Assignment 5:

# Define matrices A and B

A <- matrix(1:100, nrow=10)

B <- matrix(1:1000, nrow=10)

# Attempt to compute the inverse of matrix A

if (det\_A <- det(A)) {

A\_inv <- solve(A)

cat("Inverse of matrix A:\n")

print(A\_inv)

} else {

cat("Matrix A is singular, its determinant is zero.\n")

}

# Calculate the determinant of matrix B

if (is.square <- nrow(B) == ncol(B)) {

det\_B <- det(B)

cat("\nDeterminant of matrix B:", det\_B, "\n")

} else {

cat("Matrix B is not square, its determinant cannot be calculated.\n")

}

Procedure:

Define Matrices: Using the provided values, define A and B first. Matrix construction can be done with R's matrix() function.

Calculate the Inverse of Matrix A: The solution() function in R can be used to calculate the inverse of matrix A. Prior to computing the inverse, ensure that the matrix is singular, i.e., that its determinant is not zero, to avoid errors.

Find the Matrix B Determinant: Since B is not square, it is not possible to compute its determinant directly. Therefore, it is essential to verify that B is square before attempting to compute B's determinant.

Present Findings: Lastly, present the determinant of B and the inverse of A results, together with any relevant remarks regarding the singularity or squareness of the matrices.