

```
In [2]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
path = '/Users/mateotoic/Desktop/ProjektR/Godina/2022/zones_20_year
zone = pd.read_csv(path)
```

```
In [6]: zone['timestamp'] = pd.to_datetime(zone['timestamp'])

piv = zone.pivot_table(index='timestamp',
                        columns='zone_id',
                        values='zone_fan_speed',
                        aggfunc='first')

# Sortiramo po vremenu
piv = piv.sort_index()

# Popunimo nedostajuće vrijednosti posljednjim poznatim (forward fill)
piv = piv.ffill()

# Izračunaj gdje se dogodi bilo kakva promjena fan speeda u bilo kojoj zoni
changes_any_zone = piv.diff().ne(0).any(axis=1)

# Grupiramo redove po segmentima bez promjena:
piv['segment_id'] = changes_any_zone.cumsum()

# Sada možemo za svaki segment pronaći početni i završni timestamp
segments = piv.groupby('segment_id', as_index=False).agg(
    start_time = ('segment_id', lambda x: x.index[0]),
    end_time    = ('segment_id', lambda x: x.index[-1])
)

# Izračunamo trajanje segmenta
segments['duration'] = segments['end_time'] - segments['start_time']

# Zadržimo samo segmente dulje ili jednake 1 sat
segments_1h = segments[segments['duration'] >= pd.Timedelta(hours=1)]

# Ispišimo rezultat
print(segments_1h)

segments_1h.to_csv("segmenti_bez_promjena_fan_speeda.csv", index=False)
```

ime \	segment_id	start_time	end_t
99	100	2022-01-01 08:42:06.898637	2022-01-01 15:46:07.553
826			
112	113	2022-01-01 17:13:06.790711	2022-01-02 02:30:05.477
031			
134	135	2022-01-02 05:32:06.119525	2022-01-02 22:18:05.832
911			
342	343	2022-01-03 11:51:07.136362	2022-01-03 13:16:06.515
675			
344	345	2022-01-03 13:19:06.558292	2022-01-03 15:54:07.367
885			
...	
...			
84752	84753	2022-12-29 20:02:05.606225	2022-12-30 05:31:05.769
237			
85168	85169	2022-12-30 20:02:05.733032	2022-12-31 05:31:05.755
040			
85235	85236	2022-12-31 09:39:05.581158	2022-12-31 15:07:05.675
346			
85236	85237	2022-12-31 15:08:06.253534	2022-12-31 16:15:05.981
216			
85239	85240	2022-12-31 17:02:06.300389	2022-12-31 23:59:05.777
610			

	duration
99	0 days 07:04:00.655189
112	0 days 09:16:58.686320
134	0 days 16:45:59.713386
342	0 days 01:24:59.379313
344	0 days 02:35:00.809593
...	...
84752	0 days 09:29:00.163012
85168	0 days 09:29:00.022008
85235	0 days 05:28:00.094188
85236	0 days 01:06:59.727682
85239	0 days 06:56:59.477221

[811 rows x 4 columns]