

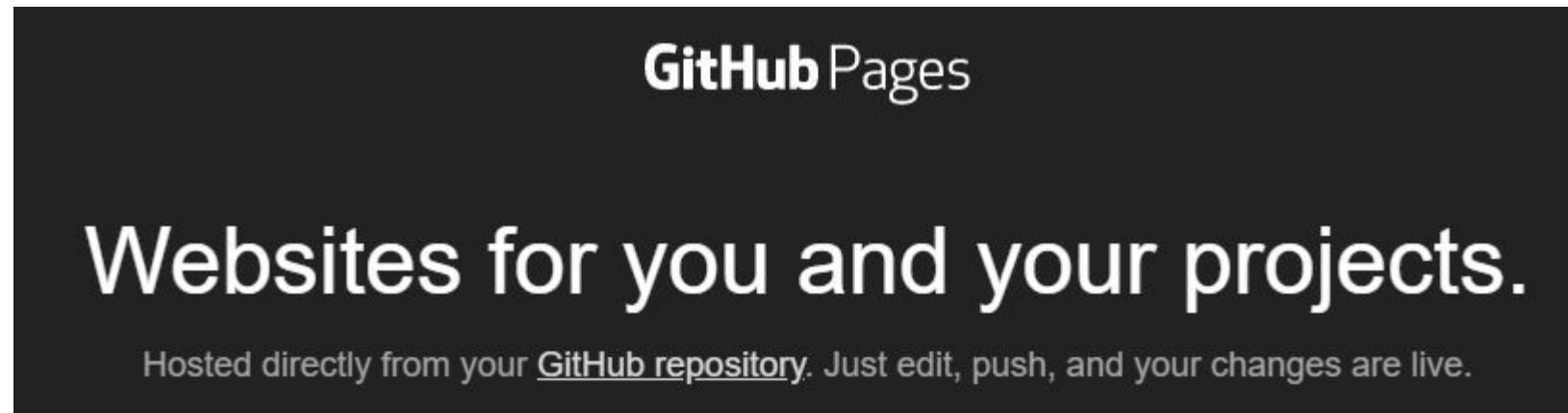


Adding Bioschemas markup to GitHub pages

Leyla Jael Castro

Adding Bioschemas markup

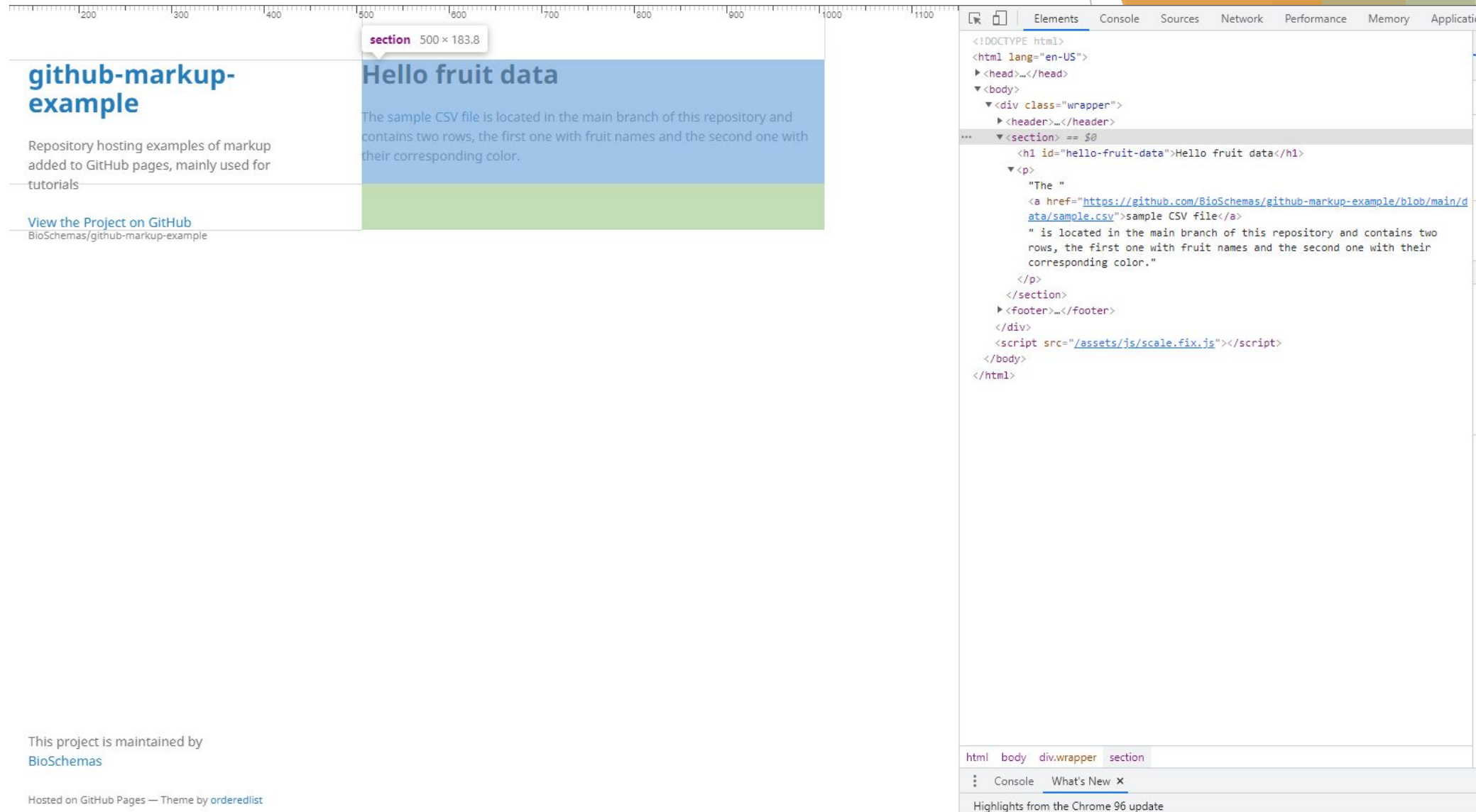
- ▶ We use and recommend markup in [JSON-LD](#) □ easy to read by machines and humans
- ▶ Markup can be added to any web page



What can you expect from this lesson?

