

# Forth and IDEs

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## Integrated Development Environment (IDE)

- Editor (aka IDE) is the hub
  - Invokes compiler
  - Processes error messages
  - Runs program
  - Debugging interface
  - Crossreferencing
- Language-specific: Smalltalk-80, Turbo Pascal (1983), HolonForth (1989)
- No choice of editor
- Cross-language: Eclipse, IntelliJ IDEA, Visual Studio Code
- Gforth supports Emacs (and vi) as IDE

## Language Server Protocol (LSP)

- Interface between language systems and IDEs
- Traditional development:  $O(|\text{languages}| \times |\text{IDEs}|)$
- LSP development:  $O(|\text{languages}| + |\text{IDEs}|)$
- Editor choice: any editor that supports LSP
- Future work: Add LSP support to Forth systems

## Traditional Forth approach

- Forth command line is the hub
  - Show source code of word  
or edit it with *your favourite* editor
- Load program  
Run program  
Debugging  
Crossreferencing  
Documentation  
Show generated code  
Show other system state

Demo

## Implementation Cost

64-bit Gforth right after startup

	size (KB)
dictionary	548
native code	751
locate	32
where	619
backtrace	548

## Conclusion

- Many languages: editor as hub
- Forth: command line as hub  
works with your favourite editor
- locate  
where  
backtrace  
help  
see
- also covers system code