UEA - Universidade do Estado do Amazonas

PÓS-Gradução Desenvolvimento de Software em Alto Desempenho

Indústria 4.0

Adriano Mourão
Salomão Calheiros
Thyago Lima
Willians Santos

Manaus
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PÓS-Gradução Desenvolvimento de Software em Alto Desempenho

Tipos de Dados Iniciais:.Jan - Dec

Dataframe.info()

Column - Types
date - object
Usage_kWh - float64
Lagging_Current_Reactive.Power_kVarh - float64
Leading_Current_Reactive_Power_kVarh - float64
CO2(tCO2) - float64
Lagging_Current_Power_Factor - float64
Leading_Current_Power_Factor - float64
NSM - int64
WeekStatus - object
Day_of_week - object
Load_Type - object

Dataframe.head()

01/01/2018 00:15	3.17	2.95	0.0	0.0	73.21	100.0	900	Weekday	Monday	Light_Load
01/01/2018 00:30	4.0	4.46	0.0	0.0	66.77	100.0	1800	Weekday	Monday	Light_Load
01/01/2018 00:45	3.24	3.28	0.0	0.0	70.28	100.0	2700	Weekday	Monday	Light_Load
01/01/2018 01:00	3.31	3.56	0.0	0.0	68.09	100.0	3600	Weekday	Monday	Light_Load
01/01/2018 01:15	3.82	4.5	0.0	0.0	64.72	100.0	4500	Weekday	Monday	Light_Load

Dados após tratamento:.

Dataframe.info()

Index
date - datetime64[ns]

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CO2(tCO2) - float64
Lagging_Current_Power_Factor - float64
Leading_Current_Power_Factor - float64
NSM - int64
WeekStatus - int64
Day_of_week - int64
Load_Type - int64
Month - int64
Day - int64

Dataframe.head()

3.17	2.95	0.0	0.0	73.21	100.0	900.0	0.0	0.0	0.0	1.0	1.0
4.0	4.46	0.0	0.0	66.77	100.0	1800.0	0.0	0.0	0.0	1.0	1.0
3.24	3.28	0.0	0.0	70.28	100.0	2700.0	0.0	0.0	0.0	1.0	1.0
3.31	3.56	0.0	0.0	68.09	100.0	3600.0	0.0	0.0	0.0	1.0	1.0
3.82	4.5	0.0	0.0	64.72	100.0	4500.0	0.0	0.0	0.0	1.0	1.0

Values:.

Column:Usage_kWh

Mean:27.39
Max:157.18
Min:0.0
Median:4.57
Std:33.44
Var:1118.53

Column:Lagging_Current_Reactive.Power_kVarh

Mean:13.04
Max:96.91
Min:0.0
Median:5.0
Std:16.31
Var:265.89

Column:Leading_Current_Reactive_Power_kVarh

Mean:3.87
Max:27.76
Min:0.0
Median:0.0
Std:7.42
Var:55.12

Column:CO2(tCO2)