- ▶ Title: Adding Bioschemas markup to GitHub pages
- ▶ Keywords: Bioschemas, markup, GitHub pages, JSON-LD, Jekyll
- ▶ Description: In this lesson we will demo how to add Bioschemas markup to GitHub pages using Dataset ([vr. Draft 0.4](#)), ComputationalTool ([vr. Release 1.0](#)) and TrainingMaterial ([vr. Draft 0.9](#)) profiles
- ▶ Mentions:
 - ▶ This lesson reuses some information from an online [Bioschemas tutorial](#)
 - ▶ This lesson uses the repository (data, code and pages) at <https://github.com/zbmed-semtec/bioschemas-github-markup-example>
- ▶ Audience: This lesson is intended for anyone interested in Bioschemas markup
- ▶ Skills required:
 - ▶ How to use and run GitHub pages
 - ▶ Basic understanding of JSON-LD
 - ▶ Basic knowledge about Bioschemas (e.g., what a profile is)
- ▶ Learning outcomes:
 - ▶ Explaining different approaches to add Bioschemas markup to GitHub pages
 - ▶ Using Bioschemas markup on your own GitHub pages
 - ▶ Describing some of the minimum elements for the Bioschemas profiles Dataset, ComputationalTool and TrainingMaterial

Page without markup

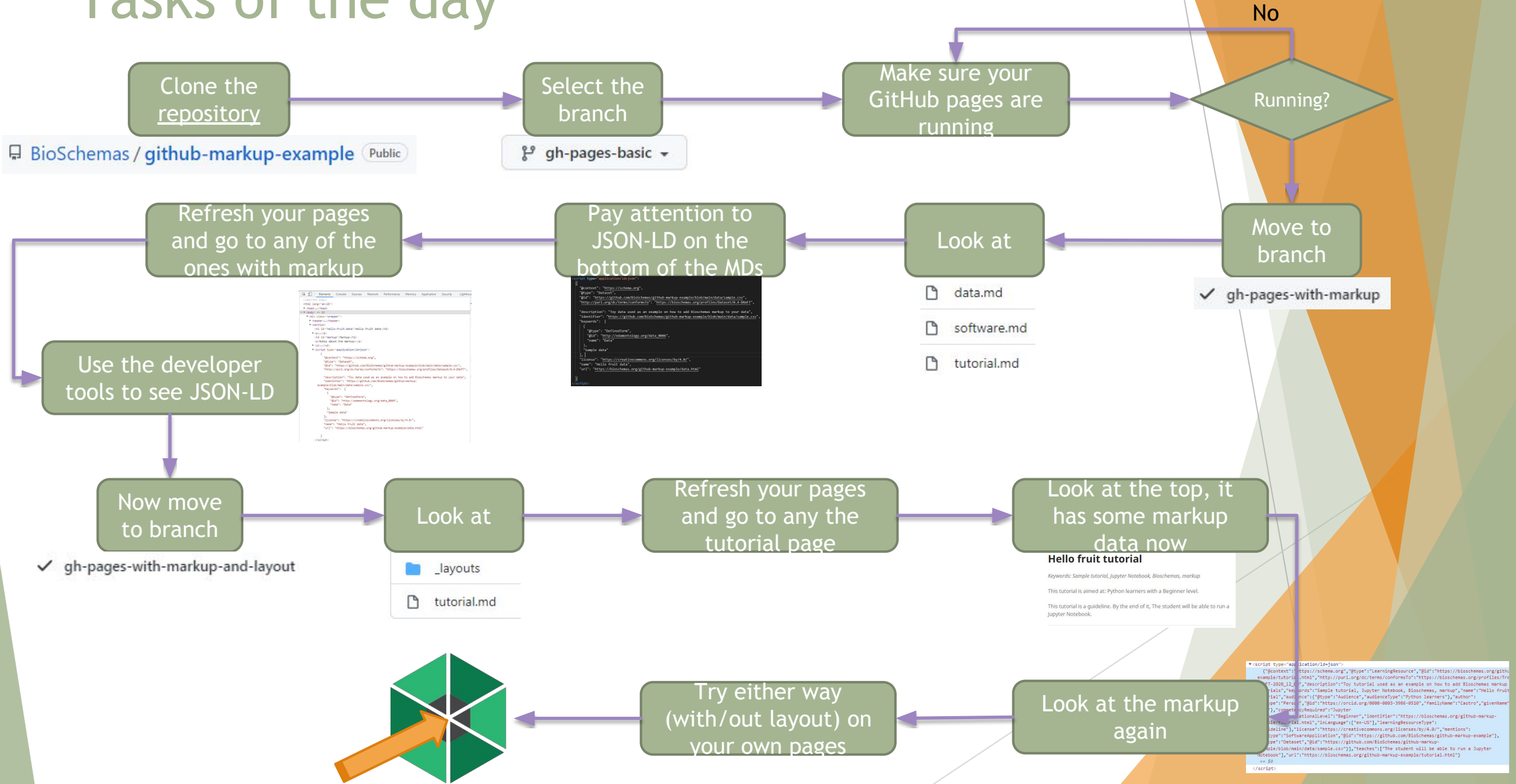


The screenshot displays a web browser window with a page titled "github-markup-example". The page content includes a header "github-markup-example", a sub-header "Hello fruit data", and a paragraph of text. A tooltip indicates the dimensions of the "section" element as 500 x 183.8. The right sidebar shows the browser's developer tools, specifically the "Elements" panel, which displays the HTML markup for the selected "section" element. The markup is as follows:

```
<!DOCTYPE html>
<html lang="en-US">
  <head>...</head>
  <body>
    <div class="wrapper">
      <header>...</header>
      <section> == $0
        <h1 id="hello-fruit-data">Hello fruit data</h1>
        <p>
          "The "
          <a href="https://github.com/BioSchemas/github-markup-example/blob/main/d
            ata/sample.csv">sample CSV file</a>
          " is located in the main branch of this repository and contains two
            rows, the first one with fruit names and the second one with their
            corresponding color."
        </p>
      </section>
    </div>
    <script src="/assets/js/scale.fix.js"></script>
  </body>
</html>
```

At the bottom of the page, it states: "This project is maintained by BioSchemas" and "Hosted on GitHub Pages — Theme by orderedlist".

