BRNO FACULTY
UNIVERSITY OF INFORMATION
OF TECHNOLOGY TECHNOLOGY

Master's Thesis Assignment

Institut:	Department of Intelligent Systems (UITS)
Student:	**Beránek Tomáš, Bc.**
Programme:	Information Technology and Artificial Intelligence
Specialization:	Machine Learning
Title:	**Určení spolehlivosti výsledků statické analýzy pomocí strojového učení**
Category:	Artificial Intelligence
Academic year:	2022/23

Assignment:

1. Get acquainted with Infer, a tool for static analysis and bug finding in software.
2. Investigate options of applying machine learning algorithms in the context of code analysis.
3. Obtain a data-set containing issues reported by Infer accompanied with the information whether they represent a true positive or not.
4. Propose and implement a machine learning-based approach (using the dataset obtained in step 3) that will be able to assess the likelihood that an issue reported by Infer represents a true positive.
5. Evaluate your solution on at least 2 different open-source projects.
6. Summarize and discuss the achieved results and their possible further improvements.

Literature:
- Facebook Infer: https://fbinfer.com/
- Cao, Sicong, et al. "Bgnn4vd: constructing bidirectional graph neural-network for vulnerability detection." *Information and Software Technology* 136 (2021): 106576.
- Y. Zheng et al., "D2A: A Dataset Built for AI-Based Vulnerability Detection Methods Using Differential Analysis," 2021 IEEE/ACM 43rd International Conference on Software Engineering: Software Engineering in Practice (ICSE-SEIP), 2021, pp. 111-120.

Detailed formal requirements can be found at https://www.fit.vut.cz/study/theses/

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Beginning of work:	1.11.2022
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