Mean:0.01
Max:0.07
Min:0.0
Median:0.0
Std:0.02
Var:0.0

Column:Lagging_Current_Power_Factor

Mean:80.58
Max:100.0
Min:0.0
Median:87.96
Std:18.92
Var:358.02

Column:Leading_Current_Power_Factor

Mean:84.37
Max:100.0
Min:0.0
Median:100.0
Std:30.46
Var:927.6

Column:NSM

Mean:42750.0
Max:85500
Min:0
Median:42750.0
Std:24940.53
Var:622030252.0

Column:WeekStatus

Mean:0.28
Max:1
Min:0
Median:0.0
Std:0.45
Var:0.2

Column:Day_of_week

Mean:2.99
Max:6
Min:0
Median:3.0
Std:2.0
Var:4.01

Column:Load_Type
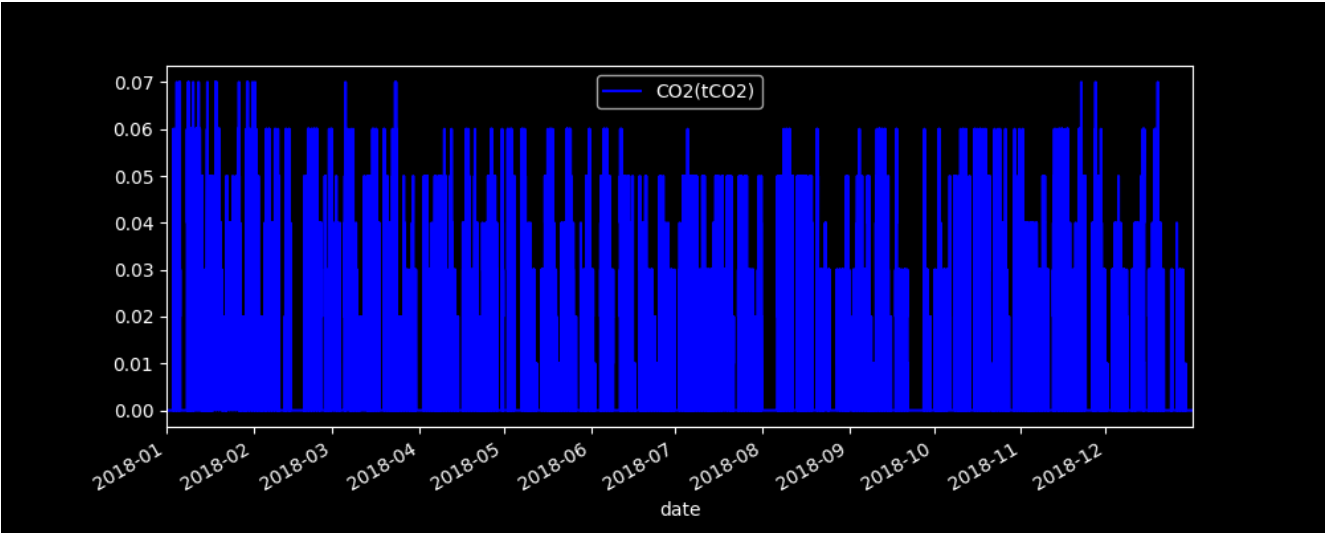
Mean:0.69
Max:2
Min:0
Median:0.0
Std:0.79
Var:0.63

