Coding Intro

Day 1: Setup and introduction

Agenda

- Programming
- Setup
- Demo

Computers

- What does a computer do?
- What is programming?
- Why should you care?

What does a computer do?

Ideas

What is programming?

Ideas

Why should you care?

Ideas

Computers

Some of my own opinions

- Computers are bad at thinking for themselves
- Very good at specific tasks (mostly math)
- Programs are a very specific set of steps
- All computer tasks are based on simple instructions
- Whether or not you become a programmer, knowing how programs work is important

Setup

Install the following

- Terminal
- Python 3
- Text Editor

That's it! (for now)

Terminal


SLMIN .SYS 12P 20-Dec-85
XL .SYS 4P 20-Dec-85
SP .SYS 6P 13-Aug-86
RT11SJ.SYS 78P 13-Aug-86
NL .SYS 2P 13-Aug-86
SD .SYS 5P 31-May-85
BASIC .SAV 56 24-May-79
DATIME.SAV 4 20-Dec-85
DUMP .SAV 9 20-Dec-85
TSXMOD.SAV 78 27-Nov-82
HARRIS.SAV 41 12-Jun-85
START .P36 2 21-Dec-81
EM1A .STM 19P 02-Feb-83
STAND .LIN 12P 15-Aug-83
EM1B .STM 19 11-Feb-83
JKFLIP.FOR 3 08-Mar-86
ANNOT .SAV 38 18-Apr-83
DUO .DIR 18 16-Jul-86
DIR .DIF 26 16-Jul-86
DEMORG.OBJ 1 -BAD-
114 Files, 5949 Blocks
14433 Free blocks
.0
VM .SYS 3P 13-Aug-86
LD .SYS 8P 23-Aug-86
PL .SYS 5P 13-Aug-86
MU .SYS 8P 13-Aug-86
TT .SYS 2P 13-Aug-86
RL02DG.SYS 71P 21-Nov-84
BINCOM.SAV 24 20-Dec-85
DIR .SAV 19 20-Dec-85
DUP .SAV 47 20-Dec-85
FORTRA.SAV 206 21-May-85
LET .SAV 5 20-Dec-85
RETRO .OBJ 1519P 16-May-88
TSXUCL.TSX 22 07-Mar-82
TSXV6 .MSG 1P 04-Sep-85
JKFLIP.SAV 30 08-Mar-86
RT11FB.SYS 93P 20-Dec-85
TSXP23.NEW 1200P 27-Nov-82
DL .DIR 7 16-Jul-86
DEMOFG.OBJ 1 -BAD-
EVAN .ID 1
BC-BS 20768
digital VT100

