A Very Serious Problem
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The Beer Store has N types of beer. They have $n_i$ bottles of type i. You can get as many 6-packs as you want for a fixed price, but ... you can’t put 2 identical bottles in any of the 6-packs.

How do you maximize your haul?
For example ...

Let’s look at 2-packs instead of 6-packs.

Suppose the stock is:

- Type 1 : 2 bottles
- Type 2 : 2 bottles
- Type 3 : 2 bottles

If we take (1,2) and (1,2) that’s all we get.
For example ...

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Suppose the stock is:

Type 1 : 2 bottles
Type 2 : 2 bottles
Type 3 : 2 bottles

If we take (1,2) and (1,2) that’s all we get.

If we take (1,2), (1,3) and (2,3) we get more.
CMPE/CISC-365*
Algorithms 1

Today
- Boring details
- Outline
- Actual content!
Administrivia:

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Marking scheme:

4 quizzes: 3 @ 23%
    1 @ 11%

4 assignments: 4 @ 5%

- no make-up dates for missed quizzes
- first quiz will be on September 27

Course URL: http://sites.cs.queensu.ca/courses/cisc365
Things I like about this course:

- The material
- The students
- The text
- No final exam
- Real benefits for students
Course Outline:

The calendar says …

*Principles of design, analysis and implementation of efficient algorithms. Case studies from a variety of areas illustrate divide and conquer methods, the greedy approach, branch and bound algorithms and dynamic programming.*

and …

*For the next 213 callers, we'll include an introduction to NP-Completeness too – at no extra charge!*
!!! ACADEMIC INTEGRITY !!!

Don’t be evil.
Course Syllabus:

Topics will be covered in the following sequence:

- Complexity
- Divide and Conquer Algorithms
- Greedy Algorithms
- Dynamic Programming Algorithms
- Branch and Bound Algorithms
- NP-Complete Problems
- Approximation Algorithms
And Now ...

Let The Games Begin!