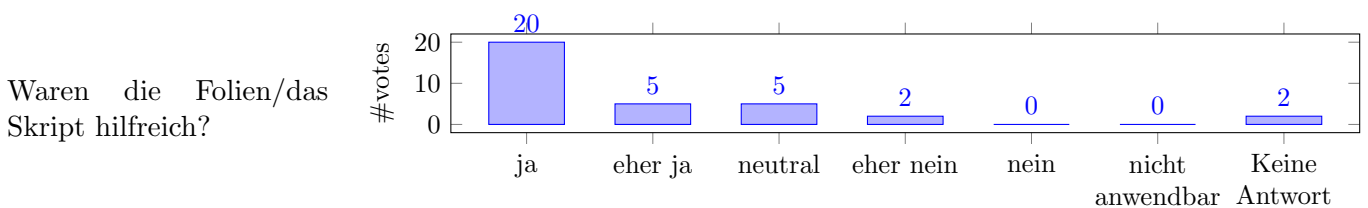
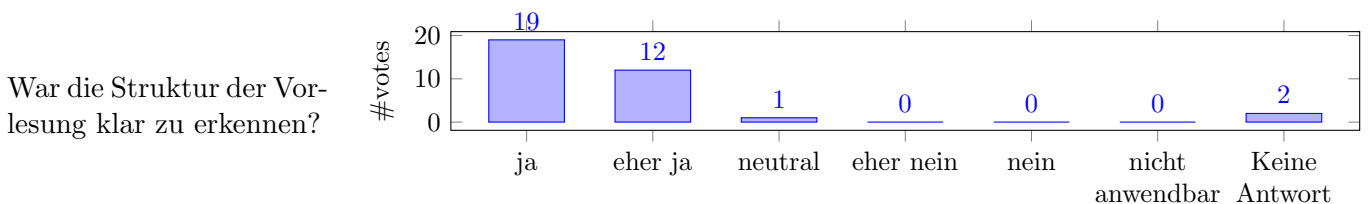
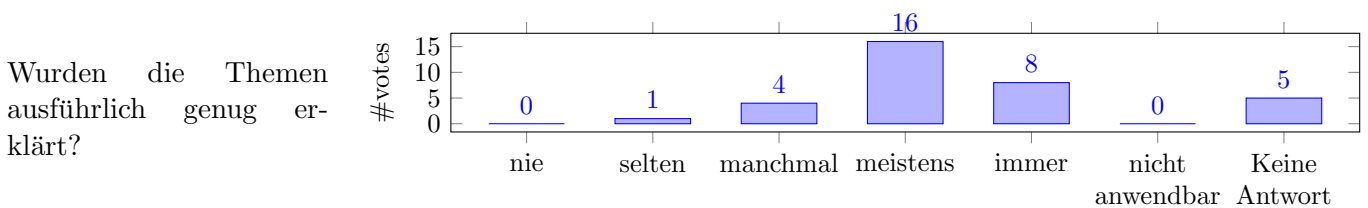
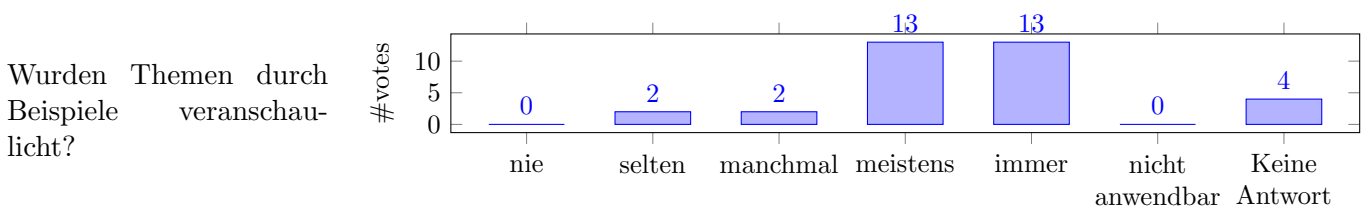
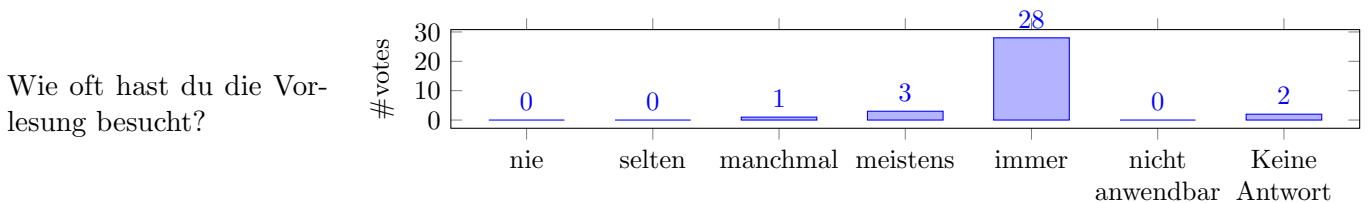
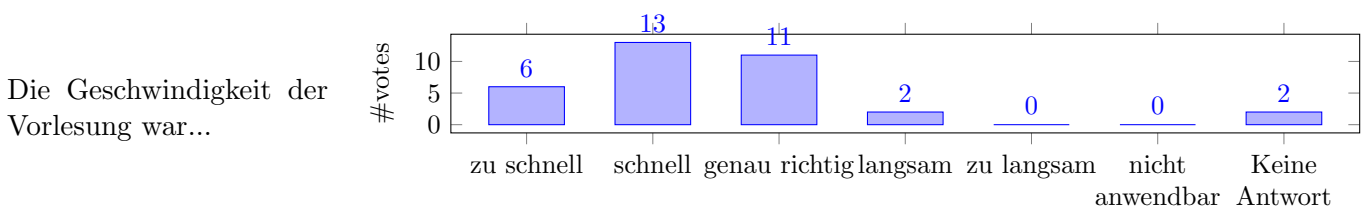


Ergebnis der Online-VLU. Die Umfrage fand in den letzten beiden Vorlesungswochen statt.

