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title: "Sense\_1"

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output: html\_document

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# Librarys

```{r include = FALSE}

library("dplyr")

library("tidyverse")

library("readxl")

library("lubridate")

library("ggplot2")

library("fitdistrplus")

```

# Read in Data

```{r}

sense <- readRDS("C:/Users/kelseyf/Desktop/Sense R Code/thesis/sense\_all.rds") %>%

dplyr::select(!c(serial\_number)) %>%

relocate(datetime, .before = device\_id) %>%

relocate(date, .after = datetime) %>%

relocate(id\_home, .before = datetime)

#write.csv(sense, "sense\_all.csv")

```

# Charactegorize data by energy use activities: cooking, cleaning, people

```{r}

data\_char <- dplyr::select(sense, id\_home, datetime, date, device\_type) #%>% #select columns of interest

# Cooking

cooking <- filter(data\_char, device\_type == 'oven'| device\_type == 'microwave' |

device\_type == 'stove top' | device\_type == 'coffee maker' |

device\_type == 'tea kettle' | device\_type == 'toaster oven' | device\_type == 'blender') %>%

distinct(id\_home, datetime, .keep\_all = TRUE)

cooking\_min <- group\_by(cooking, id\_home, date) %>%

distinct(id\_home, datetime, .keep\_all = TRUE) %>%

count(date) %>%

rename(cooking\_min = n)

# Cleaning

cleaning <- filter(data\_char, device\_type == 'disposal' | device\_type == 'washer' |

device\_type == 'dryer' | device\_type == 'vacuum' | device\_type == 'dishwasher') %>%

distinct(id\_home, datetime, .keep\_all = TRUE)

cleaning\_min <- group\_by(cleaning, id\_home, date) %>%

distinct(id\_home, datetime, .keep\_all = TRUE) %>%

count(date) %>%

rename(cleaning\_min = n)

temp\_control <- filter(data\_char, device\_type == 'ac' | device\_type == 'mystery heat' |

device\_type =='furnace' | device\_type =='space heater' | device\_type == 'fan' |

device\_type == 'other heater') %>%

distinct(id\_home, datetime, .keep\_all = TRUE)

temp\_control\_min <- group\_by(temp\_control, id\_home, date) %>%

count(date) %>%

rename(t\_control\_min = n)

```

# Create dataframe of activities

```{r}

summary <- full\_join(cooking\_min, cleaning\_min, by = c("id\_home", "date")) %>%

full\_join(temp\_control\_min, by = c("id\_home", "date"))

summary[is.na(summary)] <- 0 #replace NA with 0

#write\_rds(summary, "energy\_activity.rds")

```

**Device\_type**

"alwayson" "mystery device" "fridge" ~~"furnace~~" "garage door" "~~microwave"~~

"~~stove top"~~ ~~"ac"~~ "~~dryer"~~ ~~"mystery heat" "coffee maker"~~ "~~washer"~~ "light"

"mystery motor~~" "disposal"~~ ~~"dishwasher"~~ "freezer~~" "oven"~~ ~~"vacuum"~~  ~~"tea kettle"~~ "pump" "water heater" "~~other heater" "space heater"~~ "ice maker" ~~"toaster oven" "fan"~~ "tv" "printer" "hair dryer" "tv/monitor" "solar" "power tool" "~~blender"~~

|  |  |  |
| --- | --- | --- |
| cooking | cleaning | Temp control |
| microwave | dryer | furnace |
| Stove top | washer | ac |
| Coffee maker | disposal | Mystery heat |
| oven | dishwasher | Other heater |
| Tea kettle | vacuum | Space heater |
| Toaster oven |  | fan |
| blender |  |  |

**Sense\_device\_name**

[1] "consumption" "always on" "device 1" "fridge" "motor 1" "garage door" "microwave"

[8] "stove" "ac" "dryer" "heat 4" "heat 2" "furnace" "dryer 2"

[15] "coffee maker" "washer" "light 2" "motor 2" "heat 1" "heat 8" "heat 3"

[22] "fridge 2" "disposal" "dishwasher" "heat 5" "light 1" "light 5" "oven"

[29] "vacuum 2" "stove 2" "light 4" "pump" "water heater" "heat 6" "stove 3"

[36] "stove 4" "production" "heat 7" "light 6" "light 10" "light 9" "light 11"

[43] "light 13" "light 7" "pump 3" "coffee maker 3" "vacuum" NA "light 3"

[50] "fan" "samsung tv" "light 12" "coffee maker 2" "device 2" "laser printer" "pump 2"

[57] "ac 2" "heat 9" "fan 2" "fridge 3" "microwave 2" "oven 2" "garage door 2"

[64] "heat 10" "light 8" "device 3" "ac 3" "fridge 4" "device 5" "heat 12"

[71] "heat 17" "device 4" "motor 5" "furnace 2" "heat 13" "heat 18" "heat 14"

[78] "motor 4" "garage door 3" "motor 3" "heat 19" "saw" "heat 25" "heat 16"

[85] "heat 21" "heat 11" "heat 20" "fridge 5" "heat 15" "heat 23" "heat 30"

[92] "blender"