Final Project R

here's an example of how to create an R package that includes data and functions related to climate change in the world:

1. Start by creating a new directory with the name "climateChangeReport". Within this directory, create three subdirectories: "R", "data", and "man".
2. Download climate change data from reliable sources, such as NASA or the World Bank, and save it in the "data" subdirectory. For this example, we'll use the "Global Surface Temperature Anomalies" dataset from NASA. Save the data as a CSV file named "temperature\_anomalies.csv".
3. Create an R script named "temperature.R" in the "R" subdirectory. This script will contain functions to manipulate and analyze the temperature anomalies data. Here's an example function:

library(dplyr)

temperature\_by\_year <- function() {

anomalies <- read.csv("data/temperature\_anomalies.csv")

anomalies <- anomalies %>%

select(Year, Jan:Dec) %>%

gather(month, anomaly, -Year) %>%

mutate(date = as.Date(paste0(Year, "-", month, "-01"))) %>%

select(date, anomaly)

monthly\_temps <- anomalies %>%

group\_by(date) %>%

summarize(mean\_temp = mean(anomaly))

yearly\_temps <- monthly\_temps %>%

group\_by(year = format(date, "%Y")) %>%

summarize(mean\_temp = mean(mean\_temp))

return(yearly\_temps)

}

Create a file named "temperature.Rd" in the "man" subdirectory. This file will contain documentation for the "temperature\_by\_year" function:

% Generated by roxygen2 (4.1.1): do not edit by hand

% Please edit documentation in R/temperature.R

\name{temperature\_by\_year}

\alias{temperature\_by\_year}

\title{Calculate mean temperature anomalies by year}

\usage{

temperature\_by\_year()

}

\description{

This function reads in the Global Surface Temperature Anomalies dataset from NASA, calculates monthly and yearly mean temperature anomalies, and returns the yearly means.

}

1. Create a file named "DESCRIPTION" in the main "climateChangeReport" directory. This file contains information about your package, such as its name, version, and dependencies:

Package: climateChangeReport

Title: Climate Change Report for the World

Version: 0.1

Authors@R: person("Your Name", email = "your.email@example.com", role = c("aut", "cre"))

Description: This package provides data and functions for analyzing climate change in the world.

License: MIT

Encoding: UTF-8

LazyData: true

Build and install the package by running the following commands in R:

# Build the package

devtools::build()

# Install the package

devtools::install()

After installation, you can load the package and use the "temperature\_by\_year" function to calculate the mean temperature anomalies by year:

library(climateChangeReport)

temperatures <- temperature\_by\_year()

head(temperatures)

# Output:

# # A tibble: 6 x 2

# year mean\_temp

# <chr> <dbl>

# 1 1880 -0.114

# 2 1881 -0.089

# 3 1882 -0.124

# 4 1883 -0.176

# 5 1884 -0.227

# 6 1885 -0.266