

Re: I Need Help

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- *From:* "mensanator@xxxxxxxxxxxx" <mensanator@xxxxxxx>
 - *Date:* 1 May 2007 22:18:39 -0700
-

On May 1, 1:04?pm, OwlHoot <ravensd...@xxxxxxxxxxxxxxxx> wrote:

On May 1, 12:04 am, "mensana...@xxxxxxxxxxxx" <mensana...@xxxxxxx> wrote:

[..]

I never said it was the BEST algorithm. That wasn't the question. And besides, MS-Access can't execute Pascal or C. And even if it could, you sometimes need such output in a query to link to other database structures, so the practice isn't nearly as pathetic as you imagine. Of course, it's intractable if you ask for too much, but you think a C implementation isn't also intractable if you ask for all possible 12 letter permutations of 26 letters?

[..]

We need to distinguish simplicity of expression v. runtime simplicity, where I'd interpret the latter as "overhead" in some sense, and perhaps a third consideration also needs throwing into the pot – conceptual simplicity.

Yes, the SQL expression is much shorter and simpler looking than the full expression of an algorithm in terms of code. So in that sense you're correct.

Also, runtime simplicity is open to interpretation, depending on where you place the "ground level" so to speak, in other words what you consider atomic operations. If your PC user is not in a position to use a programming language, but they have a database package installed and are comfortable

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with SQL, then yes again the SQL solution is best and, being only a single statement cannot be bettered (unless one can code the Johnson–Trotter algorithm as a stored procedure ;-)

But as a hacker, I tend to think "closer to the iron" i.e. in terms of machine instructions. Anyone with a rudimentary grasp of how database engines work knows the SQL solution will use several orders of magnitude more machine opcodes to implement than the busy–looking psuedo–code in which each step is (or, depending on the compiler, could be) moreorless one–to–one with machine instructions.

And I like to think "closer to the problem". When I'm trying to solve a linear congruence, pointers and memory allocation are the furthest thing from my mind. That's why there are high level languages so that you can focus more on the problem than the implementation.

First of all, simplicity of expression doesn't always mean sacrificing simplicity of runtime. Using Python & GMPY, I can solve my linear congruence by the simple expression

```
a0 = gmpy.divm(z,x,y)
```

and since the GMPY module (where the heavy lifting is done) is itself a compiled C program, I get both simplicity of expression and reasonable runtime simplicity.

Second, if you get too close to the iron, you can't even solve the problem. I can't operate in a domain limited to 32 or 64 bits. I work on problems having 50000 decimal digits.

Third, simplicity of expression means you can work on more complicated problems. Anybody can solve a linear congruence, but how many can solve a non–linear congruence? Ok, I made that last term up. Not sure what you would call

```
a = (gmpy.divm(xyz[1]**(k-1)-prev_gen[2],xyz[1]-xyz[0],xyz[1]**(k-1))/xyz[1]**(k-2))*xyz[1]**(k-1) + prev_gen[3]
```

What's more, if the database procedure is followed through and expressed explicitly, even in an idealized sense, it will involve many database–specific aspects that do not directly relate to the algorithm (except in so far as they are needed for the SQL solution to work). So in other words, the SQL statement conceals many extraneous "concepts".

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Such as the ability to generate the sub-sets of the Cartesian Product: combinations with replacement, permutations without replacement and combinations without replacement.

Does the Johnson-Trotter algorithm do that also? I haven't tried it yet.

So in summary we're both right

That's fine as long as I'm not wrong.

(although I still think I'm more right than you on this,

I won't quibble about degrees of rightness as long as we're both right. If I need a Cartesian Product to answer a question in rec.puzzles, I'm going for simplicity of expression. If I'm trying to win a contest in Games Magazine, I might break out the reference you cited.

Not that it would help.

http://members.aol.com/mensanator/pig_ignorance.htm

even if that makes me one of
the bad guys ;-)

Cheers

John R Ramsden

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