EVALUATING DEEP LEARNING METHODS FOR CLASSIFYING BUGS

BTECH. PROJECT-II REPORT

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE
OF

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IN
SOFTWARE ENGINEERING

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CANDIDATE'S DECLARATION

We, Deepanshu Singhaniya (2K19/SE/033) & Aryan Singh (2K19/SE/019), students of B.Tech. (Software Engineering), hereby declare that the project Dissertation titled " EVALUATING DEEP LEARNING METHODS FOR CLASSIFYING BUGS" which is submitted by us to the Department of Software Engineering, Delhi Technological University, Delhi in Partial fulfillment of the requirement for the award of the degree of Bachelor's of Technology, is original and not copied from any source without proper citation. This work has not previously formed the basis for the award of any Degree, Diploma Associateship, Fellowship or other similar title or recognition.

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CERTIFICATE

I hereby certify that the Project Dissertation titled "EVALUATING DEEP LEARNING METHODS FOR CLASSIFYING BUGS" by Deepanshu Singhaniya (2K19/SE/033) & Aryan Singh (2K19/SE/019), Software Engineering, Delhi Technological University, Delhi in partial fulfillment of the requirement of the award of the degree of Bachelor Of Technology, is a record of the project work carried out by the students under my supervision. To the best of my knowledge, this work has not been submitted in part or full for any degree or diploma to this University or elsewhere.

Place: Delhi

Date: 01/05/2023

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ABSTRACT

Software maintenance is a crucial part of software development, especially now more than ever. Without proper maintenance, software can become outdated and unreliable and vulnerable to security threats, which can have serious consequences for users and organizations that rely on it. But as the software projects become larger, it becomes It is the responsibility of the managers to assign the bugs to the developers so that the developers can use their time efficiently in resolving those bugs. But the capacity of Managers' ability to analyze each and every bug report and assign it to the appropriate developer is being out-paced by the sheer number of bug reports, leading to slow progress. It's impossible for developers or managers to be able to understand hundreds of reports a week, let alone being able to have a good idea of each and every developer in the team to be able to appropriately assign the bugs to them.

This paper proposes an automated approach to help with the problem. Our method uses a neural learning algorithm to analyze the open bug database and learn which developers are best at solving specific types of bug reports. When a bug report is created, the classifier will be able to suggest a few developers who would be able to fix it.

A bug report contains a Title and a Description, An automatic bug classification algorithm such as ours makes use of title and description of the bug reports as inputs and assigns it to any of the accessible developers using the data about previously solved bugs of that particular developer. The main issue that poses a challenge heterogeneity of the content in bug description, is a mixture of unstructured code snippets, text, and stack traces, which may make the input data very noisy and difficult to interpret.

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1. **ML** Machine Learning
2. **DL** Deep Learning
3. **BOW** Bag or Words
4. **CV** Cross Validation
5. **MNB** Multinomial Naive Bayes
6. **SVM** Support Vector Machine
7. **RNN** Recurrent Neural Network
8. **AI** Artificial Intelligence