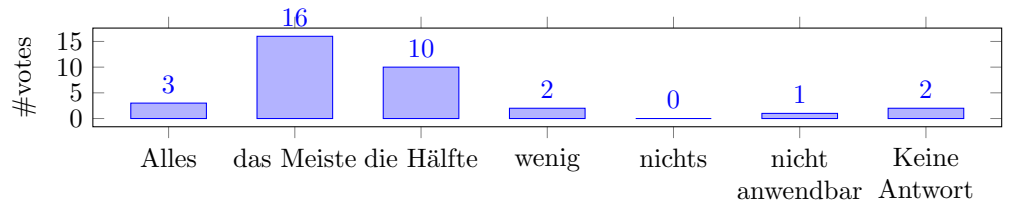
## 1 Bewertung der Vorlesung



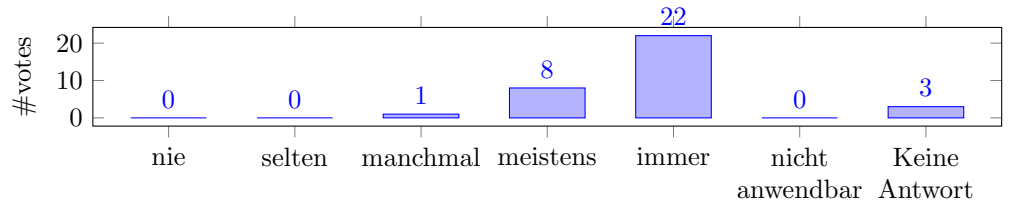
## 2 Bewertung der Dozierenden



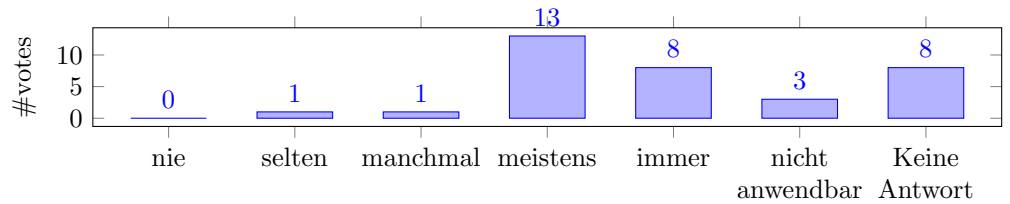
Wie viel verstehst du während der Vorlesung?



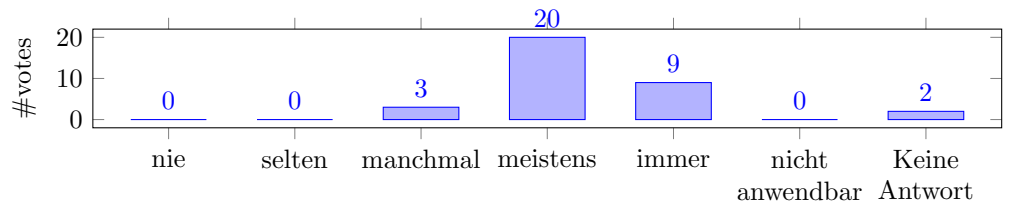
Ist der Dozent/die Dozentin gut auf Fragen eingegangen?



War der Dozent/die Dozentin außerhalb der Vorlesung für Fragen etc. erreichbar?

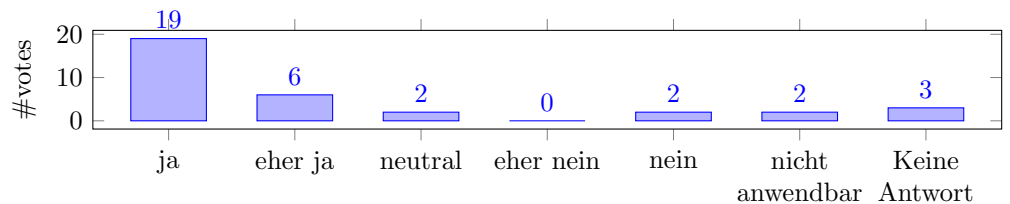


War die Dozentin / der Dozent akustisch gut zu verstehen?

