ETH zürich

SEB User Exchange: Resource-Rich Online Examinations with Third Party Applications @ ETH Zurich

Agenda

1. Online examinations @ ETH Zurich
2. “Resource rich” examinations
3. Online examinations as service
4. Technical setup

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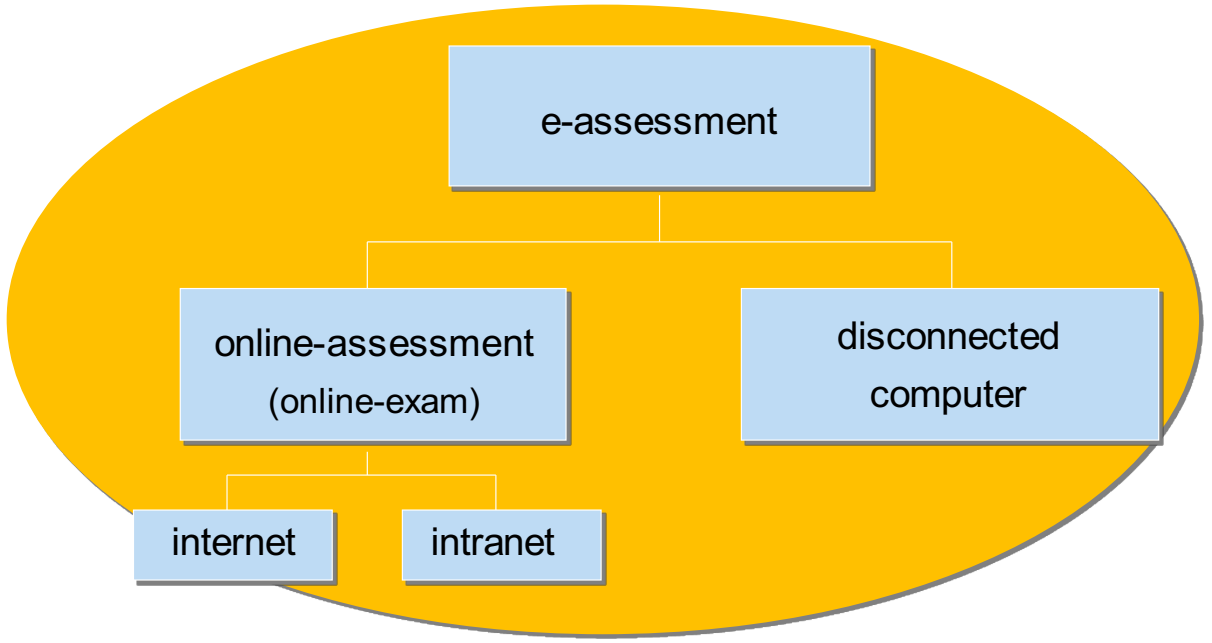
Online Examinations @ ETH Zurich: Terminology

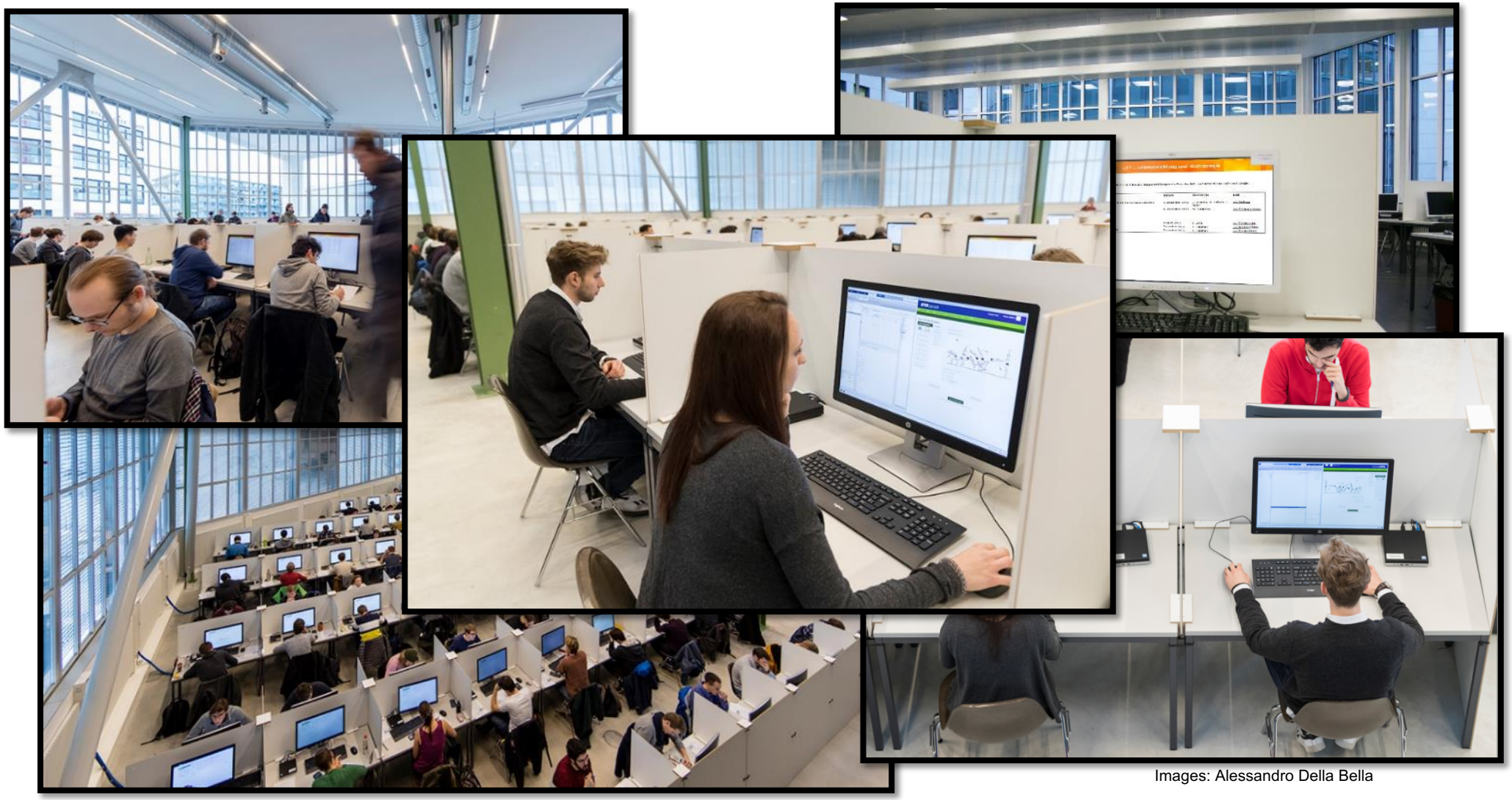
- Online
- Summative
- With credit
- Proctored
- On campus
- Managed infrastructure



