Java JSON API

Module 11 Assignment

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When dealing with data there are different software and applications in software development that are extremely useful. JavaScript Object Notation also known as JSON is one of the best software’s that can be used. JavaScript Object Notation is lightweight, readable, and widely supported which makes it the go-to format for APIs and data exchange. In the Java world, there are several libraries that help parse, generate, and manipulate JSON. Among them is GSON which was developed by Google. GSON stands out for its simplicity, flexibility, and ease of use.

Google’s JSON also known as GSON was developed and open-sourced by Google in 2008. The library was originally built to support Google's internal infrastructure. This helped Google know where it needed a robust and easy way to serialize and deserialize Java objects to and from JSON. What makes GSON especially popular is its ability to handle complex Java objects. This includes those with generic types or collections, with minimal boilerplate code. In the article on Medium, "Gson is a Java library that can be used to parse the Java Objects into their JSON and vice-versa. It can also be used to convert a JSON string to an equivalent Java object" (AppDevInsights, 2023)

GSON has many different features that make working with JSON in Java feel natural. Serialization and Deserialization is a feature that is in GSON. Serialization and Deserialization allows converting Java objects into JSON strings which is serialization and back from JSON strings into Java objects which is deserialization. Another feature that GSON offers is that no annotations are required. This feature is useful because you don’t need to mark your Java classes with annotations unless you want to customize the behavior. GSON uses reflection to figure out how to map fields and types. GSON is also known to support generics. GSON can deserialize JSON into Java objects with generic types, using TypeToken. There is another feature when it comes to serialization and deserialization which is being able to customize it. GSON lets you register custom serializers and deserializers for handling specific types or logic. Printing is also something that stands out in GSON. GSON can output JSON with indentation and line breaks, which is helpful for logging or human inspection. Null Serialization Options is another example of features that GSON offers. You can configure GSON to include or exclude null values in the resulting JSON. Tree Model API stands out in GSON for many reasons. For example, it allows parsing JSON into a tree-like structure of JsonObject, JsonArray, and JsonElement, similar to the DOM in XML. When it comes to process and usage GSON is incredibly straightforward. You start by creating an instance of the Gson class, then use it to call toJson to convert Java objects to JSON, or fromJson() to parse JSON into Java objects.

Downloading JAR files is not a difficult process unless you run into some technical errors which these sources can help you attempt to fix those errors.

Oracle is a website where you are able to find any information that has to deal with Java. On the Oracle website it gives you the resources needed to download JAR files as well as GSON. URL: <https://docs.oracle.com/javase/8/docs/technotes/guides/jar/index.html>

These are two resources that can be used to download GSON as well as gain information over it. GeeksforGeeks URL: <https://www.geeksforgeeks.org/how-to-install-gson-module-in-java/>

GitHub also provides plenty of information over GSON. URL: <https://github.com/google/gson>

References

App Dev Insights. (2017, December 30). GSON Library - App Dev Insights - Medium. *Medium*. https://medium.com/@appdevinsights/gson-library-b7d4ef0381e2

GeeksforGeeks. (2022a, March 2). *How to install GSON module in Java?* GeeksforGeeks. https://www.geeksforgeeks.org/how-to-install-gson-module-in-java/

*GSON User Guide*. (n.d.). Gson. https://google.github.io/gson/UserGuide.html

*Java Archive (JAR) files*. (n.d.). https://docs.oracle.com/javase/8/docs/technotes/guides/jar/index.html

Jenkov, J. (n.d.-a). *GSON - GSon*. https://jenkov.com/tutorials/java-json/gson.html

TutorialsPoint. (2025a, March 25). *GSON Quick Guide*. <https://www.tutorialspoint.com/gson/gson_quick_guide.htm>