

C++ coding with Neovim

on the command line

CppCon 2022
September 13, 2022

Prateek Raman
Senior Software Engineer

Engineering

Bloomberg

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



GREETINGS !

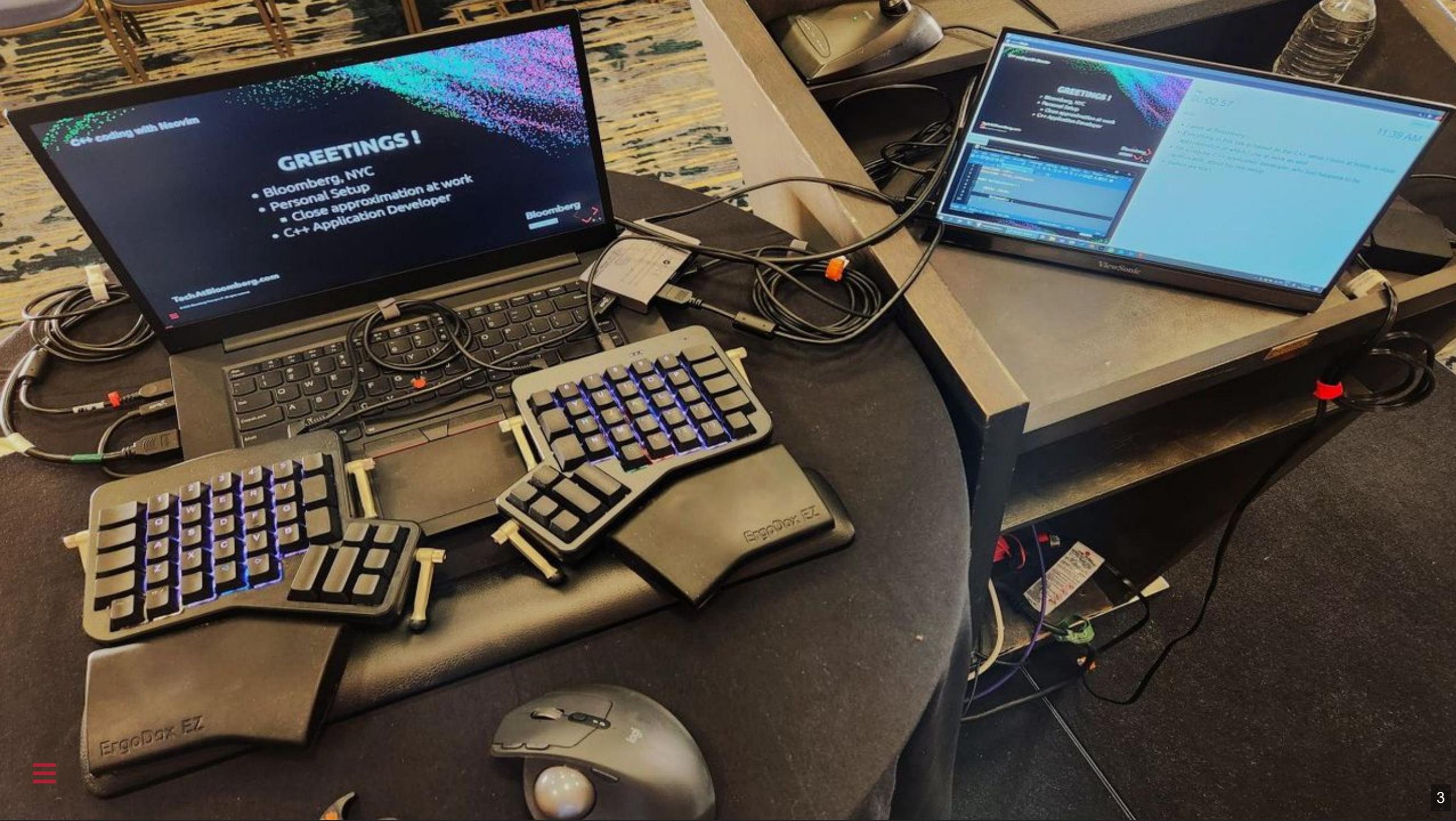
- Bloomberg, NYC
- Personal Setup
 - Close approximation at work
- C++ Application Developer

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering





*C:\sources\notepad4ever.cpp - Notepad++



File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ? X



Notepad_plus.cpp ✎ notepad4ever.cpp ✎ new 1 ✎

```
1 #include <GPL>
2 #include <free_software>
3
4 void Notepad4ever()
5 {
6     while (true)
7     {
8         Notepad++ ;
9     }
10 }
```

length : 108 line Ln : 8 Col : 21 Pos : 102

Windows (CR LF)

UTF-8

INS

Notepad++

- Fast
- Minimal
- Efficient



Notepad++

Gets out of the way

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

Notepad++

Gets out of the way

s/confession/observation/

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.

