtmlUn('return/mozart.gif')))
w,h=im.size
magenta=195
move=[]
for j in range(h):
    for i in range(w-5):
        if im.getpixel((i,j))==magenta and im.getpixel((i+4,
           j))==magenta:
            move.append(i)
ni=im.copy()
for j in range(h):
    for i in range(w):
        ni.putpixel((i,j),im.getpixel(((i+move[j])%w,j)))
ni.save('pych.gif')
```

Level 17 romance

```
# -*- coding: utf-8 -*-
import urllib.request
import re
import http.cookiejar
import urllib.parse
import xmlrpc.client
import bz2

global opener,jar

def getHtml(suf):
    global opener
    pre='http://www.pythonchallenge.com/pc/'
    url=pre+suf
    print(url)
    html=opener.open(url).read()
    return html

def getData(rule,html):
    pat=re.compile(rule,re.S)
    return pat.findall(html)

def initOpen():
    global opener,jar
    auth_handler=urllib.request.HTTPBasicAuthHandler()
    auth_handler.add_password(realm='inflate',uri='http://
       www.pythonchallenge.com',user='huge',passwd='file')
    jar=http.cookiejar.CookieJar()
    cookie_handler=urllib.request.HTTPCookieProcessor(jar)
    opener=urllib.request.build_opener(auth_handler,
       cookie_handler)
    headers={'User-Agent':'Mozilla/5.0 (Windows NT 6.1)
       AppleWebKit/537.11 (KHTML, like Gecko) Chrome
       /23.0.1271.64 Safari/537.11',
    'Accept':'text/html;q=0.9,*/*;q=0.8','Accept-Charset':'
       ISO-8859-1,utf-8;q=0.7,*;q=0.3',
```

```
    'Accept-Encoding':'gzip','Connection':'close','Referer':
       None}
    for item in headers: opener.addheaders=[(item,headers[
       item])]
    urllib.request.install_opener(opener)

def getNxtCk(x,info):
    html=getHtml('def/linkedlist.php?busynothing='+str(x)).
       decode('utf-8')
    info.append(list(jar)[0].value)
    data=getData(r'and the next busynothing is (\d+)',html)
    if not data:
        print(html)
        return 0
    return data[0]

initOpen()
page=12345
info=[]
while int(page)>0: page=getNxtCk(page,info)
mes=urllib.parse.unquote_to_bytes(''.join(info))
mes=mes.replace(b'+',b' ',1)
print(bz2.decompress(mes).decode('utf-8'))
pb=xmlrpc.client.ServerProxy('http://www.pythonchallenge.com
   /pc/phonebook.php')
print(pb.phone('Leopold'))
req=urllib.request.Request('http://www.pythonchallenge.com/
   pc/stuff/violin.php')
req.add_header('Cookie','info=the flowers are on their way')
response=opener.open(req).read()
print(response.decode('utf-8'))
```

Level 18 balloons

```
import codecs,difflib,pprint

def getUnhex(s):
```

```
    return codecs.getdecoder('hex')(re.sub('[^0-9a-zA-Z]',''
        ,s))[0]

initOpen()
delta=open('delta.txt').read()
line=delta.split('\n')
pair=[(l[:53],l[56:]) for l in line]
col=['\n'.join(p[i] for p in pair) for i in range(2)]
for i in range(2):
    data=getUnhex(col[i])
    open('pych'+str(i)+'.png','wb+').write(data)
coldiff=list(difflib.Differ().compare(col[0].splitlines(),
   col[1].splitlines()))
pngs=[''.join(filter(lambda l: l[0]==d, coldiff)) for d in '
    -+']
for i in range(len(pngs)):
    data=getUnhex(pngs[i])
    open('pych'+str(i+2)+'.png','wb+').write(data)
```

Level 19 bin

```
import base64,wave,array

initOpen()
html=getHtml('hex/bin.html').decode('utf-8')
data=getData(r'base64\n\n(.*)\n\n',html)[0]
wav=base64.decodestring(data.encode('utf-8'))
open('pych1.wav','wb+').write(wav)
w1=wave.open('pych1.wav','rb')
w2=wave.open('pych2.wav','wb')
w2.setparams(w1.getparams())
a=array.array('i')
frm=w1.readframes(w1.getnframes())
a.fromstring(frm)
a.byteswap()
w2.writeframes(a.tostring())
```

Level 20 idiot2

```
import http.client

def getFUO(s):
    fuo=urllib.request.FancyURLopener()
    fuo.addheader('Range','bytes='+s+'-')
    return fuo.open('http://butter:fly@www.pythonchallenge.
       com/pc/hex/unreal.jpg')

page=['30203','30237','30284','30295','30313','2123456744','
   2123456712']
for item in page:
    im=getFUO(item)
    print(im.read())
    print(im.info())
im=getFUO('1152983631')
open('pych.zip','wb').write(im.read())
print('invader'[::-1])
```

Level 21 *