Column:Month
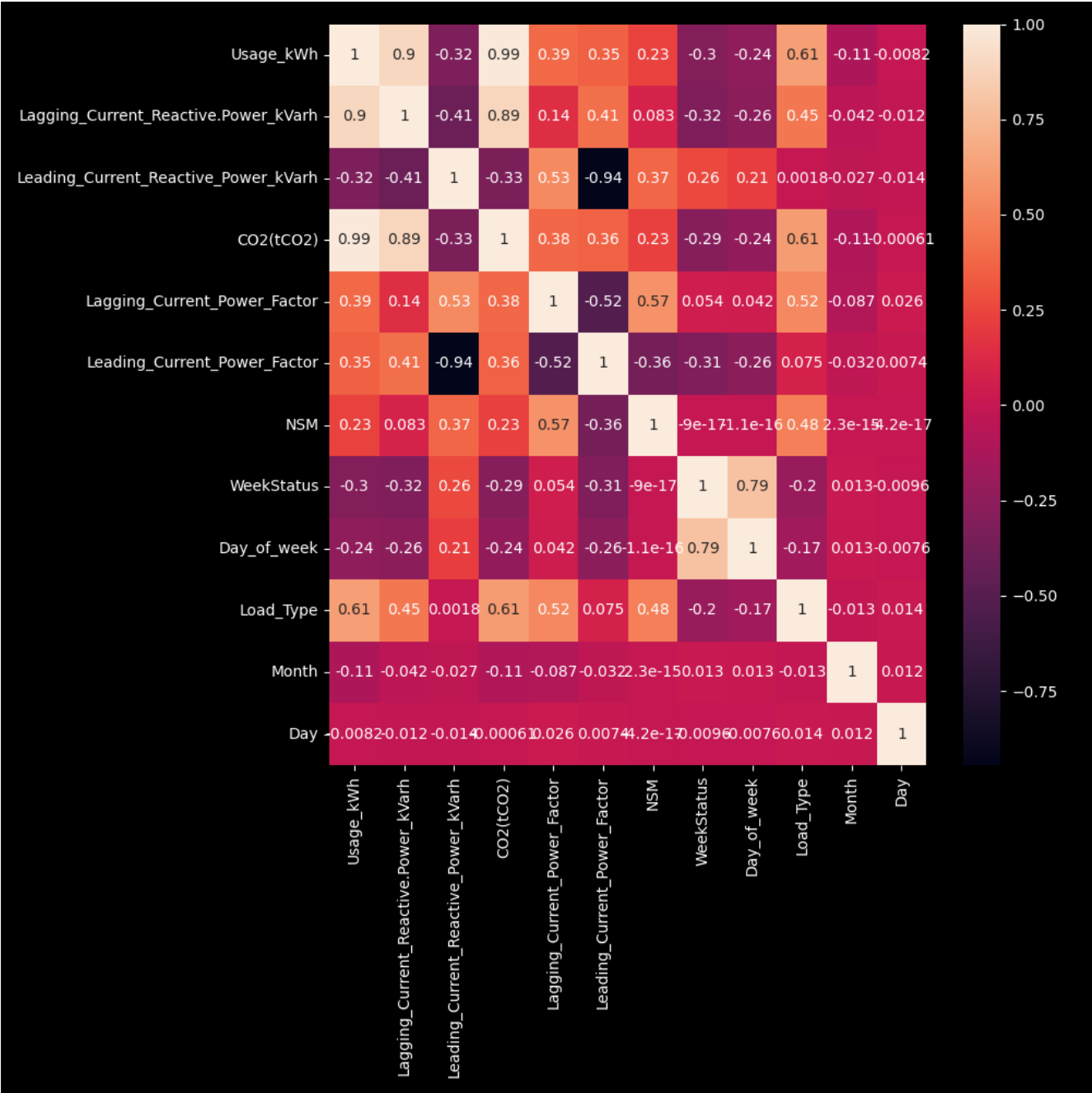
Mean:6.53
Max:12
Min:1
Median:7.0
Std:3.45
Var:11.89

Column:Day

Mean:15.72
Max:31
Min:1
Median:16.0
Std:8.8
Var:77.38

Emissão de CO² (ppm)
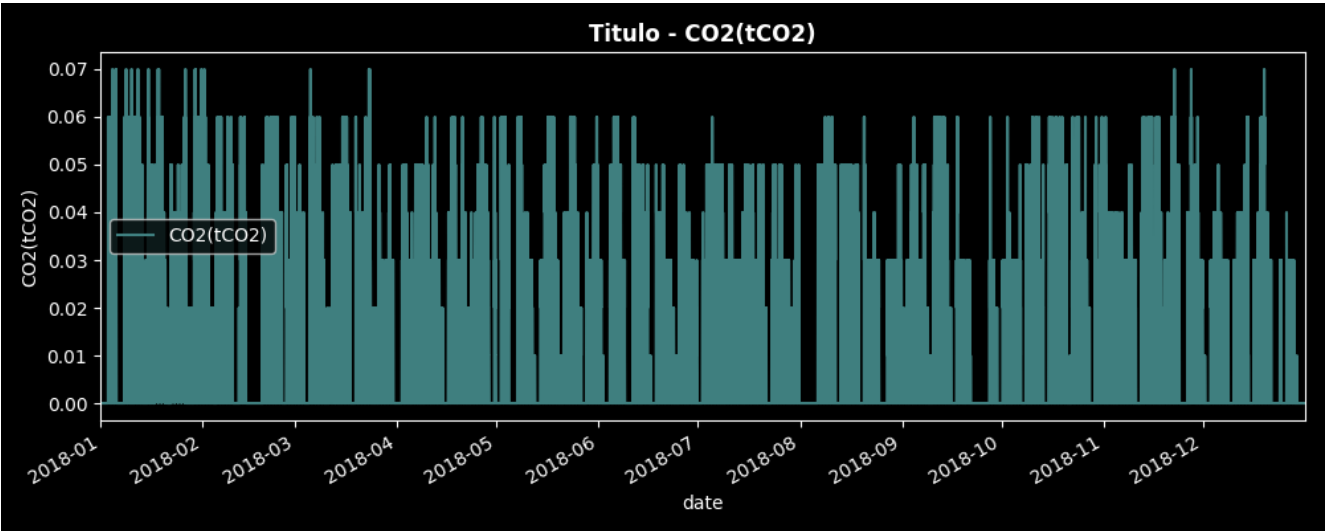
Heatmap - Gráfico de Correlação

