TEAM D – PYTHON GROUP PROJECT

BIKE SHARE USERS IN WASHINGTHON D.C.

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DATA INFORMATION AND AIM

Dataset from Kaggle

Washington D.C.

2011 - 2012

Prediction of the hourly bikeshare rental

EDA

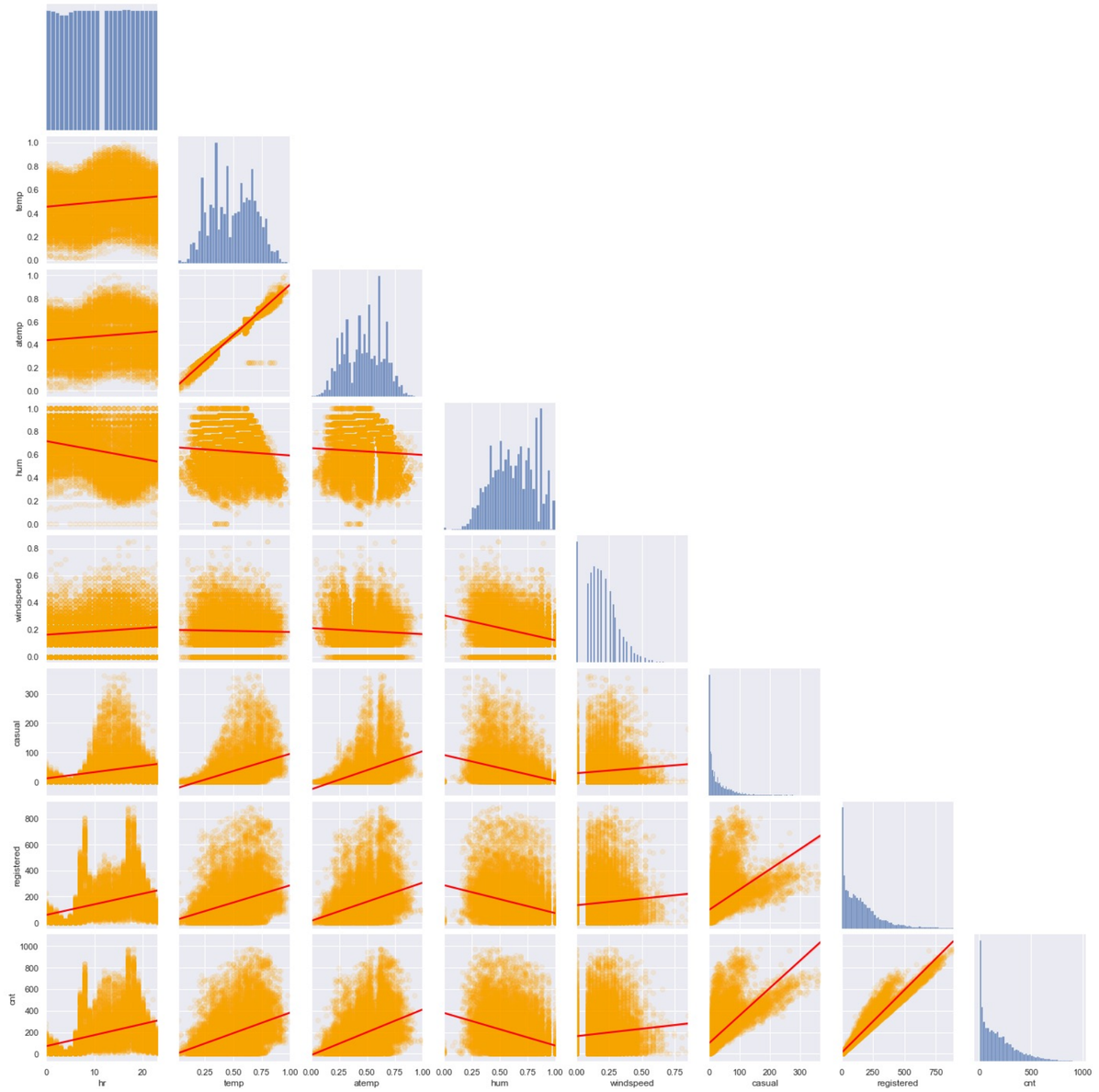
FACTS ABOUT THE DATA

VARIABLES IN THE DATASET: 11