```
# -*- coding: utf-8 -*-
import zlib,bz2
data=open(b'package.pack','rb').read()
result=''
while True:
    if data[:2]==b'x\x9c':
        data=zlib.decompress(data)
        result+=' '
    elif data[:2]==b'BZ':
        data=bz2.decompress(data)
        result+='*'
    elif data[-2:]==b'\x9cx' or data[-2:]==b'ZB':
        data=data[::-1]
        result+='\n'
    else:
        break
```

```
print(str(data[::-1]))
print(result)
```

Level 22 copper

```
initOpen()
im=Image.open(io.BytesIO(getHtml('hex/white.gif')))
w,h=im.size
path=[i.getbbox()[0:2] for i in ImageSequence.Iterator(im)]
im1=Image.new(im.mode,im.size,0)
start=0
for m in path:
    if m==(100,100):
        pos=(start,h//2)
        start+=40
    else:
        pos=(pos[0]+m[0]-100,pos[1]+m[1]-100)
    im1.putpixel(pos,255)
im1.save('pych.gif')
```

Level 23 bonus

```
import this
s='va gur snpr bs jung?'
print(codecs.decode(s,'rot_13'))
```

Level 24 ambiguity

```
initOpen()
im=Image.open(io.BytesIO(getHtml('hex/maze.png')))
w,h=im.size
vis=[[0]*h for i in range(w)]
white=(255,255,255,255)
start=(w-2,0)
end=(1,h-1)
```

```
path=[]
pos=start
path.append(pos)
vis[pos[0]][pos[1]]=1
dx=[-1,0,1,0]
dy=[0,1,0,-1]
while pos!=end:
    for i in range(4):
        x,y=pos[0]+dx[i],pos[1]+dy[i]
        #print('i=',i,'x,y=',x,y,'col=',im.getpixel((x,y)))
        if x>=0 and x<w and y>=0 and y<h and im.getpixel((x,
           y))!=white and vis[x][y]==0:
            pos=x,y
            vis[x][y]=1
            path.append(pos)
            break;
    else:
        path=path[:-1]
        pos=path[-1]
data=[]
for p in path[1::2]: data.append(im.getpixel(p)[0])
data=array.array('B',data).tostring()
open('pych.zip','wb+').write(data)
```

Level 25 lake

```
initOpen()
im=Image.new('RGB',(300,300))
for i in range(1,26):
    iw=wave.open(io.BytesIO(getHtml('hex/lake%d.wav'%i)))
    iwim=Image.fromstring('RGB',(60,60),iw.readframes(iw.
       getnframes()))
    im.paste(iwim,((i-1)%5*60,(i-1)//5*60))
im.save('pych.png')
```

Level 26 decent

```
import hashlib

a=open('mybroken.zip','rb').read()
for i in range(len(a)):
    for j in range(256):
        b=a[:i]+bytes([j])+a[i+1:]
        if hashlib.md5(b).hexdigest()=='
           bbb8b499a0eef99b52c7f13f4e78c24b':
            open('unbroken.zip','wb+').write(b)
            raise StopIteration
```

Level 27 speedboat

```
# -*- coding: utf-8 -*-
import urllib.request
import io
import array
import bz2
import keyword
from PIL import Image

url='http://butter:fly@www.pythonchallenge.com/pc/hex/zigzag
   .gif'
opener=urllib.request.FancyURLopener()
html=opener.open(url).read()
im=Image.open(io.BytesIO(html))

pal=im.getpalette()
col=pal[::3]
data=im.getdata()
diff=[]
vis=[]
flag=None
for i,p in enumerate(data):
    if flag is not None and p!=flag:
        diff.append(p)
        vis.append(i)
```

```
    flag=col[p]

im2=Image.new('RGB',im.size)
colors=[(255,255,255)]*len(data)
mark=(0,0,0)
for i in vis: colors[i]=mark
im2.putdata(colors)
im2.save('pych.png')

bzd=array.array('B',diff).tostring()
bzf=bz2.decompress(bzd)
word=set(bzf.split())
string=[i.decode('utf-8') for i in word]
ans=set(string)-set(keyword.kwlist)
ans=[i for i in ans]
print(ans)

for i in ans:
    for j in ans:
        if i=='../ring/bell.html' or j=='../ring/bell.html':
            continue
        try:
            url='http://'+i+':'+j+'@www.pythonchallenge.com/
               pc/ring/bell/html'
            print(url)
            html=opener.open(url)
            print(i,j)
            raise StopIteration
        except urllib.request.HTTPError:
            pass
```

Level 28 bell