Heatmap - Gráfico de Correlação
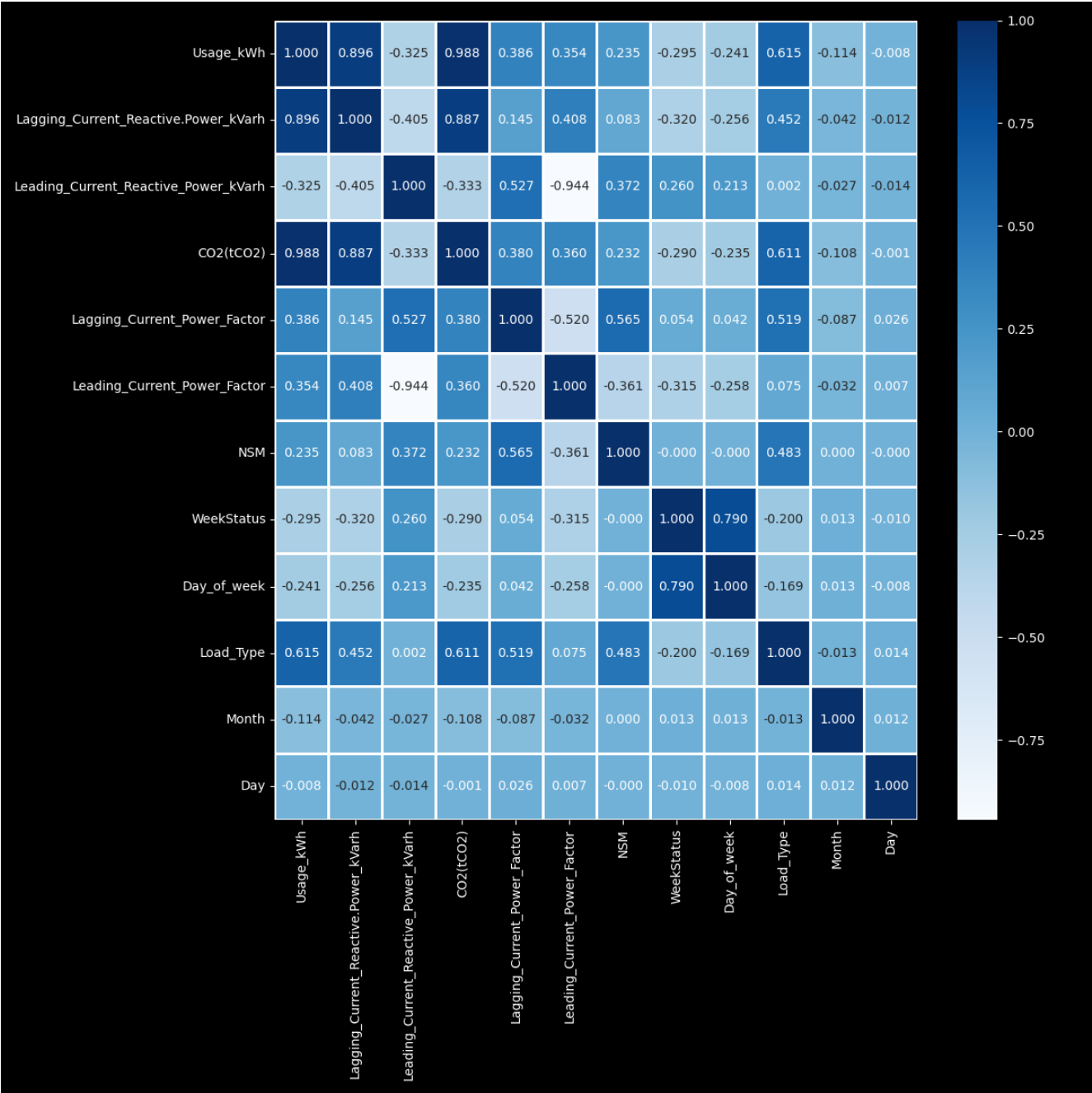