640 KB ought to be enough for anybody.

– Bill Gates,
circa 1981

Any fool can write code that a computer can understand. Good programmers write code that humans can understand.

– Martin Fowler,
from Refactoring: Improving the Design of Existing Code

Computer science is no more about computers than astronomy is about telescopes.

– Edsger W. Dijkstra

Debugging is anticipated with distaste, performed with reluctance, and bragged about forever.

– Anonymous

Document my code? Why do you think they call it code?

Don't use the computer to do things that can be done efficiently by hand.

Everything that can be invented has been invented.

– Charles H. Duell,
Commissioner, U.S. Office of Patents, 1899

Get your data structures correct first and the rest of the program will write itself.

GOOD JUDGMENT COMES FROM EXPERIENCE, AND EXPERIENCE COMES FROM BAD JUDGMENT.

The best tasks are those that students find a little too difficult to complete comfortably.

– Unknown

Good programmers know what to write. Great ones know what to rewrite (and reuse).

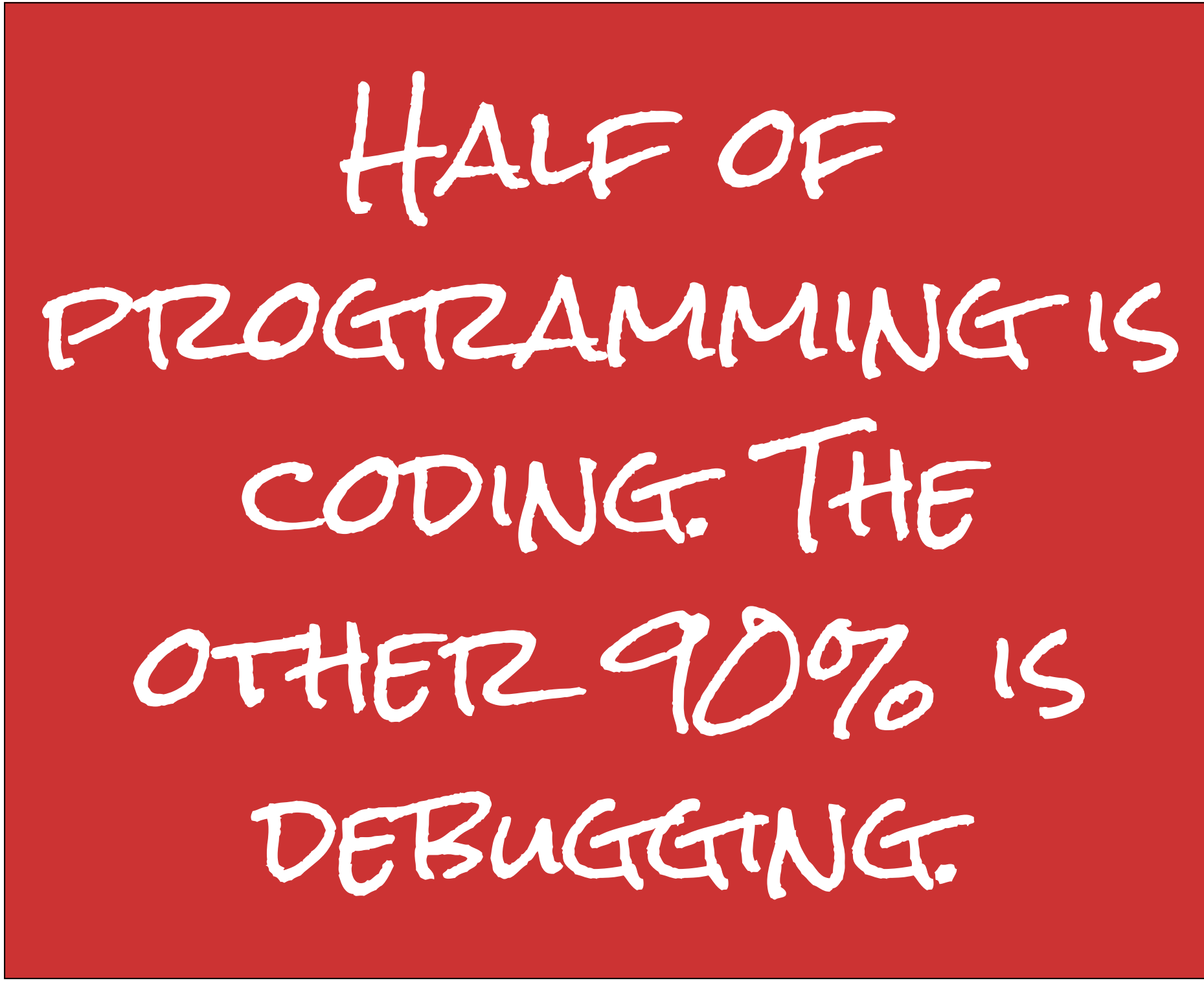
– Eric S. Raymond,
unofficial spokesperson for
the Open Source Movement

