Datasets for vulnerabilities detection in IoTs operating systems and applications

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Abstract—TBA

I. INTRODUCTION

The Internet of Things (IoT) refers to the growing inter-connected physical devices, components, vehicles and home appliances to the internet [**oracle2023:what**]. These connected devices exchange information to ease our day-to-day lives, business and industries. However, these devices continue to pose security issues and vulnerabilities over the years.

II. RELATED WORK

Al-Boghdady et al. [1] have created a tool called iDetect for detecting vulnerabilities in C/C++ source code of IoT operating systems (OSs). The labeling of the dataset was done using static code analyzing tools (SATs); Cppcheck version 2.1 [2], Flawfinder version 2.0.11 [3], and Rough Auditing Tool for Security (RATS) [4].
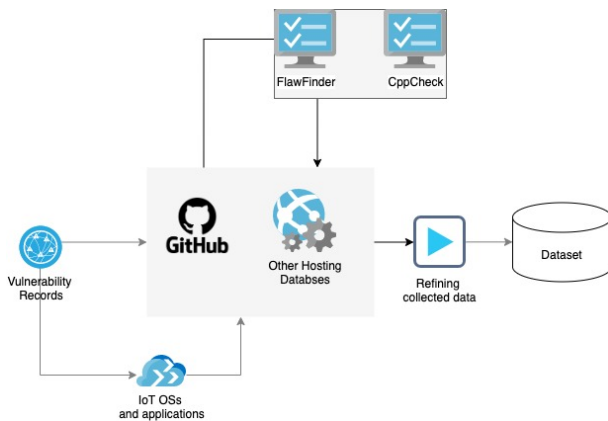
III. THE PROPOSED FRAMEWORK:

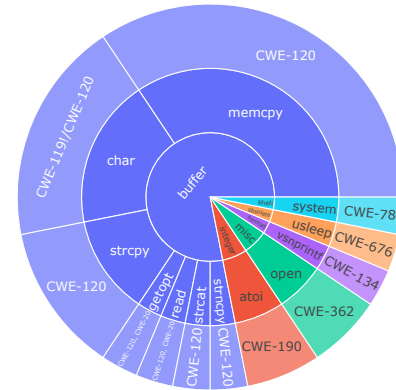Fig. 1: The proposed framework for vulnerability data collection

Fig. 2: The sunburst chart showing the frequency of vulnerability categories, names and CWEs

IV. DATASET ANALYSIS:

V. CONCLUSION AND FUTURE WORK

REFERENCES

[1] Abdullah Al-Boghdady, Mohammad El-Ramly, and Khaled Wassif. "iDetect for Vulnerability Detection in Internet of Things Operating Systems Using Machine Learning". In: *Scientific Reports* 12.1 (Oct. 12, 2022), p. 17086. ISSN: 2045-2322. DOI: 10.1038/s41598-022-21325-x. URL: https://www.nature.com/articles/s41598-022-21325-x (visited on 12/26/2022).

[2] Cppcheck2.1. *A Tool for Static C/C++ Code Analysis*. 2021. URL: https://cppcheck.sourceforge.io/ (visited on 01/07/2023).

[3] dwheeler. *Flawfinder v. 2.0.11*. 2021. URL: https://dwheeler.com/flawfinder/ (visited on 01/07/2023).

[4] RATS. *Rough Auditing Tool for Security*. 2021. URL: https://security.web.cern.ch/recommendations/en/codetools/rats.shtml (visited on 01/07/2023).

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TABLE I: Summary of the top databases hosting vulnerability records of IoT OSs and applications