```
# -*- coding: utf-8 -*-
import urllib.request
import re
import io
import string
```

```
import http.cookiejar
import urllib.parse
import xmlrpc.client
import bz2
import zlib
import codecs
import difflib
import pprint
import base64
import wave
import array
import http.client
import hashlib
from PIL import Image
from PIL import ImageDraw
from PIL import ImageSequence

global opener,jar

def getHtml(suf):
    global opener
    pre=r'http://www.pythonchallenge.com/pc/'
    url=pre+suf
    print(url)
    html=opener.open(url).read()
    return html

def initOpen():
    global opener,jar
    auth_handler=urllib.request.HTTPBasicAuthHandler()
    auth_handler.add_password(realm='the order matters',
                              uri=r'http://www.
                                 pythonchallenge.com',
                              user='repeat',
                              passwd='switch')
    jar=http.cookiejar.CookieJar()
    cookie_handler=urllib.request.HTTPCookieProcessor(jar)
    opener=urllib.request.build_opener(auth_handler,
       cookie_handler)
```

```
    headers={'User-Agent':'Mozilla/5.0 (Windows NT 6.1)
       AppleWebKit/537.11 (KHTML, like Gecko) Chrome
       /23.0.1271.64 Safari/537.11',
             'Accept':'text/html;q=0.9,*/*;q=0.8',
             'Accept-Charset':'ISO-8859-1,utf-8;q=0.7,*;q
                =0.3',
             'Accept-Encoding':'gzip',
             'Connection':'close',
             'Referer':None}
    for item in headers: opener.addheaders=[(item,headers[
       item])]
    urllib.request.install_opener(opener)

initOpen()
im=Image.open(io.BytesIO(getHtml(r'ring/bell.png')))
w,h=im.size
green=[]
for y in range(h):
    for x in range(w):
        green.append(im.getpixel((x,y))[1])
pair=[(green[i],green[i+1]) for i in range(0,len(green),2)]
ring=[abs(p[0]-p[1]) for p in pair]
diff=[x for x in ring if x!=42]
print(''.join(map(chr,diff)))
```

Level 29 guido

```
initOpen()
html=getHtml('ring/guido.html').splitlines()[12:]
bl=[len(i) for i in html]
data=array.array('B',bl).tostring()
bz=bz2.decompress(data)
print(bz.decode('utf-8'))
```

Level 30 yankeedoodle

```
initOpen()
html=getHtml(r'ring/yankeedoodle.csv').decode('utf-8')
data=getData(r'[\d.]+',html)
value=[float(i)*256 for i in data]
fac=[]
for i in range(2,len(value)):
    if not len(value)%i:
        fac.append(i)
im=Image.new('L',(fac[0],fac[1]))
im.putdata(value)
im=im.transpose(Image.FLIP_LEFT_RIGHT)
im=im.transpose(Image.ROTATE_90)
im.save('pych.png')
nn=[]
for i in range(0,len(value)-2,3):
    n=chr(int(data[i][5]+data[i+1][5]+data[i+2][6]))
    nn.append(n)
print(''.join(nn))
```

Level 31 grandpa

```
# -*- coding: utf-8 -*-
import urllib.request
import io
from PIL import Image

global opener

def getHtml(suf):
    global opener
    pre=r'http://www.pythonchallenge.com/pc/'
    url=pre+suf
    print(url)
    html=opener.open(url).read()
    return html

def initOpen():
    global opener
```

```
    auth_handler=urllib.request.HTTPBasicAuthHandler()
    auth_handler.add_password(realm='island : country',
                              uri=r'http://www.
                                 pythonchallenge.com',
                              user='kohsamui',
                              passwd='thailand')
    opener=urllib.request.build_opener(auth_handler)
    urllib.request.install_opener(opener)

def mandelbrot(size,max=128,left=0.34,bottom=0.57,width
   =0.036,height=0.027):
    xstep=width/size[0]
    ystep=height/size[1]
    for y in range(size[1]- 1,-1,-1):
         for x in range(size[0]):
             c=complex(left+x*xstep,bottom+y*ystep)
             z=0+0j
             for i in range(max):
                z=z*z+c
                if abs(z) > 2: break
             yield i

initOpen()
im1=Image.open(io.BytesIO(getHtml(r'rock/mandelbrot.gif')))
im1.save('pych1.gif')
im2=im1.copy()
im2.putdata(list(mandelbrot(im1.size)))
im2.save('pych2.gif')
diff=[(a-b) for a,b in zip(im1.getdata(),im2.getdata()) if a
   !=b]
fac=[]
for i in range(2,len(diff)):
    if not len(diff)%i:
        fac.append(i)
im3=Image.new('L',(fac[0],fac[1]))
data=[]
for i in diff:
    if i==-16: data.append(255)
    else: data.append(0)
```

