

Faculty of Mathematics and Physics
Charles University in Prague
1st March 2016



UT2004 bots made easy!

Pogamut 3

Lecture 1 – Java Revisited



Lecture 1

Outline

1. Practice Terms
2. Test
3. Java & IDEs
4. Subversion, Maven
5. JUnit
6. Assignment



Practice Terms

Credits ~ Hours Donation

1 Credit	45 minutes
Artificial Agents	2/2 points 6 credits 4,5 hours
Lecture	1,5 hours
Practice	1,5 hours
Homework	1,5 hours lower-bound!

Practice Terms

Score-based Grading

Lab Number	Tuesdays [1]						Assignment
	Topic		Attendance	Test	Test Scoring	Assignment	Scoring
				Somewhat demanding		Demanding, but we expect everybody to fullfil	
1	01.03.2016	Java Revisited	2	Java skill	6	Java-Revisited	10
2	08.03.2016	First PogamutUT2004 Steps	2	Yes	6	ChatBot	5
3	15.03.2016	Basic UT2004 Movement	2	Yes	6	Tag! Bot	10
4	22.03.2016	Steerings	2	Yes	6	Steerings	10
5	29.03.2016	Navigation	2	Yes	6	RobustNavigator	5
6	05.04.2016	A*, Visibility	2	Yes	6	Hide&Seek Bot	10
7	12.04.2016	Items & Guns	2	Yes	6	ItemCollector	5
8	19.04.2016	Deathmatch	2	Yes	6	DM Bot	10
9	26.04.2016	BOD, POSH, yaPOSH	2	Yes	6	yaPOSH DM Bot	5
10	03.05.2016	Capture the Flag	2	Yes	6	yaPOSH CTF Bot	10
11	10.05.2016	Team Communication	2	Yes	6	yaPOSH CTF Team	25
12	17.05.2016	Surprise lesson	10	No			
13	24.05.2016	Conclusion, exam checklist		No			
LABS FINAL TEST	31.05.2016	Zápočtový test					
COURSE FINAL EXAM	03.06.2016	Zkouška					
SUM			32		66		105
Total labs	12						
Max Practice Score	203						

Test 01

Java Skill

Find the test here (no-ads):

<https://goo.gl/hnx9ze>

Permanent link:

<https://docs.google.com/forms/d/18FDam6eQBle82tJdquTNYK9e9BSYN9QkDM--Cd0TdRM/viewform>

Time for the test:

20 min

Java & IDEs

Which / Where

Java

- JDK (preferably) 6, 32bit
 - <http://www.oracle.com/technetwork/java/javase/downloads/index.html>

IDEs

- NetBeans (must be) $\geq$ v7.3.1
 - <https://netbeans.org/downloads/7.3.1/>
 - Java SE version is sufficient
- Eclipse (preferably) $\geq$ v3.7.2, 32-bit
 - <http://archive.eclipse.org/eclipse/downloads/>

Java & IDEs

Configuration

Java Environment Configuration

- `$JAVA_HOME=C:\Program Files (x86)\Java\jdk1.6.0_37\`
- `$PATH=%PATH%;C:\Program Files (x86)\Java\jdk1.6.0_37\bin`
- Check `C:\Windows\System32\` and remove (move.bak) `java.exe`, `javaw.exe`, `javaws.exe`
- Watch out for Java auto-updates, it will reset your configuration

Eclipse Configuration

- Edit `ECLIPSE_HOME\eclipse.ini` blend following lines:
 - vm
 - C:/Program Files/Java/jdk1.6.0_37/bin/*
 - vmargs
 - Xms256m
 - Xmx1024m
 - XX:MaxPermSize=256M
- New lines are mandatory!

Subvesion, Maven

What? Why?

■ Source Control Management

- CVS, SVN, Mercurial, Git, ...
- *If it's not in source control, it doesn't exist.*
- <svn://artemis.ms.mff.cuni.cz/pogamut>
- See: <http://coding-time.blogspot.cz/2008/04/subversion-visually-explained-in-30sec.html>

■ Project Build Tool

- Maven, Ivy, (Ant)
- *I want to code, not assemble.*
- <http://diana.ms.mff.cuni.cz:8081/artifactory>
- See: <http://www.mkylong.com/tutorials/maven-tutorials/>
 - Truly needed is the section 'Maven Basic Operations'

Subvesion

Installation

- Pogamut is using Subversion
- Install (unpack) Subversion (SVN) console client
 - <http://sourceforge.net/projects/win32svn/>
- Set \$PATH to point to the *bin* directory of the Subversion installation
 - E.g. C:\Program files\Subversion\bin
- Install graphical SVN client
 - <http://tortoisesvn.tigris.org/>

Maven

Installation

- Pogamut is fully “Mavenized”
- Download Maven (must be) v3.0.4:
<http://maven.apache.org/download.cgi>
- Unpack to *c : \maven* (or whatever...)
- Set \$PATH to *bin* directory of the Maven installation
 - E.g. *C : \apache-maven-3.0.4\bin*
- Set \$MAVEN_OPTS=-Xmx1g -Xms128m

JUnit

Maven Tests

- `@Test`
 - Annotates methods that should be executed by JUnit runner
- `mvn test`
 - Compiles the project and executes all TESTs within the project

Assignment 1

Java Revisited

1. Checkout the assignment:
<svn://artemis.ms.mff.cuni.cz/pogamut/trunk/project/Incubator/Lectures/JavaRevisited>
2. Finish all TODOs
 - DO NOT ALTER TESTS! You may change only files within 'src' folder
3. Make sure the project passes Maven Test phase during the build

Assignment 1

Cheat Sheet

- HashMap
 - `.get(key), .containsKey(key), .put(key, value)`
- ConcurrentLinkedQueue
 - weakly consistent iterator
- `synchronized(mutex) {`
 ...
 }
 - Inner/Nested classes
- hashCode
 - `.add(...)`, and in the end `.getHash(...)`
- WeakReference<T>
 - Auto-nullifies the reference once the object is not strongly-reachable

Assignment 1

Scoring

- NullCheck, SafeEquals
 - 2 points
- Iterators
 - 2 points
- NKey
 - 2 points
- Lazy, LazyMap
 - 4 points
- Listeners
 - This class is used by Flag
 - **Extra 5 points**

Send us finished assignment

Via e-mail:

- *Subject*
 - "Pogamut homework 2016 – Assignment X"
 - Replace 'X' with the assignment number and the subject has to be without quotes of course
 - ...or face **-2 score penalization**
- *To*
 - jakub.gemrot@gmail.com
 - Jakub Gemrot (Tuesdays' practice lessons)
- *Attachment*
 - Completely zip-up your project(s) folder **except** 'target' directory and IDE specific files (or face **-2 score penalization**)
 - It must be "testable" from command line using 'mvn test'
- *Body*
 - **Please send us information about how much time it took you to finish the assignment + any comments regarding your implementation struggle**
 - *Information won't be abused/made public*
 - *In fact it helps to make the practice lessons better*
 - Don't forget to mention your full name!

Questions?

I sense a soul in search of answers...

- We do not own the patent of perfection (sadly...)
- In case of doubts about the assignment or hard problems don't hesitate to contact us!
 - Jakub Gemrot (Tuesdays' practice lessons)
 - jakub.gemrot@gmail.com