Assignment 1

Protocols, Design, and HTML

Due: September 18, 2024, at 23:55 on myCourses

TA Office hours: September 12 to 18 (see schedule)

INTRODUCTION

This is a regular length assignment and is due in 2 weeks. Most of our assignments will be mini-sized. Expect the next assignment to contain only a single question and be due in a single week.

You are expected to do all your work on your own. Plagiarism and cheating are a serious offence. You may ask classmates, TAs, and the professor clarification questions only.

You are expected to submit the solution to this mini assignment in the myCourses assignment tool in the **mini 1** box.

EXCERSISES

Exercise 1 – Communication Signals

This question also tests whether you can login to mimi and use vim. In future work, using mimi will be important. Make sure you are logged into mimi. Create a text file named **m1q1.txt** using **vim**.

Answer the following question in that text file:

Q 1.1: Convert the string “Jose” into ASCII. Note: it has 5 characters: J, o, s, e, and the null character.

Q 1.2: Convert the ASCII from Q 1.1 into 8-bit binary numbers for each character.

Q 1.3: Convert the binary from Q 1.2 into sound waves: H for high sound when the bit is 1 and L for low sound when the bit is 0. For example: binary 1001 becomes HLLH.

Q 1.4: Modulate the sound from Q 1.3 using A for HH, B for HL, C for LH, and D for LL; Where the letters A, B, C, D represent different modulated sounds.

Q 1.5 When transmitting modulated sounds as compared to unmodulated sounds, how many sound-bits are we saving after modulating, in this example? Why?

Save the answers to these question in the file **m1q1.txt**. Download m1q1.txt to your computer. You could have written this on your computer, but doing this using vim on mimi and then downloading it to your computer will be very good practice for things you will need to do in future lessons when creating your own website.

Submit the following:

- Type **cat m1q1.txt** at the command-line prompt and place your student ID card on the screen beside the output. Take a picture to prove that you did this on mimi. Save the picture as **m1q1.jpg**. The picture must show the mimi command-line prompt, your prompt username, and your student ID card together with all or some of the text from the file.
- Submit the downloaded file **m1q1.txt** and **m1q1.jpg** as your solution to question 1.

Exercise 2 – Design the Branding and Layout of a Website

Imaging you are a web developer, and your client runs an Animal Recue. They have asked you to suggest the branding for their new website. They would also like you to suggest how their principal web pages will be formatted. They provide the following services: dog rescue informational, contact information, veterinary care appointments, short-term boarding, training, adoption (permanent placement), and fostering (temporary placement).

Do the following:

- Branding
    - Submit your color swatch. This is a single **color.JPG** file of the branding colors arranged side-by-side. Think carefully about the temperature and tone of the web pages.
    - Submit the logo. This is a single **logo.JPG** file of the logo (generated or drawn).
    - Submit the font swatch. This is a single **font.JPG** file of each font name drawn in its font sorted by primary, to secondary, etc. These are presented one after the other.
- Page Design
    - Provide a mock-up hand drawing of each principal webpage using branding. This is a JPG drawing; it is not in HTML (unless you want). Each JPG file is one page: **landing.jpg**, **vet.jpg**, **boarding.jpg**, **clinics.jpg**, and **placement.jpg**. As described next:
    - Create the following pages:
        - Landing page with contact us information
        - Veterinary care appointments page
        - Short-term boarding registration page
        - Table of walk-in dog training clinics page
        - Placement page divided into adoption and fostering.
    - Use lorem ipsum.

Submit the following:

- A single ZIP file called **m1q2.zip** containing the JPG files color.jpg, logo.jpg, font.jpg, landing.jpg, vet.jpg, boarding.jpg, clinmics.jpg, and placement.jpg.

Exercise 3 – End-to-end and Hop-to-hop Protocols

Assume we have a small network with the following components: (1) an endpoint server called E1, (2) a second endpoint server called E2, (3) a single hop-point server called H. The network looks like this:

E1 <-> H <-> E2.

E1 is connected to H. H is connected to both E1 and E2. E2 is connected to H. Communication passes from E1 to E2 through H. Communication passes from E2 to E1 through H.

Assume there is a message at E1 that needs to go to E2. This message is large and fits into two packets. Detail the packet transmissions that must occur in both End-to-End and Point-To-Point resulting in the message arriving at E2 from E1.

