

Distributed Systems

Lab Sessions



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Introduction

- › 9 lab sessions
- › Hands-on experience with
distributed systems technologies
- › Important part of the **exam** material!

Schedule

› First block: **remote communication** (1 session each)

›› *Remote method invocation:* Java RMI

›› *HTTP-based remote procedure calls:* REST

Schedule

- › Second block: **distributed cloud applications**

(4 mandatory, 3 optional sessions)

- ›› *Development* of service-oriented application (*mandatory*)
- ›› *Deployment* to cloud - Google App Engine (*optional*)

Assignments

› Remote communication:

- ›› 1 **mandatory** submission - after 2nd lab session
- ›› **One deliverable: report**

› Distributed cloud applications:

- ›› 1 **mandatory** submission - after 6th lab session
- ›› 1 **optional** submission - after 9th lab session
- ›› **Two deliverables** each: **code** of your solution + **report**

Assignments

- › In teams of **2 students**:
 - › **Each** student submits their deliverables through Toledo
 - › **Register** group through Toledo
 - › Use discussion board to search partner
 - › By the first submission = 2nd lab session
 - › Both do the same for optional part (participate or not)

Lab sessions

- › **Q&A sessions**, Tuesday 10:30-13:00
 - › Physically in the computer labs (200A)
SOL N & Z (200A 00.25 & 00.26), Computerleslokaal (200A 00.124)
 - › **Everyone** should attend, for announcements and to ask questions
- › Using own PC: check “**Bring Your Own Device**” guide

Lab sessions

- › **Be prepared** for the lab sessions!
 - ›› Only opportunity to ask TAs questions
 - ›› Pay attention when following the **lectures**
 - ›› Check the relevant **course material** in advance
(See Toledo for slides, tutorials and assignments)

How to prepare for Java RMI?

› To read:

- ›› Lecture *Java RMI*: **03/10** – slides on Toledo
- ›› Assignment text: on Toledo

› To look through:

- ›› Live demo's: **03/10** – slides + code on Toledo
- ›› Getting Started Using Java RMI:

<https://docs.oracle.com/javase/8/docs/technotes/guides/rmi/hello/hello-world.html>

- ›› Java RMI Tutorial:

<https://docs.oracle.com/javase/tutorial/rmi/index.html>

› Theory: Lecture *Direct Communication*

How to prepare for REST?

› To read:

- ›› Lecture *Service Oriented Architectures (REST)*: **10/10** – slides on Toledo
- ›› Assignment text: on Toledo

› To look through :

- ›› Live demo: **10/10**
- ›› Building a RESTful Web Service:
<https://spring.io/guides/gs/rest-service/>
- ›› Describing and documenting REST APIs with OpenAPI 3.0:
<https://support.smartbear.com/swaggerhub/docs/tutorials/openapi-3-tutorial.html>

› Theory: Lecture *Direct Communication*

How to prepare for Cloud – level 1 (mandatory)?

› To read:

- ›› Lecture *Cloud: Google Cloud*: **17/10** – slides on Toledo
- ›› Assignment text: on Toledo

› To look through:

- ›› Live demo: **17/10**
- ›› Assignment text contains lots of links to documentation – use them!
- ›› Google Cloud Pub/Sub Tutorials:

<https://cloud.google.com/pubsub/docs/tutorials>

› Theory: Lecture *Indirect Communication*

How to prepare for Cloud – level 2 (optional)?

- › To read (same as level 1):
 - ›› Lecture *Cloud: Google Cloud*: **17/10** – slides on Toledo
 - ›› Assignment text: on Toledo
- › To look through:
 - ›› Live demo: **14/11**
 - ›› Firestore code samples:
<https://cloud.google.com/firestore/docs/samples>
- › Theory: Lecture *Replication, Transactions*

Planning

		Lab session Tuesday 10:30-13:00	Submission Friday 19:00
Remote comm.	Java RMI	10 Oct	20 Oct
	REST	17 Oct	
Cloud app.	Mandatory (x4)	24, 31 Oct, 7, 14 Nov	17 Nov
	Optional (x3)	21, 28 Nov, 5 Dec	8 Dec

What to do (as soon as possible)

- › **Enroll** in English Toledo course (H0N08a)
- › **Find a partner** for the lab sessions
- › **Register group** on Toledo
 - ›› *At the latest on Monday 9 October!*

Questions?

- › Via **distributedsystems@cs.kuleuven.be**
- › Not an online help desk!
 - ›› Content questions → only in the lab sessions
 - ›› Administrative issues → via email

DistrINet