Tasks of the day





Adding markup directly to the pages

Page with markup

github-markup-example

Repository hosting examples of markup added to GitHub pages, mainly used for tutorials

[View the Project on GitHub](#)
BioSchemas/github-markup-example

This project is maintained by
[BioSchemas](#)

Hosted on GitHub Pages — Theme by [orderedlist](#)

Hello fruit data

The [sample CSV file](#) is located in the main branch of this repository and contains two rows, the first one with fruit names and the second one with their corresponding color.

Notes:

- We advised you to deposit your data on a data repository that will provide you with a Permanent Identifier (PID) such as a Digital Object Identifier (DOI). We have not done so as we are using toy data so we use the URL as the dataset identifier rather than a proper ID.
- We provide markup only for those properties defined as *minimum* by Bioschemas Dataset profile ([version Draft 0.4](#)) but you can improve your dataset description adding *recommended* and *optional* properties.
- Whenever you use an [EDAM](#) term to describe your data, try and find the one which describes it best. Here we use "Data" as an example.

```
<!DOCTYPE html>
<html lang="en-US">
  <head>...</head>
  <body>
    <div class="wrapper">
      <header>...</header>
      <section> == $0
        <h1 id="hello-fruit-data">Hello fruit data</h1>
        <p>...</p>
        <p>Notes:</p>
        <ul>...</ul>
        <script type="application/ld+json">
          {
            "@context": "https://schema.org",
            "@type": "Dataset",
            "id": "https://bioschemas.org/github-markup-example/data.html",
            "http://purl.org/dc/terms/conformsTo":
              "https://bioschemas.org/profiles/Dataset/0.4-DRAFT",

            "description": "Toy data used in as an example on how to add
              Bioschemas markup to your data",
            "identifier": "https://bioschemas.org/github-markup-
              example/data.html",
            "keywords": [
              {
                "@type": "DefinedTerm",
                "id": "http://edamontology.org/data_0006",
                "name": "Data"
              },
              "Sample data"
            ],
            "license": "https://creativecommons.org/licenses/by/4.0/",
            "name": "Hello fruit data",
            "url": "https://bioschemas.org/github-markup-example/data.html"
          }
        </script>
      </section>
      <footer>...</footer>
    </div>
    <script src="/assets/js/scale.fix.js"></script>
  </body>
</html>
```


Dataset DRAFT Profile

Version: 0.4-DRAFT (30 March 2021)

If you spot any errors or omissions with this type, please file an issue in our [GitHub](#).

Description	Contributors	Links
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Schema.org hierarchy

This Profile fits into the schema.org hierarchy as follows:

Thing > CreativeWork > Dataset

```
<script type="application/ld+json">
{
  "@context": "https://schema.org",
  "@type": "Dataset",
  "@id": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv",
  "http://purl.org/dc/terms/conformsTo": "https://bioschemas.org/profiles/Dataset/0.4-DRAFT",

  "description": "Toy data used as an example on how to add Bioschemas markup to your data",
  "identifier": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv",
  "keywords": [
    {
      "@type": "DefinedTerm",
      "@id": "http://edamontology.org/data_0006",
      "name": "Data"
    },
    "Sample data"
  ],
  "license": "https://creativecommons.org/licenses/by/4.0/",
  "name": "Hello fruit data",
  "url": "https://bioschemas.org/github-markup-example/data.html"
}
```

<u>description</u>	Text	Schema: A description of the item.	ONE	
		Bioschemas: A short summary describing a dataset.		
<u>identifier</u>	PropertyValue Text URL	Schema: The identifier property represents any kind of identifier for any kind of <u>Thing</u> , such as ISBNs, GTIN codes, UUIDs etc. Schema.org provides dedicated properties for representing many of these, either as textual strings or as URL (URI) links. See background notes for more details.	MANY	
		Bioschemas: CURIEs that can be resolved using Identifiers.org should be used.		
<u>keywords</u>	DefinedTerm Text URL	Schema: Keywords or tags used to describe this content. Multiple entries in a keywords list are typically delimited by commas.	ONE	
		Bioschemas: Keywords should be drawn from a controlled vocabulary, e.g. EDAM , and supplied as a DefinedTerm list.		
<u>license</u>	CreativeWork URL	Schema: A license document that applies to this content, typically indicated by URL.	ONE	
		Bioschemas: A license under which the dataset is distributed.		
<u>name</u>	Text	Schema: The name of the item.	ONE	
		Bioschemas: A descriptive name of the dataset.		
<u>url</u>	URL	Schema: URL of the item.	ONE	
		Bioschemas: The location of a page describing the dataset.		
Marginality: Recommended.				

ComputationalTool Profile

Version: 1.0-RELEASE (11 October 2021)

Bioschemas specification for describing a SoftwareApplication in the Life Sciences

If you spot any errors or omissions with this type, please file an issue in our [GitHub](#).

Description	Contributors	Links
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Schema.org hierarchy
This Profile fits into the schema.org hierarchy as follows:

Thing > CreativeWork > SoftwareApplication

```
<script type="application/ld+json">
{
  "@context": "https://schema.org",
  "@type": "softwareApplication",
  "@id": "https://github.com/BioSchemas/github-markup-example",
  "http://purl.org/dc/terms/conformsTo": "https://bioschemas.org/profiles/ComputationalTool/1.0-RELEASE",

  "description": "Toy code used as an example on how to add Bioschemas markup to your software",
  "name": "Hello fruit tool",
  "url": "https://bioschemas.org/github-markup-example/software.html",

  "applicationCategory": [
    "Script"
  ],
  "applicationSubCategory": [
    "Data management"
  ],
  "author": {
    "@type": "Person",
    "@id": "https://orcid.org/0000-0003-3986-0510",
    "familyName": "Castro",
    "givenName": "Leyla Jael"
  },
  "license": "https://opensource.org/licenses/MIT",
  "softwareVersion": "0.0.1"
}
</script>
```