Terminal

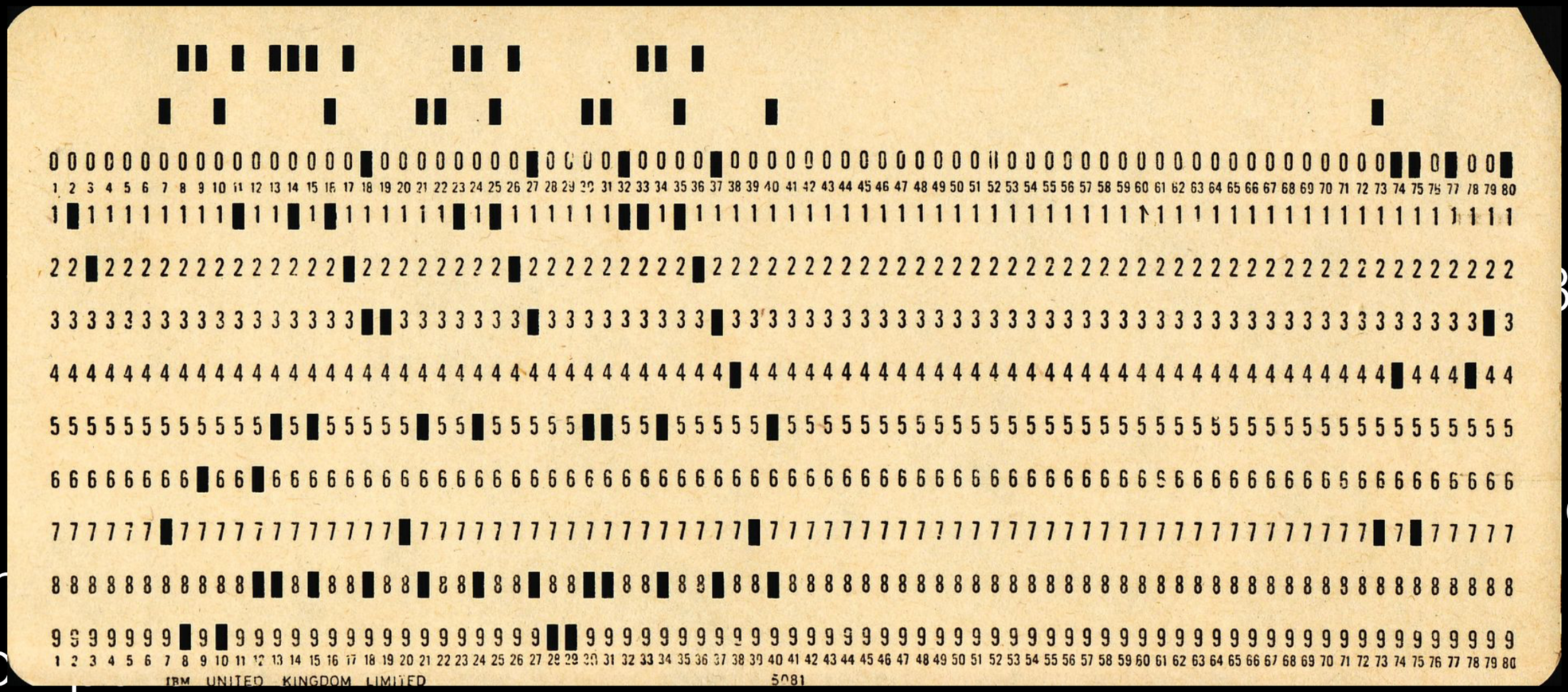
A brief history of human computer interfaces