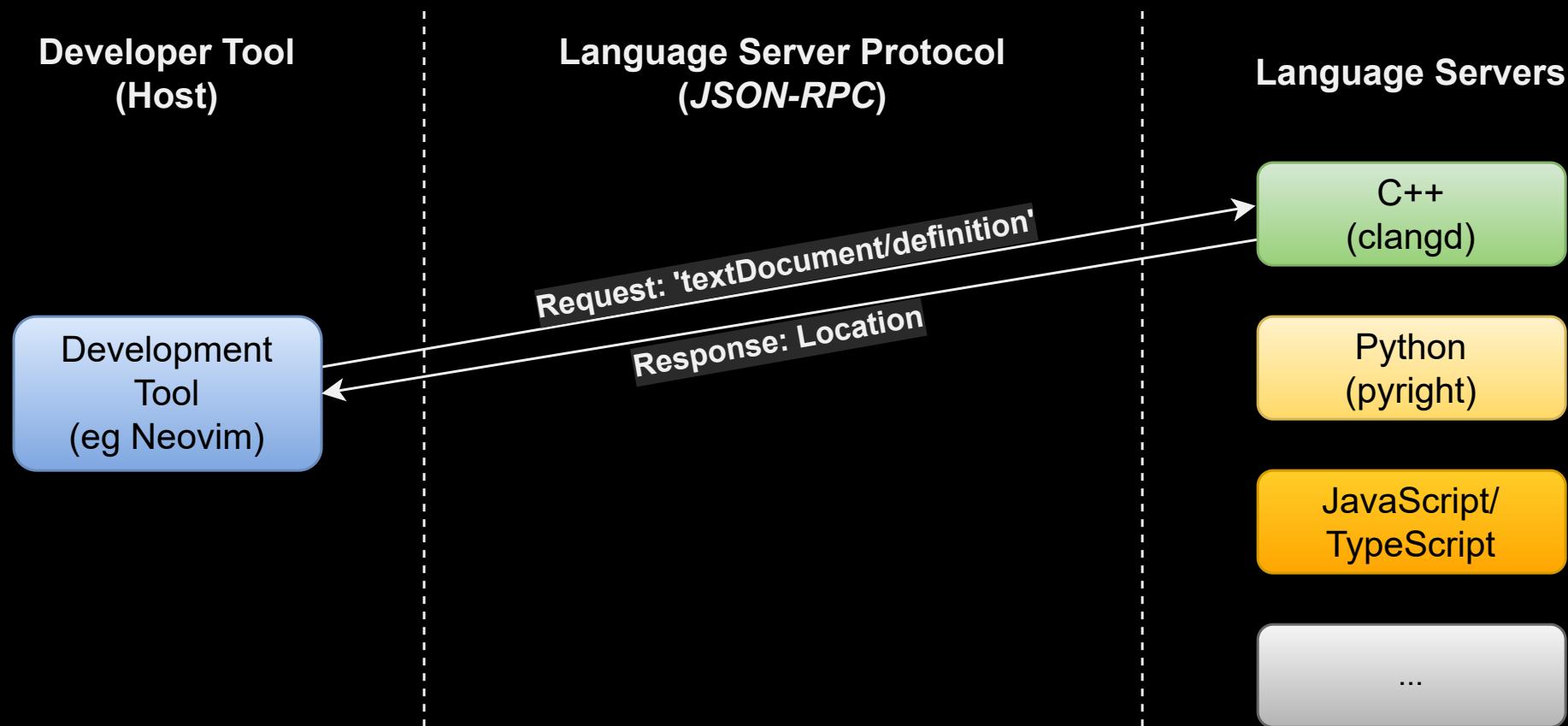


Bloomberg
Engineering

AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup

LSP & Language Server



GOALS

- Command line environment as alternative to IDEs
- Demonstrate Neovim's
 - TUIs (Terminal User Interface)
 - LSP integration
 - Rich plugin ecosystem
- Peek behind the curtain



SCOPE

- Assumes
 - C++ knowledge
 - CMake
 - VCPKG
- Environment
 - Ubuntu 20.04 under WSL2/Windows
 - Should work the same
 - Any Linux distribution
 - MacOS

AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup



AGENDA

- Overview
- Context
 - Command Line Environment
 - C++ Workflows with Neovim
 - Neovim Setup



CONTEXT

- Vim
- Vim ➔ Neovim
- Neovim today





Products



How do I exit Vim?

