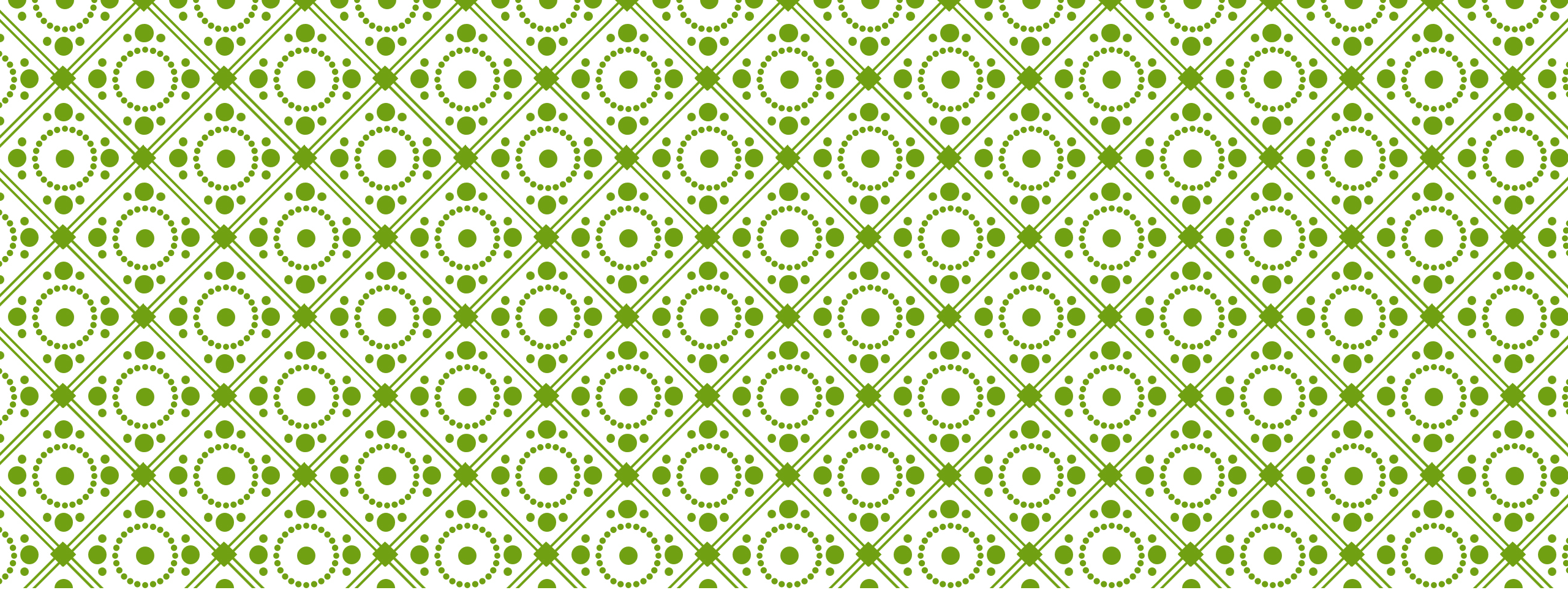
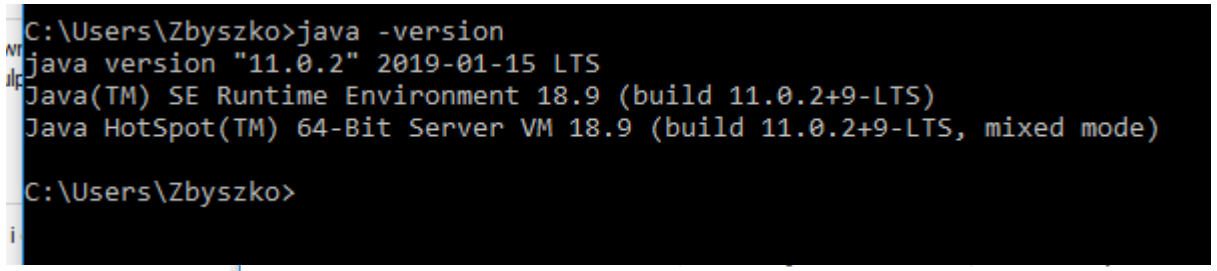


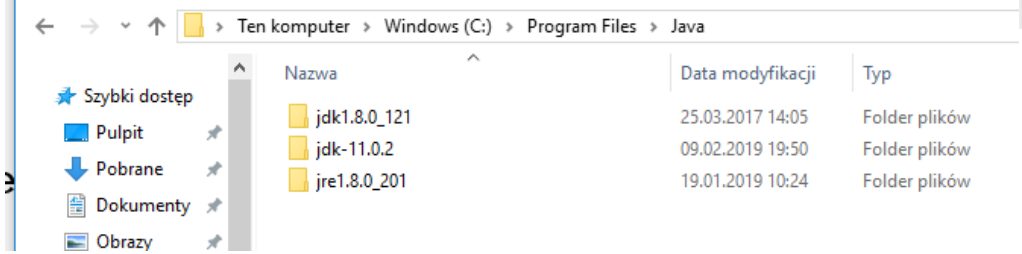
NARZĘDZIA I TECHNOLOGIE WSPOMAGAJĄCE PROGRAMOWANIE

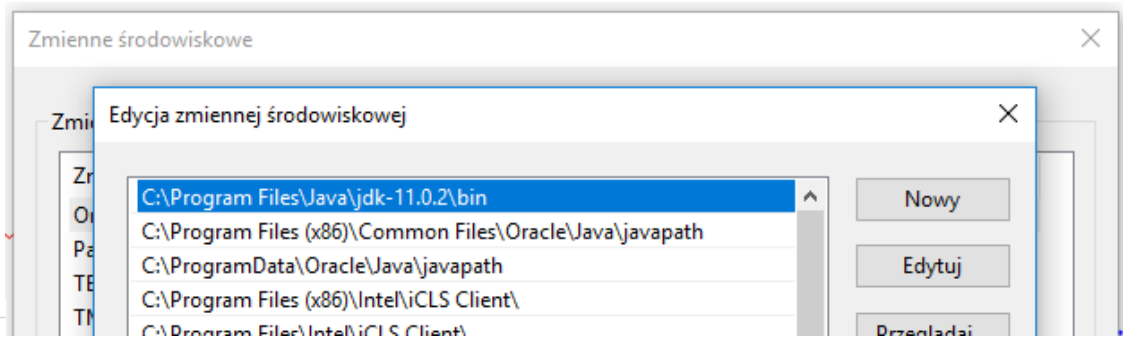
Edycja 2019

INTRODUCTORY EXERCISE

- Install newest Java (JDK 11)
- Set environment variable: JAVA_HOME in your operating system
- Using command line or terminal, type: java -version





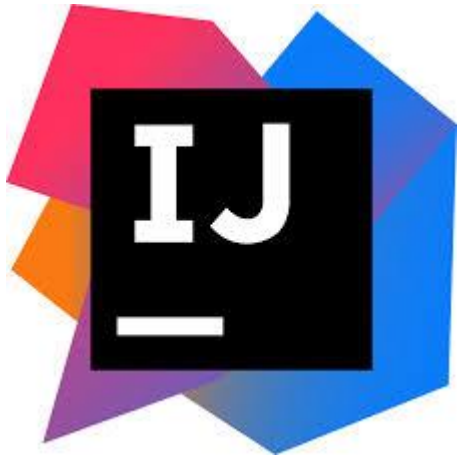


INSTALL YOUR IDE

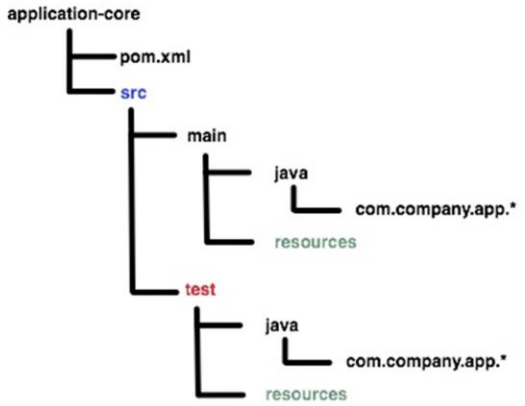
If you don't have Integrated Development Environment (IDE), it is a good time to install!

