



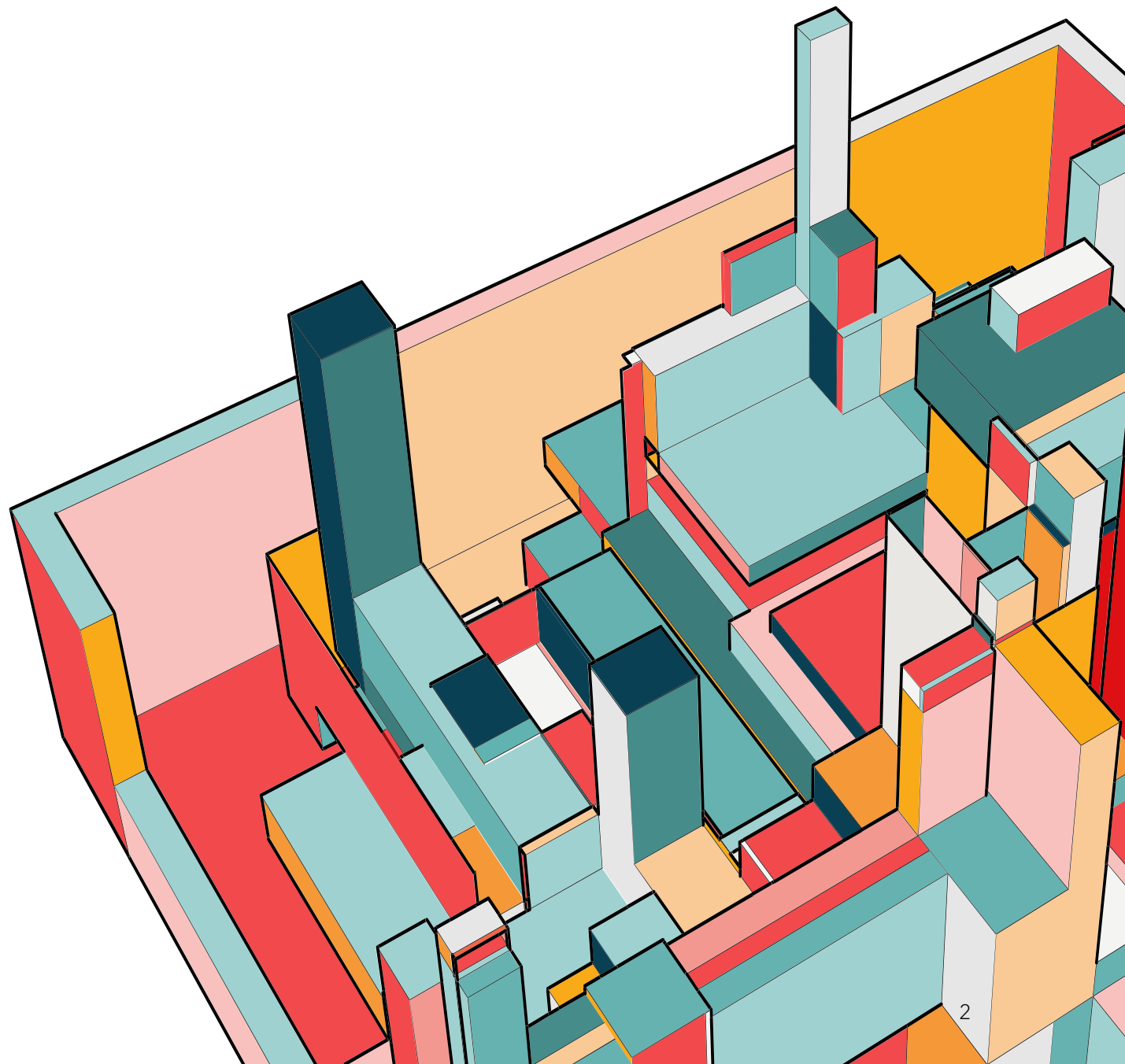
BUILDING ENERGY CONSUMPTION PREDICTOR (BECP)

SPRINT 2

Jose Correa

OBJECTIVE

Present more advanced preprocessing, EDA and baseline model creation for BECP.



An abstract graphic on the left side of the slide consisting of several 3D rectangular bars of varying heights and colors. The colors include red, teal, orange, and brown. The bars are arranged in a way that suggests a data visualization, with some bars being taller than others, creating a sense of depth and perspective.

