STRAVA™

By: Fraida Levilev
SF_DAT_15

Strava Activities

Ride

Run

Swim

Hike

Walk

Alpine Ski

Backcountry Ski

Canoeing

Cross-country Skiing

Crossfit

E-Bike Ride

Elliptical

Ice Skate

Inline Skate

Kayaking

Kitesurf

Nordic Ski

Rock Climbing

Roller Ski

Rowing

Snowboard

Snowshoe

Stair-Stepper

Stand Up Paddling

Surfing

Virtual Ride

Weight Training

Windsurf

Workout

Yoga

Athlete Profile

Premium Member
Fraida Levilev
San Francisco, CA

Team: CRCA KH-Pactimo pb Century

Last 4 Weeks

Total Activities
13

Sport
13
0

M T W T F S S
7h 37m
2h 40m
3h 11m

Overview | Trophy Case | Following | QOMs / CRs

Trophies View more

Jul 2015
5,050 m

Jun 2015
126.8 km

Achievements

- PR on Laguna Honda (to Plaza) Burst (39s) *2 days ago*
- PR on Laguna Honda to Clarendon (2:04) *2 days ago*
- PR on 7th Ave-Block #2 (28s) *2 days ago*
- PR on Inner Sunset - 7th Ave Hill (2:30) *2 days ago*

Photos

Activities for Aug 17, 2015 - Aug 23, 2015

May 18, 2015 - Aug 24, 2015

41.5mi | **3h 11**m | **3,750**ft

Clubs

This Week
Training Log

0 mi
Set Goal

M T W T F S S

Social Stats

Following 80
Followers 51

My Stats

Cycling | Running

Last 4 Weeks	
Avg Rides / Week	4
Avg Distance / Week	55 mi
Avg Time / Week	3h 56m

2015	
Distance	1,051.4 mi
Time	78h 49m
Elev Gain	68,648 ft
Rides	66

All-Time	
Distance	1,051.4 mi
Rides	66
Biggest Ride	78.7 mi
Biggest Climb	3,330 ft

STRAVA

Athletes

Athletes are Strava users, Strava users are athletes. The object is returned in detailed, summary or meta representations.

Detailed representation attributes

id:	**integer**
resource_state:	**integer**
firstname:	**string**
lastname:	**string**
profile_medium:	**string** URL to a 62x62 pixel profile picture
profile:	**string** URL to a 124x124 pixel profile picture
city:	**string**
state:	**string**
country:	**string**
sex:	**string** 'M', 'F' or null
friend:	**string** 'pending', 'accepted', 'blocked' or 'null' the authenticated athlete's following status of this athlete
follower:	**string** 'pending', 'accepted', 'blocked' or 'null' this athlete's following status of the authenticated athlete
premium:	**boolean**
created_at:	**time string**
updated_at:	**time string**

EXAMPLE ATHLETE


```
{
  "id": 227615,
  "resource_state": 3,
  "firstname": "John",
  "lastname": "Applestrava",
  "profile_medium": "http://pics.com/227615/medium.jpg",
  "profile": "http://pics.com/227615/large.jpg",
  "city": "San Francisco",
  "state": "California",
  "country": "United States",
  "sex": "M",
  "friend": null,
  "follower": null,
  "premium": true,
  "created_at": "2008-01-01T17:44:00Z",
  "updated_at": "2013-09-04T20:00:50Z",
  "follower_count": 273,
  "friend_count": 19,
  "mutual_friend_count": 0,
  "athlete_type": 0,
  "date_preference": "%m/%d/%Y",
  "measurement_preference": "feet",
  "email": "john@applestrava.com",
  "ftp": 280,
  "weight": 68.7,
  "clubs": [
    {
      "id": 1,
      "resource_state": 2,
      "name": "Team Strava Cycling"
```

