Supporting the Creation of Markup for Web Resources

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1.Project Background

Webmasters can increase the visibility of a web page by adding machine-readable data to the page. This allows applications like search engines to understand the content of the page which can indirectly impact the web page's. search ranking.

Schema.org provides a shared vocabulary for webmasters to use in order to create the machine-readable data markup. However, due to the large number of terms in Schema.org's vocabulary webmasters find it difficult to choose which terms to use.

Bioschemas provides new terms to be added to Schema.org's vocabulary to increase the visibility of data from the life science communities. Additionally, Bioschemas also supports webmasters in the creation of markup by recommending which terms to use as well as providing examples and controlled vocabularies [1].

2.Aims

This project aimed to develop a system to support webmasters in the creation of markup for their web resources based on the Bioschemas profiles.

3.Objectives

- Review existing tools for generating and validating Schema.org markup.
- Allow users to easily generate Bioschemas markup through an intuitive and aesthetically pleasing user interface.
- To evaluate the final system's usefulness and validate that the generated data is syntactically correct and compliant with the Bioschemas specifications.

4.Implementation

The final system implemented was separated into two individual systems:

- A Scripting Tool that generated the required files for the web application based on information from Bioschemas and Schema.org.
- The web application (Shown in Figures 1, 2 and 3) that uses the generated files to display a form and additional information to allow users to markup Bioschemas profiles.

5.User Interface

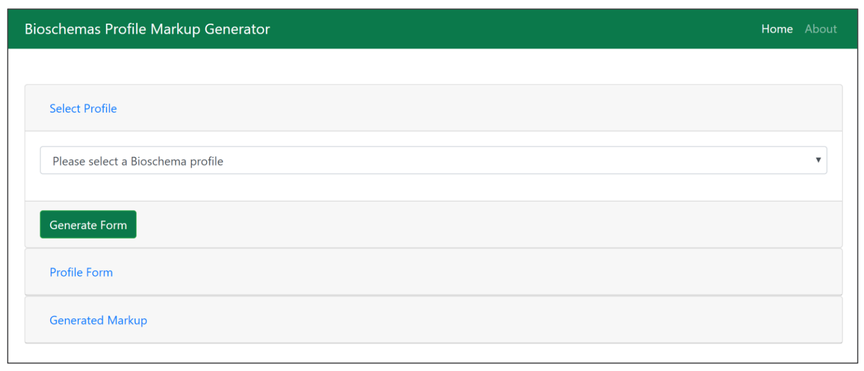

Figure 1. Select which profile to create a markup for through the drop-down menu.

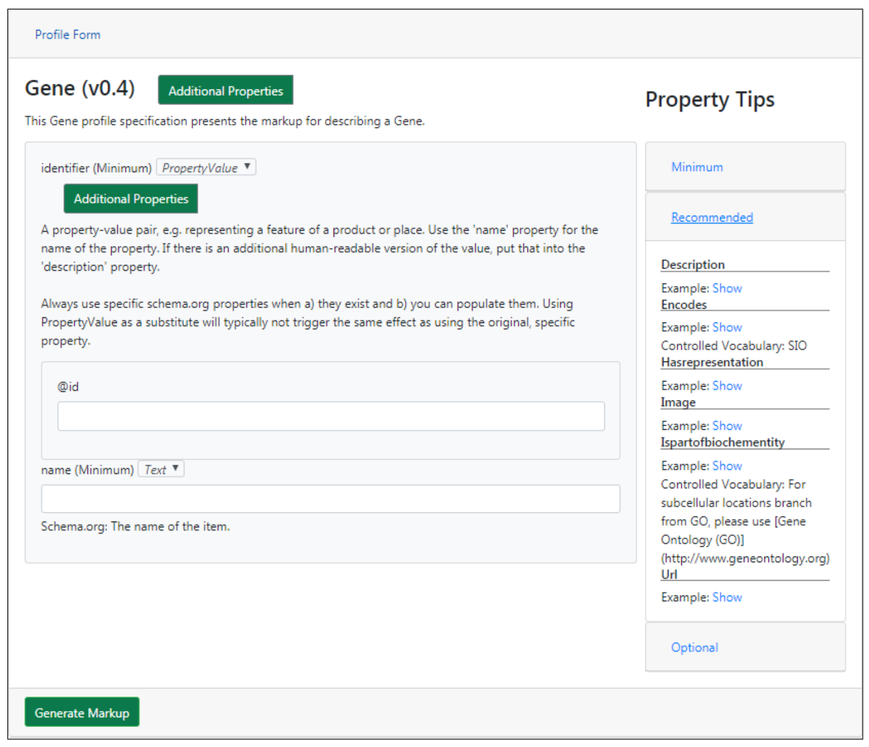

Figure 2. Provide data through the form with the help of additional information (Examples and Controlled Vocabularies).

