



An advanced, purely functional programming language

Declarative, statically typed code.

```
primes = filterPrime [2..]
where filterPrime (p:xs) =
  p : filterPrime [x | x <- xs, x `mod` p /= 0]
```

## Try it!

Type Haskell expressions in here.



## Got 5 minutes?

Type `help` to start the tutorial.

Or try typing these out and see what happens (click to insert):

`23 * 36` or `reverse "hello"` or `foldr (:) [] [1,2,3]`

## Videos

Escape from the ivory tower: The Haskell journey, by Simon Peyton-Jones

Haskell taketh away: limiting side effects for parallel programming, by Ryan Newton

Production Haskell, by Reid Draper

Haskell Amuse-Bouche, by Mark Lentczner

Haskell is Not For Production and Other Tales, by Katie Miller

Your First Web Application with Spock, by Oskar Wickström

## Testimonials

**Scarf**

Haskell powers Scarf's backend, helping us move fast and not break things. It offers unparalleled maintainability, so we can quickly and safely adapt our system to the moving target of customer demands.

**IOHK**

Smart contract systems are largely about programming languages, and when it comes to programming languages work there is no competitor to Haskell.

**Stack Builders**

Haskell makes it possible to maintain an EdTech platform in 23 languages for more than 70K users from one of the largest multinational financial services corporations.

**Imagine AI**

ImagineAI is a smart code generator written in Haskell that instantly turns your app spec into clean Django and Node source code.

## Features

### Statically typed

Every expression in Haskell has a type which is determined at compile time. All the types composed together by function application have to match up. If they don't, the program will be rejected by the compiler. Types become not only a form of guarantee, but a language for expressing the construction of programs.

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### Purely functional

Every function in Haskell is a function in the mathematical sense (i.e., "pure"). Even side-effecting IO operations are but a description of what to do, produced by pure code. There are no statements or instructions, only expressions which cannot mutate variables (local or global) nor access state like time or random numbers.

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### Type inference

You don't have to explicitly write out every type in a Haskell program. Types will be inferred by unifying every type bidirectionally. However, you can write out types if you choose, or ask the compiler to write them for you for handy documentation.

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### Concurrent

Haskell lends itself well to concurrent programming due to its explicit handling of effects. Its flagship compiler, GHC, comes with a high-performance parallel garbage collector and light-weight concurrency library containing a number of useful concurrency primitives and abstractions.

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### Lazy

Functions don't evaluate their arguments. This means that programs can compose together very well, with the ability to write control constructs (such as if/else) just by writing normal functions. The purity of Haskell code makes it easy to fuse chains of functions together, allowing for performance benefits.

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### Packages

Open source contribution to Haskell is very active with a wide range of packages available on the public package servers.

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## Sponsors

- DataDog** provides powerful, customizable 24/7 metrics and monitoring integration for all of Haskell.org, and complains loudly for us when things go wrong.
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## Psst! Looking for the wiki?

This is the new Haskell home page! The wiki has moved to [wiki.haskell.org](#).