Haskell: Programming with Functions

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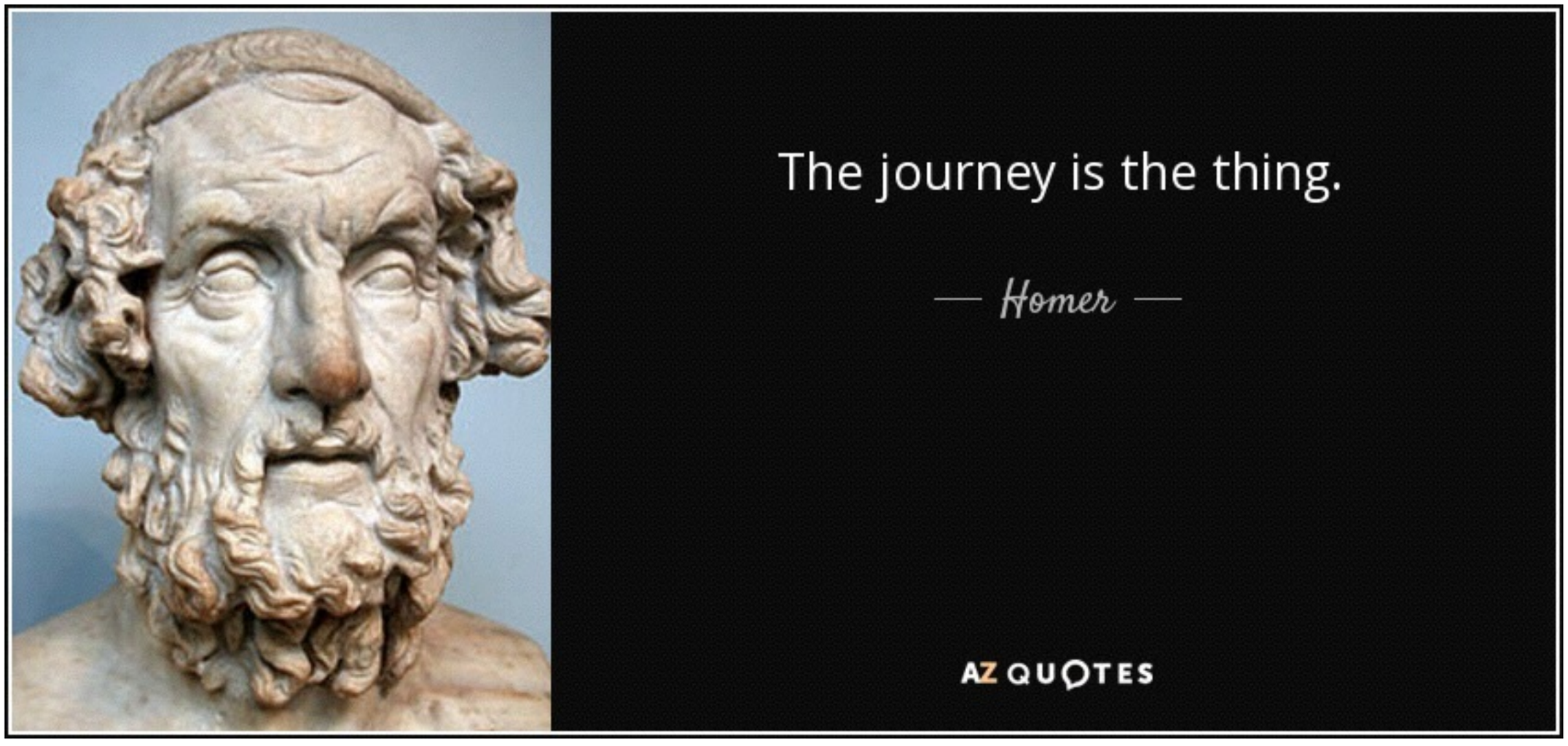
The rules:

Stop us any time you have questions



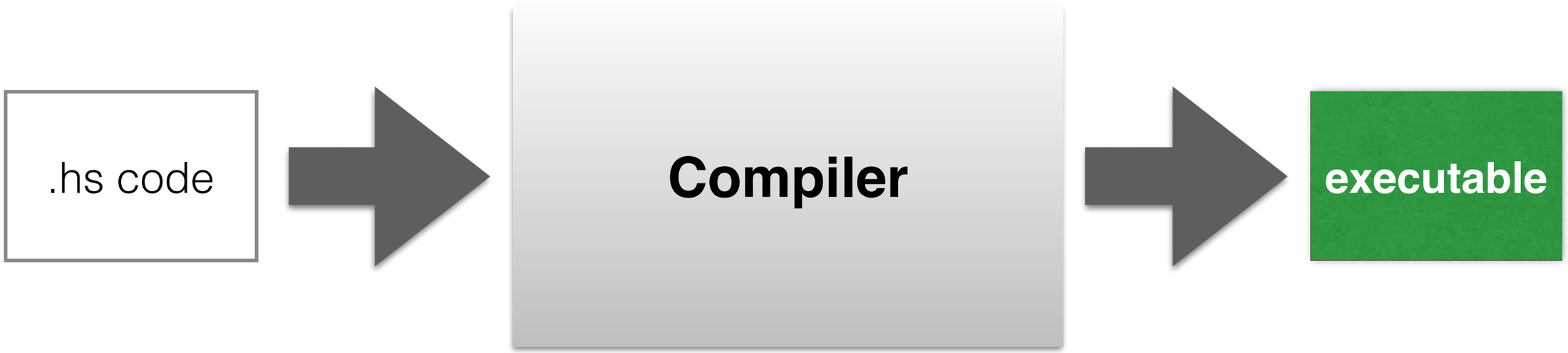
Haskell is a programming language

What is a Programming language?

Syntax: How do I write a program?

Semantics: How does the program run?

Haskell is a programming language



The Glorious Haskell Compiler (ghc)

Haskell is a programming language

The Glasgow Haskell Interpreter (ghci)

Haskell is more than a language

Functional programming

No side effects

Strongly Typed

Lazy evaluation

Monads

Functional Programming

In computer science, functional programming is a programming paradigm —a style of building the structure and elements of computer programs— that treats computation as the evaluation of mathematical functions and avoids changing-state and mutable data*.

Every time a call a function with same input, I get same output.

Is this true for C? No.

* Wikipedia

No side effects

Strongly typed

“If it compiles it works!”

Lazy Evaluation

In programming language theory, lazy evaluation, or call-by-need is an evaluation strategy which delays the evaluation of an expression until its value is needed (non-strict evaluation) and which also avoids repeated evaluations (sharing).*

```
int foo(x:int){
   return 42
}

int bar() {
   z = foo(42);
   return 0
}
```

* Wikipedia

Lazy Evaluation

In programming language theory, lazy evaluation, or call-by-need is an evaluation strategy which delays the evaluation of an expression until its value is needed (non-strict evaluation) and which also avoids repeated evaluations (sharing).*

```
foo x = crash!!!
bar   = let z = foo 42
        in 0
```

* Wikipedia

Monads


HASKELL INTERVIEW
EXPLAIN MONADS
... IN FIVE WORDS OR LESS
toonlet.com/creator/dalmaer
10 feb 08, 12:25 AM

Why Haskell?

It is pretty and elegant!

Started as a research language (>20 years ago)

Industry is using it now

Our plan

Learn Haskell

higher order functions

type classes

polymorphism

monads

Learn some theory

λ-calculus

type inference

Make an application

build an email classifier!

Let’s get started!!!!