6.Suppose that a hospital tested the age and body fat data for 18 randomly selected adults with the following results:

(i) Use min-max normalization to transform the value 35 for age onto the range [0.0, 1.0].  
(ii) Use z-score normalization to transform the value 35 for age, where the standard deviation of age is 12.94 years.  
(iii) Use normalization by decimal scaling to transform the value 35 for age. Perform the above functions using R – tool

PROGRAM:

ages <- c(23, 25, 28, 30, 32, 35, 37, 40, 42, 45, 48, 50, 52, 55, 58, 60, 63, 65)

age\_value <- 35

min\_age <- min(ages)

max\_age <- max(ages)

min\_max\_normalized\_age <- (age\_value - min\_age) / (max\_age - min\_age)

mean\_age <- mean(ages)

sd\_age <- 12.94

z\_score\_normalized\_age <- (age\_value - mean\_age) / sd\_age

max\_absolute\_age <- max(abs(ages))

j <- nchar(as.character(max\_absolute\_age)) - 1

decimal\_scaled\_age <- age\_value / 10^j

cat("Min-Max Normalized Age: ", min\_max\_normalized\_age, "\n")

cat("Z-Score Normalized Age: ", z\_score\_normalized\_age, "\n")

cat("Decimal Scaled Age: ", decimal\_scaled\_age, "\n")

OUTPUT:

