

CPSC-1045: Lab 1

HTML and problem solving

Introduction:

Computer science and computer programming problems usually are presented in text format. That is they are word problems. This lab combines two things:

1. Creating a HTML page, so you can practice writing HTML
2. Solve some basic word problems.

Instructions:

In this lab you will answer 5 word problems. Your answers will be written in an HTML file, named **Lab1.html**. The extension **.html** is very important because it is the way the web browser determines what type of file it is looking at.

The answer should be presented in the following format:

1. A <div> element, which contains a question and the answer.
2. A <div> element nested within the previous div, with the class attribute set to "question".
3. A <div> element nested within the div created in step 1, with the class attribute set to "answer".

For example:

Question 0:

Find the product of 5 and 6.

I would generate the HTML Snippet

```
<article>
  <h2> Question 0 </h2>
  <div class="question">
    <p> Find the product of 5 and 6</p>
  </div>
  <div class="answer">
    <p>30</p>
  </div>
</article>
```

Note:

- The above is **not** a complete HTML document, see the notes on HTML
- Proper indentation is **required** for the lab. Put 3 spaces for every level of nesting.
- You will have multiple sections like the one above nested within the body element.

Questions:

For you HTML page, include both the questions and your answer.

Question 1

What 5 letter word can have 4 of it's letters removed and still pronounced the same?

Question 2

There are three bags. The first bag has two blue rocks. The second bag has two red rocks. The third bag has a blue and a red rock. All bags are labeled but all labels are wrong. You are allowed to open one bag, pick one rock at random, see its color and put it back into the bag, without seeing the color of the other rock. How many bags do you need to open to re-label all three bags correctly? Explain your logic.

Question 3

You are given a 3 L bottle and 5L bottle, how can you measure out 4L exactly?

Question 4

Richard Hovasse's bridge and torch problem

"Four people come to a river in the night. There is a narrow bridge, but it can only hold two people at a time. They have one torch and, because it's night, the torch has to be used when crossing the bridge. Person A can cross the bridge in one minute, B in two minutes, C in five minutes, and D in eight minutes. When two people cross the bridge together, they must move at the slower person's pace. The question is, can they all get across the bridge in 15 minutes or less?"¹

Question 5

monkey and banana problem

"A monkey is in a room. Suspended from the ceiling is a bunch of bananas, beyond the monkey's reach. However, in the room there are also a chair and a stick. The ceiling is just the right height so that a monkey standing on a chair could knock the bananas down with the stick. The monkey knows

¹ https://en.wikipedia.org/wiki/Bridge_and_torch_problem

how to move around, carry other things around, reach for the bananas, and wave a stick in the air. What is the best sequence of actions for the monkey?"²

Submission:

- 1) Demonstrate to your instructor or TA that your labs works
- 2) Submit you source code to the dropbox. Call the file lab1.html and make sure you zip the file before uploading to D2L.

² https://en.wikipedia.org/wiki/Monkey_and_banana_problem