

```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
from astropy.stats.circstats import circmean
from functools import reduce
import datetime
import pickle
import time
import plotly.express as px
import numpy as np
import sqlite3
```

```
pd.set_option("display.precision", 2)
plt.rcParams.update({'font.size': 20, 'figure.figsize': (8, 4)})

%matplotlib inline
import matplotlib_inline
matplotlib_inline.backend_inline.set_matplotlib_formats('svg')

import seaborn as sns
sns.set()

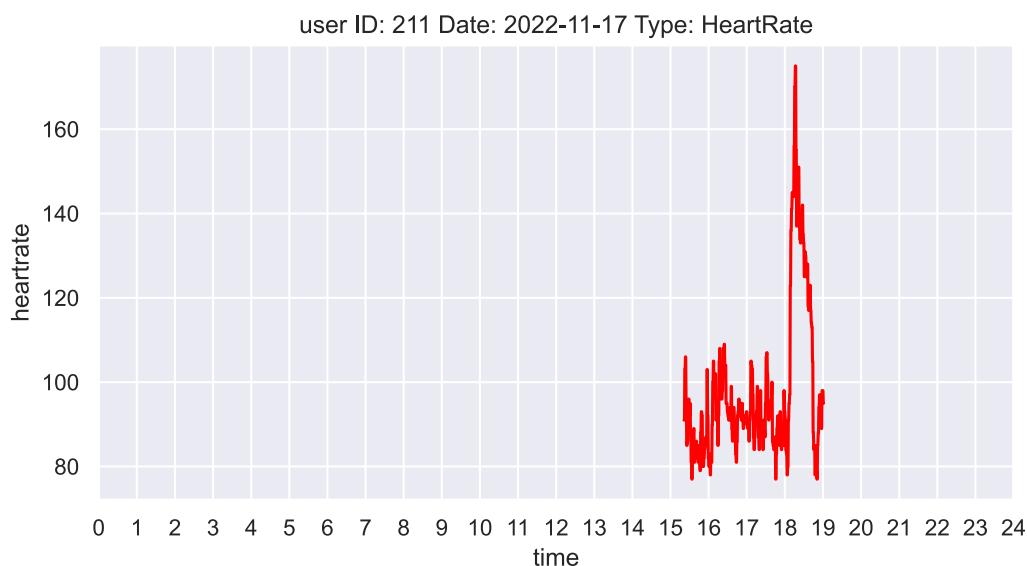
import warnings
warnings.filterwarnings('ignore')
```

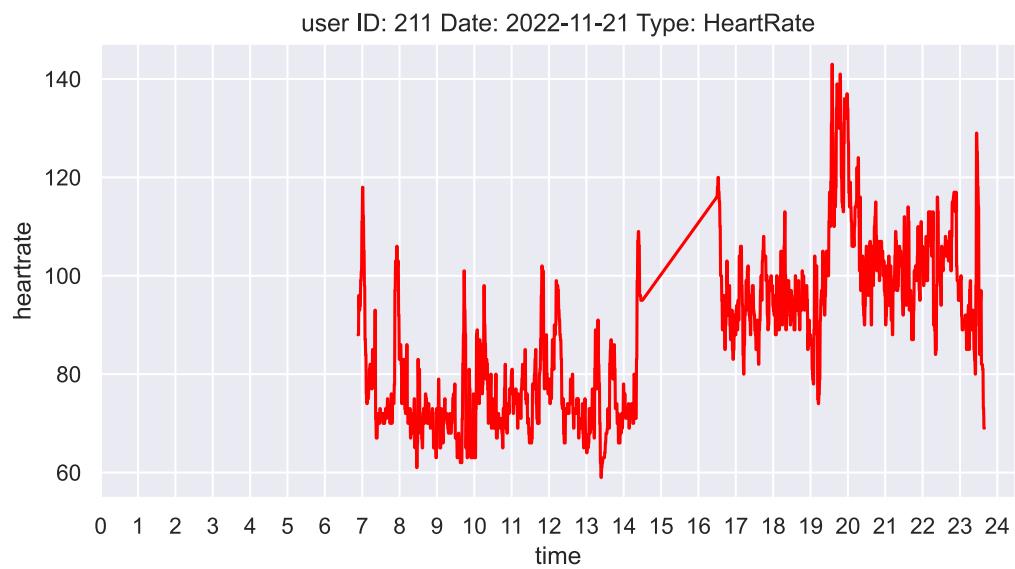
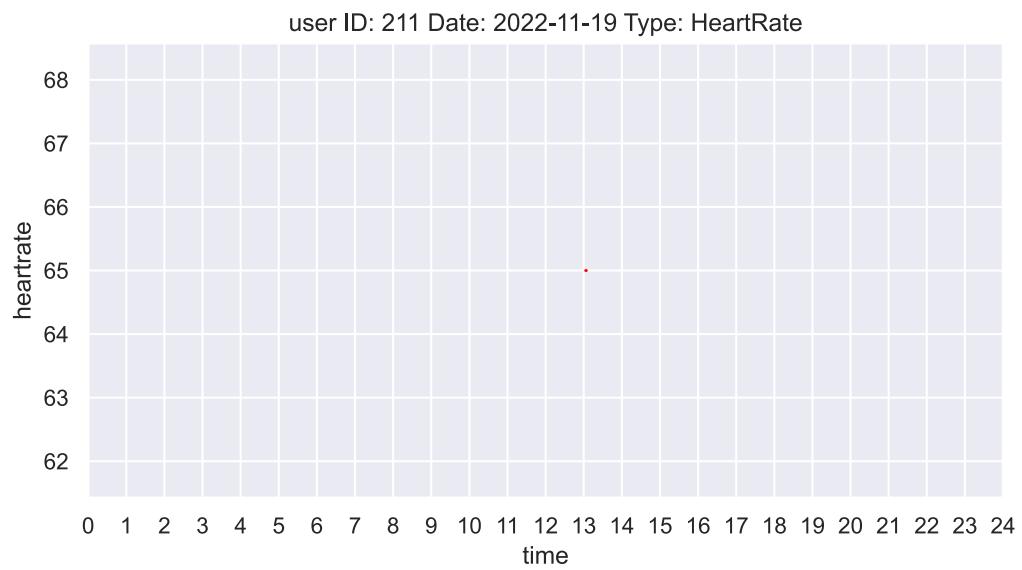
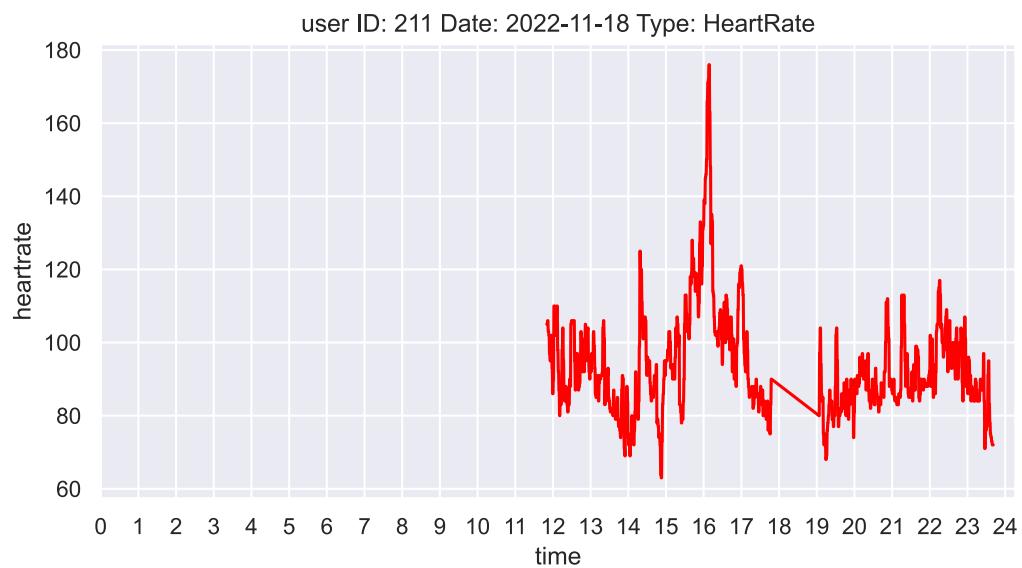
```
In [2]: connector = sqlite3.connect("../Extras/graphs_data.db")
cursor = connector.cursor()
```

## Heart Rate graphs printer

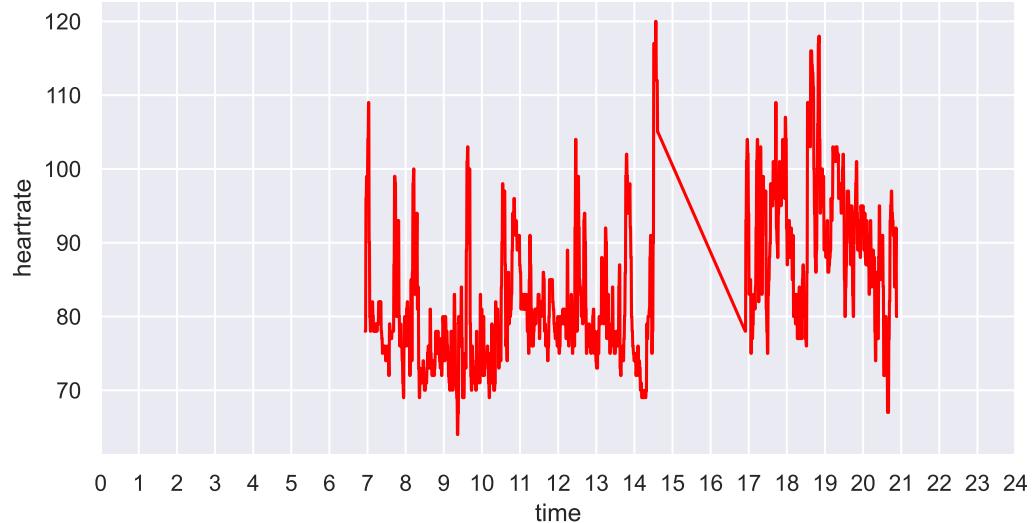
```
In [8]: cursor.execute("SELECT * FROM heartrate_graphs_data WHERE id=211")
rows = cursor.fetchall()
for row in rows:
    #getting heartrate samples from dataframe
    heartrate_samples_dict = pickle.loads(row[3])
    heartrate_dict_keys = list(heartrate_samples_dict.keys())
    heartrate_dict_values = list(heartrate_samples_dict.values())
    heartrate_samples_df = pd.DataFrame({'time':heartrate_dict_keys, 'heartrate':heartrate_dict_values})
    #preparing plot title name
    plot_title_name = 'user ID: '+str(row[0])+' Date: '+str(row[1])+' Type: '+str(row[2])
    #creating lineplot
    sns.lineplot(x='time', y='heartrate', data=heartrate_samples_df, color='red')
    plt.title(plot_title_name)
    #configuring axis "x" bins
    plt.xticks(np.arange(0, 25, step=1))

    plt.show()
```

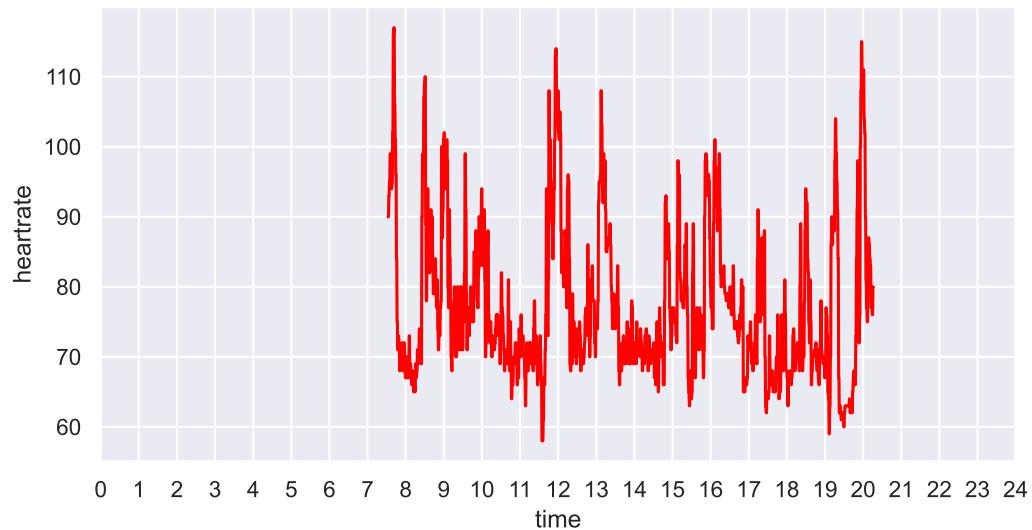




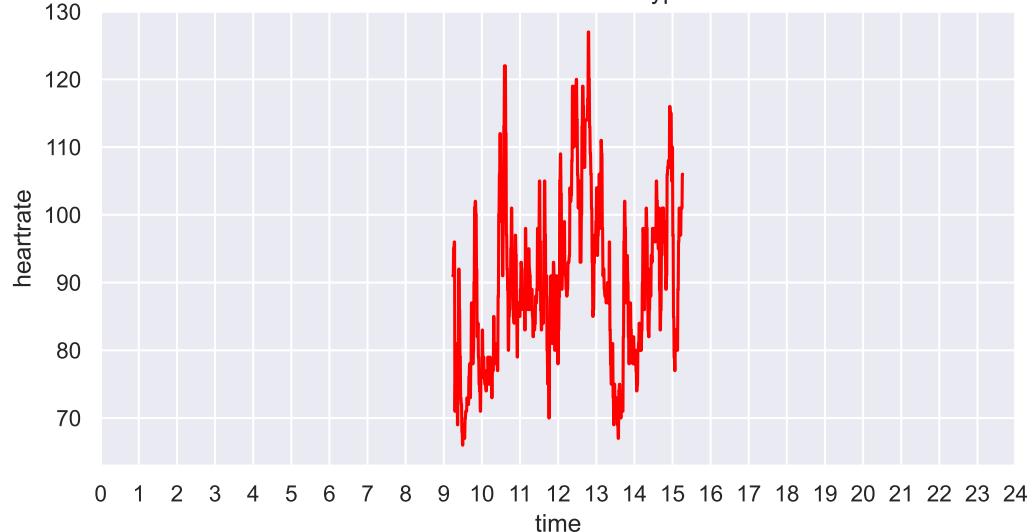
user ID: 211 Date: 2022-11-22 Type: HeartRate

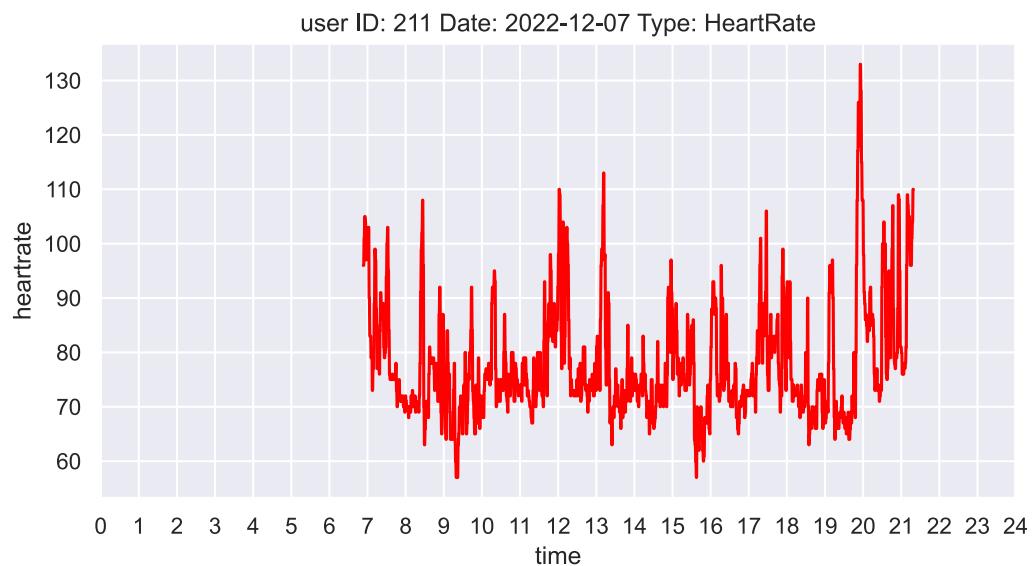
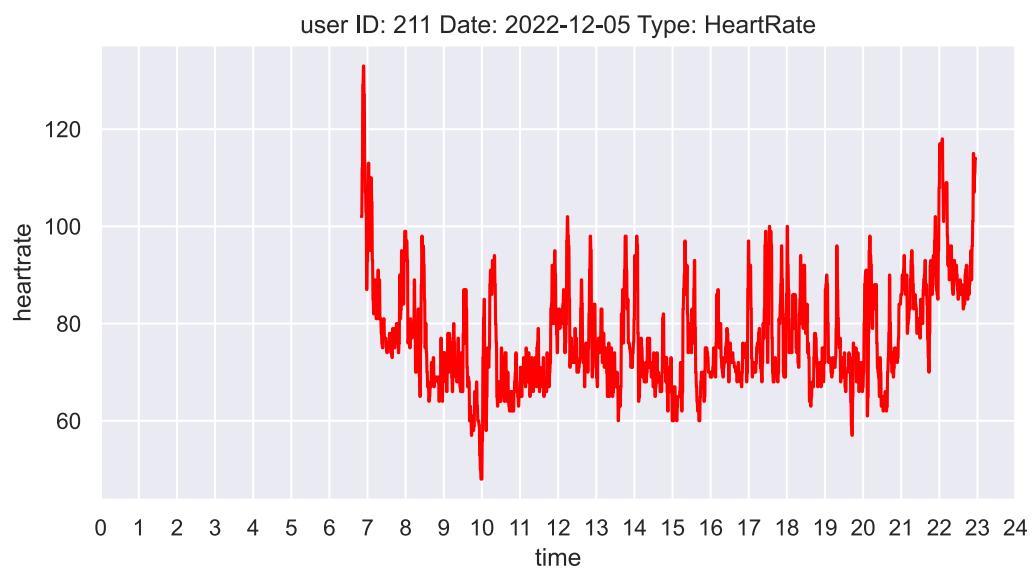
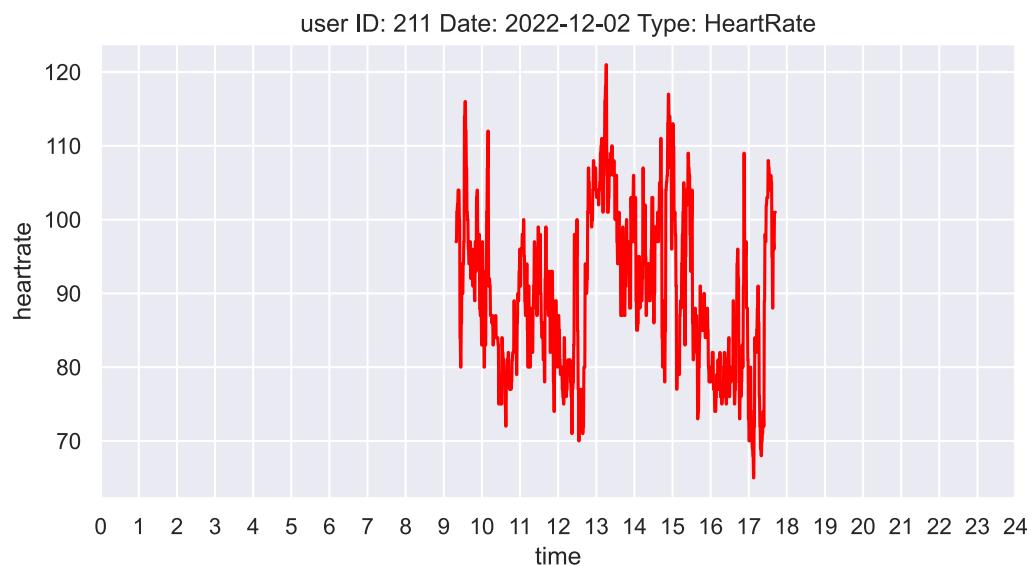


