Type-guided synthesis for dynamic languages

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1 INTRODUCTION

Background

Some of the most popular programming languages today are dynamic programming languages, which includes Javascript and Python. Javascript is become the language of the web, while Python the most popular for data science and machine learning projects.

Dynamic programming languages can make writing programs quick and easy because they don't require specifying static bounds on behavior. The cost of this efficiency it may be impossible to statically decide if a program is has errors.

Although dynamic languages already offer programming ease and efficiency, it may be possible to increase the ease of writing program by autocompletion, or synthesis of programs from surrounding context.

Challenge

This work presents a theoretical system that synthesizes terms from context in a dynamic language. In keeping with the spirit of dynamic languages, type annotations are required, but they are optional.

Evaluation

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