Reproducible Research: Peer Assessment 1

library(dplyr) library(lubridate) library(ggplot2)

## Loading and preprocessing the data

### 1. Load the data (i.e. read.csv())

data <- read.csv("activity.csv", header = TRUE, sep = ',', colClasses = c("numeric", "character", "integer")) datadate)

## What is mean total number of steps taken per day?

steps <- data %>% filter(!is.na(steps)) %>% group\_by(date) %>% summarize(steps = sum(steps)) %>% print

ggplot(steps, aes(x = steps)) + geom\_histogram(fill = "red", binwidth = 1000) + labs(title = "Histogram of Steps per day", x = "Steps per day", y = "Frequency")

## What is the average daily activity pattern?

mean\_steps <- mean(steps$steps, na.rm = TRUE) mean\_steps

median\_steps <- median(steps$steps, na.rm = TRUE) median\_steps

interval <- data %>% filter(!is.na(steps)) %>% group\_by(interval) %>% summarize(steps = mean(steps))

ggplot(interval, aes(x=interval, y=steps)) + geom\_line(color = "red")

interval[which.max(interval$steps),] ## Imputing missing values sum(is.na(datasteps) avg\_interval <- tapply(data\_fullinterval, mean, na.rm=TRUE, simplify=TRUE) data\_fullinterval[nas])] sum(is.na(data\_full$steps))

steps\_full <- data\_full %>% filter(!is.na(steps)) %>% group\_by(date) %>% summarize(steps = sum(steps)) %>% print

ggplot(steps\_full, aes(x = steps)) + geom\_histogram(fill = "red", binwidth = 1000) + labs(title = "Histogram of Steps per day, including missing values", x = "Steps per day", y = "Frequency")

mean\_steps\_full <- mean(steps\_fullsteps, na.rm = TRUE)

mean\_steps\_full

median\_steps\_full

## Are there differences in activity patterns between weekdays and weekends?

data\_full <- mutate(data\_full, weektype = ifelse(weekdays(data\_full$date) == "Saturday" | weekdays(data\_full$date) == "Sunday", "weekend", "weekday")) data\_fullweektype) head(data\_full)

interval\_full <- data\_full %>% group\_by(interval, weektype) %>% summarise(steps = mean(steps)) s <- ggplot(interval\_full, aes(x=interval, y=steps, color = weektype)) + geom\_line() + facet\_wrap(~weektype, ncol = 1, nrow=2) print(s)