Assignment 2 – Javascript and JSON
COS318 – FA2015

Due Date: September 17th, 2015
Turn in all files using Moodle

The second assignment begins! *The song of time plays in the background. (to help you get in the right mood: https://www.youtube.com/watch?v=jlMWSAcQce4)* In this assignment, you'll be creating some more advanced javascript than you did in assignment 1. You'll also be doing work with the DOM and JSON objects. Your page will accept a generic block of text from a user, then if the inputted text is valid JSON, generate a web form based on the input. Hopefully you will obtain the three triforce pieces along the way as well, but that's not a required part of the assignment.

Here are your requirements.

1. **(10 Points)** A textarea on the page and a button below it. Pressing the button should **parse the text in the text area into JSON**. If the text isn't valid JSON, display an error.
2. **(30 Points) Parse the JSON key 'buttons' into buttons.**
    a. The 'buttons' field will be an array of strings.
    b. Validate and display errors if any of the following are true:
        i. 'buttons' field isn't an array
        ii. any of the array elements aren't strings
    c. Example JSON: {"buttons": ["Link Wins", "Ganon Loses"]}
3. **(40 Points) Parse the JSON key 'fields' into text fields**.
    a. The 'field's field will be an array of strings or objects.
    b. If an element of an array is a string, display a text box labeled with that string.
    c. If an element of the array is an object, read the name and default fields of this object. The name field becomes the label for the input box, and the default field sets the initial value of the input box.
    d. Validate and display errors if any of the following are true:
        i. 'fields' field isn't an array
        ii. 'field's array element isn't an object or a string
        iii. 'fields' array element was an object, but didn't contain a name field
    e. Example JSON: {"fields": [{"name": "Boot Type", "default": "lead"}, "Tunic Color"]}
4. **(20 Points)** Code style, formatting, completeness, and quality.

The Rules

1. Error messages must be "in-page" i.e. no pop-ups or alerts.
2. The page should load and work correctly with no external libraries. Your submission must only have two files. One HTML and one JS.
3. You can find JSON that covers all of the cases required above at https://github.com/spazard1/Web-Programming-FA2015

Stretch Levels

If you already have a lot of experience with Javascript and JSON or you just really like Zelda, try to complete these stretch levels for extra credit. The levels are cumulative, so for example, don't try for

silver if you haven't finished bronze. If you try for the stretch levels, make sure to type it in the comments on Moodle so I don't miss it.

Bronze Level (Green Rupee)

Give some action to the buttons. When a user clicks on one of the buttons, popup an alert with a message about the text that the button is labeled with, such as "Hello, <text>!"

Silver Level (Blue Rupee)

Add another type of data that your page supports, the 'selects' field. The 'selects' will be an array of arrays, and each one generates a select box with the options in each sub array. Each option must be a string. As with the base assignment, all of these data types should be validated.

Gold Level (Red Rupee)

Select boxes allow for default values. Come up with a way for a user to specify in the JSON a default value that will be selected automatically for them in the select boxes. No matter the format, validate to make sure the data types match as expected. There are no JSON examples for this stretch level on github. You will need to create your own.