Asked 10 years, 1 month ago

Modified 9 days ago

Viewed 2.7m times



I am stuck and cannot escape. It says:

4820

type :quit<Enter> to quit VIM



1091

But when I type that it simply appears in the object body.



m



MODAL EDITING

- Insert mode
- Normal mode



MODAL EDITING

- Insert mode
- Normal mode
- *i, o/O, a/A* for *Normal->Insert*



MODAL EDITING

- Insert mode
- Normal mode
- *i, o/O, a/A* for *Normal->Insert*
- *Escape* for *Insert->Normal*



MODAL EDITING

- Insert mode
- Normal mode
- *i, o/O, a/A* for *Normal-> Insert*
- *Escape* for *Insert-> Normal*
- *:* (colon) for *Normal-> Command*



MODAL EDITING

- Insert mode
- Normal mode
- *i, o/O, a/A* for *Normal-> Insert*
- *Escape* for *Insert-> Normal*
- *:* (colon) for *Normal-> Command*
- ■ :write
- :quit
- :wq in short



ALL THINGS VIM

<https://github.com/mhinz/vim-galore>

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

VIM 2013

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

VIM 2013

- Vim + Syntastic



VIM 2013

- Vim + *Syntastic*
- Save file -> Compile -> Show errors inline



VIM 2013

- Vim + *Syntastic*
- Save file -> Compile -> Show errors inline
- `:w` --> Freeze



VIM 2013

- Vim + *Syntastic*
- Save file -> Compile -> Show errors inline
- `:w` --> Freeze
- Not concurrent
 - Plugins run in UI thread



NEOVIM

- Announced by **Thiago de Arruda** in Jan. 2014
 - Modular/Extensible **fork of Vim**
 - Neovim core + **msgpack** protocol for UIs



NEOVIM

- Announced by **Thiago de Arruda** in Jan. 2014
 - Modular/Extensible **fork of Vim**
 - Neovim core + **msgpack** protocol for UIs
- **0.1.0** released Nov. 2015



NEOVIM

- Announced by **Thiago de Arruda** in Jan. 2014
 - Modular/Extensible **fork of Vim**
 - Neovim core + **msgpack** protocol for UIs
- **0.1.0** released Nov. 2015
- Vim 8.0 released Sept. 2016 (async support)



NEOVIM



imgflip.com

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

NEOVIM TODAY

- Lua scripting
 - luajit is fast 
 - vimscript still supported



NEOVIM TODAY

- Lua scripting
 - luajit is fast 
 - vimscript still supported
- LSP client written in Lua 



NEOVIM TODAY

- Lua scripting
 - luajit is fast 
 - vimscript still supported
- LSP client written in Lua 
- Lua plugins
 - Feel native 
 - LSP aware 



NEOVIM TODAY

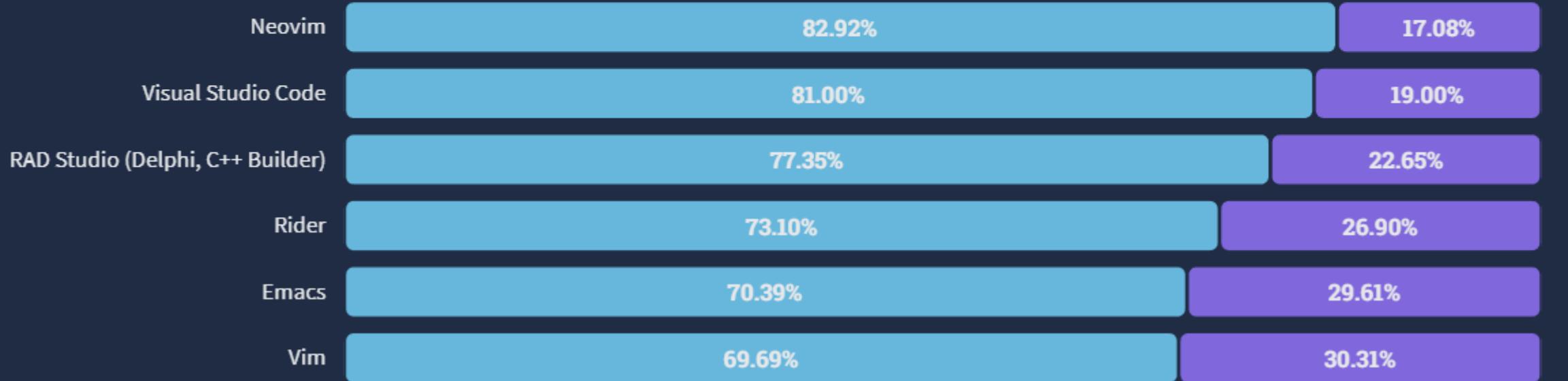
- Lua scripting
 - luajit is fast 
 - vimscript still supported
- LSP client written in Lua 
- Lua plugins
 - Feel native 
 - LSP aware 
- Tree-sitter support 
 - syntax highlights
 - semantic textobjects



Loved vs. Dreaded

Want

70,832 responses



TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Stack Overflow Developer Survey 2022