user ID: 211 Date: 2022-11-23 Type: HeartRate

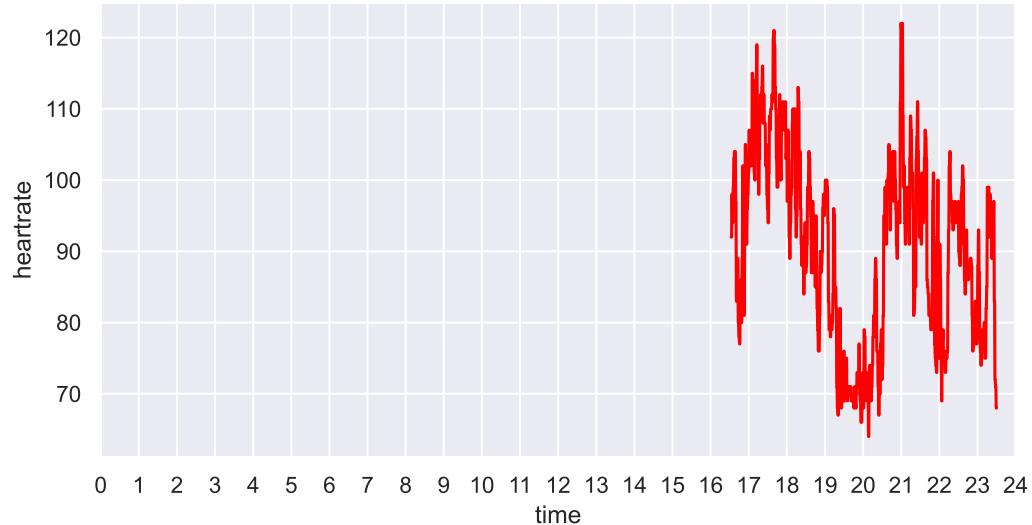


user ID: 211 Date: 2022-12-01 Type: HeartRate

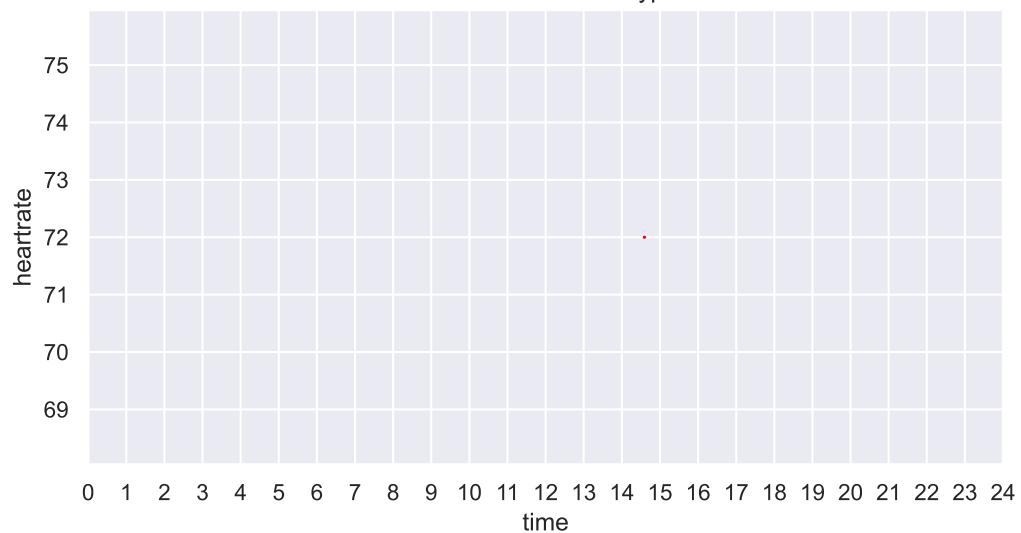




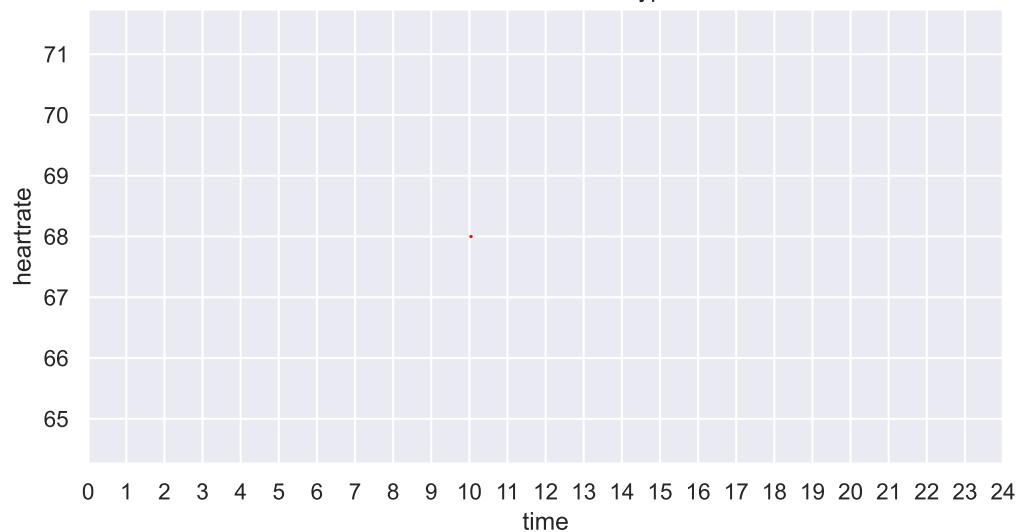
user ID: 211 Date: 2022-12-08 Type: HeartRate

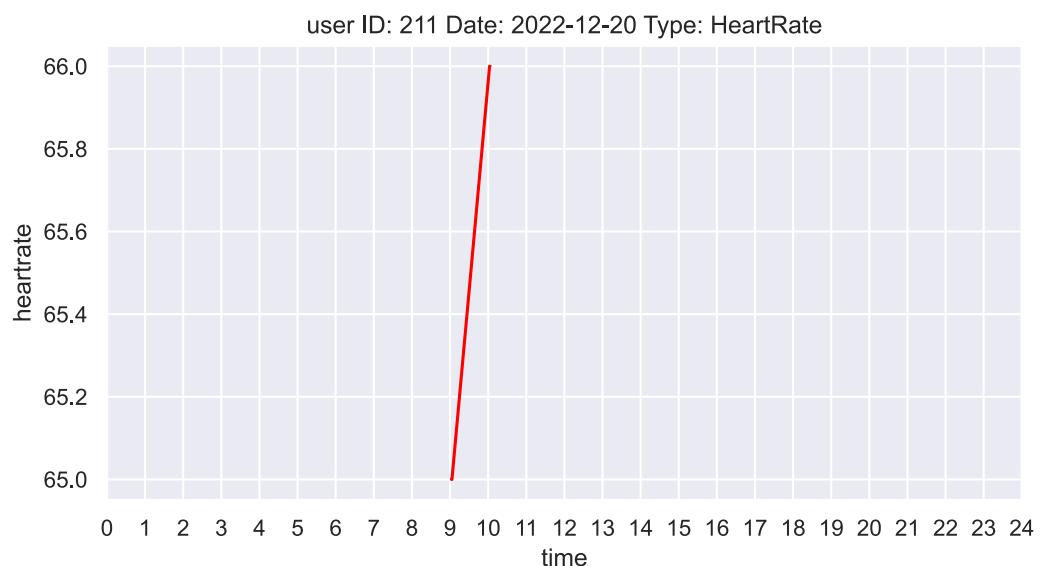
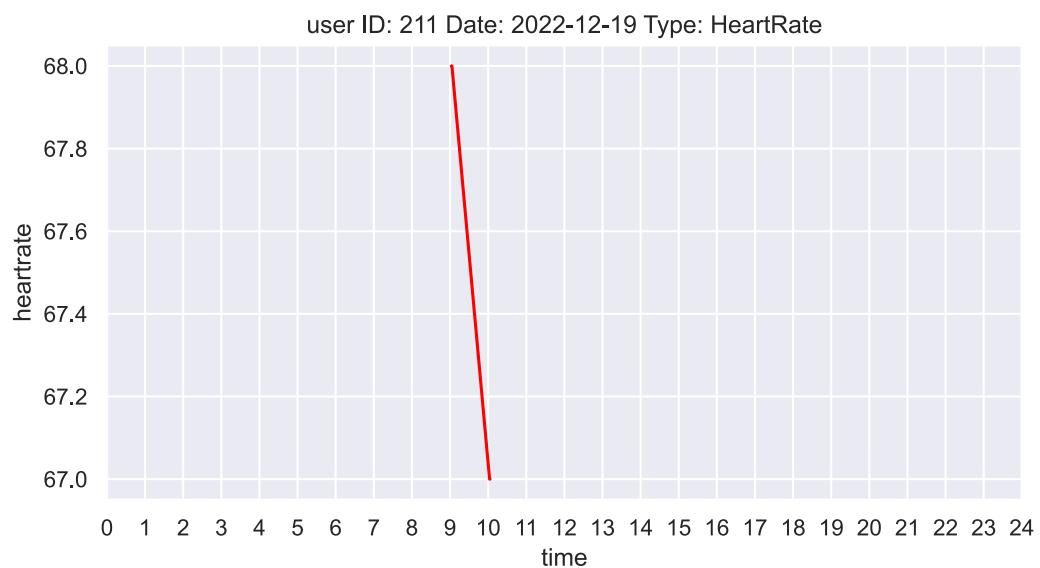
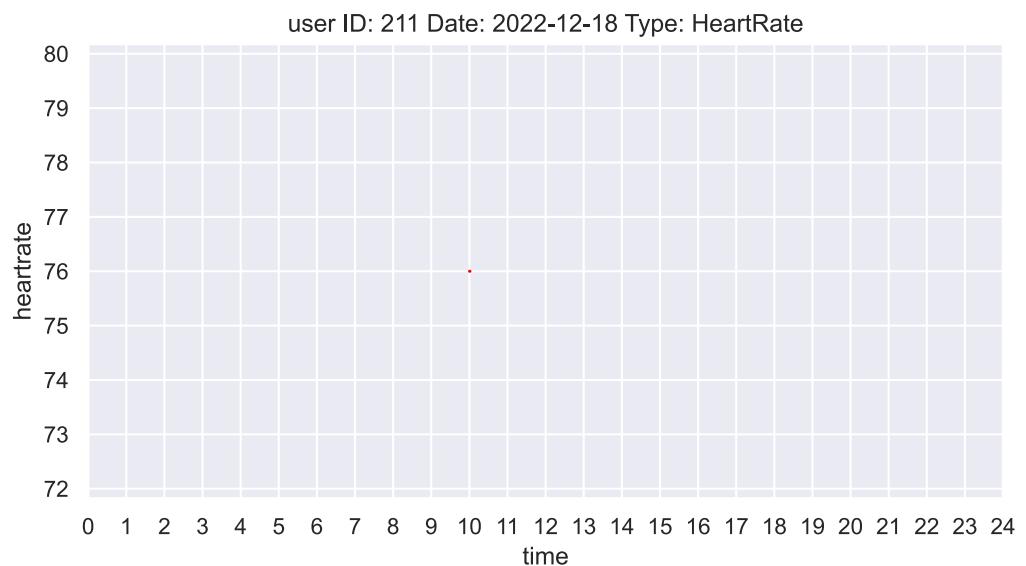


user ID: 211 Date: 2022-12-09 Type: HeartRate

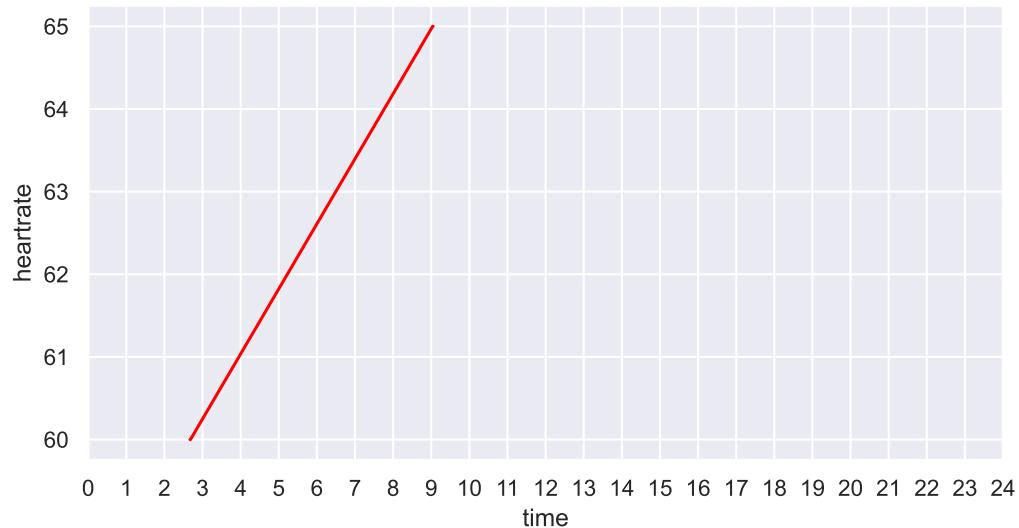


user ID: 211 Date: 2022-12-10 Type: HeartRate

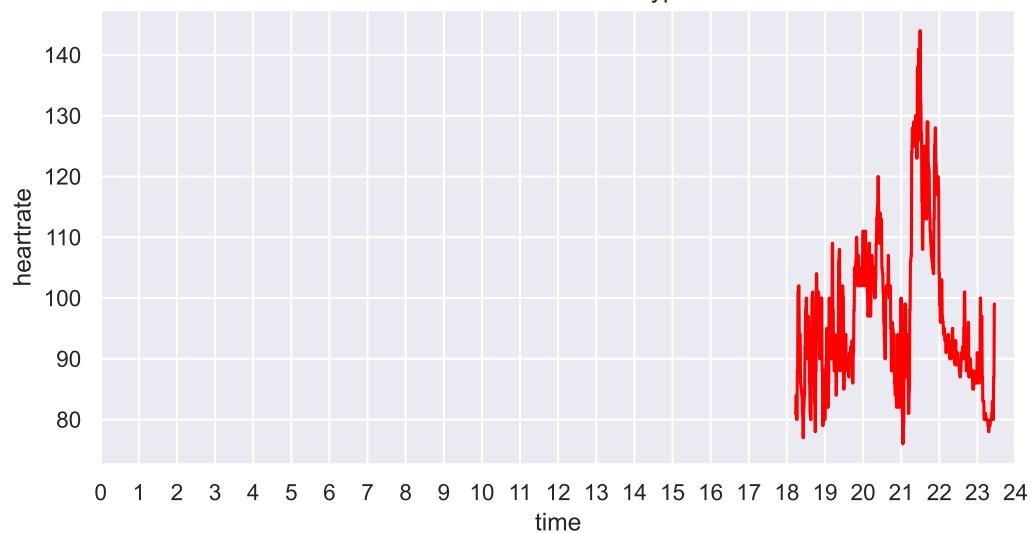




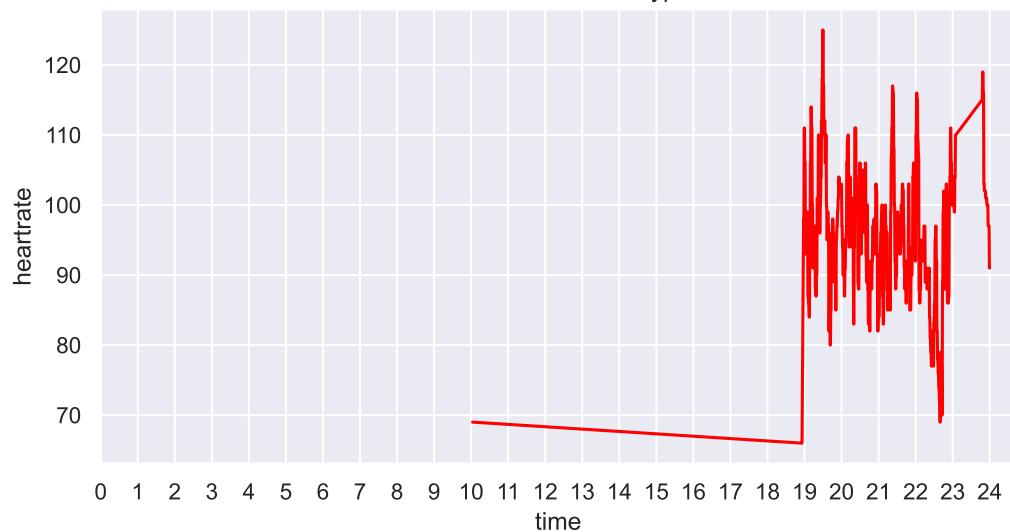
user ID: 211 Date: 2022-12-21 Type: HeartRate

