

Group #: 6

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## Interim Report

### Energy Efficiency Predictor

#### General Plan and Role Assignments:

Ahmad

1. Complete a literature scan on HVAC systems and their efficiency
2. Determine the correlation coefficients for each variable that can affect the heating and cooling loads
  - a. Use at least two models
    - i. If unsure if a variable affects the outcome, make a model including that variable and without the variable
      1. If the RMSE of the model with the variable is lower than that of the model without, use the model including the variable
3. Decide which data frame to use to source data
  - a. based on
    - i. lowest error
    - ii. acceptable train test results
4. After the first interface is completed, create a loop that inputs random values into the interface, and test that the interface accurately predicts values (within uncertainty) based on the regression line/curve

Chris

5. Derive an equation based on the correlation coefficients to help predict heating and cooling loads from entered inputs
6. Build the input data entrance system and link the first interface to the data model/equation chosen
  - a. As you work on the interfaces, clearly explain your work using markdown cells
7. After interfaces are complete, record and post the youtube how-to video

Nathan

8. Complete the first interface
  - a. Build if else chain to accept present values and determine if heating or cooling assumption
  - b. Use tests to only work with high correlation inputs

- c. Input needed variables into Chris's function
- d. Print assumed value
- e. Build functions that derive heating and cooling loads from inputted data and print
- f. Determine the uncertainty of the predicted outputs and print

test by inputting known values and receiving a near if not exactly equal value

9. Build an interface to allow users to add observations to the underlying database, and automatically update the Data Model to incorporate the new observations
  - a. Build if else chain to accept present values and replace non present with NaN
  - b. Build single row array and append it to the complete array

Test by running the info command before and after to see if the array is exactly one longer

10. As you work on the interfaces, clearly explain your work using markdown cells

All

- Participate in a how-to video demonstrating performance of the interfaces
- Complete a final peer evaluation report, where each group member should rate the participation and contribution of the other members.

\*Note: Responsibilities above may be shared or switched.

### Tentative Schedule:

\*See Ahmad and Chris's work above

May 1<sup>st</sup>: Meet to complete data model and link data model to the first interface

\*See Nathan's work above

May 3<sup>rd</sup> - 4<sup>th</sup>: Meet to complete interfaces and final report

May 5<sup>th</sup>: Meet to fix any issues and record youtube video

\*See Chris's work above

May 6<sup>th</sup>- 7<sup>th</sup>: Once video is posted, submit final report, video link, and peer evaluations

\*Work in between meeting dates