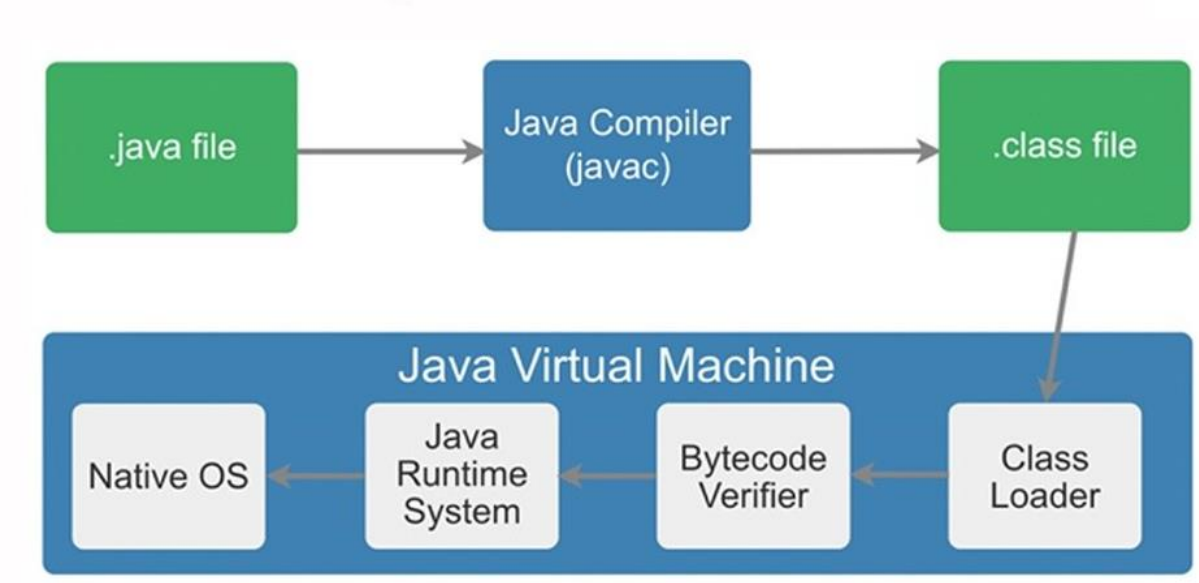
Java Training
1. Tools

Agenda

- Byte code
- Class path
- Work with IDE
- Maven
- Version control systems (Git)

Java virtual machine (JVM)

How JVM handles your code



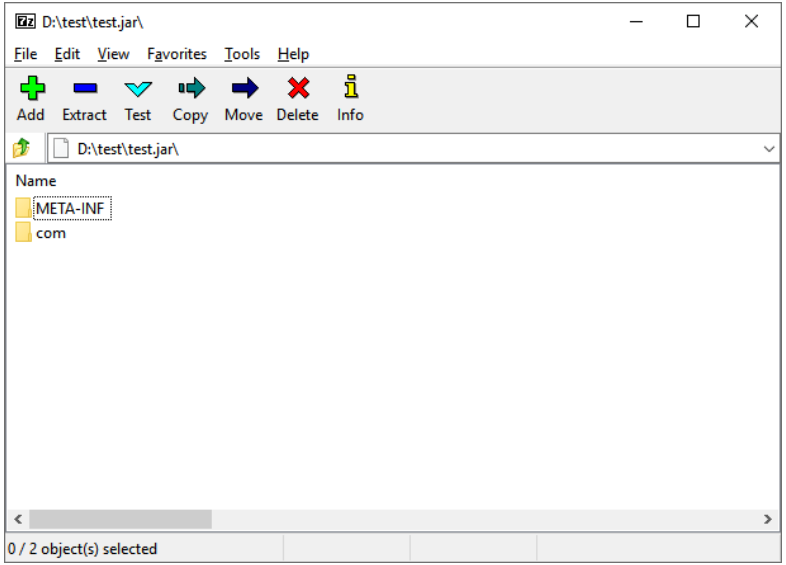
What is bytecode?

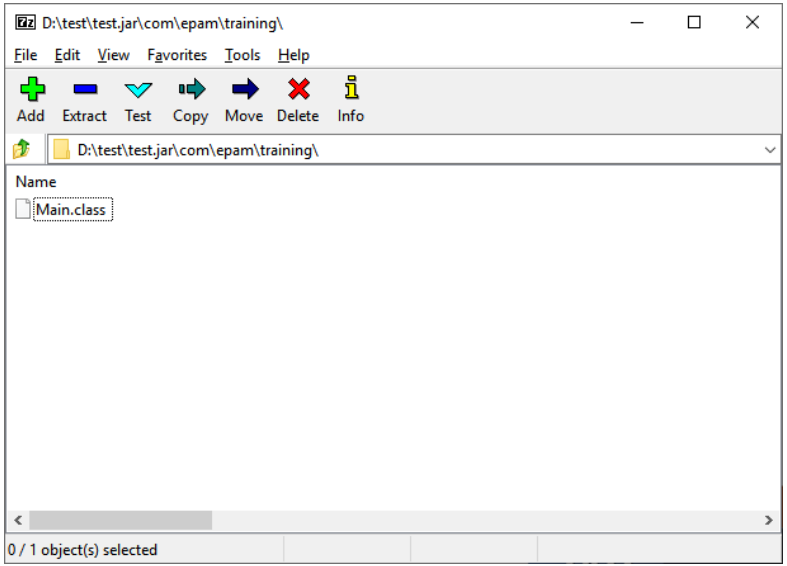
Java bytecode is the instruction set for the Java Virtual Machine. As soon as a java program is compiled, java bytecode is generated. With the help of java bytecode we achieve platform independence in java.

Class path

Class path shows compiler where to look for classes which are required for building/running the project

What is jar?


D:\test\test.jar\
File Edit View Favorites Tools Help
Add Extract Test Copy Move Delete Info
D:\test\test.jar\
Name
META-INF
com
0 / 2 object(s) selected


D:\test\test.jar\com\epam\training\
File Edit View Favorites Tools Help
Add Extract Test Copy Move Delete Info
D:\test\test.jar\com\epam\training\
Name
Main.class
0 / 1 object(s) selected

JAR

What jar provides us with?

- Cross platform archive format
- Easy way to run your project on another device
- Great format for java library

maven

What is maven?

Apache Maven is a tool to automatically build your Project which provides easy dependency management and other benefits.

```
<dependency>
   <groupId>org.junit</groupId>
   <artifactId>junit</artifactId>
   <version>4.11.0</version>
</dependency>
```

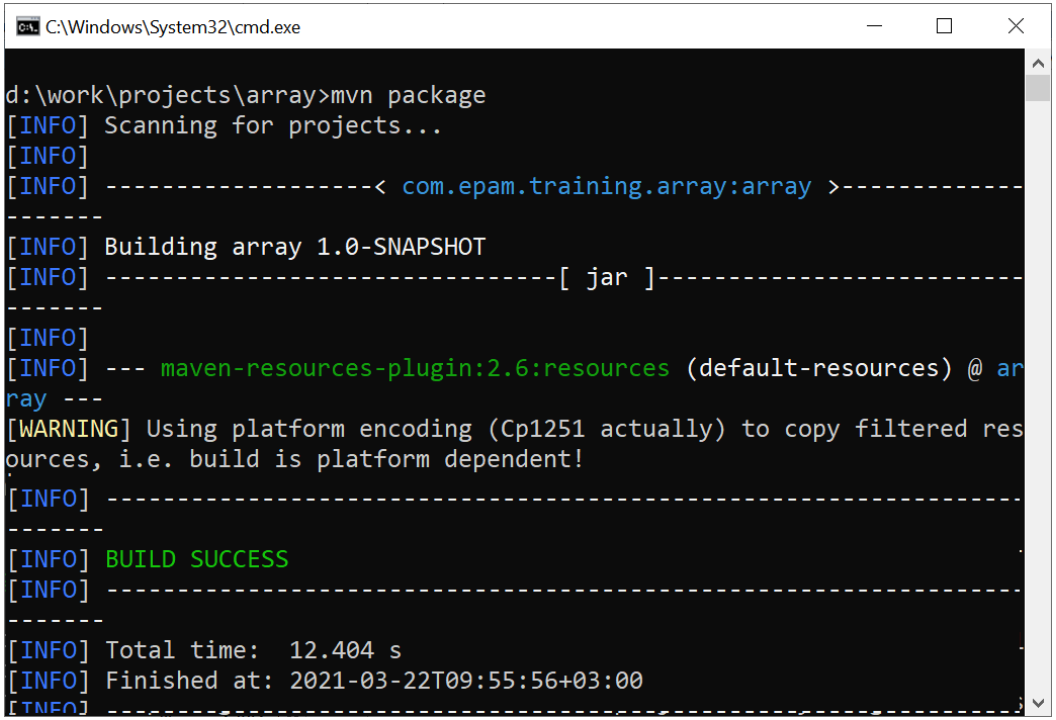
What it does?

- Creates project structure
- Makes it easy to add dependencies
- Solves dependencies conflicts

Maven phases

- Validate
- Compile
- Test
- Package

MVN PACKAGE


C:\Windows\System32\cmd.exe
d:\work\projects\array>mvn package
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< com.epam.training.array:array >-------------
----
[INFO] Building array 1.0-SNAPSHOT
[INFO] --------------------------------[jar]---------------------------
----
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ ar
ray ---
[WARNING] Using platform encoding (Cp1251 actually) to copy filtered res
ources, i.e. build is platform dependent!
[INFO] --

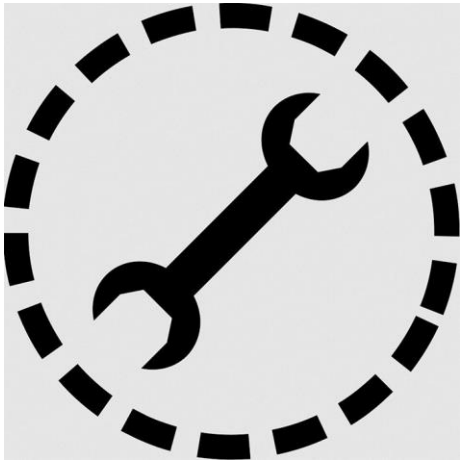
[INFO] BUILD SUCCESS
[INFO] --

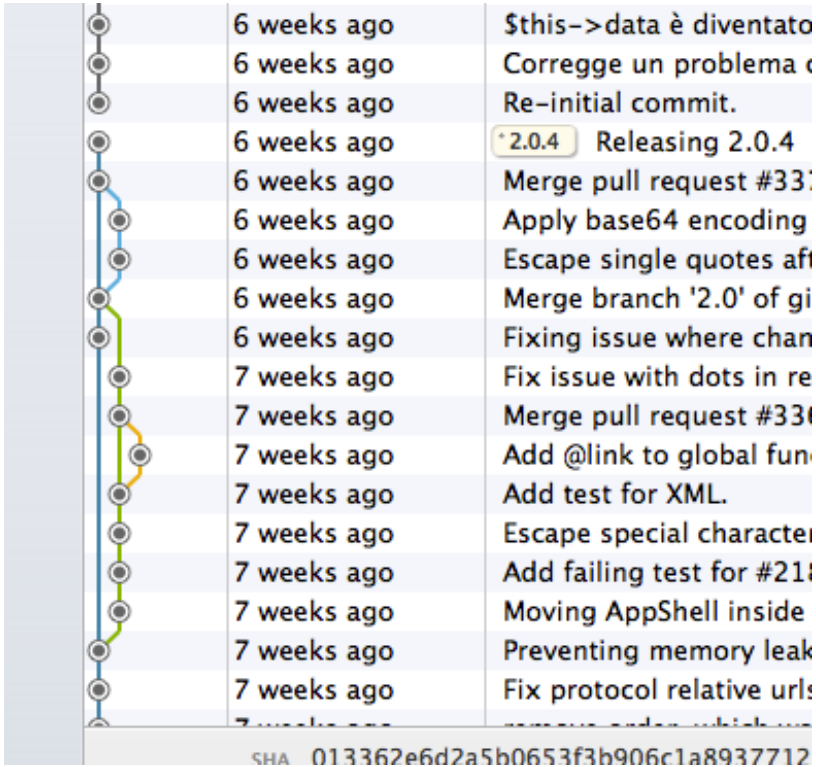
[INFO] Total time: 12.404 s
[INFO] Finished at: 2021-03-22T09:55:56+03:00

Version control system (VCS)

Version control system are a category of software tools that help a software team manage changes to source code over time

VCS helps developers to store different versions of software safely and in an organized manner. With this a Software Engineer can quickly identify which version be modified and what commits had been done previously and should be done




6 weeks ago $this->data è diventato
6 weeks ago Corregge un problema
6 weeks ago Re-initial commit.
6 weeks ago 2.0.4 Releasing 2.0.4
6 weeks ago Merge pull request #33
6 weeks ago Apply base64 encoding
6 weeks ago Escape single quotes af
6 weeks ago Merge branch '2.0' of gi
6 weeks ago Fixing issue where chan
7 weeks ago Fix issue with dots in re
7 weeks ago Merge pull request #33
7 weeks ago Add @link to global fun
7 weeks ago Add test for XML.
7 weeks ago Escape special character
7 weeks ago Add failing test for #21
7 weeks ago Moving AppShell inside
7 weeks ago Preventing memory leak
7 weeks ago Fix protocol relative urls
SHA 013362e6d2a5b0653f3b906c1a8937712

When you need to troubleshoot an issue, you can easily access and compare the last working file with the faulty file, and decrease the time spent identifying the cause of an issue. You can restore older versions of a file effectively through the use of VCS ”

Developers can easily collaborate on a project through the VCS. VCS allows developers store the history of changes and who made them, enabling them to revert or look back to previous versions of documents and understand how contributions by different contributors have changed the project over time

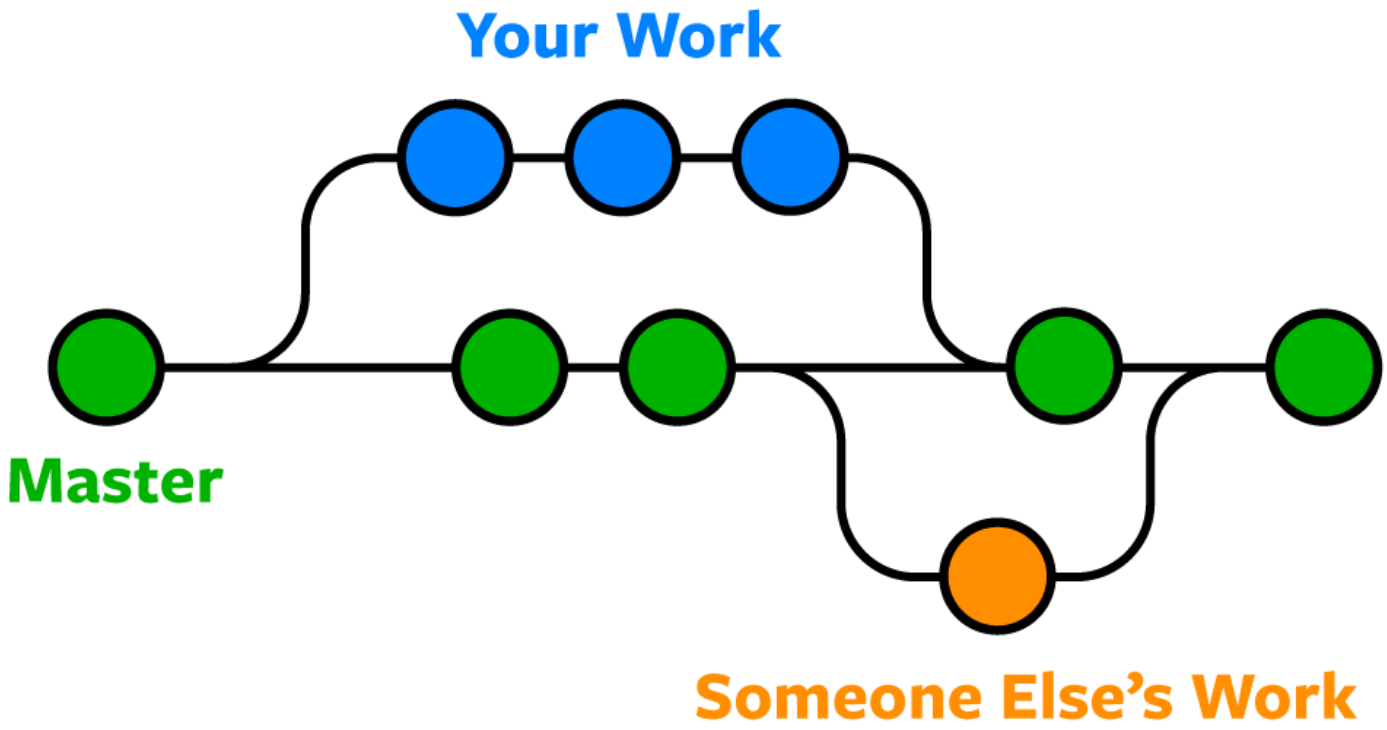
```
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/20/2021 FilippStankevichTR
3/21/2021 filippstankevich *
3/21/2021 filippstankevich *
3/21/2021 filippstankevich *
3/21/2021 filippstankevich *
```

```
.menu-item{
    padding: 10px 10px;
    text-decoration: none;
    font-size: 25px;
    color: white;
    display: block;
}
.title{
    color: white;
    padding: 10px 10px;
}

.login-error{
    color: red;
}
```

A distributed VCS acts as a backup. If a central server does down, a developer can retrieve one of his/her teammates local VCS repository. However, take note that VCS is not generally a backup system so do not cram files on your remote server

Branching

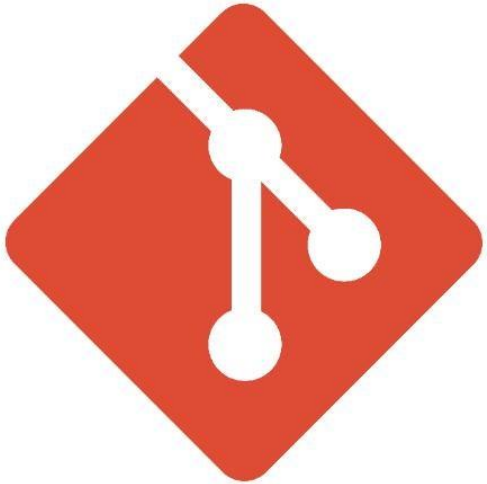


mercurial

git

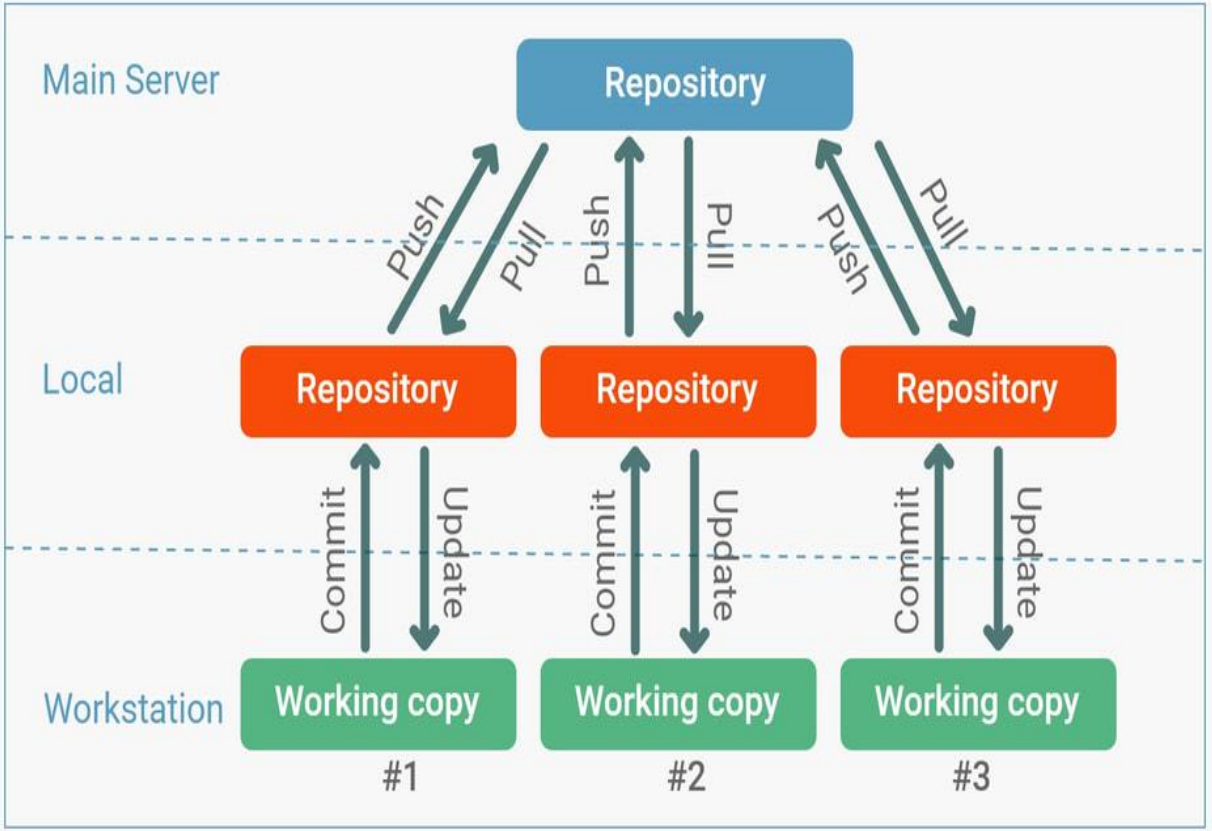
SUBVERSION

What is Git ?



A Distributed Version Control System. The most popular & widely used modern version control system today. Originally developed by Linus Torvalds the creator of the Linux kernel

Distributed Version Control System

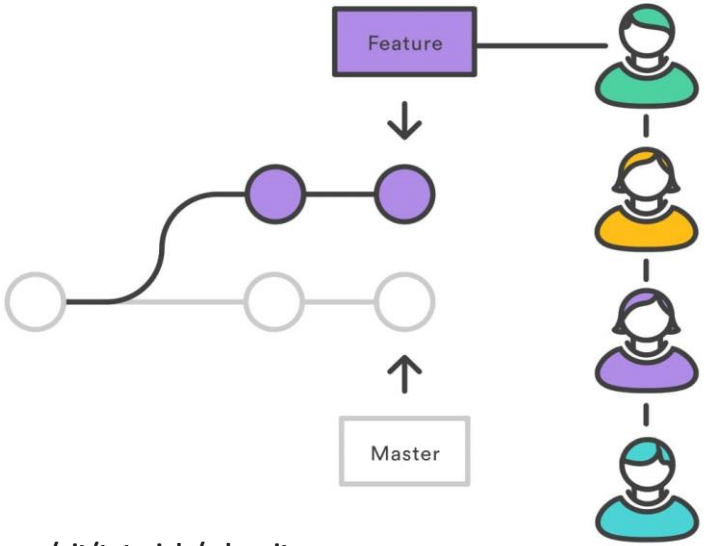


Why Git?

- Easy to learn
- Powerful
- Performance
- Flexible
- Open Source

Pull Requests

Many source code management tools such as GitHub enhance core Git functionality with pull requests. A pull request is a way to ask another developer to merge one of your branches into their repository. This not only makes it easier for project leads to keep track of changes, but also lets developers initiate discussions around their work before integrating it with the rest of the codebase



https://www.atlassian.com/git/tutorials/why-git

GitHub

GitLab

Bitbucket

Recommended materials

- https://maven.apache.org/guides/getting-started
- https://www.atlassian.com/git/tutorials

Next class topics

- Code convention & Code style
- Unit testing (JUnit)
- Test Driven Development (TDD)

Homework

- Write hello world app and make a pull request for it in Git

Thanks