Terminal

A brief history of human computer interfaces

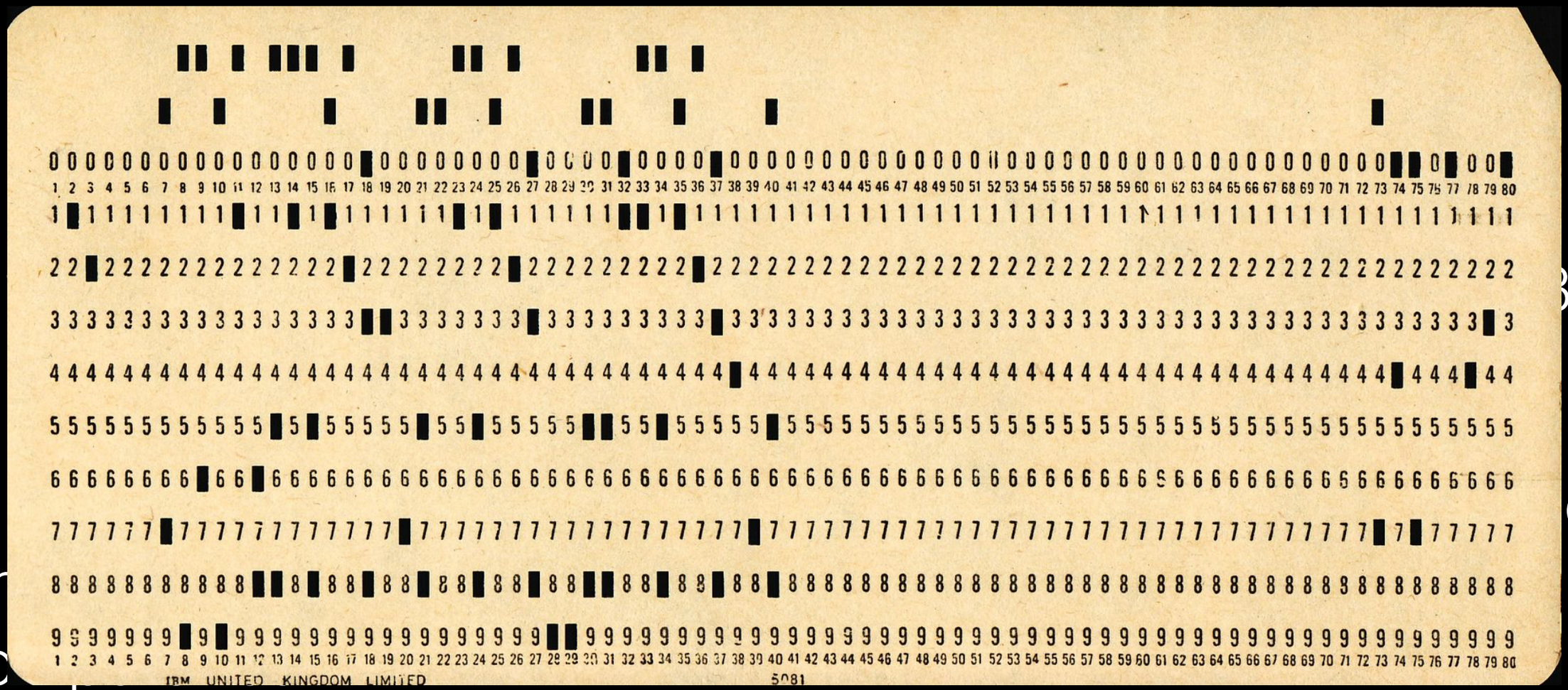
Terminal

A brief history of human computer interfaces



Terminal

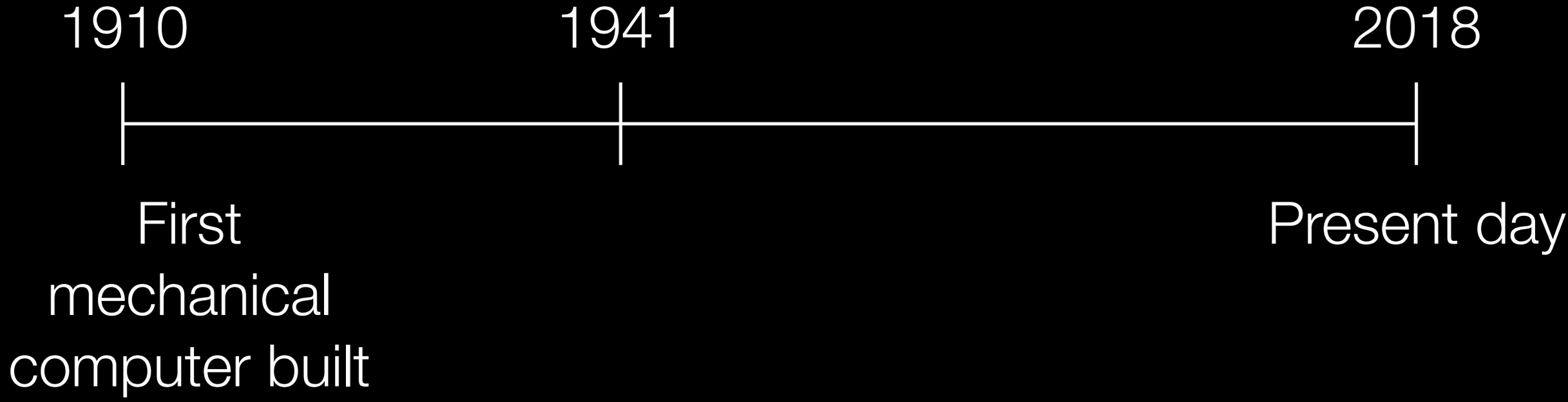
A brief history of human computer interfaces



Programming was done with **punch cards**!