The ability to code is the closest thing we have to a superpower.

– Drew Houston, Founder of Dropbox

You don't have to be a genius to code. Do you have to be a genius to read?

– Bronwen Grimes


HALF OF
PROGRAMMING IS
CODING. THE
OTHER 90% IS
DEBUGGING.

Hardware is the part of a computer system that can be kicked and software is the part that can only be screamed at.

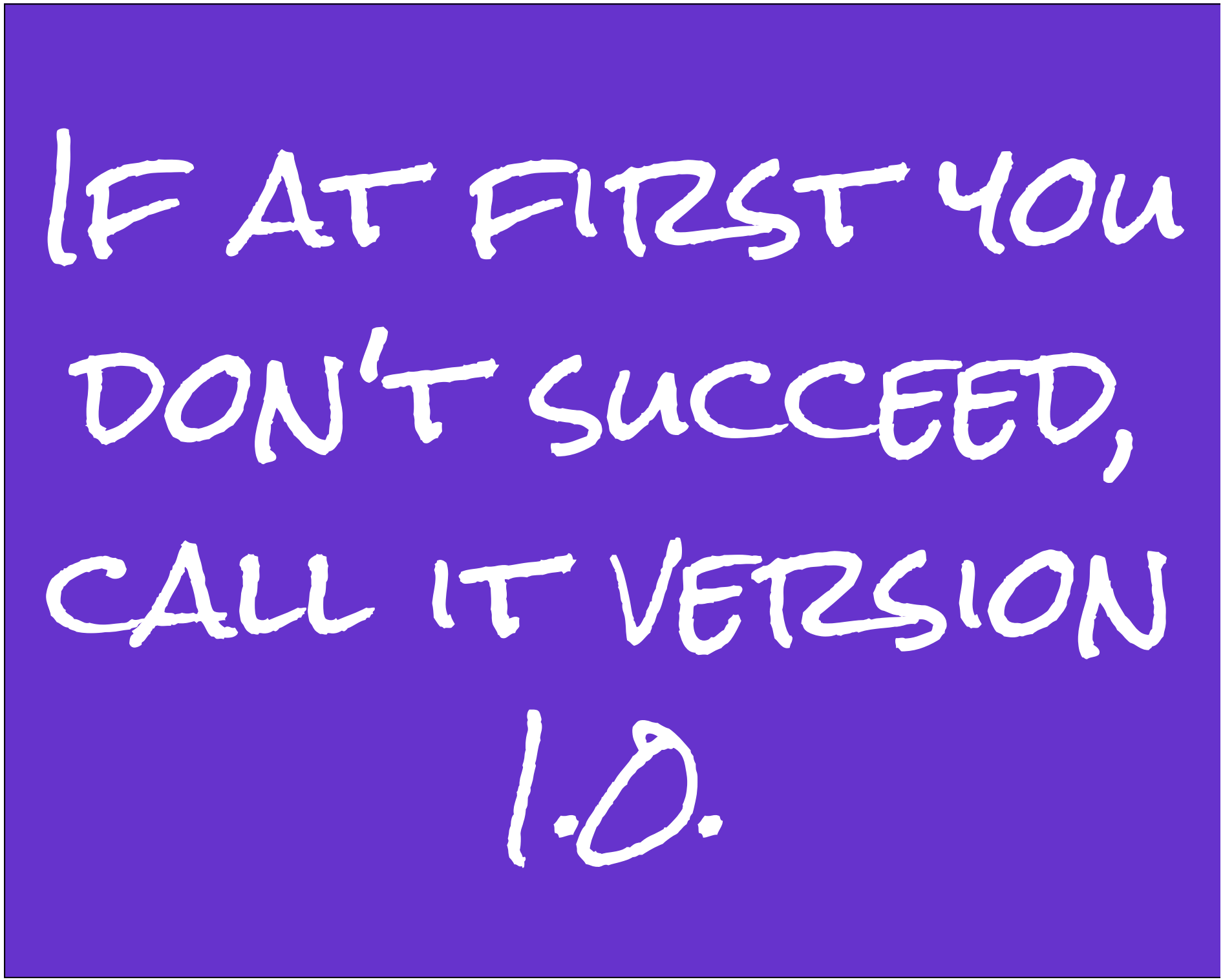
– Unknown

He who laughs last probably made a back-up.

– Unknown

I FIND THAT THE HARDER I WORK, THE MORE LUCK I SEEM TO HAVE.

– THOMAS JEFFERSON


IF AT FIRST YOU
DON'T SUCCEED,
CALL IT VERSION
1.0.

IF GM HAD KEPT UP WITH TECHNOLOGY LIKE THE COMPUTER INDUSTRY HAS, WE WOULD ALL BE DRIVING $25 CARS THAT GOT 1000 MPG.

- BILL GATES

If you give someone a program, you will frustrate them for a day; if you teach them how to program, you will frustrate them for a lifetime.

– Unknown

If you have too many special cases, you are doing it wrong.

Inside every large program is a small program struggling to get out.

It is a mistake to let any electro-mechanical device realize that you are in a hurry.

It's hard enough to find an error in your code when you're looking for it; it's even harder when you've assumed your code is error-free.

– Steve McConnell

It's okay to give advice to a fellow student in English, but not in Python or Java.

KEYBOARD (N):
INSTRUMENT USED
TO ENTER ERRORS
INTO A COMPUTER.

Laziness is an essential quality in a computer scientist. Why else would we work SO hard to find an easy way to do things?

- Kattrin Becker, The Becker Blog

Anyone who has never made a mistake has never tried anything new.

- Albert Einstein

Multiplying by 0.1 is NOT the same as dividing by 10.

Failure is an option here. If things are not failing, you are not innovating enough.

– Elon Musk

Software isn't released, it's allowed to escape.

– Unknown

Testing can show the presence of bugs, but not their absence.

To understand recursion, you must first understand recursion.

THE BEST WAY TO PREDICT THE FUTURE IS TO INVENT IT.

– ALAN KAY

The cheapest, fastest, and most reliable components of a computer system are those that aren't there.

The fastest algorithm can frequently be replaced by one that is almost as fast and much easier to understand.