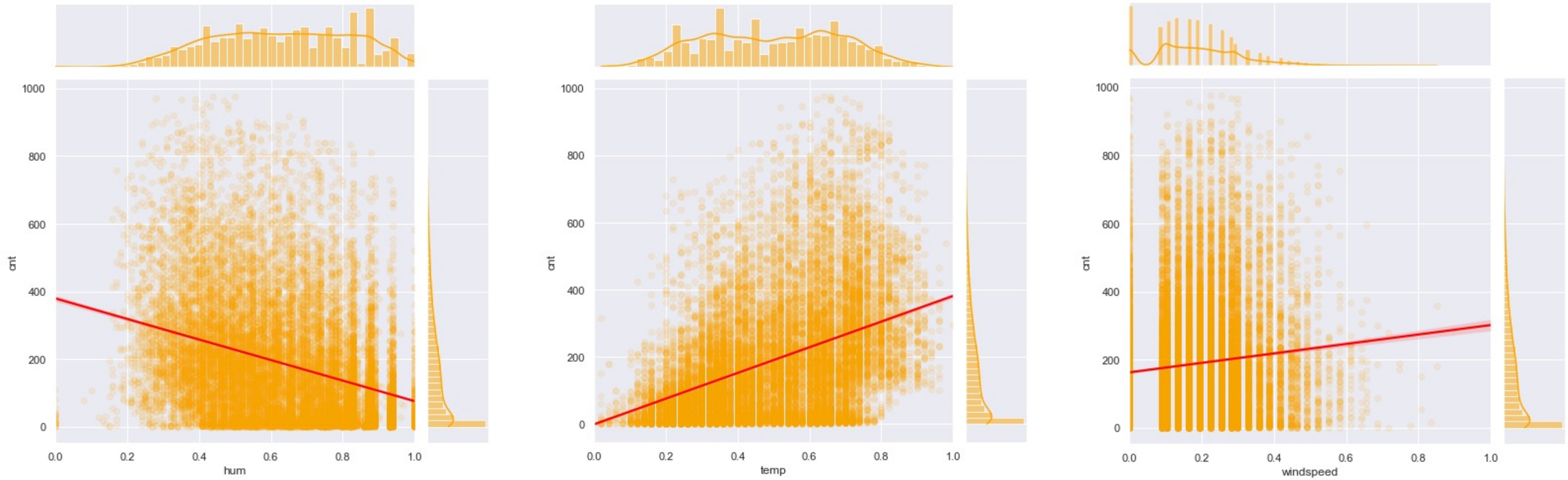
TOTAL NUMBER OF OBSERVATIONS: 17379

MISSING VALUES: 499

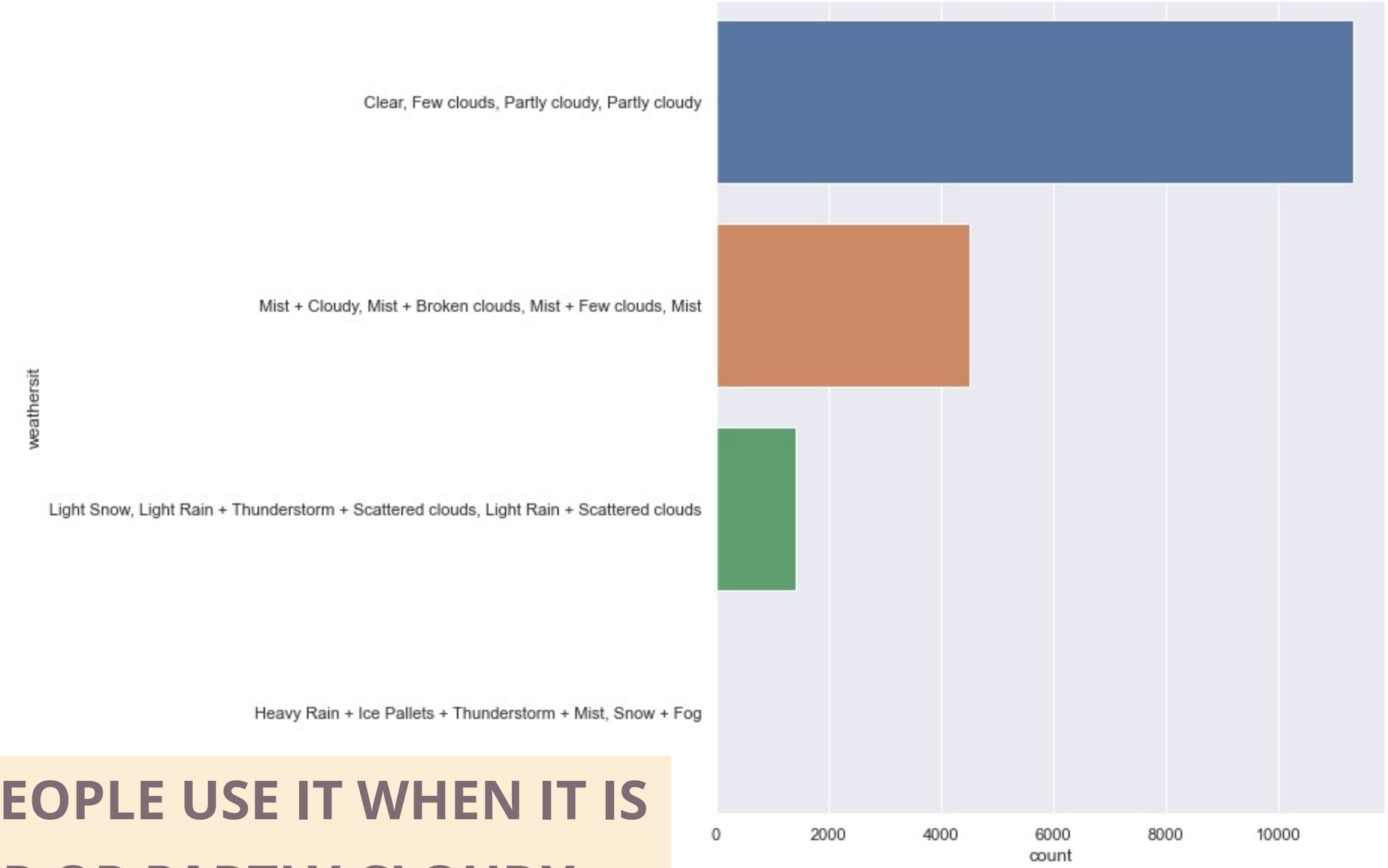
DATATYPES: 9 NUMERICAL, 1 DATETIME, 1 CATEGORICAL