<u>description</u>	<u>Text</u>	Schema: A description of the item.	ONE	
		Bioschemas: A short description of the tool.		
<u>name</u>	<u>Text</u>	Schema: The name of the item.		
<u>url</u>	<u>URL</u>	Schema: URL of the item.	ONE	
		Bioschemas: Homepage of the tool.		
Marginality: Recommended.				
<u>applicationCategory</u>	<u>Text</u> <u>URL</u>	Schema: Type of software application, e.g. 'Game, Multimedia'.	MANY	
		Bioschemas: Type of tool e.g. Command-line tool, Web application etc. Note: Bioschemas have changed <u>URL</u> to <u>Text</u> in the Expected Types. This will be reverted once Bio.Tools provides stable URIs for tool types.		Please use terms from the 'Tool type' table in the biotools documentation
<u>applicationSubCategory</u>	<u>Text</u> <u>URL</u>	Schema: Subcategory of the application, e.g. 'Arcade Game'.	MANY	
		Bioschemas: Use an EDAM:Topic to describe the category of application		EDAM:Topic
<u>author</u>	<u>Organization</u> <u>Person</u>	Schema: The author of this content or rating. Please note that author is special in that HTML 5 provides a special mechanism for indicating authorship via the rel tag. That is equivalent to this and may be used interchangeably.	MANY	
<u>citation</u>	<u>CreativeWork</u> <u>URL</u>	Schema: A citation or reference to another creative work, such as another publication, web page, scholarly article, etc.	MANY	
		Bioschemas: Publication about this tool.		

TrainingMaterial DRAFT Profile

Version: 0.9-DRAFT-2020_12_08 (08 December 2020)

A specification for describing training materials in life sciences.

If you spot any errors or omissions with this type, please file an issue in our [GitHub](#).

Description	Contributors	Links
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Schema.org hierarchy









This Profile fits into the schema.org hierarchy as follows:

[Thing](#) > [CreativeWork](#) > [LearningResource](#)

```
<script type="application/ld+json">
{
  "@context": "https://schema.org",
  "@type": "LearningResource",
  "@id": "https://bioschemas.org/github-markup-example/tutorial.html",
  "http://purl.org/dc/terms/conformsTo": "https://bioschemas.org/profiles/TrainingMaterial/0.9-DRAFT-2020_12_08",

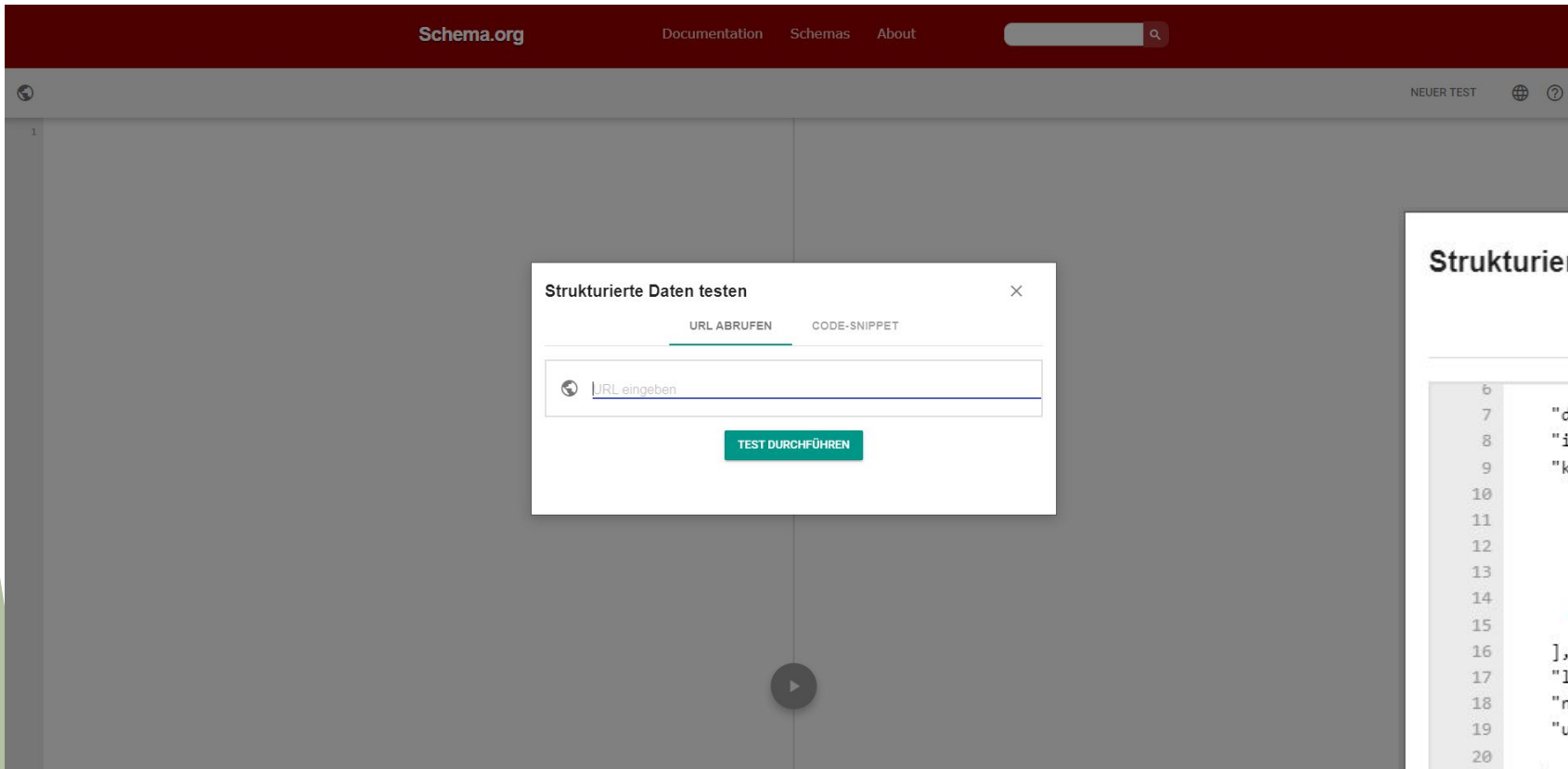
  "description": "Toy tutorial used as an example on how to add Bioschemas markup to your tutorials",
  "keywords": "Sample tutorial, Jupyter Notebook, Bioschemas, markup",
  "name": "Hello fruit tutorial",

  "audience": {
    "@type": "Audience",
    "audienceType": "Python learners"
  },
  "author": {
    "@type": "Person",
    "@id": "https://orcid.org/0000-0003-3986-0510",
    "familyName": "Castro",
    "givenName": "Leyla Jael"
  },
  "competencyRequired": "Jupyter notebooks",
  "educationalLevel": "Beginner",
  "identifier": "https://bioschemas.org/github-markup-example/tutorial.html",
  "inLanguage": ["en-US"],
  "learningResourceType": ["guideline"],
  "license": "https://creativecommons.org/licenses/by/4.0/",
  "mentions": [
    {
      "@type": "SoftwareApplication",
      "@id": "https://github.com/BioSchemas/github-markup-example"
    },
    {
      "@type": "Dataset",
      "@id": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv"
    }
  ],
  "teaches": [
    "The student will be able to run a Jupyter Notebook"
  ],
  "url": "https://bioschemas.org/github-markup-example/tutorial.html"
}
</script>
```