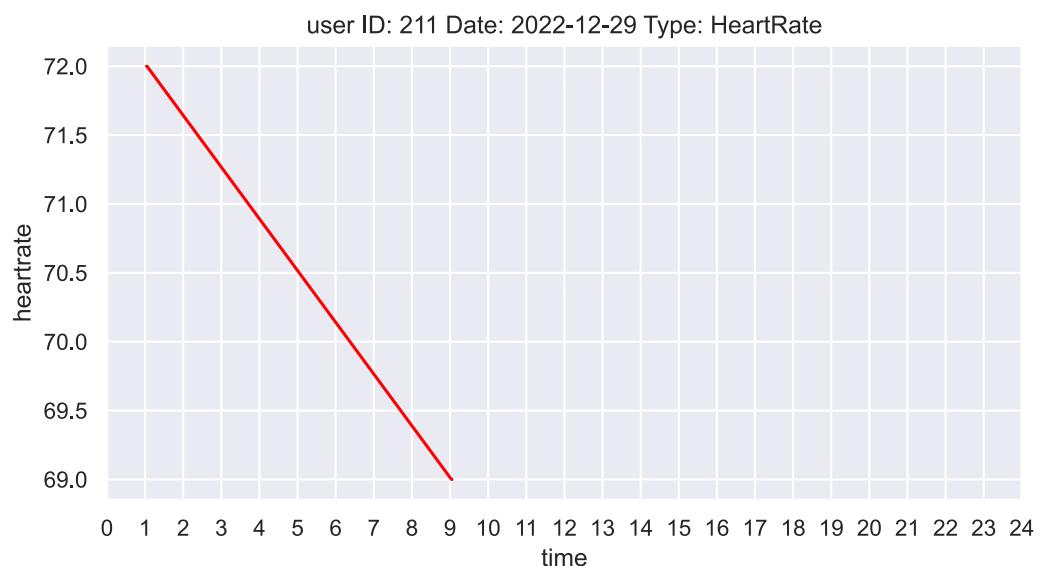
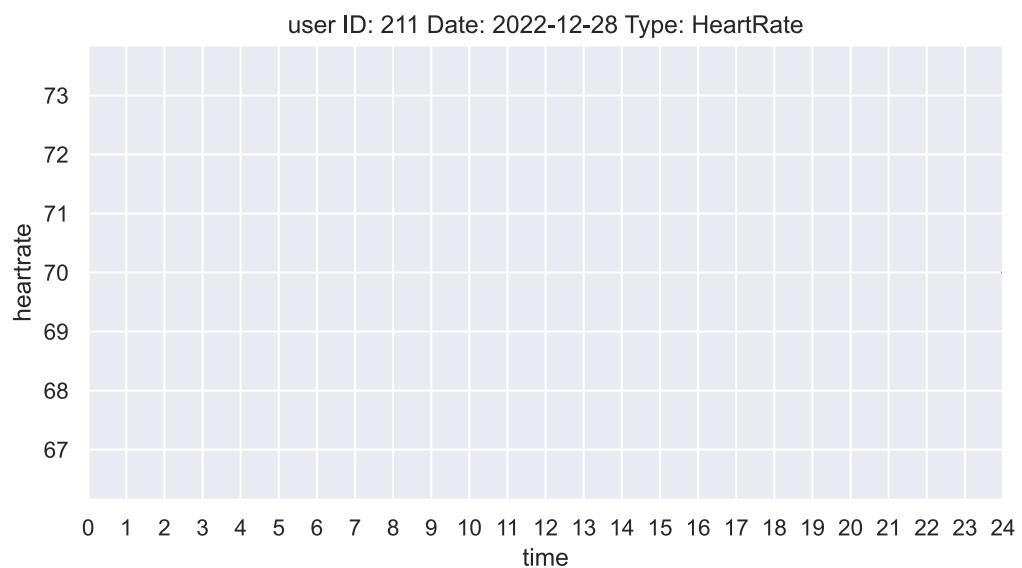
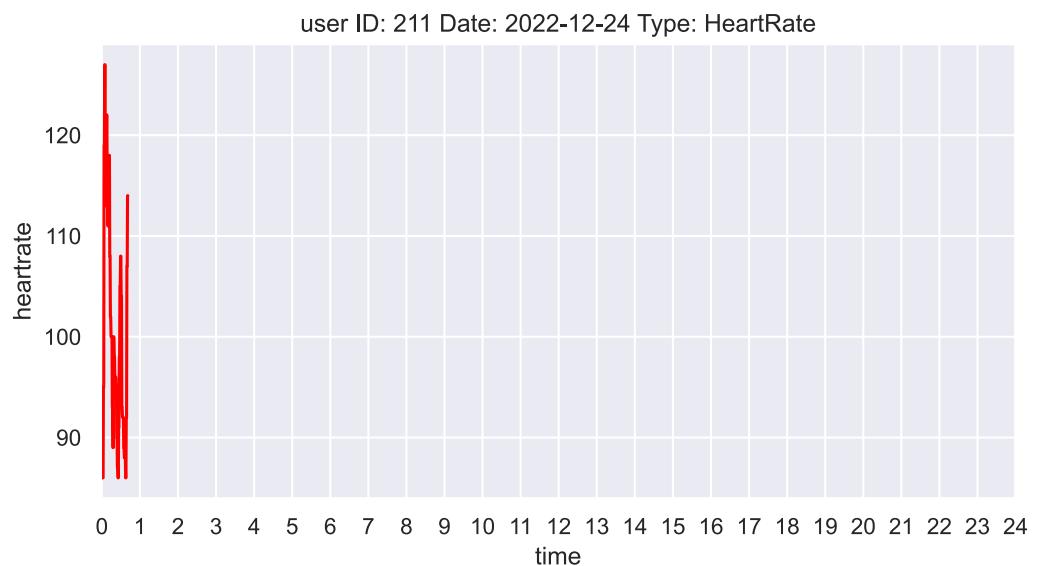


user ID: 211 Date: 2022-12-22 Type: HeartRate

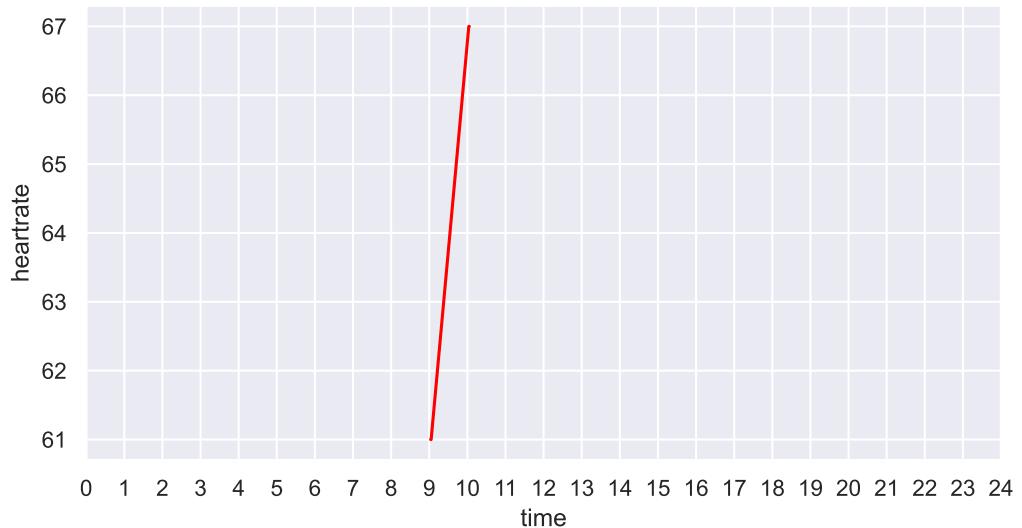


user ID: 211 Date: 2022-12-23 Type: HeartRate

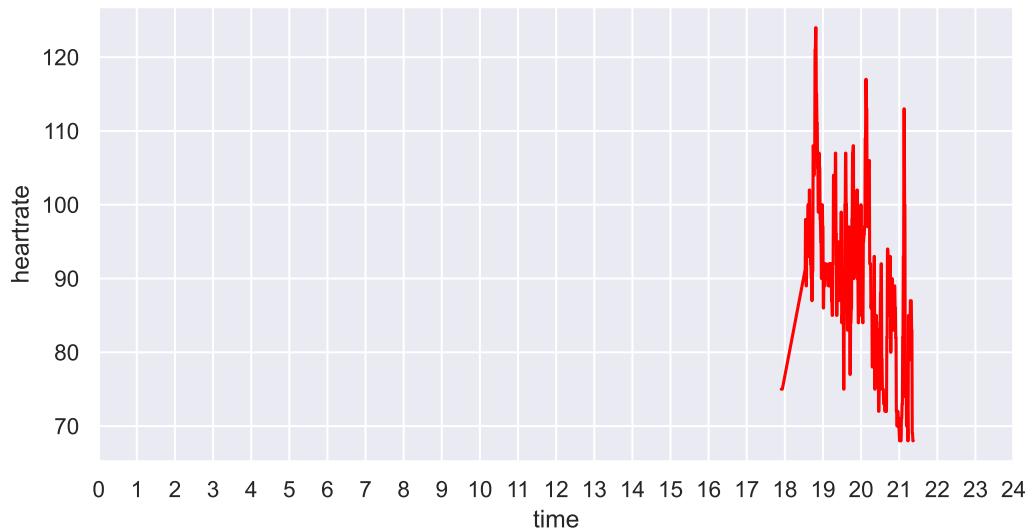




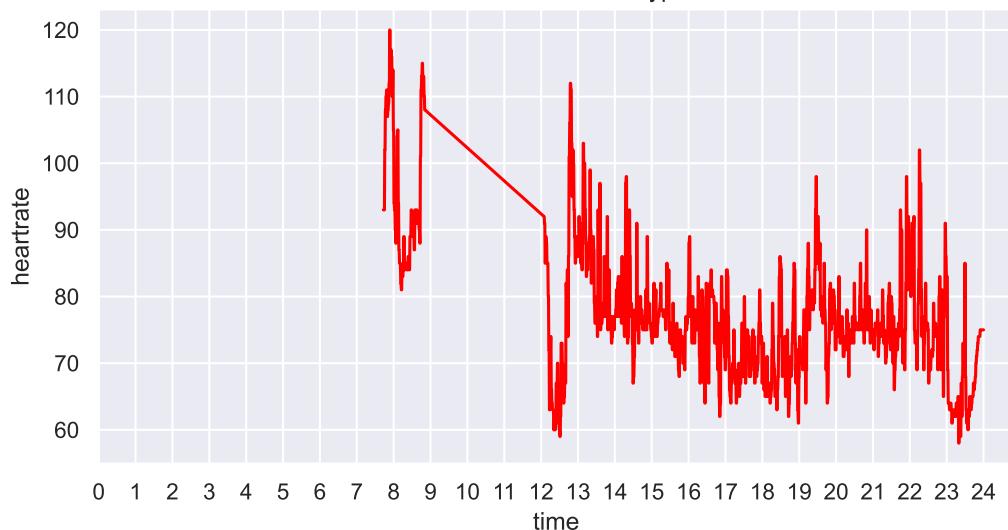
user ID: 211 Date: 2022-12-30 Type: HeartRate



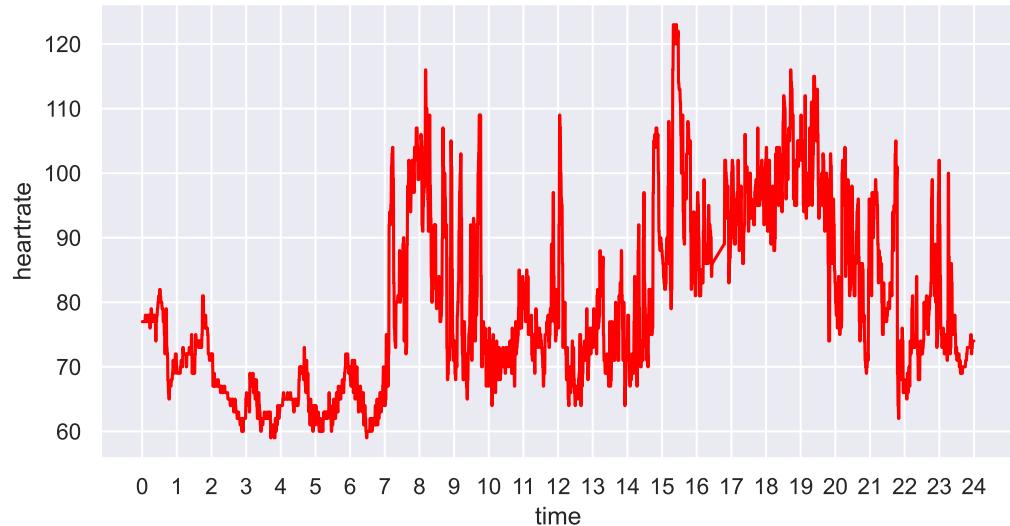
user ID: 211 Date: 2023-01-24 Type: HeartRate



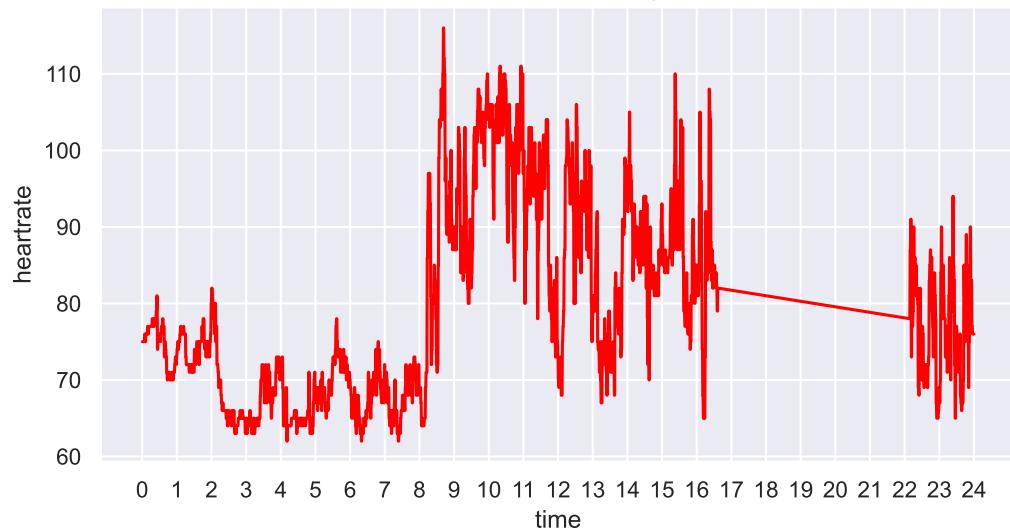
user ID: 211 Date: 2023-01-25 Type: HeartRate



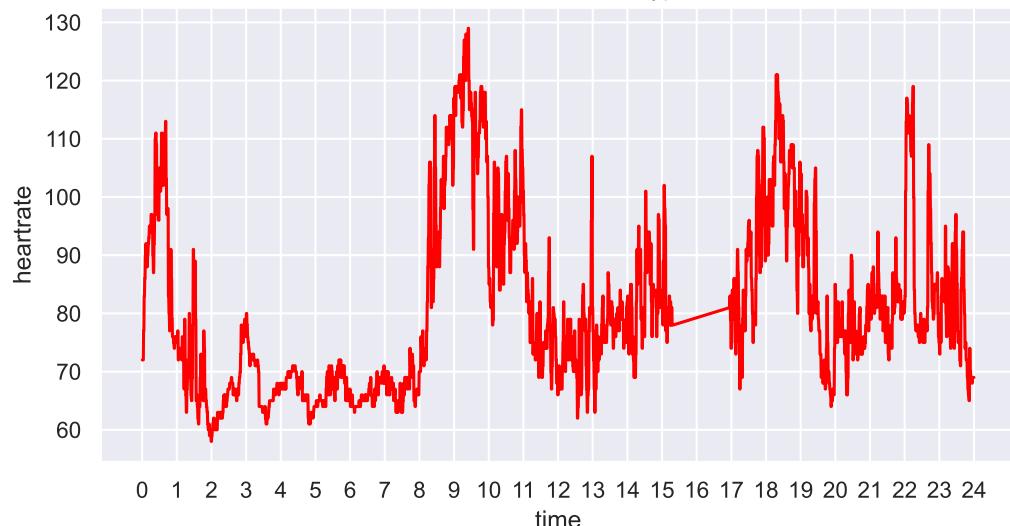
user ID: 211 Date: 2023-01-26 Type: HeartRate



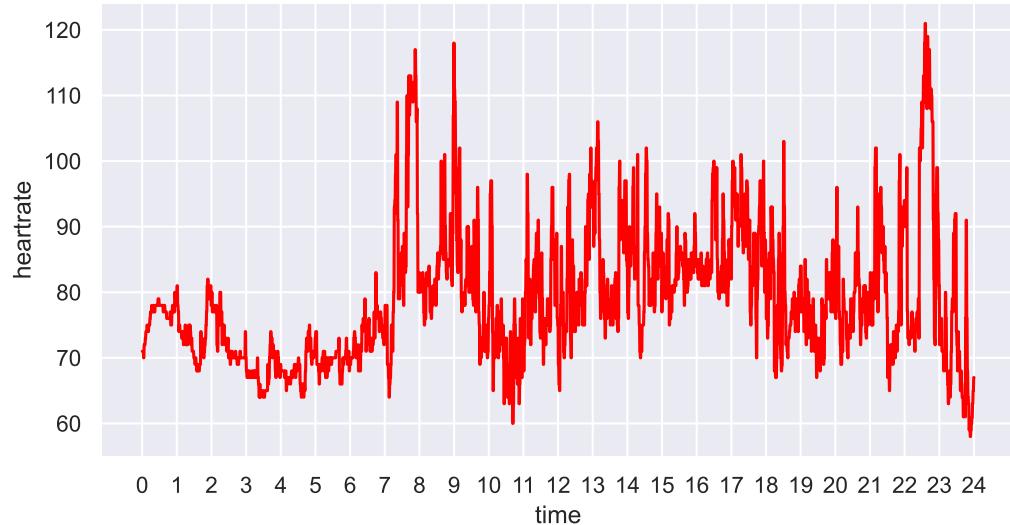
user ID: 211 Date: 2023-01-27 Type: HeartRate



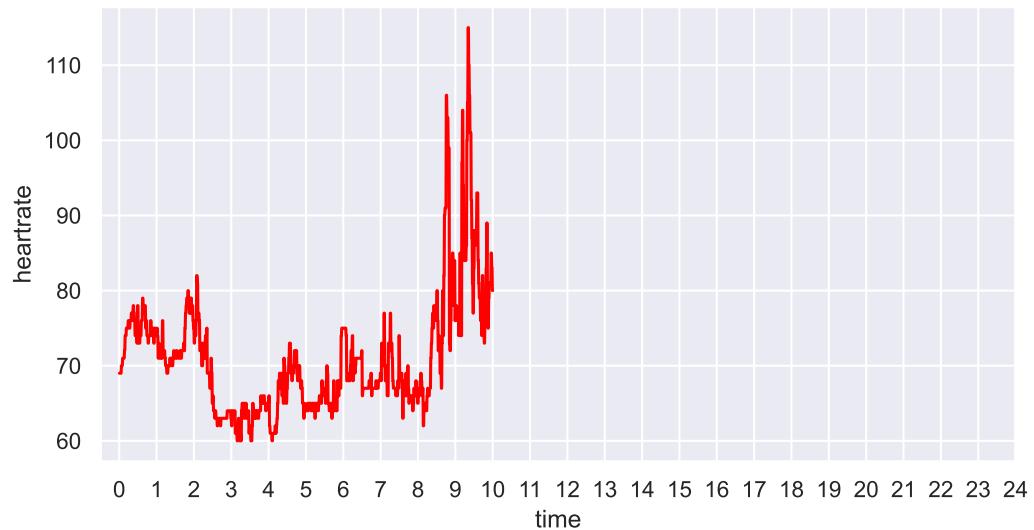
user ID: 211 Date: 2023-01-28 Type: HeartRate



