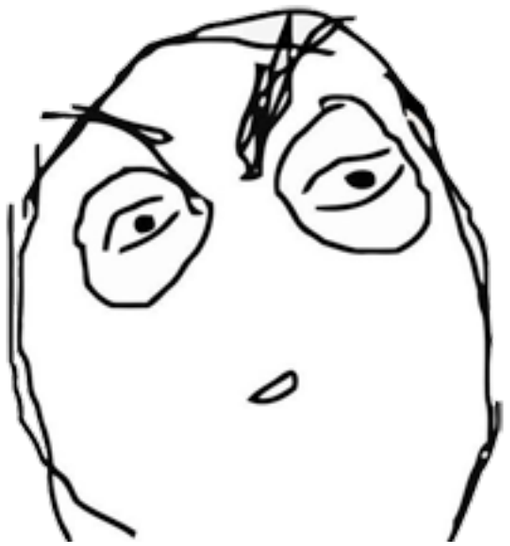
People seem to love exchanging msgs anonymously...

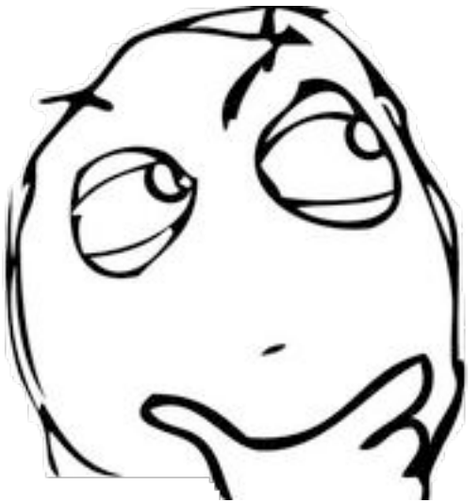


omegle

Chatroulette™

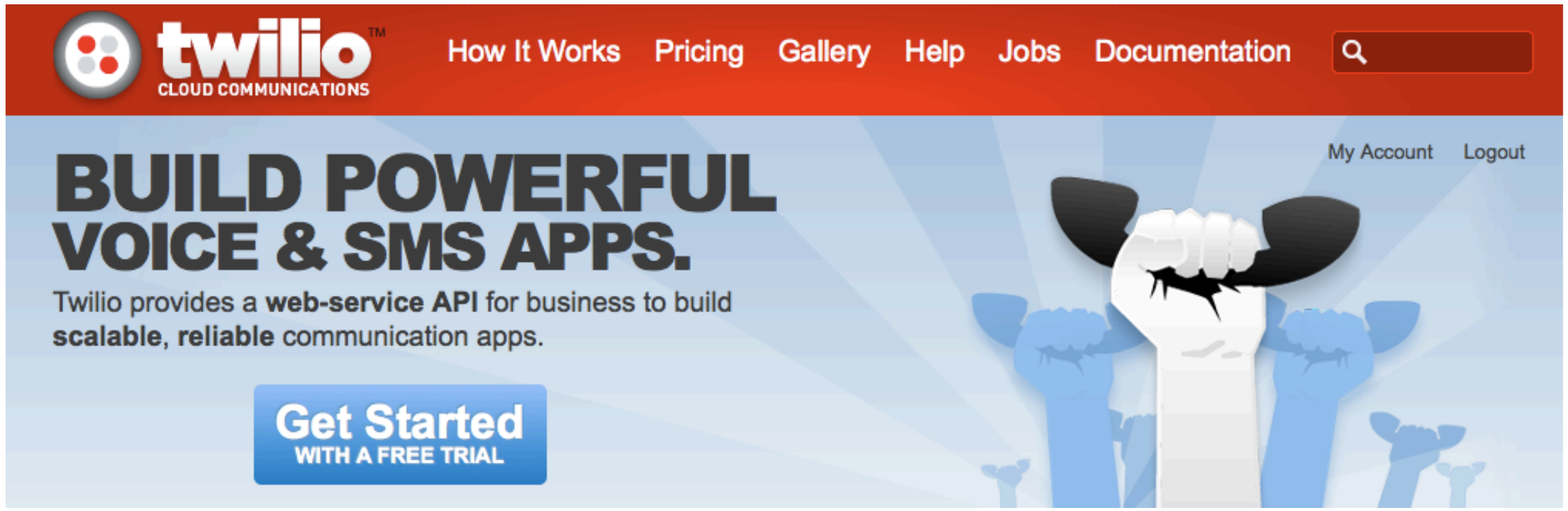
LikeALittle!