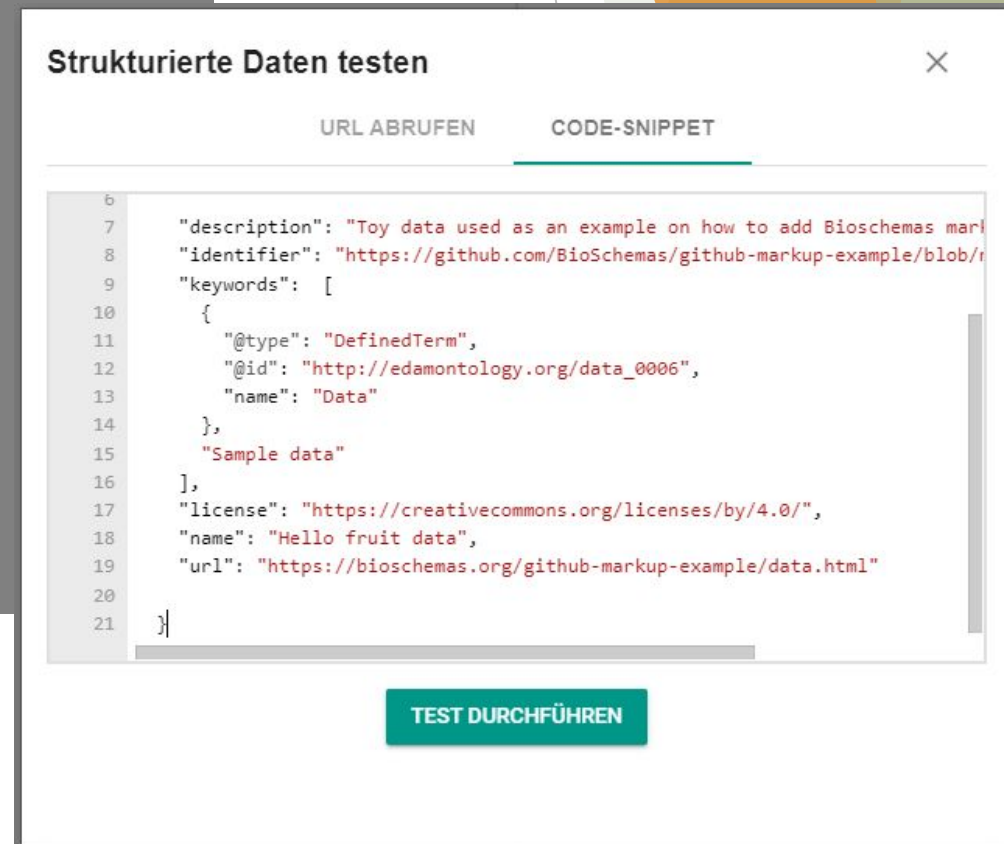
<u>description</u>	<u>Text</u>	Schema: A description of the item.	ONE		
<u>keywords</u>	<u>DefinedTerm</u> <u>Text</u> <u>URL</u>	Schema: Keywords or tags used to describe this content. Multiple entries in a keywords list are typically delimited by commas.	MANY		
<u>name</u>	<u>Text</u>	Schema: The name of the item.	ONE		
Marginality: Recommended.					
<u>about</u>	<u>Thing</u>	Schema: The subject matter of the content. Inverse property: subjectOf. Bioschemas: The subject of this Training Material. Use the DefinedTerm type to add a controlled vocabulary term to describe the topic (such as from the EDAM ontology)	MANY	EDAM Topic Ontology	
<u>abstract</u>	<u>Text</u>	Schema: An abstract is a short description that summarizes a CreativeWork.	ONE		
<u>audience</u>	<u>Audience</u>	Schema: An intended audience, i.e. a group for whom something was created. Supersedes serviceAudience. Bioschemas: A succinct description of the intended target audience for your materials: e.g., graduates, postgraduates, clinicians.	MANY		
<u>author</u>	<u>Organization</u> <u>Person</u>	Schema: The author of this content or rating. Please note that author is special in that HTML 5 provides a special mechanism for indicating authorship via the rel tag. That is equivalent to this and may be used interchangeably. Bioschemas: Those involved in the preparation, creation and/or presentation of the published work, specifically writing the initial draft	MANY		
<u>competencyRequired</u>	<u>DefinedTerm</u>	Schema:	MANY		

Double check your markup with a validator

<https://validator.schema.org/>



The screenshot shows the Schema.org website with a dark red header containing the logo and navigation links: Documentation, Schemas, and About. A search bar is located to the right of the navigation links. Below the header, the main content area is grey. A white dialog box titled 'Strukturierte Daten testen' is open in the center. It has two tabs: 'URL ABRUFEN' (selected) and 'CODE-SNIPPET'. The 'URL ABRUFEN' tab contains a text input field with a globe icon and the placeholder text 'URL eingeben'. Below the input field is a green button labeled 'TEST DURCHFÜHREN'.



