Context-Aware Conversational Developer Assistants

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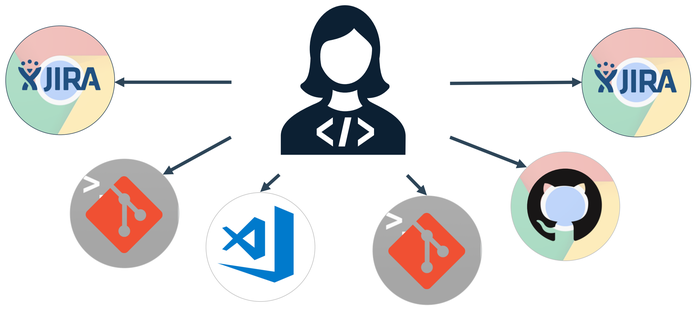
Manual Workflows

Executing workflows manually is cognitively demanding on the developer and is error prone. Example: bug fix workflow (below).



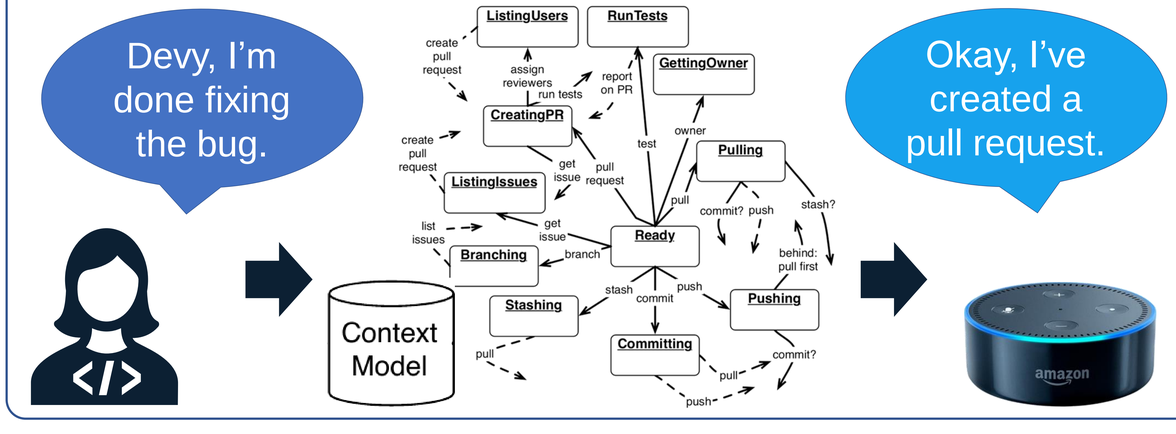
11 actions

6 tools

5 switches

Our Solution

Devy, a CDA, that uses a NUI + context tracking + an FSM to enable developers to automatically execute their workflows.



Study and Results

Using Devy as a tech probe, we conducted a mixed-methods study with 21 industrial engineers to assess value, usability, and use cases.

Completing Tasks with Devy

- few attempts to complete tasks
- used and appreciated the automated context tracking
- used various utterances to interact with Devy

"[Devy] knows the context about what I'm talking about. That's kind of cool." (P2)

Benefits and Use Cases

- Reduce application & contextual switches
- Map tasks to commands automatically
- Reduce need for memorization
- Manage multiple tasks
- Support multi-step/cross-application tasks
- Reduce explicit specification of context
- Enforce team processes
- Workflow history
- Alternative to typing/interacting with GUI

"If I can do these high-level tasks with a brief command rather than break them down into a sequence of commands, it would be a win." (P19)

"[Devy would] be useful where I'm in the middle of one task and I want another being done." (P11)

"I could just be like: ['Devy], has my pull request been approved yet?' and if it has then merge it [..]. Oh, that'd be great.." (P3)

Challenges and Future Work

- Disruptiveness of the voice interface
- Lack of transparency
- Support customization
- Completeness
- Discern similar intents

"There would have to be a way to have these dialogs [with Devy] that are minimally disruptive to other people." (P19)