Functions

Efforts

```
def get_people(segment_id, pages = 1):
    #access_token = 'c2f218e5c3a9af9a3e0389d3e539e197f19f650e'
    #extra_headers = {'Authorization' : 'Bearer {0}'.format(access_token)}
    request_to_strava = requests.get('https://www.strava.com/api/v3/segments/{0}'.format(segment_id), headers=extra_headers).json()
    effort_count = request_to_strava['effort_count']
    print effort_count
    segment_url = 'https://www.strava.com/api/v3/segments/{0}/all_efforts'.format(segment_id)
    print segment_url
    params = {}
    params['start_date_local'] = '2015-06-01T00:00:00Z'
    params['end_date_local'] = '2016-01-01T23:59:59Z'
    params['per_page'] = 200

    all_efforts = []

    for number in range(1,pages + 1):
        #print number
        params['page'] = number
        segment_request = requests.get(segment_url, params = params, headers=extra_headers).json()
        all_efforts += segment_request

    new_efforts = []

    for effort in all_efforts:
        #print effort['athlete']
        new_efforts.append( {
        'athlete_id': effort['athlete']['id'],
        'segment_id': segment_id,
        'avg_watts': effort.get('average_watts', -1),
        'elapsed_time': effort['elapsed_time'],
        'moving_time': effort['moving_time'],
        #'average_grade': effort['segment']['average_grade'],
        #'distance': effort['segment']['distance'],
        'elevation_range': effort['segment']['elevation_high'] - effort['segment']['elevation_low']
        })
    return pd.DataFrame(new_efforts)
```

Segments

```
def get_segment_details(a_segment):
    #segment_results = []
    r = requests.get(base_url + '/v3/segments/{0}'.format(a_segment), headers=extra_headers)
    results = r.json()
    segment_results = {'segment_id': a_segment,
                       'seg_name': results['name'],
                      'seg_city': results['city'],
                      'avg_grade': results['average_grade'],
                      'distance': results['distance'],
                      #'elev_gain': results['total_elevation_gain']
                      }
    print r.status_code
    return segment_results
```

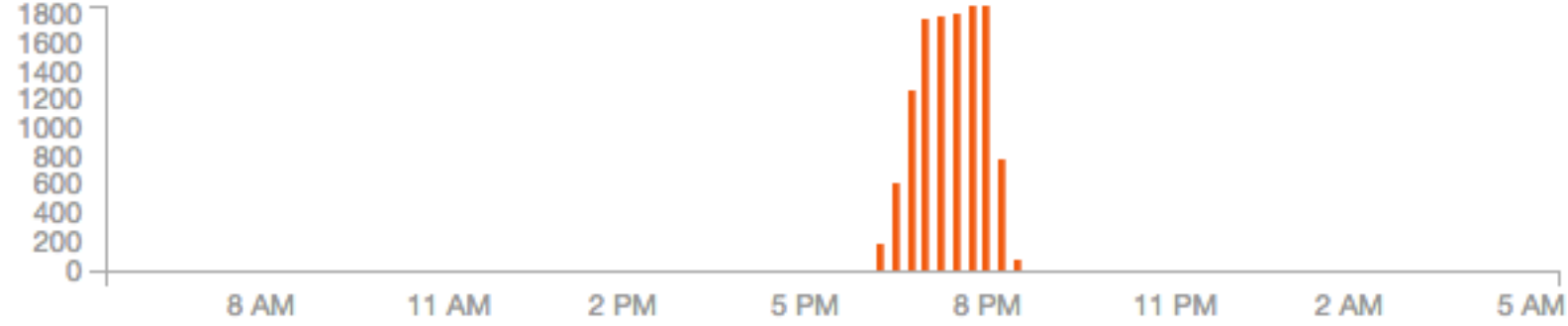
Athletes

```
# get athlete details
def get_athlete_details(an_athlete):
    athlete_results = []
    url = base_url + '/v3/athletes/{0}'.format(an_athlete)
    r = requests.get(url, headers=extra_headers)
    results = r.json()
    athlete_results = {'athlete_id': an_athlete,
                       'athlete_sex': results.get('sex'),
                      'athlete_ftp': results.get('ftp'),
                      'athlete_weight': results.get('weight')}
    return athlete_results
```

Rate Limits (?)	600 requests every 15 minutes, 30000 daily

Daily requests (?)

