Московский государственный технический университет имени Н.Э. Баумана

Кафедра ИУ5
«Системы обработки информации и управления»

Отчет по лабораторной работе №3

«Python-классы»

по дисциплине «Разработка Интернет-приложений»

Выполнил:
студент группы ИУ5-53
Слимов Никита

Москва, 2016

Задание

Вход:
username или vk_id пользователя
Выход:
Гистограмма распределения возрастов друзей пользователя, поступившего на вход
Пример: Вход: reigning
Выход:
19 #
20 ##
21 ##
22 ###################
23 ################
24 ####
25 #
28 #
29 #
30 #
37 #
38 ##
45 #

baseclient.py

```python
class BaseClient:
    BASE_URL = None

    method = None
    http_method = None

    def get_params(self):
        pass

    def get_json(self):
        pass

    def get_headers(self):
        pass

    def generate_url(self, method):
        return '{0}{1}'.format(self.BASE_URL, method)

    def _get_data(self, method, http_method):
        response = None

        # todo выполнить запрос

        return self.response_handler(response)

    def response_handler(self, response):
        return response

    def execute(self):
        return self._get_data(
```

```
            self.method,
            http_method=self.http_method
        )
```

id_from_username.py

```python
from baseclient import BaseClient
import requests
import json


class IdFromUsername(BaseClient):
    BASE_URL = 'https://api.vk.com/method/users.get'
    http_method = 'GET'

    def __init__(self, name):
        self.name = name

    def get_params(self):
        return 'user_ids=' + self.name

    def response_handler(self, response):
        try:
            uobj = json.loads(response.text)
            return uobj.get('response')[0].get('uid')
        except:
            raise Exception("Couldn't handle response for username
{}".format(self.name))

    def _get_data(self, method, http_method):
        response = None

        response = requests.get(self.BASE_URL + '?' + self.get_params())
        return self.response_handler(response)
```

friends.py

```python
from baseclient import BaseClient
import requests
import json
from datetime import datetime


class Friends(BaseClient):
    BASE_URL = 'https://api.vk.com/method/friends.get'
    http_method = 'GET'

    def __init__(self, uid):
        self.uid = uid

    def get_params(self):
        return 'user_id=' + str(self.uid) + '&fields=bdate'

    def response_handler(self, response):
        try:
            uobj = json.loads(response.text)
            friends = uobj.get('response')
```

```python
            ages = []

            for friend in friends:
                bdate = friend.get('bdate')

                if bdate is None or bdate.count('.') < 2:
                    continue

                bdate = datetime.strptime(bdate, "%d.%m.%Y")
                ndate = datetime.now()

                ages.append(int((ndate - bdate).days) // 365.2425)

            uniqages = list(set(ages))
            return sorted([(x, ages.count(x)) for x in uniqages], key=lambda
x: x[0])
        except:
            raise Exception("Couldn't handle response for friends of uid
{}".format(self.uid))

    def _get_data(self, method, http_method):
        response = requests.get(self.BASE_URL + '?' + self.get_params())
        return self.response_handler(response)
```

vk.py
```python
from id_from_username import IdFromUsername
from friends import Friends

uclient = IdFromUsername('reigning')
uid = uclient.execute()

friends_client = Friends(uid)
friends = friends_client.execute()

for (age, count) in friends:
    print('{} {}'.format(int(age), '#' * count))
```

Скриншот с результатом:
```
/usr/local/bin/python3 /Users/nikita/www/python_labs/lab3/vk.py
 19 #
 20 ##
 21 ##
 22 #####################
 23 ################
 24 ####
 25 #
 28 #
 29 #
 30 #
 37 #
 38 ##
 45 #
 50 #
 60 #
112 #
```