Online Examinations @ ETH Zurich: Overview

- 2007 first pilots, 2010 regular service
- ~130 exams with ~10’600 students in spring term 2019
- High proportion of selective, high-stakes examinations
- Summative examinations designed by lecturers
- Important role of first year university examinations in Switzerland

Online Examinations @ ETH Zurich: Impressions



Images: Alessandro Della Bella

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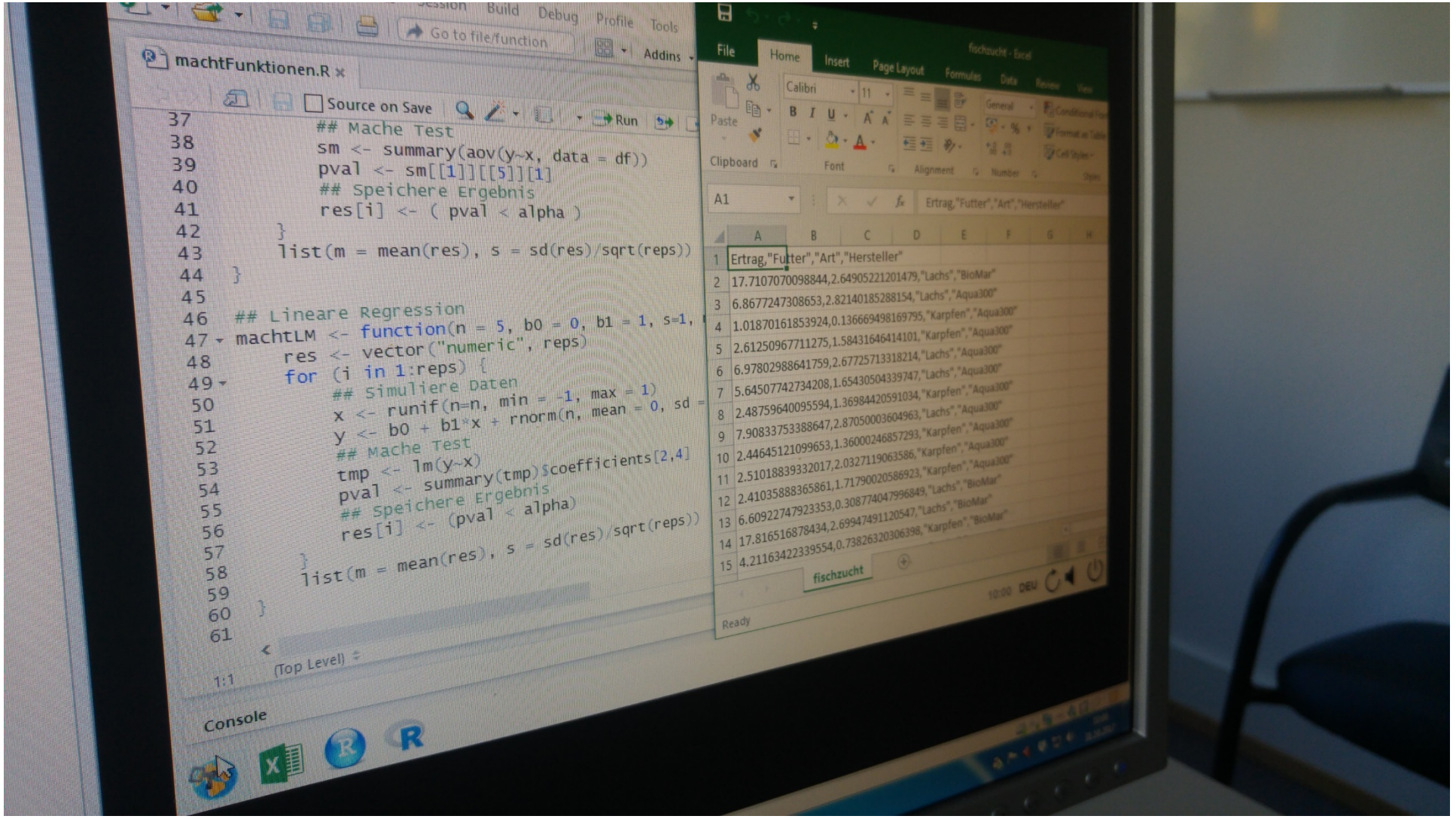
Why Resource Rich? → Examination Quality!

1. Improve learning outcomes
   by making examinations more meaningful and motivating to students

2. Improve measurement quality (i.e. validity)
   of competence assessments

Resource rich examination: Statistics II – Exam in R-Studio

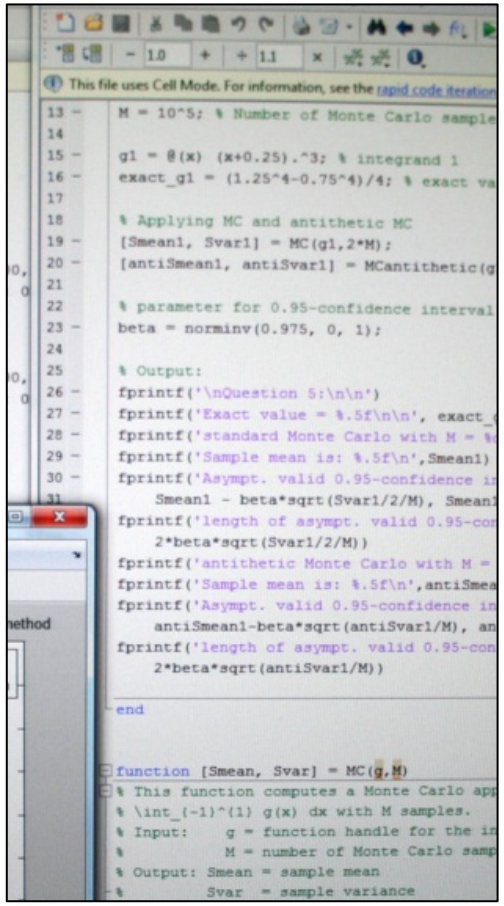


Resource rich examination: Online-Exam in Crop Pathology III

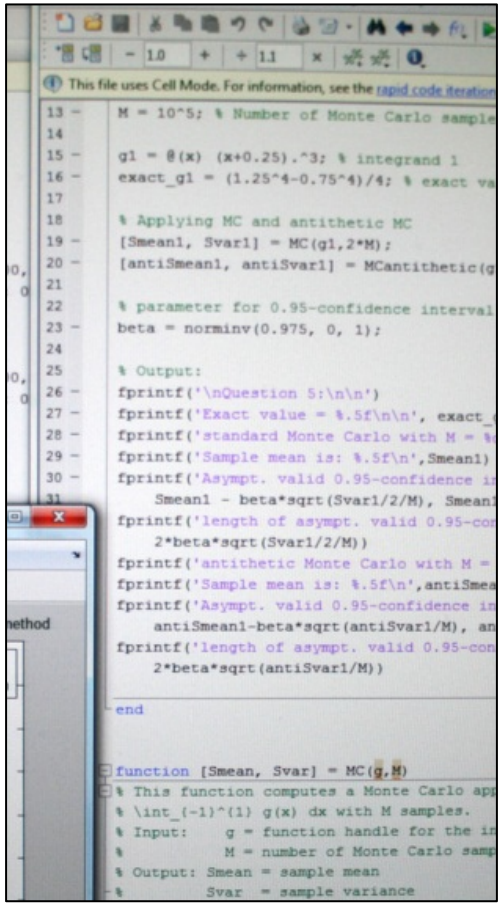
Preparation of specimen for analysis and diagnosis on an USB-Microscope. Upload of microscope images to a Moodle exam.

Images: Alessandro Della Bella

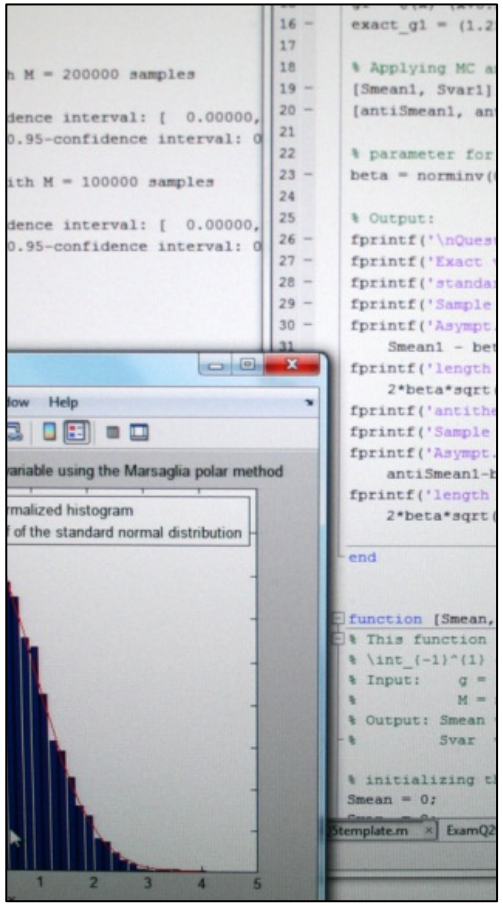
Resource rich examination: Introduction to Software Engineering



Learning



Exam



Target Competence

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Always keep in mind

Online examinations need to be as secure and fraud-proof as paper based examinations (no more, no less)!

Online Examinations as a Service: Technology + People + Processes = Service

Technology: requirements

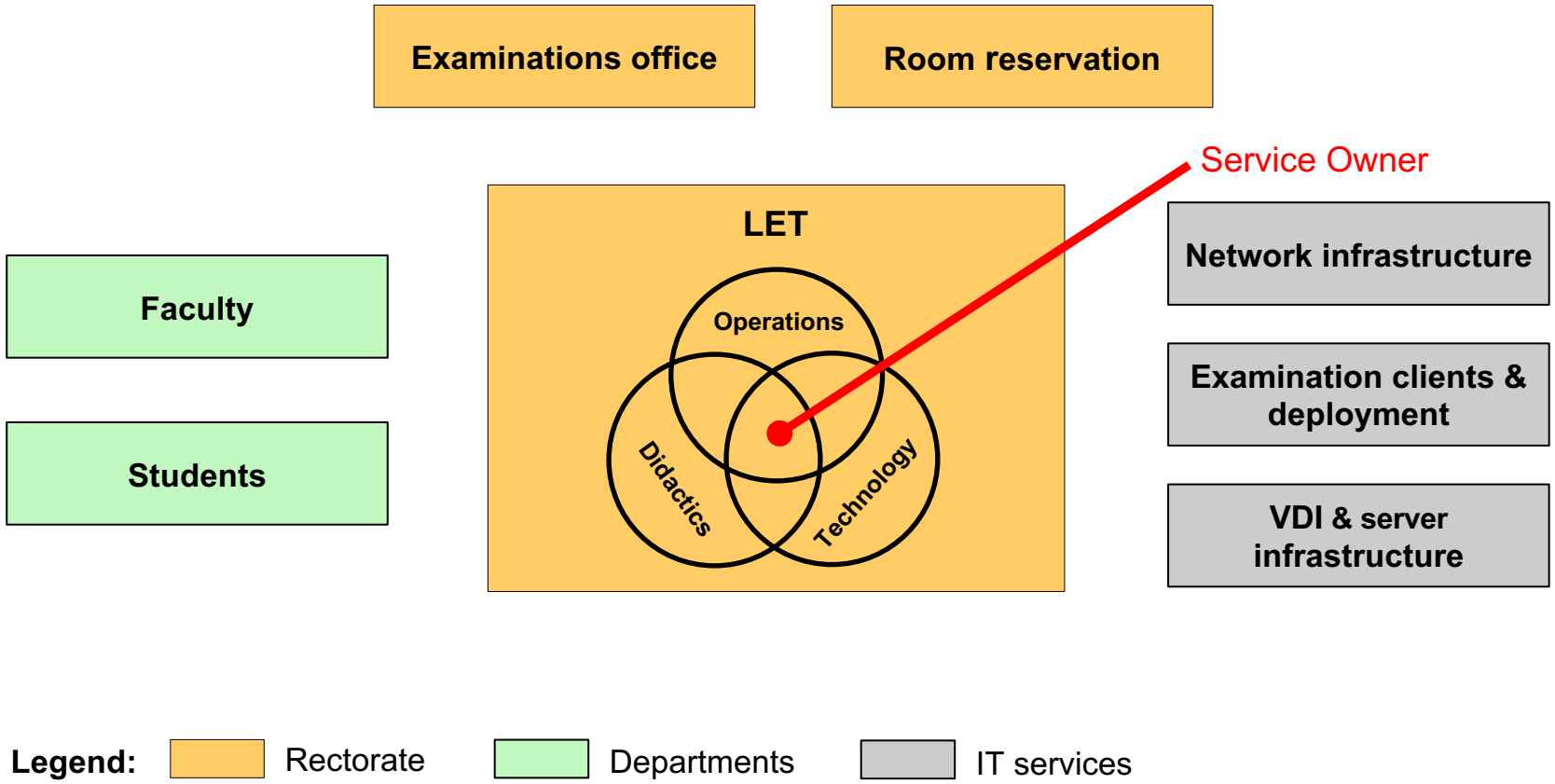
- Secure, fraud-proof
- Reliable, robust
- Easy to use, familiar (for students, for examiners)
- Easy to customize and manage (for administrators & examiners)

- ➔ Technology & infrastructure alone do not suffice

➔ People & processes required to

- monitor systems
- handle incidents
- support examiners & students
- coordinate between stakeholders
- address stakeholder needs
- implement improvements

Online Examinations as a Service: Technology + People + Processes = Service



Examiners Tasks

Same tasks as in paper based examinations (e.g. create questions, bring along enough supervisors, check identity….)

+ send the files for the examination to LET early enough

+ Testing and approval of VDI-environment @ LET

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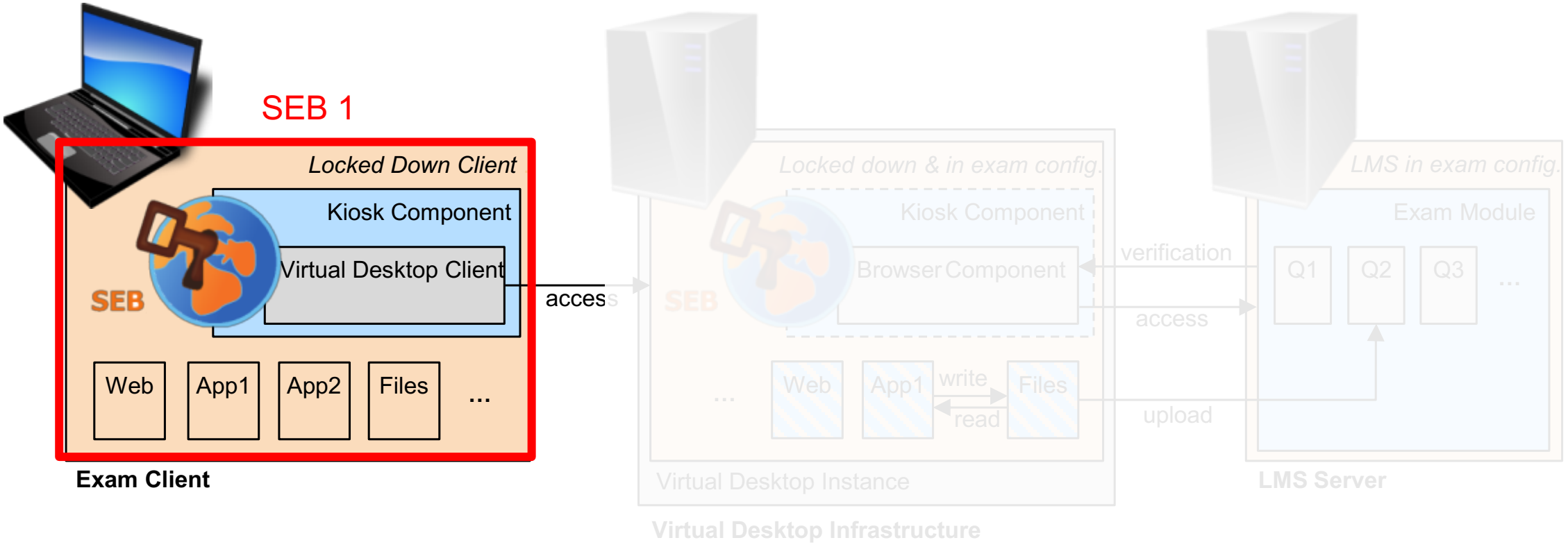
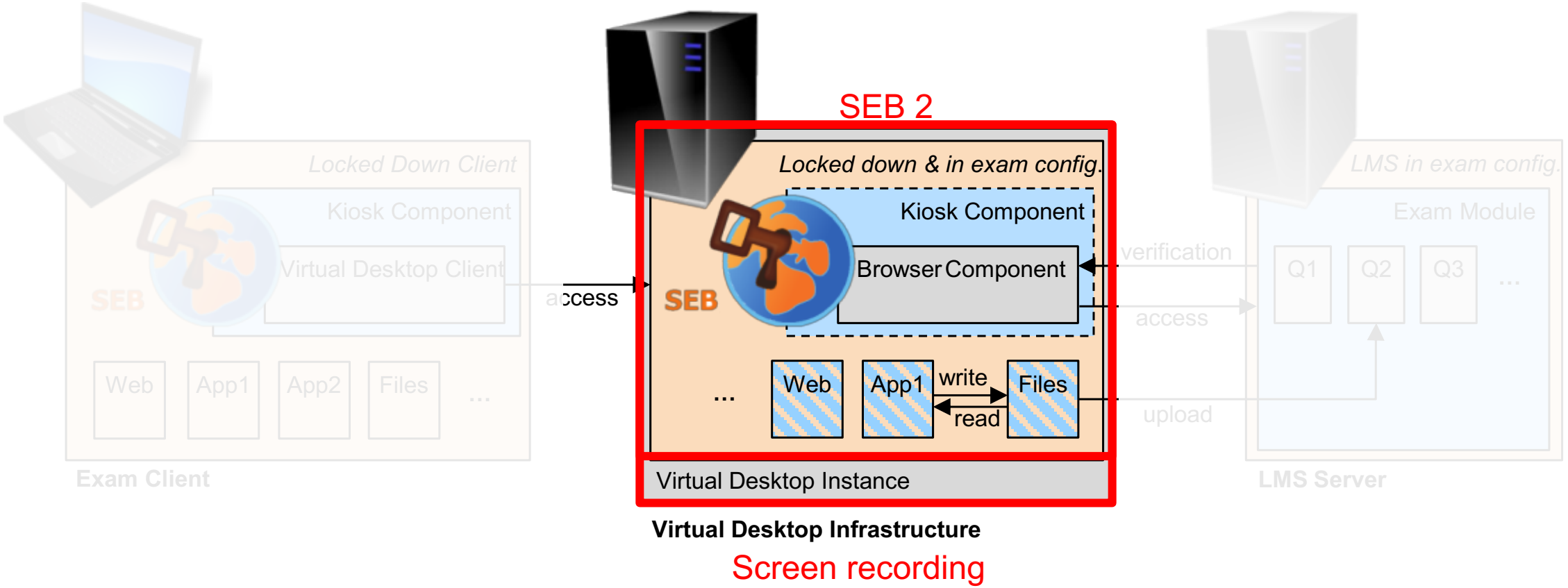
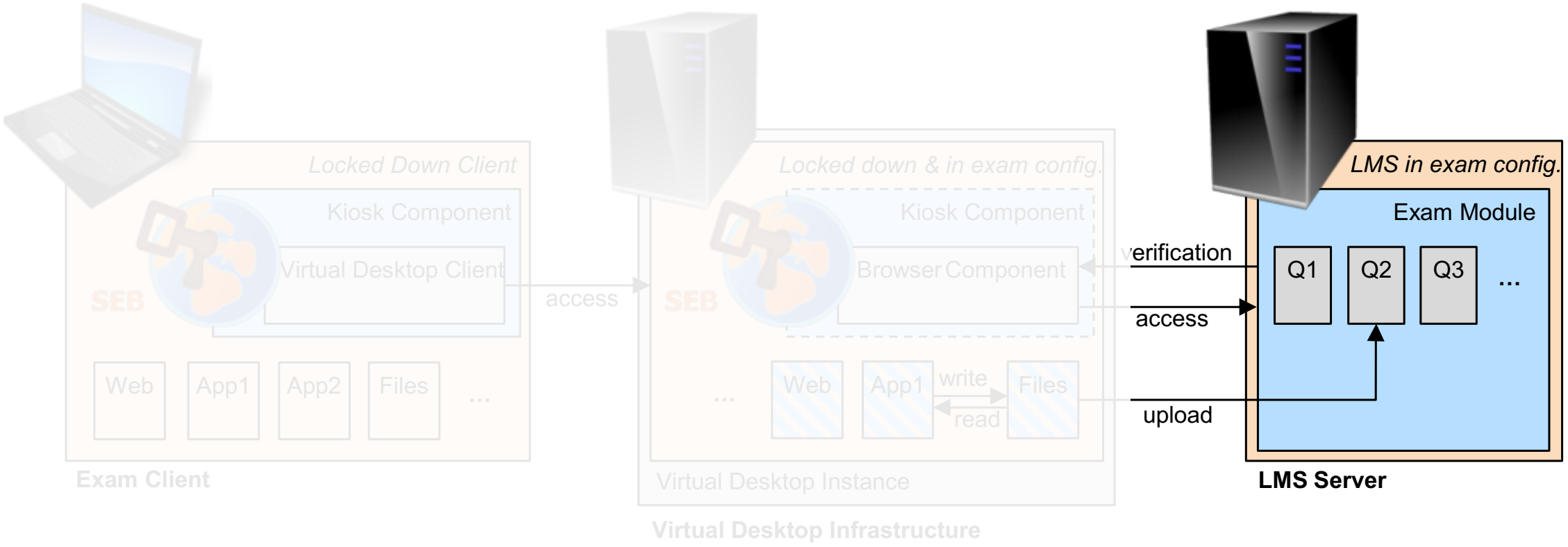
Online Examinations with SEB and Third Party Applications: Architecture



Online Examinations with SEB and Third Party Applications: Architecture



Online Examinations with SEB and Third Party Applications: Architecture

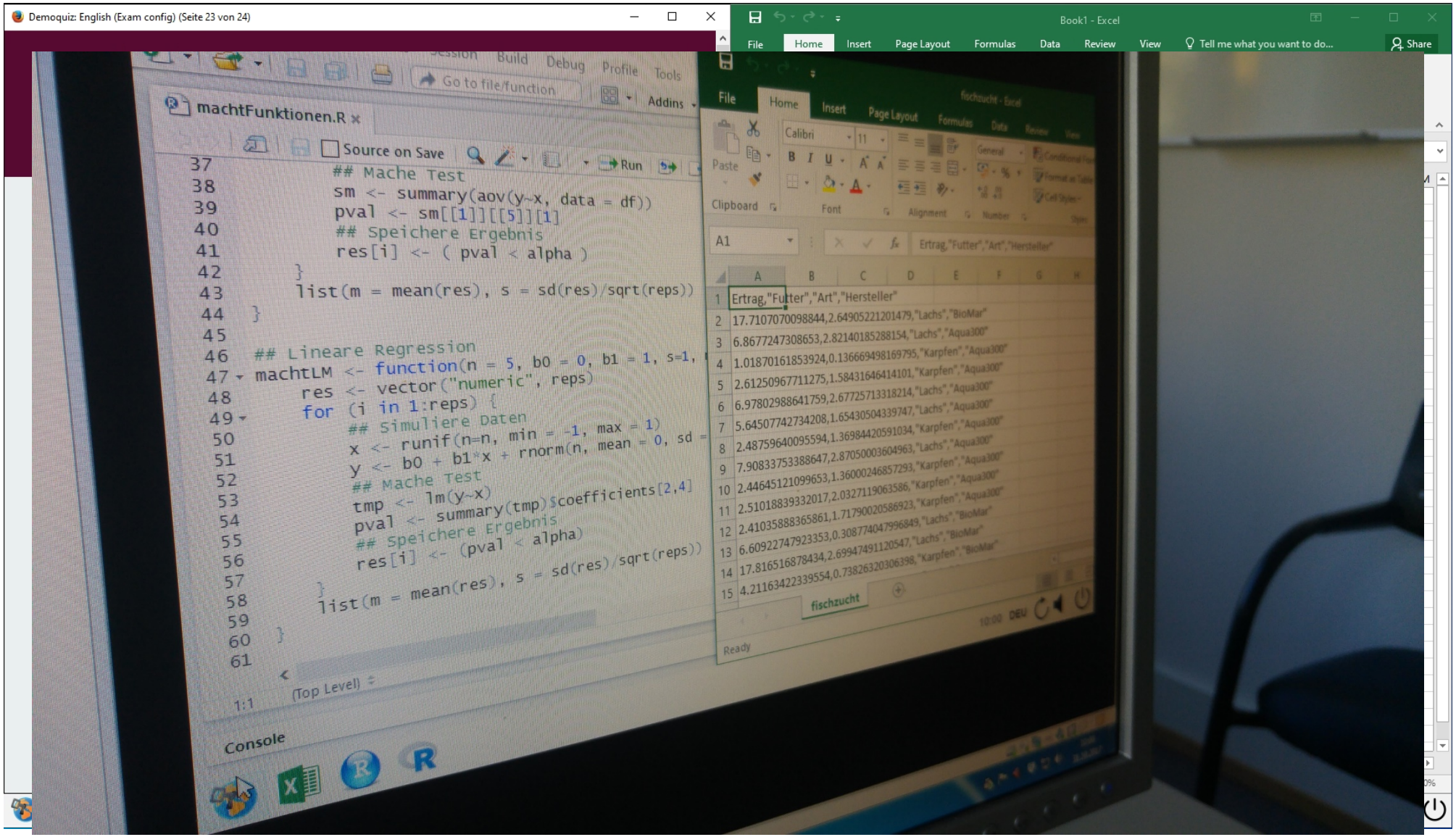


Technical Setup: Why Third Party Applications on VDI?

- Examination client only needs OS, SEB and VDI-client
- Certified examination environment by examiner → 1:x copy
- Easy backup of files during examination
- Easy to manage software licences
- Easy to block access of third party applications to the web (e.g. built in help browser or installing additional R-packages)
- No access to student shares, drives and other private resources

Third Party Applications Used in Examinations @ ETH Zurich

- Adobe Reader
- Anaconda (Jupiter Notebook, Python)
- Berkeley Madonna
- Julia with Atom, Notepad++, Visual Studio
- MathType
- Matlab
- Microsoft Excel (incl. add-ins)
- Microsoft Visio
- Microsoft Word
- Notepad++
- RStudio / R (different packages)
- SPSS
- Stata


Demoquiz: English (Exam config) (Seite 23 von 24)
machtFunktionen.R
Source on Save
Run
Go to file/function
Addins
Mache Test
sm <- summary(aov(y~x, data = df))
pval <- sm[[1]][[5]][1]
Speichere Ergebnis
res[i] <- (pval < alpha)
}
list(m = mean(res), s = sd(res)/sqrt(reps))
}
Lineare Regression
machtLM <- function(n = 5, b0 = 0, b1 = 1, s=1,
res <- vector("numeric", reps)
for (i in 1:reps) {
Simuliere Daten
x <- runif(n=n, min = -1, max = 1)
y <- b0 + b1*x + rnorm(n, mean = 0, sd =
Mache Test
tmp <- lm(y~x)
pval <- summary(tmp)$coefficients[2,4]
Speichere Ergebnis
res[i] <- (pval < alpha)
}
list(m = mean(res), s = sd(res)/sqrt(reps))
}
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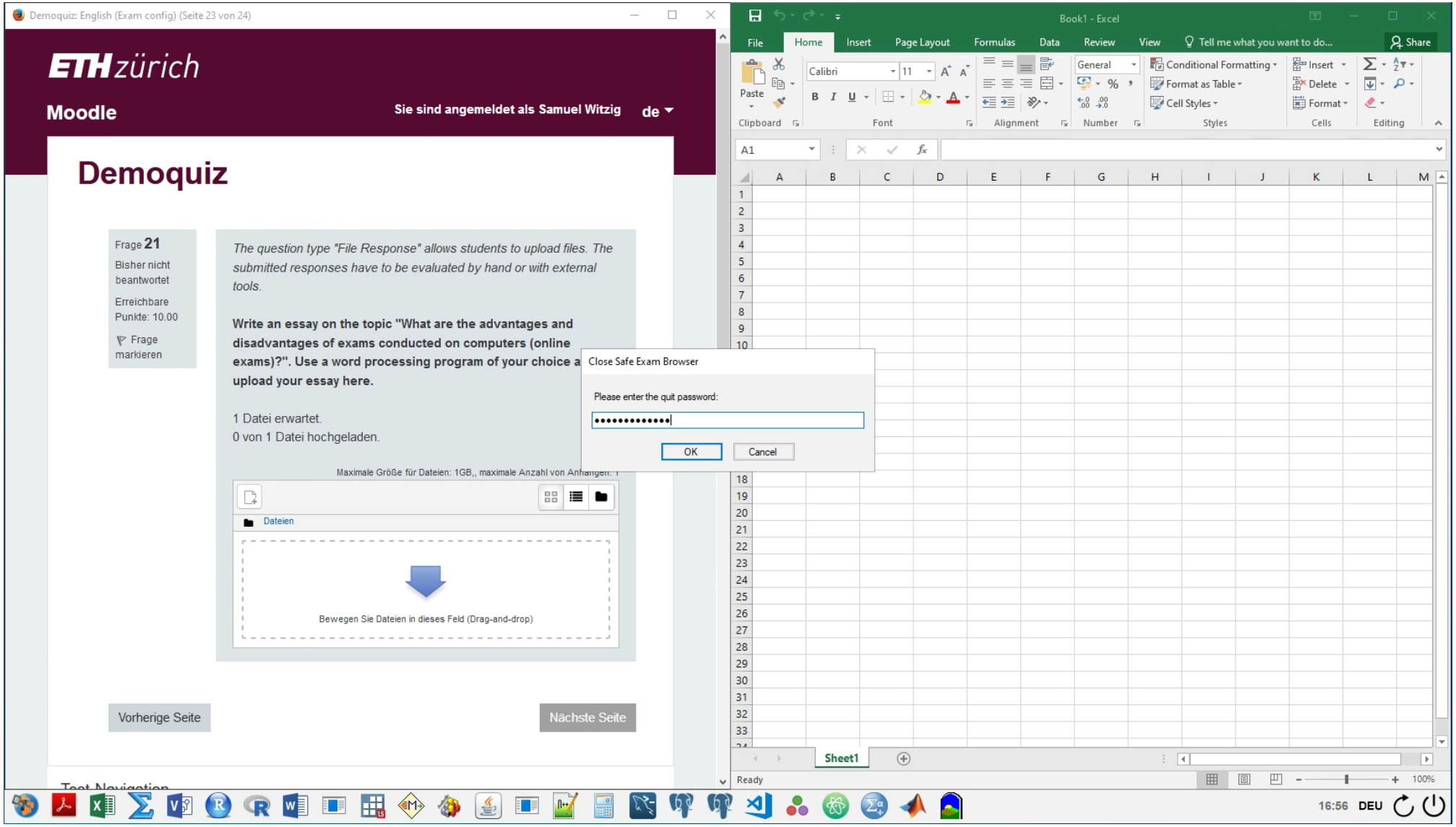
Demoquiz: English (Exam config) (Seite 23 von 24)
ETH zürich
Moodle
Sie sind angemeldet als Samuel Witzig
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Demoquiz
Frage 21
Bisher nicht beantwortet
Erreichbare Punkte: 10.00
Frage markieren
The question type "File Response" allows students to upload files. The submitted responses have to be evaluated by hand or with external tools.
Write an essay on the topic "What are the advantages and disadvantages of exams conducted on computers (online exams)?". Use a word processing program of your choice a
upload your essay here.
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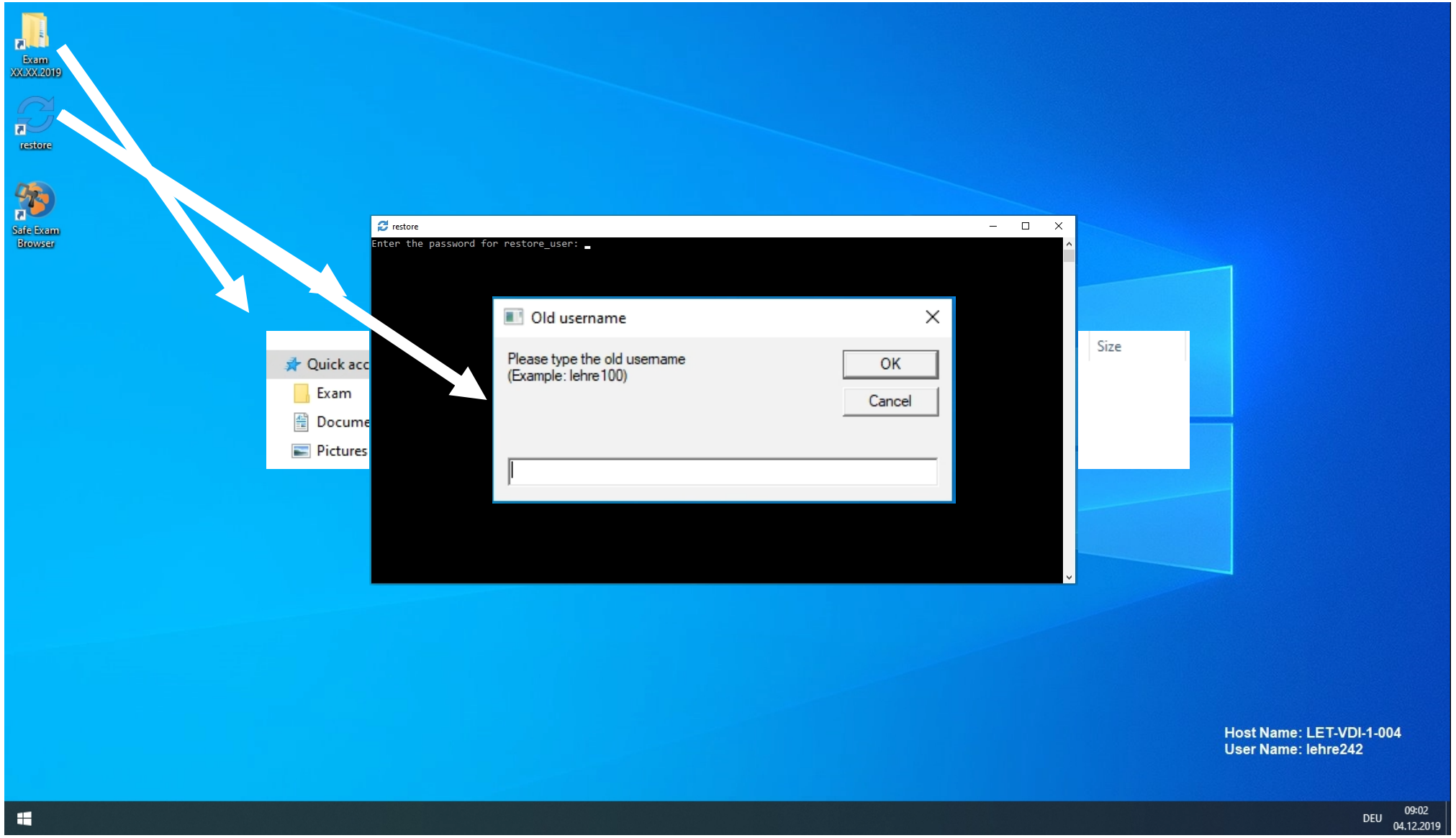
Exam XX.XX.2019
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Old username
Please type the old username
(Example: lehre100)
OK
Cancel
Quick acc
Exam
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Pictures
Size
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User Name: lehre242
DEU
09:02
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Questions

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