```
tidy_data <- function(dataset) {

    # Tidy the dataset.
    dataset <- dataset %>%
        gather(signal, value, everything(), -subject, -activity) %>%
        separate(signal, c("signal", "calculation"), extra = "merge") %>%
        separate(calculation, c("calculation", "axis")) %>%
        separate(signal, c("domain", "signal"), sep = 1)


    # Separate signal for body and gravity.
    dataset$signal <- as.character(dataset$signal)
    dataset$signal <- sub("Body", "body.", dataset$signal, fixed = TRUE)
    dataset$signal <- sub("Gravity", "gravity.", dataset$signal, fixed = TRUE)
    dataset <- dataset %>%
        separate(signal, c("signal_type", "signal"))

    # Separate signal for accelerometer and gyroscope.
    dataset$signal <- sub("Acc", "accelerometer.", dataset$signal, fixed = TRUE)
    dataset$signal <- sub("Gyro", "gyroscope.", dataset$signal, fixed = TRUE)
    dataset <- dataset %>%
        separate(signal, c("signal_source", "signal_form"))

    # Tidy up signal_form values.
    dataset$signal_form[dataset$signal_form == ""] <- NA
    dataset$signal_form[dataset$signal_form == "Jerk"] <- "jerk"
    dataset$signal_form[dataset$signal_form == "Mag"] <- "mag"
    dataset$signal_form[dataset$signal_form == "JerkMag"] <- "jerkmag"

    # Tidy up domain values.
    dataset$domain <- as.character(dataset$domain)
    dataset$domain[dataset$domain == "t"] <- "time"
    dataset$domain[dataset$domain == "f"] <- "freq"

    # Set blank axis values to NA.
    dataset$axis[dataset$axis == ""] <- NA

    # Tidy up activity values.
    dataset$activity <- as.character(dataset$activity)
    dataset$activity[dataset$activity == "STANDING"] <- "standing"
    dataset$activity[dataset$activity == "SITTING"] <- "sitting"
    dataset$activity[dataset$activity == "LAYING"] <- "laying"
    dataset$activity[dataset$activity == "WALKING"] <- "walking"
    dataset$activity[dataset$activity == "WALKING_DOWNSTAIRS"] <-
        "walking_downstairs"
    dataset$activity[dataset$activity == "WALKING_UPSTAIRS"] <-
        "walking_upstairs"

    # Tidy up axis values.
    dataset$axis <- as.character(dataset$axis)
    dataset$axis[dataset$axis == "X"] <- "x"
    dataset$axis[dataset$axis == "Y"] <- "y"
    dataset$axis[dataset$axis == "Z"] <- "z"

    # Arrange the dataset.
    dataset <- arrange(dataset, subject, activity, domain, signal_type,
                       signal_source, signal_form, calculation, axis, value)

    # Setup groupings.
    dataset <- group_by(dataset, subject, activity, domain, signal_type,
                        signal_source, signal_form, calculation, axis)

    # Summarise mean of the value by groupings.
    summary_dataset <- summarise(dataset, mean_value = mean(value))

    # Return the summary dataset.
    return(summary_dataset)

}
```