CMSI 182
INTRODUCTION TO COMPUTER SCIENCE
Fall 2008

Assignment 0923

For this assignment, we make the transition from just thinking about algorithms informally to trying to get machines to perform our algorithms for us. Yes, this is programming :)

Not for Submission

By September 11

1. Read the *Pseudocode* section of the Brookshear textbook, pages 210–215.
2. Start writing "first drafts" of as many of our three programmable algorithms (gymnastics tiebreakers, diving scores, and the electoral college) using the pseudocode notation presented in the textbook. Try to have *at least one* ready for use in class on September 11.

By September 16

3. Try to complete and debug your pseudocode drafts over the weekend.
4. Read up on JavaScript if you'd like to get a head start for this week's material.

By September 18

5. Convert as much of your pseudocode into JavaScript, ready for review and debugging during an upcoming lab session.

For Submission

Submit the following on hardcopy by the beginning of class on September 23. To get the most out of in-class activities and prevent cramming on September 22, follow the schedule on the left.

Exercise

Write up pseudocode and JavaScript versions of the following algorithms:

1. Deciding a tiebreak between two sets of Olympic gymnastics scores
2. Calculating a diving score, given a degree of difficulty and a set of individual judge scores
3. Determining the winner of an electoral college-style vote given the per-state popular votes for each candidate

Reflection

Once you have finished the exercise, answer the following reflection questions:

1. Before starting the pseudocode, how confident were you that you could do all three algorithms by hand?
2. What was it like to make yourself express these algorithms in pseudocode? What made sense to you, and what did not?
3. What was it like to get a machine to perform these algorithms using JavaScript? What made sense to you, and what did not?

Look up news items, articles, or data on the following events, then answer the questions below:

- 2008 Summer Olympics final results for the women's uneven bars
- 2000 U.S. presidential election

4. What do these two events have in common, in relation to their corresponding algorithms?
5. Based on these events, do you feel that these algorithms can be improved? Are as good as they can get? Express yourself freely.