JSON

It stands for **JavaScript Object Notation**, and it's a pretty popular lightweight data interchange format.

https://www.w3schools.com/js/js_json_intro.asp

The Challenge

Start with the Student Engagement code from the previous videos, and first generate 1000 students.

To output each student as a JSON record:

- You can use the write, or writeString methods on Files.
- Or you can try FileWriter, PrintWriter or BufferedWriter, or some combination of these.

The text printed should be a list of students.

```
[ { student 1 data here} , { student2 data here }, ... ]
```

The entire set of student records should be contained in square brackets.

Each student record should be enclosed in curly braces, and separated by commas.

The Challenge

At a minimum, print the student id, and some demographics data.

The example on this slide, demonstrates a flattened structure.

You can see all fields are key value pairs, and all are children of the student record.

Keys are enclosed in quotes, as are values if they're text based, and the colon is used to separate the key and value.

```
{
    "studentId": 2,
    "countryCode": "GB",
    "enrolledMonth": 1,
    "enrolledYear": 2017,
    "ageAtEnrollment": 43,
    "gender": "U",
    "previousProgrammingExperience": false
}
```

The Challenge

On this slide, I'm showing a more hierarchical structure, for a single student.

The demographics key, has a value that's an object and not a simple string, and that's enclosed in curly braces.

The engagement key's values is also an array, containing separate engagement records.

```
{
    "studentId": 2,
    "demographics": {
        "countryCode": "GB",
        "enrolledMonth": 1,
        "enrolledYear": 2017,
        "ageAtEnrollment": 43,
        "gender": "U",
        "previousProgrammingExperience": false
    },
    "engagement": [{
        "courseCode": "JMC",
        "engagementType": "Lecture 1",
        "enrollmentMonth": 1,
        "enrollmentYear": 2017
    }, {
        "courseCode": "PYC",
        "engagementType": "Lecture 13",
        "enrollmentMonth": 1,
        "enrollmentYear": 2017
    }]
}
```

Hints and Suggestions

You might want to explore the use of Intelli J's **template** functionality, to create your own JSON string template.

https://www.jetbrains.com/help/idea/2022.3/generating-code.html#customize-templates

Don't forget about the StringJoiner class, that lets you define a delimiter, as well as a prefix and suffix.

Start out by testing 2 or 3 students in your data set.

Linter

A **linter** is a software development tool, that will analyze source code for potential errors, and styling issues.

https://jsonlint.com/