

CMSI 182

INTRODUCTION TO COMPUTER SCIENCE

Fall 2009

Assignment I006

Believe it or not, JavaScript is considered to be pretty “high-level,” meaning that it’s already closer to the way humans express instructions and information than how computers *really* do it. This assignment hopes to get you into this “*really*” part.

Not for Submission

By September 29

1. Read Sections 1.1 to 1.4 in the Brookshear book for details on this week’s topic. If you are so moved, read all of Chapter 1.
2. Read Arthur Conan Doyle’s “The Adventure of the Dancing Men.” The entire story is available online, with illustrations, at this site:

http://en.wikisource.org/wiki/The_Adventure_of_the_Dancing_Men

You can also find the story in print in a variety of Sherlock Holmes collections.

3. Be ready with a scheme for representing the following types of information solely in terms of bits (i.e., **0**s and **1**s):
 - a. Boolean values (i.e., *true* and *false*)
 - b. Integers ≥ 0
 - c. Strings (e.g., “Hello world,” “5 computers,” “The score is 19.5.”)

By October 1

4. Refine your information conversion schemes based on what you saw during Tuesday’s class.

For Submission

Submit the following on hardcopy by the beginning of class on October 6.

Exercises

1. Write up your proposed schemes for representing the information listed on the left (Booleans, integers ≥ 0 , and strings). The schemes should specify how to convert this information to **0**s and **1**s and vice versa.
2. Do textbook exercises 5, 7, 9, 11, and 24, found on pages 73–75 of the Brookshear book.

Reflection

Answer the following reflection questions:

1. Why is it necessary to come up with schemes for converting information to **0**s and **1**s?
2. How would your conversion schemes have to change if we wanted to convert the values to Υ s and Y s instead of **0**s and **1**s?
3. Is there any information that you think *cannot* be converted into a sequence of **0**s and **1**s? Explain why you think so.
4. If Sherlock Holmes were to read the “Voices in Computing” article from a few weeks ago, what voices do you think would resonate with him the most? What voices would resonate with Dr. Watson the most?