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PDSA Special Report

Good Developers Versus
Exceptional

Stand Out From the Crowd

What makes some programmers stand above the rest? How can some programmers create wildly new and useful algorithms while others struggle? What are the important traits that make an exceptional programmer? Your answers will be different depending on whether you are a programmer--OR someone who hires and manages them. In this article, I'll explore some of these questions and pose answers that will help make you a better – and more valuable—programmer. If you hire programmers, you'll know a good one when you see them.

Different Kinds of Programmers

Programmers come in all shapes and sizes, and different skill sets. Some skills are unique to a particular industry; some skills can be for a specific type of machine. There are programmers that work at the machine level, some work on operating systems, some work on building compilers that other programmers use, some build business applications, some build web sites. What the different qualifications are for each of these different types of programming jobs varies widely. However, you will most likely find there are basic traits all of these programmers have in common.

Common Programmer Traits

There are some traits inherent to most programmers, things like the ability to concentrate for long periods of time, high intelligence, and an unwavering tenacity. Of course these traits can also apply to many other individuals that are not programmers. So what are some of the traits unique to the best programmers? Over almost a decade and a half of working on hundreds of projects and companies, and with countless staff, I have seen, time and time again, the following qualities show up in all good programmers. These people are:

- Adaptive
- Logical
- Creative
- Analytical

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Let's look at each of these and think about why these traits are necessary for a top notch programmer.

Adaptive

If a person is adaptive, then that person has the capability to adjust to new situations quickly and easily. In the world of computers, if there is one constant, it is change. A programmer who works in one language or one a specific kind of machine today, is almost guaranteed that soon they will be working in another language or on another kind of machine. If a person cannot adapt to this ever-changing world, then they most likely will not make a good programmer. To put it another way, if you are unable to learn new tricks, you are of limited value after your project completes.

Logical

Machines are logical, so it therefore follows that one who programs a machine must also be logical. To understand how to program, a person must have the ability to reason how certain inputs must produce certain outputs when dealing with a machine. Without this ability a person would never be able to get a machine to do what that person wants to have done.

Analytical

The ability to be analytical is a very similar trait to that of logical. However, being analytical refers to the ability to take a given problem and break it down into a series of small tasks. A computer program is generally made up of many different parts put together in a logical way. Each of the parts must be created by a programmer. The programmer must be able to create the parts and put them together in such a way as to create a program that solves the problem. If a person can do this given any type of problem, then that person is typically a good programmer.

Creative

The first three traits are very "scientific" in some ways. This trait (creativity) is not. Here's why the art of creativity is priceless in a programmer. It turns out there are typically

many ways to solve the same problem. Some methods of solving problems can be better than others. If a person is creative, along with the other traits, they can quickly think of various solutions and rule out those that may not be "the best."

Exceptional Programmers

Now that we have identified those traits that all programmers typically have in common, what makes some programmers stand out in the world? I won't name any names, you know which programmers stand out in your programming circle. But I will bet these exceptional programmers have many of the same traits in common.

- They "really" enjoy what they do
- They love good tools, and will generally create them
- They have high standards for themselves and those around them
- They are curious

Of all of the above, I think the first trait is the most important. Those people that truly enjoy what they do are the ones that will also have the rest of the traits listed. In my 28+ years of programming and architecting I have met many exceptional programmers. They love to talk about how they solve problems, how they approach different programming situations, and what they think is the best way to program. They get excited about programming and are very passionate when discussing programming topics.

Most exceptional programmers are ones that create tools. They create tools to help them get their job done quicker and more efficiently. Exceptional programmers get bored easily, so if a task is repetitive, then they will invent a tool to get that task done.

The most successful people are those that hold themselves up to very high standards. Exceptional programmers are the same. Their code and how they solve problems must be top-notch. They also expect others that they work with to adhere to the same high standards. Most exceptional programmers will tend to work with exceptional programmers. Sometimes too high of standards can be a bad thing. It is important to make sure that the exceptional programmer also has a realistic view of getting a job done. If there standards are forcing them to miss deadlines and run over-budget then this can take away from them being an exceptional programmer.

Many exceptional people are curious, and exceptional programmers are no different. Those people that really wish to understand how a program, process, or machine works will be the ones who will dig in and try to figure it out. By figuring it out, they learn, by learning they become more knowledgeable, and by becoming more knowledgeable, they become more exceptional. This is a great circle to get caught up in!

And a bonus trait...

Besides the above traits, there's one more that shows up in a truly exceptional developer: they are quick to share their expertise and knowledge with others. This can come in the form of mentoring co-workers, giving a lunch-time presentation to colleagues, writing articles or public speaking. This is what can truly set a programmer apart from others. In addition, this trait is also what makes a great employee!

Managing the Exceptional Programmer

When someone is an exceptional programmer, you might think you do not need to manage them. Well, this is not always the case. While they may be excellent at programming, it does not necessarily mean they have interpersonal skills or project management skills needed in your environment. I remember that we hired an exceptional programmer one time. While they created some outstanding code, it was difficult to keep them focused on the project at hand. We also wanted them to share more with the rest of the team, but it was difficult for them to do this.

Just because someone is great at writing code, does not make them an exceptional employee. There is a lot more than just programming when it comes to a project. There are schedules and deadlines to meet, requirements to extract from users, and specifications to write. If you are a large enough organization you can have different people perform these different tasks. However, a truly exceptional developer is one that can also understand the business problem they are trying to solve, as well as deliver their portion of the project on-time and on-budget. Here at PDSA we try to foster people to become exceptional programmers, but we also want them to be exceptional technologists as well. An exceptional technologist is someone who understands business and technology and is able to translate a business problem into a technical solution quickly and efficiently.

A Personal Note…

I'm pleased to say every one of my staff fits has these qualities in abundance. In the development world today, with highly trained developers coming from all corners of the globe, we couldn't continue to grow our long list of successful projects and deeply satisfied clients without the very best talent the world offers us. Over the last 25 years in business I've watched many competing development shops go out of business, even while our shop grows. That is a tribute to the processes we've created at PDSA, but it's a testament to the people we've had to implement them.

Summary

Identifying specific traits for a particular job can help you decide if you should be programmer. If you are a manager responsible for hiring programmers, these traits can help you identify the type of person you would like to hire. To be truly exceptional, never rest on your laurels. Always push to understand more, do more, and create more.

If you are looking to hire exceptional programmers, you will have to go beyond the standard test that your human resource department does and ask some very different questions. PDSA, Inc. has performed this service for many of our clients. Call us if you wish to have us help you grow your staff into exceptional programmers, or help you hire exceptional programmers.

Contact Information

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