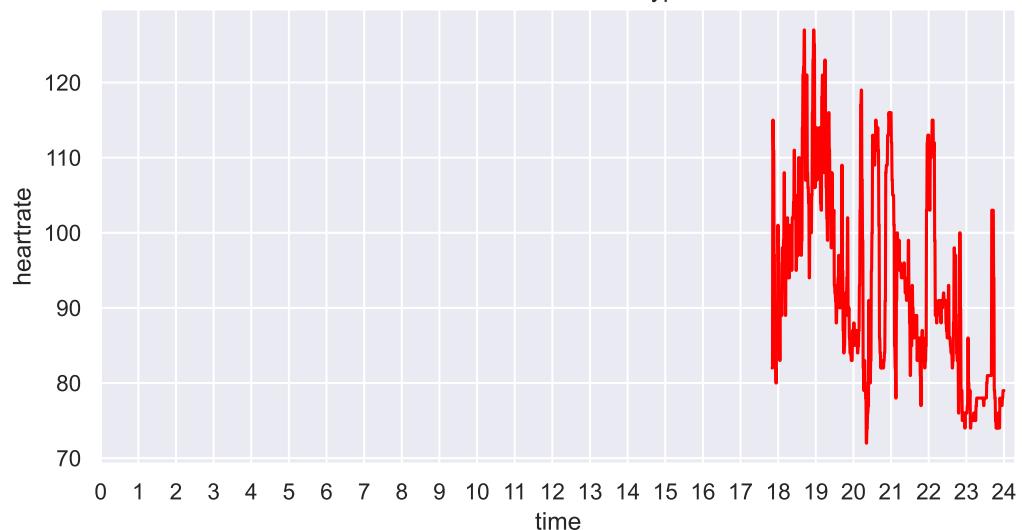
user ID: 211 Date: 2023-01-29 Type: HeartRate

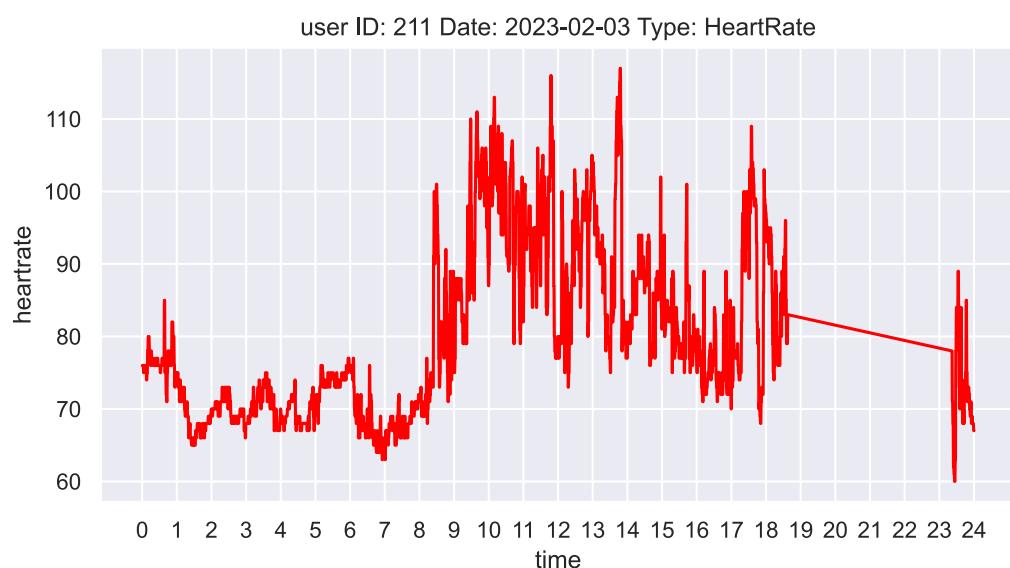
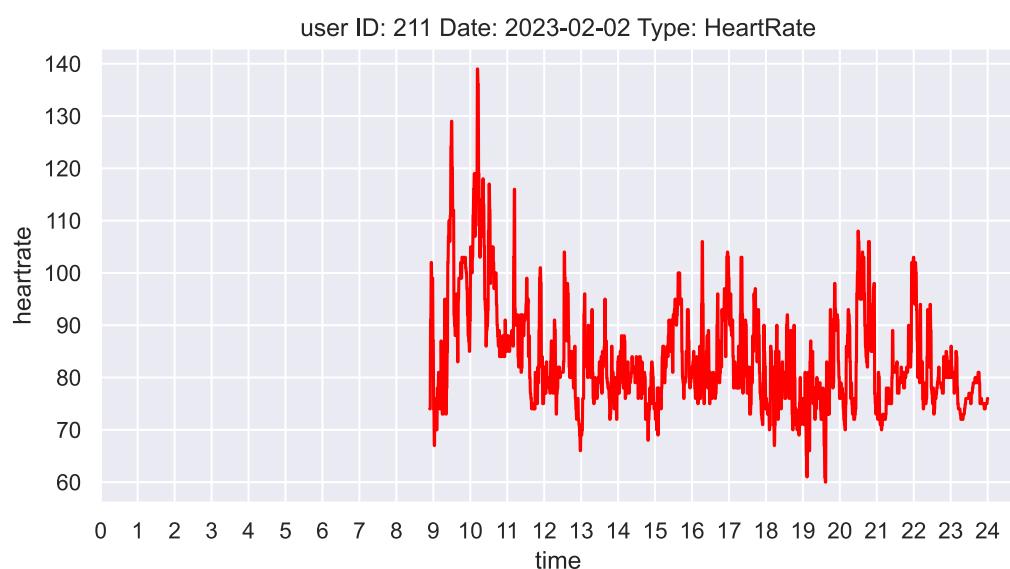
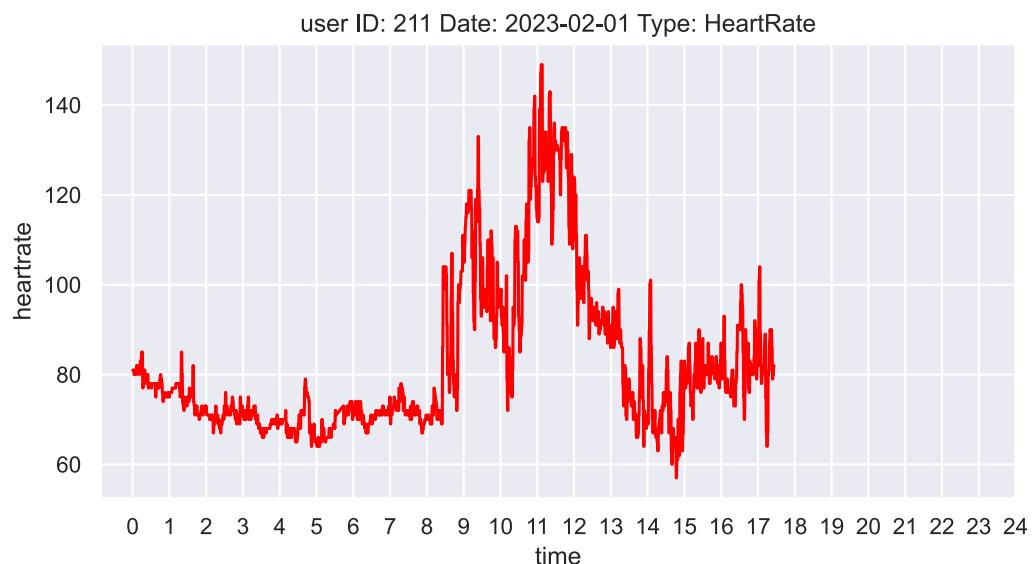


user ID: 211 Date: 2023-01-30 Type: HeartRate

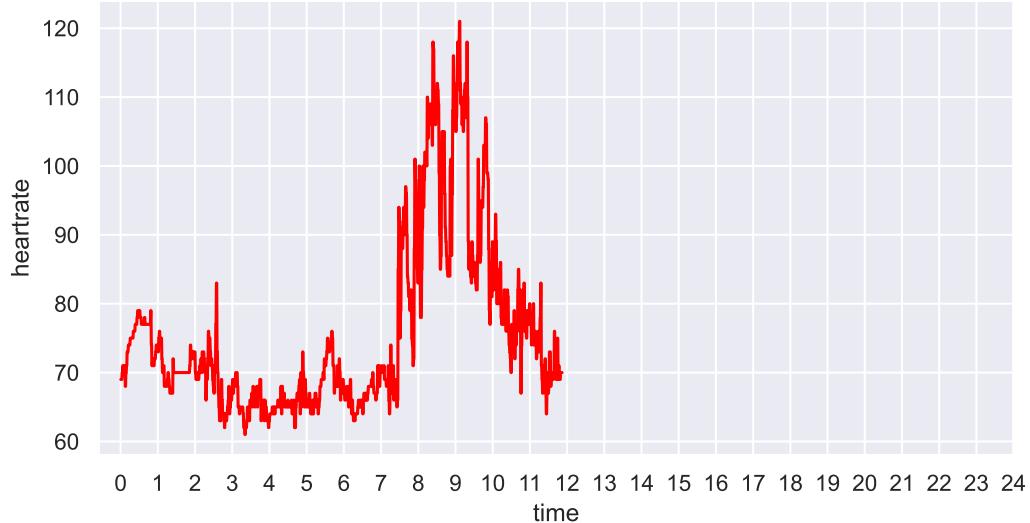


user ID: 211 Date: 2023-01-31 Type: HeartRate

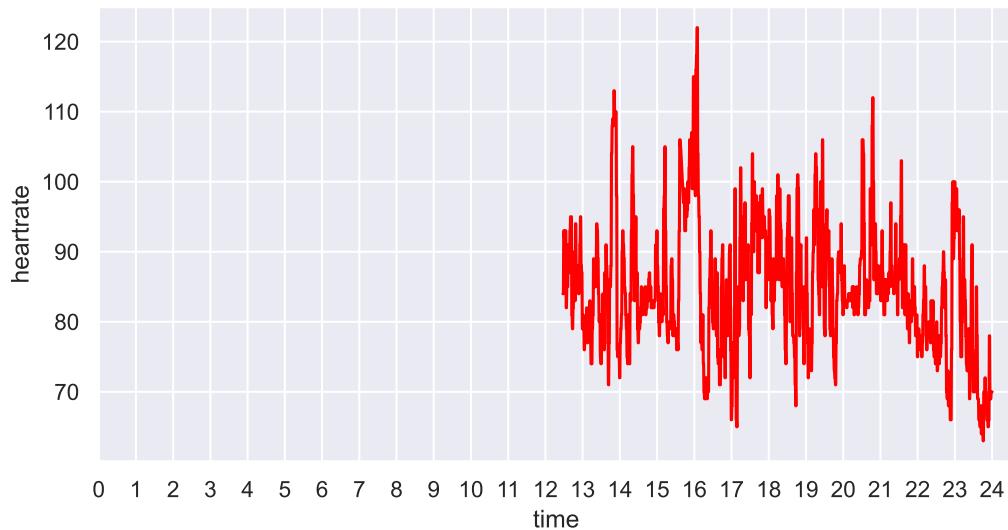




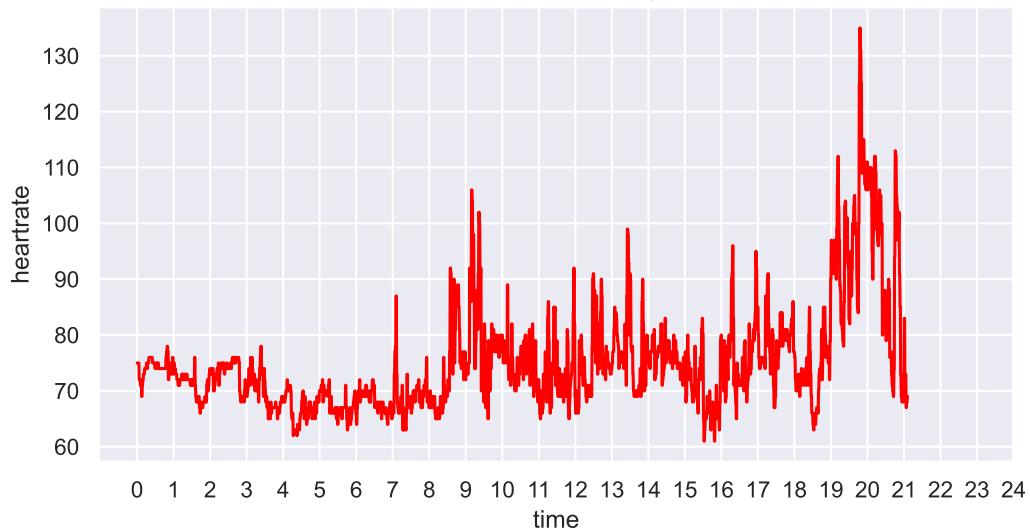
user ID: 211 Date: 2023-02-04 Type: HeartRate



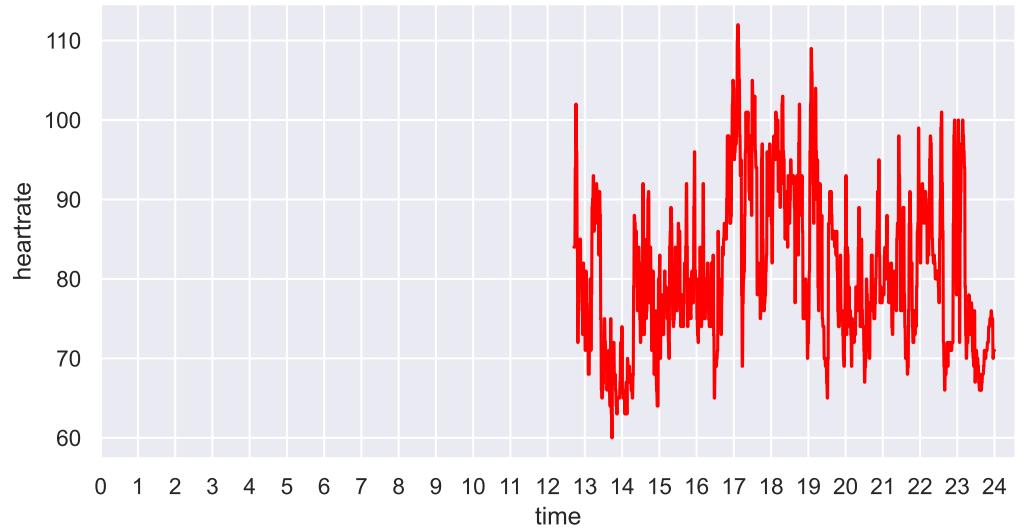
user ID: 211 Date: 2023-02-06 Type: HeartRate



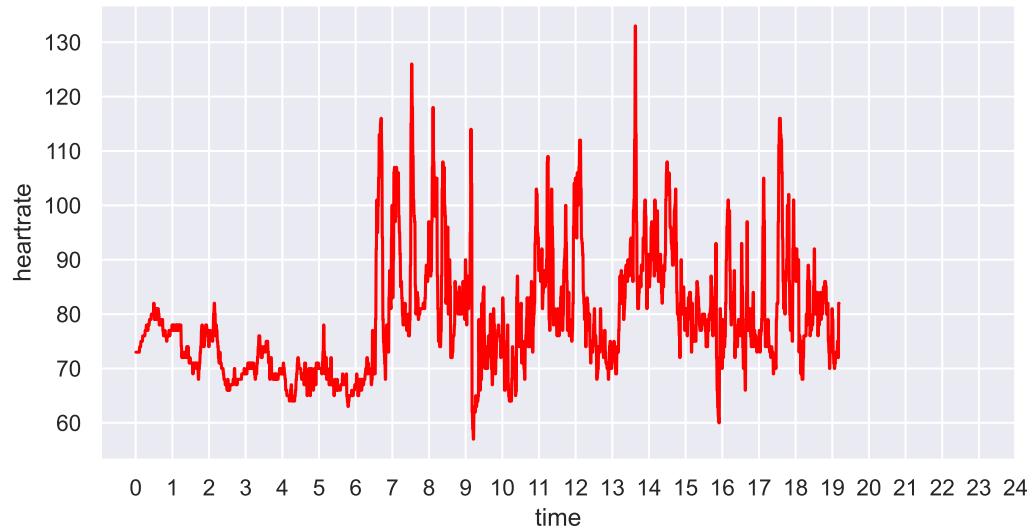
user ID: 211 Date: 2023-02-07 Type: HeartRate



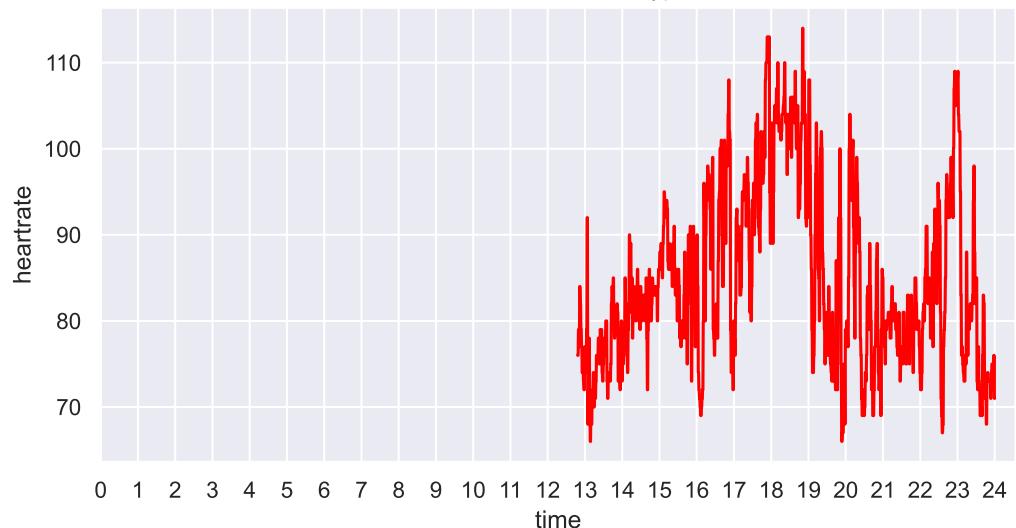
user ID: 211 Date: 2023-02-11 Type: HeartRate



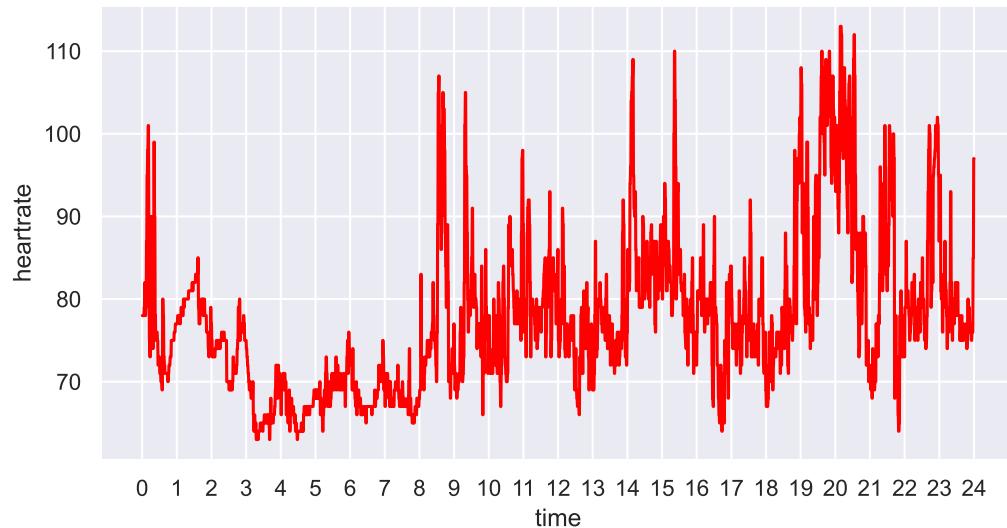
user ID: 211 Date: 2023-02-12 Type: HeartRate



