

## Math 495R Homework 6

In this lab we will represent a matrix as an array of arrays where each inner array represents a row of the matrix (not a column). So, for example, the matrix  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$  would be represented in the program as `[[1,2],[3,4]]`. The functions you write for this lab should work for matrices and vectors of any size. However, you may assume the sizes are compatible so that the given operation makes sense. You may (and should) use functions from a previous lab where appropriate.

- (1) Write a function that multiplies a given matrix by a given column vector.
- (2) Write a function that returns a specified column from a given matrix. So, for example if you asked for the second column of the matrix represented by `[[1,2],[3,4]]`, the program should return the vector `[2,4]`.
- (3) Write a function that multiplies two given matrices.