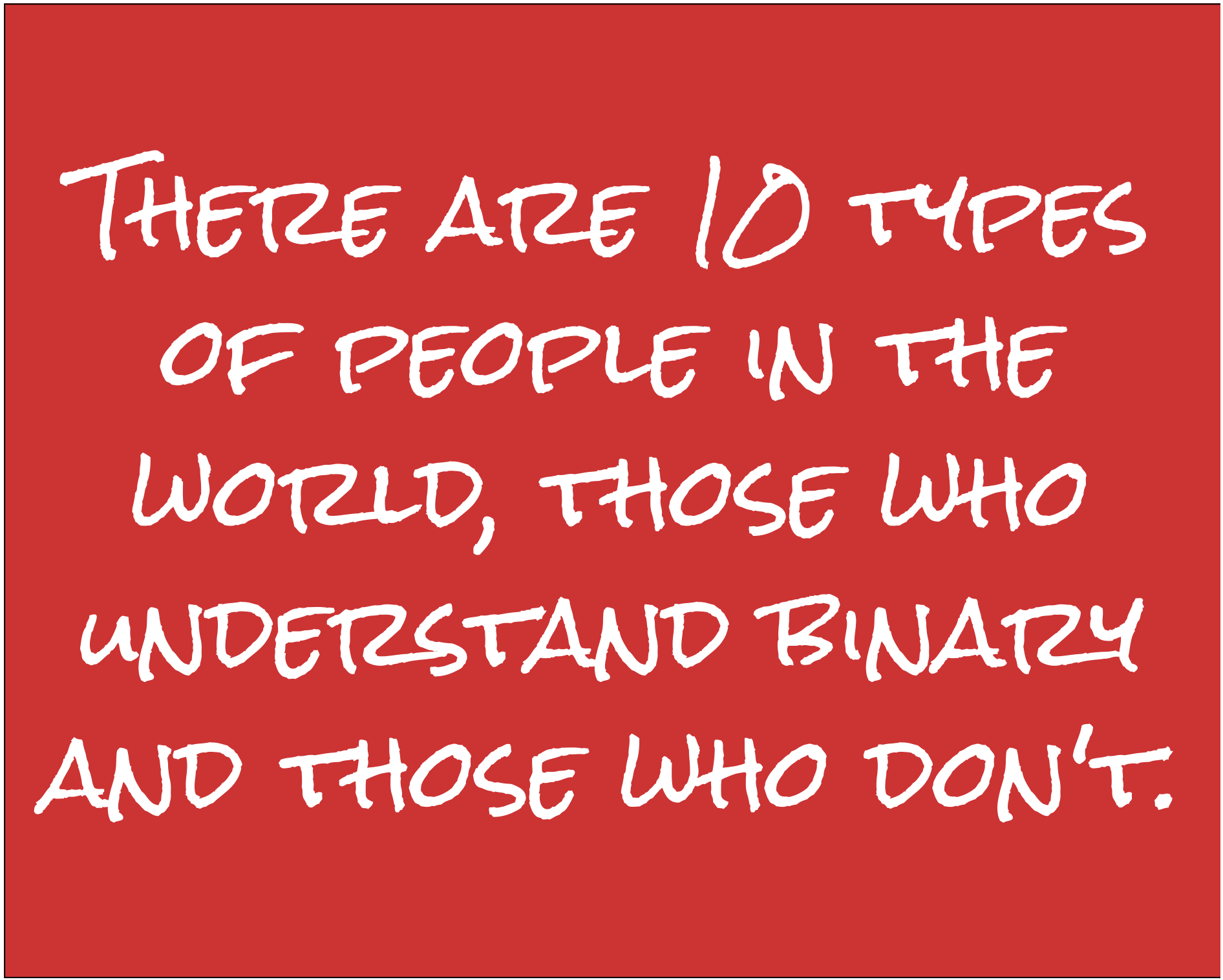
The first step in fixing a broken program is getting it to fail repeatedly.

The only way to learn a new programming language is by writing programs in it.

– Brian Kernighan & Dennis Ritchie

The sooner you start to code, the longer the program will take.

– Roy Carlson


There are 10 types of people in the world, those who understand binary and those who don't.

If all our technology is created by the same people, then our solutions will be limited and they will serve only those people. Diverse backgrounds yield diverse minds which yield diverse solutions.

– Juan Gilbert

There are two ways to write error-free programs, but only the third one works.

– Alan J. Perlis

There is no reason anyone would want a computer in their home.

– Ken Olsen,
Founder and President,
Digital Equipment
Corporation, 1977

There's always one more bug.

– Lubarshky's Law of Cybernetic Entomology

To err is human,
But to really
foul things up you
need a computer.

– Paul Ehrlich

You can help your partner with your mouth, but hands off their mouse!

Weeks of programming can save you hours of planning.
– Anonymous

When someone throws a $100 bill at you, don't duck

– Marie Robinson

Computers are like Old Testament gods; lots of rules and no mercy.

– Joseph Campbell

Why do
programmers
confuse Halloween
and Christmas?
31 OCT = 25 DEC

User, n. The word computer professionals use when they mean "idiot."

– Dave Barry

Programs must be written for people to read, and only incidentally for machines to execute.

– Hal Abelson & Gerald Jay Sussman

Take all the courses in your curriculum. Do the research. Ask questions. Find someone doing what you are interested in! Be curious!

– Katherine Johnson

Art is never finished, only abandoned.

– Leonardo da Vinci,
anticipating software
by four centuries (?)

Rules for optimization:

1. Don't do it.

2. (for experts only) Don't do it yet.

– Michael A. Jackson

Binary is Hex!

The difference between theory and practice is smaller in theory than in practice.

– Anonymous

THE GOOD NEWS ABOUT COMPUTERS IS THAT THEY DO WHAT YOU TELL THEM TO DO. THE BAD NEWS IS THAT THEY DO WHAT YOU TELL THEM TO DO.

– TED NELSON

As soon as you agree on the number of spaces for indentation, no-one argues for tabs.

