

JSON RETRIEVAL TOOL

INTRODUCTION

To develop a tool that interprets a JSON file and generates code based on an element. The code can be used to retrieve elements in applications. To do this the tool will reverse engineer the file to understand the various objects, arrays and key and value pairs. Code will then be generated based on the element the user wants to retrieve. The tool will first be developed to work for Java and C#.

JSON FILES

- JavaScript Object Notation (JSON)
- Lightweight text-based files
- Interchangeable format
- Stores structured types; arrays and objects
- Stores primitive types; Strings, integers, booleans and null values.
- An object is a set of 0 or more key value pairs

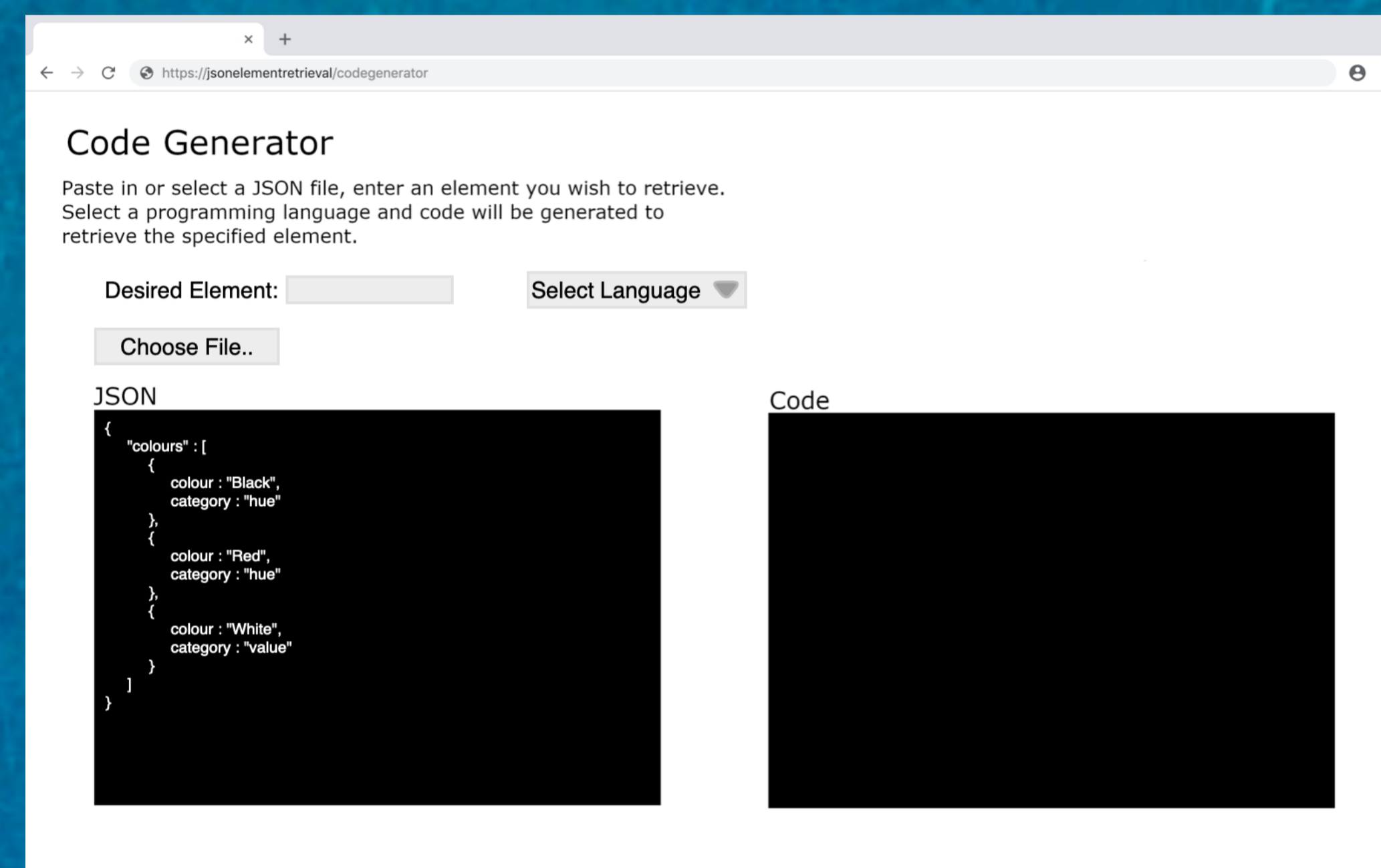
FORMATTING RULES

Rule	Defined by:
Object start	Left curly bracket {
Object end	Right curly bracket }
Array start	Left square bracket [
Array end	Right square bracket]
Value separator	Colon :
Name separator	Comma ,

PROBLEM

JSON files can become hierarchical and complex, consisting of nested objects and arrays. It can become time consuming and difficult to understand what objects and arrays are needed to retrieve an element. This is shown by the large number of questions on online forums. These tend to have similar answers and recommendations.

DESIGN



The website will allow the user to upload or paste a JSON file into the code window and must enter a desired element to find. After selecting a programming language, code in that language will be generated and will appear in the other code window.

CONCLUSION

Reverse engineering a JSON file will output the structures that makes it valid. These will be used to find the users' desired element. The intention of the tool is to encourage developers to use API calls. The technique could be applied to other tools such as a flattener that displays the structures and a JSON to plain old Java object (POJO) converter.

PROPOSED SOLUTION

To develop an online tool that will provide the objects and array needed to retrieve an element. The tool will use the formatting rules to understand what structures make up the file. The requested element will then be located, and code will be generated to retrieve it. The tool will be aimed at developers that are wanting to start using API calls in their software.

EXISTING TOOLS

- JSON formatter tools, converts between a minified and structured format.
- Editors and validators.
- Conversion to other file types including XML, YAML, CSV etc.

These tools have different purposes but have similar features including; importing JSON from a file and a URL, saving the output and options to customise the code windows.

JSON STRUCTURE

