

MATH 426 - Assignment 9

June 25, 2008

1 Vectorization

In this problem you will see how vectorization can improve the performance of your code.

(a) Write a function `A = mult_for(n)` that computes and returns a matrix A using the rule $A_{ij} = ij$, $i, j = 1 \dots n$ using `for` loops.

(b) Vectorize the function in part (a) and call it `mult_vec(n)`.

(c) Write a script that does the following

1. Compute and record the computation time (using `tic` and `toc`) for `mult_for(n)`, where `n = 100 : 100 : 3000`
2. Compute and record the computation time for `mult_vec(n)` for the same values of `n`.
3. Plot the computation time versus n for `mult_for` and `mult_vec` in the same graph

Comment on the observed results (briefly).