XAI3 -Report

Link to GitHub : https://github.com/EvgenyGrach/EDM-XAI3

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Exercise 1:

Having generated the PDP plots for the bike rentals dataset we can continue and analyze the results provided by our investigations.

First thing to notice is the PDP for days\_since\_2011 is that there is an initial decline suggesting a decline in usage, followed by a gradual increase in bike rentals continuing with a sharp rise, to end with a drop suggesting system limitations.

Continuing our analysis we stumble into the wind speed PDP, we can observe that the higher the wind speed the lesser the amount of bikes rented.

The next PDP to analyze is the temperatura one, this PDP suggests that the higher the temperature the higher the amount of bike rentals, which makes sense since the better the weather the more comfortable is the bike ride, but it decreases past 30 degrees because it gets too hot to ride bikes.

To conclude we can analyze the humidity PDP, which indicates that at higher humidity the bike rentals decrease, this is due to that at higher humidity the higher is the chance off rain.

Gráfico

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Descripción generada automáticamente

Exercise 2: 2 Dimensional PDP

Gráfico

Descripción generada automáticamente con confianza media

Observing our 2D Partial Dependency Plot we can see some trends, for example for lower temperature the predicted number of rentals is generally lower across all humidity levels, represented by the darker blues. We also can see that the optimal conditions for renting are moderate temperaturas, this being around 10 to 20 degrees Celsius and around 25% to 75% humidity . Last but not least we can see that at higher temperatures or higher levels of humidity the expected amount of rented bikes decline due to disconfort from excessive heat and moisture.

Exercise 3:

Fot this exercise we analyzed how certain features of a house influence its price.

To begin with we can observe the PDP plot for the number of bedrooms, where we observe quite a strange behaviour since the more bedrooms the lower the Price goes, reaching its peack Price at 2.5 bedrooms.

To continue we can observe the PDP for bathrooms, which outputs the expected results, showing that the Price goes up according to the number of bathrooms, same happens in the PDP that explains the amount of living square feet, the more availible squared feet the higher the Price of the house.

The same occurs with the amount floors, in this case the Price is stable while the house has form 1 to 2 floors, but goes exponentially higher rom 3 bedrooms and upwards.

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