MATH 282B – Homework 7

Problem 1. Write a function greedyAIC(x, y) which computes the forward selection path from 'intercept only' to 'full model' and chooses the model along that path that minimizes the AIC criterion. Try your function on some synthetic dataset as done in lecture.

Problem 2. Read the paper *Forward Sequential Algorithms for Best Basis Selection*. This paper describes three variants of forward stepwise selection. In fact, one of them is exactly the variant seen in lecture (ignoring the stopping criterion) — which one? Implement the three variants described in the paper and name them BMP(x, y, steps = min(5, ncol(x))), MMP(x, y, steps = min(5, ncol(x))), and ORMP(x, y, steps = min(5, ncol(x))). The paper suggests a number of possible implementations, but in the context of this problem just write the simplest code you can (even if it is less efficient). Then use these functions to replicate the experiment of Section 4.1 in the paper.