
MA722 - Foundations of Machine Learning Algorithms

Lab Problem Sheet - 2

1. For n input vectors, write a python programme to check whether they are linearly independent or not.
2. For n input vectors, write a python programme to find their spanning set. (Hint : Use SymPy)
3. For n input vectors,
 - Construct a matrix with the vectors as columns.
 - Perform Row Reduced Echelon Form to find the pivot columns.
 - Hence, find a basis (Hint : Use SymPy).
4. Write a Python program to solve a system of linear equations, where:
 - You input the number of variables and number of equations.
 - You enter each equation's coefficients and the right-hand side.
 - The program returns:
 - A unique solution (if it exists), or
 - A parametric solution (infinitely many), or
 - Detects inconsistency (no solution)
