FIRST-WORLD SOLUTIONS FOR FIRST-YEAR PROBLEMS

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The Problem

- Roughly 350-375 incoming freshman every year
- Only 25 courses offered
- Each freshman needs a First-Year class and the classes have certain constraints

![Bar chart showing the number of people spending 25-30 hours solving the problem and those who would rather be doing something else.]
So how can this problem be fixed?

• How can we efficiently give MORE students the classes they want while abiding by certain constraints?
  • Class size 14-16
  • Gender distribution at most 70/30 either way
  • Some classes can’t have athletes
  • Some classes require certain ACT scores

• COMPUTERS!!
  • Don’t fatigue or become mentally exhausted
  • VERY FAST
  • Programmed to find the best possible outcome
The Process

1. Start out small, work with toy problems and familiarize yourself with the language and problem

2. Gather the data needed and break it down
   1. Separate the data into two main groups: Students, Classes
   2. Divide the two main groups into even smaller groups: males/females, athletes, ACT scores, Non-athlete classes, Classes with certain ACT scores

3. Make minor changes to your toy problem and feed the data into the main code

4. Analyze the outcome and rejoice in a job well done!
If only it was that easy….

- There were several things that held us back for days and sometimes weeks
  - Missing and extra numbers in the files
  - Misspelling of classes
  - Student-athletes picking non-athlete classes
  - Classes that had few, if any, people pick them
  - BLANK SPACES!!!!!!!!
Results!

Choices

1st Choice: 47%
2nd Choice: 29%
3rd Choice: 13%
4th Choice: 8%
5th Choice: 2%
6th Choice: 1%
492714. Stars: Black Holes, Dark Cosmos
492715. Public Sculpture in Chicago
492749. The Future
492775. College Sport in Chicago: Then & Now
492796. Philosophy of Humans and Animals
492804. Exploring Adolescence: The Role of Chicago School Experiences Then and Now
492805. College Sport in Chicago: Then & Now
492841. Robots & Brains: Fantasies & Facts
492842. Recreational Mathematics
492856. Saints and Sinners: Chicago
492859. Saints and Sinners: Chicago
492867. Medical Mysteries of the Mind
492879. Medical Mysteries of the Mind
492881. Medical Mysteries of the Mind
492894. The Great War
492895. Recreational Mathematics
492899. Exploring Adolescence: The Role of Chicago School Experiences Then and Now
492927. Medical Mysteries of the Mind
492932. Chicago Global–Local Microfinance
492939. The Future
492958. Government and Markets
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What I learned and loved

• A new programming language that will be of use as a continue in the math/CS fields
• You can never check your data too many times
• Always start out small and double check each step
• Solving a problem no matter the size one of the greatest feelings
Acknowledgements

• Professor Trevino
• Professor Ed Packel
• Stan Wagon
• The Richter Program