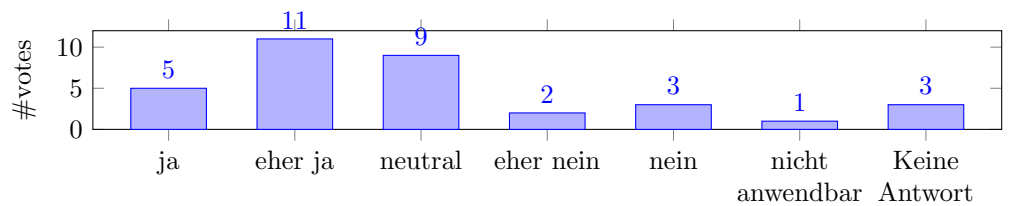


### 3 Bewertung des Moduls

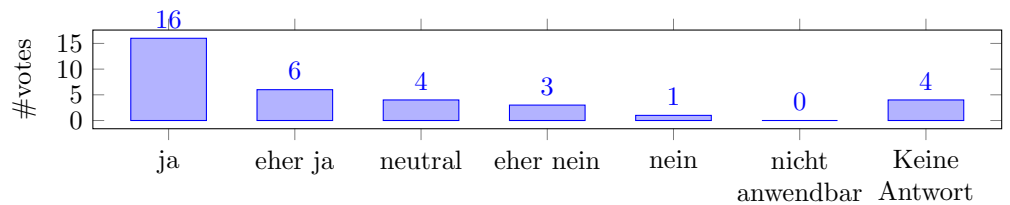
Helfen die verlangten Studienleistungen, das Modul erfolgreich abzuschließen?



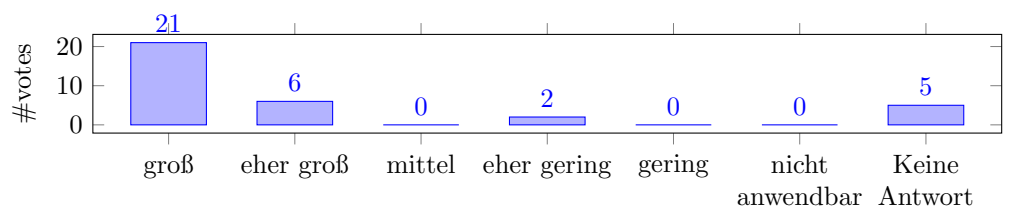
Findest du die verlangten Studienleistungen für dieses Modul angemessen?



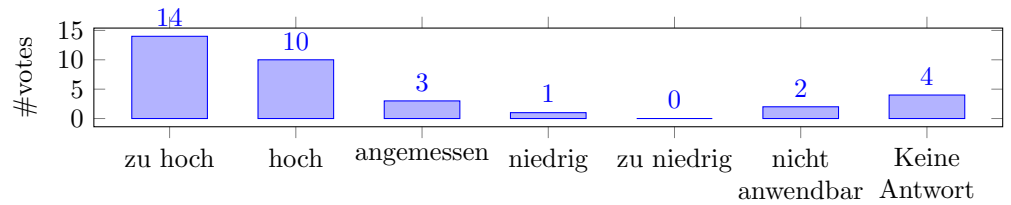
Würdest du das Modul weiterempfehlen?



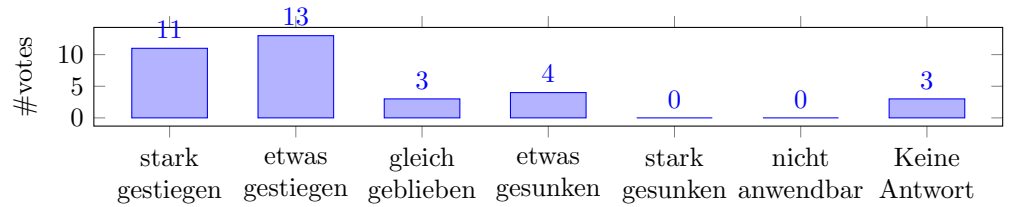
Der Praxisbezug war...



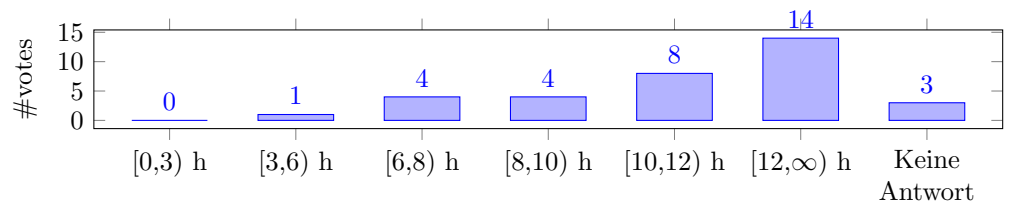
Ist der Arbeitsaufwand für dieses Modul im Hinblick auf die LP-Zahl angemessen?



Dein Interesse für dieses Thema ist...

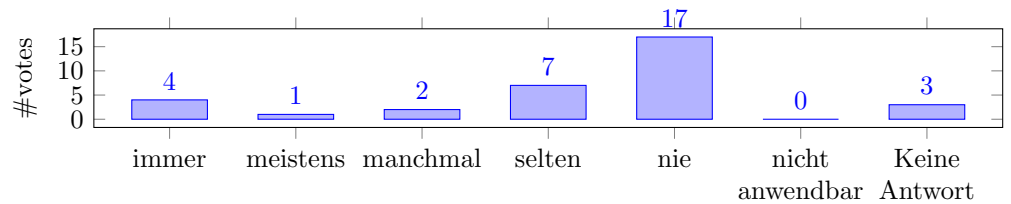


Wie viele Stunden hast du insgesamt, inkl. Vorlesung, Übung, Übungsaufgaben..., pro Woche für dieses Modul aufgewendet?