Bloomberg

Engineering

AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup



AGENDA

- Overview
- Context
- Command Line Environment
 - C++ Workflows with Neovim
 - Neovim Setup



COMMAND LINE ENVIRONMENT

- Terminal + Tmux
- C++ Project
- Neovim

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

app_main.cpp

```

10 int main(int argc, char const* argv[])
 9 {
 8   CLI::App app {"A toy calculator program to demo Neovim on the command line",
 7   "calc"};
 6   try {
 5     auto* add_child_app_p = app.add_subcommand("add", "Add 2 numbers");
 4     auto* sub_child_app_p = app.add_subcommand("sub", "Subtract 2 numbers");
 3
 2     double num1 {};
 1     double num2 {};
30     add_number_options(*add_child_app_p, num1, num2);
 1     add_number_options(*sub_child_app_p, num1, num2);
 2
 3     app.require_subcommand(1);
 4
 5     app.parse(argc, argv);

```

NORMAL ➤ ↵ main app_main.cpp

utf-8 < ⌂ < ⌂ cpp 46% ← 30:18

Hello CppCon 2022 !

```

.rw-rw-r-- vvnraman vvnraman 386 B Fri Sep  9 17:28:22 2022 CMakeLists.txt
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 21:50:50 2022 src
.rw-rw-r-- vvnraman vvnraman 3.8 KB Fri Sep  9 17:28:22 2022 tasks.py
drwxrwxr-x vvnraman vvnraman 4.0 KB Thu Aug 18 15:18:47 2022 tests
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 22:09:36 2022 vcpkg
.rw-rw-r-- vvnraman vvnraman 124 B Sat Sep  3 22:20:15 2022 vcpkg.json

```

12:36:51 ➤ vvnraman ➤ USH-LP19-RIX1 ➤ ~ ➤ code ➤ projects ➤ toy-calculator.g ➤ master ➤ ↵ main ➤ \$

\$

16-cppcon-project ➤ 1 ➤ 1 ➤ main ➤ * ➤ 2 ➤ config ➤ up 3 days, 12:42 < Sat < Sep < 10 ➤ vvnraman < USH-LP19-RIX1

app_main.cpp

```
10 int main(int argc, char const* argv[])
 9 {
 8   CLI::App app {"A toy calculator program to demo Neovim on the command line",
 7   "calc"};
 6   try {
 5     auto* add_child_app_p = app.add_subcommand("add", "Add 2 numbers");
 4     auto* sub_child_app_p = app.add_subcommand("sub", "Subtract 2 numbers");
 3
 2     double num1 {};
 1     double num2 {};
30     add_number_options(*add_child_app_p, num1, num2);
 1     add_number_options(*sub_child_app_p, num1, num2);
 2
 3     app.require_subcommand(1);
 4
 5     app.parse(argc, argv);

```

NORMAL ➤ ↵ main app_main.cpp

utf-8 < ⌂ < ⌂ cpp 46% ← 30:18

Hello CppCon 2022 !

```
.rw-rw-r-- vvnraman vvnraman 386 B Fri Sep  9 17:28:22 2022 CMakeLists.txt
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 21:50:50 2022 src
.rw-rw-r-- vvnraman vvnraman 3.8 KB Fri Sep  9 17:28:22 2022 tasks.py
drwxrwxr-x vvnraman vvnraman 4.0 KB Thu Aug 18 15:18:47 2022 tests
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 22:09:36 2022 vcpkg
.rw-rw-r-- vvnraman vvnraman 124 B Sat Sep  3 22:20:15 2022 vcpkg.json
```

12:36:51 ➤ vvnraman ➤ USH-LP19-RIX1 ➤ ~ ➤ code ➤ projects ➤ toy-calculator.g ➤ master ➤ ↵ main ➤ \$

\$

16-cppcon-project ➤ 1 ➤ 1 ➤ main ➤ * ➤ 2 ➤ config ➤ up 3 days, 12:42 < Sat < Sep < 10 < vvnraman < USH-LP19-RIX1

app_main.cpp

```
10 int main(int argc, char const* argv[])
 9 {
 8   CLI::App app {"A toy calculator program to demo Neovim on the command line",
 7   "calc"};
 6   try {
 5     auto* add_child_app_p = app.add_subcommand("add", "Add 2 numbers");
 4     auto* sub_child_app_p = app.add_subcommand("sub", "Subtract 2 numbers");
 3
 2     double num1 {};
 1     double num2 {};
30     add_number_options(*add_child_app_p, num1, num2);
 1     add_number_options(*sub_child_app_p, num1, num2);
 2
 3     app.require_subcommand(1);
 4
 5     app.parse(argc, argv);
NORMAL ➜ main app_main.cpp          utf-8 < & < ⌂ cpp 46% ← 30:18
```