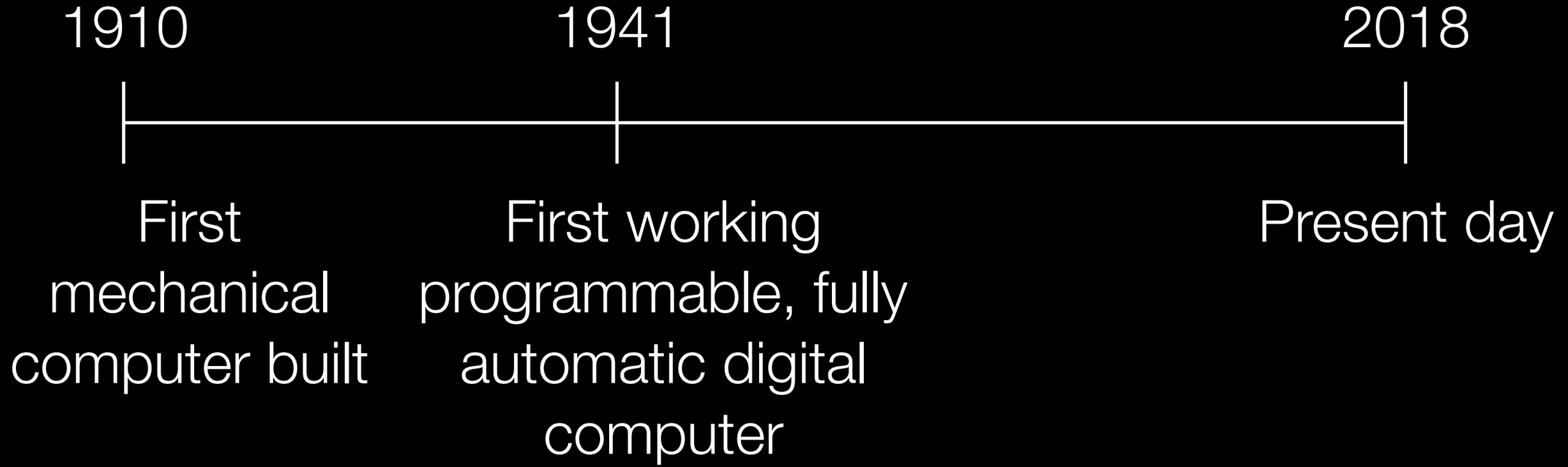
Terminal

A brief history of human computer interfaces



Terminal

A brief history of human computer interfaces

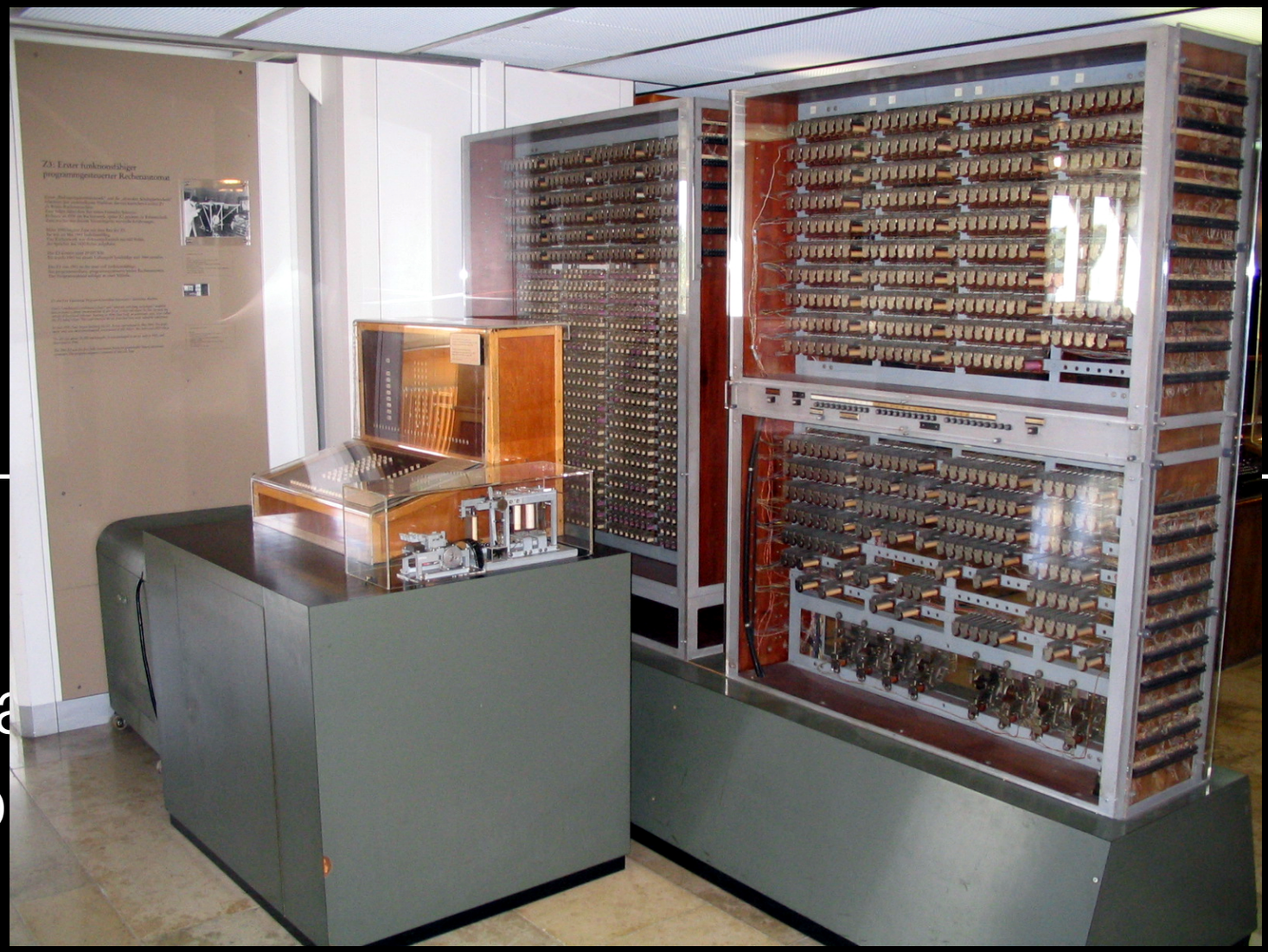


Terminal

A brief history of human computer interfaces

1910

First mechanica
computer b



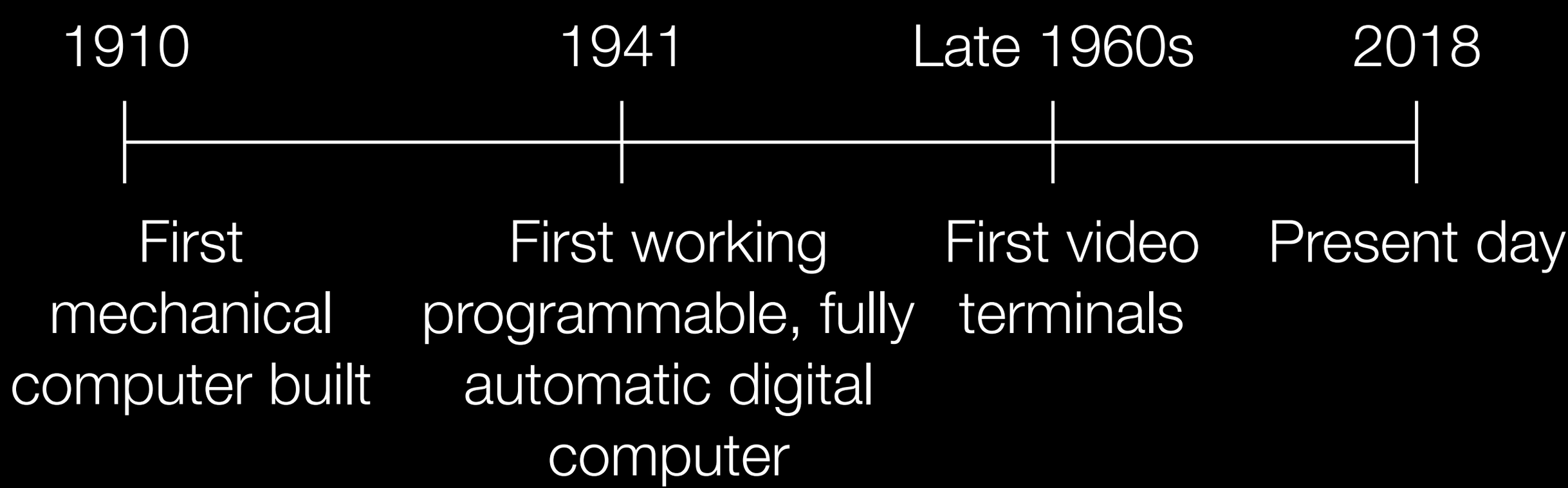
2018

Present day

The Z3 Computer

Terminal

A brief history of human computer interfaces



Terminal