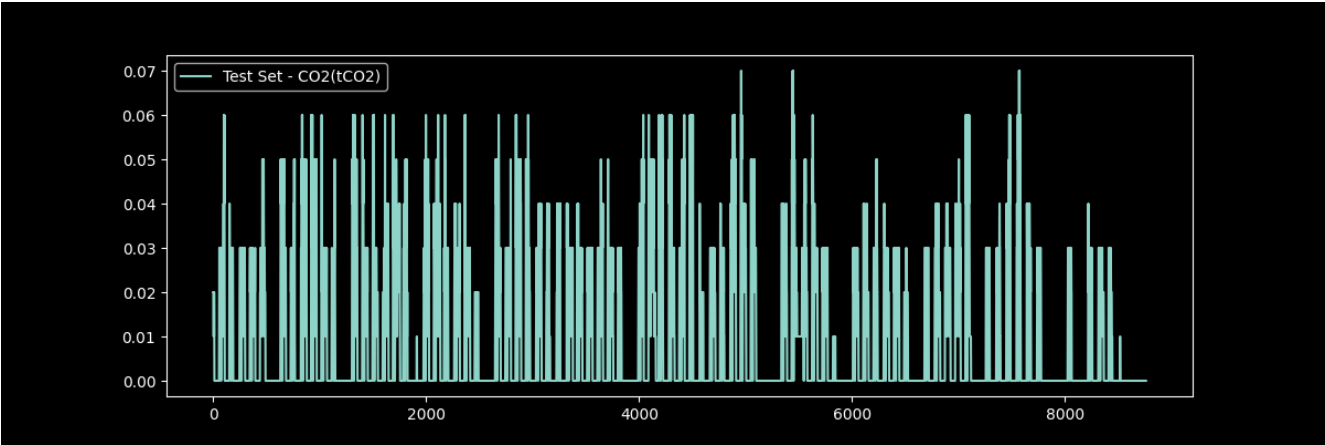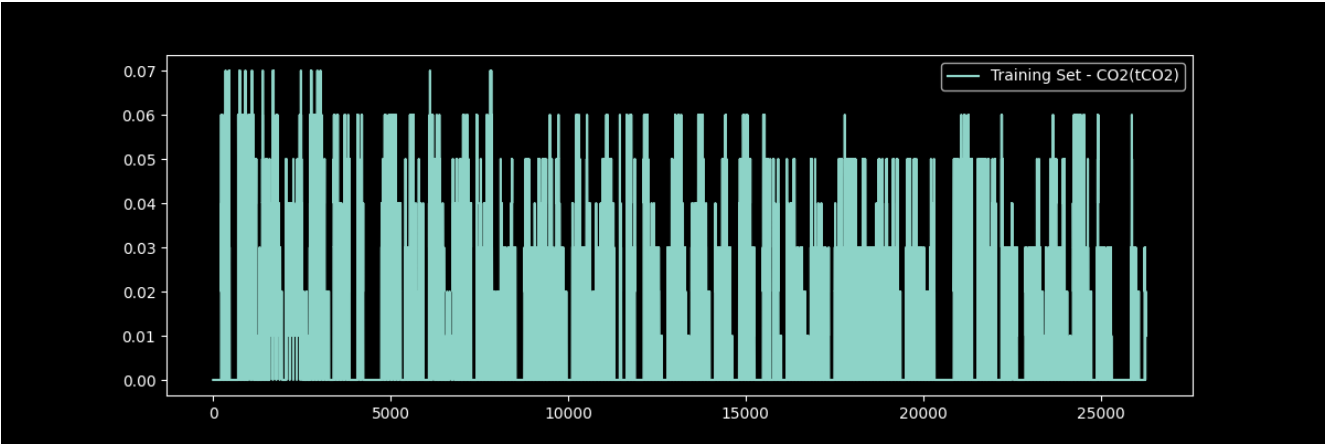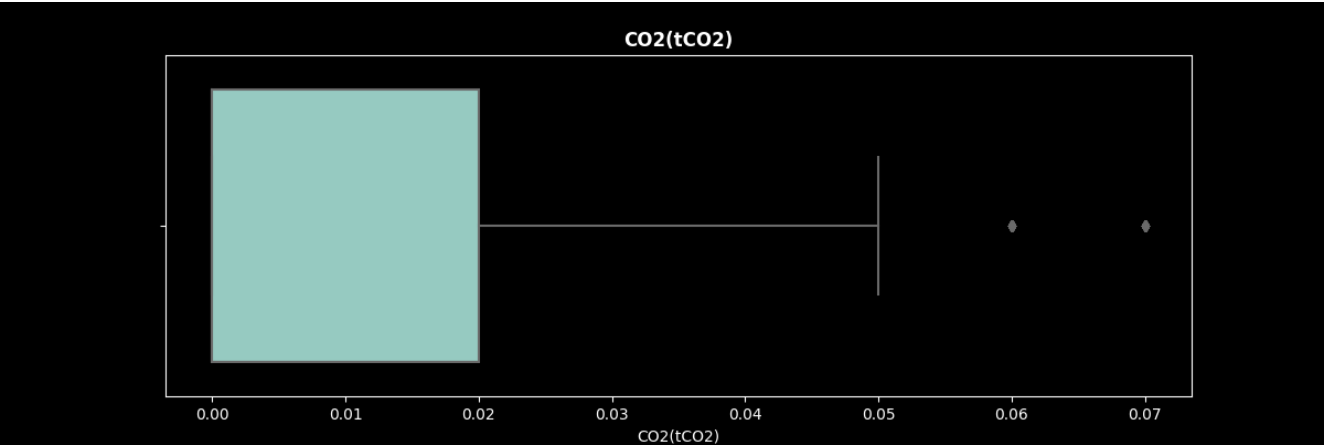
Gráfico - Test Set
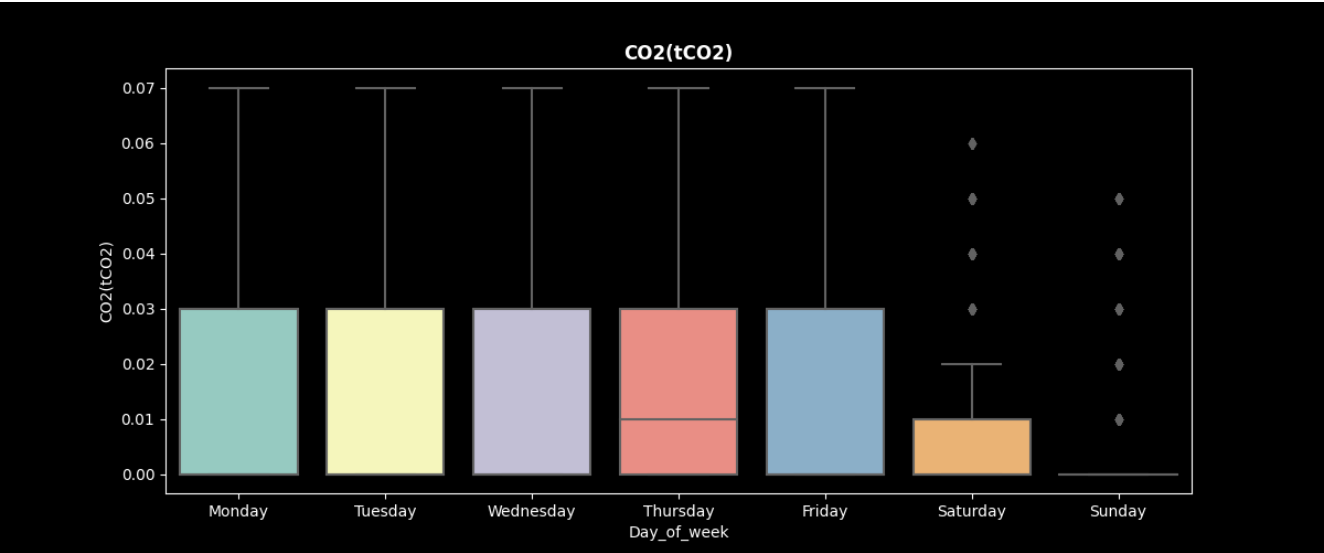