

Suggesting Examples to Novice Programmers in an Open-Ended Context with the Example Guru



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Introduction

Novice programmers have trouble learning new APIs because they may not be aware of relevant API methods that would improve their programs. Interestingly, this problem also applies to more experienced programmers learning APIs, as they are also often unaware of all possible methods. In this poster, we introduce the Example Guru, a system that provides ideas of ways a programmer could use an unfamiliar or incorrectly used API method when they are working in an open-ended context.

The Example Guru

The Example Guru consists of 3 parts:

- 1) Rules:** scripts that check novice programs for predefined patterns that could indicate opportunities to improve
- 2) Suggestions:** ideas of ways to improve novice programs by introducing API methods or correcting API usage
- 3) Examples:** code that demonstrates how to use an API method

Rules

One rule checks for the opportunity to introduce 'walkPace':

```
if (method.equals("walk")
    & amount > 2.0
    & walkpace == null)
then rule passed
```

Since the yeti walks 10m, the rule passes, triggering the system to suggest using 'walkPace'.

Suggestions

The Example Guru only adds one suggestion at a time to not overwhelm the user.

The code annotation connects the suggestion to the code.

The panel of suggestions allows users to return to suggestions later.

Examples

Contrasting examples encourage comparison and self-explanation about the differences between the two examples.

Short examples emphasize the API method being suggested.