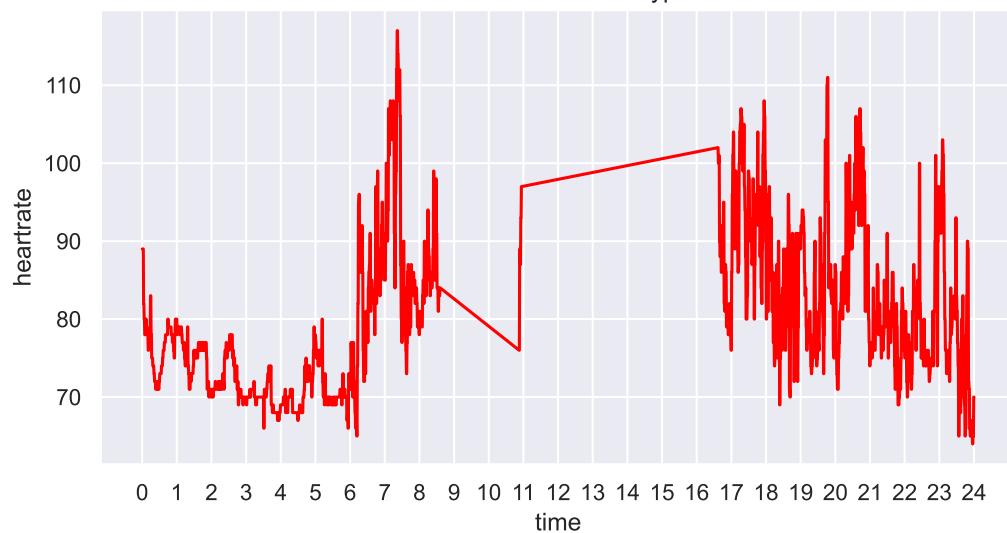
user ID: 211 Date: 2023-02-13 Type: HeartRate



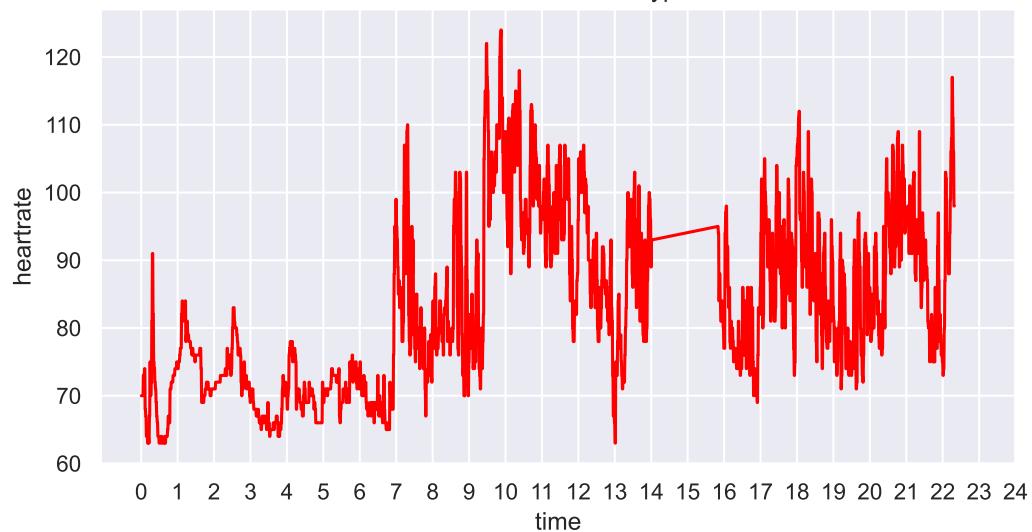
user ID: 211 Date: 2023-02-14 Type: HeartRate

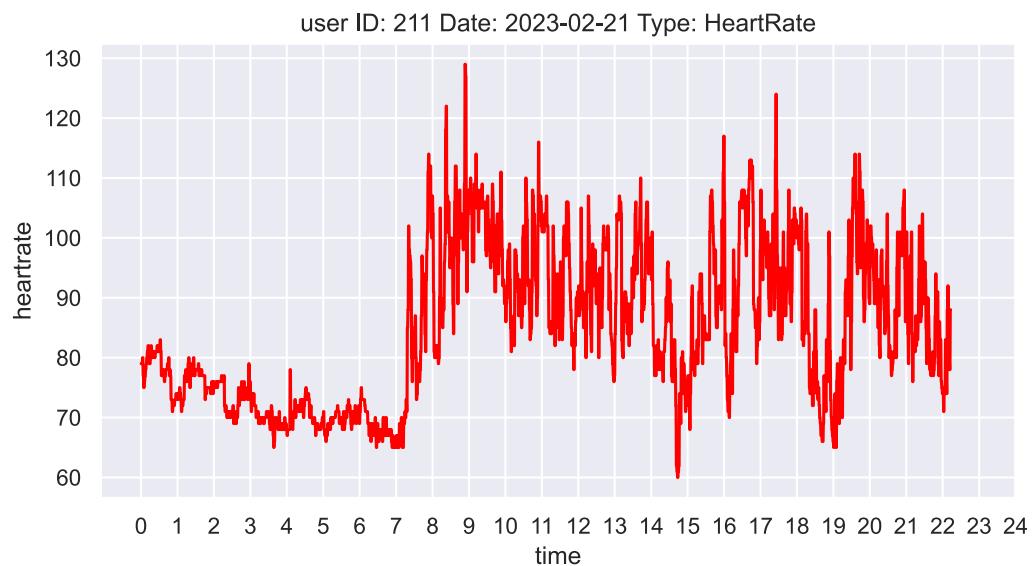
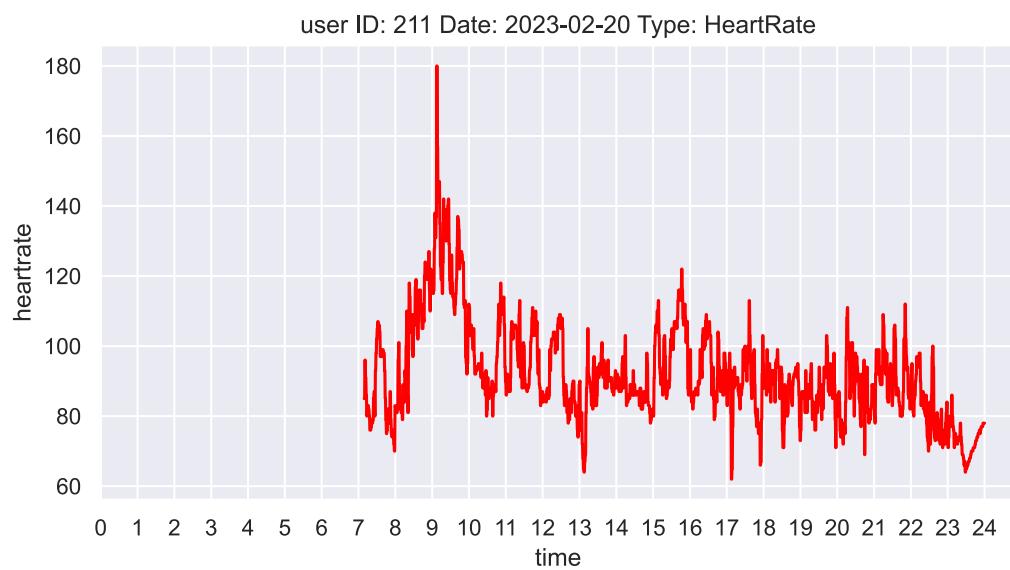
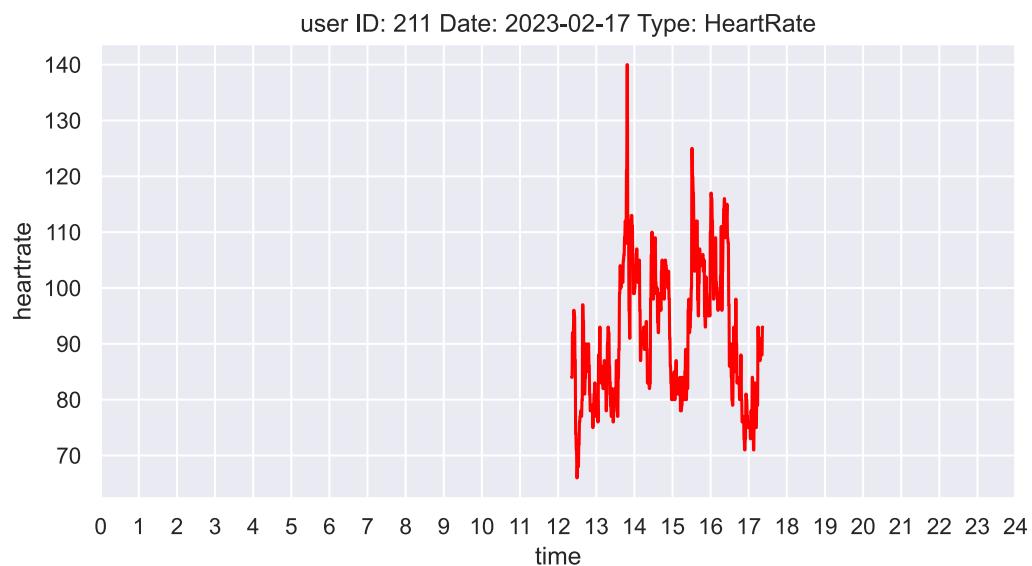


user ID: 211 Date: 2023-02-15 Type: HeartRate

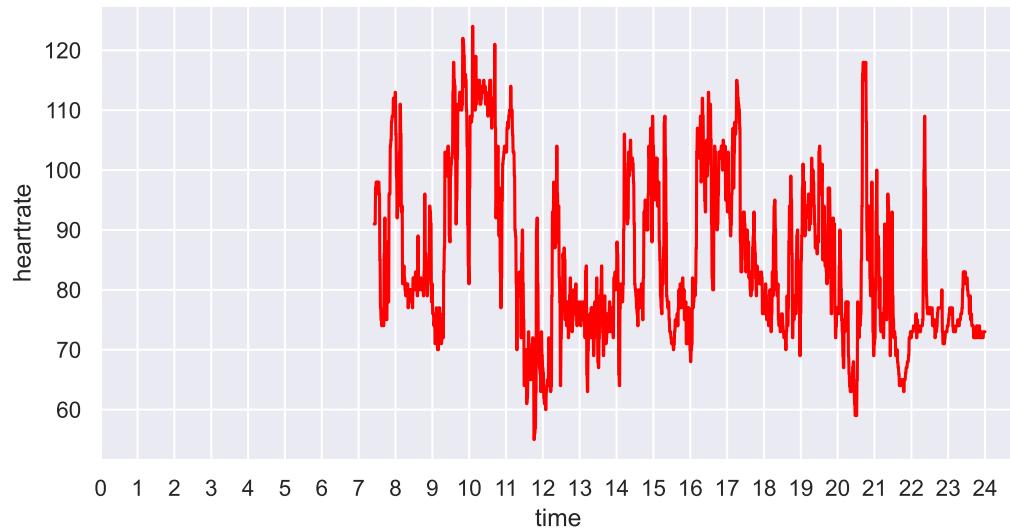


user ID: 211 Date: 2023-02-16 Type: HeartRate

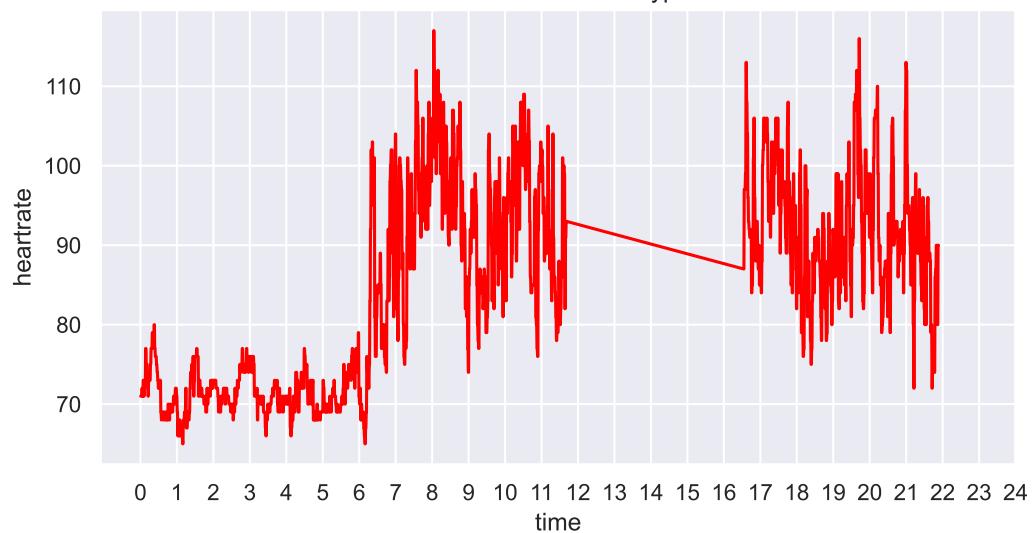




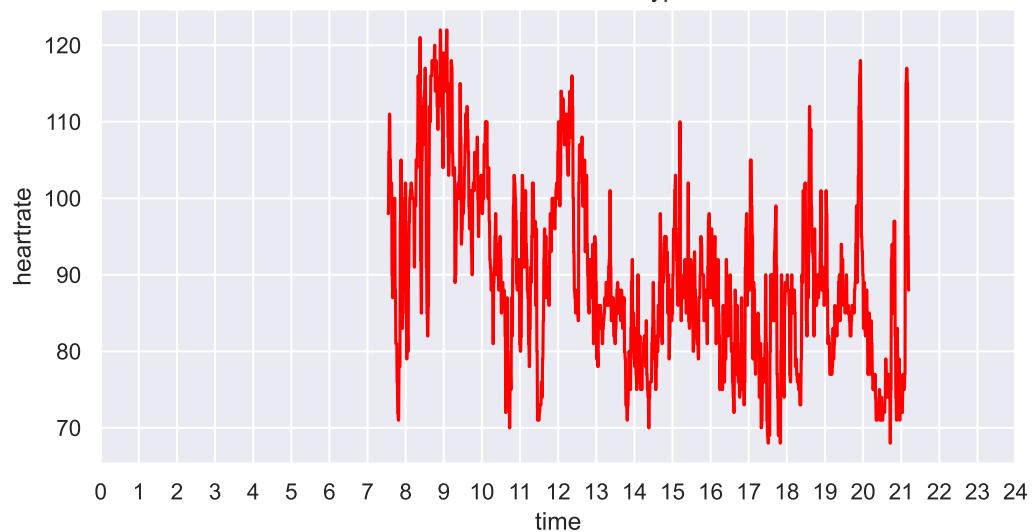
user ID: 211 Date: 2023-02-22 Type: HeartRate



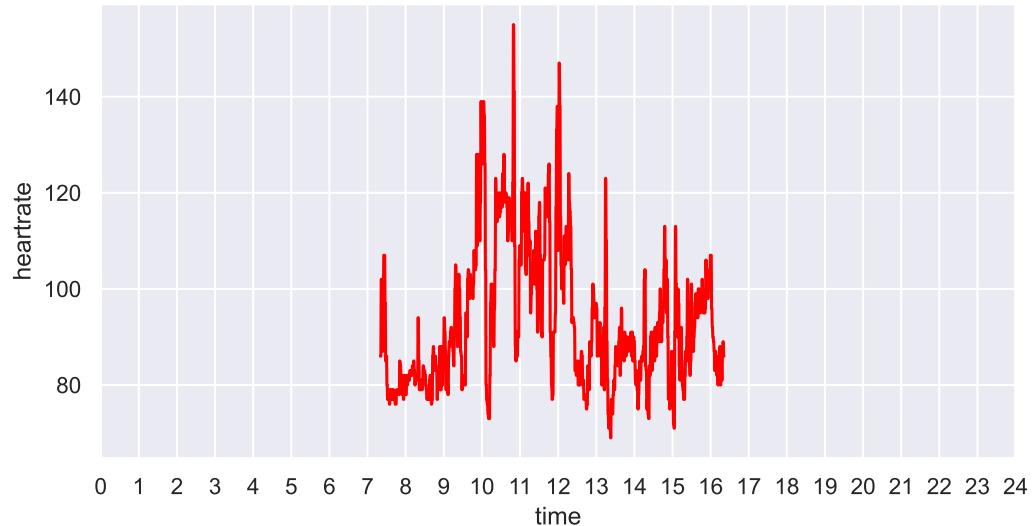
user ID: 211 Date: 2023-02-23 Type: HeartRate



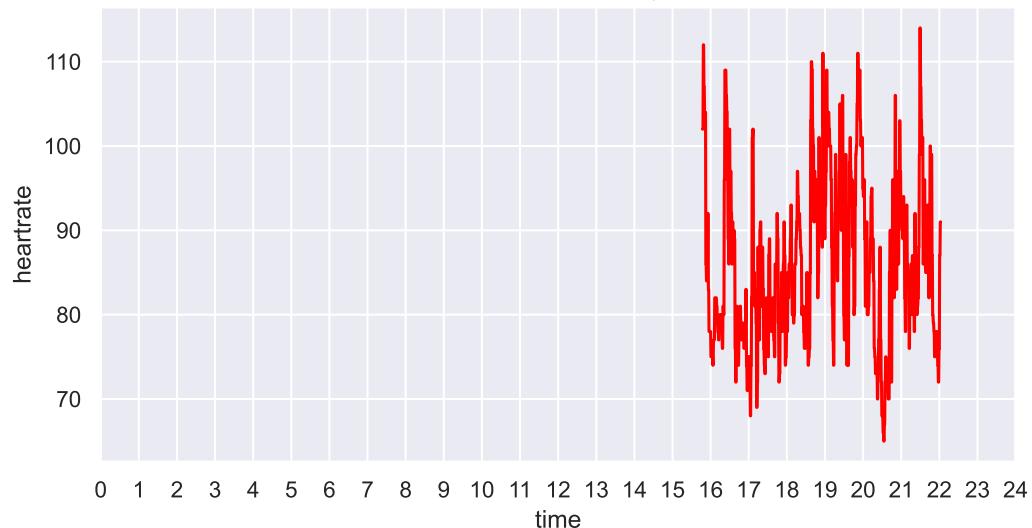
user ID: 211 Date: 2023-02-24 Type: HeartRate



