Structural editing for alternative input methods

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Short description

The task is to investigate how structural editing can help improve the workflow of developers with physical disabilities.

Background and motivation

Extensive and daily use of computers at developers at risk of developing injuries like carpal tunnel syndrome and other RSIs (Repetitive strain injuries). These injuries can lead to partial or complete use of one's hands. There are however ways to use a computer without keyboard and mouse. One such ways to use a command based dictation system which allows voice commands to emulate keyboard strokes or activate other actions on the computer. This is however not as effective as using a keyboard normally.

A structural editor is a code editor in which the user can make direct changes to the abstract syntax tree of the program, as opposed to editing plain or rich text. Existing solutions have not been designed with accessibility in mind an option relies on using the mouse to select nodes in the tree, making it very difficult to use without standard equipment.

Project description

In this thesis the candidate will analyze inefficiencies in the workflow of disabled developers and implement a structural editor to address some of these concerns. The project will also involve devising suitable metrics for measuring the impact the editor has in different kinds of developers.