Bert Craytor

From: Mike Schwartz <mike@motifinvesting.com>
Sent: Wednesday, July 31, 2013 5:42 PM
To: bert.craytor@gmail.com
Subject: Motif Investing UI Engineering Quiz

Hi Bert --

Pleasure talking with you just now. Here's the quiz I spoke about towards the end of our talk. We use this as the jumping off point for some interview questions, and so it's ideal if we can get it with a little lead time before you come in. If you are not able to find the time, we'll just have to spend a little more time on the JS side of things while you are here. Correct behavior is the highest priority in terms of evaluation criteria.

Thanks in advance for making the effort on these. I'm anxiously anticipating your response. Good luck! Also please let me know if you have any questions on them or anything else.

1) Dependent Checkboxes

Imagine you are given a project requirement that asks you to implement a user interface for managing the privacy settings of certain features in the product. The requirement is for you to manage these settings in a table, where each row of the table reflects the privacy settings for a particular feature. Each row is made up of a first column containing the name of the feature and the subsequent columns represent the privacy levels of the feature. Each of these subsequent columns contains a single checkbox where the user can select the privacy level defined by that column. If there are three privacy levels, then each row would have 4 columns, the first of which contains the feature's label and each of the remaining three are used to select their respective privacy level using the checkbox contained within. The checkboxes must conform to two rules:

a) When a checkbox in a row becomes checked, it must check the checkboxes to the right of itself.
b) When a checkbox in a row becomes unchecked, it must uncheck the checkboxes to the left of itself.

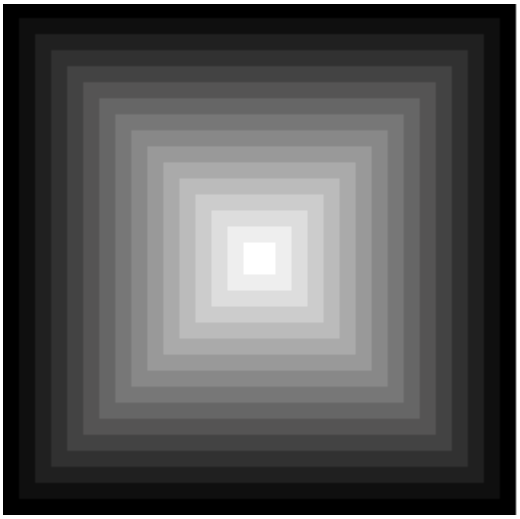
In other words, all privacy levels to the right of a users selection are subsumed by the selected privacy level. It may be helpful to think about this as there being a inclusive dependency on the privacy levels whereby a checkbox toward the right is more restrictive and a checkbox toward the left is less restrictive.

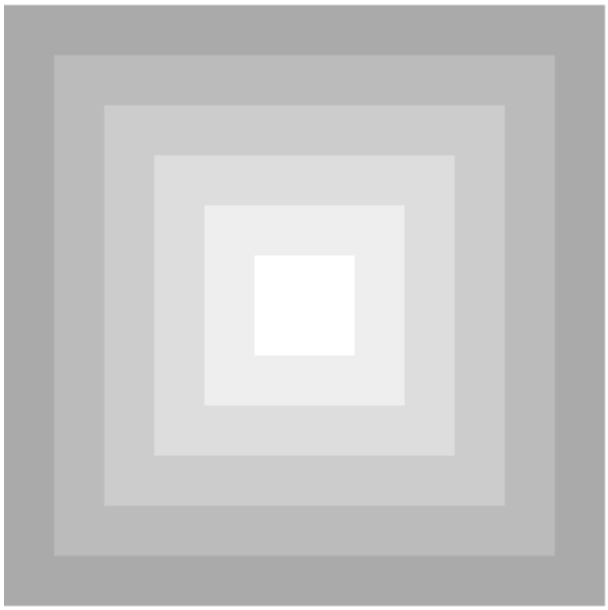
Your task is to implement this functionality such that it can handle an arbitrary number of features and an arbitrary number of security levels. First, construct an html table that captures the structure outlined. As sample cases create a table with three privacy levels and a table with ten privacy levels. Second, using jQuery (or another framework, or no framework), construct the javascript necessary to enforce the checkbox logic outlined in rules 1) and 2). Last, add a button at the bottom of each table, that when clicked, reports to the console the selected privacy level of each feature as an integer value representing the position of the checkbox in the row.

2) Fade to white

Imagine yourself as an abstract artist interested in cubism who specializes in creating designs in HTML/CSS. For your next project, you want to make it interactive and you've learned some JS and to create the output programatically. What you want to achieve is an effect like the picture below. Essentially, this could be described as a nested series of greyscale colored squares starting with an arbitrary grey value on the outside and increasing in brightness to white on the inside, with each step going up by 1/16 of the available grey

values. E.g.: In the first image below, outside square is #000, next is #111, after that is #222, etc. until you get to #FFF in the middle.





- Could you write a function called "drawSquares" that takes 2 arguments, and renders the desired squares?
    - A starting color value for the outermost square ranging from 0 (black) to 14 (very light grey, hexadecimal value E)
    - The visible width, in pixels, of a step

For example, the images above would be rendered by drawSquares(0,8) and drawSquares(10,25) respectively.

Finally, could you suggest and discuss ways to make this function and its output cooler and more flexible?

Thanks,
Mike

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