This screenshot shows the same 'Strukturierte Daten testen' dialog box, but with the 'CODE-SNIPPET' tab selected. The 'URL ABRUFEN' tab is now inactive. The 'CODE-SNIPPET' tab displays a code editor with line numbers 6 through 21. The code is a JSON-LD snippet for a 'Hello fruit data' example. Below the code editor is a green button labeled 'TEST DURCHFÜHREN'.

```
6
7   "description": "Toy data used as an example on how to add Bioschemas markup",
8   "identifier": "https://github.com/BioSchemas/github-markup-example/blob/main",
9   "keywords": [
10    {
11      "@type": "DefinedTerm",
12      "@id": "http://edamontology.org/data_0006",
13      "name": "Data"
14    },
15    "Sample data"
16  ],
17   "license": "https://creativecommons.org/licenses/by/4.0/",
18   "name": "Hello fruit data",
19   "url": "https://bioschemas.org/github-markup-example/data.html"
20
21 }
```

So far so good

Schema.org

Documentation

Schemas

About



NEUER TEST



```
1 {
2   "@context": "https://schema.org",
3   "@type": "Dataset",
4   "@id": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv",
5   "http://purl.org/dc/terms/conformsTo": "https://bioschemas.org/profiles/Dataset/0.4-DRAFT",
6   "description": "Toy data used as an example on how to add Bioschemas markup to your data",
7   "identifier": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv",
8   "keywords": [
9     {
10      "@type": "DefinedTerm",
11      "@id": "http://edamontology.org/data_0006",
12      "name": "Data"
13    },
14    "Sample data"
15  ],
16  "license": "https://creativecommons.org/licenses/by/4.0/",
17  "name": "Hello fruit data",
18  "url": "https://bioschemas.org/github-markup-example/data.html"
19 }
```

Dataset

All (1) ▾

Dataset

0 FEHLER 0 WARNUNGEN ^

ID: <https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv>

@type	Dataset
@id	https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv
http://purl.org/dc/terms/conformsTo	https://bioschemas.org/profiles/Dataset/0.4-DRAFT
description	Toy data used as an example on how to add Bioschemas markup to your data
identifier	https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv
keywords	Sample data
license	https://creativecommons.org/licenses/by/4.0/
name	Hello fruit data
url	https://bioschemas.org/github-markup-example/data.html
keywords	
@type	DefinedTerm
@id	http://edamontology.org/data_0006
name	Data

Double check your markup with a validator

<https://search.google.com/test/rich-results>

Rich Results Test

Does your page support rich results?

URL CODE

Enter a URL to test

Googlebot smartphone TEST URL

Does your page support rich results?

URL CODE

```
8 markup to your data ,
9   "identifier": "https://github.com/BioSchemas/github-markup-exam
10  /blob/main/data/sample.csv",
11   "keywords": [
12     {
13       "@type": "DefinedTerm",
14       "@id": "http://edamontology.org/data_0006",
15       "name": "Data"
16     },
17     "Sample data"
18   ],
19   "license": "https://creativecommons.org/licenses/by/4.0/",
20   "name": "Hello fruit data",
21   "url": "https://bioschemas.org/github-markup-example/data.html"
22 }
```

Googlebot smartphone TEST CODE

This one is a bit more strict but still we are good

← Rich Results Test

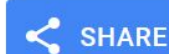


Code input

```
1 {
2   "@context": "https://schema.org",
3   "@type": "Dataset",
4   "@id": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv",
5   "http://purl.org/dc/terms/conformsTo": "https://bioschemas.org/profiles/Dataset/0.4-DRAFT",
6
7   "description": "Toy data used as an example on how to add Bioschemas markup to your data",
8   "identifier": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv",
9   "keywords": [
10    {
11      "@type": "DefinedTerm",
12      "@id": "http://edamontology.org/data_0006",
13      "name": "Data"
14    },
15    "Sample data"
16  ],
```



Test results > Datasets



Detected items



Hello fruit data

1 warning



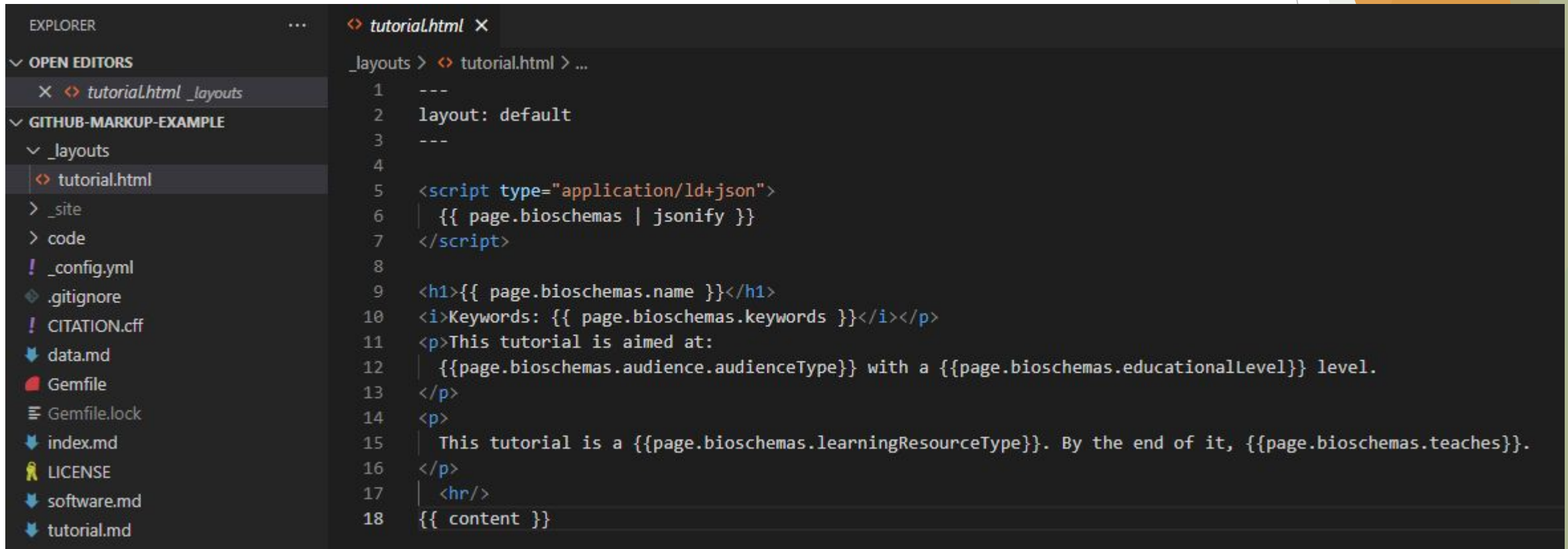
Missing field "creator" (optional)

type	Dataset
id	https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv
http://purl.org/dc/terms/conform...	https://bioschemas.org/profiles/Dataset/0.4-DRAFT
description	Toy data used as an example on how to add Bioschemas markup to your data

