

Extracted from:

Go Brain Teasers

Exercise Your Mind

This PDF file contains pages extracted from *Go Brain Teasers*, published by the Pragmatic Bookshelf. For more information or to purchase a paperback or PDF copy, please visit <http://www.pragprog.com>.

Note: This extract contains some colored text (particularly in code listing). This is available only in online versions of the books. The printed versions are black and white. Pagination might vary between the online and printed versions; the content is otherwise identical.

Copyright © 2021 The Pragmatic Programmers, LLC.

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior consent of the publisher.

The Pragmatic Bookshelf

Raleigh, North Carolina

The
Pragmatic
Programmers

Go Brain Teasers

Exercise Your Mind



Miki Tebeka
edited by Margaret Eldridge

Go Brain Teasers

Exercise Your Mind

Miki Tebeka

The Pragmatic Bookshelf

Raleigh, North Carolina



Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and The Pragmatic Programmers, LLC was aware of a trademark claim, the designations have been printed in initial capital letters or in all capitals. The Pragmatic Starter Kit, The Pragmatic Programmer, Pragmatic Programming, Pragmatic Bookshelf, PragProg and the linking *g* device are trademarks of The Pragmatic Programmers, LLC.

Every precaution was taken in the preparation of this book. However, the publisher assumes no responsibility for errors or omissions, or for damages that may result from the use of information (including program listings) contained herein.

For our complete catalog of hands-on, practical, and Pragmatic content for software developers, please visit <https://pragprog.com>.

The team that produced this book includes:

CEO: Dave Rankin

COO: Janet Furlow

Managing Editor: Tammy Coron

Development Editor: Margaret Eldridge

Copy Editor: Jennifer Whipple

Indexing: Potomac Indexing, LLC

Layout: Gilson Graphics

Founders: Andy Hunt and Dave Thomas

For sales, volume licensing, and support, please contact support@pragprog.com.

For international rights, please contact rights@pragprog.com.

Copyright © 2021 The Pragmatic Programmers, LLC.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior consent of the publisher.

ISBN-13: 978-1-68050-899-4

Encoded using the finest acid-free high-entropy binary digits.

Book version: P1.0—September 2021

*To Sharon, who suffered me in quarantine,
and the twenty years before that.*

Puzzle 6

Are We There Yet?

```
time.go
package main

import (
    "fmt"
    "time"
)

func main() {
    timeout := 3
    fmt.Printf("before ")
    time.Sleep(timeout * time.Millisecond)
    fmt.Println("after")
}
```

Guess the Output



Try to guess what the output is before moving to the next page.

This code will not compile.

When you write `timeout := 3`, the Go compiler will do a type inference. In this case it will infer that `timeout` is an `int`. Then in line 11, you multiply `timeout` (`int` type) with `time.Millisecond` (which is of `time.Duration` type), which is not allowed.

You have several options to fix this.

Change the type of `timeout` to `time.Duration` (line 9):

```
var timeout time.Duration = 3
```

Make `timeout` a `const`, and then its type will be resolved in the context of usage (line 9):

```
const timeout = 3
```

Use a type conversion to convert `timeout` to `time.Duration` (line 11):

```
time.Sleep(time.Duration(timeout) * time.Millisecond)
```

Further Reading

Type Inference on Wikipedia

en.wikipedia.org/wiki/Type_inference

Type Inference in the Go Tour

tour.golang.org/basics/14

go/types: The Go Type Checker in golang/example

<https://github.com/golang/example/tree/master/gotypes>

time.Duration

golang.org/pkg/time/#Duration

Type Conversions in the Go Specification

golang.org/ref/spec#Conversions