

FULL STACK

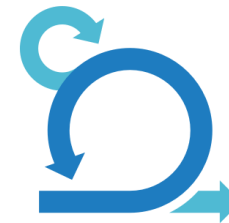
# Java Deep-Dive Building Blocks



# You Already Know

## Course(s):

1. Agile Scrum Foundation



2. Git



3. Core Java



# Recap

- Describe Agile manifesto
  - Principles of Agile
- Distinguish between the Waterfall and Agile approaches
  - Focus on consumers
  - Customer involvement
  - Multidisciplinary teams
- Describe Scrum and Scrum roles
  - Scrum teams
  - Sprints
  - Events of a Sprint



# Recap

- Explain the events of the Sprint
  - Stand-up meeting
  - Sprint backlog
  - Time-boxing
- Explain the fundamentals of Git
  - Basic setup and configurations
- Explain the creation of a Git repository
  - Git add
  - Git commit
  - Git push



# Recap

- Explain the fundamentals of Java language
  - Classes and Objects
  - Methods and Variables
- Explain data types and their declarations
  - Primitive data types
- Use of loops, conditional, break, and continue statements
  - If, if-else, and if-else-if
  - While, for, and do-while





# Recap

- Explain classes and objects
  - Object life cycle
  - Operators and their precedence
- Explain the use of core keywords
  - *static*
  - *final*
  - *this*



# A Day in the Life of a Full Stack Developer

Joe is hired as a Full Stack Developer in Abq Inc. In this sprint, his manager has asked him to develop an application which is based on the basics of Agile, Git, and Java.

Joe has to develop a calculator which will perform basic arithmetic operations.

In this lesson, we will learn how to solve this real-world scenario to help Joe complete his task effectively and quickly.



## Learning Objectives

By the end of this lesson, you will be able to:

- 🕒 Demonstrate type casting
- 🕒 Use access modifiers



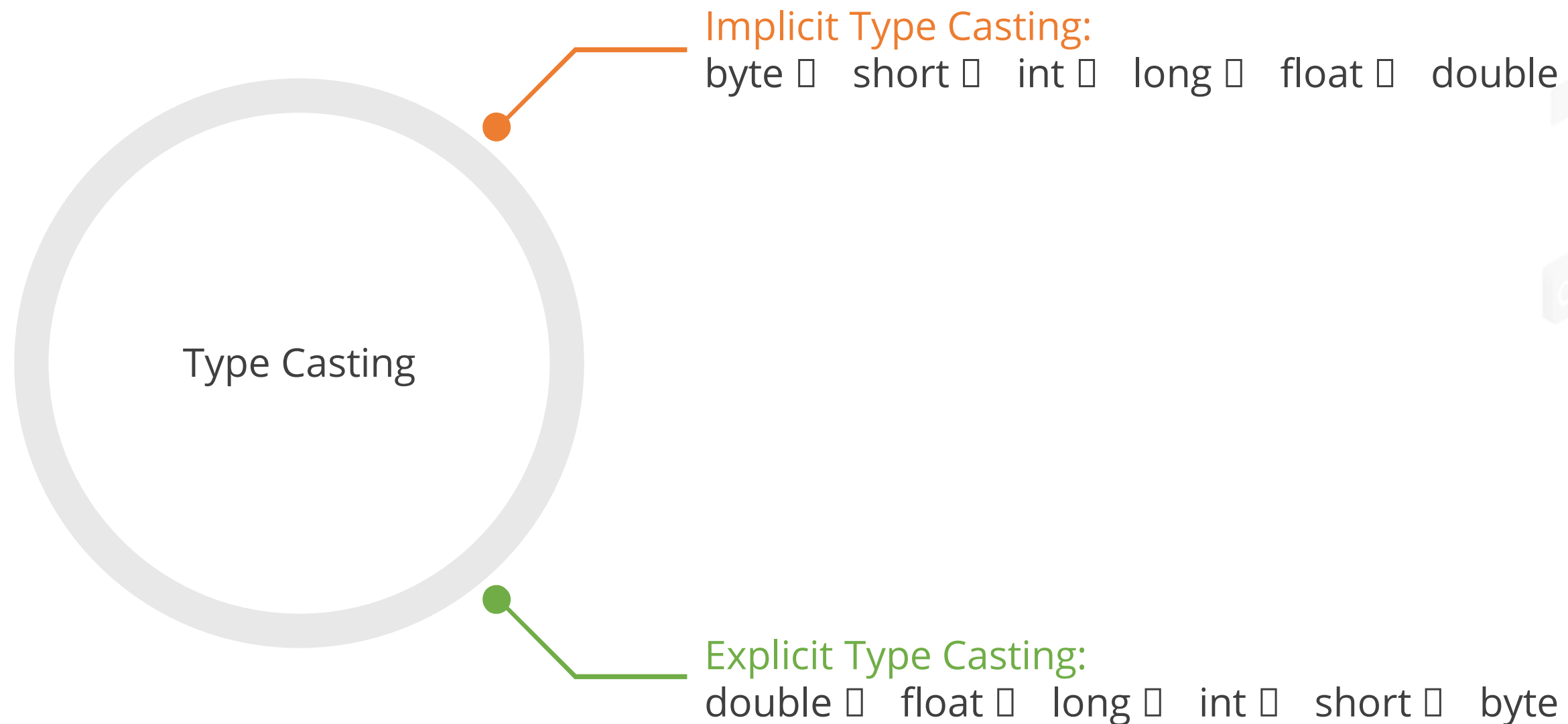


# FULL STACK

## Type Casting

# Type Casting

When two data types are compatible with each other, the value of one data type that is assigned to the other is called type casting.



# Types of Type Casting

## Widening or Implicit Conversion

- Widening or implicit conversion takes place when two data types are automatically converted.
- This is possible when:
  - The two data types are compatible
  - The value of a smaller data type is assigned to a bigger data type
- Conversion of numeric data type to char or boolean is not supported.

## Narrowing or Explicit Conversion

- To assign the value of a large data type to a smaller data type, we have to perform narrowing or explicit conversion.
- This is useful for incompatible data types when automatic conversion is not possible.

# Type Casting



**Duration: 15 min.**

## **Problem Statement:**

Write a program which will take a string as input and will convert it into other primitive data types.

ASSISTED PRACTICE

# Assisted Practice: Guidelines

Steps to demonstrate type casting:

1. Create a Java project in your IDE
2. Write a program in Java to take an input from user and convert the input variable into other data types
3. Initialize the .git file
4. Add and commit the program files
5. Push the code to your GitHub repositories





## Access Modifiers

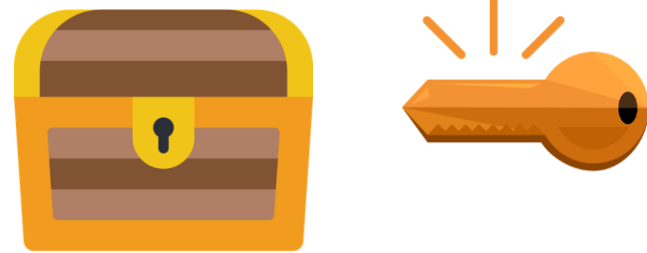
# Access Modifiers

The access modifiers specify the accessibility of a data member, class, constructor, or method.

Modifier	Class	Package	Subclass	World
public				
protected				
No modifier				
private				

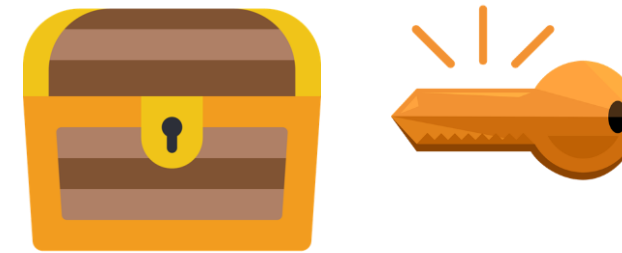
# Types of Access Modifiers

## Default



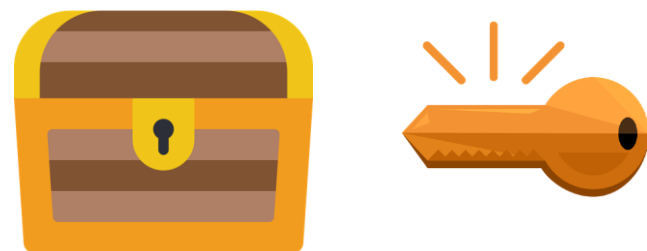
The default access modifiers are accessible only within the package.

## Public



It has the widest scope and is accessible everywhere.

## Private



Private access modifiers are accessible only within the class.

## Protected



The protected access modifiers are accessible only within and outside the package through inheritance.

# Access Modifiers



**Duration: 20 min.**

## **Problem Statement:**

Write a program to demonstrate how and when access modifiers are used.

ASSISTED PRACTICE

# Assisted Practice: Guidelines

Steps to demonstrate Access Modifiers:

1. Create a Java project in your IDE
2. Write a program in Java to create variables with different access modifiers and access these variables in main()
3. Initialize the .git file
4. Add and commit the program files
5. Push the code to your GitHub repositories





## Key Takeaways

- Java is a general-purpose, object-oriented, and concurrent programming language.
- Java can be used in web development, Big Data, continuous testing, and frameworks.
- Type casting is used to assign value of one data type to the other only if they are compatible.
- Access modifiers in Java are used to specify the scope of a field, method, constructor, or a class.
- We can change the scope of the field, method, constructor, or a class by applying access modifiers on it.



# Creating an Arithmetic Calculator

**Duration: 30 min.**

## **Problem Statement:**

As a developer, write a program to create an arithmetic calculator.



LESSON-END PROJECT