Adding markup and rendering data
via layouts

The background features abstract geometric shapes in shades of orange and green, primarily concentrated on the right side of the slide. These shapes are layered and semi-transparent, creating a modern, minimalist aesthetic. The text is positioned on the left side, centered vertically, in a clean, sans-serif font.

Adding a layout



The screenshot shows a code editor with a dark theme. On the left, the 'EXPLORER' sidebar displays a file tree for a project named 'GITHUB-MARKUP-EXAMPLE'. The tree includes a '_layouts' directory, which is expanded to show 'tutorial.html' as the active file. Other files in the tree include '_site', 'code', '_config.yml', '.gitignore', 'CITATION.cff', 'data.md', 'Gemfile', 'Gemfile.lock', 'index.md', 'LICENSE', 'software.md', and 'tutorial.md'. The main editor area shows the content of 'tutorial.html'. The file path at the top of the editor is '_layouts > tutorial.html > ...'. The code is as follows:

```
1 ---
2 layout: default
3 ---
4
5 <script type="application/ld+json">
6 |   {{ page.bioschemas | jsonify }}
7 </script>
8
9 <h1>{{ page.bioschemas.name }}</h1>
10 <i>Keywords: {{ page.bioschemas.keywords }}</i></p>
11 <p>This tutorial is aimed at:
12 |   {{page.bioschemas.audience.audienceType}} with a {{page.bioschemas.educationalLevel}} level.
13 </p>
14 <p>
15 |   This tutorial is a {{page.bioschemas.learningResourceType}}. By the end of it, {{page.bioschemas.teaches}}.
16 </p>
17 <hr/>
18 {{ content }}
```

Adding Bioschemas markup

Hello fruit tutorial

Keywords: Sample tutorial, Jupyter Notebook, Bioschemas, markup

This tutorial is aimed at: Python learners with a Beginner level.

This tutorial is a guideline. By the end of it, The student will be able to run a Jupyter Notebook.

Getting started

In this tutorial, you will learn how to use the Hello Fruit code and get a warm fruty and colorful greeting. We use Jupyter Notebooks so it is an advantage if you are familiar with it. If you have not installed yet Jupyter Notebooks, please do so.

To run the code, follow these instructions:

- Clone the repository at <https://github.com/BioSchemas/github-markup-example>, we will use the main branch
- Init Jupyter Notebooks and make sure you can access the folder where you cloned de repo
- Open the notebook named "hello_fruit" under folder *code*
- Run the cells one by one to get a fuity colorful greeting

```
---
layout: tutorial
bioschemas:
  "@context": https://schema.org
  "@type": LearningResource
  "@id": https://bioschemas.org/github-markup-example/tutorial.html
  http://purl.org/dc/terms/conformsTo: https://bioschemas.org/profiles/TrainingMaterial/0.9-DRAFT-2020\_12\_08
  description: Toy tutorial used as an example on how to add Bioschemas markup to your
    tutorials
  keywords: Sample tutorial, Jupyter Notebook, Bioschemas, markup
  name: Hello fruit tutorial
  audience:
    "@type": Audience
    audienceType: Python learners
  author:
    "@type": Person
    "@id": https://orcid.org/0000-0003-3986-0510
    familyName: Castro
    givenName: Leyla Jael
  competencyRequired: Jupyter notebooks
  educationalLevel: Beginner
  identifier: https://bioschemas.org/github-markup-example/tutorial.html
  inLanguage:
    - en-US
  learningResourceType:
    - guideline
  license: https://creativecommons.org/licenses/by/4.0/
  mentions:
    - "@type": SoftwareApplication
    - "@id": https://github.com/BioSchemas/github-markup-example
    - "@type": Dataset
    - "@id": https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv
  teaches:
    - The student will be able to run a Jupyter Notebook
  url: https://bioschemas.org/github-markup-example/tutorial.html
---
```

Rendered markup

Schema.org

Documentation Schemas About

1 { "@context": "https://schema.org", "@type": "LearningResource", "@id": "https://bioschemas.org/github-markup-example/tutorial.html",

