FeatureAddition-MachineLearning

January 12, 2021

0.1 Select 10 random house from filtered dataset

 $Filtered\ dataset: [37,\ 40,\ 41,\ 42,\ 51,\ 53,\ 54,55,\ 56,\ 57,\ 58,\ 60,\ 70,\ 72,\ 99,\ 100,\ 105,\ 108,\ 115]$

Based on older notebooks and on Amin's adaptation of that

```
[3]: import pandas as pd import numpy as np from IPython.display import display, HTML
```

```
[4]: df = pd.read_pickle('W12_KNMI_complete')
irr = df[['sun_irradiance']]
sun = irr.shift(24)
sun
```

```
[4]:
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[17400 rows x 1 columns]

0.1.1 Features

```
[5]: houses = [28, 37, 40, 42, 51, 56, 58, 70, 99, 100, 105, 115]
notsheet = 'consumption'
sheet = 'production'
path = '/home/16095065/notebooks/zero/Data:/testDataFrames/TEST/'
```

```
[11]: for housenr in houses:
          housenr = f'{housenr:03}'
          df = pd.read_pickle(f'consumption_production_pickle_{housenr}')
          df = df.drop([notsheet], axis=1)
          #HOURS
          hrdf = pd.DataFrame(df.index.hour, index=df.index, columns=['hour'])
          hrdum = pd.get_dummies(hrdf['hour'], 'hour')
          df = pd.concat([df, hrdum], axis=1)
          #WEEKDAY
          wddf = pd.DataFrame(df.index.dayofweek, index=df.index, columns=['weekday'])
          wddum = pd.get_dummies(wddf['weekday'], 'weekday')
          df = pd.concat([df, wddum], axis=1)
          #Shifted days
          def shifting(sf, shift:int):
              sf['cons_T-'+str(shift)] = sf[sheet].shift(periods=shift, freq='H')
              return sf
          shiftDagen = range(24,169)
          for i in shiftDagen:
              df = shifting(df, i)
          #Mean values
          temp_df = df.filter(items=[sheet]).resample('7D').mean()
          day_temp_df = df.filter(items=[sheet]).resample('1D').mean()
              #week
          temp_df = temp_df.shift(1)
          temp_df = temp_df.resample('1H').ffill()
              #day
          day_temp_df = day_temp_df.shift(1)
          day_temp_df = day_temp_df.resample('1H').ffill()
              #columns added
          df['day_mean'] = day_temp_df#.mean(axis=1, skipna=True)
          df['week_mean'] = temp_df#.mean(axis=1, skipna=True)
          df['irradiance'] = sun
          df = df.fillna(0)
          display(HTML(f'<h3> {housenr} </h3>'))
          cols = df.columns.tolist()
          cols = cols[1:] + cols[:1]
```

```
df = df[cols]
    display(df.head(3))
    df.to_pickle(f"{path}MachineLearning_{sheet}_{housenr}_2")
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