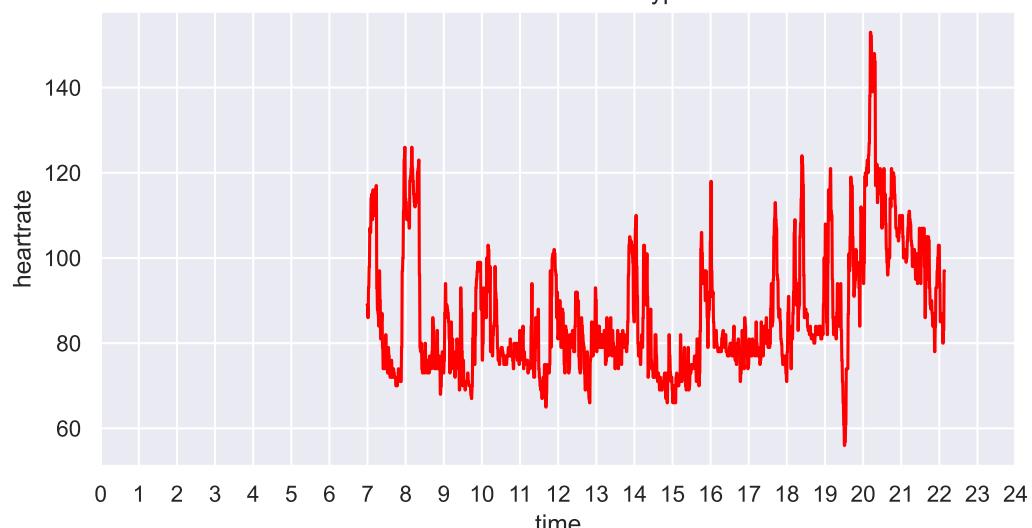
user ID: 211 Date: 2023-02-26 Type: HeartRate



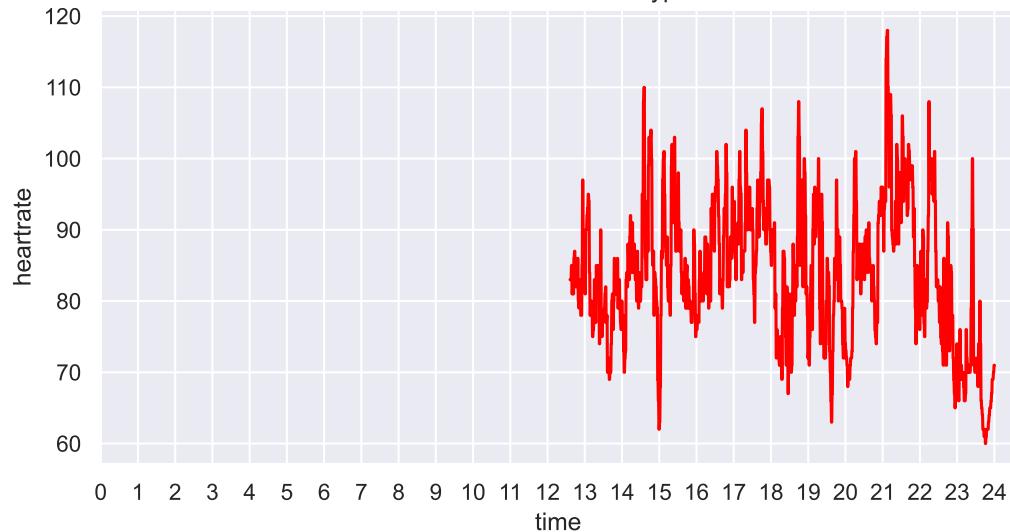
user ID: 211 Date: 2023-02-27 Type: HeartRate



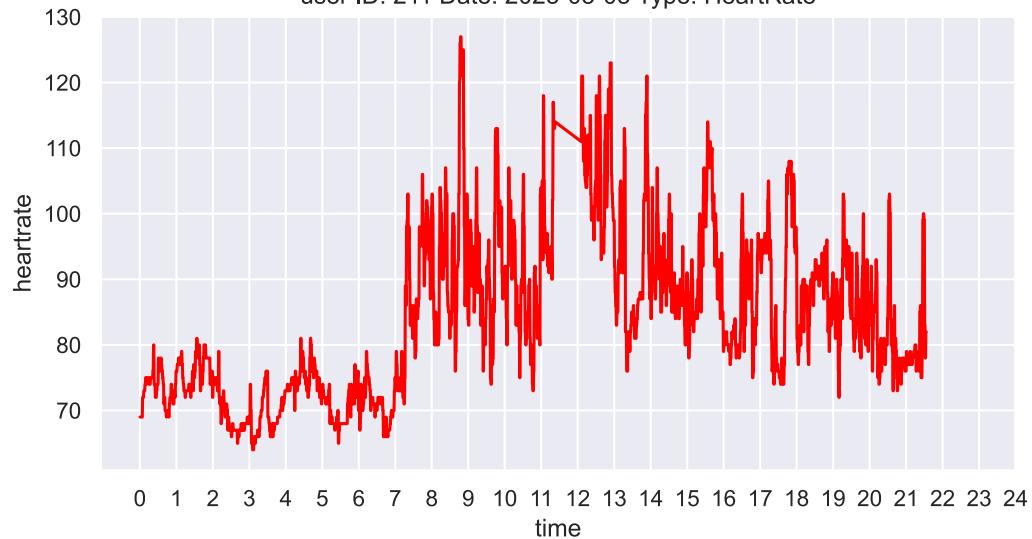
user ID: 211 Date: 2023-02-28 Type: HeartRate



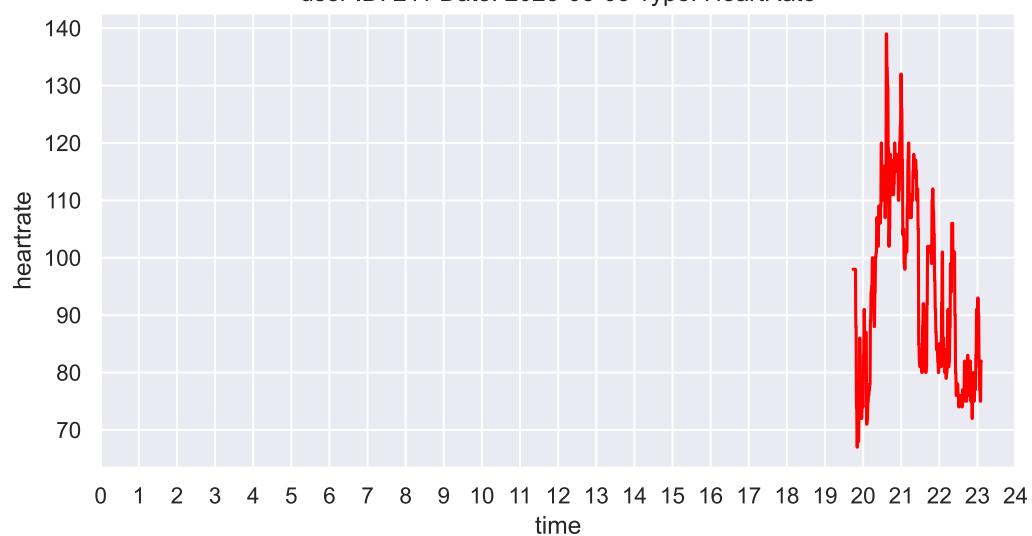
user ID: 211 Date: 2023-03-02 Type: HeartRate

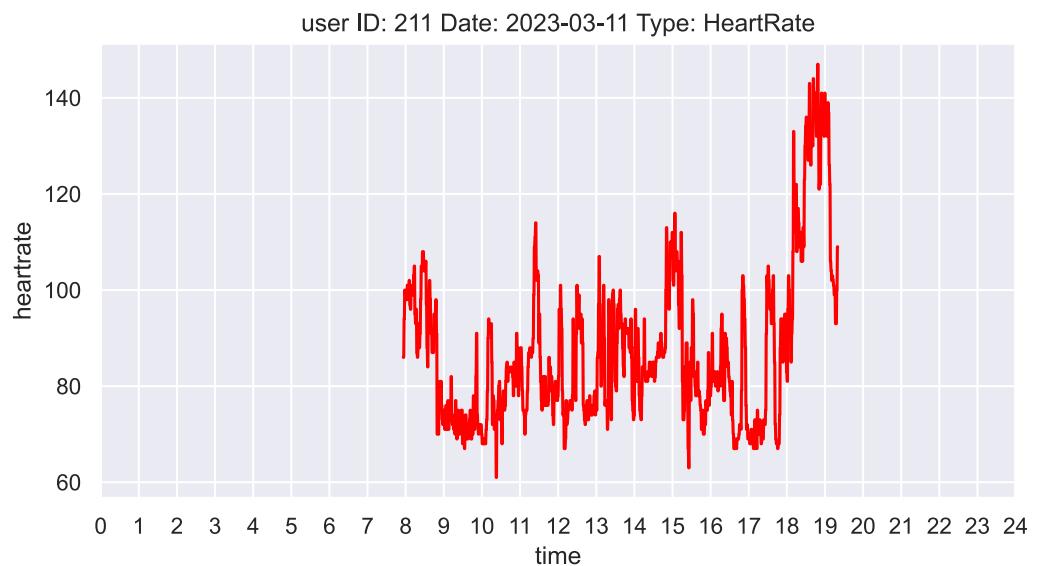
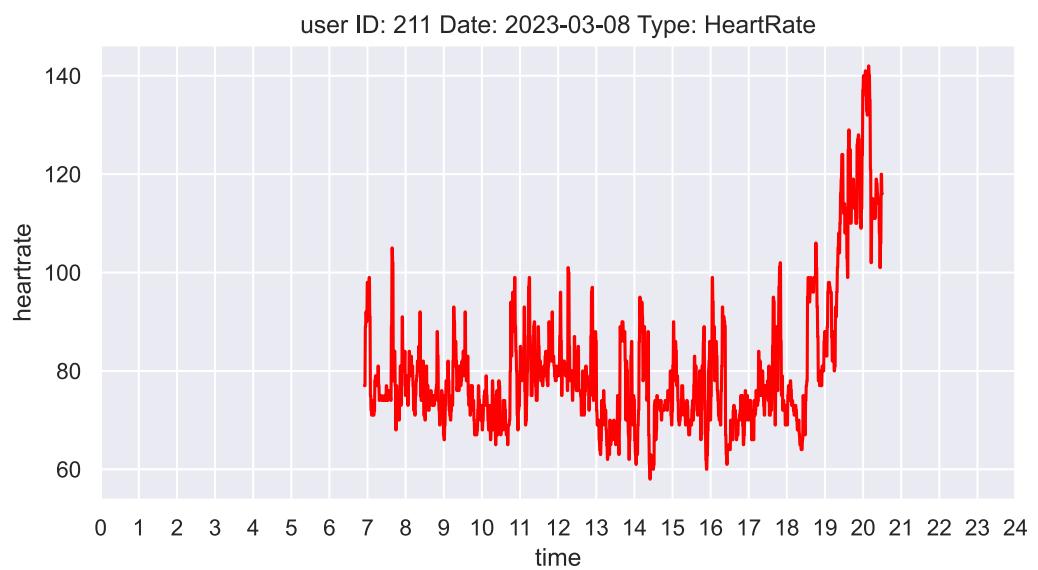
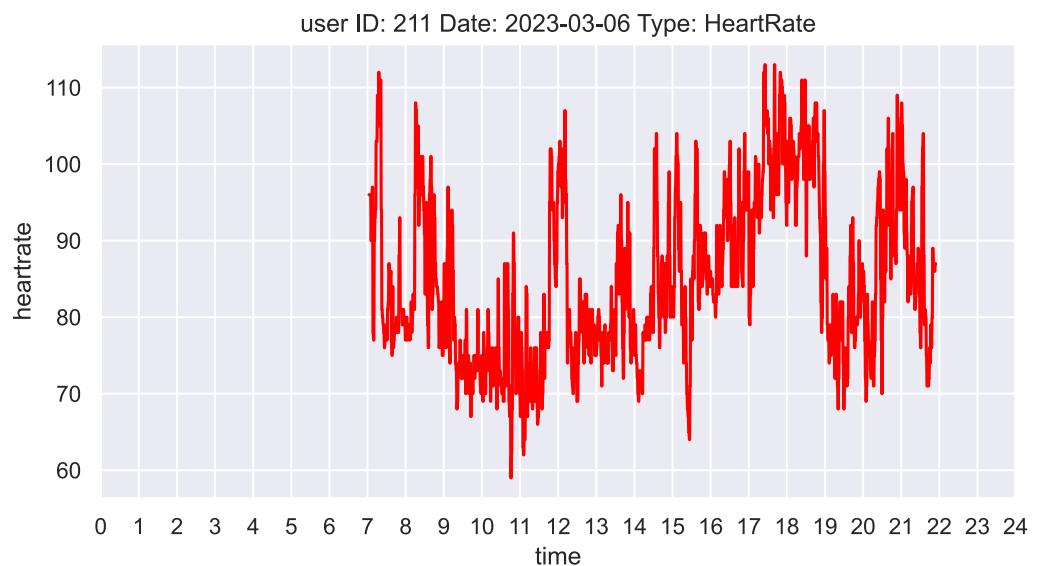


user ID: 211 Date: 2023-03-03 Type: HeartRate

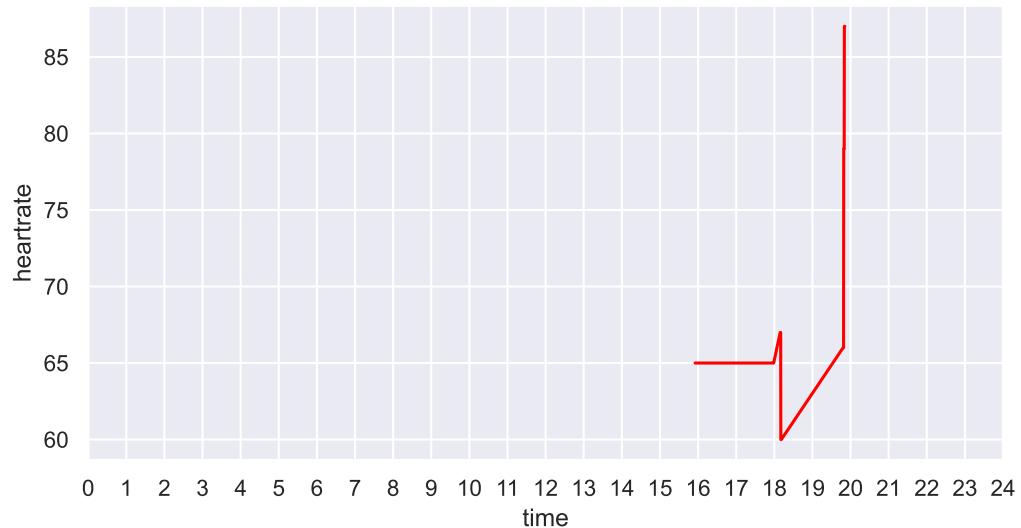


user ID: 211 Date: 2023-03-05 Type: HeartRate

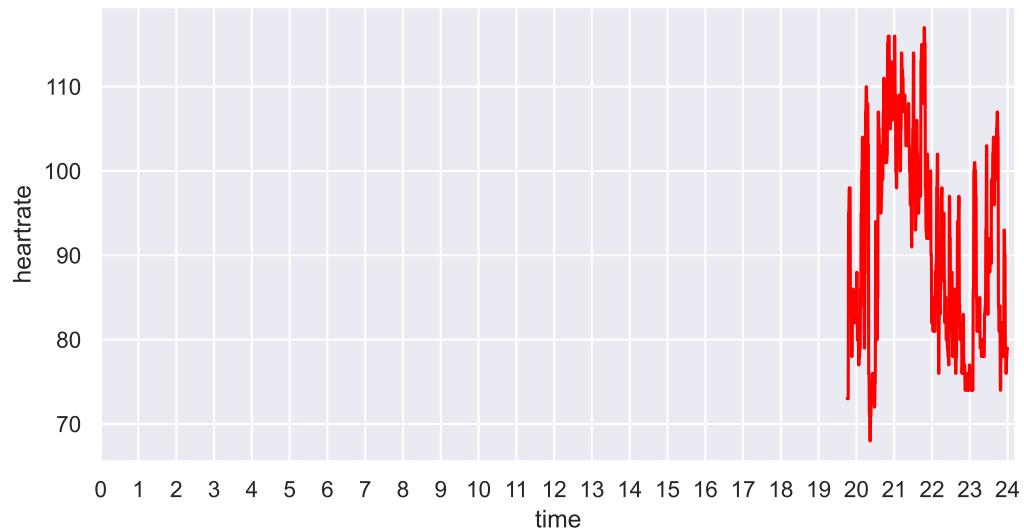




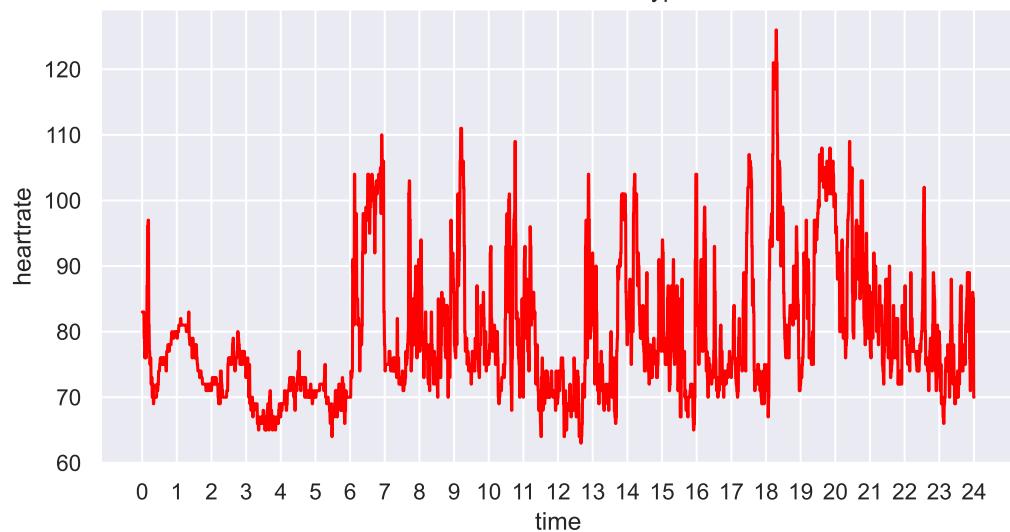
user ID: 211 Date: 2023-03-12 Type: HeartRate

