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Demystifying metaprogramming and package precompilation

Monday, October 28, 2024 4:45 PM (1 hour)

Metaprogramming in Julia is often presented as a powerful language feature, implemented via macros and types representing Julia code. Indeed, it allows the expression of complex constructs in a simple way, such as domain-specific languages (DSL) expressing mathematical problems. Yet, the term metaprogramming is somewhat overloaded and unclear as to what it really means under the hood.
We will have a look at most of the relevant concepts in an interactive session in an effort to make it more intuitive. This should help you leverage the benefits of metaprogramming as a developer, and better understand what's going on as a user.

In the second part of this workshop, we will cover the topic of package precompilation. In recent years, there has been a large focus on the issue of TTFP - time to first plot - where Julia users were often annoyed by the large delay caused by the just-in-time compilation model of the language. Great improvements were made in recent years to grant users and developers the tools to significantly reduce this delay, to the point where it is almost a solved issue today.
There again, we will try to present the topic intuitively and present tools that developers can apply to make packages more convenient to use. We will also present a way for users to shave off some latency for workflows involving packages in your global environment.

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