RCode:

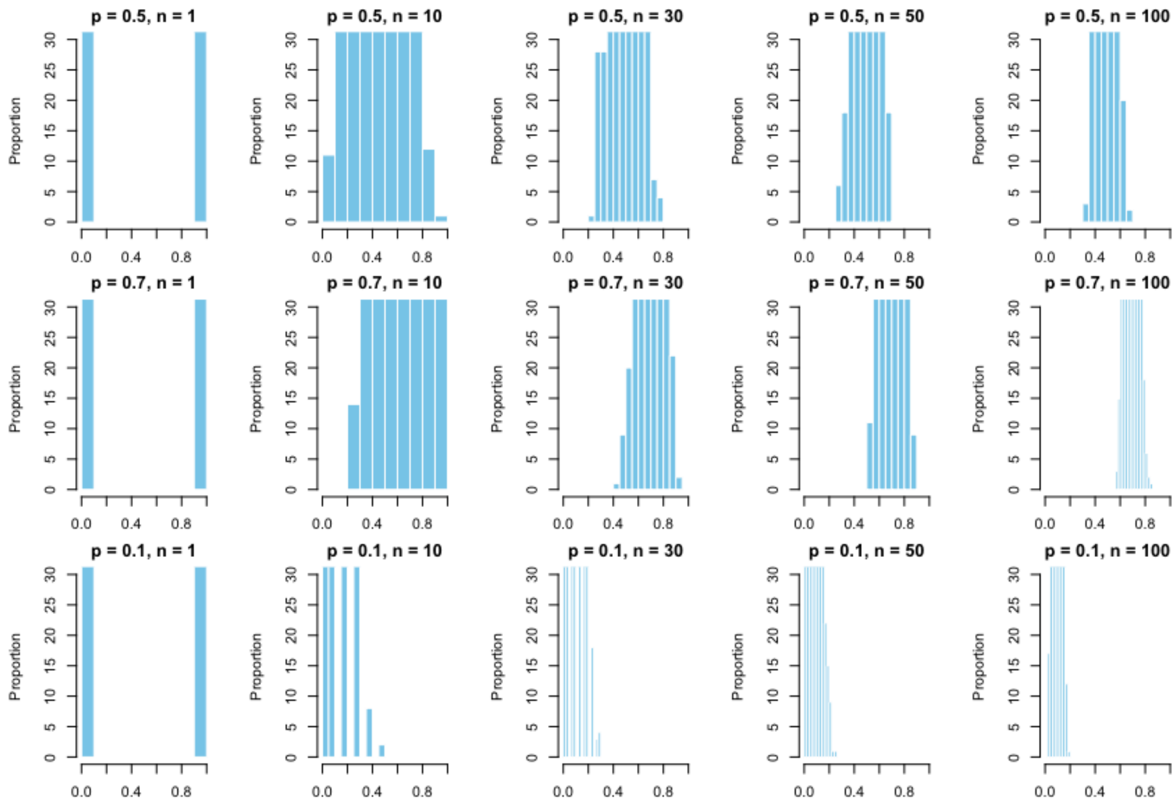
```
# Parameters
n_values <- c(1, 10, 30, 50, 100)
p_values <- c(0.5, 0.7, 0.1)

# Plotting
par(mfrow = c(length(p_values), length(n_values)), mar = c(2, 4, 2, 2))

# Generate and plot proportion distributions
for (p in p_values) {
  for (n in n_values) {
    # Simulate binomial distribution and calculate proportions
    x <- rbinom(1000, n, p) / n

    # Plot proportion distribution
    hist(x, main = paste0("p = ", p, ", n = ", n), ylab = "Proportion",
         xlim = c(0, 1), ylim = c(0, 30), col = "skyblue", border = "white", horiz = TRUE)
  }
}
```

Output:



The generated plots illustrate the proportion distributions for different combinations of n(1, 10, 30, 50, 100) and p(0.5, 07, 0.1) values using the binomial distribution.

- When n is small (e.g., 1), the proportion distribution tends to be more discrete, with a limited number of possible values. As n increases, the distribution becomes smoother and more continuous.
- When p is close to 0.5 (e.g., 0.5), the proportion distribution is more symmetrical, resembling a normal distribution. As p deviates from 0.5 (e.g., 0.7 or 0.1), the distribution becomes more skewed.
- The spread of the proportion distribution decreases as n increases. This is evident from the narrower histograms for larger n values.