**INFORME DE RESULTADOS**

El periodo de predicción va a ser de 2020-01 a 2021-04. Todas las métricas globales van a ser evaluadas en este proceso.

**VARIABLES**

Todas 🡪 Todas las variables iniciales sin eliminar ninguna, añadiendo lag 24 horas

Variables\_1 🡪 Todas menos Prevision\_Demanda, Prevision\_Eol\_Fotov y Festivos Regionales, pero añadiendo el lag de 24 horas.

Variables\_2 🡪 Todas pero añadiendo el lag de 24, 48 horas y una semana.

Variables\_3 🡪 Todas menos Prevision\_Demanda, Prevision\_Eol\_Fotov, Festivos Regionales y Festivos Nacionales, añadiendo 24 horas de lag.

Variables\_4 🡪 Todas menos Prevision\_Demanda, Prevision\_Eol\_Fotov y Festivos Regionales, añadiendo 24, 48 horas y 1 semana de lag

**BASELINE**

Lo primero es la realización de un modelo baseline a partir del cual mejorar los subsecuentes posibles modelos.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| MODELO | MAE | STD(MAE) | MAPE | STD(MAPE) | RMSE | % TREND |
| BASELINE | **6.712** | **7.191** | **47.409** | **460.138** | **11.672** | **74.79** |

**REGRESIÓN LINEAL**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| VARIABLES | Rolling | MAE | STD(MAE) | MAPE | STD(MAPE) | RMSE | % TREND |
| Variables1 | No | 5.089 | 5.123 | 53.96 | 549.972 | 7.221 | 83.34 |
| Variables1 | 7 dias | 6.087 | 11.029 | 45.766 | 458.503 | 12.597 | 82.24 |
| Variables1 | 14 dias | 4.961 | 5.046 | 39.24 | 384.046 | 7.076 | 82.64 |
| Variables1 | 21 dias | 4.759 | 5.096 | 32.354 | 357.9 | 6.973 | 83.18 |
| Variables1 | 30 dias | 4.609 | 4.707 | 34.154 | 368.114 | 6.587 | 83.40 |
| Variables1 | 60 dias | 4.701 | 4.826 | 41.096 | 400.774 | 6.737 | 83.67 |
| Variables1 | 90 dias | 5.015 | 5.027 | 44.886 | 438.341 | 7.1 | 83.62 |
| Variables1 | 150 dias | 4.926 | 5.084 | 49.418 | 494.282 | 7.079 | 83.49 |
| Variables1 | 220 dias | 5.062 | 5.056 | 51.195 | 512.652 | 7.154 | 83.43 |
| Variables1 | 365 dias | 5.009 | 4.986 | 49.296 | 496.834 | 7.068 | 83.31 |
| Todas | 60 dias | 4.655 | 4.761 | 40.98 | 396.721 | 6.658 | 83.61 |
| Variables2 | **60 dias** | **4.591** | **4.663** | **38.156** | **362.583** | **6.544** | **83.66** |
| Variables3 | **30 días** | **4.565** | **4.626** | **34.728** | **370.556** | **6.499** | **83.41** |

**PCR (Principal Components Regression)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| VARIABLES | Rolling | N components | MAE | STD(MAE) | MAPE | STD(MAPE) | RMSE | % TREND |
| Todas | No | 32 | 4.978 | 4.997 | 54.385 | 547.109 | 7.053 | 83.68 |
| Variables4 | 60 | 18 | 5.859 | 5.891 | 48.366 | 422.191 | 8.309 | 81.93 |
| Variables4 | 60 | 30 | 5.338 | 5.418 | 47.52 | 462.396 | 7.606 | 82.7 |
| Variables4 | 60 | 32 | 4.595 | 4.656 | 38.395 | 349.823 | 6.541 | 83.59 |
| Variables3 | 60 | 31 | 4.55 | 4.605 | 38.55 | 354.075 | 6.473 | 83.67 |
| Variables3 | **30** | **31** | **4.547** | **4.614** | **31.36** | **344.4** | **6.478** | **83.36** |

**REGRESIÓN CON REGULARIZACIÓN (RIDGE, LASSO Y ELASTICNET)**

**https://www.cienciadedatos.net/documentos/py14-ridge-lasso-elastic-net-python.html**

**RIDGE**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| VARIABLES | Rolling | MAE | STD(MAE) | MAPE | STD(MAPE) | RMSE | % TREND |
| Todas | No | 4.869 | 4.806 | 49.442 | 486.7 | 6.841 | 83.57 |
| Todas | 30 | 4.672 | 4.864 | 29.445 | 333.149 | 6.744 | 83.31 |
| Todas | 60 | 4.567 | 4.633 | 37.887 | 361.783 | 6.505 | 83.7 |
| Todas | 90 | 4.824 | 4.79 | 42.691 | 408.028 | 6.798 | 83.43 |
| Todas | 150 | 4.735 | 4.829 | 47.072 | 463.977 | 6.763 | 83.45 |
| Todas |  |  |  |  |  |  |  |

**LASSO**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| VARIABLES | Rolling | MAE | STD(MAE) | MAPE | STD(MAPE) | RMSE | % TREND |
| Todas | No |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |

**ELASTICNET**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| VARIABLES | Rolling | MAE | STD(MAE) | MAPE | STD(MAPE) | RMSE | % TREND |
| Todas | No |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |
| Todas |  |  |  |  |  |  |  |

**RANDOM FOREST**

**SARIMA SIN VARIABLES EXÓGENAS**

**SARIMA CON VARIABLES EXÓGENAS**

**LSTM, CNN, DENSE**

**LIGHT BOOST**

**XGBOOST**

**HIERARCHICAL TIME SERIES?**

**HOLT-WINTERS**

**COMBINACIONES DE PREDICCIONES ENTRE VARIAS POSIBILIDADES**

**STACKED MODELS**