AGENDA

Project overview

Dataset description

Preprocessing summary

Findings from EDA

Baseline models and evaluation metrics

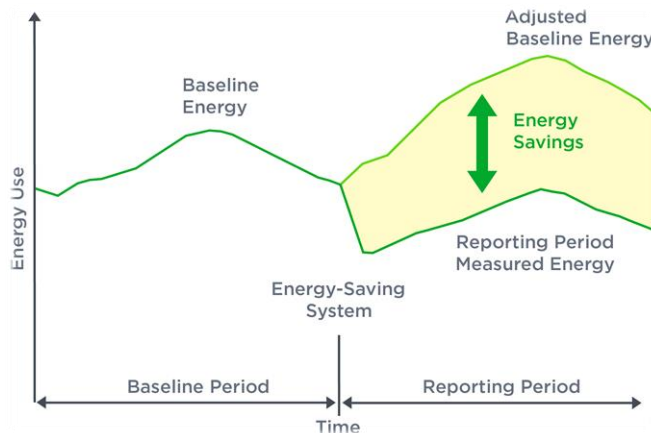
Next steps

OVERVIEW



PROBLEM STATEMENT

Inaccuracy when assessing how effectively building renovations impact energy consumption.



PROPOSED SOLUTION

Promote efficient building renovations through the implementing of the BECP ML model. This model predicts energy consumption by considering building features and weather conditions.



POTENTIAL IMPACT

MARKETABILITY

9 out of 10 buyers prefer energy-efficient homes

ENERGY EFFICIENCY

Higher-efficiency equipment can reduce energy use by 50%

CLIMATE CHANGE

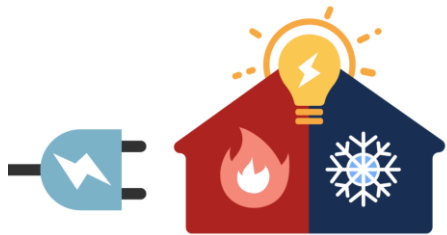
Buildings account for 30% of global energy consumption and 26% of global energy-related emissions

BECP DATASET

3 x 

20M rows

400k rows



PREPROCESSING



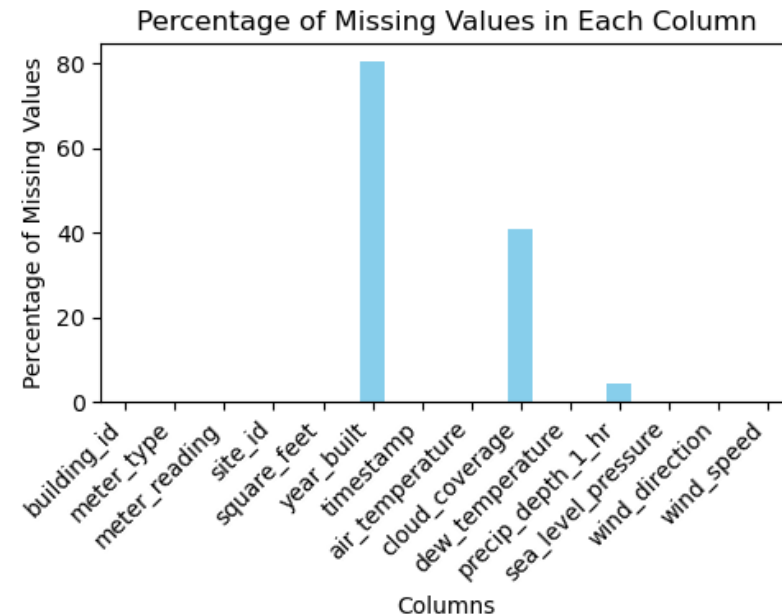
COLUMN CLEANING

primary_use
floor_count
meter_timestamp

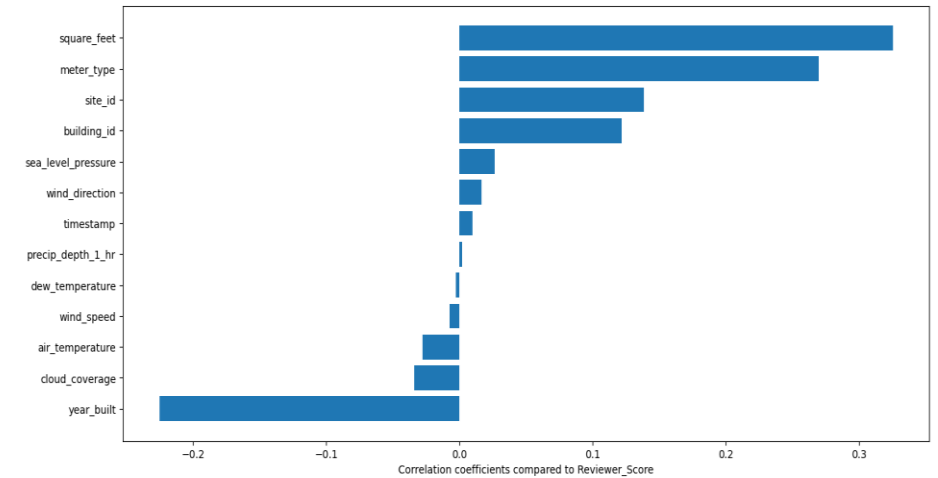
DUPLICATE VALUES

0.002% duplicate
rows dropped

NULL VALUES

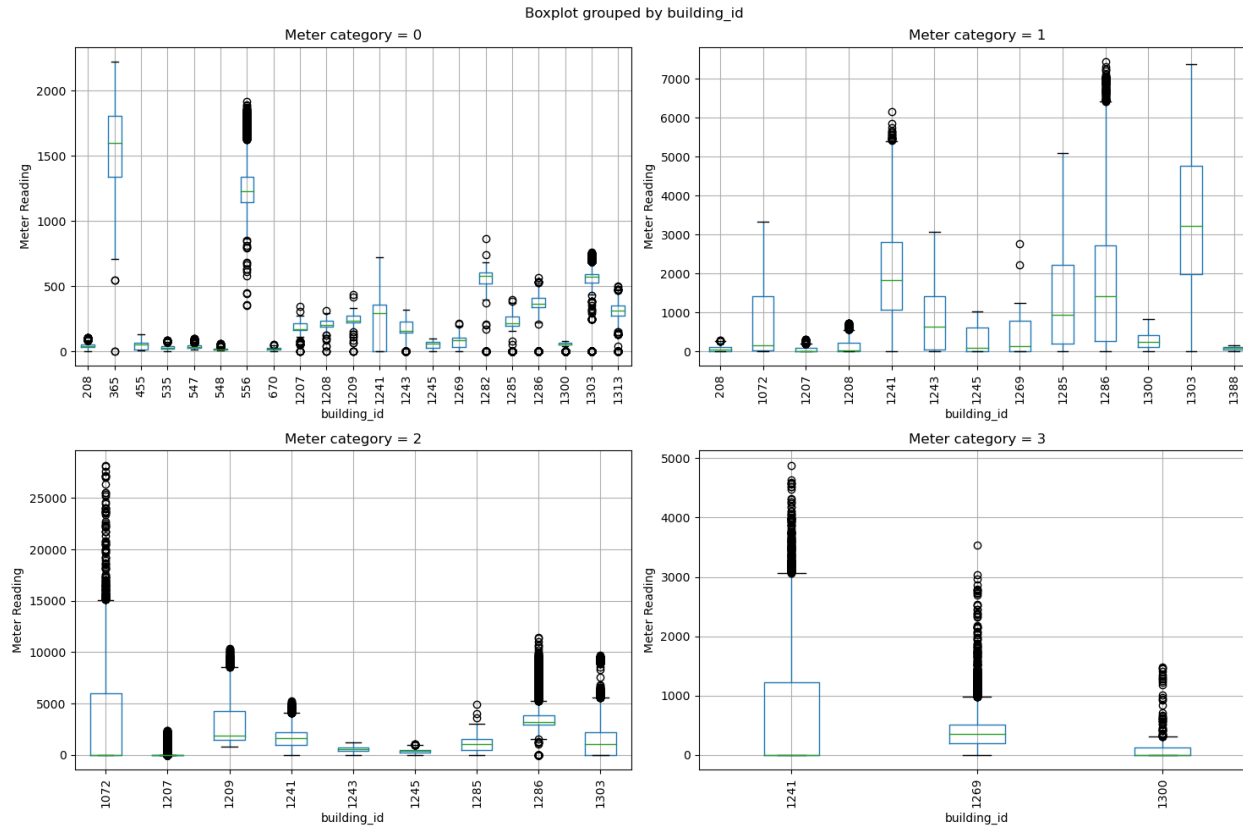


CORRELATION COEFFICIENTS

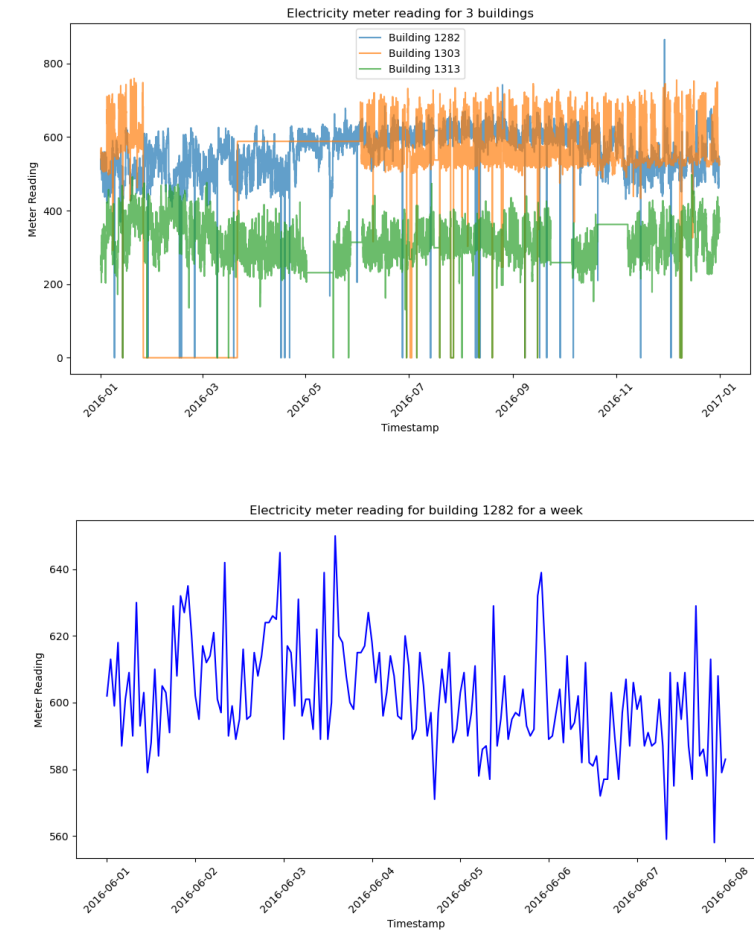


FINDINGS FROM EDA

BUILDING AND METER TYPES

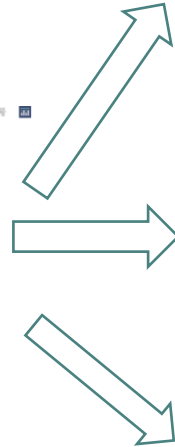
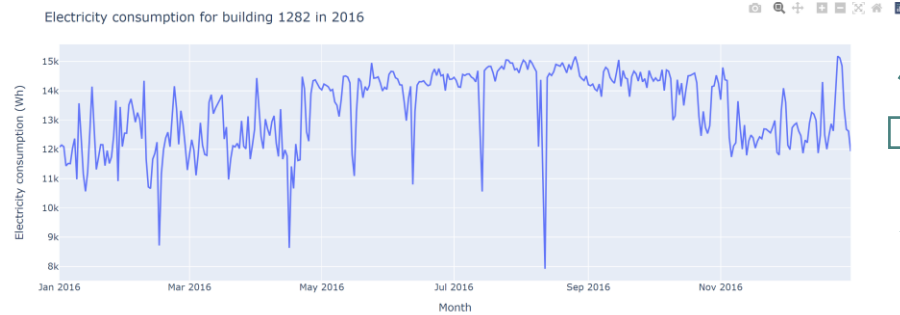


BUILDING ELECTRICITY



BASELINE MODEL

TIMES SERIES DECOMPOSITION



NEXT STEPS

TIME SERIES ANALYSIS

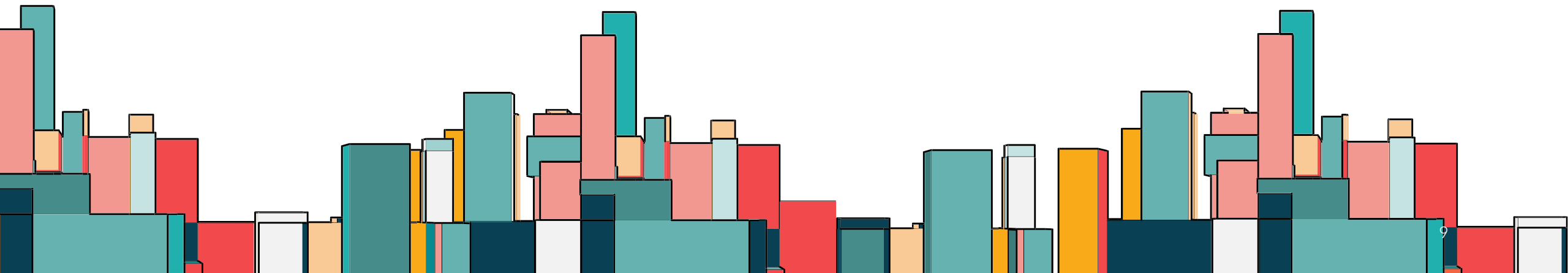
- Compare different buildings
- Predicting residuals including weather and building features

DECISION TREE

- Use energy consumption of hour 1, 2, 3, 4 to predict energy consumption hour 5.

RANDOM FOREST

- Profit approach, module to use the weather data
 - Include building characteristics to improve energy prediction



THANK YOU

Jose Correa