Hello CppCon 2022 !

```
.rw-rw-r-- vvnraman vvnraman 386 B Fri Sep  9 17:28:22 2022 CMakeLists.txt
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 21:50:50 2022 src
.rw-rw-r-- vvnraman vvnraman 3.8 KB Fri Sep  9 17:28:22 2022 tasks.py
drwxrwxr-x vvnraman vvnraman 4.0 KB Thu Aug 18 15:18:47 2022 tests
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 22:09:36 2022 vcpkg
.rw-rw-r-- vvnraman vvnraman 124 B Sat Sep  3 22:20:15 2022 vcpkg.json
```

```
12:36:51 ➜ vvnraman ➜ USH-LP19-RIX1 ➜ ~ ➜ code ➜ projects ➜ toy-calculator.g ➜ master ➜ main ➤ $
```

```
$
```

```
16-cppcon-project ➜ 1 ➜ 1 ➜ main ➜ * ➜ 2 ➜ config> up 3 days, 12:42 < Sat < Sep < 10 ➜ vvnraman < USH-LP19-RIX1
```

TMUX - SESSIONS, WINDOWS, PANNES

```
.rw-rw-r-- vvnraman vvnraman 386 B Fri Sep  9 17:28:22 2022 CMakeLists.txt
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 21:50:50 2022 src
.rw-rw-r-- vvnraman vvnraman 3.8 KB Fri Sep  9 17:28:22 2022 tasks.py
drwxrwxr-x vvnraman vvnraman 4.0 KB Thu Aug 18 15:18:47 2022 tests
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 22:09:36 2022 vcpkg
.rw-rw-r-- vvnraman vvnraman 124 B Sat Sep  3 22:20:15 2022 vcpkg.json
12:36:51 ➤ vvnraman ➤ USH-LP19-RIX1 ➤ ~ ➤ code ➤ projects ➤ toy-calculator.g ➤ master ➤ ↴ main ➤ $ ➤
$ ➤ 16-cppcon-project ➤ 1 ➤ 1 ➤ main ➤ * ➤ 2 ➤ config ➤ up 3 days, ➤ 12:42 < Sat < Sep < 10 < vvnraman < USH-LP19-RIX1
```



```
app_main.cpp
9 {
8 CLI::App app {"A toy calculator program to demo Neovim on the command line",
7 | | | | "calc"};
6 try {
5 auto* add_child_app_p = app.add_subcommand("add", "Add 2 numbers");
4 auto* sub_child_app_p = app.add_subcommand("sub", "Subtract 2 numbers");
3 |
2 double num1 {};
1 double num2 {};
30 add_number_options(*add_child_app_p, num1, num2);
1 add_number_options(*sub_child_app_p, num1, num2);
2 |
3 app.require_subcommand(1);
4 |
5 app.parse(argc, argv);
NORMAL ↵ main app_main.cpp
```

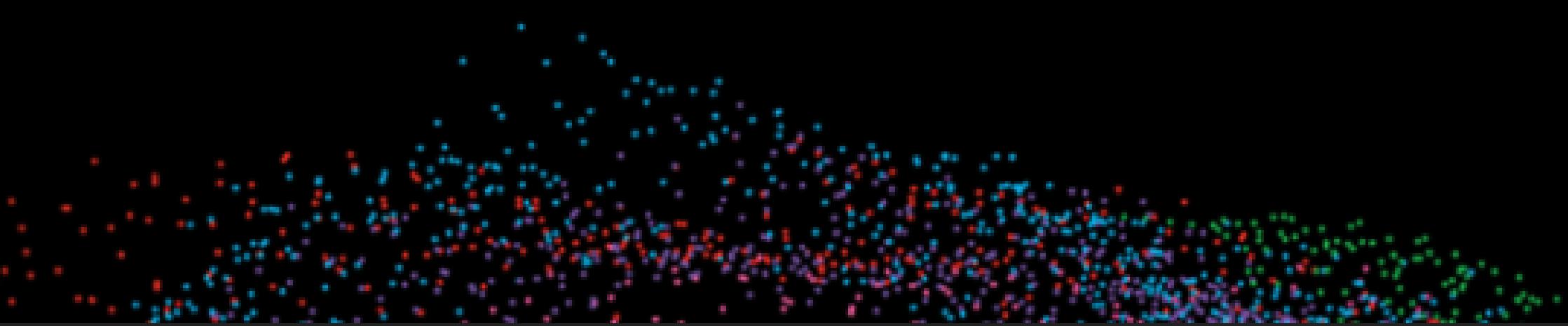
utf-8 < ⇧ < ⌂ cpp 46% ← 30:18

```
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 21:50:50 2022 ↵ src
.rw-rw-r-- vvnraman vvnraman 3.8 KB Fri Sep  9 17:28:22 2022 ↵ tasks.py
drwxrwxr-x vvnraman vvnraman 4.0 KB Thu Aug 18 15:18:47 2022 ↵ tests
drwxrwxr-x vvnraman vvnraman 4.0 KB Sat Sep  3 22:09:36 2022 ↵ vcpkg
.rw-rw-r-- vvnraman vvnraman 124 B Sat Sep  3 22:20:15 2022 {} ↵ vcpkg.json
12:36:51 ↵ vvnraman ↵ USH-LP19-RIX1 ↵ ~ ↵ code ↵ projects ↵ toy-calculator.g ↵ master ↵ ↵ main ↵ $ ↵
$ ↵
```

16-cppcon-project ↵ 1 ↵ 1 ↵ main ↵ * ↵ 2 ↵ config> up 3 days, 10:42 < Sun < Sep < 11 < vvnraman < USH-LP19-RIX1



m



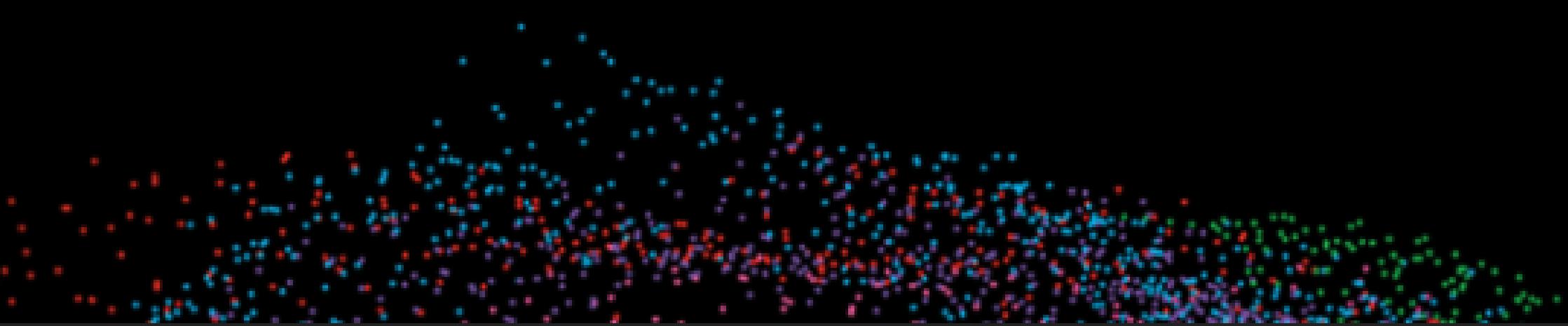
```
> toy-calculator.g > master > src > app > ! main > $  
$ cd  
20:58:12 > vvnraman > USH-LP19-RIX1 > ~ > $  
$
```

```
20:58:13 > vvnraman > USH-LP19-RIX1 > ~ > $  
$
```

```
16-cppcon-project > 4 <-installed > 4 > bash > * > up 3 days, < 20:58 < Sun < Sep < 11 < vvnraman < USH-LP19-RIX1
```



m



C++ PROJECT



- Add 2 numbers
- Subtract 2 numbers

<https://github.com/vvnraman/cppcon-2022-cpp-neovim-toy-calc>

TOY CALCULATOR

```
./usr/local/bin/calc --help
```

A toy calculator program to demo Neovim on the command line

Usage: calc [OPTIONS] SUBCOMMAND

Options:

-h,--help	Print this help message and exit
-----------	----------------------------------

Subcommands:

add	Add 2 numbers
sub	Subtract numbers

Add

```
./usr/local/bin/calc add 10 5
```

10 + 5 = 15

Subtract

```
Text   ./usr/local/bin/calc sub 10 5
```

10 - 5 = 5

C++ PROJECT

- CMake, ninja, gcc-11



C++ PROJECT

- CMake, ninja, gcc-11
- vcpkg.json
 - cli11
 - fmt



C++ PROJECT

- CMake, ninja, gcc-11
- vcpkg.json
 - clil1
 - fmt
- tasks.py for invoke
 - Runs CMake configure, build, install



VCPKG

Setup vcpkg (submodule per project)

```
git submodule add https://github.com/microsoft/vcpkg.git  
git submodule update --init  
cd vcpkg  
.bootstrap-vcpkg.sh -disableMetrics
```