Requests every 15 minutes



The “if Liam is wrong” function

```
In [11]: segment_details = []
    ...: for segment in segments:
    ...:     details = get_segment_details(segment)
    ...:     segment_details.append(details)
    ...:     print segment_details
    ...:
    ...:
[None]
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```
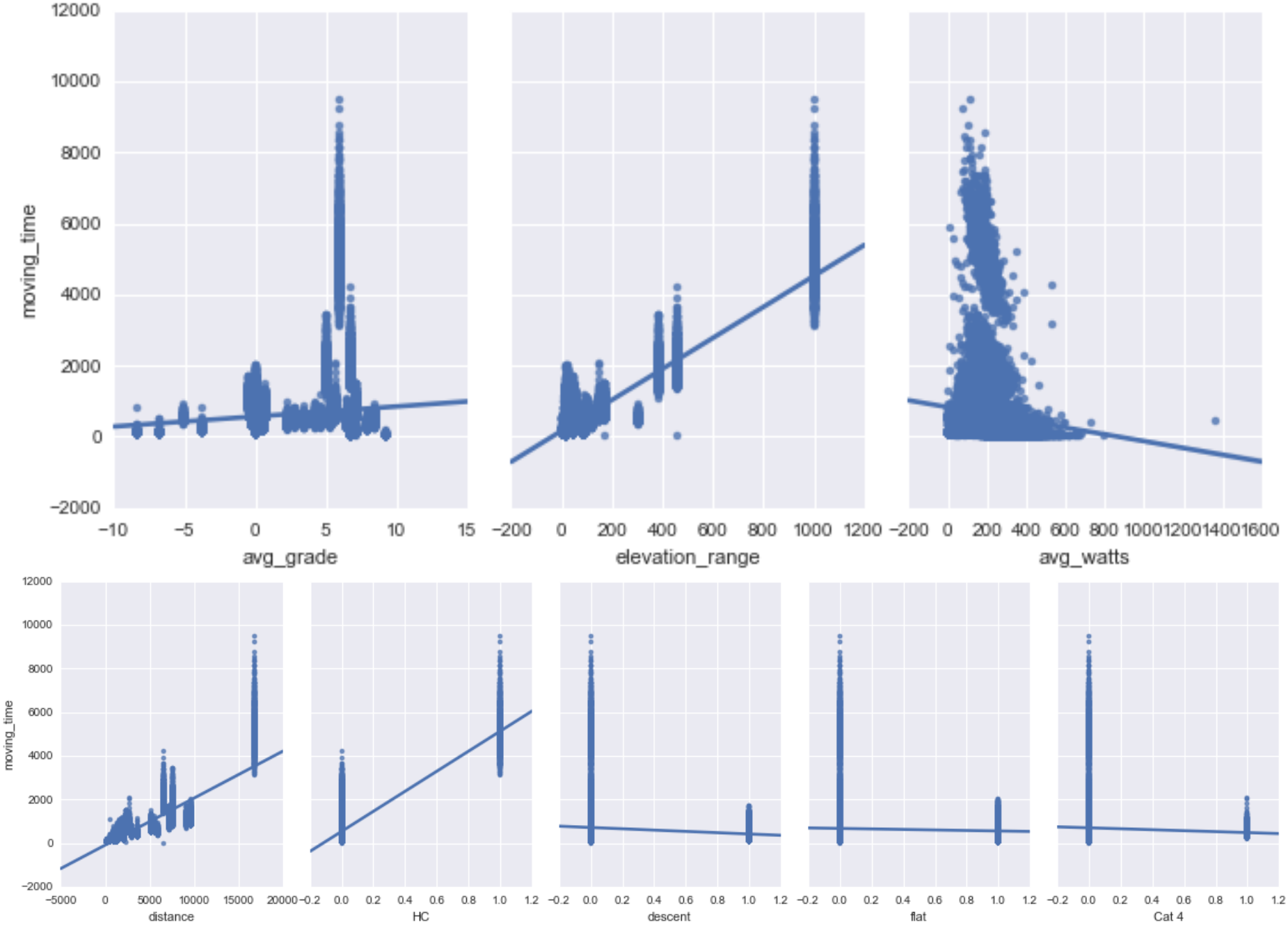
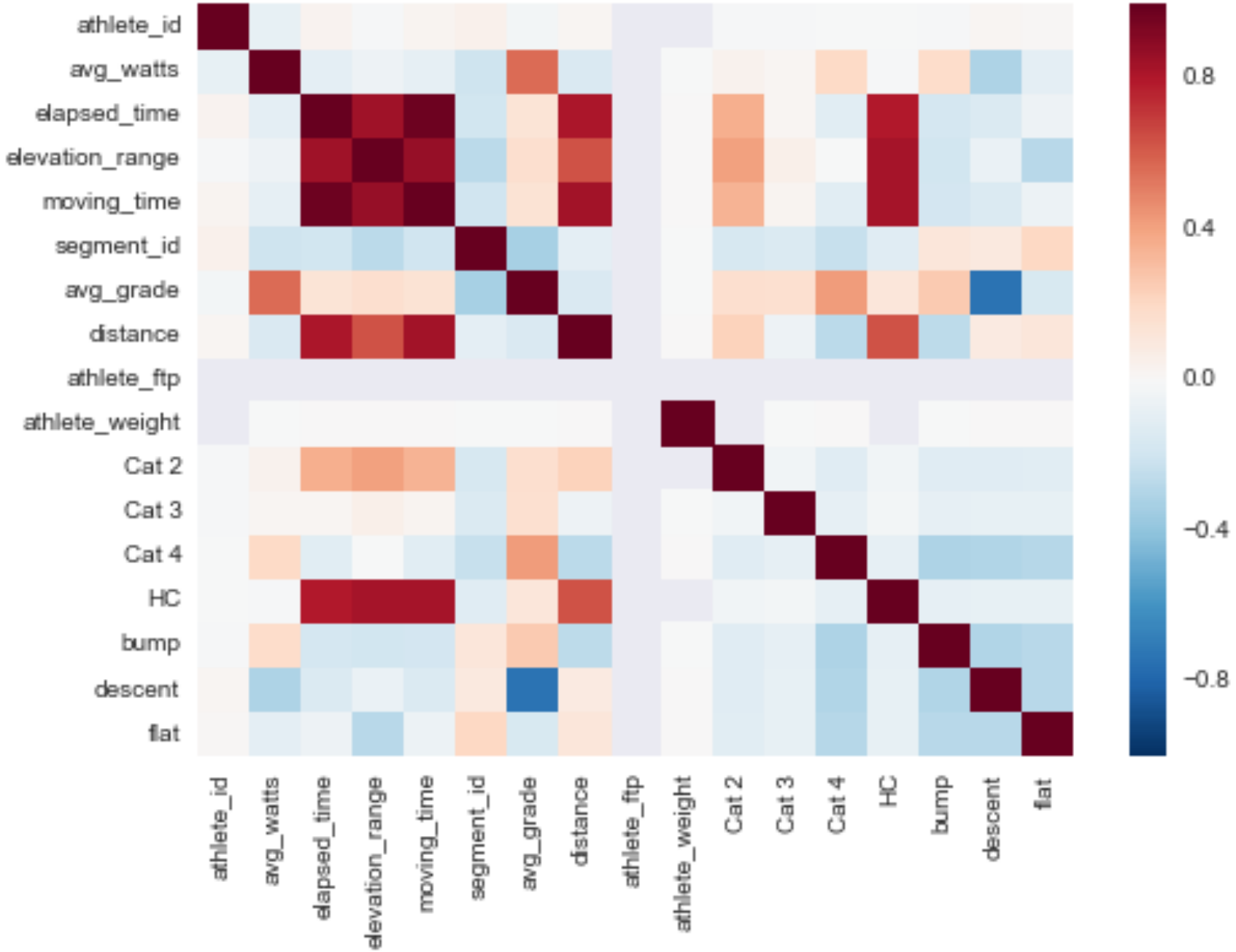
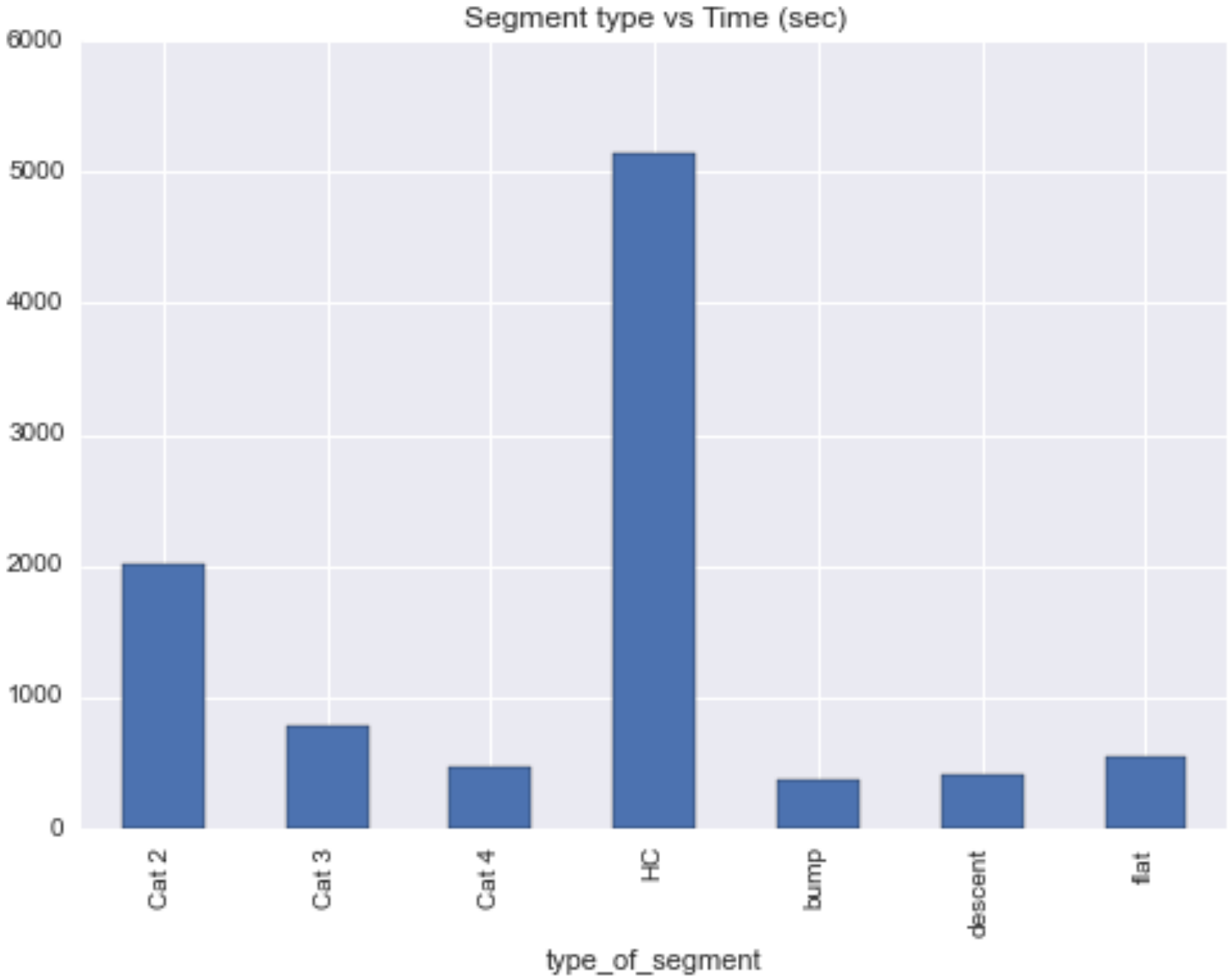

Linear Regression

	Features	MAE	MSE	RMSE	%
First	4	136.841	56922.331	238.584	21.24%
Second	11	99.476	34165.747	184.84	15.44%
