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### Basic Extraction Routine
# Made for Etch-a-Sketch Data
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PACKS <- c("dplyr","data.table", "tidyr")
lapply(PACKS, library, character.only = TRUE) ; rm(PACKS)
setwd("C:/Users/danie/University of Cincinnati/Annand, Colin (annandct) -
EtchSketch/EtchSpeed/Processed_Data_&_Working_Directory")

processed.names <- list.files(full.names = FALSE, recursive = TRUE, pattern =
"PROCESSED.csv")

#..... FUNCTIONS .....#
euclid <- function(cursorX,cursorY,targetX,targetY) {
  a <- (targetX - cursorX)
  b <- (targetY - cursorY)
  c <- sqrt(a^2 + b^2)
  return(c)
}
#####
rms_extraction <- function(csv_file){
  csv_data <- fread(csv_file,header = FALSE, col.names =
c('timestamp','cursorX','cursorY','targetX','targetY'))
  trial <- euclid(cursorX = csv_data$cursorX,
                  cursorY = csv_data$cursorY,
                  targetX = csv_data$targetX,
                  targetY = csv_data$targetY);
  rms_error <- sqrt(mean(trial^2));
  return(rms_error)
}
#####
# EXTRACT to ONE CSV for Comparison of Pre/Post & Conditions
#####

Processed_RMS <- sapply(X = processed.names, FUN = rms_extraction, USE.NAMES =
FALSE)
All_RMS <- data.frame(processed.names,Processed_RMS)
Organized_RMS <- separate(data = All_RMS, col = processed.names, sep = "_",
into = c("Condition", "Participant", "Subnum", "Rate", "Block","name"), fill =
"warn")
Organized_RMS$name <- NULL
write.csv(Organized_RMS,"Organized_RMS.csv") ;
rm(All_RMS,processed.names,Processed_RMS)

pre_postRMS <- Organized_RMS %>% filter(Rate == "0.04") %>% filter(Block ==
c("B1","B4"))

pre_RMS <- pre_postRMS %>% filter(Block == "B1")
post_RMS <- pre_postRMS %>% filter(Block == "B4")

pre_RMS_Colla <- pre_RMS %>% filter(Condition == "Colla")
pre_RMS_Colla_vec <- pre_RMS_Colla %>% pull("Processed_RMS")

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post_RMS_Colla <- post_RMS %>% filter(Condition == "Colla")
post_RMS_Colla_vec <- post_RMS_Colla %>% pull("Processed_RMS")

pre_RMS_Rando <- pre_RMS %>% filter(Condition == "Rando")
pre_RMS_Rando_vec <- pre_RMS_Rando %>% pull("Processed_RMS")

post_RMS_Rando <- post_RMS %>% filter(Condition == "Rando")
post_RMS_Rando_vec <- post_RMS_Rando %>% pull("Processed_RMS")

pre_post_diff_Rando <- abs(pre_RMS_Rando_vec - post_RMS_Rando_vec)
pre_post_diff_Colla <- abs(pre_RMS_Colla_vec - post_RMS_Colla_vec)

pre_post_diff <- c(pre_post_diff_Colla, pre_post_diff_Rando)
pre_post_diff_exp1 <- c(0.811893085,
                        1.14968942,
                        0.460987052,
                        0.813283133,
                        1.083853925,
                        0.391664518,
                        1.559905742,
                        1.183913019,
                        0.043260752,
                        0.264137229,
                        1.083257613,
                        0.894166266)
pre_post_diff_exp1_names <- c("Origi", "Origi", "Origi", "Origi", "Origi",
                              "Origi", "Origi", "Origi", "Origi", "Origi", "Origi", "Origi")
pre_post_diff_exp1_df <- data.frame(Condition = pre_post_diff_exp1_names,
pre_post_diff = pre_post_diff_exp1)
names <- post_RMS %>% select("Condition")
pre_post_diff_df <- data.frame(names, pre_post_diff)
pre_post_diff_df <- rbind(pre_post_diff_df, pre_post_diff_exp1_df)
write.csv(pre_post_diff_df, "Pre_post_diff_RMS.csv")

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