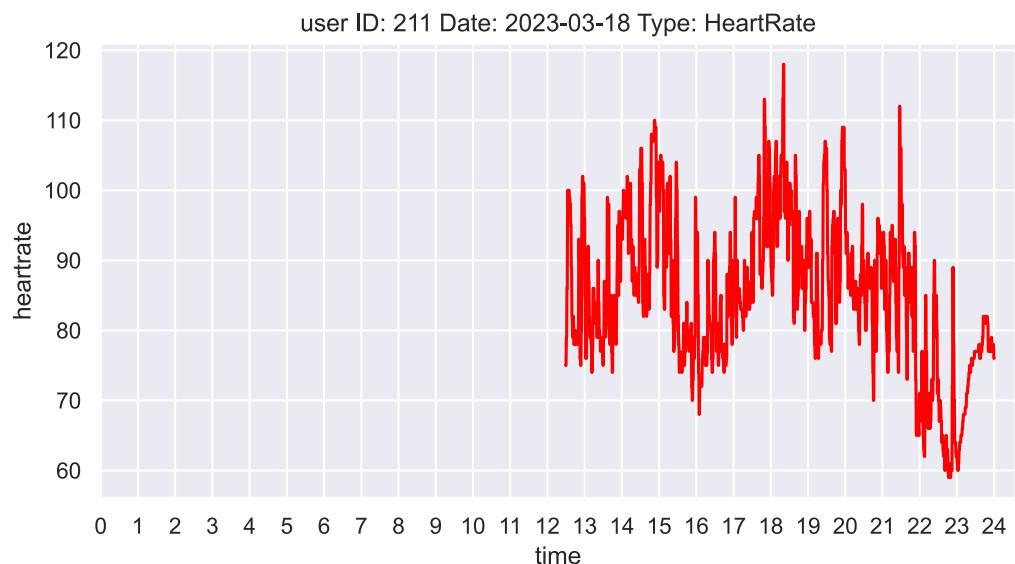
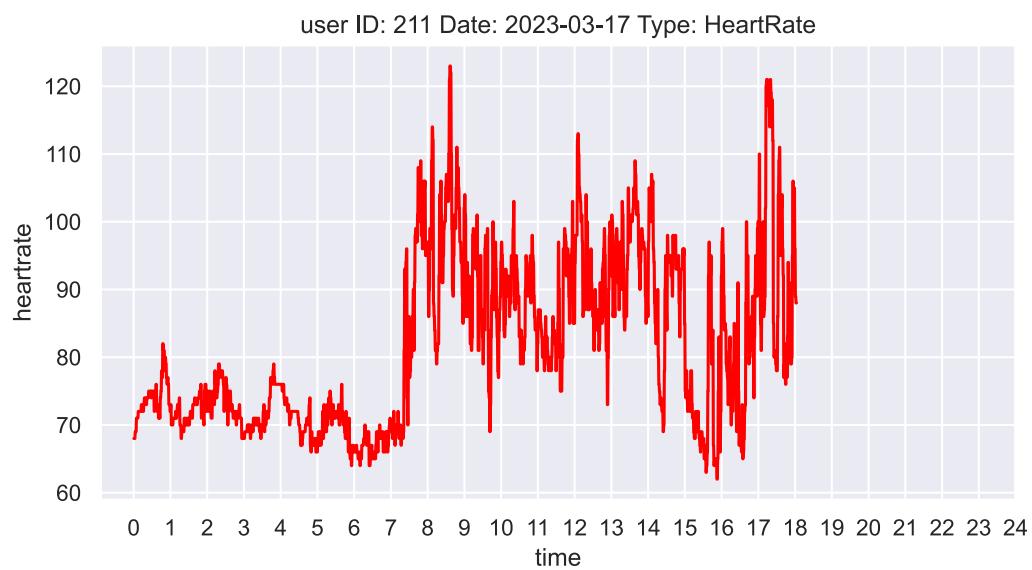
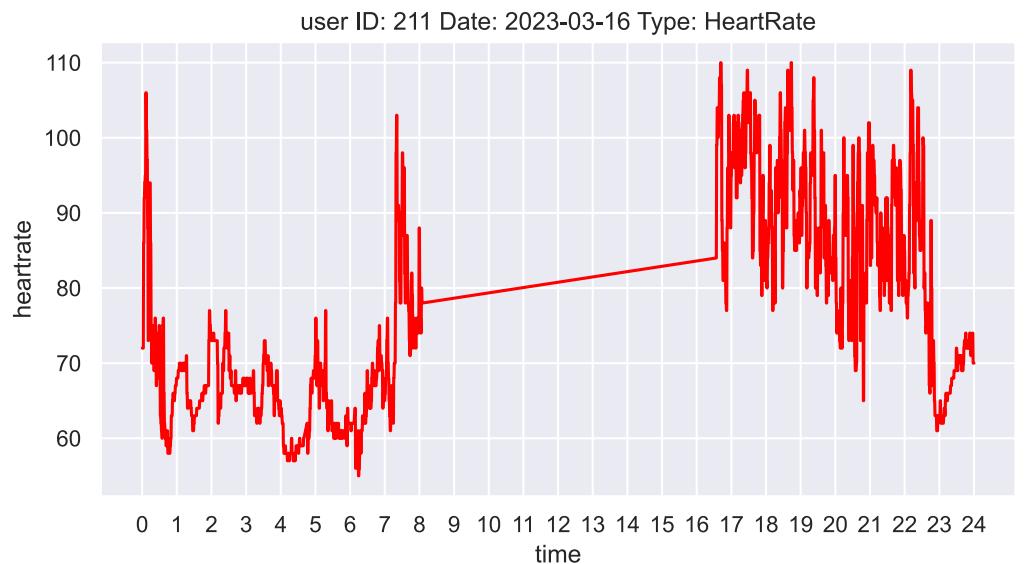


user ID: 211 Date: 2023-03-14 Type: HeartRate

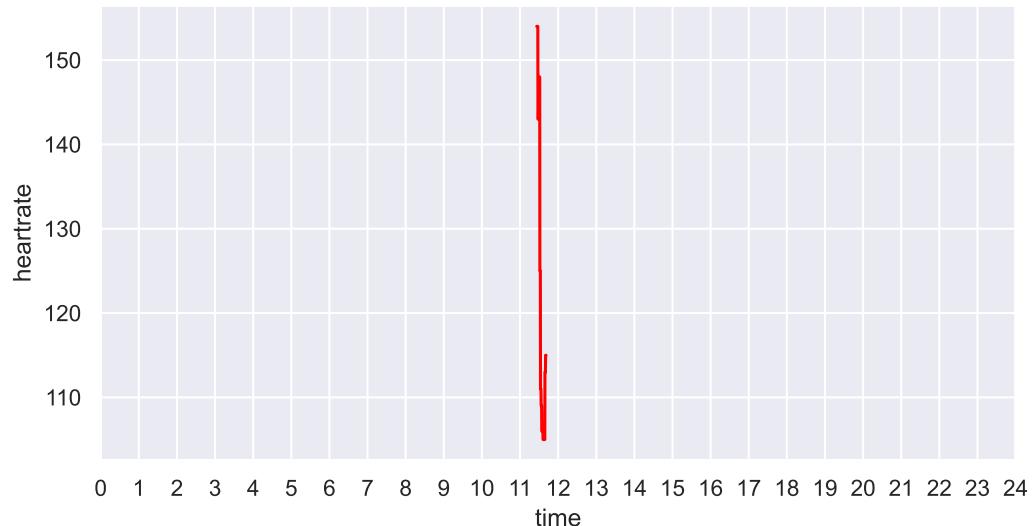


user ID: 211 Date: 2023-03-15 Type: HeartRate

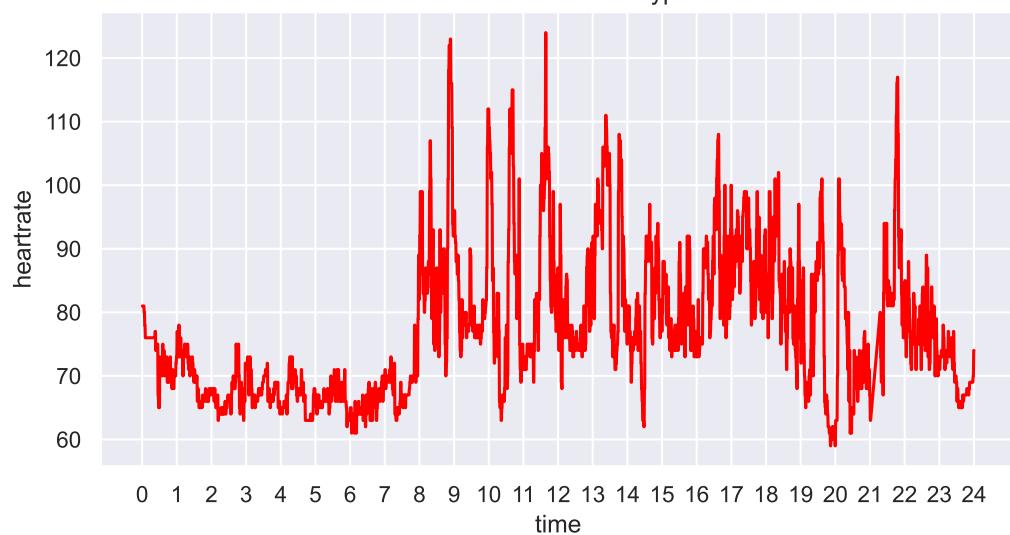




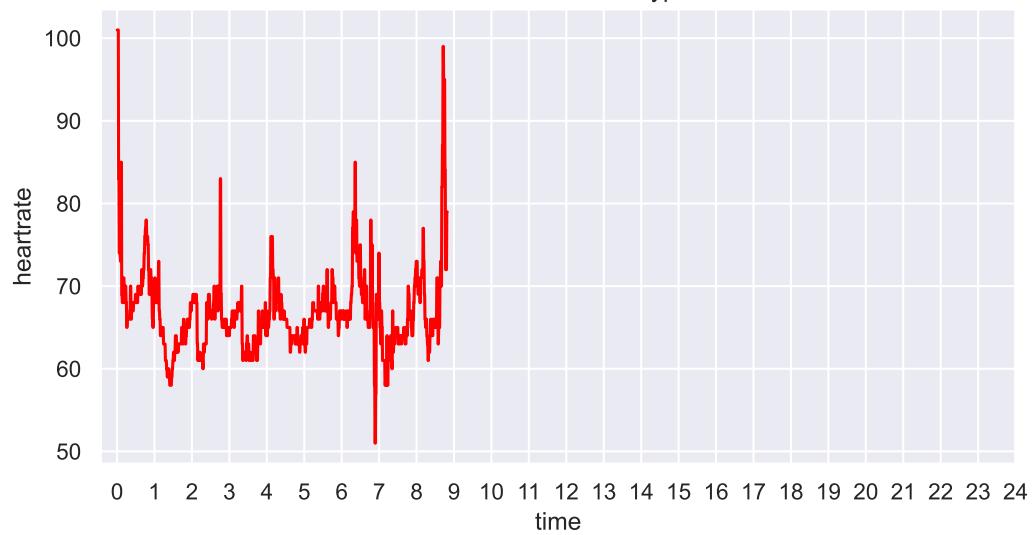
user ID: 211 Date: 2023-03-18 Type: HeartRate

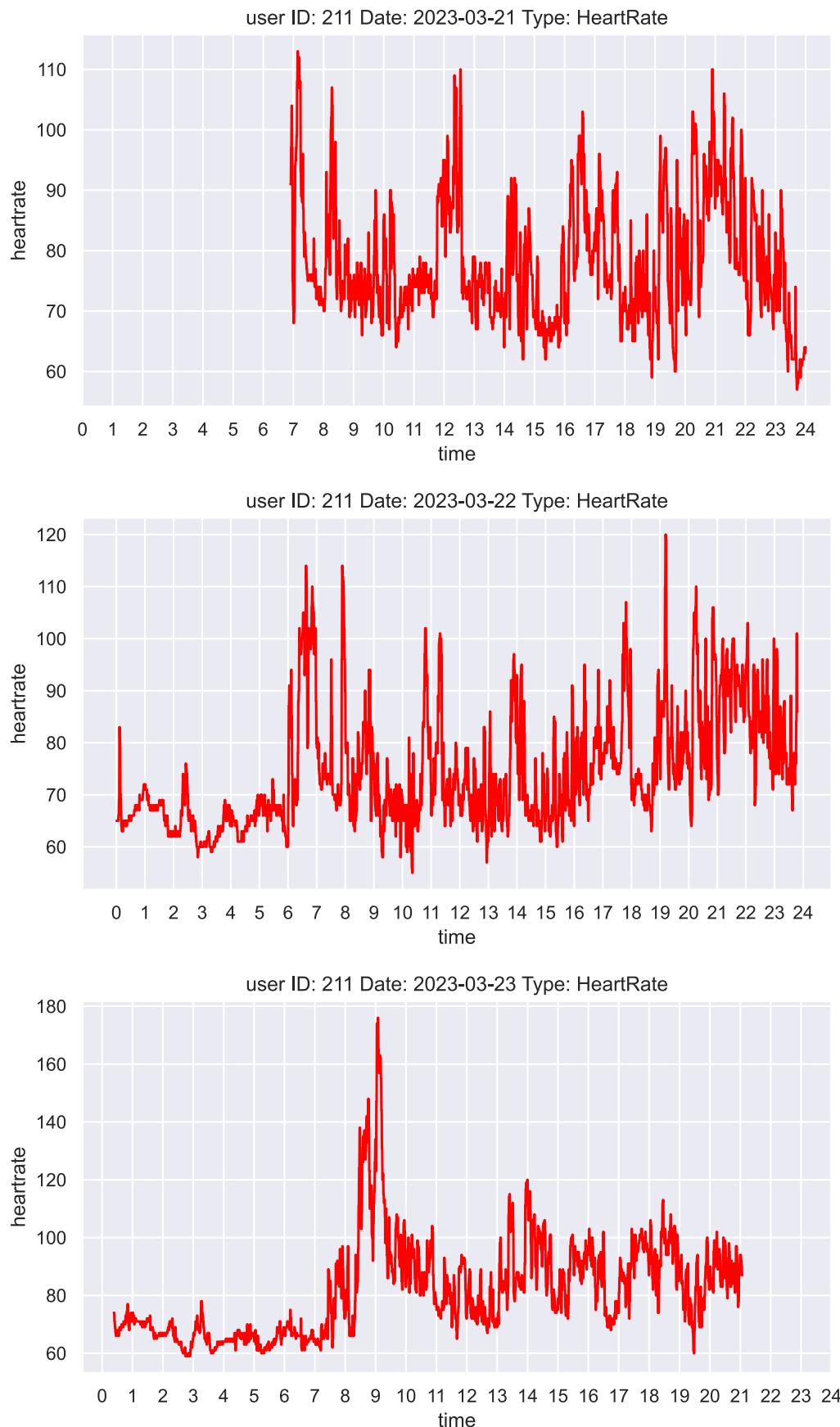


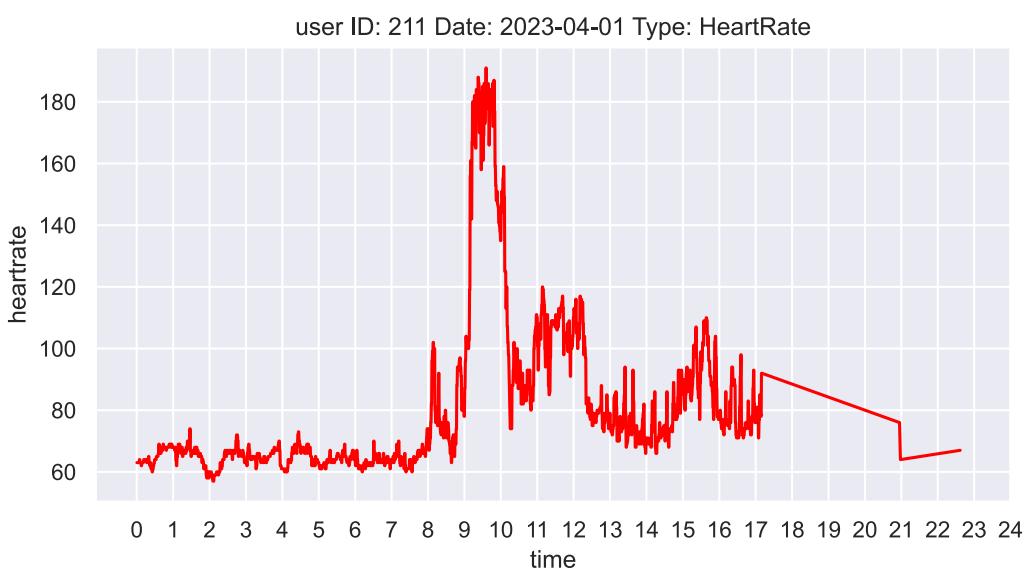
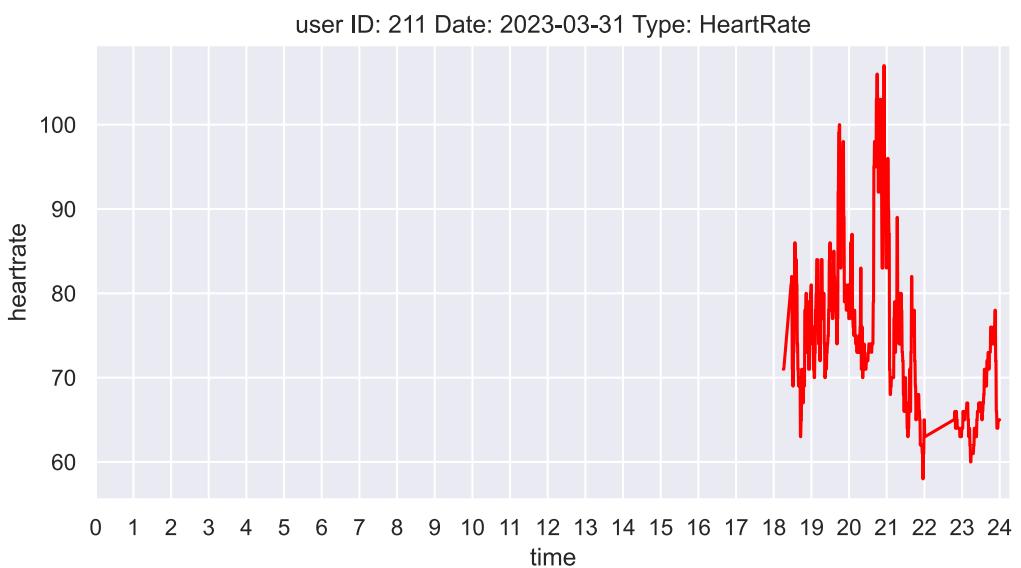
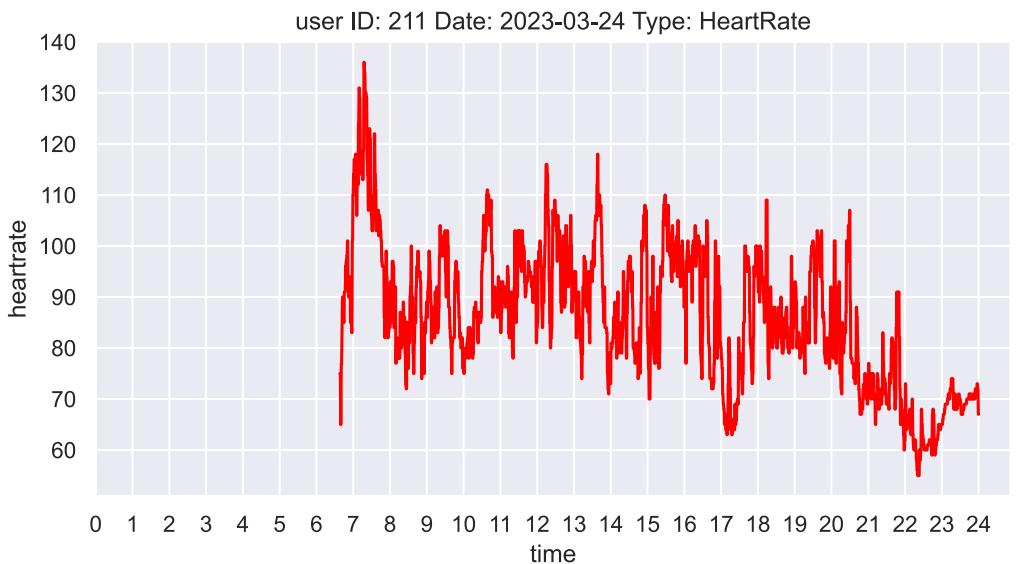
user ID: 211 Date: 2023-03-19 Type: HeartRate