A brief history of human computer interfaces

1910

First mechanical computer bu

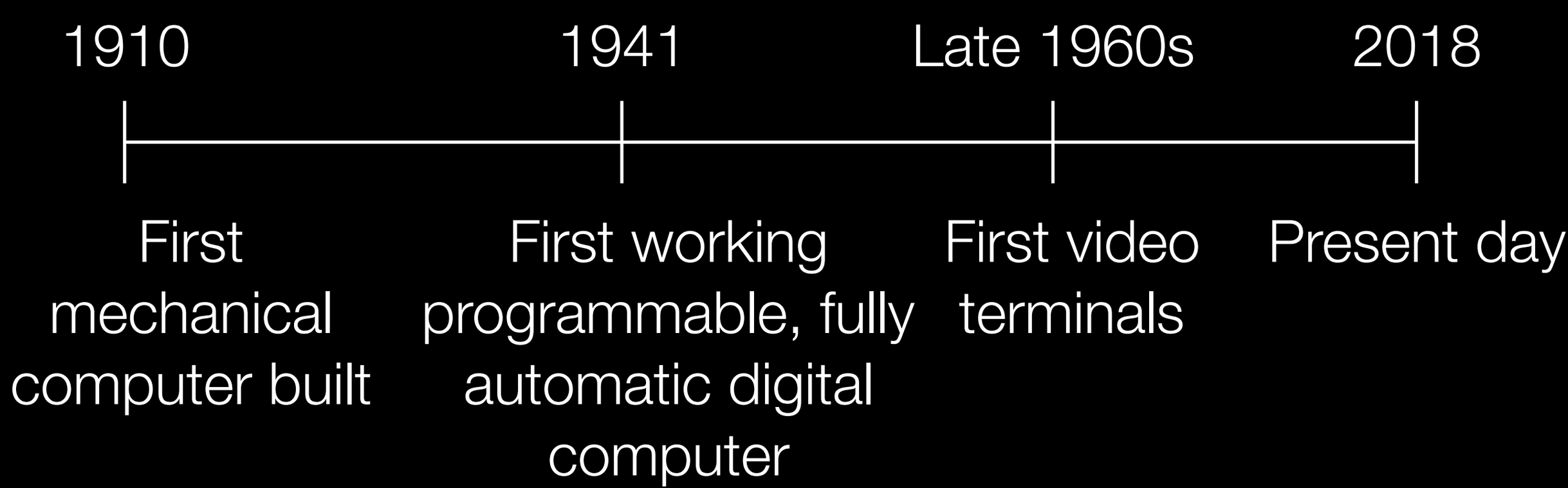
Datapoint 3300

2018

Present day

Terminal

A brief history of human computer interfaces



Terminal

macOS

- Built in "Terminal" program

Terminal

Windows

A couple of options

- GitBash
- Babun/Cygwin

Python

https://www.python.org/downloads/

- A popular, free, and easy to learn programming language

Text Editor

Atom

- Download from atom.io (both macOS and Windows)

Getting Started

Writing programs

- Every program is comprised of **expressions** and **statements**

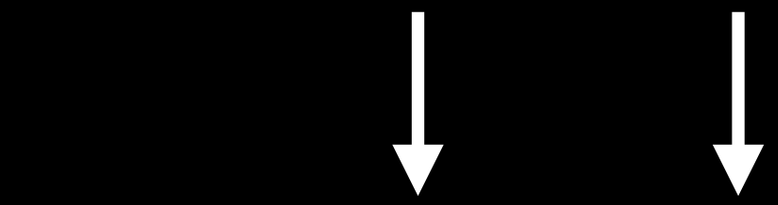
Expressions

- An expression describes a computation and evaluates it to a value

Demo

```
mul(2, 3)
```

Operands



```
mul(2, 3)
```

Operands

```
mul(2, 3)
```

Operator

```
mul(2, 3)
```

```
mul(2, 3)
   ⋮
mul
```

```
mul(2, 3)
  ⋮  ⋮
mul 2
```

