

**7 TIPS ON HOW TO
THINK
LIKE A
PROGRAMMER**

ALEX LEE

I was a *horrible* programmer.

In fact, I felt like I was never going to be good enough to be a developer. I never understood terms programmers were supposed to know and I always felt confused.

It was awful.

I wasted so much of my time stuck, confused and frustrated.

But, nine years later...

I realized that to be a programmer, **you have to think like a programmer**. If I had the mindset I have today, I would've had a much easier time and wouldn't have been so *stuck* all the time. I would've gotten a job easier, learned programming faster and raised my salary quicker.

These tips WILL help you learn coding and get a job. So, keep these in the back of your head.

I use these exact tips every time I program. I have helped thousands of people learn programming because of it. If you want to see my coding YouTube channel, you can [here](#).

These seven tips are in the following pages.

1. Coding IS For You

You're sitting at your desk during the first week of your Computer Science class. And the teacher says to set up your working directory.

You ask yourself, "What is a *working directory*?"

The room is silent except for the clicks and clacks of mouse buttons and keystrokes. You look around. People's eyes, glued to their screens as if they know exactly how to set up a working directory.

But you are clueless...

You need help. But you're afraid that if you raise your hand you'll forever be known as the dumb kid who never knows what they're doing.

Minutes pass, your blood pressure rises. You feel restless because you don't want to be behind in the first week. But everyone seems to be ahead... And you *really* want to learn to program... So you raise your hand. And get the answer. But you're still left wondering...

"Is coding for me?"

Well, the truth is 75% of the people in that room didn't know what they were doing either. Somehow they scrambled to ask a friend, google it or dig through slides. And if they were lucky, they did half of it correctly.

The truth is since the professor didn't teach it clearly, the class had a horrible experience.

I've had this exact experience countless times at NC State and in APCS.

Programming looks and feels confusing **ONLY** because it isn't taught simply.

Coding is for you. Don't let ANYONE tell you otherwise :)

2. See what works. See what doesn't work.

A big misconception is that you have to “*think*” really hard to be a good programmer.

But you don't have to think hard.

In fact, the best programmers don't have to think hard at all! **They've seen what works and what doesn't work, so often, that it becomes easy.** It will be much easier if you *listen* to the computer, rather than trying to *overthink and force code to work*. So I'm going to show you a method you can use to discover and learn about new code.

The method is simple.

1. Find a working example.
2. Run.
3. Change it a little.
4. Run.
5. Change it back, and change something else this time.
6. Run.
7. Repeat steps 5-6. A lot.

This reinforces working code and non-working code in your brain. Here's an example:

1. `System.out.println("Hello, World!");`
2. Output: Hello, World!
3. `System.out.println("My first program!");`
4. Output: My first program!
5. `System.out.println(Hello, World!);`
6. Exception in thread "main"...
7. `system.out.println("Hello, World!");`
8. Exception in thread "main"...

You'll naturally become curious and learn, by simply messing around.

3. Learning From People is More Efficient Than Websites

A lot of the time, you'll want to Google "*how to use for loop*" or "*how to get element from array in java*" to help you code. This is one way to find great information and even example code!

I still do this every single time I code and Google is great :)

But, a lot of the time, the audience for these websites is not beginners. So there may be lots of technical terms, code you haven't learned yet and intimidating answers.

I learned this the hard way.

One day, I was struggling with an assignment I had to submit by the end of class. I struggled for half the class period until I finally raised my hand and asked the TA for help.

He used simple terms and taught me how to fix my problem in *seconds*.

That's when I realized it's far more efficient to learn code from a person than a text website.

Your friends, peers and TA's understand your needs better than websites. If you are stuck, do not be afraid to reach out to them.

You both will grow in the process. *You* will quickly gain understanding and *they* will learn by helping you. You'll soon be saying "OOOOOOOH MY GOD, I can't believe I missed that!!!! That's such a small thing, wow thank you so much!!!!!" And "You can do that!?!?" And "Woah, that means I could do this, this and this..."

Programming can be a very individual activity. But the moments you share with others are the ones you'll remember and enjoy the most. Not to mention the fastest way to grow as a programmer.

4. Your Super Power

Coding is a superpower. It really is.

Without computer programmers, the following would not have been possible:

- Landing a robot on mars.
- Taking a photo of a black hole
- Perform quantum calculations
- Create virtual realities
- Outperform humans in Go
- You reading this document
- Anything on the internet

You can do anything if you know how to program. **The only limit is your own imagination.**

Never forget that.

5. The BEST Programmers Embrace This...

The best programmers in the world embrace this one fact...

A computer is a tool.

That's it.

There's nothing really special about a computer. All a computer can do is tell if an electronic signal is off or on.

But, we made programming languages that let us do things with those signals. We started small, by doing logic with those signals. Then we learned how to store data, write text, display colors, make apps and make intelligence. All with electronic off/on signals AKA binary.

Programming is the human's creativity, heart, and soul translated into electronic off and on signals.

We love our computers. But embrace that you have to put into it, what you want to get out of it. Luckily, other people have put together lots of code and programs to help you on your journey.

It's your job to put it together and make it your own. The computer is just what you use.

6. It's Just a List of Steps

Me: How do you make a peanut butter and jelly sandwich?

You: “Well, just put peanut butter and jelly on bread, right?”

Me: Exactly! Now how would you tell a computer to make a pb&j?

You: “I mean... I don't know, it's a computer. I can't just program it”

Me: To program a computer to make a pb&j, you'd say what you said to me, but *as specific as possible*.

1. Get peanut butter
2. Get jelly
3. Get knife
4. Get plate
5. Get paper towel
6. Get 2 slices of white bread
7. Put 1 slice on plate
8. Put peanut butter on knife
9. Spread peanut butter on plate slice
10. Clear excess peanut butter on knife with paper towel
11. Put slice 2 on plate
12. Put jelly on knife
13. Spread jelly on slice 2
14. Place 2 slices of bread together carefully, with pb and j facing inwards
15. Cleanup knife and paper towel

You'll quickly realize that you have to tell a computer LITERALLY EVERYTHING to do.

It's dumb. It's not just gonna guess what to do, you have to be explicit or else it won't work.

That's the trickiest part, but as you practice you'll realize that it's all just little tiny steps put together.

And those tiny steps become super easy over time.

7. Express Yourself

You've saved files, ran projects and installed libraries.

But...

At the end of the day...

By programming, you are expressing yourself.

You are the only one in front of that screen. Everything you try is 100% you. You are making programs. And you are breaking them. **Every mistake, error, and run makes you better.**

Because one day, when you sit down in front of a computer. And you want to make something to share with people. **You can.** So go out there and make your mark on this world.

BONUS TIP

I tell this tip to everyone I know looking for a job:

THE EASIEST WAY TO GET A JOB IS THROUGH CONNECTIONS

In fact, I landed 2 internships and my current full-time job through referrals.

“In the United States, referrals account for **30 to 50 percent** of all new employees. In fact, a candidate who is invited for an interview has a **40% higher probability** of being recruited than other prospective employees.”

-Apollo Technical

Because of this, I've partnered with Springboard to help you make connections and get a job!

If you want to be a Software Engineer, I HIGHLY RECOMMEND applying for the Springboard Software Engineering BootCamp (Use my code AlexLee for \$1000 USD off):

[Apply now](#)

Connections will get you very far, not only in programming, but also in life :)



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Apply now

I hope these tips help!!

**Please feel free to share this
PDF with others you think it may
help :)**