LearningResource

LearningResource

ID: https://bioschemas.org/github-markup-example/tutorial.html

@type	LearningResource
@id	https://bioschemas.org/github-markup-example/tutorial.html
http://purl.org/dc/terms/conformsTo	https://bioschemas.org/profiles/TrainingMaterial/0.9-DRAFT-2020_12_08
description	Toy tutorial used as an example on how to add Bioschemas markup to your tutorials
keywords	Sample tutorial, Jupyter Notebook, Bioschemas, markup
name	Hello fruit tutorial
competencyRequired	Jupyter notebooks
educationalLevel	Beginner
identifier	https://bioschemas.org/github-markup-example/tutorial.html
inLanguage	en-US
learningResourceType	guideline
license	https://creativecommons.org/licenses/by/4.0/
teaches	The student will be able to run a Jupyter Notebook
url	https://bioschemas.org/github-markup-example/tutorial.html
audience	
@type	Audience
audienceType	Python learners
author	
@type	Person
@id	https://orcid.org/0000-0003-3986-0510

```
Elements Console Sources Network Performance Memory Application Security Lighthouse
<!DOCTYPE html>
<html lang="en-US">
  <head>...</head>
  <body>
    <div class="wrapper">
      <header>...</header>
      <section>
        <script type="application/ld+json">...</script>
        <h1>Hello fruit tutorial</h1>
        <i>Keywords: Sample tutorial, Jupyter Notebook, Bioschemas, markup</i>
        <p></p>
        <p>This tutorial is aimed at: Python learners with a Beginner level. </p>
        <p>...</p>
        <hr>
        <h2 id="getting-started">Getting started</h2> == $0
        <p>...</p>
        <p>To run the code, follow these instructions:</p>
        <ul>...</ul>
        <h2 id="markup">Markup</h2>
        <p>Notes about the markup:</p>
        <ul>...</ul>
        <script type="application/ld+json">
          {
            "@context": "https://schema.org",
            "@type": "LearningResource",
            "@id": "https://bioschemas.org/github-markup-example/tutorial.html",
            "http://purl.org/dc/terms/conformsTo": "https://bioschemas.org/profiles/TrainingMaterial/0.9-DRAFT-2020_12_08",
            "description": "Toy tutorial used as an example on how to add Bioschemas markup to your tutorials",
            "keywords": "Sample tutorial, Jupyter Notebook, Bioschemas, markup",
            "name": "Hello fruit tutorial",
            "audience": {
              "@type": "Audience",
              "audienceType": "Python learners"
            },
            "author": {
              "@type": "Person",
              "@id": "https://orcid.org/0000-0003-3986-0510",
              "familyName": "Castro",
              "givenName": "Jael",
              "competencyRequired": "Jupyter notebooks",
              "educationalLevel": "Beginner",
              "identifier": "https://bioschemas.org/github-markup-example/tutorial.html",
              "inLanguage": ["en-US"],
              "learningResourceType": ["guideline"],
              "license": "https://creativecommons.org/licenses/by/4.0/",
              "mentions": [
                {
                  "@type": "SoftwareApplication",
                  "@id": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv"
                },
                {
                  "@type": "Dataset",
                  "@id": "https://github.com/BioSchemas/github-markup-example/blob/main/data/sample.csv"
                }
              ],
              "teaches": ["The student will be able to run a Jupyter Notebook"],
              "url": "https://bioschemas.org/github-markup-example/tutorial.html"
            }
          }
        </script>
      </section>
    </div>
    <script src="/assets/js/scale.fix.js"></script>
  </body>
</html>
```

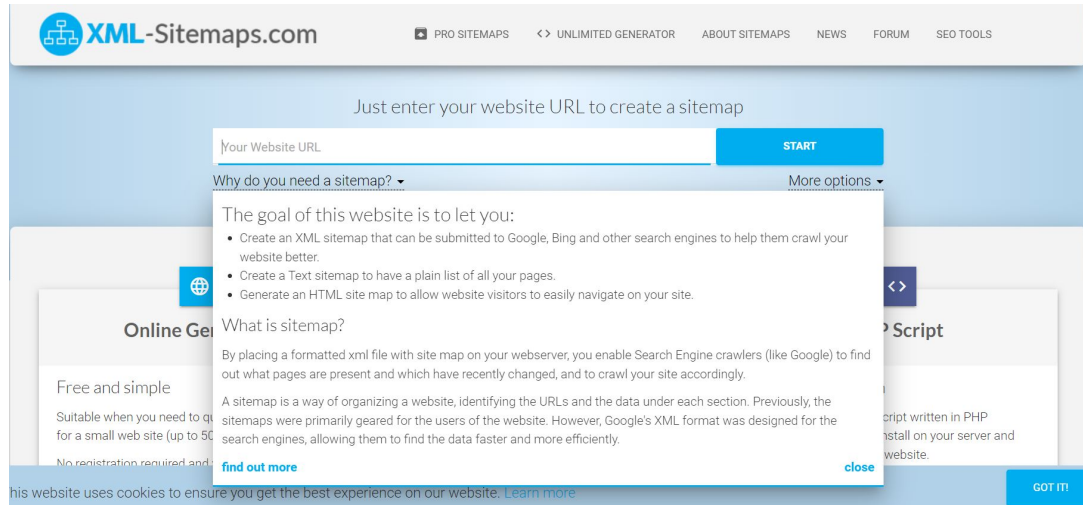


Make it easier for machines

Sitemap.xml and robots.txt

<https://www.xml-sitemaps.com/>

<https://developers.google.com/search/docs/advanced/sitemaps/build-sitemap>



```
sitemap.xml
1  <?xml version="1.0" encoding="UTF-8"?>
2  <urlset
3      xmlns="http://www.sitemaps.org/schemas/sitemap/0.9"
4      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
5      xsi:schemaLocation="http://www.sitemaps.org/schemas/sitemap/0.9
6                          http://www.sitemaps.org/schemas/sitemap/0.9/sitemap.xsd">
7      <!-- created with Free Online Sitemap Generator www.xml-sitemaps.com -->
8  </urlset>
9
10 <url>
11   <loc>https://zbmed-semtec.github.io/bioschemas-github-markup-example/</loc>
12   <lastmod>2022-01-05T17:04:34+00:00</lastmod>
13   <priority>1.00</priority>
14 </url>
15 <url>
16   <loc>https://zbmed-semtec.github.io/bioschemas-github-markup-example/data.html</loc>
17   <lastmod>2022-01-05T17:04:34+00:00</lastmod>
18   <priority>0.80</priority>
19 </url>
20 <url>
21   <loc>https://zbmed-semtec.github.io/bioschemas-github-markup-example/software.html</loc>
22   <lastmod>2022-01-05T17:04:34+00:00</lastmod>
23   <priority>0.80</priority>
24 </url>
25 <url>
26   <loc>https://zbmed-semtec.github.io/bioschemas-github-markup-example/tutorial.html</loc>
27   <lastmod>2022-01-05T17:04:34+00:00</lastmod>
28   <priority>0.80</priority>
29 </url>
```

≡ robots.txt

```
1  Sitemap: https://zbmed-semtec.github.io/bioschemas-github-markup-example/sitemap.xml
```


Time to add markup to your own pages



Questions?

- ▶ Website: bioschemas.org
- ▶ Mailing list: public-bioschemas@w3.org
- ▶ Slack: <http://tiny.cc/bs-slack>
- ▶ Example markup: <https://github.com/BioSchemas/specifications/>
- ▶ Live deployments: <https://bioschemas.org/liveDeploys/>

