race-report

In [1]:

```
import pandas as pd
from tabulate import tabulate
```

In [2]:

```
df = pd.read_csv("data.csv")
```

Frequency as a function of time ($\frac{cycles}{minute}$)¶

In [3]:

```
import matplotlib.pyplot as plt
import seaborn as sns
```

In [4]:

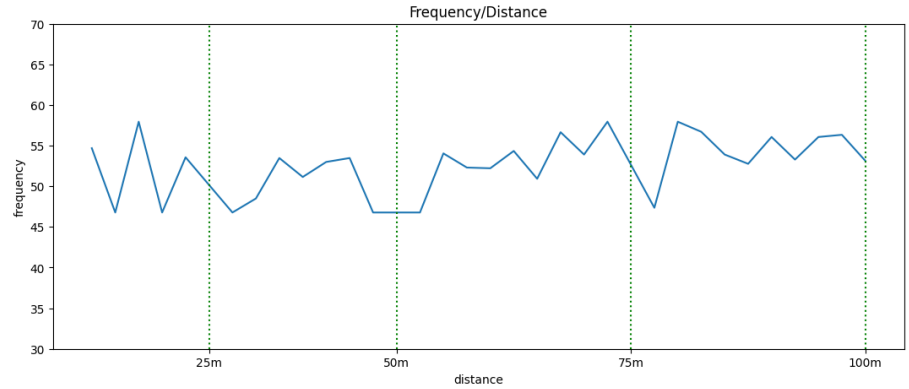
```
import os, sys
sys.path.insert(0, os.path.abspath('..'))
from utils import race_report as RR
from utils import plotting

# 25 for SCM, 50 for LCM.
LAP_LEN = 25

fig, ax = plt.subplots(nrows=3, figsize=(13, 17))

# Distance ticks/labels
lap_indices = RR.get_bo_indices(df)
distances = [RR.format_distance((i + 1)*LAP_LEN) for i in range(len(lap_indices))]

# Frequency Dataframe.
df_frequency = df[[RR.COL_MES, RR.COL_TIME]][df[RR.COL_MES] == RR.VAL_CYCLE]
df_frequency.loc[:, RR.COL_Y] = 60 / df[RR.COL_TIME]

# Speed Dataframe.
df_speed = RR.calc_speed(df, lap_indices)
```

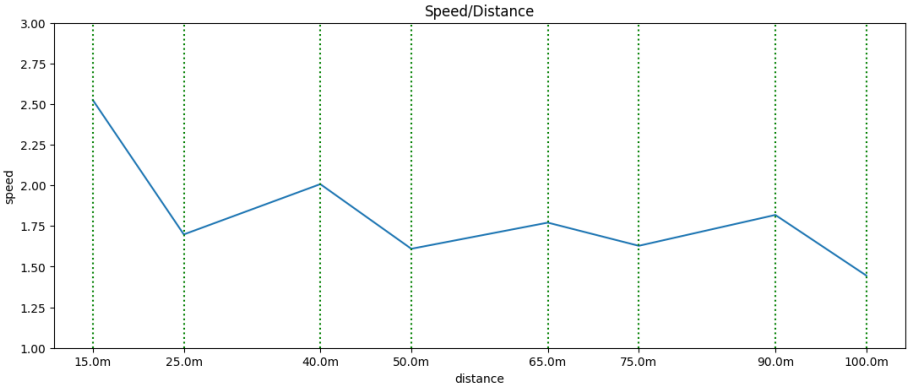
```
# DPS.
(stats, df_frequency) = RR.calc_frequency(df_frequency)
display(df_frequency.drop(["interval-time", RR.COL_X, RR.COL_MES], axis=1))
table = tabulate(pd.DataFrame({"std": [stats.std], "mean": [stats.mean]})
                 , tablefmt='text'
                 ,headers=["std", "mean"])
print(table)

# Plotting.

#
# Distances
#
plotting.plot_frequency(df_frequency, ax=ax[0], lap_indices=lap_indices, distances=distances

#
# Speed
#
plotting.plot_speed(df_speed, ax=ax[1])

#
# DPS
#
plotting.plot_dps(df, ax=ax[2])
plt.show()
```

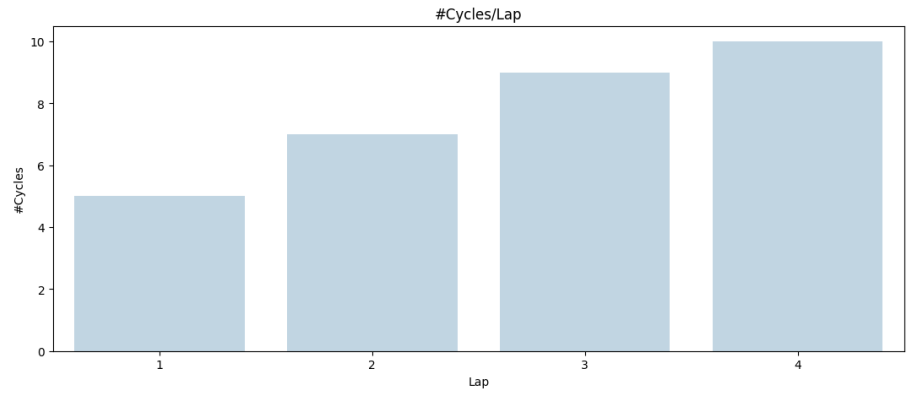
	frequency
1	54.69
2	46.78
3	57.95
4	46.78
5	53.57
7	46.78
8	48.50
9	53.48
10	51.15
11	53.00
12	53.48
13	46.78
15	46.78
16	54.05
17	52.31
18	52.22
19	54.35

	frequency
20	50.93
21	56.66
22	53.91
23	57.95
25	47.36
26	57.95
27	56.71
28	53.91
29	52.77
30	56.07
31	53.29
32	56.07
33	56.34
34	53.14

```
        std     mean
--  -------  -------
 0  5.58097  52.3655
```


Frequency/Distance
frequency
distance
25m
50m
75m
100m


Speed/Distance
speed
distance
15.0m
25.0m
40.0m
50.0m
65.0m
75.0m
90.0m
100.0m


#Cycles/Lap
#Cycles
Lap