

## GRADLE

### Gradle installieren

```
C:\Users\marle>gradle --version

Welcome to Gradle 7.6!

Here are the highlights of this release:
- Added support for Java 19.
- Introduced `--rerun` flag for individual task rerun.
- Improved dependency block for test suites to be strongly typed.
- Added a pluggable system for Java toolchains provisioning.

For more details see https://docs.gradle.org/7.6/release-notes.html

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Gradle 7.6
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Build time:   2022-11-25 13:35:10 UTC
Revision:    daece9dbc5b79370cc8e4fd6fe4b2cd400e150a8

Kotlin:      1.7.10
Groovy:      3.0.13
Ant:         Apache Ant(TM) version 1.10.11 compiled on July 10 2021
JVM:         17.0.5 (Eclipse Adoptium 17.0.5+8)
OS:          Windows 11 10.0 amd64

C:\Users\marle>_
```

### Gradle Projekt erstellt

```
C:\Users\marle\gradle-tutorial>gradle init
Starting a Gradle Daemon (subsequent builds will be faster)

Select type of project to generate:
 1: basic
 2: application
 3: library
 4: Gradle plugin
Enter selection (default: basic) [1..4] 1

Select build script DSL:
 1: Groovy
 2: Kotlin
Enter selection (default: Groovy) [1..2] 1

Generate build using new APIs and behavior (some features may change in the next minor release)? (default: no) [yes, no]

Project name (default: gradle-tutorial): gradle-tutorial

> Task :init
Get more help with your project: Learn more about Gradle by exploring our samples at https://docs.gradle.org/7.6/samples

BUILD SUCCESSFUL in 4m 34s
2 actionable tasks: 2 executed
C:\Users\marle\gradle-tutorial>_
```

## Verfügbare Gradle tasks nach erstellen des Projektes

```
C:\Users\marle\gradle-tutorial>gradlew tasks
Downloading https://services.gradle.org/distributions/gradle-7.6-bin.zip
.....10%.....20%.....30%.....40%.....50%.....60%.....70%.....80%.....
.....90%.....100%

> Task :tasks

-----
Tasks runnable from root project 'gradle-tutorial'
-----

Build Setup tasks
-----
init - Initializes a new Gradle build.
wrapper - Generates Gradle wrapper files.

Help tasks
-----
buildEnvironment - Displays all buildscript dependencies declared in root project 'gradle-tutorial'.
dependencies - Displays all dependencies declared in root project 'gradle-tutorial'.
dependencyInsight - Displays the insight into a specific dependency in root project 'gradle-tutorial'.
help - Displays a help message.
javaToolchains - Displays the detected java toolchains.
outgoingVariants - Displays the outgoing variants of root project 'gradle-tutorial'.
projects - Displays the sub-projects of root project 'gradle-tutorial'.
properties - Displays the properties of root project 'gradle-tutorial'.
resolvableConfigurations - Displays the configurations that can be resolved in root project 'gradle-tutorial'.
tasks - Displays the tasks runnable from root project 'gradle-tutorial'.

To see all tasks and more detail, run gradlew tasks --all

To see more detail about a task, run gradlew help --task <task>

BUILD SUCCESSFUL in 14s
1 actionable task: 1 executed
C:\Users\marle\gradle-tutorial>
```

## Java Class erstellen

```
GradleTutorial.java X
C:\Users\marle\gradle-tutorial>src\main\java\com\marleenlorenz\GradleTutorial.java
1 package main.java.com.marleenlorenz;
2
3 public class GradleTutorial{
4     public static void main(String[] args){
5         System.out.println("Gradle 4tw!");
6     }
7 }
```

Java Plugin in build.gradle hinzufügen → hinzufügen von neuen Tasks

```
GradleTutorial.java  build.gradle X
C: > Users > marle > gradle-tutorial > build.gradle
1  plugins {}
2      id 'java'
3  }
```

```
C:\Users\marle\gradle-tutorial>gradlew tasks

> Task :tasks

-----
Tasks runnable from root project 'gradle-tutorial'
-----

Build tasks
-----
assemble - Assembles the outputs of this project.
build - Assembles and tests this project.
buildDependents - Assembles and tests this project and all projects that depend on it.
buildNeeded - Assembles and tests this project and all projects it depends on.
classes - Assembles main classes.
clean - Deletes the build directory.
jar - Assembles a jar archive containing the main classes.
testClasses - Assembles test classes.

Build Setup tasks
-----
init - Initializes a new Gradle build.
wrapper - Generates Gradle wrapper files.

Documentation tasks
-----
javadoc - Generates Javadoc API documentation for the main source code.

Help tasks
-----
buildEnvironment - Displays all buildscript dependencies declared in root project 'gradle-tutorial'.
dependencies - Displays all dependencies declared in root project 'gradle-tutorial'.
dependencyInsight - Displays the insight into a specific dependency in root project 'gradle-tutorial'.
help - Displays a help message.
javaToolchains - Displays the detected java toolchains.
outgoingVariants - Displays the outgoing variants of root project 'gradle-tutorial'.
projects - Displays the sub-projects of root project 'gradle-tutorial'.
properties - Displays the properties of root project 'gradle-tutorial'.
resolvableConfigurations - Displays the configurations that can be resolved in root project 'gradle-tutorial'.
tasks - Displays the tasks runnable from root project 'gradle-tutorial'.

Verification tasks
-----
check - Runs all checks.
test - Runs the test suite.

Rules
-----
Pattern: clean<TaskName>: Cleans the output files of a task.
Pattern: build<ConfigurationName>: Assembles the artifacts of a configuration.

To see all tasks and more detail, run gradlew tasks --all

To see more detail about a task, run gradlew help --task <task>

BUILD SUCCESSFUL in 3s
1 actionable task: 1 executed
```

Gradlew build ausführen → neuer Build Ordner erstellt für Ablagen der Files während des Builds

```
C:\Users\marle\gradle-tutorial>gradlew build

BUILD SUCCESSFUL in 2s
2 actionable tasks: 2 executed
```

Build.gradle erweitern um jar -task Configuration zum öffnen der jar Datei

```
GradleTutorial.java  build.gradle X
> Users > marle > gradle-tutorial > build.gradle
1  ∨ plugins {
2      id 'java'
3  }
4
5  ∨ jar {
6      manifest {
7          attributes 'Main-Class': 'main.java.com.marleenlorenz.GradleTutorial'
8      }
9  }
```

```
C:\Users\marle\gradle-tutorial>gradlew build

BUILD SUCCESSFUL in 1s
2 actionable tasks: 1 executed, 1 up-to-date
C:\Users\marle\gradle-tutorial>java -jar build\libs\gradle-tutorial.jar
Gradle 4tw!
```

Test Class um zu sehen ob es einen Fehler beim Build gab

```
GradleTutorial.java  build.gradle  GradleTutorial.Test.java X
ers > marle > gradle-tutorial > src > test > java > com > marleenlorenz >
import org.junit.Test;

import main.java.com.marleenlorenz.GradleTutorial;

public class GradleTutorialTest{
    @Test
    public void verifyNoExceptionThrown(){
        GradleTutorial.main(new String[]{});
    }
}
```

Build.gradle erweitern um repositories und dependencies zum abrufen der Dependencies aus dem Internet

GradleTutorial.java build.gradle X GradleTutorialTest.java

> Users > marle > gradle-tutorial > build.gradle

```
1  plugins {
2      id 'java'
3  }
4
5  jar {
6      manifest {
7          attributes 'Main-Class': 'main.java.com.marleenlorenz.GradleTutorial
8      }
9  }
10
11 repositories {
12     mavenCentral()
13 }
14
15 dependencies {
16     testImplementation group: 'junit', name: 'junit', version: '4.13.2'
17 }
```

```
C:\Users\marle\gradle-tutorial>gradlew build

BUILD SUCCESSFUL in 3s
4 actionable tasks: 2 executed, 2 up-to-date
C:\Users\marle\gradle-tutorial>
```

## Test Summary

1

tests

0

failures

0

ignored

0.007s

duration

100%

successful

Packages		Classes				
Package	Tests	Failures	Ignored	Duration	Success rate	
test.java.com.marleenlorenz	1	0	0	0.007s	100%	

Generated by [Gradle 7.6](#) at 06.01.2023, 10:14:52

TicTacToe einbinden

```

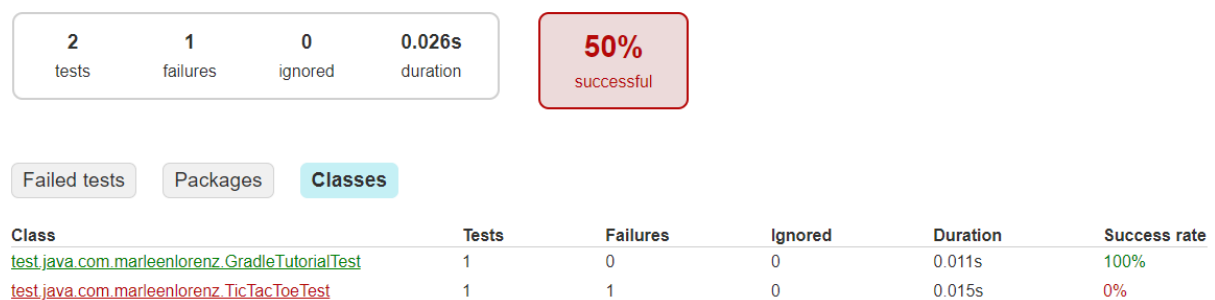
GradleTutorial.java
1 package main.java.com.marleenlorenz;
2
3 import java.util.ArrayList;
4 import java.util.Arrays;
5 import java.util.List;
6 import java.util.Random;
7 import java.util.Scanner;
8
9 import javax.naming.spi.DirStateFactory.Result;
10
11 public class TicTacToe {
12
13     static ArrayList<Integer> playerPosition = new ArrayList<Integer>();
14     static ArrayList<Integer> cpuPosition = new ArrayList<Integer>();
15
16     public static void main(String[] args) {
17
18         char [] [] gameBoard = {{ ' ', ' ', ' ', ' ', ' ', ' ' },
19                                 { ' ', ' ', ' ', ' ', ' ', ' ' },
20                                 { ' ', ' ', ' ', ' ', ' ', ' ' },
21                                 { ' ', ' ', ' ', ' ', ' ', ' ' },
22                                 { ' ', ' ', ' ', ' ', ' ', ' ' },
23                                 { ' ', ' ', ' ', ' ', ' ', ' ' } };
24
25     }
26 }

TicTacToeTest.java
1 package test.java.com.marleenlorenz;
2
3 import org.junit.Test;
4
5 import main.java.com.marleenlorenz.TicTacToe;
6
7 public class TicTacToeTest {
8     @Test
9     public void verifyNoExceptionThrown() {
10         TicTacToe.main(new String[]{});
11     }
12 }

```

## Build Fehler für TicTacToe

### Test Summary



Erweiterung der build.gradle um java.base dependencie für import java.util.\*

```

build.gradle
1 plugins {
2     id 'java'
3 }
4
5 jar {
6     manifest {
7         attributes 'Main-Class': 'main.java.com.marleenlorenz.GradleTutorial'
8     }
9 }
10
11 repositories {
12     mavenCentral()
13 }
14
15 dependencies {
16     testImplementation group: 'junit', name: 'junit', version: '4.13.2'
17     //implementation group: 'javax.naming', name: 'jndi', version: '1.2.1'
18     implementation group: 'de.mirkosertic.bytecoder', name: 'java.base', version: '2021-08-01'
19 }
20

```

Weiterhin Build Error durch java.util.Scanner