Dependencies pinned by default

CMAKE

CMake Configure using `tasks.py`

```
# From project root  
$ invoke config
```



CMAKE

CMake Configure using **tasks.py**

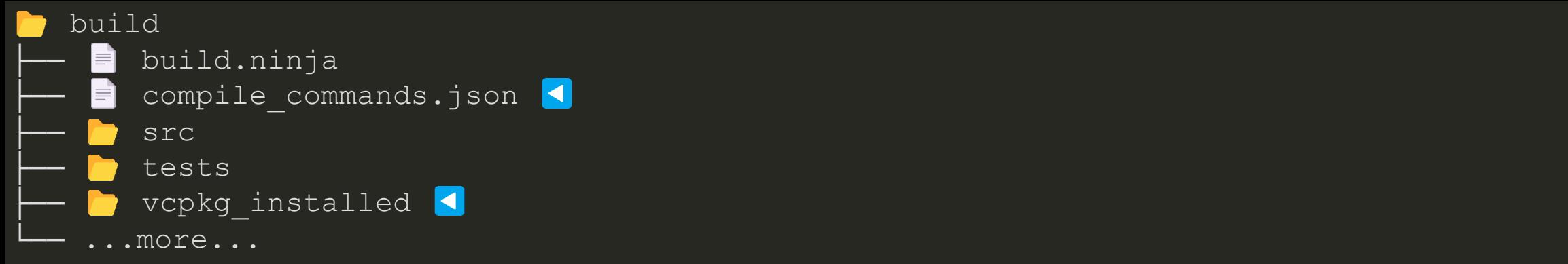
```
# From project root  
$ invoke config
```

Roughly does the following

```
# create unique build dir and cd to it  
cmake \  
  -S path/to/project/ \  
  -DCMAKE_TOOLCHAIN_FILE=path/to/project/vcpkg/scripts/buildsystems/vcpkg.cmake
```

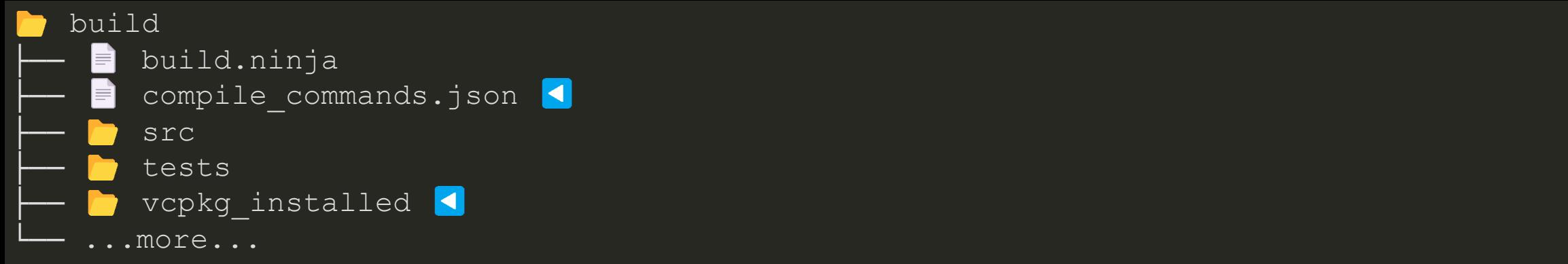


CMAKE



- `vcpkg_installed`
- `build.ninja`

CMAKE



- **vcpkg_installed**
- **build.ninja**
- **compile_commands.json**

COMPILATION DATABASE

Json Compilation Database

```
cmake -DCMAKE_EXPORT_COMPILE_COMMANDS=1 ...
# or
CMAKE_EXPORT_COMPILE_COMMANDS=1 cmake ...
```

Build directory



NEOVIM ❤ CLANGD

Source directory



NEOVIM ❤ CLANGD

Source directory



```
$ invoke config
```

NEOVIM

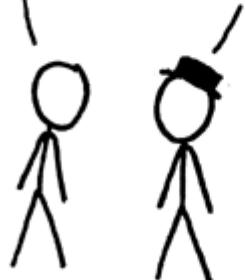
- Neovim 0.7.2
 - Built-in LSP client 😱
- Notable Plugins
 - telescope
 - trouble
 - nvim-cmp
 - which-key
- packer Package manager
- mason CLI Tools installer
 - Handles clangd installation



MNEMONICS

IF YOU LEARNED TO SPEAK LOJBAN,
YOUR COMMUNICATION WOULD BE
COMPLETELY UNAMBIGUOUS AND LOGICAL.

YEAH, BUT IT WOULD ALL BE
WITH THE KIND OF PEOPLE
WHO LEARN LOJBAN.



<https://xkcd.com/191/>

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



<Leader> - <Space>

Bloomberg
Engineering

AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup



AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup



C++ coding with Neovim

C++ WORKFLOWS WITH NEOVIM

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

OPEN FILE, NO LSP

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

:LspInfo - NOT ATTACHED

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

TREE-SITTER HIGHLIGHTING

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

PROJECT NAVIGATION

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

:LspInfo

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

BUFFER, FILE, WINDOW AND TABS

Live demo



INTELLISENSE - ADD MULTIPLY

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

CLANG FORMAT

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

NAVIGATE BETWEEN DIAGNOSTICS

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

CLANG-TIDY INTEGRATION

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

TROUBLE INTEGRATION

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

CODE ACTIONS

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

GO TO DEFINITION/DECLARATION

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

SWITCH BETWEEN HEADER/CPP

Live demo



FIND REFERENCES

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

REFACTOR

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

DOCUMENT SYMBOLS

Live demo



RUN EXECUTABLE

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

MULTI-LANGUAGE SETUP

Live demo

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

MULTI-LANGUAGE SETUP

The same setup works whether you're working on Rust, Golang, JavaScript/TypeScript, Zig, etc...