Figure 3. Download the generated markup in the format of JSON-LD, Microdata or RDFa.

6.Evaluation

The final system was evaluated through the following methods:

- A/B testing comparing the developed system against a second similar system.
- Usability Questionnaire.

7.Results

- Test subjects were on average able to complete the assigned tasks faster on the system developed (System A) verses the comparison system (System B). Shown in Figure 4.

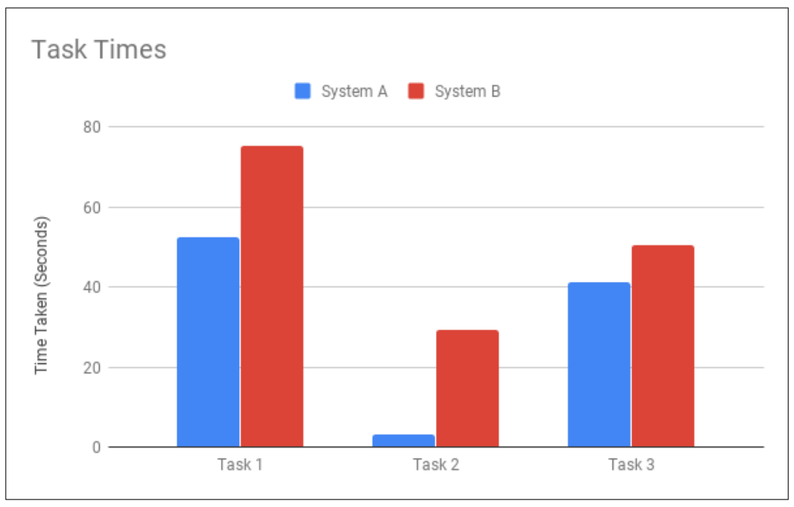

Figure 4. Average Usability Test Task Times

- Test subjects unanimously preferred System A to System B as they preferred the usability and aesthetics of the interface. Shown in Figure 5.

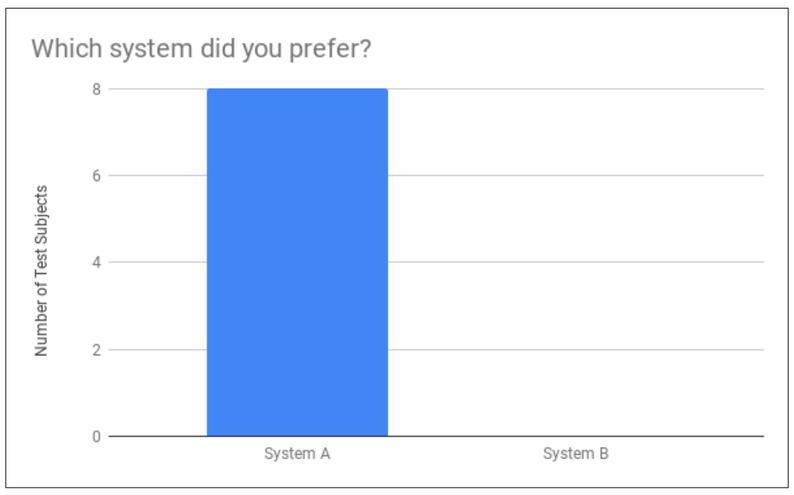

Figure 5. Usability Test Preferred System

8.Future Works

- Profile Validation: Implement the ability to validate the generated markup against the selected Bioschemas Profile.
- Advanced User: Allow a more knowledgeable user to have more control over the form.
- User Interface Improvements:
  - Better visibility of additional information.
  - Better layout out of buttons in form to decrease confusion.

9.References

[1] - Bioschemas.org. What is Bioschemas? https://bioschemas.org Date Accessed: 3/11/2018