**Section 1: Objectives, Questions, and Metrics**

**Objective:** To investigate the effect of class size on software maintainability by analyzing C&K metrics for a set of Java projects.

**Questions:**

1. How does class size affect software maintainability, as measured by selected C&K metrics?
2. Are there any observable trends or patterns in the maintainability metrics across the analyzed Java projects?

**Metrics:**

1. Maintainability metrics: Selected C&K metrics, such as Lack of Cohesion in Methods (LCOM) and Weighted Methods per Class (WMC).
2. Class size: Measured in lines of code (LoC) to quantify the size of each class.

**Section 2: Subject Programs (Data Set)**

| **Project** | **Description** |
| --- | --- |
| HBase | Distributed, scalable, big data store for Apache Hadoop. |
| Kafka | Distributed streaming platform for building real-time data pipelines. |
| NiFi | Easy-to-use, powerful, and scalable dataflow system. |
| Presto | Distributed SQL query engine for big data analytics. |
| Zookeeper | Centralized service for maintaining configuration information, naming, and more. |
| Tomcat | Open-source implementation of the Java Servlet, JavaServer Pages, Java Expression Language, and Java WebSocket technologies. |

**Section 3: Description of the Tool**

The tool used for obtaining C&K metrics values is CK-Code, a Java-based tool developed by a group of developers. It utilizes static analysis techniques to extract metrics values from Java code. The tool can be downloaded from GitHub using the provided link.

Citation: CK-Code Metrics for Java Code. Available at: GitHub - CK-Code Metrics

**Section 4: Results**

*This section will contain graphs and tables illustrating the trends in selected C&K metrics values and class size across the analyzed Java projects.*

**Section 5: Conclusions**

*This section will discuss the implications of the observed results on the relationship between class size and software maintainability. It will also address the initial research questions and provide insights into the effect of class size on maintainability, based on the empirical study.*

**References**

1. CK-Code Metrics for Java Code. Available at: [GitHub - CK-Code Metrics](https://github.com/mauricioaniche/ck)
2. Apache HBase GitHub Repository: <https://github.com/apache/hbase>
3. Apache Kafka GitHub Repository: <https://github.com/apache/kafka>
4. Apache NiFi GitHub Repository: <https://github.com/apache/nifi>
5. PrestoDB GitHub Repository: <https://github.com/prestodb/presto>
6. Apache Zookeeper GitHub Repository: <https://github.com/apache/zookeeper>
7. Apache Tomcat GitHub Repository: <https://github.com/apache/tomcat>

Top of Form

Top of Form