$n = 5000;$
$U1 = runif(n, min = 0, max = 1)$
$U2 = runif(n, min = 0, max = 1)$
$Z1 = sqrt(-2 * log(U1)) * cos(2 * pi * U2)$
$Z2 = sqrt(-2 * log(U1)) * sin(2 * pi * U2)$
$hist(Z1, col = "wheat", label = T)$

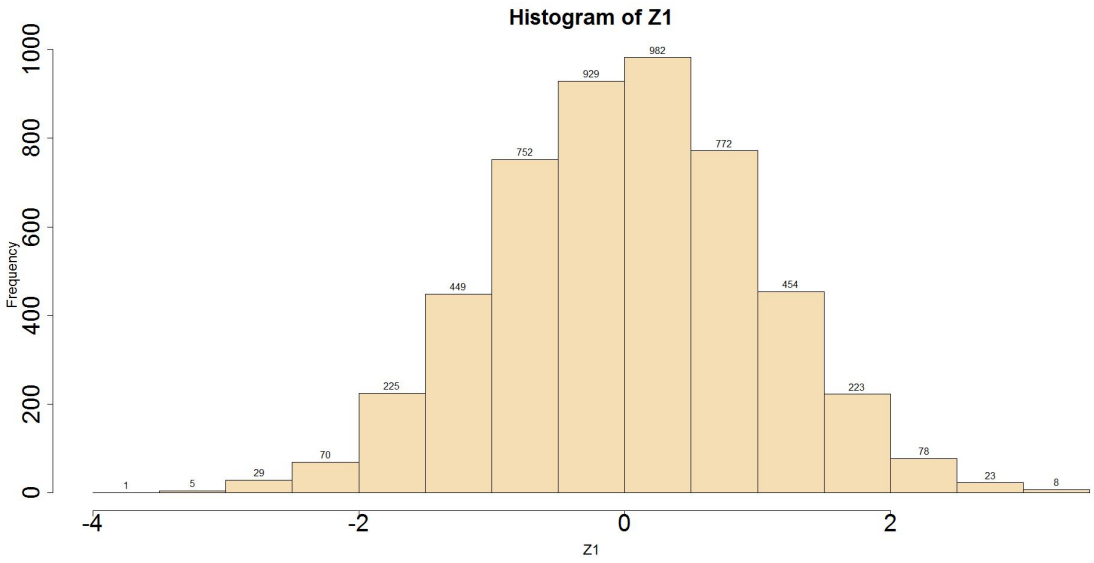

Figure 13.5: Histogram of $Z1$, a normal random variable generated by Box-Muller transformation

13.4 R Commands for Special Distributions

In this section, we will see some useful commands for commonly employed distributions. Functions which start with "p","q","d", and "r" give the cumulative distribution function (CDF), the inverse CDF, the density function (PDF), and a random variable having the specified distribution respectively.

Distributions	**Commands**