

Setup.hs

Lecture Slides (Preview)



Lecture 1 - Introduction and GHCup



Who is this course good for?

- **Goals of the Course**
- Types of Material in the Course
- What is GHCup?
- Installing and Using GHCup

- This course is good for **many skill levels**
- Most benefit for *beginners* though
 - Learn your basic project setup
 - Will help you go through tutorials
 - Compilation hints will accelerate your development!
- For experienced Haskellers...
 - GHCup is fairly recent and useful!
 - You might not have extra IDE features for Haskell

What will *not* be covered?

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- Alternatives to Stack
 - Cabal (without Stack)
 - Nix
- Alternative editor integrations
 - Many different ways to do this
 - But I'm showing what worked most easily for me
- No syntax or language features

Video Lectures

- Goals of the Course
- **Types of Material in the Course**
- What is GHCup?
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- Video Lectures (like this one)
 - Mostly slide based presentations
 - Conceptual ideas
 - Will talk through some implementation ideas

Coding Exercises

- Goals of the Course
- **Types of Material in the Course**
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- Video Lectures (like this one)
 - Mostly slide based presentations
 - Conceptual ideas
 - Will talk through some implementation ideas
- Coding Exercises
 - Most important part of the course!
 - Practice ideas from lecture on your own machine
 - PDF attached to this lecture
 - Zip file attached to next lecture

Walkthrough Videos

- Goals of the Course
- **Types of Material in the Course**
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- Video Lectures (like this one)
 - Mostly slide based presentations
 - Conceptual ideas
 - Will talk through some implementation ideas
- Coding Exercises
 - Most important part of the course!
 - Practice ideas from lecture on your own machine
 - PDF attached to this lecture
 - Zip file attached to next lecture
- Walkthrough Videos
 - I'll share my screen and go through exercises
 - Useful if you get stuck
 - (Some amount of repetition)
 - 3 different series - MacOS, Windows, Linux (WSL)

GHCup

- Goals of the Course
- Types of Material in the Course
- **What is GHCup?**
- Installing and Using GHCup

- GHCup is a tool to **install** and **manage** other Haskell tools
 - (It's a meta-tool)

Other Tools

- Goals of the Course
- Types of Material in the Course
- **What is GHCup?**
- Installing and Using GHCup

- GHCup is a tool to **install** and **manage** other Haskell tools
 - (It's a meta-tool)
- What other tools?
 - GHC - Haskell's compiler
 - Cabal - Build system and package manager
 - Stack - Build system and package manager
 - Haskell Language Server - Allows editor integrations

GHCup's Job

- Goals of the Course
- Types of Material in the Course
- **What is GHCup?**
- Installing and Using GHCup

- GHCup is a tool to **install** and **manage** other Haskell tools
 - (It's a meta-tool)
- What other tools?
 - GHC - Haskell's compiler
 - Cabal - Build system and package manager
 - Stack - Build system and package manager
 - Haskell Language Server - Allows editor integrations
- GHCup can easily install all these programs
- Can also switch between different versions of the tools
 - Easy updates
 - Manage compatibility
 - Projects have a particular GHC version
 - Each HLS only works with certain versions of GHC

Installing GHCup

- Goals of the Course
- Types of Material in the Course
- What is GHCup?
- **Installing and Using GHCup**

Linux and Mac

```
curl --proto '=https' --tlsv1.2 -sSf https://get-ghcup.haskell.org | sh
```

Windows

```
>> Set-ExecutionPolicy Bypass -Scope Process -Force; `
[System.Net.ServicePointManager]::SecurityProtocol = `
[System.Net.ServicePointManager]::SecurityProtocol -bor 3072; `
try { Invoke-Command -ScriptBlock `
    ([ScriptBlock]::Create((Invoke-WebRequest `
    https://www.haskell.org/ghcup/sh/bootstrap-haskell.ps1 `
    -UseBasicParsing))) -ArgumentList $true } `
catch { Write-Error $_ }
```

Listing Versions

- Goals of the Course
- Types of Material in the Course
- What is GHCup?
- **Installing and Using GHCup**

```
>> ghcup list
```

```
x ghc 9.2.4 base-4.16.3.0
✓ ghc 9.2.5 recommended,base-4.16.4.0 hls-powered
x ghc 9.2.6 base-4.16.4.0
x ghc 9.4.1 base-4.17.0.0
x ghc 9.4.2 base-4.17.0.0
✓ ghc 9.4.3 base-4.17.0.0 hls-powered
✓ ghc 9.4.4 latest,base-4.17.0.0 hls-powered
x cabal 2.4.1.0
x cabal 3.0.0.0
x cabal 3.2.0.0
x cabal 3.4.0.0
x cabal 3.4.1.0
x cabal 3.6.0.0
✓ cabal 3.6.2.0 recommended
x cabal 3.8.1.0 latest
x hls 1.1.0
x hls 1.2.0
x hls 1.3.0
x hls 1.4.0
x hls 1.5.0
x hls 1.5.1
x hls 1.6.0.0
x hls 1.6.1.0
x hls 1.7.0.0
✓ hls 1.8.0.0
✓ hls 1.9.0.0 recommended
x hls 1.9.1.0 latest
x stack 2.5.1
x stack 2.7.1
x stack 2.7.3
x stack 2.7.5
✓ stack 2.9.1 recommended
x stack 2.9.3 latest
✓ ghcup 0.1.19.0 stray
x ghcup 0.1.19.1 latest,recommended
```

Installing and Setting Versions

- Goals of the Course
- Types of Material in the Course
- What is GHCup?
- **Installing and Using GHCup**

```
>> ghcup install cabal 3.8.1.0
>> ghcup set stack 2.7.5
>> ghcup set ghc 9.2.5
>> ghcup install hls 1.9.0.0
```

(Must install a version before you can set it)

Text User Interface (Mac/Linux only)

- Goals of the Course
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```
>> ghcup tui
```

				GHCup
Tool	Version	Tags	Notes	
x	GHCup 0.1.19.1	latest, recommended		
✓✓	GHCup 0.1.19.0		stray	
x	Stack 2.9.3	latest		
✓✓	Stack 2.9.1	recommended		
x	Stack 2.7.5			
x	HLS 1.9.1.0	latest		
✓✓	HLS 1.9.0.0	recommended		
✓	HLS 1.8.0.0			
x	HLS 1.7.0.0			
x	cabal 3.8.1.0	latest		
✓✓	cabal 3.6.2.0	recommended		
✓	GHC 9.4.4	latest, base-4.17.0.0	hls-powered	
✓	GHC 9.4.3	base-4.17.0.0	hls-powered	
x	GHC 9.4.2	base-4.17.0.0		
x	GHC 9.2.6	base-4.16.4.0		
✓✓	GHC 9.2.5	recommended, base-4.16.4.0	hls-powered	
x	GHC 9.2.4	base-4.16.3.0		
x	GHC 9.0.2	base-4.15.1.0	hls-powered	
x	GHC 8.10.7	base-4.14.3.0	hls-powered	
x	GHC 8.8.4	base-4.13.0.0		
x	GHC 8.6.5	base-4.12.0.0		
x	GHC 8.4.4	base-4.11.1.0		

q:Quit i:Install u:Uninstall s:Set c:ChangeLog a:Show all versions t:Show all tools ↑:Up ↓:Down