Third	43	84.065	30013.343	173.243	13.05%


moving_time
avg_grade
elevation_range
avg_watts
distance
HC
descent
flat
Cat 4


athlete_id
avg_watts
elapsed_time
elevation_range
moving_time
segment_id
avg_grade
distance
athlete_ftp
athlete_weight
Cat 2
Cat 3
Cat 4
HC
bump
descent
flat
0.8
0.4
0.0
−0.4
−0.8


Segment type vs Time (sec)
6000
5000
4000
3000
2000
1000
0
Cat 2
Cat 3
Cat 4
HC
bump
descent
flat
type_of_segment

Average time vs Average distance

type_of_segment	
HC	5132.532431
Cat 2	2015.224741
Cat 3	783.887223
flat	552.013143
Cat 4	476.671182
descent	412.307512
bump	360.871190

type_of_segment	
HC	16852.400000
Cat 2	7018.768287
flat	4210.544800
descent	3972.969386
Cat 3	2397.470000
bump	1858.545759
Cat 4	1820.304585

```
In [231]: strava.athlete_weight
Out[231]:
0         NaN
1         NaN
2         NaN
3         NaN
4         NaN
5         NaN
6         NaN
7         NaN
8         NaN
9         NaN
10        NaN
11        NaN
12        NaN
13        NaN
14        NaN
15        NaN
16        NaN
17        NaN
18        NaN
19        NaN
20        NaN
21        NaN
22        NaN
23        NaN
24        NaN
25        NaN
26        NaN
27        NaN
28        NaN
29        NaN
```