```
im3.putdata(data)
im3=im3.resize((fac[0]*20,fac[1]*20))
im3.save('pych3.gif')
```

Level 32 arecibo

```
# -*- coding: utf-8 -*-
global mat

def getList(t,n):
    if not t: return [' '*n]
    l=[]
    for i in range(n+2-sum(t)-len(t)):
        if len(t)==1:
            pre=' '*i+'*'*t[0]
            suf=[' '*(n-i-t[0])]
        else:
            pre=' '*i+'*'*t[0]+' '
            suf=getList(t[1:],n-i-t[0]-1)
        l+=[pre+s for s in suf]
    return l

def check(l,x):
    for s in l:
        if s[x]!=l[0][x]:
            return None
    return l[0][x]

def getNew(hl,vl,n):
    global mat
    ans=[]
    for i,row in enumerate(hl):
        for j in range(n):
            if mat[i][j]=='?':
                ch=check(row,j)
                if ch:
                    mat[i][j]=ch
                    ans.append((i,j))
```

```
    for j,col in enumerate(vl):
        for i in range(n):
            if mat[i][j]=='?':
                ch=check(col,i)
                if ch:
                    mat[i][j]=ch
                    ans.append((i,j))
    return ans

def solve(h,v,n):
    global mat
    mat=[['?']*n for _ in range(n)]
    hl=[getList(t,n) for t in h]
    vl=[getList(t,n) for t in v]
    while True:
        new=getNew(hl,vl,n)
        if len(new)==0: break
        for i,j in new:
            hl[i]=[r for r in hl[i] if r[j]==mat[i][j]]
            vl[j]=[c for c in vl[j] if c[i]==mat[i][j]]
    print('\n'.join(''.join(row) for row in mat))

h=((2,1,2),(1,3,1),(5,),(7,),(9,),(3,),(2,3,2),(2,3,2)
   ,(2,3,2))
v=((2,1,3),(1,2,3),(3,),(8,),(9,),(8,),(3,),(1,2,3),(2,1,3))
solve(h,v,9)
h=((3,2),(8,),(10,),(3,1,1),(5,2,1),(5,2,1),(4,1,1),(15,)
   ,(19,),(6,14),(6,1,12),(6,1,10),(7,2,1,8)
   ,(6,1,1,2,1,1,1,1),(5,1,4,1),(5,4,1,4,1,1,1),(5,1,1,8)
   ,(5,2,1,8),(6,1,2,1,3),(6,3,2,1),(6,1,5),(1,6,3),(2,7,2)
   ,(3,3,10,4),(9,12,1),(22,1),(21,4),(1,17,1),(2,8,5,1)
   ,(2,2,4),(5,2,1,1),(5,))
v=((5,),(5,),(5,),(3,1),(3,1),(5,),(5,),(6,),(5,6),(9,5)
   ,(11,5,1),(13,6,1),(14,6,1),(7,12,1),(6,1,11,1)
   ,(3,1,1,1,9,1),(3,4,10),(8,1,1,2,8,1),(10,1,1,1,7,1)
   ,(10,4,1,1,7,1),(3,2,5,2,1,2,6,2),(3,2,4,2,1,1,4,1)
   ,(2,6,3,1,1,1,1,1),(12,3,1,2,1,1,1),(3,2,7,3,1,2,1,2)
   ,(2,6,3,1,1,1,1),(12,3,1,5),(6,3,1),(6,4,1),(5,4),(4,1,1)
   ,(5,))
```

```
solve(h,v,32)
```

Level 33 beer

```
# -*- coding: utf-8 -*-
import urllib.request
import io
from PIL import Image
from math import sqrt,floor

url=r'http://kohsamui:thailand@www.pythonchallenge.com/pc/
   rock/beer2.png'
opener=urllib.request.FancyURLopener()
html=opener.open(url).read()
im=Image.open(io.BytesIO(html))
color=im.getcolors()
data=im.getdata()
print(color)
print(set(data))
i=len(color)-1
while i>0:
    n=floor(sqrt(len(data)))
    iw=Image.new('P',(n,n))
    pix=[255 if j!=color[i][1] else 0 for j in data]
    iw.putdata(pix)
    iw.save('pych%d.png'%(i//2))
    temp=[]
    for j in data:
        if j!=color[i][1] and j!=color[i-1][1]:
            temp.append(j)
    data=temp
    i-=2
```

How to make it?
Where to go?
God bless you&me.