Recommendation: IntelliJ

Other: Eclipse or Netbeans



START YOUR DEVELOPMENT WITH MAVEN!



- Advanced build tool to support the developer at the whole process of a software project
  - Typical developer tasks: compile, tests, pack into JAR, run
- Automates creation of the initial folder structure for the Java application
- Management of dependencies (no need to manual download of external libraries)
- Repository: dependencies can be loaded from the local file system, from the Internet or public repositories
- Management of releases
- Simple usage: supply project templates (archetypes)
- Convention over configuration: avoid as much configuration as possible, by choosing real world default values
- Extensible (plugins)
- Empower pom.xml

SCAFFOLDING A PROJECT WITH MAVEN

- Maven supports project scaffolding, based on project templates called archetype
- Maven comes with number of „ready-to-go” archetypes
- Extremely speeds up the development preparation
- Type: *mvn archetype:generate*
- A pom should minimum have the following information:
  - modelVersion
  - groupId
  - artifactId
  - version

```
<project>
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.mycompany.app</groupId>
  <artifactId>my-app</artifactId>
  <version>1</version>
</project>
```

```
mvn archetype:generate -DarchetypeGroupId=org.apache.maven.archetypes -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4
```

https://maven.apache.org/archetypes/maven-archetype-quickstart/

MAVEN LIFECYCLES, PHASES, GOALS

- 3 built-in build lifecycles:
  - **default** - project deployment
  - **clean** - project cleaning
  - **site** - creation of project's documentation
- Each lifecycles is defined by a different list of phases, wherein a phase represents a stage in the lifecycle.
- For example, the default lifecycle comprises of the following phases:
  - **validate** - check project correctness
  - **compile**
  - **test** - test the compiled source code using a unit testing
  - **package** - take the compiled code and package into distributable format (JAR/WAR)
  - **verify** - run any checks on results of integration tests to ensure quality criteria are met
  - **install** - install the package into the local repository
  - **deploy** - copies the final package to the remote repository for sharing with other developers and projects.
- Phase is made up of plugin goals

MAVEN EXERCISE

- Download maven package
- Set environment variable: MAVEN_HOME
- Using command line or terminal, check your maven version: *mvn -v* or *mvn --version*
- Generate project with archetype „quickstart” (default)
- Import project into IDE
- Review pom.xml
- Build package using Maven (using command line)
- Add project lombok dependency
- Create simple Java class with lombok annotation
- Build again using Maven

LOMBOK PROJECT

- Reduce boilerplate code
- Generation of constructors, getters/setters, equal and hashCode, toString methods via annotations:
  - @EqualsAndHashCode
  - @ToString
  - @AllArgsConstructor
  - @Getter
  - @Setter
- Automatic beans creation
  - @Data
- Builder design pattern
  - @Builder
- More: https://projectlombok.org

```
<dependency>
  <groupId>org.projectlombok</groupId>
  <artifactId>lombok</artifactId>
  <version>1.18.6</version>
  <scope>provided</scope>
</dependency>
```

ANOTHER MAVEN'S KEY FEATURES THAT ARE WORTH TO BE KNOWN

- Wrappers
- Multi module projects (aggregator)
- Profile
- Own plugins
- Adding goals to life cycle phases
- Local/Remote/Central repositories
- Resolving conflicts using the dependency tree
  - mvn dependency:tree

- Read more: http://maven.apache.org/index.html

MAVEN EXERCISE 2

- Create two independent projects
  - First provides model-api (use lombok lib)
  - Second uses provided api (create model class instances and prints them on console)
  - Provide several release versions with updated api
  - Localize where model jars are deployed
- Create two separate profiles and three properties files
  - First `dev` profile is for developing purposes and reads config.dev.properties file
  - Second `prod` profile is for release purpose and reads config.prod.properties file
  - Third properties file should be named: config.properties
  - All useful code snippets could be find here:
    - https://github.com/zzpj/pl-java2019/blob/master/maven-helpful-snippets.md