**JMH Reader**

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**Advanced Verification and Validation (2024)**

**Introduction**

**The goal**

The goal of this project is to create an environment that allows users to upload JSON files generated by JMH and visualize the summarized data for each benchmark added to the system. This will enable users to easily review all the information related to specific commits.

**Java Microbenchmark Harness (JMH)**

JMH (Java Microbenchmark Harness) is a framework developed by the OpenJDK community for creating, running, and analyzing microbenchmarks in Java. It is specifically designed to measure the performance of small code snippets or components within the Java Virtual Machine (JVM).

**Instructions**

**Working with JMH**

First, you need to generate the JSON files for a specific benchmark. To do this, you can use the following GitHub repository: <https://github.com/eclipse/eclipse-collections>. I recommend using version 10.0.0. Once you have cloned the repository, set up the environment by following these steps:

Install dependencies:

* mvn install -DskipTests -am -pl eclipse-collections,eclipse-collections-api,eclipse-collections-forkjoin,eclipse-collections-testutils
* mvn install -DskipTests -am -f jmh-scala-tests/pom.xml

Build jmh-tests:

* mvn package -DskipTests -am -f jmh-tests/pom.xml
* list the available benchmarks: java -jar jmh-tests/target/microbenchmarks.jar -l

Generate the JSON file:

* java -jar jmh-tests/target/microbenchmarks.jar org.eclipse.collections.impl.jmh.LongIntMapTest.put -rf json -wi 1 -r 1 -f 1 -i 1 -bm ss
* The previous command will generate a JSON file named “jmh-result”

\* The JSON generation can be customized to meet your needs (the benchmark used for this example is “LongIntMapTest”, but you can use any benchmark you prefer). This repository includes a PDF named “parameters” that lists all the available options for generating the JSON.

**Working with JMH-Reader**

Run the app:

* Clone this repository
* Run the command “docker compose up -d” in the root directory
* Wait a few minutes for the app to start up

Add a commit:

* DO an http request POST on “http://localhost:5000/jmh/commits”, the payload should contain:
  + comment (a comment for the commit)
  + file (the json file generated using JMH)

Immagine che contiene testo, schermata, software, Software multimediale

Descrizione generata automaticamente

Visualize the dashboard:

* Go to “<http://localhost:5001>”

**Into The APP**

Dashboard

Immagine che contiene testo, linea, Carattere, schermata

Descrizione generata automaticamente

Benchmark

Immagine che contiene testo, linea, Carattere, software

Descrizione generata automaticamente

The data:

Immagine che contiene linea, Diagramma, schermata, diagramma

Descrizione generata automaticamente

Immagine che contiene diagramma, Diagramma, schermata

Descrizione generata automaticamente

Immagine che contiene schermata, diagramma

Descrizione generata automaticamente