# R Functions

## Simple Functions

```r
summation <- function (a, b, c) {
  return <- a + b + c
}


s <- summation(1, 2, 3)
print(s)
```

## Default Arguments and Overriding

```r
sum2 <- function(a=5, b=6) {
  outcome <- b/a
}

s1 <- sum2()
print(s1)


s2 <- sum2(a = 2, b = 6)
print(s2)
```

## Multiple Outputs - Vector

```r
energies <- function(mass, velocity, height, g=9.8) {
  ke <- 0.5*mass*velocity^2
  pe <- mass*g*height
  te <- ke + pe

  result <- c(ke, pe, te)
}

es <- energies(2, 5, 2)

print(es[1])
print(es[2])
print(es[3])
```

## Multiple Outputs - List

```r
stats_calc <- function(a, b, c) {
  sum_val  <- a + b + c
  mean_val <- sum_val / 3
  prod_val <- a * b * c

  return(list(
    sum = sum_val,
    mean = mean_val,
    product = prod_val
  ))
}

output <- stats_calc(2, 4, 6)
print(output$sum)
print(output$mean)
print(output$product)
```