In this example, the contingency table shows the frequency of each unique value in the raw_data vector. The result indicates that the values "A", "B", and "C" each appear 3 times in the data.
Convert the contingency table to original format of the given data. in R

To convert a contingency table back to its original format in R, you can use the unlist function along with rep to repeat the values according to their frequencies in the contingency table. Here's an example:

Contingency table

contingency_table <- table(c("A", "A", "B", "B", "A", "B", "C", "C", "C"))

Converting the contingency table back to the original format

original_data <- unlist(lapply(names(contingency_table), function(x) rep(x, contingency_table[x])))

In this example, contingency_table is the input contingency table, and original_data is the output vector that represents the original data format. The lapply function is used to loop through the names of the contingency table, and the rep function is used to repeat each value according to its frequency in the contingency table. The unlist function is then used to convert the resulting list into a vector.

4) Analyse and give interpretation of summary statistics for the given data.

To get a summary of statistics for a given data set in R, you can use the summary function. The summary function provides a variety of information about the data, including mean, median, minimum, maximum, and quartiles. Here's an example:
# Sample data
data <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

# Getting the summary statistics
summary(data)
# Output:
#   Min. 1st Qu. Median   Mean 3rd Qu.   Max.
#   1.00   3.25   5.50   5.50   7.75   10.00

In this example, the summary statistics give you a quick overview of the data distribution. For example, the mean and median are both 5.5, which suggests that the data are symmetrically distributed around the center. The 1st quartile and 3rd quartile values (3.25 and 7.75, respectively) give you an idea of the spread of the data. The minimum value is 1 and the maximum value is 10, which gives you a sense of the range of the data.
It's important to remember that the summary function provides a basic overview of the data, but it is not a complete analysis. To perform a more in-depth analysis of the data, you may need to use other functions and techniques, such as plotting the data, calculating standard deviations, and performing hypothesis tests.

5) Calculate mean, median and mode for the grouped data and compare the results for the given data.

To calculate the mean, median, and mode in R, you can use the mean, median, and table functions, respectively. Here's an example:
data <- c(7, 9, 10, 10, 11, 12, 13, 14, 14, 15, 15, 16, 16, 17, 18, 19)

#We can create a frequency table using the table() function:

freq_table <- table(data)
freq_table
#Now, we can use the weighted.mean() function to calculate the mean:

mean <- weighted.mean(as.numeric(names(freq_table)), as.numeric(freq_table))
mean