

# Java

TechGuide - Alura, FIAP e PM3

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## Java

### | Level 1

#### Java - Fundamentals:

Java is a widely-used programming language for coding web applications. Java is a multi-platform, object-oriented, and network-centric language that can be used as a platform in itself. It is a fast, secure, reliable programming language for coding everything from mobile apps and enterprise software to big data applications and server-side technologies.

Knowing the primitive types

Declaring variables, considering the different types

Using conditional structures ('if', 'else')

Knowing the assignment and comparison operators

Using repetition structures and loops ('while', 'for')

Using functions, passing parameters and arguments

Manipulating methods

Manipulating arrays and lists

Getting data from an API

Making asynchronous 'Future' calls, etc

Creating constructors

#### Contents

WebSiteJava - Documentation (<https://dev.java/learn/>)

WebSiteWhat Is Java? (<https://aws.amazon.com/what-is/java/>)

WebSiteJava - Documentation - Primitive types (<https://dev.java/learn/creating-primitive-type-variables-in-your-programs/>)

WebSiteJava - Documentation - Creating Arrays (<https://dev.java/learn/creating-arrays-in-your-programs/>)

WebSiteJava - Documentation - Creating Classes (<https://dev.java/learn/creating-classes/>)

WebSiteJava - Documentation - Defining Methods (<https://dev.java/learn/defining-methods/>)

WebSiteJava - Documentation - Creating and Using Objects (<https://dev.java/learn/creating-and-using-objects/>)

WebSiteW3Schools: Java If ... Else ([https://www.w3schools.com/java/java\\_conditions.asp](https://www.w3schools.com/java/java_conditions.asp))

WebSiteW3Schools: Java While Loop ([https://www.w3schools.com/java/java\\_while\\_loop.asp](https://www.w3schools.com/java/java_while_loop.asp))

WebSiteW3Schools: Java For Loop ([https://www.w3schools.com/java/java\\_for\\_loop.asp](https://www.w3schools.com/java/java_for_loop.asp))

ArticleAsync in Java (<https://medium.com/cognizantsoftvision-guildhall/async-in-java-80a7240fefa8>)

YouTubeAlex Lee: Learn Java in 14 Minutes (<https://www.youtube.com/watch?v=RRubcjpTkks>)

YouTubeProgramming with Mosh: Java Tutorial for Beginners (<https://www.youtube.com/watch?v=elrMbAQSU34>)

YouTubeBro Code: Java Full Course (FREE) ([https://www.youtube.com/watch?v=xk4\\_1vDrzzo](https://www.youtube.com/watch?v=xk4_1vDrzzo))

## Object-oriented Programming Concepts:

Object-oriented programming (OOP) is a programming paradigm based on the concept of 'objects', which can contain data and code: data in the form of fields (often known as attributes or properties), and code, in the form of procedures (often known as methods). A common feature of objects is that procedures (or

methods) are attached to them and can access and modify the object's data fields. Some of the main concepts are classes and instances, inheritance, and encapsulation.

How objects work

Creating and using constructors

What classes are

Creating and using Methods

How encapsulation works

What inheritance is

What polymorphism is

How interfaces work

What abstractions are

## Contents

WebSite	MDN Web Docs: Object-oriented programming (	<a href="https://developer.mozilla.org/en-US/docs/Learn/JavaScript/Objects/Object-oriented_programming">https://developer.mozilla.org/en-US/docs/Learn/JavaScript/Objects/Object-oriented_programming</a>	)
WebSite	Geeks for Geeks: Object Oriented Programming (OOPs) Concept in Java (	<a href="https://www.geeksforgeeks.org/object-oriented-programming-oops-concept-in-java/">https://www.geeksforgeeks.org/object-oriented-programming-oops-concept-in-java/</a>	)
WebSite	W3Schools: Object-Oriented Programming Style (	<a href="https://www.w3schools.blog/object-oriented-programming-style">https://www.w3schools.blog/object-oriented-programming-style</a>	)
Article	What is object-oriented programming? OOP explained in depth (	<a href="https://www.educative.io/blog/object-oriented-programming">https://www.educative.io/blog/object-oriented-programming</a>	)
YouTube	Programming with Mosh: Object-oriented Programming in 7 minutes (	<a href="https://www.youtube.com/watch?v=QJjY2TNyl-8">https://www.youtube.com/watch?v=QJjY2TNyl-8</a>	)
YouTube	freeCodeCamp.org: Intro to Object Oriented Programming - Crash Course (	<a href="https://www.youtube.com/watch?v=SiBw7os-_zI">https://www.youtube.com/watch?v=SiBw7os-_zI</a>	)
YouTube	Traversy Media: JavaScript OOP Crash Course (ES5 & ES6) (	<a href="https://www.youtube.com/watch?v=vDJpGenyHaA">https://www.youtube.com/watch?v=vDJpGenyHaA</a>	)

## Java - Error handling:

Error handling refers to the response and recovery procedures from error conditions present in a software application. In other words, it is the process comprised of anticipation, detection and resolution of application, programming or communication errors.

Knowing and handling the most common exceptions

Knowing the types of errors and in which situations they can occur

Using 'try' and 'catch' for error handling

Learning on what occasions and how to use throw

Creating specific exceptions according to your application's needs

### Contents

WebSite	Java - Documentation - What Is an Exception? (	<a href="https://dev.java/learn/what-is-an-exception/">https://dev.java/learn/what-is-an-exception/</a> )
WebSite	Java - Documentation - Catching and Handling Exceptions (	<a href="https://dev.java/learn/catching-and-handling-exceptions/">https://dev.java/learn/catching-and-handling-exceptions/</a> )
WebSite	Java - Documentation - Throwing Exceptions (	<a href="https://dev.java/learn/throwing-exceptions/">https://dev.java/learn/throwing-exceptions/</a> )
	W3Schools: Java Exceptions - Try...Catch (	<a href="https://www.w3schools.com/java/java_try_catch.asp">https://www.w3schools.com/java/java_try_catch.asp</a> )
Article	Exception Handling in Java — A Beginners Guide to Java Exceptions (	<a href="https://medium.com/edureka/java-exception-handling-7bd07435508c">https://medium.com/edureka/java-exception-handling-7bd07435508c</a> )
YouTube	Coding with John: Exception Handling in Java Tutorial (	<a href="https://www.youtube.com/watch?v=1XAfapkBQjk">https://www.youtube.com/watch?v=1XAfapkBQjk</a> )
YouTube	Alex Lee: Java Exceptions (	<a href="https://www.youtube.com/watch?v=xNVIq9IEBEg">https://www.youtube.com/watch?v=xNVIq9IEBEg</a> )

## Java - Collections:

A collection represents a group of objects, known as its elements. They are like containers that group multiple items in a single unit. Some collections allow

duplicate elements and others do not. Some are ordered and others unordered.

Learn the uses and differences between List, Set and Map

Learn the uses and differences between Equals and hashCode

Learn to work with ArrayList, LinkedList or Vector

Wrapper classes

## Contents

	Collections in Java - Article Everything You MUST Know (	<a href="https://www.digitalocean.com/community/tutorials/collections-in-java-tutorial">https://www.digitalocean.com/community/tutorials/collections-</a> <a href="https://www.digitalocean.com/community/tutorials/collections-in-java-tutorial">in-java-tutorial</a>	)
Article	Collections in Java	( <a href="https://www.javatpoint.com/collections-in-java">https://www.javatpoint.com/collections-in-java</a> )	
Article	Java Collections Framework - Collections in Java With Examples (	<a href="https://medium.com/edureka/java-collections-6d50b013aef8">https://medium.com/edureka/java-</a> <a href="https://medium.com/edureka/java-collections-6d50b013aef8">collections-6d50b013aef8</a>	)
YouTube	Programming with Mosh: Java Collections Tutorial (	<a href="https://www.youtube.com/watch?v=eLiHH9Bu04E">https://www.youtube.com/watch?</a> <a href="https://www.youtube.com/watch?v=eLiHH9Bu04E">v=eLiHH9Bu04E</a>	)
YouTube	edureka!: Java Collections (	<a href="https://www.youtube.com/watch?v=Ma7u6KEKzPE">https://www.youtube.com/watch?</a> <a href="https://www.youtube.com/watch?v=Ma7u6KEKzPE">v=Ma7u6KEKzPE</a>	)

## Java - Testing:

Software testing is the process of evaluating and verifying that a software product or application does what it is supposed to do. The benefits of testing include preventing bugs, reducing development costs and improving performance.

Using unit tests

Using integration testing

Using behavioral testing

Using mocks

## Contents

Article	Testing in Java - Fundamentals (	<a href="https://medium.com/dolap-tech/testing-in-java-fundamentals-61a6dab9fb8e">https://medium.com/dolap-tech/testing-in-java-</a> <a href="https://medium.com/dolap-tech/testing-in-java-fundamentals-61a6dab9fb8e">fundamentals-61a6dab9fb8e</a>	)
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Article	Understanding the Basics of Unit Testing in Java (	<a href="https://medium.com/javarevisited/understanding-the-basics-of-unit-testing-in-java-1bec70b6b10f">https://medium.com/javarevisited/understanding-the-basics-of-unit-testing-in-java-1bec70b6b10f</a> )
Article	Step by Step Introduction to Unit Testing in Java (	<a href="https://dev.to/gervg/step-by-step-introduction-to-unit-testing-in-java-3ae7">https://dev.to/gervg/step-by-step-introduction-to-unit-testing-in-java-3ae7</a> )
YouTube	Amigoscode: Software Testing Tutorial - Learn Unit Testing and Integration Testing (	<a href="https://www.youtube.com/watch?v=Geq60OVyBPg">https://www.youtube.com/watch?v=Geq60OVyBPg</a> )
YouTube	Coding with John: Java Unit Testing with JUnit (	<a href="https://www.youtube.com/watch?v=vZm0IHciFsQ">https://www.youtube.com/watch?v=vZm0IHciFsQ</a> )
YouTube	TU Delft Online Learning: Software Testing in Java - Mockito (	<a href="https://www.youtube.com/watch?v=_0uqsgmy6Cl">https://www.youtube.com/watch?v=_0uqsgmy6Cl</a> )

## Java - Packages:

A package in Java is used to group related classes, similarly to a folder in a file directory. Packages are used to avoid name conflicts and to write a better maintainable code.

Using imports and organizing your code through packages

Getting to know java.lang

Understanding immutability and the String class

Understanding the java.lang.Object class

Getting to know java.io

## Contents

WebSite Java - Documentation - Packages (<https://dev.java/learn/packages/>)

WebSite W3Schools: Java Packages ( [https://www.w3schools.com/java/java\\_packages.asp](https://www.w3schools.com/java/java_packages.asp))

Article Packages in Java - How to Create and Use Packages in Java? ( <https://medium.com/edureka/packages-in-java-edureka-7afdd58f9f33>)

YouTube Neso Academy: Java Packages, Classes, and Methods ( <https://www.youtube.com/watch?v=mgixJYEZ1Fk>)

YouTube	Mike Dane: Imports & Packages (	<a href="https://www.youtube.com/watch?v=ipMdsje9J6s">https://www.youtube.com/watch?v=ipMdsje9J6s</a>	)
YouTube	Bro Code: Java packages (	<a href="https://www.youtube.com/watch?v=NZ7NfZD8T2Y">https://www.youtube.com/watch?v=NZ7NfZD8T2Y</a>	)

## Data Structures:

In the context of computers, the data structure is a specific way of storing and organizing data in the computer's memory so that these data can be easily retrieved and efficiently used when needed later.

Knowing the main data structures (linked list, stack, queue, tree, etc)

Implementing the main data structures

### Contents

WebSite	W3Schools: Data Structure Tutorial (	<a href="https://www.w3schools.in/data-structures/tutorials/">https://www.w3schools.in/data-structures/tutorials/</a>	)
WebSite	Geeks for Geeks: Data Structures (	<a href="https://www.geeksforgeeks.org/data-structures/">https://www.geeksforgeeks.org/data-structures/</a>	)
WebSite	Data Structures Tutorial (	<a href="https://www.javatpoint.com/data-structure-tutorial">https://www.javatpoint.com/data-structure-tutorial</a>	)
Article	8 Common Data Structures every Programmer must know (	<a href="https://towardsdatascience.com/8-common-data-structures-every-programmer-must-know-171acf6a1a42">https://towardsdatascience.com/8-common-data-structures-every-programmer-must-know-171acf6a1a42</a>	)
YouTube	Internet Made Coder: Data Structures Explained for Beginners - How I Wish I was Taught (	<a href="https://www.youtube.com/watch?v=ZdU4wMyiTSs">https://www.youtube.com/watch?v=ZdU4wMyiTSs</a>	)
YouTube	freeCodeCamp.org: Data Structures Easy to Advanced Course - Full Tutorial from a Google Engineer (	<a href="https://www.youtube.com/watch?v=ZdU4wMyiTSs">https://www.youtube.com/watch?v=ZdU4wMyiTSs</a>	)
YouTube	Aaron Jack: Data Structures you MUST know (as a Software Developer) (	<a href="https://www.youtube.com/watch?v=ZdU4wMyiTSs">https://www.youtube.com/watch?v=ZdU4wMyiTSs</a>	)

## Level 2

### JVM:

The Java Virtual Machine (JVM) is a program that loads and runs Java applications, converting the bytecodes into machine-executable code. The JVM is responsible for managing the applications as they run. Thanks to the Java Virtual Machine, programs written in Java can run on any hardware and software platform that has a version of the JVM, thus making these applications independent of the platform they run on.

Entender como funciona a máquina virtual do Java

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WebSite	W3Schools: Java Virtual Machine (JVM) (	<a href="https://www.w3schools.in/java/java-virtual-machine">https://www.w3schools.in/java/java-virtual-machine</a>	)
Article	JVM Tutorial - Java Virtual Machine Architecture Explained for Beginners (	<a href="https://www.freecodecamp.org/news/jvm-tutorial-java-virtual-machine-architecture-explained-for-beginners/">https://www.freecodecamp.org/news/jvm-tutorial-java-virtual-machine-architecture-explained-for-beginners/</a>	)
Article	Understanding JVM Architecture (	<a href="https://medium.com/platform-engineer/understanding-jvm-architecture-22c0ddf09722">https://medium.com/platform-engineer/understanding-jvm-architecture-22c0ddf09722</a>	)
YouTube	Siben Nayak: JVM Tutorial - Java Virtual Machine Architecture Explained for Beginners (	<a href="https://www.youtube.com/watch?v=jnpuRvRdTgl">https://www.youtube.com/watch?v=jnpuRvRdTgl</a>	)
YouTube	Devovx: A Visual Introduction to Inner-Workings of the JVM (	<a href="https://www.youtube.com/watch?v=JLFjY6lxct8">https://www.youtube.com/watch?v=JLFjY6lxct8</a>	)

### Java - Memory management:

In Java, memory management is the process of allocation and de-allocation of objects, called Memory management. Java does memory management automatically. Java uses an automatic memory management system called a garbage collector. Thus, we are not required to implement memory management logic in our application.

Understanding how memory and its management work in Java



## Understanding how the Garbage Collector works

### Contents

WebSite	Java - Documentation - Introduction to Garbage Collection (	<a href="https://dev.java/learn/introduction-to-garbage-collection/">https://dev.java/learn/introduction-to-garbage-collection/</a>	)
WebSite	Java - Documentation - Garbage Collection in Java (	<a href="https://dev.java/learn/garbage-collection-in-java/">https://dev.java/learn/garbage-collection-in-java/</a>	)
WebSite	JavaTPoint: Memory Management in Java (	<a href="https://www.javatpoint.com/memory-management-in-java">https://www.javatpoint.com/memory-management-in-java</a>	)
Article	Java (JVM) Memory Model - Memory Management in Java (	<a href="https://www.digitalocean.com/community/tutorials/java-jvm-memory-model-memory-management-in-java">https://www.digitalocean.com/community/tutorials/java-jvm-memory-model-memory-management-in-java</a>	)
Article	Java Memory Management (	<a href="https://dzone.com/articles/java-memory-management">https://dzone.com/articles/java-memory-management</a>	)
Article	Memory leak in Android (	<a href="https://zhangqichuan.medium.com/memory-leak-in-android-4a6a7e8d7780">https://zhangqichuan.medium.com/memory-leak-in-android-4a6a7e8d7780</a>	)
YouTube	edureka!: Memory Management Tutorial in Java   Java Stack vs Heap (	<a href="https://www.youtube.com/watch?v=fM8yj93X80s">https://www.youtube.com/watch?v=fM8yj93X80s</a>	)
YouTube	Tech Primers: Understanding JVM Memory, Heap, Garbage Collection and Monitoring the JVM (	<a href="https://www.youtube.com/watch?v=bspS-uTK0IM">https://www.youtube.com/watch?v=bspS-uTK0IM</a>	)

### Spring Framework:

Spring is an open source framework for the Java platform. It is a non-intrusive framework, based on the Inversion of Control (IoC) and Dependency Injection design patterns. In Spring, the container is responsible for "instantiating" classes from a Java application and defining the dependencies between them through a configuration file in XML format, inferences from the framework, what is called auto-wiring, or even annotations on classes, methods and properties. This way, Spring enables low coupling between classes in an object-oriented application.

Understanding the concept of Dependency Injection

Understanding the MVC pattern

Using Spring Data to manipulate data

## Contents

WebSite	Spring Framework - Documentation (	<a href="https://spring.io/projects/spring-framework">https://spring.io/projects/spring-framework</a>	)
WebSite	GeeksForGeeks: Introduction to Spring Framework (	<a href="https://www.geeksforgeeks.org/introduction-to-spring-framework/">https://www.geeksforgeeks.org/introduction-to-spring-framework/</a>	)
WebSite	W3Schools: Spring Tutorial (	<a href="https://www.w3schools.blog/spring-tutorial">https://www.w3schools.blog/spring-tutorial</a>	)
Article	Spring Framework Fundamentals in Examples (	<a href="https://medium.com/@vspooj/spring-a9304da78d6">https://medium.com/@vspooj/spring-a9304da78d6</a>	)
Article	Building an MVC Application With Spring Framework: A Beginner's Tutorial (	<a href="https://medium.com/litslink/spring-framework-fundamentals-in-examples-b37101aa9250">https://medium.com/litslink/spring-framework-fundamentals-in-examples-b37101aa9250</a>	)
Article	edureka!: Spring Full Course - Learn Spring Framework in 4 Hours (	<a href="https://www.toptal.com/spring/beginners-guide-to-mvc-with-spring-framework">https://www.toptal.com/spring/beginners-guide-to-mvc-with-spring-framework</a>	)
YouTube		<a href="https://www.youtube.com/watch?v=VvGjZgqojMc">https://www.youtube.com/watch?v=VvGjZgqojMc</a>	)
YouTube	Telusko: Spring Framework Tutorial (	<a href="https://www.youtube.com/watch?v=lf1Lw4pLLEo">https://www.youtube.com/watch?v=lf1Lw4pLLEo</a>	)

## Spring Boot:

Spring Boot is an open source Java-based framework used to create microservices with Spring Framework. It is used to build stand-alone and production ready Spring applications.

Creating standalone Spring applications

Using the built-in HTTP servers

## Contents

WebSite	Spring Boot - Documentation (	<a href="https://spring.io/projects/spring-boot">https://spring.io/projects/spring-boot</a>	)
WebSite	IBM: Java Spring Boot (	<a href="https://www.ibm.com/cloud/learn/java-spring-boot">https://www.ibm.com/cloud/learn/java-spring-boot</a>	)

Microsoft Azure: What is Spring <https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-java-spring-boot/> )

WebSiteBoot and Spring framework vs. <https://medium.com/@anil7017/spring-boot-introduction-with-helloworld-example-introduction-with-helloworld-example-f388425104ed> )

Spring Boot Introduction <https://medium.com/@anil7017/spring-boot-introduction-with-helloworld-example-introduction-with-helloworld-example-f388425104ed> )

Articlewith HelloWorld Example <https://medium.com/@anil7017/spring-boot-introduction-with-helloworld-example-introduction-with-helloworld-example-f388425104ed> )

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Introduction to Spring (Starting a <https://kasunprageethdissanayake.medium.com/introduction-to-spring-starting-a-spring-boot-application-af0637e88b1> )

ArticleSpring Boot Application) <https://kasunprageethdissanayake.medium.com/introduction-to-spring-starting-a-spring-boot-application-af0637e88b1> )

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Let's Deploy Spring Boot App to the Cloud <https://medium.com/webtutspius/how-to-publish-your-spring-boot-app-to-the-cloud-97590666bf7b> )

ArticleBoot App to the Cloud <https://medium.com/webtutspius/how-to-publish-your-spring-boot-app-to-the-cloud-97590666bf7b> )

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Amigoscode: Spring Boot - Learn <https://www.youtube.com/watch?v=-mwpoE0x0JQ> )

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in28minutes - Cloud Made Easy: Spring <https://www.youtube.com/watch?v=zTAHY0SLQAg> )

YouTubeBoot Made Easy - Tutorial For Beginners <https://www.youtube.com/watch?v=zTAHY0SLQAg> )

( <https://www.youtube.com/watch?v=zTAHY0SLQAg> )

## Java build tools:

A build tool is a system that allows you to automate all the routine tasks of a project in an organized way that avoids the developer from having to waste time. In other words, adding a new library, performing tests, packaging and deploying, or even compatibility between different IDEs are tasks easily solved with a build tool.

Getting to know the most popular Java build tools, such as Maven, Jenkins, Apache Ant, Gradle, etc., and how to use them

## Contents

WebSiteJavaTPoint: Maven Tutorial (<https://www.javatpoint.com/maven-tutorial>)

ArticleList of Open Source Java <https://devopscube.com/list-of-popular-open-source-java-build-tools/> )

Build Tools ( <https://devopscube.com/list-of-popular-open-source-java-build-tools/> )

Article	Java build tools: Maven vs Gradle (	<a href="https://www.educative.io/blog/java-build-tools-maven-vs-gradle">https://www.educative.io/blog/java-build-tools-maven-vs-gradle</a>	)
WebSite	Apache Ant - Documentation - Tutorial: Hello World with Apache Ant (	<a href="https://ant.apache.org/manual/tutorial-HelloWorldWithAnt.html">https://ant.apache.org/manual/tutorial-HelloWorldWithAnt.html</a>	)
Article	Apache ANT Tutorial: What is Ant Build Tool? (	<a href="https://www.guru99.com/apache-ant-tutorial.html">https://www.guru99.com/apache-ant-tutorial.html</a>	)
WebSite	Jenkins - Documentation - Build a Java app with Maven (	<a href="https://www.jenkins.io/doc/tutorials/build-a-java-app-with-maven/">https://www.jenkins.io/doc/tutorials/build-a-java-app-with-maven/</a>	)
WebSite	JavaTPoint: Jenkins Tutorial (	<a href="https://www.javatpoint.com/jenkins">https://www.javatpoint.com/jenkins</a>	)
WebSite	JavaTPoint: Gradle Tutorial (	<a href="https://www.javatpoint.com/gradle">https://www.javatpoint.com/gradle</a>	)
YouTube	Daniel Persson: Comparing 3 java build tools (Ant vs Maven vs Gradle) (	<a href="https://www.youtube.com/watch?v=s6W2R1Z3wd4">https://www.youtube.com/watch?v=s6W2R1Z3wd4</a>	)
YouTube	Microsoft Developer: Building your Java project with Maven (	<a href="https://www.youtube.com/watch?v=l6sC5sK1zfg">https://www.youtube.com/watch?v=l6sC5sK1zfg</a>	)
YouTube	Tom Gregory: Gradle Build Tool in 100 Seconds (	<a href="https://www.youtube.com/watch?v=kNswjy2hPHI">https://www.youtube.com/watch?v=kNswjy2hPHI</a>	)
YouTube	karpado[dot]com: Apache Ant - What is it? Explained in easy way (	<a href="https://www.youtube.com/watch?v=OzFvOu2UMcc">https://www.youtube.com/watch?v=OzFvOu2UMcc</a>	)

## Java - Persistence:

The concept of "data persistence" refers to ensuring that the information inputted into an application will be stored in a medium where it can be retrieved consistently. In other words, they are permanent records that are not lost when the session is closed.

Understanding JDBC and JPA

Using frameworks such as Spring Data and Hibernate

Communicating with a relational database

Understanding the difference between EAGER and LAZY relationships

Planning queries with join fetch

Encapsulating access in a DAO

Understanding how memory works in this situation

## Contents

WebSite	Spring - Documentation - Spring Data JDBC (	<a href="https://spring.io/projects/spring-data-jdbc">https://spring.io/projects/spring-data-jdbc</a>	)
WebSite	IBM Docs: Java Persistence API (JPA) (	<a href="https://www.ibm.com/docs/en/was-liberty/zos?topic=overview-java-persistence-api-jpa">https://www.ibm.com/docs/en/was-liberty/zos?topic=overview-java-persistence-api-jpa</a>	)
Article	Spring JDBC (	<a href="https://medium.com/@bushra.saifi/spring-jdbc-989914389bfc">https://medium.com/@bushra.saifi/spring-jdbc-989914389bfc</a>	)
Article	Introduction to Spring Boot and JDBCTemplate - JDBC Template (	<a href="https://medium.com/xgeeks/introduction-to-spring-boot-and-jdbctemplate-jdbc-template-13c84add2bea">https://medium.com/xgeeks/introduction-to-spring-boot-and-jdbctemplate-jdbc-template-13c84add2bea</a>	)
Article	A Quick Start with Spring Boot and Spring Data JPA (	<a href="https://medium.com/@saultobias13/a-quick-start-with-spring-boot-and-spring-data-jpa-32718a8f4706">https://medium.com/@saultobias13/a-quick-start-with-spring-boot-and-spring-data-jpa-32718a8f4706</a>	)
YouTube	Amigoscode: Spring Data JPA (	<a href="https://www.youtube.com/watch?v=8SGI_XS5OPw">https://www.youtube.com/watch?v=8SGI_XS5OPw</a>	)
YouTube	Thorben Janssen: Spring Data JPA - What is it? And Why Should You Use It? (	<a href="https://www.youtube.com/watch?v=x67yiTHxn00">https://www.youtube.com/watch?v=x67yiTHxn00</a>	)
YouTube	Simplilearn: Java JDBC tutorial (	<a href="https://www.youtube.com/watch?v=3OrEsC-QjUA">https://www.youtube.com/watch?v=3OrEsC-QjUA</a>	)
YouTube	Simplilearn: Java Hibernate in 100 minutes (	<a href="https://www.youtube.com/watch?v=TQQki9yQaLg">https://www.youtube.com/watch?v=TQQki9yQaLg</a>	)

## Level 3

### Microservices architecture:

Microservices are an architectural approach in which software consists of small independent services that communicate with each other and are organized according to their business domains.

Learning the concept of planned architecture for microservices

Performing communication using APIs

## Improving the scalability of a system

### Contents

Google Cloud:	<a href="https://learn.microsoft.com/en-us/azure/architecture/guide/architecture-styles/microservices">https://learn.microsoft.com/en-us/azure/architecture/guide/architecture-styles/microservices</a>	)
WebSiteMicroservice architecture style (		
Amazon: What are microservices? (	<a href="https://aws.amazon.com/en/microservices/">https://aws.amazon.com/en/microservices/</a>	)
WebSite		
The What, Why, and How of a Microservices Architecture (	<a href="https://medium.com/hashmapinc/the-what-why-and-how-of-a-microservices-architecture-4179579423a9">https://medium.com/hashmapinc/the-what-why-and-how-of-a-microservices-architecture-4179579423a9</a>	)
Article		
Understanding Microservices: From Idea To Starting Line (	<a href="https://medium.com/free-code-camp/microservices-from-idea-to-starting-line-ae5317a6ff02">https://medium.com/free-code-camp/microservices-from-idea-to-starting-line-ae5317a6ff02</a>	)
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TechWorld with Nana: Microservices explained - the What, Why and How? (	<a href="https://www.youtube.com/watch?v=rv4LImLmVWk">https://www.youtube.com/watch?v=rv4LImLmVWk</a>	)
YouTube		
ByteByteGo: What Are Microservices Really All About? (And When Not To Use It) (	<a href="https://www.youtube.com/watch?v=_Oyy5PF0lcU">https://www.youtube.com/watch?v=_Oyy5PF0lcU</a>	)
YouTube		
InfoQ: Mastering Chaos - A Netflix Guide to Microservices (	<a href="https://www.youtube.com/watch?v=CZ3wlvmHeM">https://www.youtube.com/watch?v=CZ3wlvmHeM</a>	)
YouTube		
freeCodeCamp.org: Microservice Architecture and System Design with Python & Kubernetes – Full Course (	<a href="https://www.youtube.com/watch?v=hmkF77F9TLw">https://www.youtube.com/watch?v=hmkF77F9TLw</a>	)
YouTube		

### Java - Concurrency:

Concurrency is a programming paradigm for building programs that make use of the simultaneous execution of several interactive computational tasks, which can be implemented as separate programs or as a set of threads created by a single program.

Running tasks simultaneously

Making tasks wait until a certain event occurs

Understanding how memory works in this situation

## Contents

Java - Documentation	
WebSite - Concurrency	<a href="https://docs.oracle.com/javase/tutorial/essential/concurrency/">https://docs.oracle.com/javase/tutorial/essential/concurrency/</a>
(	
Article	
Java Concurrency: The Basics (	<a href="https://medium.com/swlh/java-concurrency-the-basics-5e6a03189297">https://medium.com/swlh/java-concurrency-the-basics-5e6a03189297</a>
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Article	
Understanding Java threads once and for all (	<a href="https://medium.com/swlh/understanding-java-threads-once-and-for-all-711f71e0ec1e">https://medium.com/swlh/understanding-java-threads-once-and-for-all-711f71e0ec1e</a>
)	
YouTube	
SimpliCode: Java Concurrency Tutorial With Examples (	<a href="https://www.youtube.com/watch?v=RS1a_UHgBuA">https://www.youtube.com/watch?v=RS1a_UHgBuA</a>
)	
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edureka!: Multithreading In Java Tutorial (	<a href="https://www.youtube.com/watch?v=RS1a_UHgBuA">https://www.youtube.com/watch?v=RS1a_UHgBuA</a>
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Coding with John: Multithreading in Java Explained in 10 Minutes (	<a href="https://www.youtube.com/watch?v=r_MbozD32eo">https://www.youtube.com/watch?v=r_MbozD32eo</a>
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YouTube	
Jakob Jenkov: Java Concurrency and Multithreading (Playlist) (	<a href="https://www.youtube.com/playlist?list=PLL8woMHwr36EDxjUoCzboZjedsnhLP1j4">https://www.youtube.com/playlist?list=PLL8woMHwr36EDxjUoCzboZjedsnhLP1j4</a>
)	

## Containers:

Containers are software packages that contain all the elements needed to run in any environment.

Kubernetes (also known as k8s or “kube”) is an open source container orchestration platform that automates many of the manual processes involved in deploying, managing, and scaling containerized applications.

Isolating your software to run independently

Deploying software in clusters

Modularizing your system into smaller packages

Getting to know the Docker platform

Getting to know Kubernetes

## Contents

WebSite	IBM: Containers (	<a href="https://www.ibm.com/en-us/cloud/learn/containers">https://www.ibm.com/en-us/cloud/learn/containers</a>	)
WebSite	HPE: What are containers? (	<a href="https://www.hpe.com/us/en/what-is/containers.html">https://www.hpe.com/us/en/what-is/containers.html</a>	)
WebSite	Google Cloud: What are Containers? (	<a href="https://cloud.google.com/learn/what-are-containers">https://cloud.google.com/learn/what-are-containers</a>	)
WebSite	Azure: What is a container? (	<a href="https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-a-container/">https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-a-container/</a>	)
WebSite	Kubernetes - Documentation (	<a href="https://kubernetes.io/docs/tutorials/kubernetes-basics/">https://kubernetes.io/docs/tutorials/kubernetes-basics/</a>	)
Article	Red Hat: What is Kubernetes? (	<a href="https://www.redhat.com/en/topics/containers/what-is-kubernetes">https://www.redhat.com/en/topics/containers/what-is-kubernetes</a>	)
Article	Azure: What is Kubernetes? (	<a href="https://azure.microsoft.com/en-us/topic/what-is-kubernetes/">https://azure.microsoft.com/en-us/topic/what-is-kubernetes/</a>	)
YouTube	freeCodeCamp.org: Docker Tutorial for Beginners (	<a href="https://www.youtube.com/watch?v=eLiHH9Bu04E">https://www.youtube.com/watch?v=eLiHH9Bu04E</a>	)
YouTube	freeCodeCamp.org: Docker Containers and Kubernetes Fundamentals – Full Hands-On Course (	<a href="https://www.youtube.com/watch?v=kTp5xUtcaw">https://www.youtube.com/watch?v=kTp5xUtcaw</a>	)
YouTube	TechWorld with Nana: Kubernetes Tutorial for Beginners [FULL COURSE in 4 Hours] (	<a href="https://www.youtube.com/watch?v=X48VuDVv0do">https://www.youtube.com/watch?v=X48VuDVv0do</a>	)

## Kafka:

Apache Kafka is a distributed data transmission platform that is capable of publishing, subscribing, storing, and processing real-time log streams. This platform is designed to process data streams from multiple sources and deliver them to multiple clients.

Using Kafka for asynchronous communication

Creating microservices with Kafka

Creating producers and consumers

Understanding how to use Kafka for parallelism and serialized execution

Obtaining guarantees regarding the sending or delivery of messages



## Contents

WebSite	Apache Kafka - Documentation - Introduction (	<a href="https://kafka.apache.org/intro">https://kafka.apache.org/intro</a> )
WebSite	Red Hat: What is Apache Kafka? (	<a href="https://www.redhat.com/en/topics/integration/what-is-apache-kafka">https://www.redhat.com/en/topics/integration/what-is-apache-kafka</a> )
WebSite	JavaTPoint: Apache Kafka Tutorial (	<a href="https://www.javatpoint.com/apache-kafka">https://www.javatpoint.com/apache-kafka</a> )
Article	A Thorough Introduction to Apache Kafka (	<a href="https://betterprogramming.pub/thorough-introduction-to-apache-kafka-6fbf2989bbc1">https://betterprogramming.pub/thorough-introduction-to-apache-kafka-6fbf2989bbc1</a> )
Article	Understand Kafka as if you had designed it — Part 1 (	<a href="https://towardsdatascience.com/understanding-kafka-as-if-you-had-designed-it-part-1-3f9316cb8fd8">https://towardsdatascience.com/understanding-kafka-as-if-you-had-designed-it-part-1-3f9316cb8fd8</a> )
Article	How to use Apache Kafka to transform a batch pipeline into a real-time one (	<a href="https://medium.com/@stephane.maarek/how-to-use-apache-kafka-to-transform-a-batch-pipeline-into-a-real-time-one-831b48a6ad85">https://medium.com/@stephane.maarek/how-to-use-apache-kafka-to-transform-a-batch-pipeline-into-a-real-time-one-831b48a6ad85</a> )
Article	Kafka: All you need to know (	<a href="https://medium.com/hacking-talent/kafka-all-you-need-to-know-8c7251b49ad0">https://medium.com/hacking-talent/kafka-all-you-need-to-know-8c7251b49ad0</a> )
YouTube	Confluent: What is Apache Kafka®? (	<a href="https://www.youtube.com/watch?v=FKgi3n-FyNU">https://www.youtube.com/watch?v=FKgi3n-FyNU</a> )
YouTube	Stephane Maarek: Apache Kafka in 5 minutes (	<a href="https://www.youtube.com/watch?v=PzPXRmVHMxl">https://www.youtube.com/watch?v=PzPXRmVHMxl</a> )
YouTube	Intellipaat: Kafka Tutorial (	<a href="https://www.youtube.com/watch?v=daRyKH67_qs">https://www.youtube.com/watch?v=daRyKH67_qs</a> )
YouTube	Amigoscode: Kafka Tutorial - Spring Boot Microservices (	<a href="https://www.youtube.com/watch?v=SqVfCyfCJqw">https://www.youtube.com/watch?v=SqVfCyfCJqw</a> )

## Auxiliary Skill: Infrastructure

### Git & GitHub - Fundamentals:

Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

GitHub is a hosting service for software development and version control using Git.

Creating a repository

Cloning a repository

Committing, pushing and pulling to and from the repository

Reversing a commit

Creating branches and pull requests

Handling merge and conflicts

## Contents

WebSiteGit Reference Book (<https://git-scm.com/book/en/v2>)

WebSiteGitHub Documentation (<https://docs.github.com/en>)

WebSiteGitHub Pages Documentation ( <https://docs.github.com/en/pages/getting-started-with-github-pages/about-github-pages> )

WebSiteW3Schools: Git Tutorial ( <https://www.w3schools.com/git/default.asp?remote=github> )

WebSiteGit School - Visualizing Git (<https://git-school.github.io/visualizing-git/>)

WebSiteDangit, Git!?! (<https://dangitgit.com/>)

ArticleGit Tutorial - Explore The Commands And Operations In Git ( <https://medium.com/edureka/git-tutorial-da652b566ece> )

ArticleGit and Github Quickstart Tutorial ( <https://medium.com/@prashantramnyc/git-and-github-quickstart-tutorial-654a71594dca> )

ArticleGetting Started with Git and Github: A Complete Tutorial for Beginner ( <https://towardsdatascience.com/learn-basic-git-commands-for-your-data-science-works-2a75396d530d> )

YouTubeProgramming with Mosh: Git Tutorial for Beginners - Learn Git in 1 Hour ( <https://www.youtube.com/watch?v=8JJ101D3knE> )

YouTubefreeCodeCamp.org: Git and GitHub for Beginners - Crash Course ( <https://www.youtube.com/watch?v=RG0j5yH7evk> )

YouTubeKevin Stratvert: Git and GitHub for Beginners Tutorial ( <https://www.youtube.com/watch?v=tRZGeaHPoaw> )

Tech With Tim: Git Tutorial for Beginners <https://www.youtube.com/watch?v=DVRQoVRzMIY>  
YouTube - Git & GitHub Fundamentals In Depth ( )

## HTTP - Fundamentals:

HTTP stands for Hyper Text Transfer Protocol. Communication between client computers and web servers is done by sending HTTP Requests and receiving HTTP Responses.

Understanding the difference between HTTP verbs

Testing requests and checking the status codes in the browser

Learning how to make a HTTP request on the command line with WGET

Downloading an image with WGET

Performing a POST

## Contents

W3Schools: What is HTTP? ( [https://www.w3schools.com/whatis/whatis\\_http.asp](https://www.w3schools.com/whatis/whatis_http.asp) )

MDN Web Docs: An overview of HTTP ( <https://developer.mozilla.org/en-US/docs/Web/HTTP/Overview> )

MDN Web Docs: HTTP request methods ( <https://developer.mozilla.org/en-US/docs/Web/HTTP/Methods> )

WebSite HTTP Cats (<https://http.cat/>)

WebSite HTTP Dogs (<https://http.dog/>)

HTTP codes as Valentine's Day comics ( <https://medium.com/@hanilim/http-codes-as-valentines-day-comics-8c03c805faa0> )

Here Are the most popular ways to make an HTTP request in JavaScript ( <https://medium.com/free-code-camp/here-is-the-most-popular-ways-to-make-an-http-request-in-javascript-954ce8c95aaa> )

Traversy Media: HTTP Crash Course & Exploration ( <https://www.youtube.com/watch?v=iYM2zFP3Zn0> )

Curious Code: HTTP Request Methods - GET, POST, PUT, DELETE ( <https://www.youtube.com/watch?v=tkfVQK6UxDI> )

freeCodeCamp.org: Postman Beginner's <https://www.youtube.com/watch?v=VywxIQ2ZXw4>  
YouTube Course - API Testing ( )

## JSON:

JSON stands for JavaScript Object Notation. It is a text format for storing and transporting data.

Creating an object

Transforming an object into a string

Transforming a string into an object

Manipulating an object

### Contents

WebSiteW3Schools: JSON ([https://www.w3schools.com/js/js\\_json\\_intro.asp](https://www.w3schools.com/js/js_json_intro.asp))

MDN Web [https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global\\_Objects/JSON](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/JSON)  
WebSite Docs: JSON ( )

MDN Web Docs: Working <https://developer.mozilla.org/en-US/docs/Learn/JavaScript/Objects/JSON>  
WebSite with JSON ( )

Web Dev Simplified: Learn JSON in <https://www.youtube.com/watch?v=iiADhChRriM>  
YouTube 10 Minutes ( )

Traversy Media: JSON Crash <https://www.youtube.com/watch?v=wI1CWzNtE-M>  
YouTube Course ( )

## Command Line - Fundamentals:

CLI is a command line program that accepts text input to execute operating system functions.

Knowing the most important commands

### Contents

W3Schools: What is  
WebSiteCommand Line [https://www.w3schools.com/whatis/whatis\\_cli.asp](https://www.w3schools.com/whatis/whatis_cli.asp)  
Interface (CLI)? ( )

Microsoft Docs: Using <https://docs.microsoft.com/en-us/windows/terminal/command-line->  
WebSitecommand line arguments for ( )

	Windows Terminal (	<a href="https://betterprogramming.pub/advanced-cli-arguments?tabs=windows">arguments?tabs=windows</a>	)
Article	Advanced CLI: Commands You Should Know as a Developer (	<a href="https://betterprogramming.pub/advanced-cli-commands-you-should-know-as-a-developer-7bc48c752a5e">https://betterprogramming.pub/advanced-cli-commands-you-should-know-as-a-developer-7bc48c752a5e</a>	)
YouTube	freeCodeCamp.org: Command Line Crash Course (	<a href="https://www.youtube.com/watch?v=yz7nYlnXLfE">https://www.youtube.com/watch?v=yz7nYlnXLfE</a>	)
YouTube	Traversy Media: Command Line Crash Course For Beginners - Terminal Commands (	<a href="https://www.youtube.com/watch?v=uwAqEzhyjtw">https://www.youtube.com/watch?v=uwAqEzhyjtw</a>	)

## Cloud - Fundamentals:

Cloud, or cloud computing, is the distribution of computing services over the Internet using a pay-as-you-go pricing model. A cloud is composed of various computing resources, ranging from the computers themselves (or instances, in cloud terminology) to networks, storage, databases, and everything around them. In other words, everything that is normally needed to set up the equivalent of a server room, or even a complete data center, will be ready to use, configured, and run.

Knowing the difference between IaaS, PaaS and SaaS

Knowing the largest cloud providers

Specializing in a specific provider of your choice

## Contents

WebSite	Microsoft Azure: What is cloud computing? (	<a href="https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-cloud-computing/">https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-cloud-computing/</a>	)
WebSite	Amazon AWS: What is cloud computing? (	<a href="https://aws.amazon.com/en/what-is-cloud-computing/">https://aws.amazon.com/en/what-is-cloud-computing/</a>	)
Article	A beginner's guide to the basics of what cloud computing is about (	<a href="https://scientya.com/a-beginners-guide-to-the-basics-of-what-cloud-computing-is-about-e8b3b7f25a30/">https://scientya.com/a-beginners-guide-to-the-basics-of-what-cloud-computing-is-about-e8b3b7f25a30/</a>	)
Article	Cloud Computing for Beginners (	<a href="https://medium.com/hackernoon/cloud-computing-for-beginners-85d168959afb/">https://medium.com/hackernoon/cloud-computing-for-beginners-85d168959afb/</a>	)

Article	What are Cloud Computing Services [IaaS, CaaS, PaaS, FaaS, SaaS] (	<a href="https://medium.com/@nnilesh7756/what-are-cloud-computing-services-iaas-caas-paas-faas-saas-ac0f6022d36e">https://medium.com/@nnilesh7756/what-are-cloud-computing-services-iaas-caas-paas-faas-saas-ac0f6022d36e</a>	)
YouTube	Simplilearn: Cloud Computing Tutorial for Beginners (	<a href="https://www.youtube.com/watch?v=RWgW-CgdIk0">https://www.youtube.com/watch?v=RWgW-CgdIk0</a>	)
YouTube	Amazon Web Services: What is Cloud Computing? - Amazon Web Services (	<a href="https://www.youtube.com/watch?v=mxT233EdY5c">https://www.youtube.com/watch?v=mxT233EdY5c</a>	)
YouTube	Ecourse Review: Cloud Computing Services Models - IaaS PaaS SaaS Explained (	<a href="https://www.youtube.com/watch?v=36zducUX16w/">https://www.youtube.com/watch?v=36zducUX16w/</a>	)

## SQL - Fundamentals:

Structured Query Language (SQL) is a standardized programming language that is used to manage relational databases and perform various operations on the data in them.

Knowing the most common SQL commands

Using SELECT to query a table

Using INSERT to insert data into a table

Using UPDATE to update a table

Using DELETE to remove data from a table

Using JOIN to connect data from multiple tables

Knowing the clauses (FROM, ORDER BY, etc.)

## Contents

WebSite	W3Schools: Introduction to SQL (	<a href="https://www.w3schools.com/sql/sql_intro.asp">https://www.w3schools.com/sql/sql_intro.asp</a>	)
WebSite	Amazon AWS: What is SQL? (	<a href="https://aws.amazon.com/what-is/sql/?nc1=h_ls">https://aws.amazon.com/what-is/sql/?nc1=h_ls</a>	)
Article	From Basic to Intermediate SQL in 10 Minutes (	<a href="https://medium.com/analytics-vidhya/from-basic-to-intermediate-sql-in-10-minutes-42b960ed6f9e">https://medium.com/analytics-vidhya/from-basic-to-intermediate-sql-in-10-minutes-42b960ed6f9e</a>	)

Article	SQL for Beginners 2022 — A Practical SQL Guide (	<a href="https://medium.com/@besimum/sql-for-beginners-2022-a-practical-sql-guide-1de6adb43d52">https://medium.com/@besimum/sql-for-beginners-2022-a-practical-sql-guide-1de6adb43d52</a>	)
YouTube	Kevin Stratvert: SQL for Beginners Tutorial (	<a href="https://www.youtube.com/watch?v=h0nxCDiD-zg">https://www.youtube.com/watch?v=h0nxCDiD-zg</a>	)
YouTube	Fireship: Learn SQL in 23 Easy Steps (	<a href="https://www.youtube.com/watch?v=Cz3WcZLRaWc">https://www.youtube.com/watch?v=Cz3WcZLRaWc</a>	)
YouTube	freeCodeCamp.org: SQL Tutorial - Full Database Course for Beginners (	<a href="https://www.youtube.com/watch?v=HXV3zeQKqGY">https://www.youtube.com/watch?v=HXV3zeQKqGY</a>	)

## Auxiliary Skill: Good practices

### SOLID:

SOLID has five principles that are considered best practices in software development that help programmers write cleaner code by separating responsibilities, reducing docking, easing refactoring, and encouraging code reuse.

### Contents

Article	The S.O.L.I.D Principles in Pictures (	<a href="https://medium.com/backticks-tildes/the-s-o-l-i-d-principles-in-pictures-b34ce2f1e898">https://medium.com/backticks-tildes/the-s-o-l-i-d-principles-in-pictures-b34ce2f1e898</a>	)
Article	SOLID Principles every Developer Should Know (	<a href="https://blog.bitsrc.io/solid-principles-every-developer-should-know-b3bfa96bb688">https://blog.bitsrc.io/solid-principles-every-developer-should-know-b3bfa96bb688</a>	)
YouTube	Fireship: Solid in 100 Seconds (	<a href="https://www.youtube.com/watch?v=q0BGgQJcp7w">https://www.youtube.com/watch?v=q0BGgQJcp7w</a>	)
YouTube	A Dev' Story: SOLID Design Principles Explained in a Nutshell (	<a href="https://www.youtube.com/watch?v=69sfWNzxTmc">https://www.youtube.com/watch?v=69sfWNzxTmc</a>	)
YouTube	Web Dev Simplified: Single Responsibility Principle Explained - SOLID Design Principles (	<a href="https://www.youtube.com/watch?v=UQqY3_6Epbg">https://www.youtube.com/watch?v=UQqY3_6Epbg</a>	)

## Clean Architecture:

Clean architecture is a way of developing software, such that just by looking at the source code of a program, you should be able to tell what the program does.

### Contents

Article	The Clean Architecture —Beginner's Guide (	<a href="https://betterprogramming.pub/the-clean-architecture-beginners-guide-e4b7058c1165">https://betterprogramming.pub/the-clean-architecture-beginners-guide-e4b7058c1165</a>	)
Article	Thoughts on Clean Architecture (	<a href="https://medium.com/android-news/thoughts-on-clean-architecture-b8449d9d02df">https://medium.com/android-news/thoughts-on-clean-architecture-b8449d9d02df</a>	)
Article	Clean Architecture, the right way (	<a href="https://medium.com/gdg-vit/clean-architecture-the-right-way-d83b81ecac6">https://medium.com/gdg-vit/clean-architecture-the-right-way-d83b81ecac6</a>	)
Article	Why use a Clean Architecture (	<a href="https://www.mytaskpanel.com/the-5-advantages-of-using-a-clean-architecture-all-you-need-to-know/">https://www.mytaskpanel.com/the-5-advantages-of-using-a-clean-architecture-all-you-need-to-know/</a>	)
Article	Clean Architecture – Build Software like an Artisan (	<a href="https://flexiple.com/developers/clean-architecture-build-software-like-an-artisan/">https://flexiple.com/developers/clean-architecture-build-software-like-an-artisan/</a>	)
Article	React Clean Architecture (	<a href="https://kpiteng.medium.com/react-clean-architecture-e4144a0788b6">https://kpiteng.medium.com/react-clean-architecture-e4144a0788b6</a>	)
Article	Clean Architecture with Java 11 (	<a href="https://medium.com/slalom-build/clean-architecture-with-java-11-f78bba431041">https://medium.com/slalom-build/clean-architecture-with-java-11-f78bba431041</a>	)
Article	A detailed guide on developing Android apps using the Clean Architecture pattern (	<a href="https://medium.com/@dmilic/a-detailed-guide-on-developing-android-apps-using-the-clean-architecture-pattern-d38d71e94029">https://medium.com/@dmilic/a-detailed-guide-on-developing-android-apps-using-the-clean-architecture-pattern-d38d71e94029</a>	)
YouTube	CodeOpinion: Clean Architecture Example & Breakdown (	<a href="https://www.youtube.com/watch?v=Ys_W6MyWOCw">https://www.youtube.com/watch?v=Ys_W6MyWOCw</a>	)
YouTube	Women Who Code: Clean Architecture Concepts (	<a href="https://www.youtube.com/watch?v=ouBSPdzbzvw">https://www.youtube.com/watch?v=ouBSPdzbzvw</a>	)
YouTube	CodandoTV(Rods) - Simplifying Clean Architecture +MVVM in your mobile application - COMPLETE GUIDE (	<a href="https://youtu.be/8ehIZfyN1S0?si=l7-l5l4zsnYLIjD">https://youtu.be/8ehIZfyN1S0?si=l7-l5l4zsnYLIjD</a>	)



## Design Patterns:

In software engineering, a Design Pattern is a general, reusable solution to a commonly occurring problem within a given context in software design. It is a description or template for how to solve a problem that can be used in many different situations. Design Patterns are formalized best practices that the programmer can use to solve common problems when designing an application or system.

Getting familiarized with and applying the main Design Patterns

### Contents

WebSite	What's a design pattern? (	<a href="https://refactoring.guru/design-patterns/what-is-pattern">https://refactoring.guru/design-patterns/what-is-pattern</a>	)
Article	Design Patterns — Introduction (	<a href="https://henriquesd.medium.com/design-patterns-introduction-220f811db857">https://henriquesd.medium.com/design-patterns-introduction-220f811db857</a>	)
Article	What Are Design Patterns and Do I Need Them? (	<a href="https://www.developer.com/design/what-are-design-patterns-and-do-i-need-them/">https://www.developer.com/design/what-are-design-patterns-and-do-i-need-them/</a>	)
Article	The 3 Types of Design Patterns All Developers Should Know (with code examples of each) (	<a href="https://www.freecodecamp.org/news/the-basic-design-patterns-all-developers-need-to-know/">https://www.freecodecamp.org/news/the-basic-design-patterns-all-developers-need-to-know/</a>	)
Article	10 Design Patterns every Software Architect and Software Engineer must know (	<a href="https://ravindraelicherla.medium.com/10-design-patterns-every-software-architect-must-know-b33237bc01c2">https://ravindraelicherla.medium.com/10-design-patterns-every-software-architect-must-know-b33237bc01c2</a>	)
Article	Modern-Day Architecture Design Patterns for Software Professionals (	<a href="https://betterprogramming.pub/modern-day-architecture-design-patterns-for-software-professionals-9056ee1ed977">https://betterprogramming.pub/modern-day-architecture-design-patterns-for-software-professionals-9056ee1ed977</a>	)
YouTube	Web Dev Simplified: Design Patterns (Playlist) (	<a href="https://www.youtube.com/playlist?list=PLZIA0Gpn_vH_CthENcPCM0Dww6a5XYC7f">https://www.youtube.com/playlist?list=PLZIA0Gpn_vH_CthENcPCM0Dww6a5XYC7f</a>	)
YouTube	Programming with Mosh: Design Patterns in Plain English (	<a href="https://www.youtube.com/watch?v=NU_1StN5Tkk">https://www.youtube.com/watch?v=NU_1StN5Tkk</a>	)
YouTube	Fireship: 10 Design Patterns Explained in 10 Minutes (	<a href="https://www.youtube.com/watch?v=tv-_1er1mWI">https://www.youtube.com/watch?v=tv-_1er1mWI</a>	)

Traversy Media: 5 Design Patterns <https://www.YOUTUBE.com/watch?v=AWOf6Wo6gtg>  
YouTube Every Engineer Should Know ( )

## Clean Code:

Applying simple techniques that aim to make a code easier to write and read

Refactoring your code to make it clearer

### Contents

Article What is Clean Code? (<https://garywoodfine.com/what-is-clean-code/>)

Clean Code Explained – A <https://www.freecodecamp.org/news/clean-coding-for-beginners/>  
Article Practical Introduction to Clean Coding for Beginners ( )

UnityCoin: Clean Code - Uncle Bob <https://www.youtube.com/watch?v=7EmboKQH8IM>  
YouTube - Lesson 1 ( )

Programming with Mosh: Clean Code - <https://www.youtube.com/watch?v=5koPpYVa020>  
YouTube Learn to write clean, maintainable and robust code ( )

## Domain-Driven Design (DDD) Concepts:

Domain-Driven Design (DDD) is an approach to software design and development that is first informed by business requirements. The program components (objects, classes, arrays, etc.) indicate the industry, sector, or business domain in which the business operates.

Modeling domains effectively

Basing complex projects on domain models

Getting to know the building blocks of DDD

### Contents

Domain-Driven Design: <https://medium.com/ssense-tech/domain-driven-design-everything-you-always-wanted-to-know-about-it-but-were-afraid-to-ask-a85e7b74497a>  
Article Everything You Always Wanted to Know About it, But Were Afraid to Ask ( )

Domain-Driven Design in <https://medium.com/it-dead-inside/domain-driven-design-in-the-era-of-microservices-de2be01821ed> )  
(

Amichai Mantinband: Domain-Driven Design in 150 Seconds ( <https://www.youtube.com/watch?v=8Z5IAkWcnlw> )

Domain-Driven Design Europe: What is DDD? (Eric Evans - DDD Europe 2019) ( <https://www.youtube.com/watch?v=pMuiVlnGqjk> )

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TechGuide - Alura  
Alura, PM3 e FIAP  
O Techguide.sh é um projeto open source