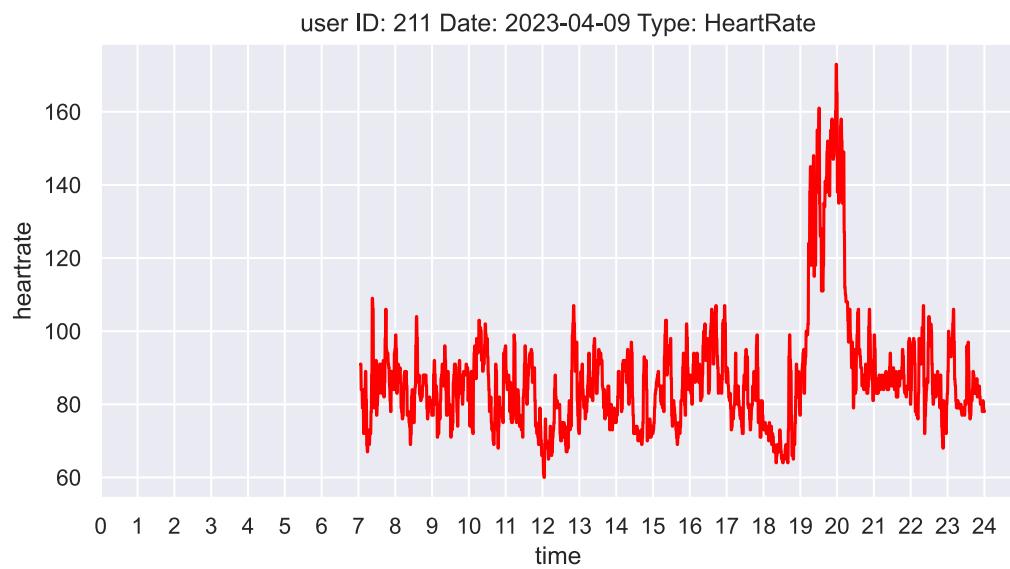
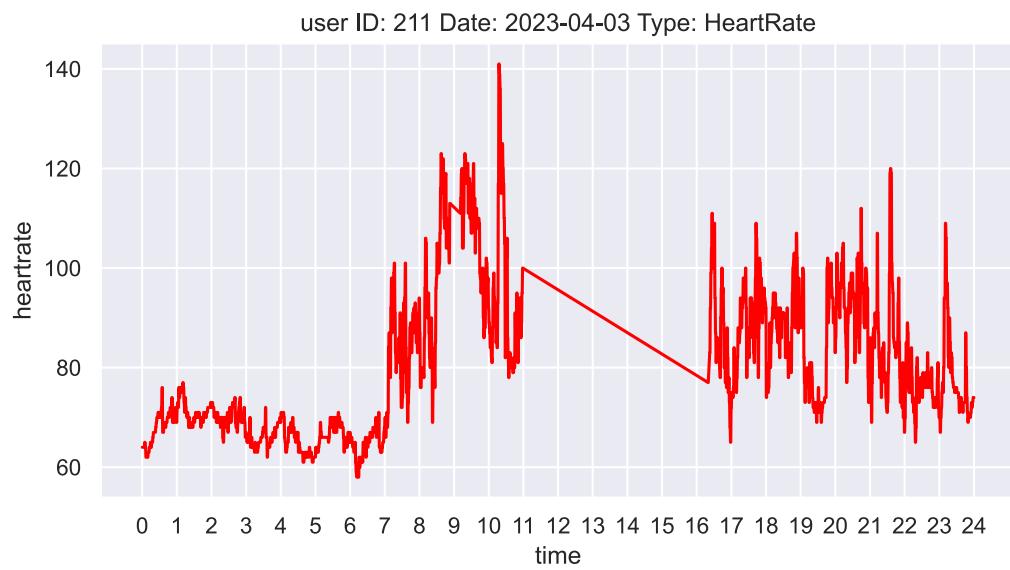
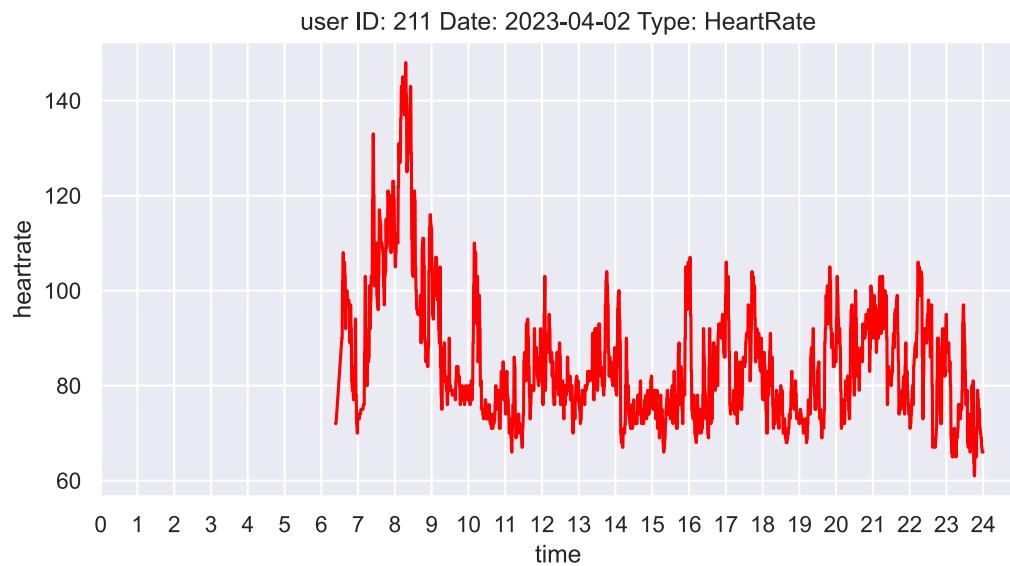


user ID: 211 Date: 2023-03-20 Type: HeartRate

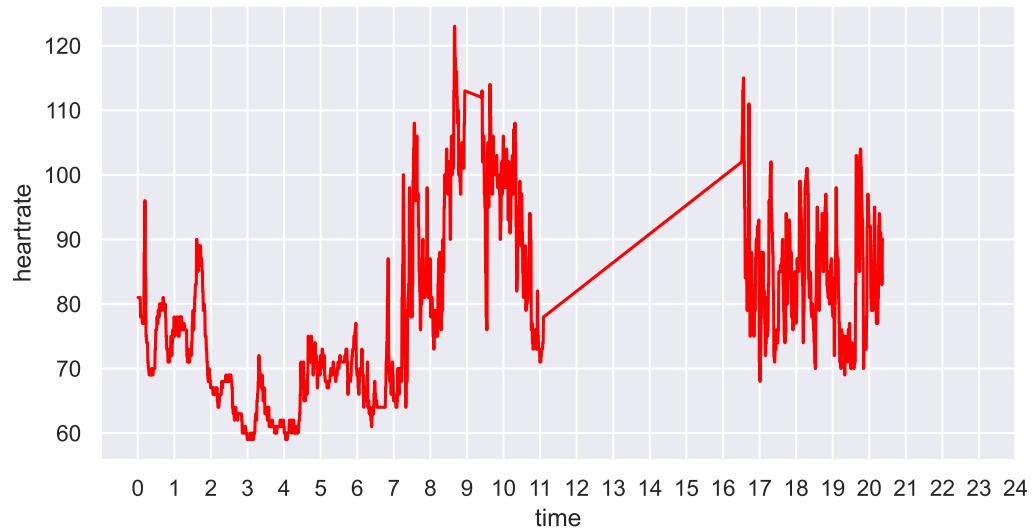




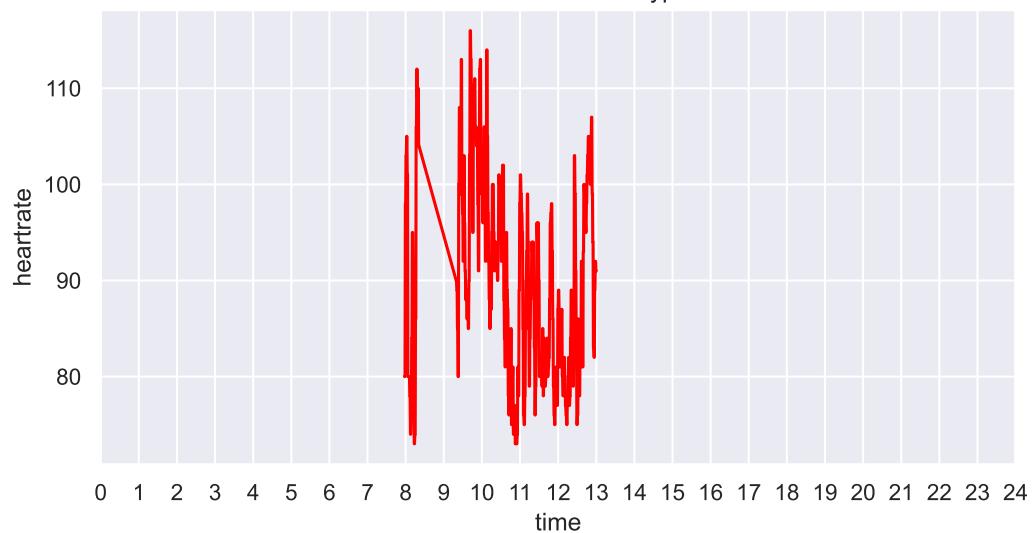




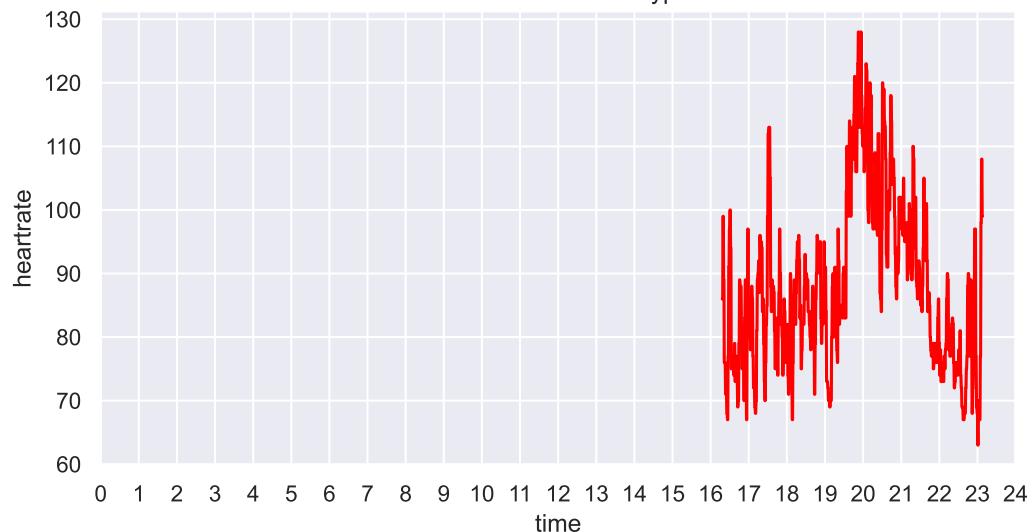
user ID: 211 Date: 2023-04-10 Type: HeartRate

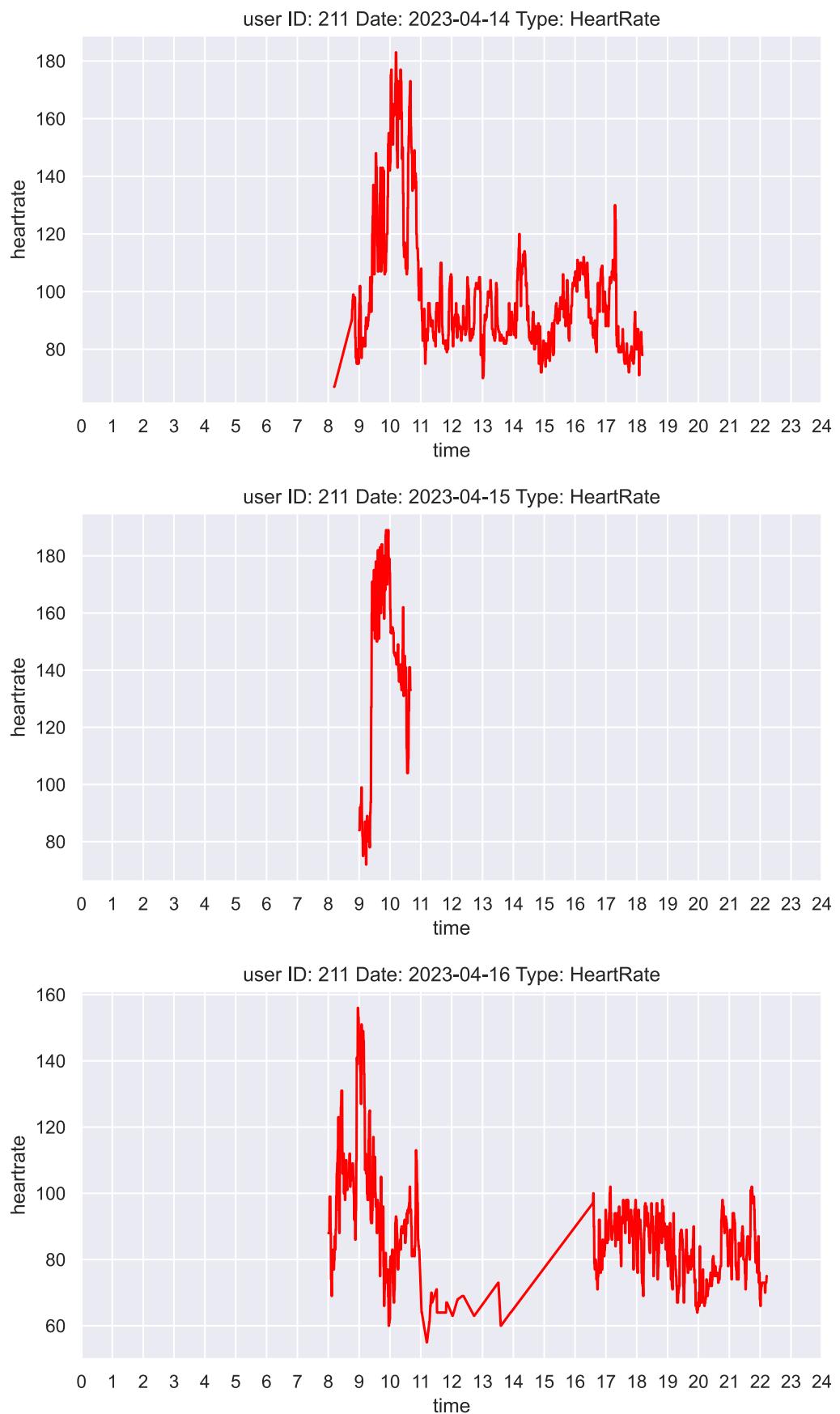


user ID: 211 Date: 2023-04-11 Type: HeartRate

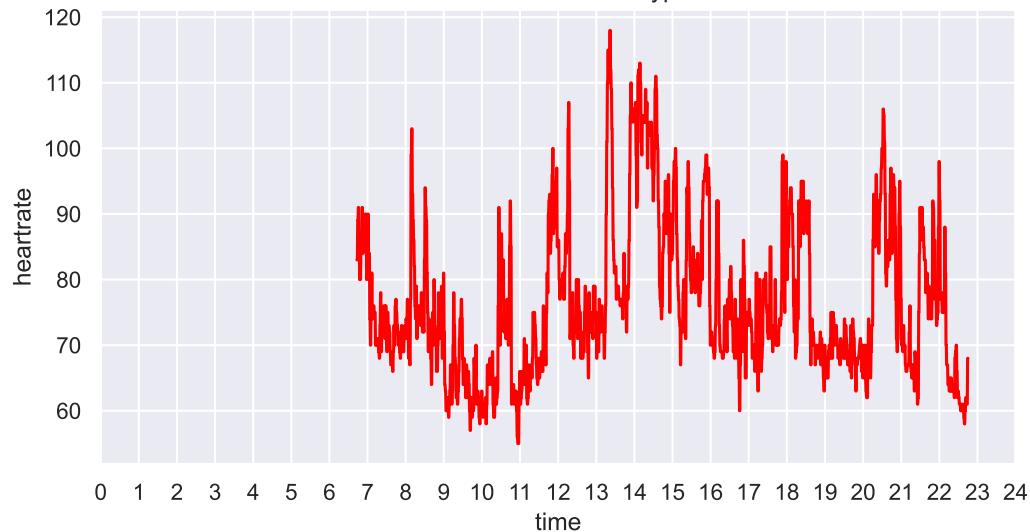


user ID: 211 Date: 2023-04-13 Type: HeartRate

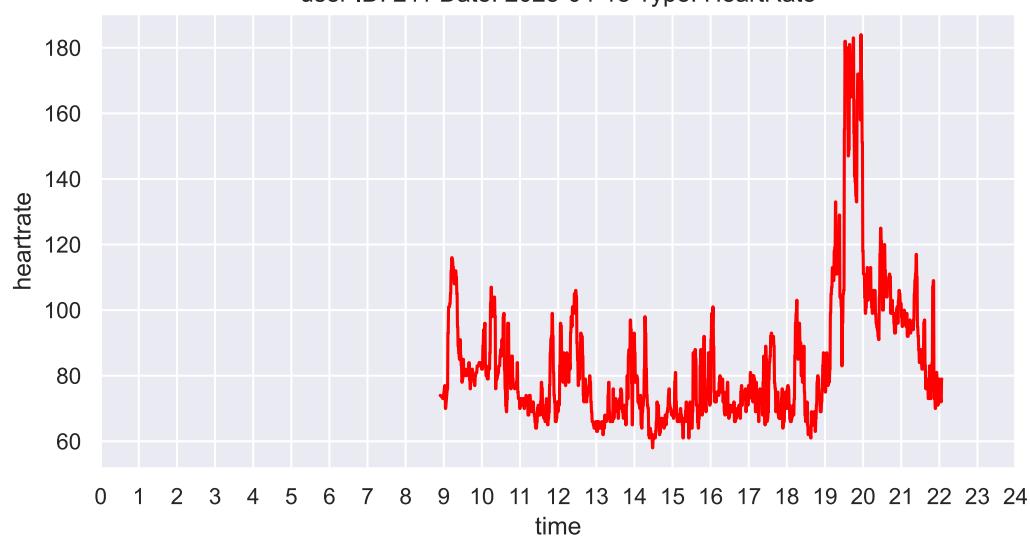




user ID: 211 Date: 2023-04-17 Type: HeartRate



user ID: 211 Date: 2023-04-18 Type: HeartRate



In [ ]: