SP2020 CS/CSA 499 TEAM 4 DOCUMENTATION

Team Structure:

- Cole - event randomization and initialization
- Cullen - JavaFX design and implementation
- Pratyusha - SQL Database design and implementation
- Robert - Team lead, general Java support
- Samuel - General Java and SQL design and support
- Trey - Japanese app translation, general Java support

Project Purpose:

The purpose of this project is to undertake the user's request of a smart home application to be built that would manage and monitor general situations like appliance usage, utilities and more administrative purposes defined by the client in a sit down meeting with the team towards the beginning of this task. The client is to be kept up to date with the status of the project through regular meetings scheduled by the client.

Project Deadline:

The project is due to be presented to the client the week of **April 20, 2020**, and as such, is to be completed no later than and turned in to the client on **April 17, 2020**.

User Requirements:

- Project should run on a tablet or computer.
- Completed project should consist of 3 screens:
    - Screen 1: Floor plan and temperature control
    - Screen 2: Multi-line graph for electric and water usage
    - Screen 3: Administrative uses
- When taking note of temperatures INSIDE the house there can be an HVAC temperature variance of +/- 2
- Garage door should open and close (this does not affect HVAC)
- Instances of doors / windows opening and closing should be tracked
- Tracking 6 months worth of weather information
- Random generation of instances of doors/windows opening
- Track the on / off status of each smart appliance / light
- Track water and electricity usage based on information coming out of whether things are turned on / off in the floor plan information

Project Requirements:

- These are our own requirements whcih expand upon the provided user requirements:
    - Screen 1: Left ¾ = floor plan, Right ¼ = in / out temperature control.
    - Screen 2: Multi-line graph for electric and water usage (y axis should be a number and not a qualitative measurement, x axis should be the cost ranges from months 1 - 6).
    - Screen 3: (Administrative) Toggle sensors to simulate changing activities for the demo.
    - Translation of product into Japanese at the user facing level.

Main Objectives:

- Create a GUI that consists of three pages and contains a map of the house and graphs that track appliance usage and housing events such as doors opening
- Creation of data about utility usage and weather patterns that affect graphs on the administrative page of the GUI
- Linking the database containing the generated information to the GUI

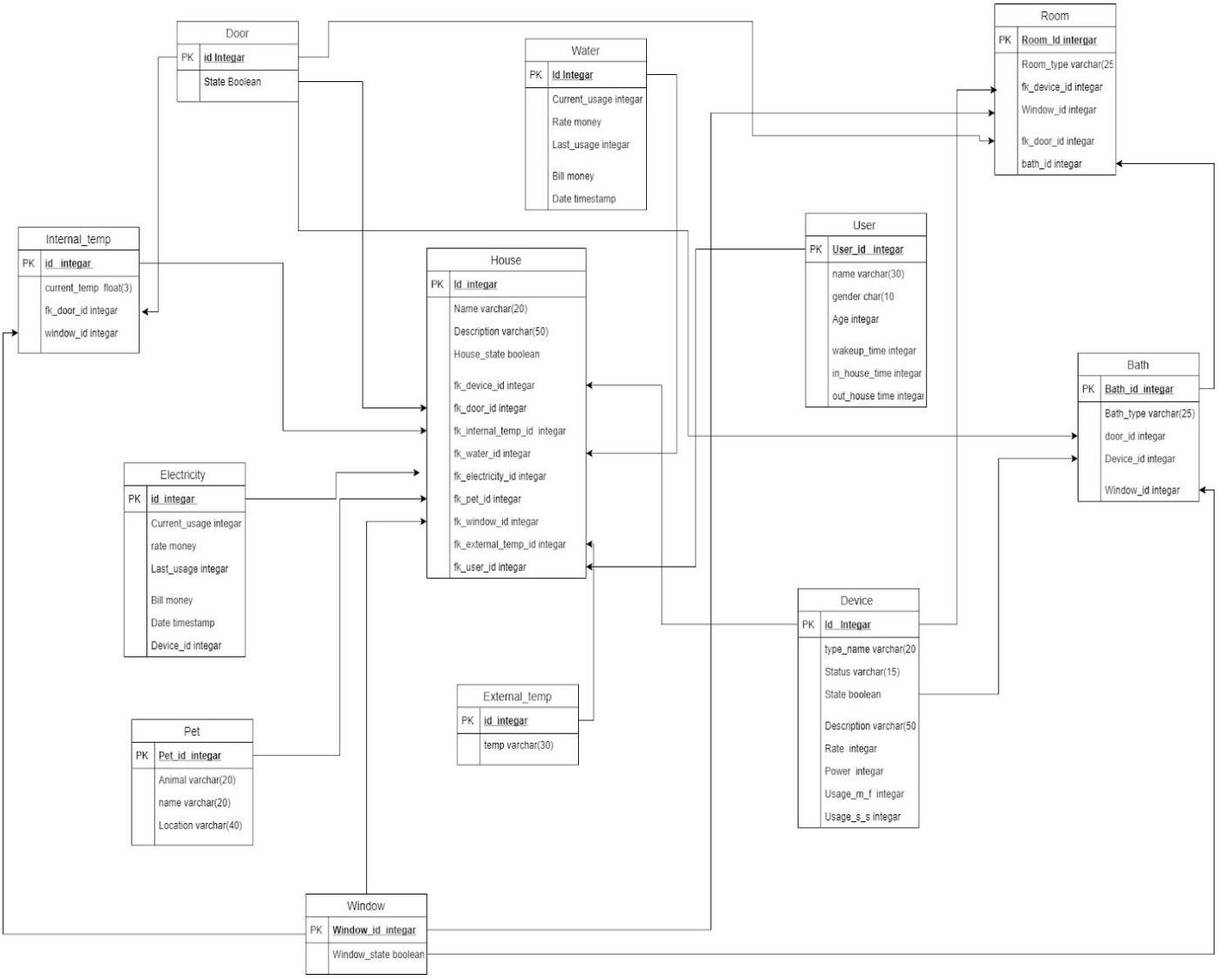
Languages Utilized:

- Java - building tha backend we will use Java, and the user facing app interface will be using JavaFX
- SQL - the database that is connected to the Java project will be running the SQL language

Team Collaboration:

- The team will meet at regularly weekly or biweekly intervals using the online video conferencing application, Zoom. This is to ensure that everyone is on the same page as to where the project is at and that any issues or ideas can be worked on with the entire team present. Any other issues can be discussed using the encrypted Telegram thread started for this project and may also branch off into supplementary Zoom video conferencing between team members or team members and the client.
- As of April 2020, Zoom will also be the platform for client meetings to discuss progression of the smart home project. Any questions that do not strictly necessitate a video conferencing situation should be discussed over email.

DATABASE ERD:



User Facing Project (Japanese Translation):