1.**SALES BIN**

# Given sorted sales price records

sales\_prices <- c(5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215)

# (a) Equal-Frequency (Equi-Depth) Partitioning

num\_bins <- 3

bin\_size <- length(sales\_prices) / num\_bins

equi\_depth\_bins <- split(sales\_prices, ceiling(seq\_along(sales\_prices) / bin\_size))

# (b) Equal-Width Partitioning

min\_val <- min(sales\_prices)

max\_val <- max(sales\_prices)

bin\_width <- (max\_val - min\_val) / num\_bins

equal\_width\_bins <- split(sales\_prices, findInterval(sales\_prices, seq(min\_val, max\_val, bin\_width)))

# (c) Clustering (Using k-means)

set.seed(123) # Ensuring reproducibility

clusters <- kmeans(sales\_prices, centers = num\_bins)

cluster\_bins <- split(sales\_prices, clusters$cluster)

# Print the results

print("Equal-Frequency (Equi-Depth) Bins:")

print(equi\_depth\_bins)

print("Equal-Width Bins:")

print(equal\_width\_bins)

print("Clustering Bins:")

print(cluster\_bins)