

Faculty of Mathematics and Physics
Charles University in Prague
3rd March 2014



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

Practice Number	Mondays							Practice Number	Tuesdays						
	Topic	Attendance	Test	Test Scoring	Assignment	Assignment Scoring	Topic		Attendance	Test	Test Scoring	Assignment	Assignment Scoring		
				Somewhat demanding		Demanding, but we expect everybody to fulfill					Somewhat demanding		Demanding, but we expect everybody to fulfill		
1	3.3.2014Java Revisited	2	Java skill	8	Java-Revisited	10	1	4.3.2014Java Revisited	2	Java skill	8	Java-Revisited	10		
2	10.3.2014Steps	2	Yes	8	ConsoleBot	10	2	11.3.2014Steps	2	Yes	8	ConsoleBot	10		
3	17.3.2014Movement	2	Yes	8	Tag! Bot	10	3	18.3.2014Movement	2	Yes	8	Tag! Bot	10		
4	24.3.2014Steerings	2	Yes	8	Steerings	10	4	25.3.2014Steerings	2	Yes	8	Steerings	10		
5	31.3.2014Navigation	2	Yes	8	RobustNavigator	10	5	1.4.2014Navigation	2	Yes	8	RobustNavigator	10		
6	7.4.2014A*, Visibility	2	Yes	8	Hide&Seek Bot	10	6	8.4.2014A*, Visibility	2	Yes	8	Hide&Seek Bot	10		
7	14.4.2014Items & Guns	2	Yes	8	ItemCollector	10	7	15.4.2014Items & Guns	2	Yes	8	ItemCollector	10		
8	21.4.2014Happy Easter!						8	22.4.2014Happy Easter!							
	28.4.2014POSH + BOD	2	Yes	8	DM Bot	10		29.4.2014POSH + BOD	2	Yes	8	DM Bot	10		
9	5.5.2014Team Communication	2	Yes	8			9	6.5.2014Team Communication	2	Yes	8				
10	12.5.2014CTF	2	Yes	8	CTF Bot	20	10	13.5.2014CTF	2	Yes	8	CTF Bot	20		
11	19.5.2014Conclusion	2	Yes	8			11	20.5.2014Conclusion	2	Yes	8				
PRACTICE															
FINAL TEST	23.5.2014Zápočtový test								23.5.2014Zápočtový test						
COURSE															
FINAL EXAM	30.5.2014Zkouška								30.5.2014Zkouška						
SUM		22		88		100	SUM		22		88		100		
Total practice days	11							Total days	0						
Max Practice Score	210							Max Practice Score	210						

Checkout the full version [here](#) !

Test 01

Java Skill

Find the test here (no-ads):

<http://goo.gl/XntWp8>

Permanent link:

https://docs.google.com/spreadsheet/viewform?usp=drive_web&formkey=dDRSbHpTenpRMS1BYmxSa2tjVUZ1Nmc6MA#gid=0

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) v7.3.1
 - <https://netbeans.org/downloads/7.3.1/>
 - Java SE version is sufficient
- Eclipse (preferably) 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 2014 – 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)
 - michal.bida@gmail.com
 - Michal Bida (Mondays' 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 (yet...)
- 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
 - Michal Bída (Mondays' practice lessons)
 - michal.bida@gmail.com