Do the following:

- Review the lecture notes on how packets move about a network using the end-to-end and hop-to-hop protocols.
- Describe how E1 sends the message to E2 using a Communication Table (as seen in class):

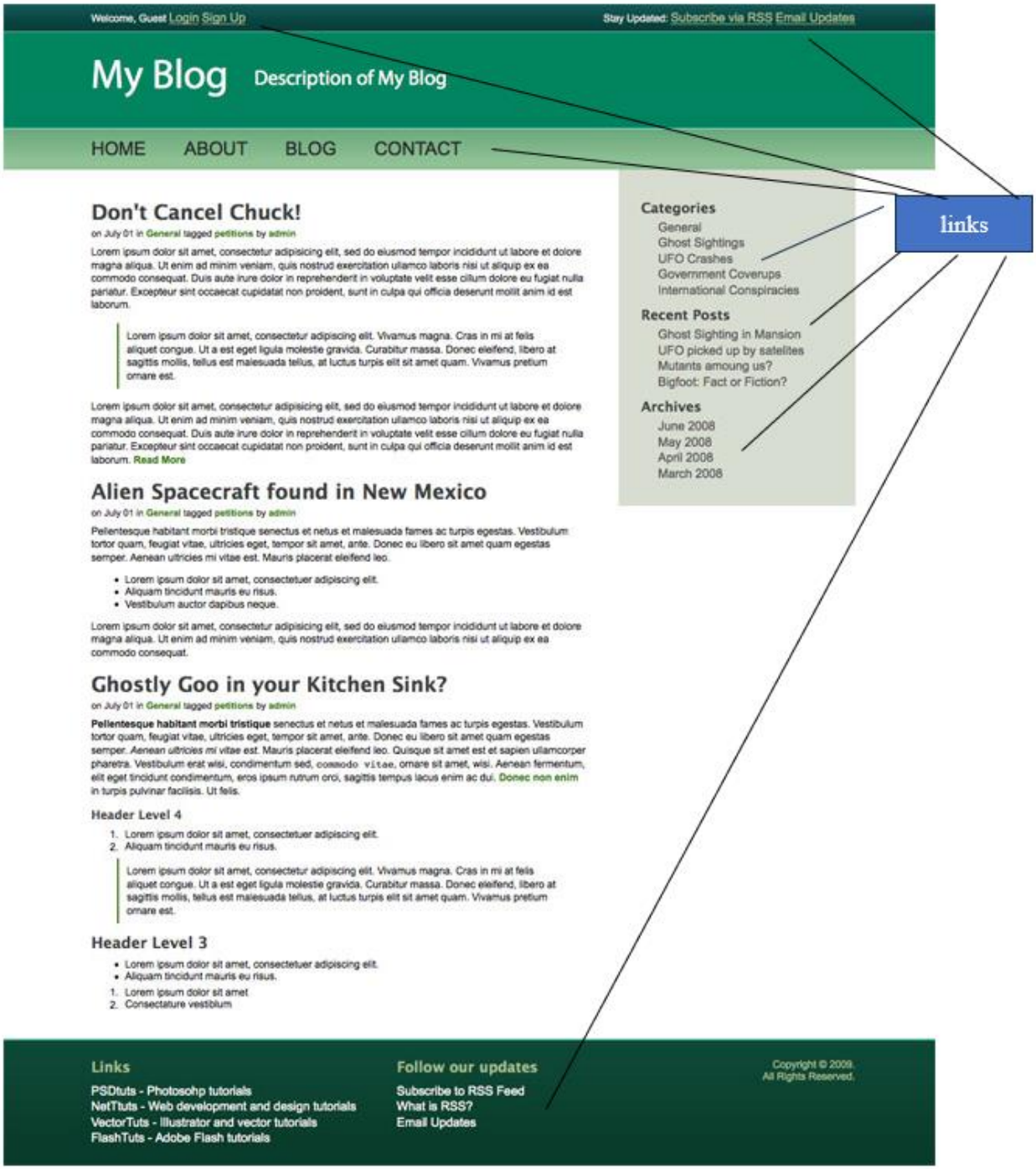
Time	E1	H	E2	Notes
0	Msg=P1P2			At T0 the original message is split into 2 packets
1				

Time – assume it is a different unit each moment something changes on the network
E1 – Is an endpoint server
E2 – is an endpoint server
H – is a hop-point server
Notes – To help you describe what happens.
Pn – Is a sequence numbered packet. P1 means first packet in sequence.
←ACK – Means ACK moving to the left, you can add a subscript for E2E ACK to distinguish them.
ACK→ - Means ACK moving to the right, dito.

