Bellevue University

**Module 11**

Java JSON API

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Advanced Java Programming – CSD420

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What is JSON?

This is a tool used tool used to exchange data from computer to computer. Its stands for *JavaScript Object Notation* and it’s considered lightweight in the way that is formatted and how the computers process the data. Even though developers describe JSON as easy to read and understand by humans and computers one of the downsides to using JSON is that there is no way of catching errors. JSON also has no way of making sure that the structure is maintained from developer to developer. So, it makes it difficult for maintenance as well as future updates.

What is an API?

API stands for *Application Programming Interface. (GeeksforGeeks, 2023)*  It helps to make interactions between the code and developer a little easier when performing certain task. There are some tasks when developing that you want to maintain consistency and using an API can help with that. The other big advantage of using an API is that it can add things like a Graphic User Interface instead of using some command lines to complete task and makes it easier for the user to understand what the program or server needs to complete a request.

What is JSON API?

It’s the unity of two great tools used to assist developers in maintaining consistency using JSON. It allows developers to focus on the big picture, usually the actual code, rather than focusing on the smaller task as in how the data should be structured and how request should be sent from one computer to another. JSON API is still relatively new to the tech world, introduced in May of 2013 and is still releasing finalized versions today. Before developers used XML files to transfer structured data. XML stands for *eXtensible Markup Language* but over time found that it took longer to process the results. JSON made it so that the structure for the data is easier to read and takes less time to get the results. XML tends to have more difficulty parsing data whereas JSON parses data into objects ready to use by the system.

Features and Processes supported in JSON API

There are key words that can be used to help create request that is sent back and forth between servers/computers. Those key words are “MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, NOT RECOMMENDED, MAY, and OPTIONAL” *(Katz, 2023)*. Its important to highlight that these key words are used in all caps otherwise the system will not recognize the request you are trying to send.

Extensions and Profiles are useful features of this tool. It allows you to use extensions that add to the features of the JSON API. You can create profiles of these extensions and use them to share amongst other developers. The extensions and profiles that are currently available have been tested and is contributed to by the community. One of the extensions listed is the Atomic Operations. *This extension can perform multiple “operations” in a linear and atomic manner.* Clients are also able to send an array of operations in a single request. Guaranteeing that the operations will be process in order and either complexly succeed or fail together.

The profile that is available to use is called *Cursor Pagination. (Malhotra, 2021)* This profile goes a step above the one before it called “offset-limit” pagination. Whether you are working with large or small data this profile will be more efficient when sending request to the server.

Attached is an example of using JSON API. *(Katz, 2023)*

# Works Cited

GeeksforGeeks. (2023, 04 03). *What is an API?* Retrieved from GeeksforGeeks: https://www.geeksforgeeks.org/what-is-an-api/

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