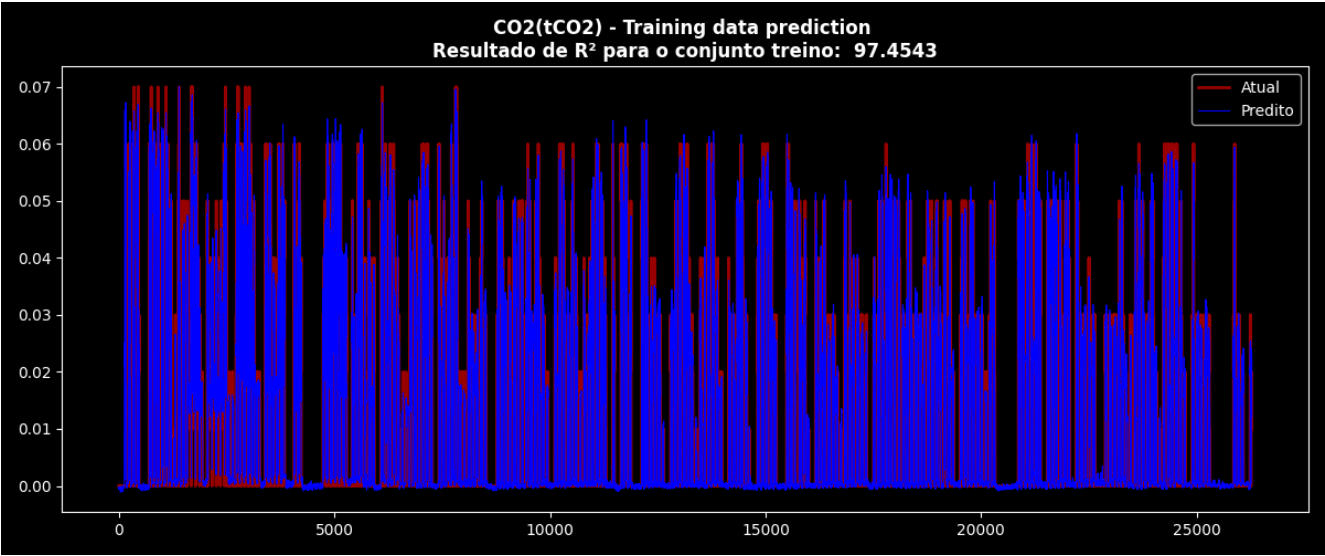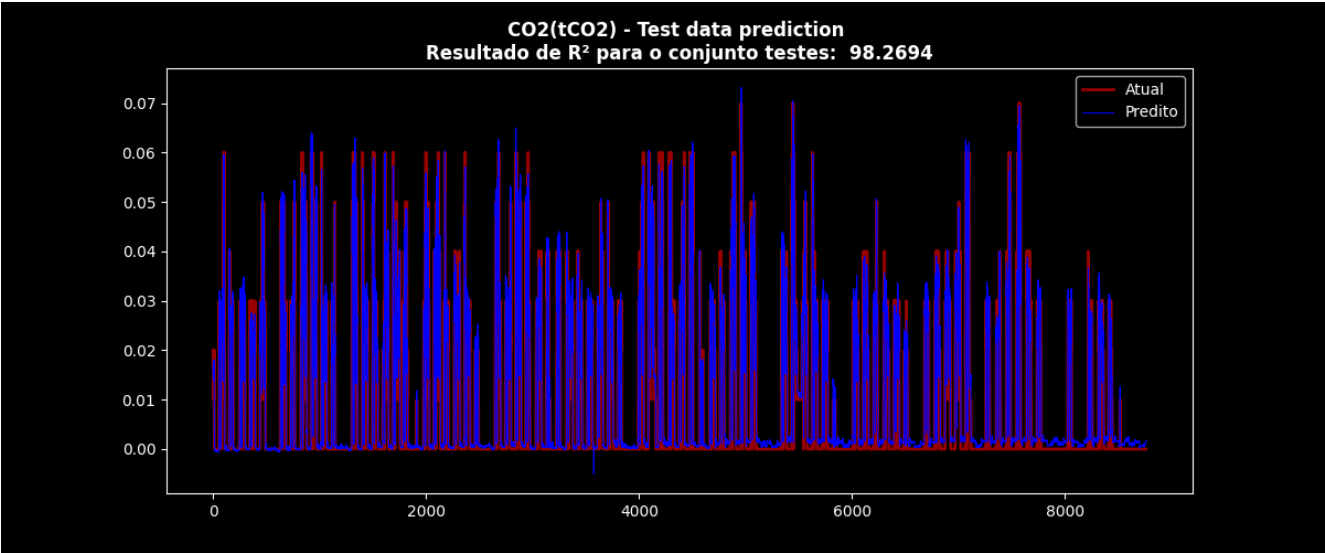