DEBUGGING

- Gdb
 - Talks by **Greg Law** from CppCon, search on YouTube
 - Back to Basics - Debugging by **Mike Shah**, CppCon 2022
- Debug Adapter Protocol
- nvim-dap



AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup



AGENDA

- Overview
- Context
- Command Line Environment
- C++ Workflows with Neovim
- Neovim Setup



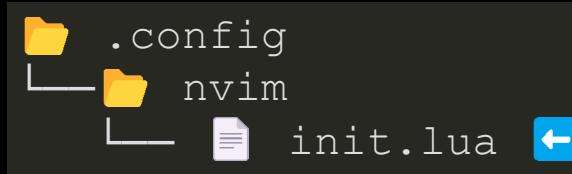
NEOVIM SETUP

- Neovim config
- Vim → Neovim
- Lua



NEOVIM CONFIG

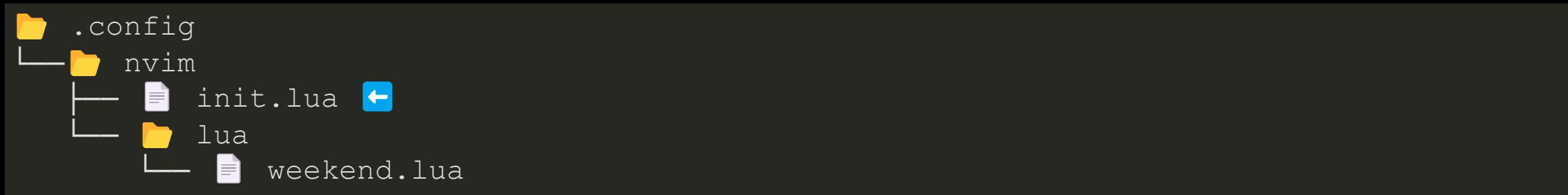
Under `$HOME` on Linux, `%USERPROFILE` on Windows



- kickstart.nvim
- lsp-zero

NEOVIM CONFIG FROM SCRATCH

Under `$HOME` on Linux, `%USERPROFILE` on Windows



- `init.lua` contents

```
require("weekend")
```

NEOVIM DISTRIBUTIONS

- LunarVim
- NvChad



VIM → NEOVIM

- Use Neovim with your **existing .vimrc**

`$HOME/.config/nvim/init.vim`

```
set runtimepath^=~/vim runtimepath+=~/vim/autoload  
let &packpath = &runtimepath  
source ~/vimrc
```

- Try LSP integration, Lua plugins

- Move to **init.lua**



LUA

```
local telescope_builtin = require("telescope.builtin")
vim.keymap.set({ "n" }, "<leader>lsp", function()
    telescope_builtin.lsp_document_symbols()
end, { buffer = bufnr })
```



LUA

```
local telescope_builtin = require("telescope.builtin")
vim.keymap.set({ "n" }, "<leader>lsp", function()
    telescope_builtin.lsp_document_symbols()
end, { buffer = bufnr })
```

- Declare local variable



LUA

```
local telescope_builtin = require("telescope.builtin")
vim.keymap.set({ "n" }, "<leader>lsp", function()
    telescope_builtin.lsp_document_symbols()
end, { buffer = bufnr })
```

- Declare local variable
- Set function to be called when key pressed



LUA

```
local telescope_builtin = require("telescope.builtin")
vim.keymap.set({ "n" }, "<leader>lsp", function()
    telescope_builtin.lsp_document_symbols()
end, { buffer = bufnr })
```

- Declare local variable
- Set function to be called when key pressed
- Lua automatically creates closure with local variable



NEOVIM LUA RESOURCES

- TJDevries & Bashbunni Telescope and Neovim intro



- TJDevries & Bashbunni Neovim Lua Plugin From Scratch



TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

FENNEL

TechAtBloomberg.com

© 2022 Bloomberg Finance L.P. All rights reserved.



Bloomberg
Engineering

FENNEL

- Lisp



FENNEL

- Lisp
- Transpiles to Lua



FENNEL

- Lisp
- Transpiles to Lua
- Emacs Lisp users rejoice !



THANK YOU



Tarantula Nebula
James Webb Telescope, Nasa

QUESTIONS ?

<https://github.com/vvnraman/neovim-config>
<https://github.com/vvnraman/dotfiles>

www.TechAtBloomberg.com/cplusplus