- Alvar Lumberg

...THE GREAT DOESN'T HAPPEN THROUGH IMPULSE ALONE, AND IS A SUCCESSION OF LITTLE THINGS THAT ARE BROUGHT TOGETHER.

– VINCENT VAN GOGH

When debugging, novices insert corrective code; experts remove defective code.

– Richard Pattis

Do NOT use the idiom:

```
if (something) {
    return true;
} else {
    return false;
}
```

(It is the same as

```
return something;
```

)

Multi-threading is the art of screwing things up before, during, or after something else.

– Anonymous

To iterate is human, to recurse divine.

– L Peter Deutsch

It is easier to optimize correct code than to correct optimized code.

– Anonymous

Coding is today's language of creativity. All our children deserve a chance to become creators instead of consumers of computer science.

– Maria Klawe

You don't choose the times you live in, but you do choose who you want to be. And you do choose how you think.

– Grace Lee Boggs

The purpose of computing is insight, not numbers.

– Richard Hamming

Sometimes it is the people no one imagines anything of who do the things that no one can imagine.

– Alan Turing

Computers are good at following instructions, but not at reading your mind.

– Donald Knuth

THE MOST EXCITING PHRASE TO HEAR IN SCIENCE, THE ONE THAT HERALDS NEW DISCOVERIES, IS NOT 'EUREKA!' (I FOUND IT!) BUT 'THAT'S FUNNY...'

– ISAAC ASIMOV

Starting early and getting girls on computers, tinkering and playing with technology, games, and new tools, is extremely important for bridging the gender divide that exists now in computer science and in technology.

– Beth Simone Noveck

A COMPUTER WILL DO WHAT YOU TELL IT TO DO, BUT THAT MAY BE MUCH DIFFERENT FROM WHAT YOU HAD IN MIND.

– JOSEPH WEIZENBAUM

Anyone who has lost track of time when using a computer knows the propensity to dream, the urge to make dreams come true, and the tendency to miss lunch.

– Tim Berners-Lee

The inside of a computer is as dumb as hell but it goes like mad!

– Richard Feynman

You can do it. Only you can do it. You can't do it alone. You won't be alone if you take care of your people.

– Patrick Henry Winston

Small things make perfection, but perfection is no small thing...Whatever is rightly done, however humble, is noble.

– Henry Royce

Not everything that is faced can be changed, but nothing can be changed until it is faced.

– James Baldwin

There is nothing that makes the mind more elastic and expandable than discovering how the world works. Developing and rewarding curiosity will be where innovation finds its future.

– Edgar Bronfman, Sr.

Do not train a child to learn by force or harshness; but direct them to it by what amuses their minds, so that you may be better able to discover with accuracy the peculiar bent of the genius of each.

– Plato

from Adafruit Quotes

...PROGRAMMING IS MORE THAN AN IMPORTANT PRACTICAL ART. IT IS ALSO A GIGANTIC UNDERTAKING IN THE FOUNDATIONS OF KNOWLEDGE.

– GRACE HOPPER
FROM ADAFRUIT QUOTES

You're never too old and, if you want to (as my mother said), you can do anything you want to, but you have to work at it.

– Annie Easley
from adafruit quotes

Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.

– Marie Curie
from adafruit quotes

I DO NOT THINK THERE IS ANY THRILL THAT CAN GO THROUGH THE HUMAN HEART LIKE THAT FELT BY THE INVENTOR [SEEING] SOME CREATION OF THE BRAIN UNFOLDING TO SUCCESS.

– NIKOLA TESLA
FROM ADAFRUIT QUOTES

Rather than being suffocated by the terrible things that are happening... wonder might stimulate the curiosity we need to work through those problems.

– Anna L. Tsing
from Adafruit Quotes

Anything not saved will be lost.

– Nintendo Wii 'Quit Screen'
from adafruit quotes

If I want to live in a world I like, I have to help create it.

– Caroline Caldwell
from Adafruit Quotes

The most valuable thing you can make is a mistake – you can't learn anything from being perfect.

– Adam Osborne
from adafruit quotes

Some people, when confronted with a problem, think "I know, I'll use regular expressions." Now they have two problems.

– Jamie Zawinski

In case of fire:

```
$ git commit -a
$ git push
```

Exit the Building.

– Thanks to Ria Galanos