ChatHopper



Hmmm, I want to learn by doing...

What can I do?



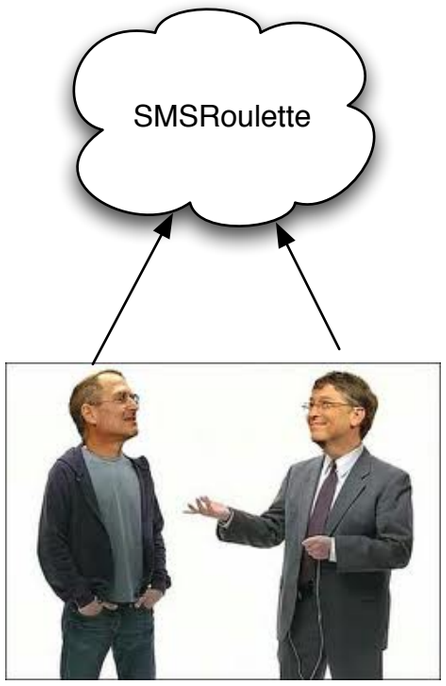
Perfect!
I'll build an anon SMS chat app
using Twilio!
called...
SMSRoulette

Here's the workflow illustrating the idea...

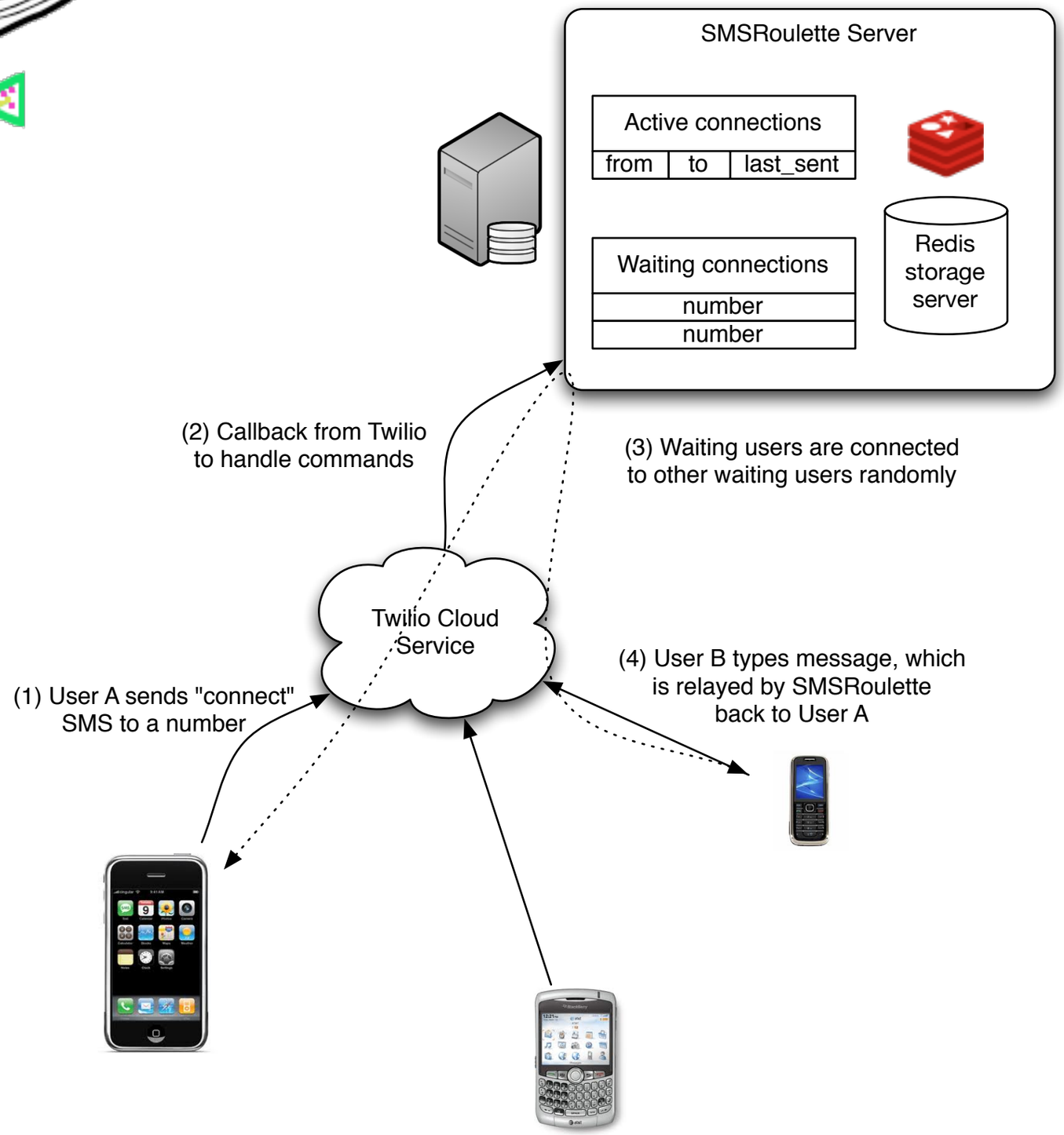
1. Users will SMS to our Twilio number to initiate random chat

2. SMSRoulette finds a waiting user and connects us with them

3. SMSRoulette relays messages to provide anonymity!



Block Diagram



Commands we should support

```
connect:    registers phone number with SMSRoulette
disconnect: removes phone number
refresh:    reconnect to another random user
call:       share phone number with other user
stats:      show server statistics
```

What we need to get started

Twilio: get free account at http://twilio.com

python: http://python.org
flask: http://flask.pocoo.org/
(for easy webapp development)

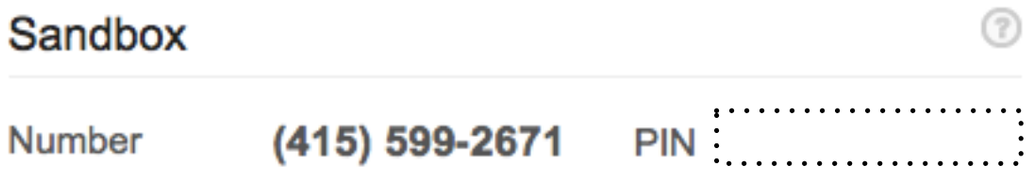
redis: http://redis.io
https://github.com/andymccurdy/redis-py
(our persistent data store)

editor: vim/emacs/whatever you like

Let's get started!

First, we register (or buy one) our phone number with Twilio that users will call.

For now, we will use our account's sandbox number.



With sandbox number, you cannot send msgs to any phone #.
Register a few numbers as Caller IDs.
I used my mobile and Google Voice numbers.

Beginning our Flask app

app.py

```
from flask import Flask, request, Markup, make_response
app = Flask(__name__)

def build_sms(text):
    return """<?xml version="1.0" encoding="UTF-8"?>
<Response>
    <Sms>%s</Sms>
</Response>
""" % (Markup.escape(text))

def make_sms_response(text):
    response = make_response(build_sms(text))
    response.headers['Content-Type'] = 'text/xml'
    return response

@app.route("/")
def index():
    return "SMS Roulette!"

@app.route("/sms", methods=['GET'])
def sms():
    if request.method != "GET":
        return make_sms_response("Invalid SMS.")
    # Get our parameters from the query string
    msg = request.args.get('Body')
    from_number = request.args.get('From')
    to_number = request.args.get('To')
    # Just to debug
    app.logger.warning("From: %s, To: %s, Message: %s\n" % (from_number, to_number, msg))
    return make_sms_response("Successfully parsed SMS")


if __name__ == "__main__":
    app.run(host='0.0.0.0', debug=True)
```

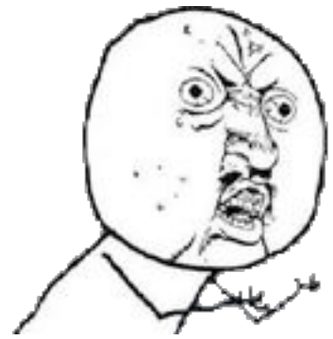
--:**- app.py All (3,0) (Python yas)----------

We write a simple Flask app to parse an incoming SMS and return a success message.

Save this file as app.py. We will modify this heavily later!

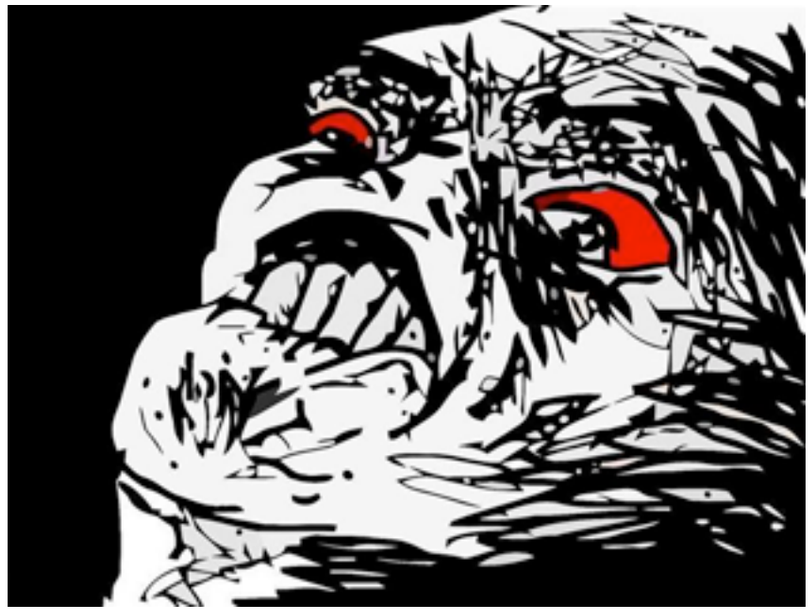
For more details on how Flask apps are built, check: http://flask.pocoo.org/.

Y U NO USE TEXT SLIDES?



Type it in :)

Problem?



Alright: https://gist.github.com/949919

Let's test it out!

Configure the SMS URL at https://www.twilio.com/user/account/
to `http://<your webserver's IP>:5000`
Set HTTP Method to GET.

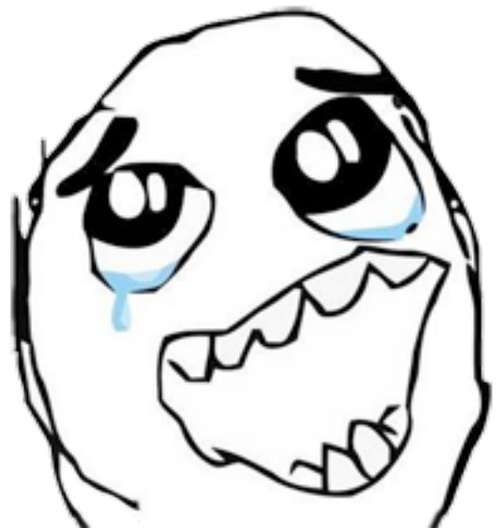
Send an SMS to your sandbox number.
Don't forget to prefix SMS with your PIN!

Our app should print this log

```
~/projects/twilio-contest ⇒python app.py
 * Running on http://0.0.0.0:5000/
 * Restarting with reloader...
-------------------------------------------------------------------------------
WARNING in app [app.py:33]:
From: +16503537086, To: +14155992671, Message: hi twilio, how are you?

-------------------------------------------------------------------------------
184.73.13.122 - - [30/Apr/2011 02:14:34] "GET /sms?AccountSid=ACe7b82a6a1be7e9144afa2fb03a2d0705&Body=hi+twilio%2C+
how+are+you%3F&ToZip=94949&FromState=CA&ToCity=NOVATO&SmsSid=SMb39db8b8dcfd4687d70233c7e3880011&ToState=CA&To=%2B14
155992671&ToCountry=US&FromCountry=US&SmsMessageSid=SMb39db8b8dcfd4687d70233c7e3880011&ApiVersion=2010-04-01&FromCi
ty=PALO+ALTO&SmsStatus=received&From=%2B16503537086&FromZip=94304 HTTP/1.1" 200 -
```

Your mobile should get "Successfully parsed SMS" message
prefixed with "Sent from a Twilio Trial Account -"

Something works!