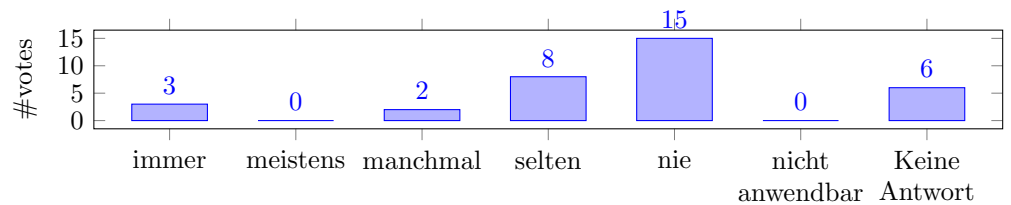


## 4 Bewertung der Übungsaufgaben

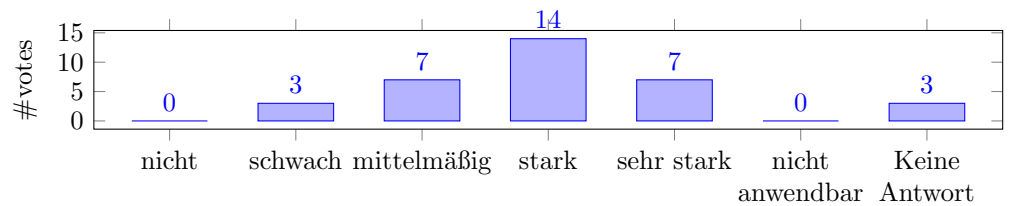
Wie oft hast du die Übungen besucht?



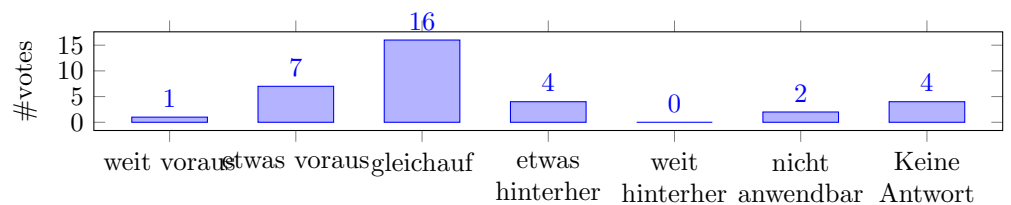
Wurden die Übungsaufgaben rechtzeitig zur Verfügung gestellt?



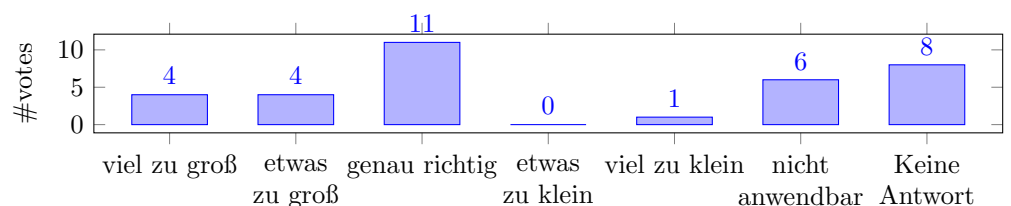
Die Schwierigkeit der Übungsblätter schwankte...



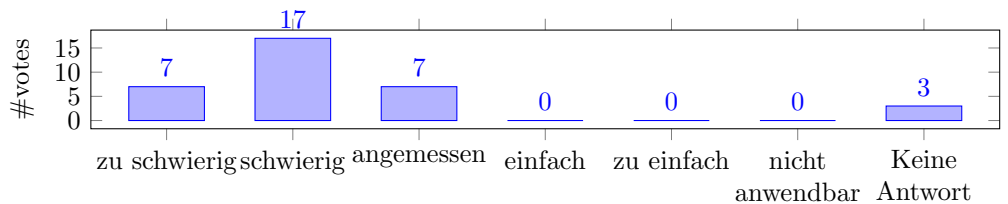
Die Vorlesung war...



Die Übungsgruppe war...

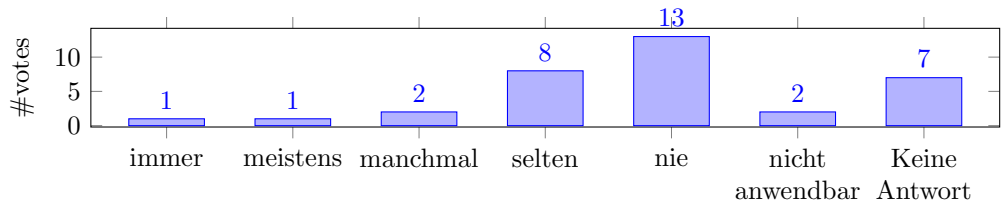


Die Übungsaufgaben waren meistens...

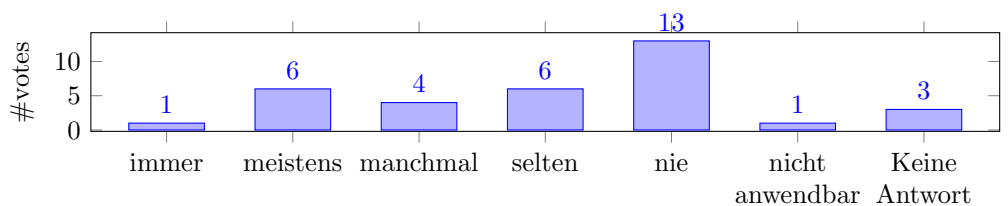


## 5 Bewertung des Tutoriums

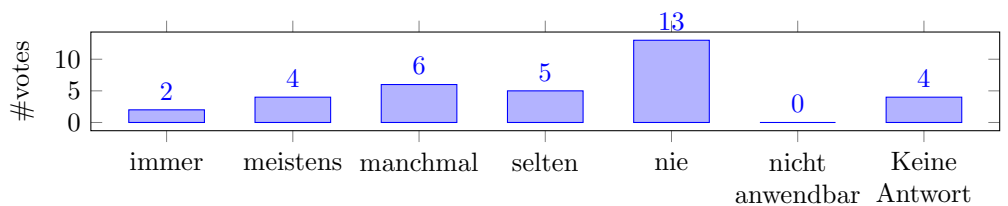
War der Tutor/die Tutorin außerhalb der Übung für Fragen etc. erreichbar?



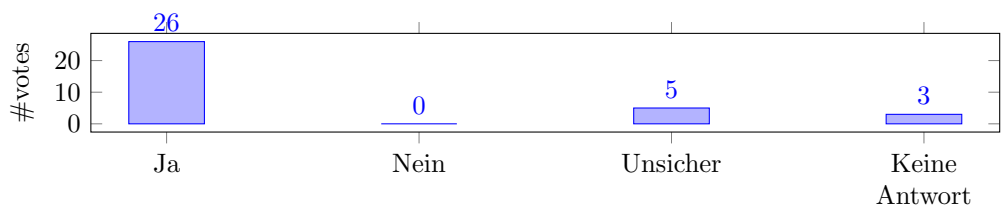
Waren die Korrekturen des Tutors/der Tutorin nachvollziehbar?



Wurde der Tutor/die Tutorin mit dem Stoff der Übung fertig?

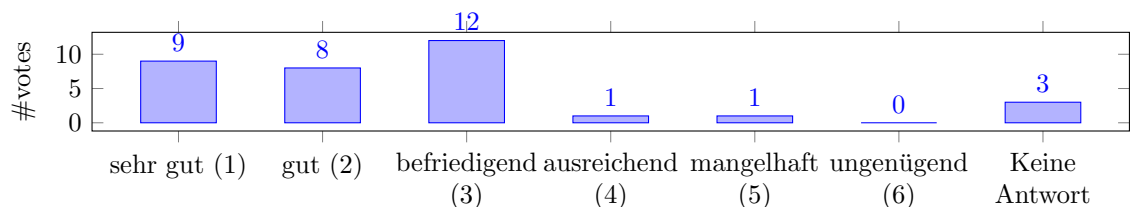


Lohnt sich der Besuch des Tutoriums?



## 6 Abschließende Bewertung des Moduls

Note:



## 7 Freitextkommentare

### 7.1 Was hat dir an dieser Lehrveranstaltung gefallen?

The content and knowledge of the professors was excellent. I really enjoyed learning about all the topics.

Content, how info is provided.

Practical relevance, interesting topic, in general a good structure of lectures/exercises

- very much on-hands - The course starts easy enough that even without exploit/CTF experience, one doesn't feel overwhelmed.

The challenging tasks, the contents of the lectures, the very well made slides. It was fun to listen, as Martin seemed to get excited about the topic during the lecture as well :)

Very much focussed on practice and using the gained knowledge

Very chill and laid back atmosphere in the lectures, was always nice to attend. A+

The lecture subjects in general are very interesting. I like the general organization of the lecture subjects, e.g. that explicit lectures on tools and workflow are included. I like the Kahoot, while sometimes stressful it's a nice recap. I like that the lecture is recorded, since it's very useful to go back to the explanation for certain slides while solving the tasks. I particularly want to thank Martin Clauss for his engagement and for answering a lot of questions.

Vorlesung war interessant und gut und mit Beispielen. Paar Dozenten waren begeistert, andere sehr gelangweilt, daher gab es Höhen und Tiefen. Übungsaufgaben waren gut aber schlecht organisiert.

Concepts delivery matches perfectly the exercises.

Sehr praxisrelevant. Hoher Fun-Faktor!

The detail in which topics were discussed. Also, the fact that the exercises teach skills that can really be used (such as circumventing ASLR). In many bachelor courses, most of the exploits simply relied on the absence of stack canaries, which is almost never the case in the real world. I also liked the fact that every single mistake made during the exercises was pointed out by the tutors. Whether or not it is necessary to deduct 50% of the points for a task that only gives 2 points in total for accidentally not removing small parts of gdb debug output is a different discussion, however. Finally, playing kahoot was very helpful to remember and understand certain details about the previous lecture.

the topic in general daniel seemed to try a lot harder to actually explain stuff compared to martin ;3

the practical part

\* interesting topic \* interested lecturers! with deep knowledge

Der Praxisbezug war sehr gut dadurch, dass man das Gelernte in den Übungen direkt praktisch anwenden konnte.

relevance to state of the art exploitation

- practical relevance - interesting exercises

The lectures were very interesting

-the general topic -the practical relevance - it is one of the few lectures that i left with the feeling of " i can probably solve (basic) problems in this area now" instead of the usual " well in theory i know how this should be solved, but honestly i wouldnt even know where to start if i had to do it in practice"

I like the topic and really enjoyed the lecture. - Kahoot sessions after the lecture were fun - Nice exploitation tasks that were fun and on a demanding, but still doable level. - Practicality of the lecture, close to real world applications - Motivation of the lecture team; setup of a whole infrastructure for this lecture, including a webpage, Gitlab, CI, docker container and one VM per group. - Niklas' fancy mic setup

## 7.2 Was könnte noch besser gemacht werden?

It is all very cool but that does not demand that nearly every single lecture goes overtime and consequently the tutorials even further because the information is worth it. The amount of time spent on the worksheets to first understand the problems and solve them was much higher than it should have been I thought. Due to that, I never had time in the week to review lecture slides at leisure and really understand the topics from the theoretical side.

