

February 17, 2023

KTH Royal Institute of Technology Lindstedtsvägen 3, Building D, Room 1548 Stockholm, Sweden Phone: (+46) 072 7308567 Email: cesarsv@kth.se

Dear Robert Feldt and Thomas Zimmermann, Editors-in-Chief of *Empirical Software Engineering* 

We wish to submit the original research manuscript entitled "*A Comprehensive Study of Bloated Dependencies in the Maven Ecosystem*", by César Soto-Valero, Nicolas Harrand, Martin Monperrus, and Benoit Baudry. We certify that all the authors participated in the preparation of this manuscript and agree with its submission. This manuscript has not been published elsewhere and is not under consideration by another journal.

This work is the first large-scale empirical study of bloated dependencies in the Maven ecosystem. Bloated dependencies refer to packages that are declared as dependencies for an application, but that are actually not necessary to build or run it. This work is relevant for researchers and practitioners because bloated dependencies increase the difficulty of managing and evolving software applications. We perform a quantitative analysis of bloated dependencies to understand their impact on the Maven ecosystem. We also provide unique insights about the response of developers to bloated dependencies, based on a qualitative analysis of this phenomenon in mature open-source projects.

In summary, our contributions are the following:

- A comprehensive study of bloated dependencies in the context of the Maven package manager.
- A tool, called DEPCLEAN, to automatically analyze and remove bloated dependencies in Java applications packaged with Maven.
- A qualitative assessment of the opinion of developers regarding bloated dependencies.

Please, do not hesitate to contact us in case of requiring any further information regarding this manuscript.

Sincerely yours,

César Soto-Valero

On behalf of Nicolas Harrand, Martin Monperrus, and Benoit Baudry