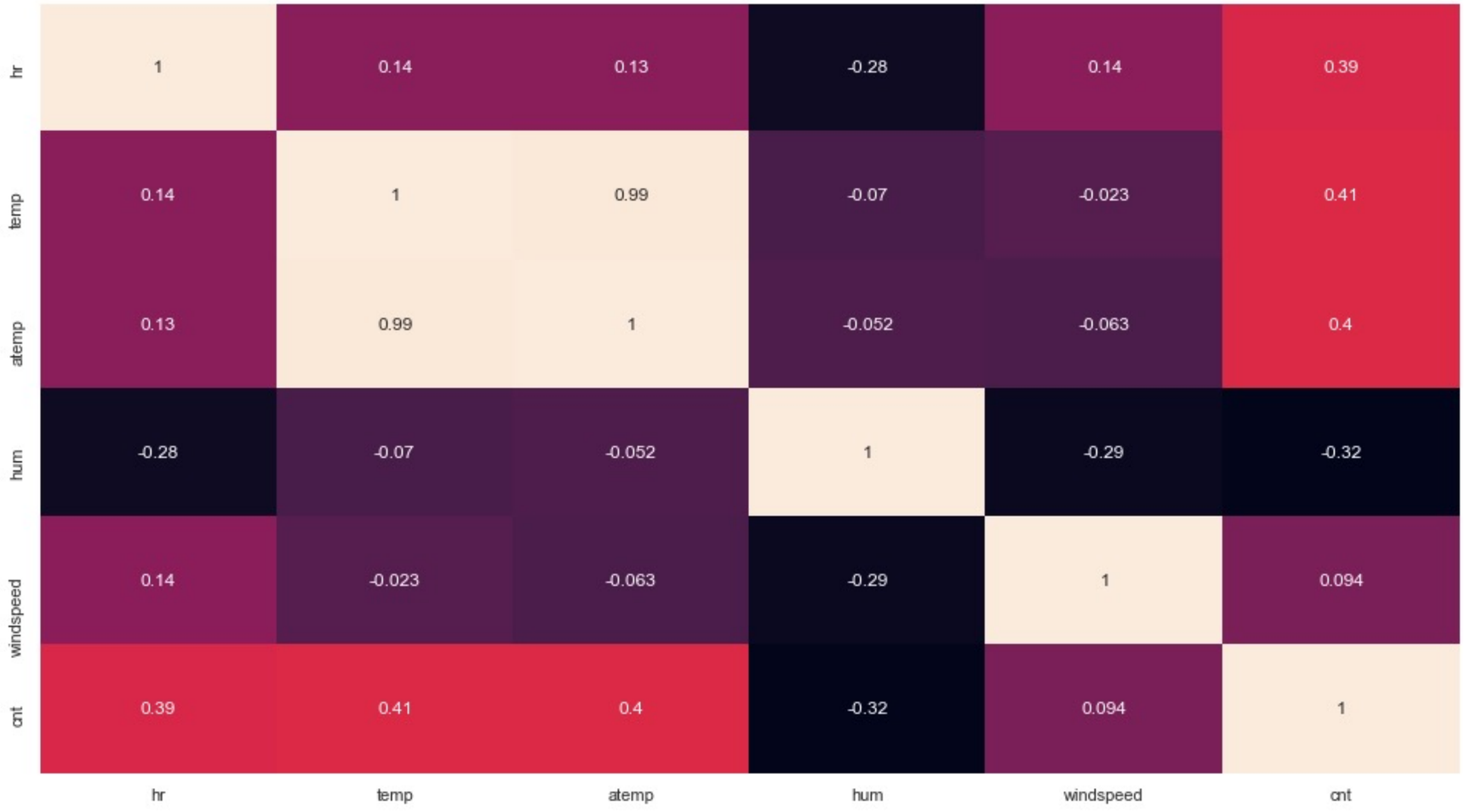
CORRELATION PLOTS FOR DIFFERENT FEATURES IN THE DATASET



HUMIDITY SEEM TO HAVE A NEGATIVE IMPACT WHILE TEMPERATURE AND WINDSPEED HAVE A POSITIVE IMPACT



MOST PEOPLE USE IT WHEN IT IS CLEAR OR PARTLY CLOUDY



NO CORRELATION BETWEEN EXPLANATORY VARIABLES ONLY WITH TARGET VARIABLE

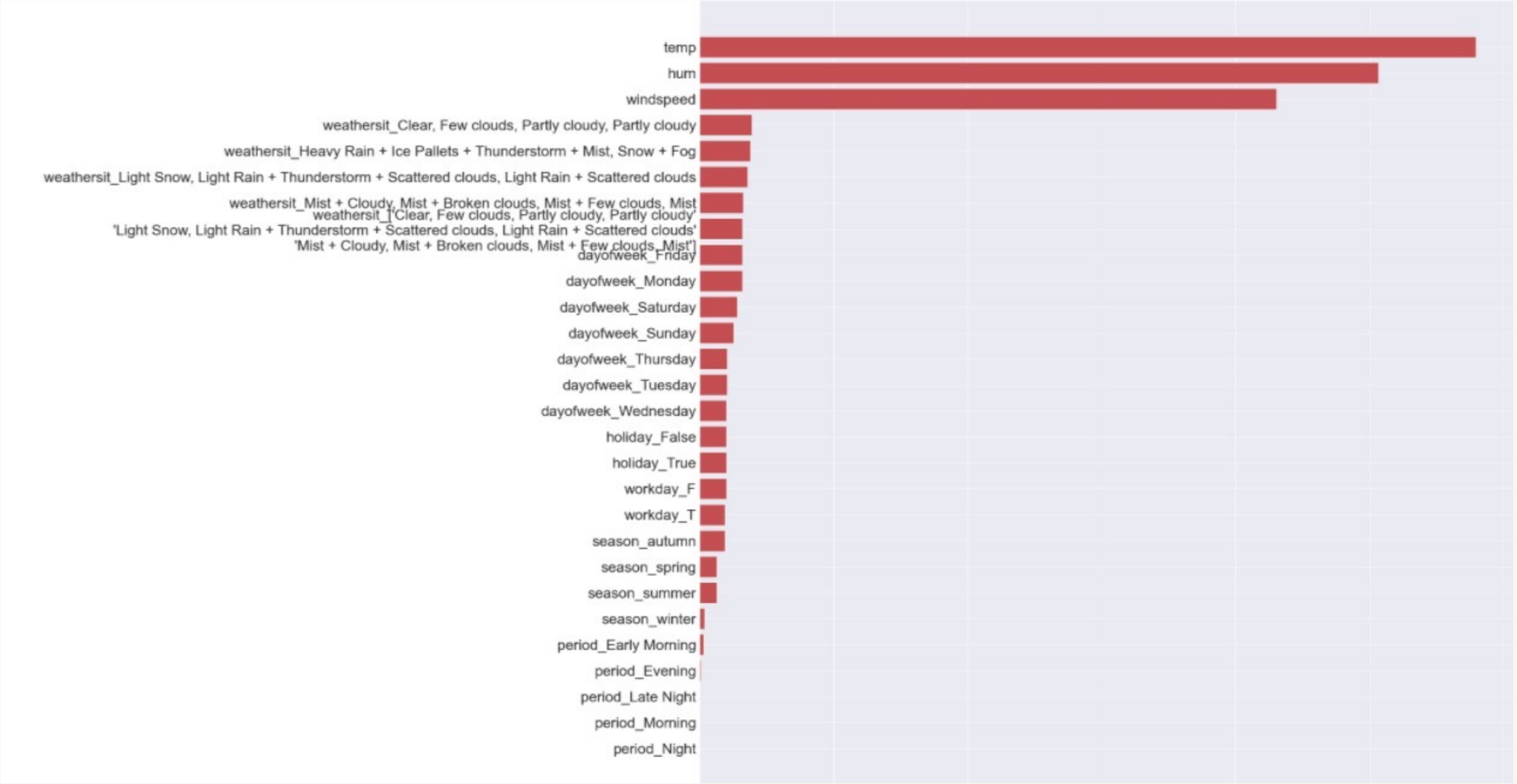
DATA TRANSFORMATION & DATA ENGENEERING

MODIFICATIONS ON THE DATA

- Splitting of the timedate column into Day, Month and Year
- Extraction of US Federal Holidays
- Creation of the different seasons
- Dividing the day into different periods
- Changing the type of certain columns in to categorical and impute missing values with median
- Feature importance and selection based on chi-squared
- Splitting of data into train and test