Submit the following:

- A PDF of the above table containing your answer for the problem of passing a message from E1 to E2. The problem ends once the message arrives at E2 and is assembled back into a message.
- Call the PDF **m1q3.pdf** and upload that to the myCourses submission box.

Exercise 4 – Only HTML



Create only the above single web page, call it `mini1.html`.

Do not do the following:

- You are not permitted to use CSS
- You are not permitted to use any libraries (not Vue, not Flex, etc.)
- You are not permitted to use the HTML **style** attribute

- You are not permitted to use JavaScript
- You are not permitted to use XML
- You are not permitted to use Java Applets
- You are not permitted to use Flash
- Do not make the page responsive or dynamic (this is a static fixed width page 800 pixels wide)

You are only permitted to use:

- Basic HTML4, and
- HTML5 (but without the style attribute, without CSS, and without JS)
- This is a static page, no interactive content, no dynamic content, no responsive content.

Since you are being asked to create this page in plain HTML, there will be some things you can only approximate. For example, you will not be given the exact font, colors, and dimensions. You will need to approximate everything. The webpage width is 800 pixels wide.

Notice further, that some of the text is “lorem ipsum”. This is fake words to take up space. Many web developers use this to help them style their website before populating their final version with real information. You can use lorem ipsum as well. You can use this website: https://www.lipsum.com/, to generate lorem ipsum text.

If there are parts of the webpage that you can read in English, then please use those English words in your submission.

Notice that there are many links at many locations in the page: underlined text, bold green text, top menu, box on right with categories-recent posts-archive, and links at the end of the web page. These must be functional links. They should point to random internet web pages but attempt to point to pages that are vaguely under the same theme (can be very vaguely related).

See the marking scheme for more details on how close your web page should be to the sample page.

Make sure the above web page displays on your browser. This is a Local Webpage. Do not install the web page on the Internet. Using your browser’s File Open menu command (or drag to window) you can load an HTML document stored on your disk into the browser to see your handy work.

WHAT TO HAND IN

The following files must be submitted to the "mini 1" box in the Assignment Tool at myCourses:

- Question 1: Submit the downloaded file **m1q1.txt** and **m1q1.jpg**.
- Question 2: A single ZIP file called **m1q2.zip** containing the JPG files color.jpg, logo.jpg, font.jpg, landing.jpg, vet.jpg, boarding.jpg, clinmics.jpg, and placement.jpg.
- Question 3: The PDF file **m1q3.pdf**.
- Question 4: The file **mini1.html**.

HOW IT WILL BE GRADED

This mini assignment is worth 20 points and part marks can be awarded.

Deduction points:

- -3 for not following instructions
- -10% per day late, max two late days

Awarding points:

- Question 1: 5 points
  - 1 point for each correct answer per sub-question.
- Question 2: 5 points
  RUBRIC
  5 Branding and pages look well together and provide all the expected functionality.
  4 Everything is correct, but there is something that is off (e.g. Color or layout) preventing a 5.
  3 One thing is not good at all: color, functionality, simple page layout, or missing one thing.
  2 It looks like the student gave a good try but it did not meet the question's requirements.
  1 Solution submitted has one thing correct, but nothing else.
  0 A solution was not submitted, or it is completely wrong.
- Question 3: 5 points
  - This is proportionally graded by comparing the student's solution with the official solution. For example, if the student's solution matches 75% of the official solution, then they get 75% of the 5 points in question 3.
- Question 4: 5 points
  RUBRIC
  5 Solution looks like the example page: 90% color match, links work, layout same, only HTML.
  4 Solution uses HTML only, but webpage does not match example in 1 of the above areas.
  3 Solution uses HTML only, but webpage does not match example in 2 of the above areas.
  2 Solution uses something else in addition to HTML, or 3 above areas do not match example.
  1 Solution does not follow requirements in many places.
  0 A solution was not submitted, or it is completely wrong.