Game Analysis

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## Libraries

library(DBI)  
library(RMariaDB)  
library(dplyr)

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

library(tidyr)  
library(ggplot2)

## Environment Variables

Get variables from .Renviron

## Functions

#' Get Database Data  
#'  
#' This function returns data from a database table.  
#'  
#' @param con The database connection  
#' @param query The database query used to return the table rows  
#' @return The results in a data frame  
#' @examples  
#' data <- get\_data(con,qry)  
get\_data <- function(con,query) {  
 tryCatch({  
 result\_df <- dbGetQuery(con, query)  
 return(result\_df)  
 }, error = function(e) {  
 print(paste("An error occurred:", e))  
 }, finally = {  
 dbDisconnect(con)  
 })  
}

get\_detail\_fav\_covers\_by\_year <- function(leagyear,det\_df) {  
 # det\_df <- read.csv('vw\_gameteamresultsdetail.csv')  
 # det\_df <- data  
 leagyear\_value <- leagyear  
 df <- det\_df %>%  
 filter(leagyear == leagyear\_value, isfav == 1, iscover == 1) %>%  
 group\_by(leagid,spread) %>%  
 summarise(iscover\_sum = sum(iscover, na.rm = TRUE), .groups = "drop") %>%  
 ungroup()  
 df <- as.data.frame(df)  
 return(df)  
}

get\_detail\_fav\_covers\_v\_dog\_covers\_by\_year <- function(leagyear,det\_df) {  
 # det1\_df <- read.csv('vw\_gameteamresultsdetail.csv')  
 leagyear\_value <- leagyear  
 df1 <- det\_df %>%  
 filter(leagyear == leagyear\_value, isfav == 1, ispush == 0) %>%  
 group\_by(leagid,spread) %>%  
 summarise(  
 favcover = sum(iscover == 1, na.rm = TRUE),  
 dogcover = sum(iscover == 0, na.rm = TRUE), .groups = "drop"  
 ) %>%  
 ungroup() %>%  
 arrange(spread,leagid)  
 df1 <- as.data.frame(df1)  
 return(df1)  
}

create\_bar\_chart <- function(data) {  
 df\_nfl <- data %>% filter(leagid == 1)  
 if(!is.numeric(df\_nfl$spread)) {  
 df\_nfl$spread <- as.numeric((as.character(df\_nfl$spread)))  
 }  
 df\_nfl <- df\_nfl %>% arrange(spread)  
 # df\_nfl <- df\_nfl[order(df\_nfl$spread,decreasing = FALSE), ]  
 df\_nfl$spread <- factor(df\_nfl$spread, levels = sort(unique(df\_nfl$spread)))  
 # df1 <- df1 %>% filter(spread >= 0 & spread <= 100)  
 ggplot(df\_nfl, aes(x = spread)) +  
 geom\_bar(aes(y = favcover, fill = 'Favorite'), stat = 'identity', position = position\_dodge()) +  
 geom\_bar(aes(y = dogcover, fill = 'Dog'), stat = 'identity', position = position\_dodge()) +  
 labs(  
 title = 'Common Spread Covers',  
 subtitle = 'Comparing Favorites and Dogs',  
 x = 'Spread',  
 y = 'Covers',  
 fill = 'Cover Type'  
 ) +  
 theme\_minimal() +  
 theme(legend.position = 'top') +  
 theme(axis.text.x = element\_text(angle = 90, hjust = 1, vjust = 0.5))  
}

main <- function() {  
 con <- db\_con()  
 qry <- get\_query(Sys.getenv("TABLE\_GAMEDETAILS"))  
 data <- get\_data(con,qry)  
   
 fav\_df <- get\_detail\_fav\_covers\_by\_year(2024,data)  
 print('Favorite Covers')  
 print(head(fav\_df))  
   
 df <- get\_detail\_fav\_covers\_v\_dog\_covers\_by\_year(2024,data)  
 print('Favorite Covers v. Dog Covers')  
 print(head(df))  
 create\_bar\_chart(df)  
   
}

## Output

main()

## [1] "Favorite Covers"  
## leagid spread iscover\_sum  
## 1 1 1.0 8  
## 2 1 1.5 10  
## 3 1 2.0 8  
## 4 1 2.5 13  
## 5 1 3.0 20  
## 6 1 3.5 20  
## [1] "Favorite Covers v. Dog Covers"  
## leagid spread favcover dogcover  
## 1 8 0.5 1 0  
## 2 1 1.0 8 7  
## 3 8 1.0 7 3  
## 4 1 1.5 10 5  
## 5 8 1.5 19 19  
## 6 13 1.5 325 510

