library(readxl) vgsales\_final <- read\_excel("C:/Users/kaky0225/Downloads/vgsales\_final.xlsx")

vgsales\_final$Genre <- as.factor(vgsales\_final$Genre)

#filter out obsolete platforms modern\_platform <- c("PC", "PS4", "XOne") games\_modern <-subset(vgsales\_final, Platform %in% modern\_platform)

#ANOVA Assumptions

#check normality for each genre group tapply(vgsales\_final$Global\_Sales, vgsales\_final$Genre, shapiro.test)

tapply(games\_modern$Global\_Sales, games\_modern$Genre, shapiro.test)

#Check Variance library(car) leveneTest(Global\_Sales ~ Genre, data = vgsales\_final)

leveneTest(Global\_Sales ~ Genre, data = games\_modern)

#Kruskall-Wallis Test kruskall\_all\_Platforms <- kruskal.test(vgsales\_final$Global\_Sales ~ vgsales\_final$Genre, data=vgsales\_final) kruskall\_all\_Platforms

kruskall\_modern <-kruskal.test(games\_modern$Global\_Sales ~ games\_modern$Genre, data = games\_modern) kruskall\_modern

#Classify Platforms by modern/obsolete vgsales\_final <-vgsales\_final %>% mutate(Platform\_Type = ifelse( Platform %in% modern\_platform, "Modern", "Obsolete" ))

#Compare entire distribution of sales between obsolete and modern platforms ks\_test <- ks.test( vgsales\_final$Global\_Sales, vgsales\_final$Global\_Sales[vgsales\_final$Platform\_Type=="Modern"] )

ks\_test

library(FSA) dunn\_result <-dunnTest(games\_modern$Global\_Sales ~ games\_modern$Genre,data = games\_modern, method= "bonferroni") dunn\_result

dunn\_df <- as.data.frame(dunn\_result$res)

#filter sig pairs (P.adj < 0.05) sig\_pairs <- dunn\_df[dunn\_df$P.adj <0.05,] sig\_pairs

#sort by P-val sig\_pairs <- sig\_pairs[order(sig\_pairs$P.adj),] sig\_pairs

#visualizations library(knitr) kable(sig\_pairs, caption = " Significant Genre Differences")

#~~~~~~~~~~~~~Regional preferences~~~~~~~~ NA\_kruskal <- kruskal.test(games\_modern$NA\_Sales ~ games\_modern$Genre, data = games\_modern) NA\_kruskal #2.2e-16

JP\_kruskal <- kruskal.test(games\_modern$JP\_Sales ~ games\_modern$Genre, data = games\_modern) JP\_kruskal #2.2e-16

EU\_kruskal <- kruskal.test(games\_modern$EU\_Sales ~ games\_modern$Genre, data = games\_modern) EU\_kruskal #4.119e-08

other\_kruskal <- kruskal.test(games\_modern$Other\_Sales ~ games\_modern$Genre, data = games\_modern) other\_kruskal #7.102e-13

#Create table for Kruskal-Wallis for Each Region Region\_Kruskall\_results= matrix(c(2.2e-16, 2.2e-16, 4.119e-08, 7.102e-13), ncol=1, byrow=TRUE)

colnames(Region\_Kruskall\_results) = c('P-val') rownames(Region\_Kruskall\_results) <- c('NA\_Kruskal-Wallis','JP\_Kruskal-Wallis','EU\_Kruskal-Wallis','Other\_Kruskal-Wallis') Region\_Kruskall\_results

#Dunn's Test #North America NA\_Dunn <- dunnTest(NA\_Sales ~ Genre, data = games\_modern, method = "bonferroni") NA\_sig\_pairs<- NA\_Dunn$res %>% filter(P.adj <0.05) NA\_sig\_pairs

NA\_sig\_pairs <- as.data.frame(NA\_sig\_pairs)

#sort by P-val NA\_sig\_pairs <- NA\_sig\_pairs[order(NA\_sig\_pairs$P.adj),]

kable(NA\_sig\_pairs, caption = " North America Genre Preferences")

#Japan JP\_Dunn <- dunnTest(JP\_Sales ~ Genre, data = games\_modern, method = "bonferroni") JP\_sig\_pairs<- JP\_Dunn$res %>% filter(P.adj <0.05) JP\_sig\_pairs

JP\_sig\_pairs <- as.data.frame(JP\_sig\_pairs)

#sort by P-val JP\_sig\_pairs <- JP\_sig\_pairs[order(JP\_sig\_pairs$P.adj),]

kable(JP\_sig\_pairs, caption = " Japan Genre Preferences")

#Europe EU\_Dunn <- dunnTest(EU\_Sales ~ Genre, data = games\_modern, method = "bonferroni") EU\_sig\_pairs<- EU\_Dunn$res %>% filter(P.adj <0.05) EU\_sig\_pairs

EU\_sig\_pairs <- as.data.frame(EU\_sig\_pairs)

#sort by P-val EU\_sig\_pairs <- EU\_sig\_pairs[order(EU\_sig\_pairs$P.adj),]

kable(EU\_sig\_pairs, caption = " European Union Genre Preferences")

#other Regions other\_Dunn <- dunnTest(Other\_Sales ~ Genre, data = games\_modern, method = "bonferroni") other\_sig\_pairs<- other\_Dunn$res %>% filter(P.adj <0.05) other\_sig\_pairs

other\_sig\_pairs <- as.data.frame(other\_sig\_pairs)

#sort by P-val other\_sig\_pairs <- other\_sig\_pairs[order(other\_sig\_pairs$P.adj),]

kable(EU\_sig\_pairs, caption = " Other Regions Genre Preferences")