Managing users

Pretty straightforward logic

```
users.py
from flask import Markup
import redis
import sys

try:
    r = redis.Redis(host='localhost', port=6379, db=0)
except:
    print "Cannot connect to redis server.  Exiting..."
    sys.exit(0)

def build_sms(text):
    return """<?xml version="1.0" encoding="UTF-8"?>
<Response>
    <Sms>%s</Sms>
</Response>
""" % (Markup.escape(text))

def connect(number):
    """Add @number to the set of waiting callers."""
    r.sadd('waiting', number)
    ok = linkup()
    if not ok:
        return build_sms("Please wait, you will be connected to a random person...")
    return ""

def disconnect(number):
    """Remove @number from the set of waiting callers."""
    r.srem('waiting', number)
    peer = r.get(number)
    r.delete(number)
    if peer:
        r.delete(peer)
    return build_sms("You've been disconnected and will no longer receive messages.")

def refresh(number):
    """Refresh the chat session to connect to another random person."""
    disconnect(number)
    return connect(number)

def call(number):
    """@number wishes to share the number with the other person."""
    if not r.exists(number):
        return build_sms("Error: You haven't connected to anyone yet.")
    peer_number = r.get(number)
    send_sms(peer_number, "The other person has shared their number: %s" % (number))
    return ""
--:**-  users.py       Top (4,0)      (Python yas)----------
```

Now, we implement the supported commands that we saw earlier.

We use redis as a persistent data store so that we don't lose state when the webserver needs to be restarted.

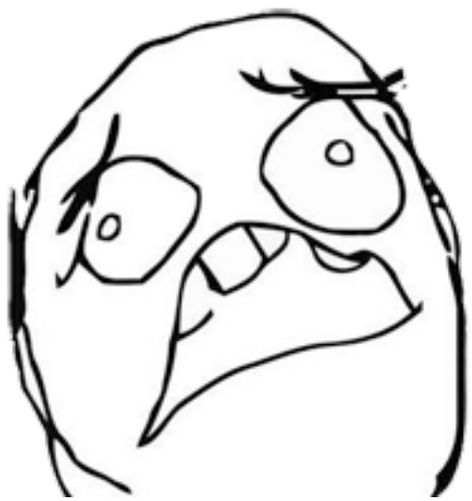
These functions go into users.py.

```
users.py
    if not r.exists(number):
        return build_sms("Error: You haven't connected to anyone yet.")
    peer_number = r.get(number)
    send_sms(peer_number, "The other person has shared their number: %s" % (number))
    return ""

def msg(number, text):
    """Message @number's peer"""
    peer = r.get(number)
    if peer is None:
        return (number, "Error: not connected, or your earlier peer disconnected. Refresh to chat again!")
    return (peer, "Stranger: " + text)

def stats(number):
    """Implement your favourite stats here. :-)"""
    pass

def linkup(number):
    pass
--:**-  users.py       Bot (61,0)     (Python yas)----------
```

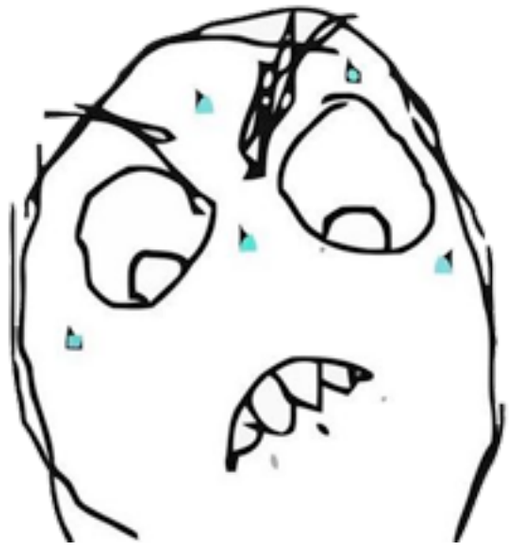
For ease of reading, code in full:
https://gist.github.com/949918

Fill in the logic for this yourself!

```
def linkup():
    """Links up two random people from the waiting list."""
    pass

def stats(number):
    """Implement your favourite stats here. :-)"""
    pass
```



Done?



