9. Implement of the R script using marks scored by a student in his model exam has been sorted as follows: 55, 60, 71, 63, 55, 65, 50, 55,58,59,61,63,65,67,71,72,75. Partition them into three bins by each of the following methods. Plot the data points using histogram.

(a) equal-frequency (equi-depth) partitioning (b) equal-width partitioning

PROGRAM:

marks <- c(55, 60, 71, 63, 55, 65, 50, 55, 58, 59, 61, 63, 65, 67, 71, 72, 75)

num\_bins <- 3

sorted\_marks <- sort(marks)

bin\_size <- ceiling(length(marks) / num\_bins)

equal\_freq\_bins <- split(sorted\_marks, ceiling(seq\_along(sorted\_marks) / bin\_size))

cat("Equal-Frequency Bins:\n")

print(equal\_freq\_bins)

min\_mark <- min(marks)

max\_mark <- max(marks)

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

equal\_width\_bins <- cut(marks, breaks=seq(min\_mark, max\_mark, by=bin\_width), include.lowest=TRUE)

cat("Equal-Width Bins:\n")

print(table(equal\_width\_bins))

hist(marks, breaks=seq(min\_mark, max\_mark, by=bin\_width),

col="lightblue", main="Histogram of Marks",

xlab="Marks", ylab="Frequency", border="black")

OUTPUT:

