Jumpstart Developer: How to Begin Your Software Engineering Journey at JPMC

# Introduction

Congratulations! You just started your journey to becoming a Software Engineer at JPMC. This is an exciting time where you will find yourself alternating between a state jumping for joy and wanting to pull your hair out (hopefully more of the former). However, no matter how frustrating it can be at times, the juice is always worth the squeeze; **if you have a passion for learning and problem solving this is the perfect career for you.**

As much as we would all love to be a coding guru like Richard Hendricks (for those who watch “Silicon Valley”) and “just know” how to code, it unfortunately does not work that way in the real world. So, to help you guys out, I’m going to tell you a secret…

**“You do not learn how to code overnight. It takes hard work, dedication and persistence.”**

No way!?!?! I know, this is a groundbreaking revelation, however I think it is important for noobies (which I still consider myself) to understand this from the start. In media there is this idea, which gets sold to everyone, of the “genius coder” who seemingly knew how to code from birth. But the truth is these people put in thousands of hours in order to get to the level that they are at. For example, Bill Gates used to sneak out of his house at night when he was a teenager and go to a local university which had a computer lab open 24/7. He would code there all night, every night. By the time he started to create Microsoft he had more than 10,000 hours of practice, even at the age of 20! (To learn more I recommend reading the book “Outliers” by Malcolm Gladwell…or you could just google “10,000 hour rule”)



Who’s better at programming?

However if you have never coded before, all hope is not lost, whether you are 22 or 62 **anyone can learn how to program; it’s just a matter of effort**.

Keeping that in mind, the wide world of software development has an endless supply of resources for learning. Books, videos, articles, blogs, coding bootcamps…**it can be hard to know where to start and that’s what I’m hoping this guide can help with**. Overwhelming is an understatement for beginners trying to learn the ropes. At times it can take all of our willpower just to stay afloat and avoid drowning in the sea of information.

Stay positive though, your skills and knowledge will increase over time and before you know it you will be the “coding guru” that everyone will come to for advice!

# How to Use This Guide

This guide can be used in any way you see fit. Everyone learns differently and no one way is right. That being said the following is how I would use this guide. Remember, this is just a recommendation

1. Complete all of the Java Courses, in order, listed in the Pluralsight Java Path (See [Getting Started Cheat Sheet](#_Getting_Started_Cheat))
2. Practice java coding problems on [HackerRank](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjTvZff_tbTAhXGSCYKHev1AwsQFggmMAA&url=https%3A%2F%2Fwww.hackerrank.com%2F&usg=AFQjCNHhkN7DT-dxIZt9u3GuR8CgXQx-oA)
3. Watch the first 7 episodes of Uncle Bob’s Clean Coder series
4. If using Spring…
   1. Watch all the videos listed in the Spring section of the Getting Started Cheat Sheet
   2. Complete the first 4 guides listed in the [Spring Guides](#_Spring_Guides) table
   3. Complete additional guides as relevant to your job
5. Print out all of the Printable Cheat Sheets listed below and have them at your desk for reference
6. Search Pluralsight for additional courses depending on what skills are needed for your job
7. Watch episodes 8-14 of Uncle Bob’s Clean Coder series about the SOLID principles
8. Exploratory. Do some reading and video watching about different technologies. Just because it isn’t used in your day-to-day role doesn’t mean it is a waste to learn about it. Some examples are listed below. Stay curious!
   1. Read [this](https://martinfowler.com/articles/microservices.html) article about microservices on Martin Fowler’s website
   2. Learn about the latest Spring tools and techniques by watching videos on the SpringDeveloper YouTube channel
   3. Take your learning further by signing up (or paying) for a course on [Udemy](https://www.udemy.com/) and following along with the coding demo so you can interactively learn

# Tips

Here are a couple of tips that I have found helpful throughout my journey:

1. **Make learning a priority**
   * If you do not place a sense of urgency or a high enough significance on improving then you will not do it
2. **Block out dedicated times for learning**
   * Both learning and coding require deep concentration, eliminate distractions by blocking out time in your schedule (as it permits) and dedicating it to learning
   * I prefer to do this at the very beginning or the very end of the day
   * If you take your lunch break at your desk, that’s the perfect time to watch some videos!
3. **Know the basics and keep it simple at first**
   * Before trying to learn about reactive programming and how to build a microservices architecture, it’s probably a good idea to know what Java Collections are and how they work (for Java developers)
4. **Avoid the rabbit hole!!!**
   * We’re all guilty of this, clicking on one link…then another, then another until finally what started as a search on how to write a while loop ends with you reading an article titled “How to Encrypt Data at Rest.” Do yourself a favor and don’t go on an endless clicking rampage leading you to explore topics that, although may be useful to know in the future, are not relevant to what you should be focusing on now. And with that in mind…
5. **Focus on one area at a time**
   * It is much easier to gain deep knowledge about one technology then to try and gain deep knowledge about five technologies. Staying concentrated at one thing at a time will help you master it faster.
   * Once you have mastered one technology, it will be much easier to master another

# Getting Started Cheat Sheet

The following are courses that I have found useful in learning to become a Java Developer.

All courses can be accessed through JPMC’s internal learning portal, [learning@jpmchase](https://learning.jpmchase.net/lms/).

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| Java |  |
| **Overview** | Java is a general-purpose computer programming language that is concurrent, class-based and object-oriented. It is widely used throughout the firm. |
| **Recommended Courses** | In Pluralsight there are “Paths” which are meant to take individuals from “Beginner” to “Expert” in a specific technology. They have courses that cater to both of these levels. Completing the entire Java Path will give you a solid foundation of the Java language. |
| **How to Access** | In Pluralsight click on the “Paths” icon in the left navigation bar. From there click on the “Java” path (see [Appendix 1.0](#_1.0_Pluralsight_Paths) for a screenshot) |

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| Spring |  |
| **Overview** | Spring is an application framework that allows developers to create apps quicker and more efficiently by abstracting out many low level details so developers can focus on business logic. |
| **Recommended Courses** | Pluralsight – Spring Fundamentals  Pluralsight – Introduction to Spring MVC  Pluralsight – Creating Your First Spring Boot Application  Pluralsight – Spring Boot: Efficient Development, Configuration and Deployment  Pluralsight – Architecting Web Applications with Spring |

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| Uncle Bob |  |
| **Overview** | Uncle Bob is a notable figure in the Java community. He is a co-author of the Agile Manifesto and has written books such as “Agile Programming.” In addition to this he makes quirky, educational videos regarding software development. All of his videos are awesome; clearly illustrating sound software engineering techniques while teaching what it means to write clean code. |
| **Recommended Courses** | Start at video 1 and progressively making your way through all of the videos at your own pace |
| **How to Access** | Learning@jpmc has the first 39 videos.  In the learning@jpmc portal search for “clean code” |

# Additional Resources

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| Internal Resources |  |
| [learning@jpmc](https://learning.jpmchase.net/lms) | Internal training portal |
| [Developer Overflow](https://do.jpmchase.net/) | Similar to Stack Overflow, but for internal to JPMC. Often helps with JPMC specific issues (i.e. getting software to work inside the firm) |
| [Firmwide Repository Service (FRS)](http://repo.jpmchase.net/) | Internal JPMC repo |

## Spring Guides

These are “Designed to be completed in 15-30 min, these guides provide quick, hands-on instructions for building the "Hello World" of any development task with Spring.”

The following are some guides I recommend completing to become more familiar with Spring

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| Spring Guides |  |
| [Homepage](https://spring.io/guides/gs/rest-service/) |  |
| [Building a RESTful Web Service](https://spring.io/guides/gs/rest-service/) | Learn how to create a RESTful web service with Spring |
| [Consuming a RESTful Web Service](https://spring.io/guides/gs/consuming-rest/) | Learn how to retrieve web page data with Spring's RestTemplate |
| [Accessing Data with JPA](https://spring.io/guides/gs/accessing-data-jpa/) | Learn how to work with JPA data persistence using Spring Data JPA |
| [Serving Web Content with Spring MVC](https://spring.io/guides/gs/serving-web-content/) | Learn how to create a web page with Spring MVC |
| [Building REST Services with Spring](https://spring.io/guides/tutorials/bookmarks/) | Learn how to easily build, test and secure RESTful services with Spring |
| [Consuming a RESTful Web Service with jQuery](https://spring.io/guides/gs/consuming-rest-jquery/) | Learn how to retrieve web page data with jQuery |

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| Interesting Reading | |
| [Martin Fowler Homepage](https://martinfowler.com/) | Site dedicated to improving the profession of software development, with a focus on skills and techniques that will last a developer for most of their career |
| [Netflix Tech Blog](https://medium.com/netflix-techblog) | Commentary on the technical choices made by the company |
| [Uber Engineering Blog](https://eng.uber.com/) | The work behind Uber Engineering |

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| Miscellaneous |  |
| Books | [Head First Java](https://www.amazon.com/Head-First-Java-Kathy-Sierra/dp/0596009208)  [Head First Design Patterns](https://www.amazon.com/Head-First-Design-Patterns-Brain-Friendly/dp/0596007124) |
| YouTube Channels | SpringDeveloper  GOTO Conferences |

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| Massive Open Online Course (MOOC) Providers |
| [Udemy](https://www.udemy.com/) |
| [Udacity](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwj9z-nA49bTAhWf0YMKHUPtBikQFggtMAA&url=https%3A%2F%2Fwww.udacity.com%2F&usg=AFQjCNGviRyScuupa6LiWzK6cSCGHwm6bA) |

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| Printable Cheat Sheets |
| [Java 8 Best Practices](https://zeroturnaround.com/rebellabs/java-8-best-practices-cheat-sheet/) |
| [Java 8 Streams](https://zeroturnaround.com/rebellabs/java-8-streams-cheat-sheet/) |
| [Java Collections](https://zeroturnaround.com/rebellabs/Java-Collections-cheat-sheet/) |
| [JUnit](https://zeroturnaround.com/rebellabs/junit-cheat-sheet/) |
| [Git](https://zeroturnaround.com/rebellabs/git-commands-and-best-practices-cheat-sheet/) |

# The most important investment you can make…

As Warren Buffet once said “The most important investment you can make is in yourself.” Technology changes so fast that it is imperative to continuously learn in order to survive and thrive in this industry. Taking the time to keep up with the latest technologies and techniques will make you a valuable asset not only to your team but to JPMC.

Continuous learning will help keep you ahead of the game and help you to remain effective as a developer. Although it may seem like training slows you down in the short run, in the long run the effort is well worth the time. Good luck on your journey to becoming a developer!

“Give me six hours to chop down a tree and I will spend the first four sharpening the axe.”

– Abraham Lincoln

# Appendix

## 1.0 Pluralsight Paths