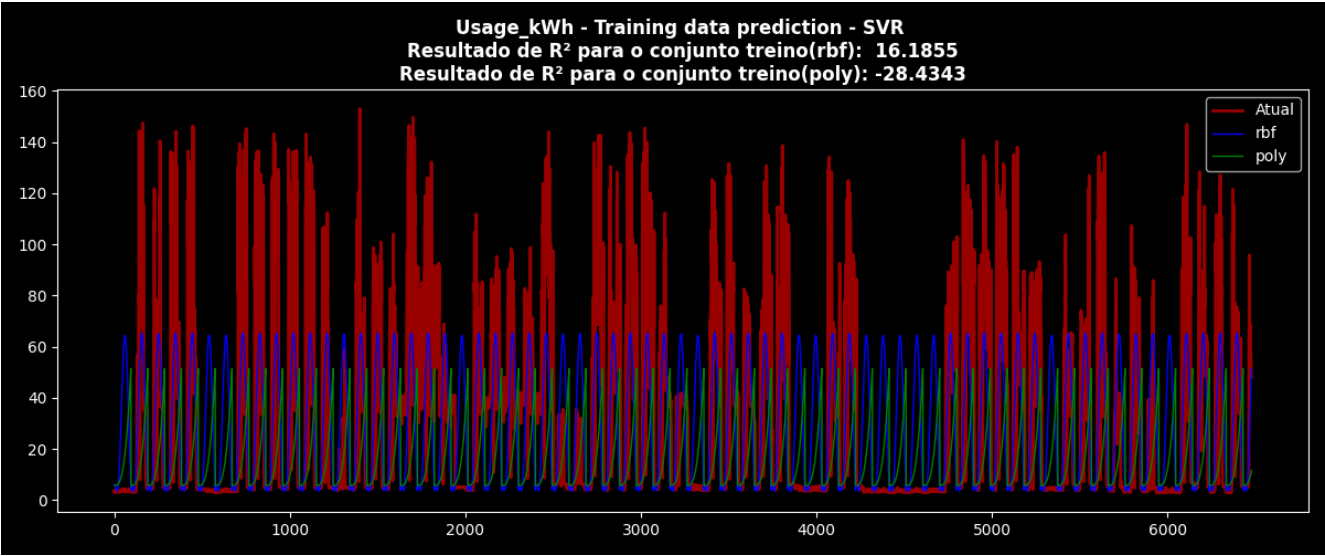## Gráfico - Training Set

Gráfico - Boxplot

Gráfico - Boxplot - Day of Week

Gráfico - Training data prediction - RL

Gráfico - Test data prediction - RL

Gráfico - Training data prediction - SVR

Usage_kWh - Training data prediction - SVR
Resultado de R² para o conjunto treino(rbf): 16.1855
Resultado de R² para o conjunto treino(poly): -28.4343

Gráfico - Test data prediction - SVR

Usage_kWh - Training data prediction - SVR
Resultado de R² para o conjunto testes(rbf): 30.9939
Resultado de R² para o conjunto testes(poly): -25.6155