Linking up users

Alright, here's one way to do it:

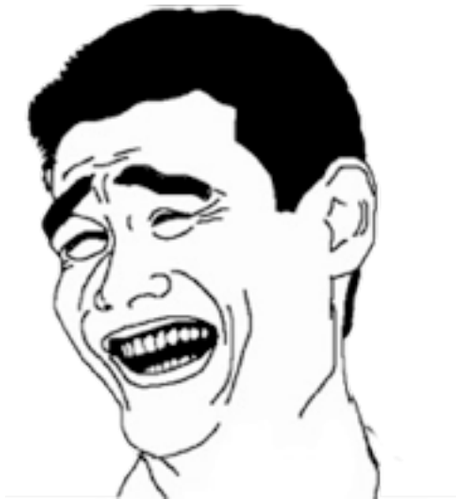
linkup

```
def linkup():
    """Links up two random people from the waiting list."""
    num_waiting = r.scard('waiting')
    if num_waiting < 2:
        # Cannot link up
        return False
    num1 = r.spop('waiting')
    num2 = r.spop('waiting')
    # our routing table
    r.set(num1, num2)
    r.set(num2, num1)
    text = "You're now connected to a random stranger!"
    send_sms(num1, text)
    send_sms(num2, text)
    return True
```

```
--:**-  linkup        All (17,0)     (Python yas)----------------------
End of buffer
```

https://gist.github.com/949923

There are possible race conditions...



Good exercise to find and fix them

Integrating with the Flask app

integrate

```
CONNECT_SYNONYMS = ['connect', 'conn', 'login', 'register']
DISCONNECT_SYNONYMS = ['disconnect', 'dc', 'logout']
REFRESH_SYNONYMS = ['refresh', 'reload']
CALL_SYNONYMS = ['call', 'share']
STATS_SYNONYMS = ['stats']

@app.route("/sms", methods=['GET'])
def sms():
    if request.method != "GET":
        return make_sms_response("Invalid SMS.")

    # Get our parameters from the query string
    msg = request.args.get('Body')
    from_number = request.args.get('From')
    to_number = request.args.get('To')

    # Just to debug
    app.logger.warning("From: %s, To: %s, Message: %s\n" % (from_number, to_number, msg))
    cmd = msg.lower()
    if cmd in CONNECT_SYNONYMS:
        return users.connect(from_number)
    elif cmd in DISCONNECT_SYNONYMS:
        return users.disconnect(from_number)
    elif cmd in REFRESH_SYNONYMS:
        return users.refresh(from_number)
    elif cmd in CALL_SYNONYMS:
        return users.call(from_number)
    elif cmd in STATS_SYNONYMS:
        return users.stats(from_number)
    else:
        (peer_number, text) = users.msg(from_number, msg)
        send_sms(peer_number, text)
        # No response
        return ""
```

--:**- integrate All (6,0) (Python yas)----------

Now we demux an incoming SMS to perform our commands

Being user friendly :)

```
CONNECT_SYNONYMS = ['connect', 'conn',
'login', 'register']
DISCONNECT_SYNONYMS = ['disconnect', 'dc',
'logout']
REFRESH_SYNONYMS = ['refresh', 'reload']
CALL_SYNONYMS = ['call', 'share']
STATS_SYNONYMS = ['stats']
```

https://gist.github.com/949930

Implementing

`send_sms(number, text)`

sms.py

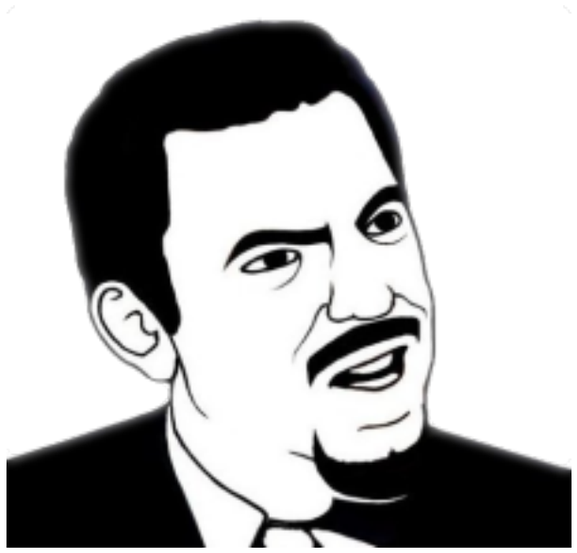
```
import twilio
from flask import Markup

API_VERSION = '2010-04-01'
ACCOUNT_SID = 'AC...'
ACCOUNT_TOKEN = '...'
# Outgoing Caller ID previously validated with Twilio
CALLER_ID = 'NNNNNNNNNN'
account = twilio.Account(ACCOUNT_SID, ACCOUNT_TOKEN)

def build_sms(text):
    return """<?xml version="1.0" encoding="UTF-8"?>
<Response>
    <Sms>%s</Sms>
</Response>
""" % (Markup.escape(text))

def send_sms(to, text):
    """We use Twilio's python libraries to send SMS.  Taken directly
     from:
     https://github.com/twilio/twilio-python/blob/master/examples/example-rest.py"""
    global account

    d = {
        "From" : CALLER_ID,
        "To" : to,
        "Body" : text
        }

    try:
        account.request('/%s/Accounts/%s/SMS/Messages' % \
                        (API_VERSION, ACCOUNT_SID), "POST", d)
    except Exception, e:
        open('error', 'w').write(e.read())
```

```
--:---  sms.py         All (10,0)    Git-master  (Python yas)----------------------------
(No changes need to be saved)
```

