Automating Benchmark Creation.

Description:
A common way of testing software or research prototypes is to use well-known benchmark suites such as the DaCapo suite [1] for example. However, such large benchmarks are hard to create and to maintain, and this work is often done by hand. Moreover, benchmark suites currently only exist to test for specific properties, and are not necessarily adapted to the needs of the tested software.

The Automated Benchmark Management (ABM) methodology [2] has been created to address the shortcomings of current benchmark suites. It aims at automatizing the process of benchmark creation and maintenance, and makes it fully customizable to the user, so that they can create benchmark suites adapted to their use.

We are currently building a website [3] to implement the ABM methodology. The current implementation crawls GitHub for open-source, real-world projects. It allows users to filter out unsuitable projects, and create and update collections from the remaining projects.

Your work will be helping with the implementation of the ABM website. You will implement missing functionalities such as building projects, uploading them to another platform, and implementing analyses to help filtering out redundant benchmarks from a collection. Your work helps future researchers to safely and correctly evaluate their research prototypes. You will actively help to raise the quality of international research with your work on the project.

Tasks:
- Integrate existing web-crawlers for other repository platforms than GitHub.
- Extend the building scripts to support building projects automatically with Ant and Gradle.
- Integrate an existing analysis tool in ABM and implement filtering functionalities based on the analysis results.
- Increase the robustness and stability of the tool.
- Working time: to be discussed.

Skills required:
- Good understanding of the Java language.
- Experience with software design and efficient programming.
- Prior knowledge of JavaEE, AngularJS and Docker is helpful, but not required.

Language: English.

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