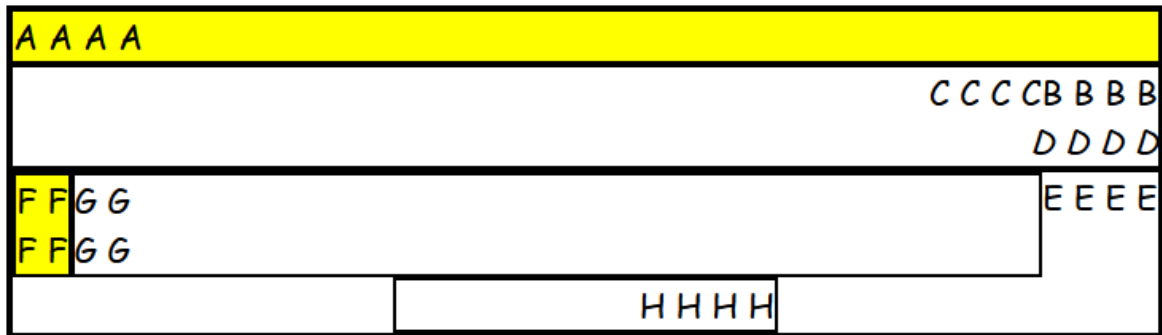**Question 1.** (5 points) **CSS**

Write the **CSS code** necessary to recreate the following appearance on-screen, exactly as shown. You are **not allowed to modify the HTML**.


```
<div>
  <div class="id">A A A A</div>
  <div>
    <span>B B
          B B</span>
    <span id="id">C C C C</span>
    <span class="class">D D D D</span>
  </div>
  <div class="class">
    <span>E E E E</span>
    <div class="id">F F<br />F F</div>
    <div id="class">G G<br />G G</div>
    <div id="H">H H H H</div>
  </div>
</div>
```

- Text uses Comic Sans MS font at the default size.
- All borders shown are 2px thick and black in color.
- The elements "A" and "F" have yellow background.
- The element "D" has *italic* text.
- The element "H" is exactly one third (1/3) of the page width, in the page center; the "H H H H" text appears on the right edge of the element.

Question 2. (10 points) JavaScript / DOM

Write the **JavaScript code** to add behavior to a web page for manipulating strings. The page UI allows the user to type a phrase into a text box. The user can click the "Go!" button to display the words in that phrase in reverse order. Each word in the phrase should be inserted as a span with a class of word, inside a div with the id of words. *(The word class gives the spans their appearance in the screenshots below, giving them a border and a background and so on.)* Every other word (the first, third, fifth, etc.) should also be underlined.

The user can optionally specify a "filter" text by typing into a text box with the id of filter. If a non-blank filter is specified, you should exclude any words from the phrase that contain that filter text, case-insensitively. For example, if the filter text is "abc," exclude any words containing abc, ABC, aBc, etc. If any words are excluded, under the list of words you should modify the div with id of count to display text of the form, "5 word(s) filtered out."

The code should work for multiple clicks of the button. On each click it should clear any previous information you injected. You may assume that words in the phrase are separated by single spaces. Do not use any JavaScript libraries such as jQuery or Prototype. Here is the relevant HTML code for the page:

```
<h1>Sentence Reverser!</h1>
<div> Phrase: <input id="phrase" type="text" size="40" /> </div>
<div> Filter: <input id="filter" type="text" size="10" /> </div>
<div> <button id="go">Go!</button> </div>
<div id="words"> </div>
<div id="count"> </div>
```

These screenshots show the initial state, and after phrases have been typed and "Go!" is clicked.

Question 3. (10 points) **PHP**

Write the PHP code for **two web pages** for ordering food from an online store. **The first page you will write is a form named order.php** that allows the user to choose what kind of food to buy and how many to buy. In your form, include a drop-down menu of food items available. Include a text box for the user to enter a quantity of the item to purchase (2-characters-wide), and an "Order" button to submit the form. The form should look like this:

Food item: milk
Quantity: 10
Order

The food items to list should be based on what JPG food images are available in the current directory. For example, if the current directory contains apple.jpg and steak.jpg, then "apple" and "steak" appear in the drop-down list.

The second page you will write is named order-submit.php. The form in order.php submits its data as a POST request to order-submit.php. The output of order-submit.php is an HTML page fragment, a single paragraph indicating information about the order as described below.

The store's current inventory is stored in a file named inventory.txt on the server in the current directory. Each line of the file represents one item available in the store, its quantity available, and its price per unit, separated by tabs. Create your own inventory file. Here is an example inventory:

```
apple     4       1.00
chicken   1       3.25
cookie    38      0.25
milk      9       4.50
tomato    27      0.50
```

In general your task is to look up the price per unit of the item the user is ordering, and use this price to compute the total order cost. For example, if the item costs $0.50 and the user orders 7 of them, the total order is 7 * 0.50 = $3.50.

The page's output in the general successful case is to inform the user that the order was successful, display the total order cost (you do not need to round it), and show the user a series of images representing what was ordered. For example, if the user

orders 4 apples, your output should display 4 copies of apple.jpg.

Here is another output from ordering 15 of the item "cookie." (the output wraps to the next line in the browser)

The store is only able to complete an order if that food item is in the inventory and the store has enough of that item in stock. For example, if the inventory matches the above text file (which has 9 "milk" in stock), and the user tries to order 10 of "milk," the following error should be displayed:

If an item is not present in the inventory file, assume that its quantity available in stock is 0 and display the same sort of error message.

Question 4. (5 points) PHP

Write the PHP code for a web page that searches for names that contain a given letter a given number of times, case-insensitively. Your web service would be located in a file named q4.php on the server. In this same directory is a file peeps.txt; each line of this file contains a name. For example:

```
Helene Martin
Robert Purple
Marty Stepp
Stuart Reges
Bob Loblaw
```

The names are guaranteed to be non-empty and unique.

Your web service accepts a query parameter named letter indicating the character to be searched for, and a parameter named times indicating how many times that character must occur, case-insensitively. For each name that contains the letter at least the given number of times, an HTML paragraph should be printed indicating

this with the name in bold along with the number of times it contains the letter. For example, if the following query is given, this output is produced:

`q4.php?letter=`**R**`&times=`**2**

Robert Purple contains 'R' exactly 3 times.
Stuart Reges contains 'R' exactly 2 times.

If no names contain the given character the given number of times, output a message saying so:

`q4.php?letter=`**x**`&times=`**1**

No name contained 'x' enough times.

If one or both of the required query parameters is not passed, your service must produce an error message instructing the user about how to fix it. You should also generate an error message if the letter parameter is not a one-letter string or if the times parameter is not a positive number. (Any times value ≤ 0 is invalid and anything else is valid.)

`q4.php?letter=`**thingy**`&times=`**-4**
`q4.php?letter=`**t**
`q4.php?times=7`
`q4.php`

The above are Invalid Request

Your code should *not* output a complete HTML page. Output a partial page containing only the paragraphs indicated.