Game Analysis

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2025-02-09

Libraries

```r
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

```r
#' 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)
```

```r
  })
}

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',
```

```r
      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
```

Common Spread Covers
Comparing Favorites and Dogs

Cover Type ■ Dog ■ Favorite