MODELLING & PARAMETER TUNING

FEATURE IMPORTANCE



MODELLING & PARAMETER TUNING

MODELS

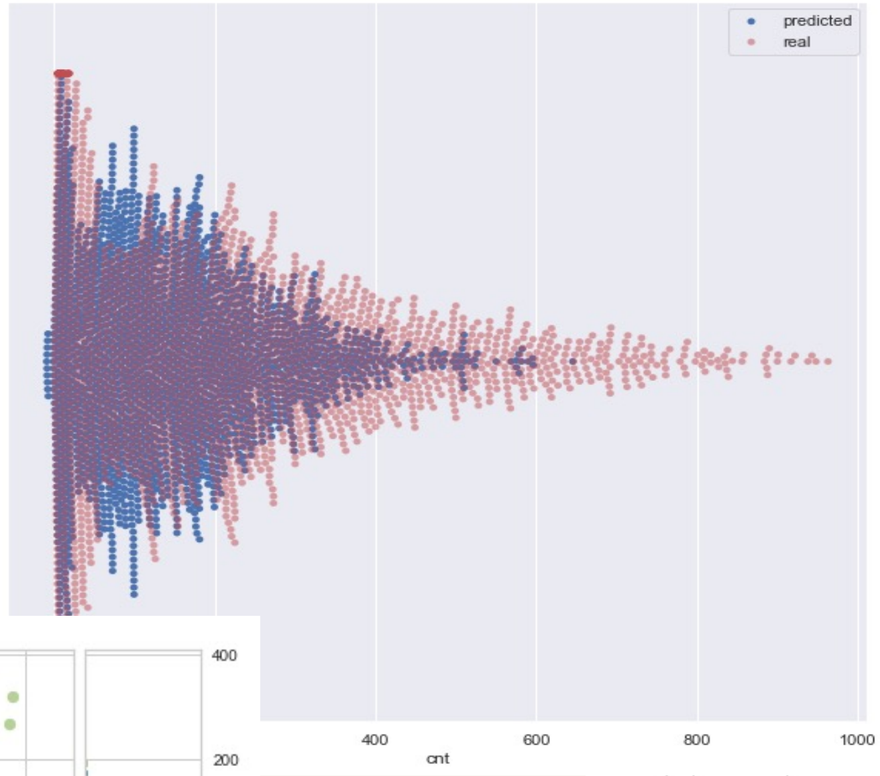
	Model	MAE	MSE	RMSE	R2	RMSLE	MAPE	TT (Sec)
0	Extreme Gradient Boosting	68.3130	10223.3450	101.0688	0.6733	0.8690	1.6566	0.4555
1	Random Forest	67.6815	10358.0253	101.7283	0.6690	0.8243	1.5673	0.5706
2	Linear Regression	88.0528	14584.0316	120.7289	0.5344	1.0811	2.5062	0.0078
3	Ridge Regression	88.0329	14582.1098	120.7211	0.5344	1.0808	2.4987	0.0051
4	Kernel Ridge	88.0334	14582.0566	120.7209	0.5344	1.0808	2.4991	6.2381
5	Lasso Regression	87.8868	14676.7894	121.1134	0.5314	1.0723	2.4467	0.0080
6	Decision Tree	87.3781	18680.8778	136.5907	0.4032	0.9999	1.6682	0.0519

