

# Computer Science Problem of the Month

(<http://narnia.homeunix.com/~robert/PoTM/>)

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## **Background:**

The algorithm shown below multiplies two  $n$  by  $n$  matrices stored as two dimensional arrays.

```
Multiply(int A[], int B[], int n):
    int C [] = new int[n];
    for (int i=0;i<n;i++){
        for (int j=0;j<n;j++){
            C[i][j]=0;
            for (int k=0;k<n;k++){
                C[i][j] += A[i][k]*B[k][j];
            }
        }
    }
```

## **Problem:**

Find the big-theta worst-case time complexity of this function in terms of  $n$ , the size of the matrix. You may assume that the only operation which takes any significant amount of time is the multiplication.

## **Solutions:**

To submit a solution to the problem of the month, e-mail your answer and a complete, rigorous justification of your answer, to *robert@narnia.homeunix.com*. I will give a cash prize of one dollar to the person who submits the first correct solution. Subsequent solvers will be recognized on the web page, but not awarded the cash prize.