ContextAug: Model-domain Failing Test Augmentation with Contextual Information

Zhuo ZHANG, Jianxin XUE, Deheng YANG , Xiaoguang MAO

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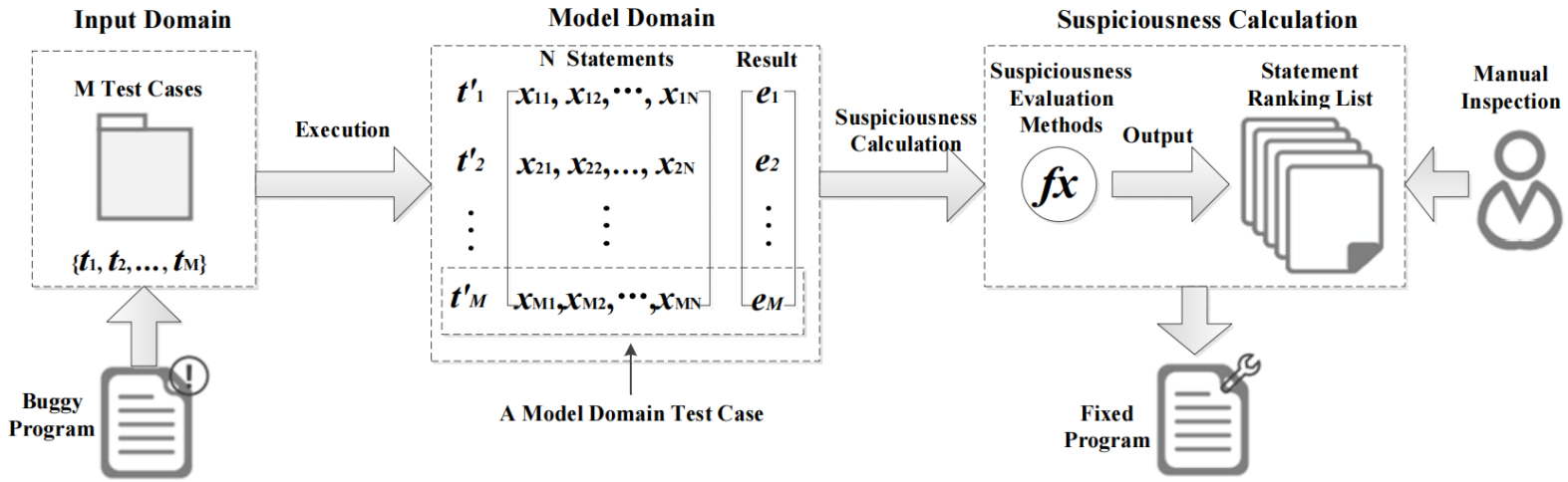
Problems & Ideas

- Problems of fault localization:
  - Failing test cases usually account for a small portion of the test suite, which inevitably leads to the class-imbalance phenomenon and hampers the effectiveness of fault localization
- Ideas:A new perspective to synthesize failing test samples from the model domain with context and minimum variability of the minority feature space



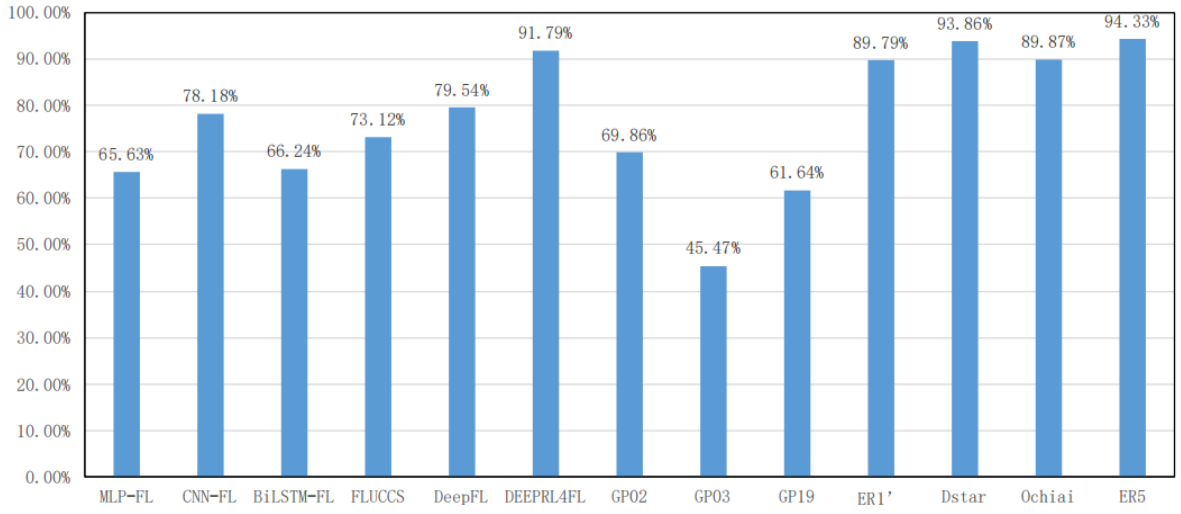
The general process of typical program fault localization techniques

Experimental results and Conclusions

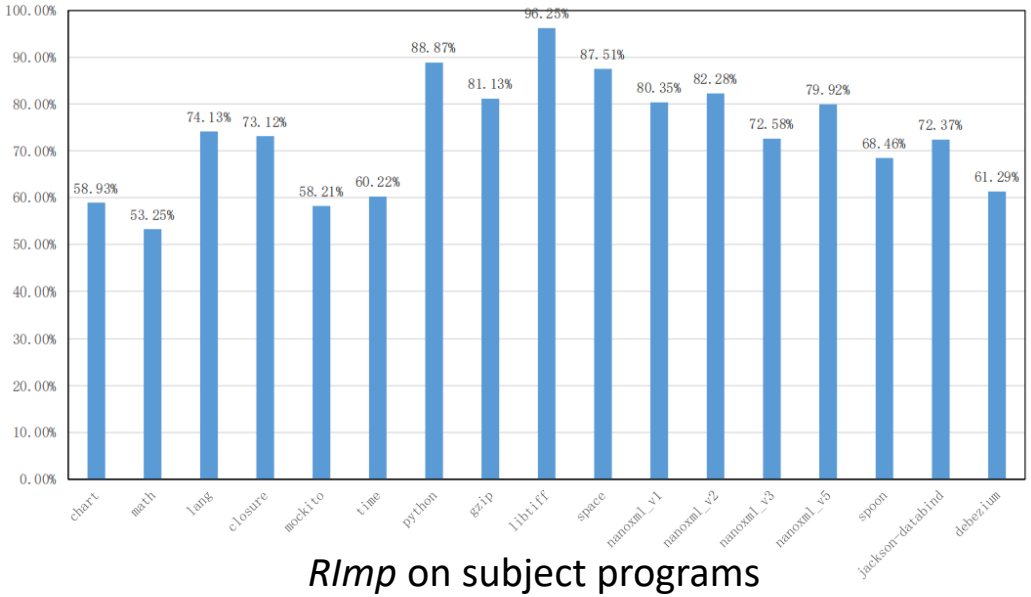
Experimental results:

- An expempirical research on real large-sized programs with 13 stateof-the-art fault localization approaches
  - Improve fault localization effectiveness with up to 54.53%

Conclusions:ContextAug is verified as able to improve fault localization effectiveness



RImp on fault localization approaches



RImp on subject programs