And finally, a way to send SMS! Straight out of Twilio's sample code.

https://gist.github.com/949939

Run it, it should work.



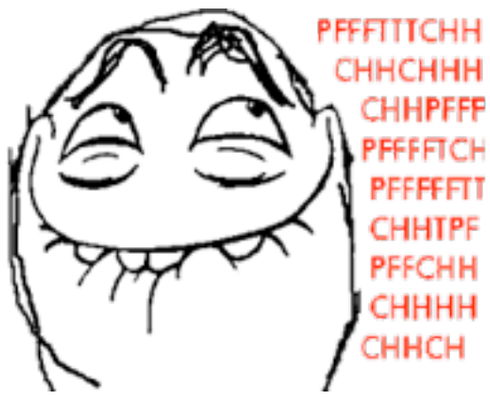
```
app.py:   Contains the Flask webapp, handles the
          core functionality
sms.py:   Wrapper for sending SMS through Twilio
users.py: The core API that's called through SMS

        Run it as follows:
        $ python app.py
         * Running on http://0.0.0.0:5000/
```

Twilio has a log...

... of all SMSs sent https://www.twilio.com/user/account/log/sms

... of failed requests https://www.twilio.com/user/account/debugger

It should help debugging... or

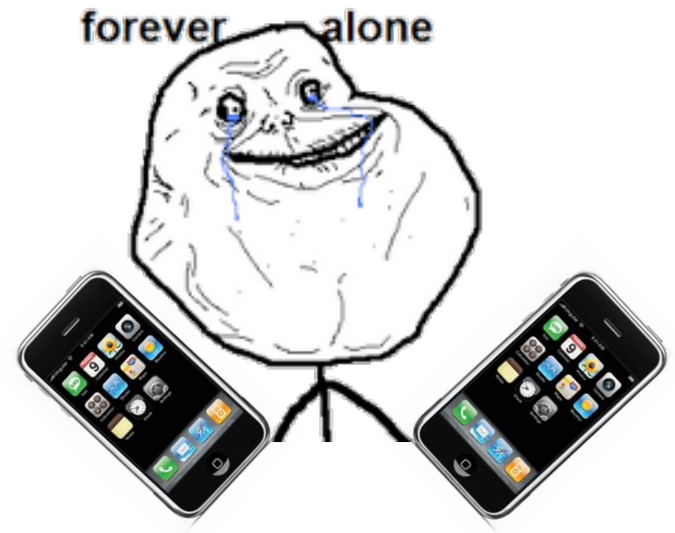


... you can watch people chat

Be responsible :)

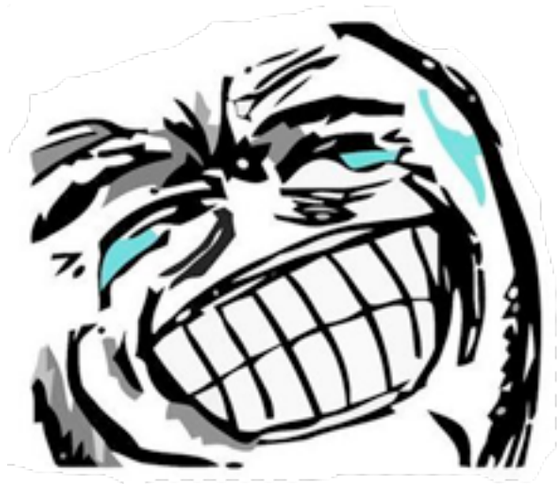
Hope you could chat with someone...

I couldn't.



Code available here:
https://github.com/jvimal/SMSRoulette

My first Twilio contest submission



Thanks for reading. Hope you enjoyed it!