"Testing" the solution of exercises. First it was ok to use my own machine, then recommendation was to use VM provided (via ssh tunnel), then the obligatory condition to succeed in testing was to use docker or `some other name` container. Who explained how to do that? Noone. Did it work right away "with one line"? No. Who did explanation and setup for my group? - I did. How so? I already had info due to my job position.

The exercise sessions for "questions and discussions" would be very helpful. I was effectively solo-carrying the group by a lot of explanation and finalizing their work when they were completely stuck (I doubt the "team" would even achieve 50% of pts without this). I am not a tutor, I don't get paid for explanations. Dialogues via emails take too long (although they're still important for other reasons). If I could redirect teammates to a session where they can ask stuff -that would be handy so they come back 'in context' and I could talk to them productively.

This needs to be a 9 CP module. Otherwise I can not recommend people to take this module with good consciousness. I don't see how you would not be able to make this a 9 CP module especially if I sum up all the overtimes we had this semester.

The workload towards the end of the semester is too high in my opinion. I don't know exactly how to improve it because it does make sense that the deeper we dive into exploitation, the more complicated the exercises get and thus the more points they give, but considering that we have exams scheduled for a couple of days after the end of lectures, it's super stressful that the exercises grow harder and more time consuming towards the end. My exercise partner and I always got around 12 points for the first four sheets, which in the beginning was all points and later was only two thirds, because that seems to be the workload we can handle considering all the other lectures we attend and all the other exam admissions we need to get. It's simply not manageable to do all the exercises towards the end unless, I guess, you're already an expert at exploitation, and that's frustrating.

Some speakers appear to be not very proficient in speaking english freely. Maybe write down a script first and have someone improve vocabulary first?

The lecture introduced many topics but sometimes laged depth. Which could be gathered from the exercises and tutorials but required much investment into gathering the practices yourself. I guess this was somewhat intended. I felt like the time needed for research was too much for the credits this module gives.

The seclab webserver is cool and all, but requiring a VPN is a bit clunky, since some collaboration tools we used (e.g. Discord) would not work on VPN.

I don't like that the lectures and especially the exercise meetings take significantly longer than the official time slots a lot of the time, especially with regard to follow-up meetings. Maybe you could split the exercise meetings in two and hold them weekly, so that each meeting takes about 4 hours? This would make arranging the timetable at the beginning of the semester much more predictable. Please be faster/ more thorough in answering to the ticket system, especially if questions, e.g. on technical problems, are not really answered in the meetings but are referred to this system. In general, I spent significantly more time solving technical problems (and getting python code to work), than actually searching for vulnerabilities. While I get that getting to know the tools of the trade is part of the learning experience, it can also be very frustrating, especially when there is no lecture or other specific source for reference. Almost doubling the points for the last few sheets while halving the effective processing time was hard. While I do appreciate that you gave us hints to balance that, I did not find the general hints that helpful since they, at least for my understanding, mostly reiterated the general workflow. The more specific hints of course were more helpful, but a bit late for sheet 6 and sometimes not really applicable for sheet 5 (vTables task). Could you please explain more of the implementation details in the exercise meetings? As stated before, that was usually my biggest hurdle with the tasks, and it would have been really helpful to discuss some examples in more detail in the beginning of the semester. Recording the exercise meetings would also help here, since one could go back to the explanations when working on the next sheet.

Organisation, punkteverteilung je nach Schwierigkeitsgrad anpassen. Nachvollziehbare Kommentare durch Tutoren wären hilfreich. Punktabzug ohne Sinn und Verstand. Aufgaben sollten besser beschrieben werden. Templates mit ein wenig mehr Kommentare wären auch hilfreich. Vorlesung und Übung wurden nie rechtzeitig fertig. Modul sollte mit dem selben Stoff mindestens 9LP geben, man kann die Zeit, die überzogen wurde, an andere Tage verlegen und schon hat man 9LP. Die Übungen sind zu aufwendig für 6LP. Leider hat das Modul sein Ziel verfehlt. Ich würde niemandem das Modul empfehlen, weil Zeit/Leistung nicht stimmt. Nur wenn jemand Interesse an dem Bereich hat, sollte das Modul hören. Tickets werden teilweise gar nicht oder zu spät abgearbeitet, dringend Verbesserungsbedarf. Struktur katastrophal, so wie die letzten Übungen geplant sind/waren, ist nicht fair, da wir auch andere Module haben.

- Sprechgeschwindigkeit oft zu hoch. (lieber zweimal in Normalgeschwindigkeit als dreimal zu schnell erklärt). - Fast jede Veranstaltung wurde zeitlich überzogen. Das ist nicht gut, wenn es anschließende Veranstaltungen gibt.

The time management of both the lecture and exercise meeting. Often times, the duration of both the lecture and exercise meeting was almost 5 hours, which made me have to listen to two exercise meetings simultaneously (I had a Foundations of Graphics exercise meeting on Friday at 4:15pm). I understand that discussing everything in detail requires time, but there must be a better solution other than listening to two different exercise meetings at once. Perhaps the exercise meetings should also be recorded in cases where they exceed a total length of 90 minutes? Secondly, I found it a bit unfair that the first few sheets gave less points than the last ones. I was in a group where I did 99% of the work, and while I know that at the beginning of the semester, you told us to switch groups in case this happens, it is still an annoyance that I had to work on PABE exercises even though I had 90% of the points of the first three sheets, because otherwise I would not qualify for the exam.

- more examples in the lecture, especially regarding the exercise sheets - don't over-explain the basics that you already expected us to know anyway as for instance 'what is a buffer overflow' and instead put more time into explaining the advanced stuff and more examples (!) - server-/git-availability

time management!! almost no lecture and no tutorial finish in time, e.g. the lecture is scheduled for 12ct to 14.00 (lecture), some times it toke until 14.45!! Tutorial is scheduled for 14ct until 16.00. It had been days lecture + tutorial (scheduled for 12ct -16.00) toke until 17:40 Tutorial was planned beeing each second friday and another lecture (DZI) was scheduled for each other second friday. At one point PABE decided to swap the fridays for teh lectures such that the lecture from dzi and from pabe were at the same time.

\* amount of content / time. Although the pace is already quite high, you nearly always needed more time. Same goes for exercises. \* Increasing the number of points per sheet is not nice. Please plan before, how many points and how much time each sheet gets. Espacially directly before the exams, students have less time, not more! \* sometimes: sound quality

Die Übungsaufgaben waren insgesamt zu umfangreich/zeitaufwändig für eine Vorlesung mit 6LP, selbst wenn man sich in der Gruppe gut abgesprochen hat und im Team gearbeitet hat, um Zeit zu sparen, war es schwierig genug Punkte für die Prüfungszulassung zu sammeln. Es gibt einige Studierende, die alleine aus diesem Grund die Teilnahme an dem Modul in der Mitte des Semesters aufgegeben haben. Die Verteilung des Workloads über das Semester hätte von den Modulverantwortlichen besser geplant werden können. Gerade zum Ende des Semesters noch den Zeitaufwand und den Schwierigkeitsgrad der Übungsaufgaben zu steigern, hat das zuvor genannte Problem nochmal verstärkt. Gerade in dieser Zeit kurz vor den Prüfungen haben die meisten Studierenden sowieso bereits einen erhöhten Workload. Verschlimmert wurde das außerdem dadurch, dass aufgrund von vermeidbarer Fehlplanung Bearbeitungszeiten für Übungszettel überlappend gelegt wurden. Selbst mit gutem Zeitmanagement macht es das sehr schwer den geforderten Workload überhaupt noch schaffen zu können. Es wäre fairer gewesen die Fehlplanung der Dozierenden nicht so zu "korrigieren", dass es zu Lasten der Studierenden geht. Man hätte einfach einen Teil des Inhalts am Ende weglassen können. Durch die fehlende Zeit konnte man am Ende des Semesters sowieso nicht mehr alle Inhalte lernen und musste selektieren. Es wäre fairer, wenn das zentral von den Dozierenden gemacht würde, statt von den Studierenden erzwungen. Die Bewertung der Übungsaufgaben war teilweise sehr kleinlich. Es wurden vergleichsweise viele Punkte abgezogen für kleine Details in der Umsetzung ansonsten korrekter Lösungen. Zum Teil ging in diesen Fällen aus den Aufgaben nicht hervor, dass auf diese Details überhaupt geachtet werden sollte.

this should be a 9 lp lecture

- time constraints: lecture often well beyond 2h, tutorial as well, in weeks with tutorial: often  $\approx 4,5$ h of only listening with only two extremely short breaks, hard to follow - more interactive tutorial - training on how to give a lecture for 1-2 of the lecturers (however especially Mr. Clauß or Mr. Bergmann did it really great) - I understand you are researchers who give a great insight into their research and not professional lecturers. But it would be great to be better able to follow the lecture.

This should either be a 9 CP Lecture or be split into 2 ore more modules!



- Lecturers: - @Niklas You sometimes talked pretty fast, please speak slower next time, since it was difficult to follow. - On the other hand, @Daniel You generally spoke way too slowly, which was also very difficult for me to follow. - Mistakes in the slides about the stack direction should have been fixed. - Often, the lectures and exercise meetings exceeded their respective time frames a lot (lecture recording length until today: avg = 108min, max = 125min(!) ). The exercise meetings were typically 120min+. Since the tasks are hard, I think it's important to talk about all of them - so more time should be dedicated officially in the future. One meeting per week than per two weeks would make more sense. - The lecture requires a lot of work in the exercises and should be worth 9LP. Content-wise, a second lecture per week would not be a problem. Mind that already the lectures take more time than the typical 90mins. - Late responses to requests on the ticket system. Some requests were only answered after reminding the staff in the lecture. - The distribution of the exercise points over the semester was problematic. Note that 40/98P. (required for admission: 49P.) could only be reached within the last three lecture weeks (22.1. - 9.2.) and with the hardest tasks of the lecture. That's the time frame when students usually begin to learn for exams. Also it should have been made clear earlier that the number of points on the sheets grows monotonically from 12P for the first sheet to 20P for the last sheet. - A lot of technical problems should be fixed: - Technical problems in the beginning: In the first weeks of the lecture, the Gitlab, VMs and website were down for a lot of time. Also there were problems with the group assignment. Those errors can happen, but were addressed and reacted to too slowly. The deadline for the first sheet should have been extended way earlier. Some people didn't even know who are to their group members a lot of time into the first exercise sheet. - To submit exercises, you had to be connected to the CS network, thus use tools like sshuttle. That was rather tedious. - The docker / podman container was too big for the VM. One user could run it, but we didn't have sufficient storage of the virtual disk for every user to download it. - The official statement was to install unavailable dependencies within the python script that we handed in (via pip). However, the runtime of the script was limited to 10 seconds, which made this solution completely infeasible. - Also, the 10 second limit was problematic in the actual solutions: Sometimes it was rather a gamble if the script would run within this time frame on the target machine (which we could not test beforehand). The limit should be extended to a larger time frame.

### 7.3 Hier hast du Platz für weitere Anmerkungen und Feedback zum Modul.

Reestimate the points given for successful exercises. Like " ok task" and " OMG so difficult task" . 4 pts and 2pts tasks are not differing at the difficulty at all.

It's been super interesting and I've rarely enjoyed solving exercises for a module as much as for this one, because I also learned a bunch while doing so!

Maybe more time for the last exercise sheets. They were though, but fun.

-

Bitte 9LP statt 6LP und Vorlesung und Übungen in 90min unterbringen.

The following was emphasized at the beginning of the lecture series: This module is way too demanding. True! Often, I had to skip other lectures/tasks to work on the exercises and it takes me very long time when revising the lecture's content. I think that it was hardly combinable within 30 credits semester. Although, I learned much things ;)

Für Übungen gab es eine VM, die kaum funktionierte. Auf Tickets wurde nicht geantwortet. Gefühl ging 50% des Aufwandes der Übungsaufgaben fachfremd für Probleme mit der Infrastruktur drauf. 100% Punktabzug wenn es nicht auf der Zielmaschine läuft, aber Testmöglichkeiten funktionierten nicht. Zitat " Wir wollen dass ihr fokussiert arbeitet" lasse ich gelten, wenn die bereitgestellte Infrastruktur genauso fokussiert betreut wird!!!! Das sorgte für Viel Frust.

Overall, I am very happy with the lecture. I've learned a lot and was able to apply almost everything mentioned in the lecture during the exercises.

try to stay in time

\* maybe one can compensate the higher workload by more credits?

one of the best it-sec modules currently available in germany

A lecture is supposed to last 90 minutes. This lecture is somehow scheduled to last 120 minutes instead. (starting 12:15 and expected to end at 14:15). And even then the lecture constantly goes over time (we had lectures go on until after 15:00). Yes there is a 5 minute recap at the beginning of the lecture and yes there is the Kahoot part, that technically isn't part of the actual lecture, but other lectures manage to have a recap and still end after 90 minutes. And in the Kahoot part we can check whether we understood important parts of the lecture and additionally a lot of times additional information (that wasn't part of the lecture) is given or a complex topic that wasn't understood by everyone is explained again in more detail. So missing the Kahoot part does not seem like an option for anyone that wants to pass the exam. And then after Kahoot then there generally is an additional 5-20 minute of questions about the lecture and the exam, which also no one would want to miss

The exercise meeting has the exact same problem - it is scheduled to be 120 minutes long and still occasionally doesn't end on time (although not as consistently and as much as the lecture, but still: last weeks exercise meeting was 140 minutes long). But at least the exercise is only bi-weekly so it is less than 90 minutes each week. However I still miss the first 45+ minutes of another module every other week, because the pabe exercise does not end on time.

Additionally the volume of the exercises themselves is way too high! I spent more time on the pabe exercises this semester than I usually spent on the exercises for all modules I attend in a semester. This basically means that this semester I can attend at most one lecture other than pabe, since I do not have time to do the exercises and work through my lecture notes for more than that. Yes we hand in the exercises in groups, but while in other lectures it might suffice for me to work on a part of the exercises and then have my group members explain to me how they solved their solutions, this approach does not work in this lecture. Knowing the solution to a task does not help me very much. I need to know " how were the individual parts of the solution found?" " how did the person that solved this task know to look for a these exact partial solutions in the first place?" " what tools did they use to solve this?" " how do these tools work?" " where / how do i find additional information to solve this exercise" etc. All of these things one can only learned by trying things themselves, making a lot of mistakes and understanding what works / doesn't work and why this is the case. So even if we have already uploaded a solution I still have to try and solve the exercise myself, to learn the things I am supposed to learn. Yes I am also aware that there are people that know more about this topic than me that can solve the exercises (way) faster. But already knowing (most) of the things that are taught in the lecture like those people can NOT be a requirement to attending this lecture. (especially when you know all the things and passed all the lectures that are listed on the pabe website) I also know that this is one of those topics that you have to spend a decent amount of time on to learn all these things, but then why not make this a 9 CP lecture to have twice the amount of lectures? Or better yet: split the module into two or more. These solutions could make sure that the lecture and exercises end on time and that the exercise volume is more reasonable.

I dont think I have ever had such a split opinion on lecture like I have on this one. The topic is (one of the) coolest out of all the modules, but as a student that at some point wants to finish his masters degree I honestly cant justify the amount of time i have spent on this lecture for the amount of CP I will receive.

P.s. I write this as today's lecture ends. We started at 12:15, the actual lecture (meaning the part where we go through the lecture slides) ended at 14:25 the Kahoot part was over at 14:41 and all the questions were answered by 14:51 so all in all today's lecture lasted 156 minutes, which is more than an hour more than it should have lasted.

If you like puzzles and riddles, like to break things and are down to analyze low-level functionality of C programs and assembly, this is the right lecture for you! I definitely enjoyed it. Start early with the exercises since the next sheet is always way more difficult. Caution: This module takes a lot of time! You will find it should actually be worth 9LP ;)

#### **7.4 Hier hast du Platz für Anmerkungen und Feedback zur Umfrage.**

It's fine.

-

Ich hoffe die Anmerkungen werden berücksichtigt.

Trotz der Kritik eine tolle Vorlesung!