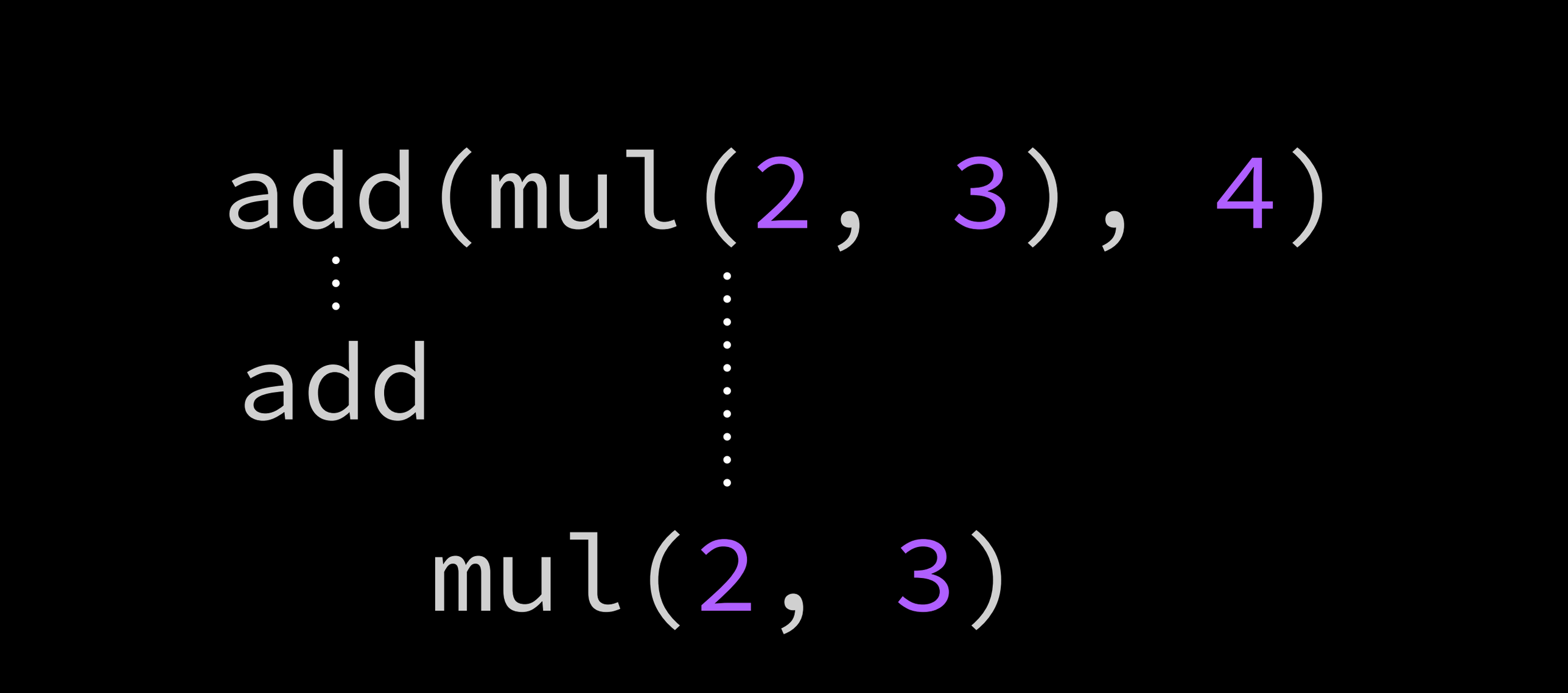
```
mul(2, 3)
 ⋮  ⋮  ⋮
mul 2  3
```

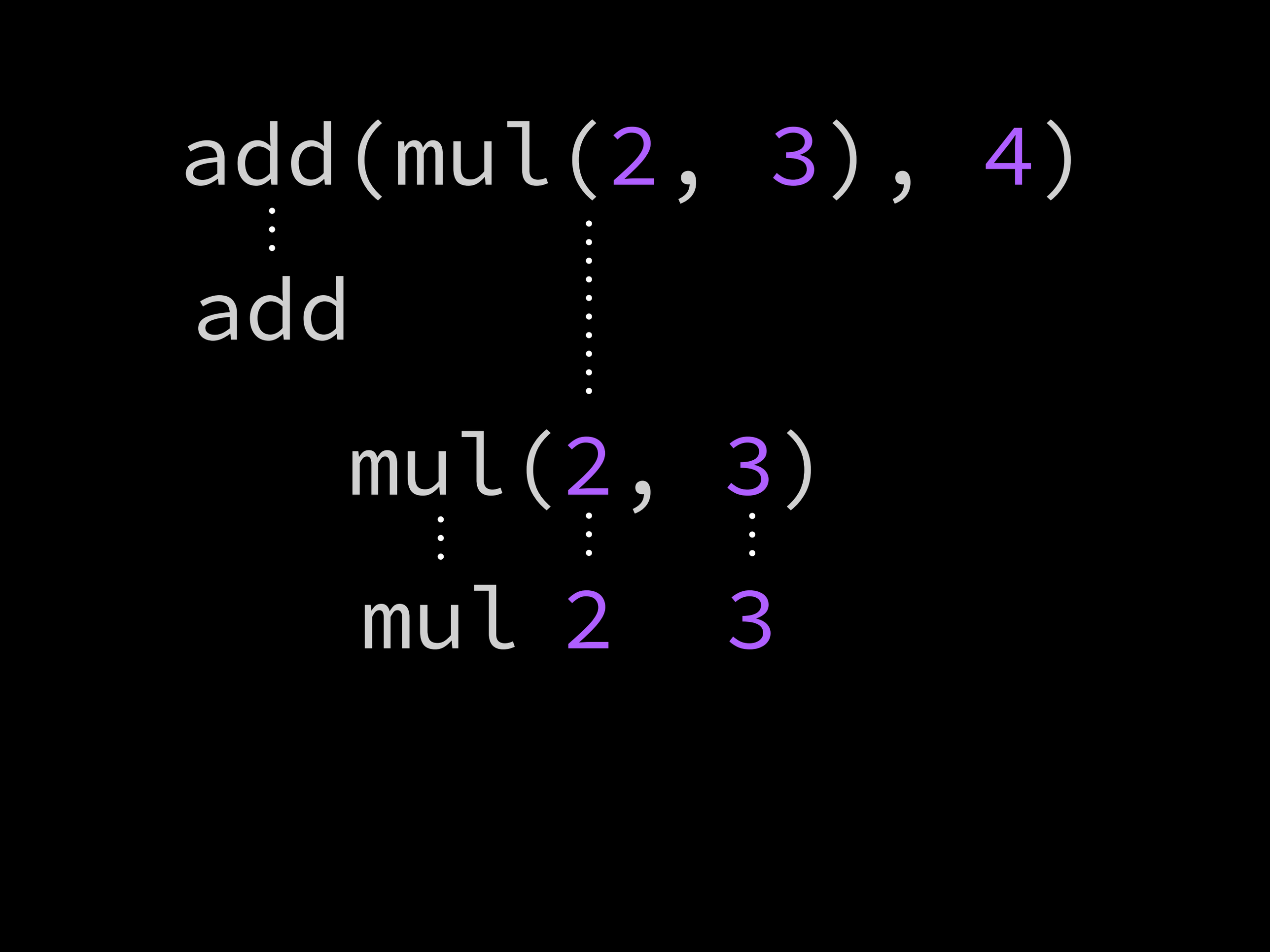
Now for something more challenging

```
add(mul(2, 3), 4)
```

```
add(mul(2, 3), 4)
```

```
add(mul(2, 3), 4)
    ⋮
 add
```


add(mul(2, 3), 4)
add
mul(2, 3)


add(mul(2, 3), 4)
add
mul(2, 3)
mul 2 3

```
add(mul(2, 3), 4)
 ⋮      ⋮
add     6
        ⋮
    mul(2, 3)
     ⋮  ⋮  ⋮
    mul 2  3
```

```
add(mul(2, 3), 4)
 ⋮      ⋮       ⋮
add     6       4
        ⋮
    mul(2, 3)
     ⋮  ⋮  ⋮
    mul 2  3
```

Statements

- Assignment to a name

Demo