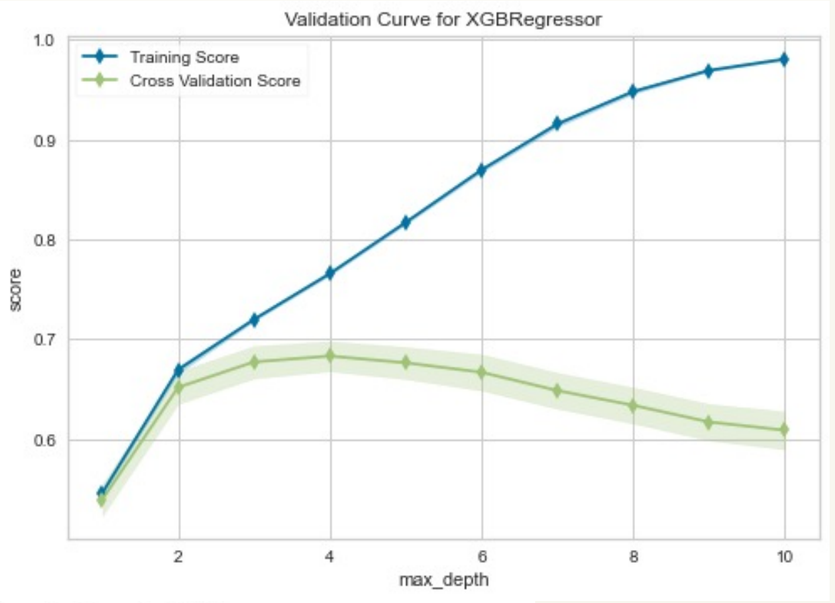
CROSS VALIDATION FOR DIFFERENT MODELS

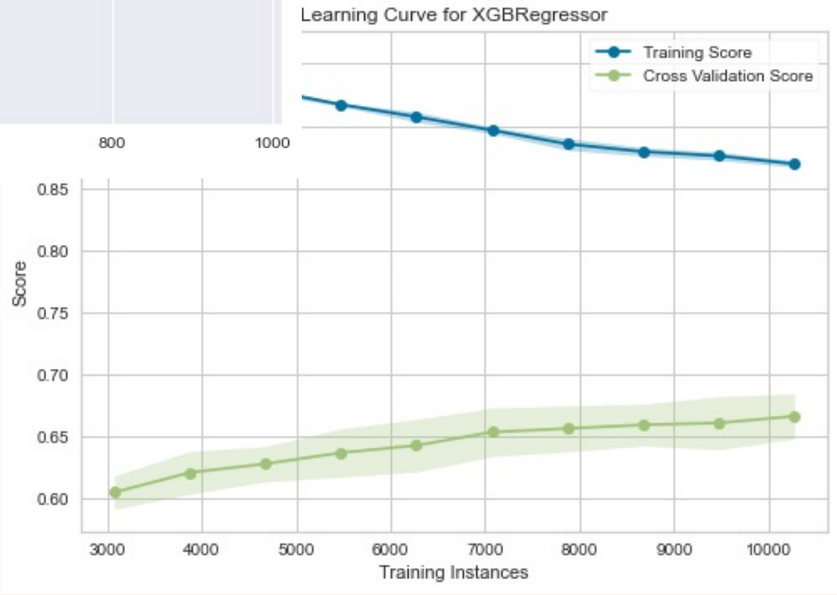
	MAE	MSE	RMSE	R2	RMSLE	MAPE
0	69.7329	9915.2284	99.5752	0.6719	0.8909	2.0793
1	72.1534	10901.9855	104.4126	0.6583	0.8866	2.0811
2	72.4944	10681.9451	103.3535	0.6620	0.8989	2.1173
3	68.8420	9720.4992	98.5926	0.7013	0.8379	1.6946
4	70.6160	10406.5300	102.0124	0.6699	0.8514	1.7888
5	69.2835	10205.9930	101.0247	0.6678	0.8684	1.9635
6	70.4511	10712.9484	103.5034	0.6518	0.8614	1.8745
Mean	70.5105	10363.5899	101.7821	0.6690	0.8708	1.9427
SD	1.2842	406.1220	2.0008	0.0147	0.0207	0.1506

MODELLING & PARAMETER TUNING

INSIGHTS OF THE MODELS







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