Coding :

```r
options(scipen = 20)                          #Forcing the program to not use scientific notations

set.seed(277)                                 #Set seed for the randomization as the last 3 digits of my ID to make it unique from my friends

# Function to confirm the Empirical Rule for any normal distribution (μ, σ)
# Where mu is the mean and sigma is the Standard deviation
empirical_rule_prob <- function(mu, sigma, num_points = 10000000) {

  X <- rnorm(num_points, mu, sigma)                    # Generate random data points from a normal distribution with given μ and σ


  one_sd <- sum(X < mu + sigma & X > mu - sigma) / num_points       # Calculate the percentage of data within one standard deviation


  two_sd <- sum(X < mu + (2 * sigma) & X > mu - (2 * sigma)) / num_points   # Calculate the percentage of data within two standard deviations


  three_sd <- sum(X < mu + (3 * sigma) & X > mu - (3 * sigma)) / num_points # Calculate the percentage of data within three standard deviations


  cat("Probability within one standard deviation: ", one_sd, "\n")

  cat("Probability within two standard deviations: ", two_sd, "\n")

  cat("Probability within three standard deviations: ", three_sd, "\n")
}

empirical_rule_prob(mu = 0, sigma = 1)
empirical_rule_prob(mu = 5, sigma = 3)
empirical_rule_prob(mu = 16, sigma = 7)
```

Different Results :

```
> empirical_rule_prob(mu = 0, sigma = 1)
Probability within one standard deviation:  0.6827037
Probability within two standard deviations:  0.9544393
Probability within three standard deviations:  0.9973042
> empirical_rule_prob(mu = 5, sigma = 3)
Probability within one standard deviation:  0.6826513
Probability within two standard deviations:  0.9546371
Probability within three standard deviations:  0.9973347
> empirical_rule_prob(mu = 16, sigma = 7)
Probability within one standard deviation:  0.6828113
Probability within two standard deviations:  0.9545152
Probability within three standard deviations:  0.99731
>
```

Conclusion :

To confirm the Empirical Rule for any normal distribution (μ, σ) we generate a large number of random data points and calculating the probabilities within one, two, and three standard deviations from the mean, the code demonstrates the properties of normal distributions. The result of large numbers generated ensures close approximations. By testing different mean and standard deviation values, users can gain confidence in the Empirical Rule's validity across various distributions. This code's flexibility enables easy application to any normal distribution, reaffirming that about 68%, 95%, and 99.7% of data fall within one, two, and three standard deviations from the mean, respectively.