Ausgabe 05/2022



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VISIONEN

visionen.vis.ethz.ch

November 2022

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OITS

Magazin des Vereins der Informatikstudierenden an der ETH Zürich (VIS)

# **Editorial**

### Dear readers,

As with every issue, I read all the articles in this magazine to generate ideas for this welcome message. Since this issues' theme is The Office, I also looked up quotes from the show and got inspired by Michael Scott: "Sometimes I'll start a sentence and I don't even know where it's going. I just hope I find it along the way."

Thinking about that quote, I got the idea to start writing the text and let GPT-3 continue with that work. So I started OpenAI's playground and typed my commands. While I strongly believe that Michael would approve this, I also felt very lazy when doing so. It reminds me of writing code with the help of GitHub's Copilot ...

But enough about that. I'm sure you want to hear about the articles in this issue. In "Das Grosse CAB Büroreview", Clemens gives hints which VSETH-organization you should join based on their offices. In "Printing at ETH 101", he wrote down valuable tips for all of your print jobs. We are also delighted to present our new executive board. You can find messages for you by Jason, our new VIS president, and Julia, our new HoPo president.

So whether you're a fan of The Office or not, I hope you enjoy this issue. And if you're ever feeling lost, just remember: "You miss 100% of the shots you don't take." — Wayne Gretzky Best,

Tobias Scheithauer

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### JASON ZIBUNG - WRITING HIS FIRST PRÄSIKOLUMNE IN VISIONEN<sup>1</sup>

### Dear readers,

(me) got elected. When you're wondering what I did before being president, my answer is quite similar to Emir's. I started as a simple CAT member who got tricked into maintaining a codebase that may not be mentioned back in my first semester during the awesome coding weekend. After passing the Basisprüfung, I joined the board as a Webmaster in HS20. Later, I gave away that position to be Emir's successor as the Systemadministrator. Funnily enough, the existence of the Webmaster was meant to be changed even back then, yet here we are. In the end, I couldn't not follow Emir's further footsteps and ended up as becoming president.

I urge all the new students to not just focus on studying but also on enjoying their time at ETH. It might be overwhelming at first, however, just grinding studies isn't helpful at all. Instead also attend events, make friends and discover the secrets of our university.

Some time passed, and a new president I still fondly remember creating the 20 (me) got elected. When you're wondering what I did before being president, my answer is quite similar to Emir's. I started as a simple CAT member who got tricked getting tons of free food from VIS.

On a more serious note, it's an honour to be in this position and I hope I can meet your expectations. While my previous years in VIS were focused on IT, my current goal is to improve communication. This is not only limited to talking with our students but also expands to the department and other student associations.

# "It is time for D-INFK to be evaluated"

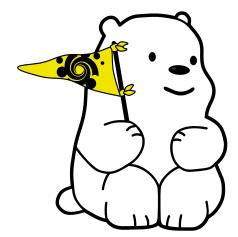
On the topic of our department: 7 years have passed and thus it is time for D-INFK to be evaluated by an international team of renowned experts. This evaluation lasts 4 days and even VIS will be questioned to find out the opinion of students. How exactly this works would take some time to explain and is already done by ETH themselves. However, I would like to note that there are two big reports, one about the general state of the department (~100 pages) and one about each faculty and research group (~160 pages) that might be of interest for the avid reader. However, I'm unsure when they will be published, so keep an eye out.

I also come with a piece of even more serious news. VIS is in dire need of new committee members, especially some that are willing to lead a committee in the near future. Events such as VIScon may not be possible in the future due to a lack of people, as many of our current actives will soon graduate. If you are interested, please reach out to us. We don't bite, promise! Here, it's important to note that you can just drop by our oVIS (CAB E 31) at any reasonable time to ask questions. We try our best to answer and if we can't, then we'll redirect you to the right place. Alternatively (but a bit old school) e-mail exists and mistyping our address isn't an excuse anymore as we are in the ETH contact book now.

### Best, Jason

[1] Remark of the layouting team: Jason kept the promise he made at the general assembly and sent his text before the deadline





# Mentoring, NumCS and other pleasant things

JULIA BOGDAN - NOW IN CHARGE OF COMPLAINING

A reminder for everyone who doesn't know

what HoPo<sup>1</sup> is or does (or thinks that HoPo

doesn't in fact do anything, you know who

you are): We at HoPo try to make your life at ETH better by talking to the department, professors, other students and anyone who

is unlucky enough to be close by. If you're

unhappy with anything at ETH let us know

and we'll do our best to do something about

As every new HoPo president, I have many

goals for the current semester. By the way,

if any of our current projects interest you, feel free to come visit us during one of our

meetings or get in touch with me. But before

we talk about current topics, here are a few of

our biggest achievements from last semester:

For the second time, we successfully

organized a mentoring program. In case

you missed it, this gives first year students

the chance to get a mentor from a higher

semester. The mentor can then help them

with all questions related to ETH. We had a

nice kick-off event with lots of games, snacks

and drinks and the next event is coming

soon, so keep your eye out for that!

### NumCS

Instead of being dropped in the deep end of C++ 3rd semester students could look forward to two weeks of introduction.

### **Grade Statistics**

As you can see, we managed to get much more grade statistics to give Visionen to publish and also for HoPo to further analyze whether changes in certain courses result in better or worse grades.

This semester we already had our HoPo-Stamm where many interesting topics were discussed, lots of productive solutions were found and lots of pizza and beer was consumed. This semester we focused on: diversity task force, bachelor graduation, mental health at ETH, study spaces and the grade statistics. If you want to know more about what exactly we discussed, feel free to check out our protocols on confluence or on vis.ethz.ch (yes we finally updated the website) There you can also find out when our next meeting will be. Join the discussion or just listen to the gossip<sup>2</sup>.

All the best with the rest of the semester and let me know if you have anything else you want us to complain about.



Hier eine kurze Zusammenfassung für all jene, die nicht kommen konnten bzw. keine Ahnung hatten, dass die Mitgliederversammlung überhaupt stattfindet.

Inhaltlich hast du dieses Mal nicht so viel wichtiges verpasst, aber die Good Vibes eben schon.

Die Abstimmung über die Statutenänderungen, an denen seit mehreren Jahren liebevoll gearbeitet wurde, musste leider verschoben werden. Denn: Die Geschäftsprüfungskommission (GPK) des VSETH hat es nicht auf die Reihe gekriegt, diese Änderungen vor unserer MV zu genehmigen. Folglich verschob sich auch eine weitere Neuerung: Es stand zum ersten Mal ein Unternehmen zur Wahl als Auditor, doch laut alten Statuten muss es sich bei den Auditoren um zwei natürliche Personen handeln (§4.3.19).



HOPO COMMITTEE

# Zusammenfassung der MV

9

NORA DIESCHBOURG - SCHREIBT GERNE ALLES AB MIT

Anschliessend verabschiedeten wir uns unter Tränen von den folgeden Vorstandsmitgliedern: Emir Isman, Matthias Schenk, Douglas Orsini-Rosenberg, John Staib Matilla, Michael Keller und Matthew Weingarten. Es wurde aber wie jedes Mal ein neuer Vorstand gewählt, mehr dazu findest du in den Vorstandsportraits.

Dieses Mal wurden keine spontanen Kandidaturen für Kommissionsmitglieder akzeptiert, da unser armer Webmaster letztes Mal Beschwerden bekam, dass dies die Sitzung in die Länge ziehe. Wer dennoch einer Kommission beitreten möchte, soll sich doch baldmöglichst beim betroffenen Kommissionspräsidenten melden.

Der goldene Lauch ging dieses Semester an John Staib Matilla für seinen monoton vorgetragenen Aktivitätenbericht und seine allgemeine Lauchigkeit.<sup>1</sup>

[1] Anmerkung des GLK <sup>2</sup>: vor allem aber für die Star Wars-Bieraktion

[2] Goldener Lauch Komitee

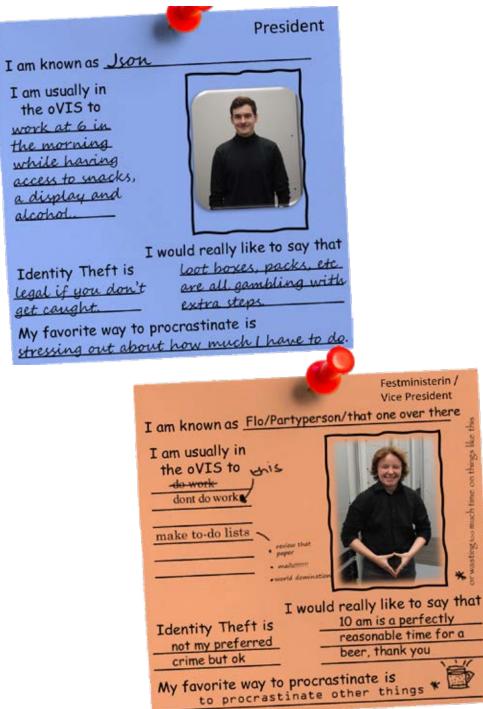
it.

Mentoring

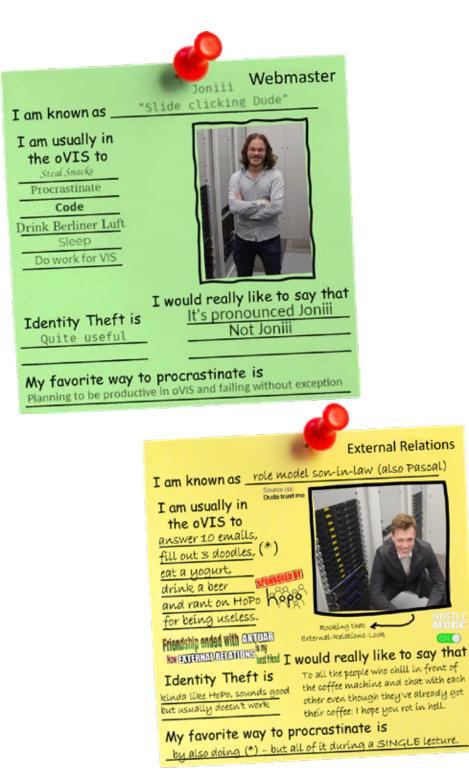
[1] HoPo is the abreviation for "Hochschulpolitk", which translates to University Politics.

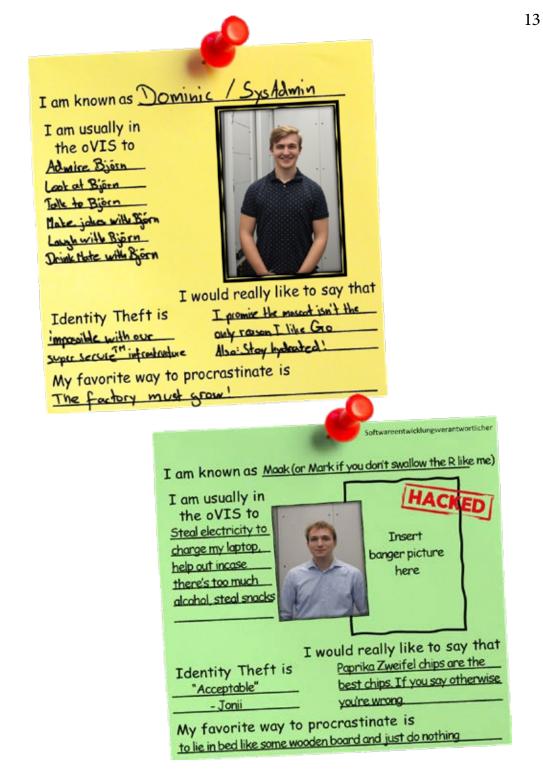
[2] We also offer free food.

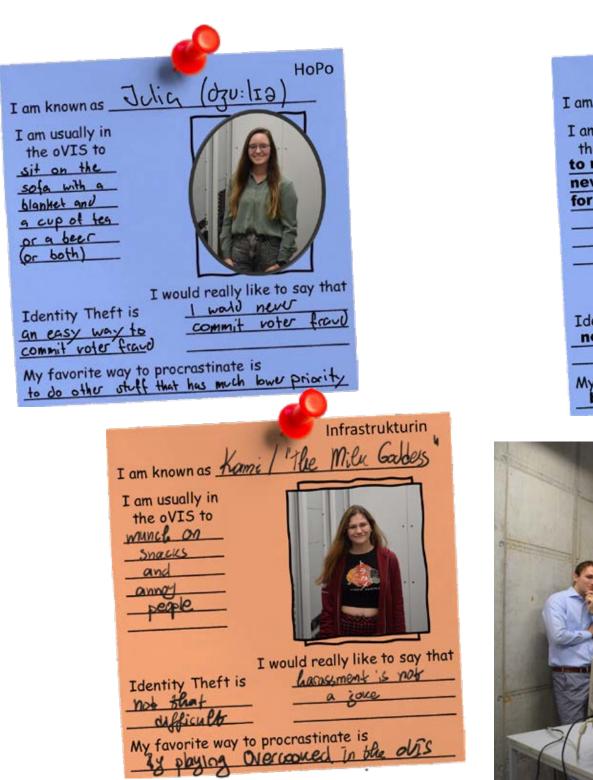
# **Boardportraits**















Most of you loyal readers know that every semester we use this magazine to publish grade statistics for the last exam session. Usually, these contain information on the Basisjahr, Grundlagenfächer, and Kernfächer in the bachelor's program as well as the interfocus the courses in master's programme. Almost immediately after receiving their own grades, people start asking about those statistics and when they are not included in the semester's first issue of this magazine, some start complaining about that. Rumors have it that some of our readers do not read any article but only look at those statistics. I am pleased to present to you the statistics you deserve.

# Notenstatistiken II

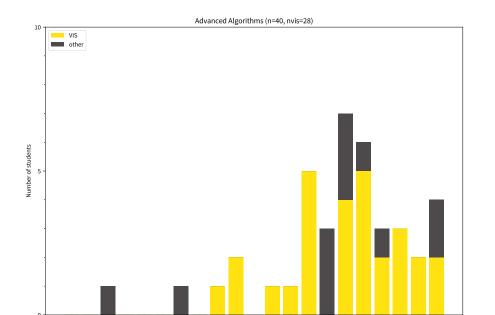
TOBIAS SCHEITHAUER – CRUNCHED THOSE NUMBERS AGAIN For example, you might not take a course after seeing that it's grade statistic does not look promising for you. By publishing the statistics, we have to take responsibility trying to avoid such situations.

With these thoughts and ideas in mind, I had a great meeting with the Department. We talked about the data we might get access to and how we could use them. As a result, we now have the data to create our own figures without conflicting any of our privacyrelated concerns. While juggling around with these numbers for a few hours, I created a collection of histograms for the recent exam session results. You have already seen the plots for most courses in the last issue, so we only show the Master's Core Courses.

As noted above, please keep in mind that those distributions should never discourage you from taking a course you are interested in. Whenever you are interested in a topic and motivated to work in a disciplined manner towards your deep understanding of a course's content, you should definitely give it a try, as you will almost certainly succeed at the exam!

On a recent Tuesday's evening, a numerous group of motivated students gathered at the VIS Hopo-Stamm to discuss the studiesrelated topics they are most concerned about. Among those, there were quite a few having ideas for the future of grade statistics. We took the time energized by pizza to collect ideas for the presentation, the accessibility and means of publication for those numbers. In the end, we came up with a sketch for a web-app that allows to interactively explore the past by giving insights from the collection of available numbers.

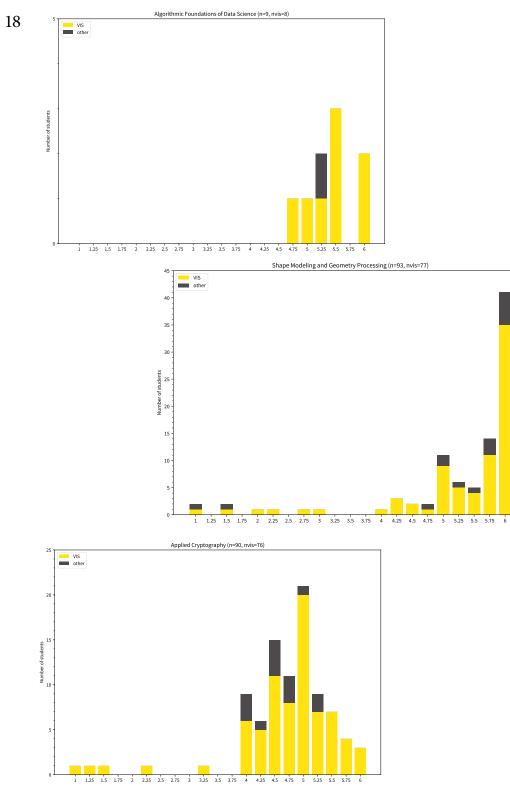
We did not only discuss new ways for the publication, we also thought about problems related to that. For example, as VIS we have a tradition of being concerned about data privacy. Hence, we strictly oppose publishing any raw data about the grades, even in an anonymized way. Similarly, summary statistics such as histograms should not be published if too few students took part in the corresponding exam. Another concern is that such statistics might be misinterpreted.

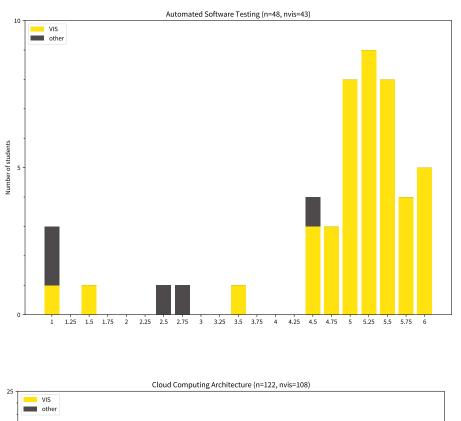


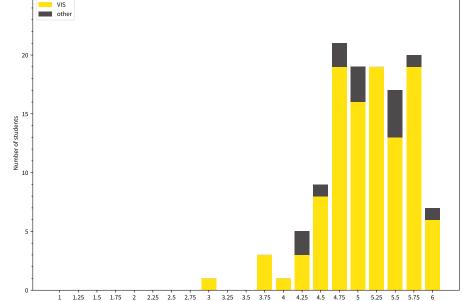
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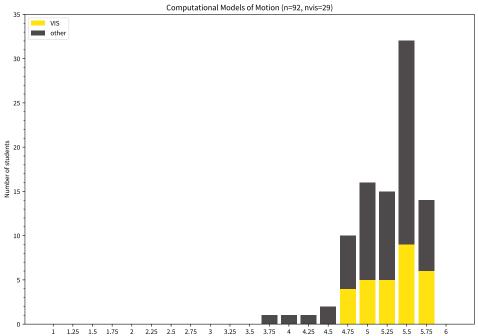
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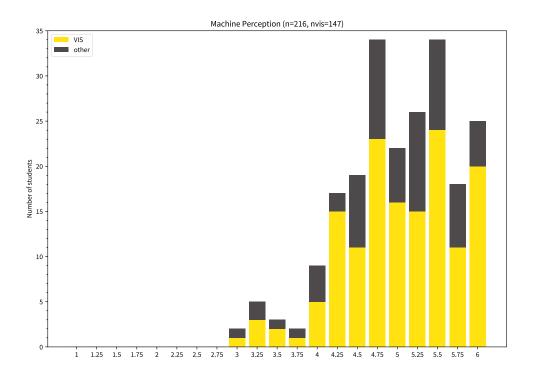
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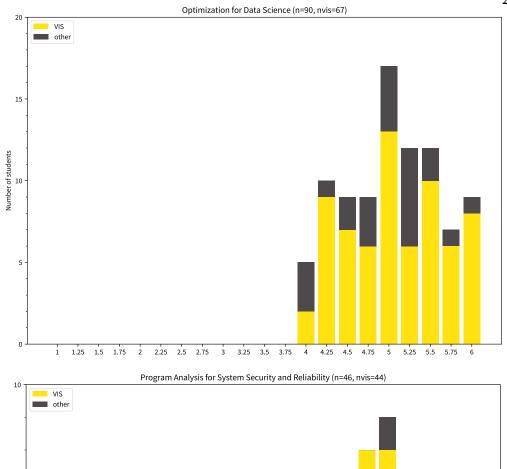


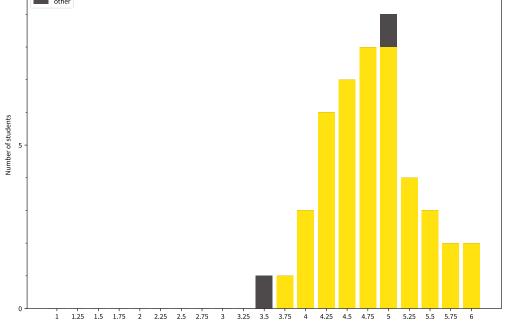












Michael Scott knows: "An office is for not dying. An office is a place to live life to the fullest, to the max, to... an office is a place where dreams come true." For me, a proper study space is what an office is for Michael. The problem: proper study spaces are rare. In this article, I try to name a few at or nearby ETH, so you can find yourself a place where your dreams come true.

If you like to work on your dreams in silence, a library is what you need. For that, I recommend the computer science library due to its proximity to the VIS coffee machine. However, when you are in need to study before 10am or after 6pm (why wouldn't you?), it is not the place to be. A reasonable alternative is the Green Library in CHN: still close enough to the coffee, but with reasonable opening hours and much more space. If you want to draw inspiration from architecture, I recommend the Law library of UZH (remember your first DDCA<sup>1</sup> lecture). And for those of you who like to take a walk for every coffee or lunch break, check out the Zentralbibliothek (ZB).

An option for the food lovers is to learn in the cafeterias. Whenever there is no food offering, i.e. lunch or dinner time, you can use the rooms of Polymensa, UZH Mensa, food&Lab, food market, etc. to work. The clear advantage of that is that you do not have to wait in line for food anymore.

# "Where is my desk?"

TOBIAS SCHEITHAUER – I DIDN'T LOSE MY DESK. OKAY?

The catch: you need to start eating lunch at 11am. Also, you need to accept the smell of delicious food afterwards. For a coffee house atmosphere, you might want to check out Einstein and Zweistein.

If you want to work in a rather small room on a proper desk, you can always check any seminar room's sign. If it is free, and you feel lucky, open the door and check the atmosphere. You might be surprised with a group of students either working in full concentration or chatting about the best parties. For a comprehensive overview of the available rooms, check out "Ollie's Sick Room Finder"<sup>2</sup> or the not always up-to-date list in the Edu-App.

There are also rooms reserved for studying. Having the best access to fresh coffee, the old chemistry lab upstairs of the common room, is my go-to place whenever I am feeling open for distraction by people talking. If you want to use a computer other than your laptop, you can find computer rooms in HG and CAB. In my first semesters at ETH, I also regularly found a spot at the CHN Gallery and the balconies inside the big hall. However, if you would rather avoid feeling watched by large format photos of students' faces, you should not go there. If you want to be close to alpacas (no joke), check out the Lernzentrum at Irchel campus.

As a last resort, you can find tables placed on the corridors in almost all ETH buildings. However, as you will be distracted by people walking along, I cannot recommend this for any concentrated work session. For those of you who like to laugh in frustration, check out the benches in front of the CS library below the metal stairs. If this is your last option, maybe just take a break or work from home. When asking fellow students for study spaces, I got an answer that surprised me and definitely deserves an honorable mention: buy a GA, take a train to some random place with a long ride and start working.

If you are satisfied with these options, I am happy for you. If not and you want to work on improving the situation, you can do so! There is a VSETH working group for that (AG Studierendenarbeitsplätze) and you can simply email them<sup>3</sup> or VSETH Hopo<sup>4</sup> in case you have other complaints. That is weird.

DWIGHT: Where is my desk?



[1] Digital Design and Computer Architecture
[2] https://rooms.saravanja.ch/
[3] agsap@vseth.ethz.ch
[4] hopo@vseth.ethz.ch

one who lost the d

As some of you probably noticed, there were a few problems with the Wi-Fi at the start of the semester. We tried to use our investigative power to find out more about this.

### Funny WiFi Names Pretty fly for a WiFi

That's what she SSID Drop it like it's hotspot A LANister Never Forgets Girls Gone Wireless Mom, Click here for Internet FBI Surveillance Van Funny Wifi Name LAN Solo

Stranger Pings

C===[:::::::::>

Just one Byte

### We've Been Trying To Reach You About Your Car's Extended Warrant

99 Problems But Wi-Fi Ain't One Silence of the LANS In Sync Luke, I Am Your Router You're a Wi-Fi, Harry Thou Shalt Not Covet Thy Neighbor's Wi-Fi Never Gonna Give You Wi-Fi mRNA-chip\_c0af8df0be3e58f5 click here to find out about our sponsor RAID SHADOW LEGENDS

SCION packages only

Let us start with a little recap for those who didn't notice any issues because they stayed at home. With the new semester many courses stopped streaming and/or recording the lectures which led to more students being present at ETH. Quite suddenly, we (the students) started having difficulties connecting to the Wi-Fi or using it. Sometimes we were connected but could not reach anything, sometimes we got thrown out of the Wi-Fi and then again sometimes it worked just fine. Eventually, some students just started using the public Wi-Fi because it worked at least decently.

Wi-Fi at HG

TECTRIXER - HOPES THAT BY THE TIME YOU READ THIS

THE PROBLEMS WITH THE WI-FI ARE A THING OF THE PAST :)

This went on and on until finally – after a few weeks – the situation got better. Now, the problems occur only in specific rooms and less frequently. At the time of writing this article, I would say the situation is resolved, as the issues have become an exception rather than the norm.

We were curious what happened and asked the IT Helpdesk if they had any information. They responded quickly and kindly and provided us with many statistics for the Wi-Fi and also some causes for the situation. WiFi: \*Drops down by 1 bar\*

Youtube video quality:



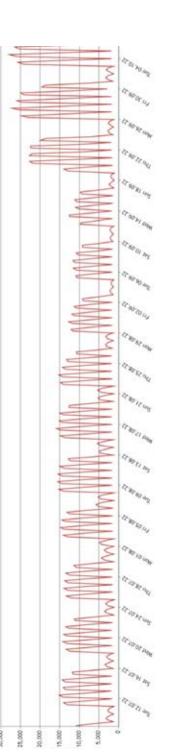
At first, I want to mention the statistics because they demonstrate what a massive load the ETH network deals with every single day. The number of clients connected to the network went from 15'000 before the semester to 25'000 during the lectures.

In HG alone, there are up to 4'700 clients connected concurrently. This is also the reason there are a total of 6'000 access points distributed over the ETH buildings (including Hönggerberg). At peak hours, about 4 terabyte of data are being transferred over Wi-Fi. There is also a ranking of lecture halls by maximum number of connected clients:

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Lecture Hall	Max. Concurrent Clients	
ETA F5	670	
HG F7	500	
HG F30	500	
ML D28	500	
HG E7	470	
HPH G1	450	
HG F1	400	



Mit der Autorität einer Leuchtweste und eines Helms bewaffnet habe ich die Büros im CAB inspiziert. Dabei habe ich die Büros nach zufällig ausgewählten den aussagekräftigsten Kriterien bewertet und möchte dir hier meine präsentieren. Auswertung Wenn du also mal durchs CAB schlenderst, kannst du diesen Guide nutzen, um zu entscheiden, in welche Büros sich ein Besuch lohnt - sei es um neue Menschen kennenzulernen oder nur dein Mobiltelefon zu laden - und welche du eher meiden solltest. Auch gehe ich dem Mysterium auf den Grund, ob der AMIV tatsächlich einen Feuerlöscher besitzt.

# Das Grosse CAB Büroreview

CLEMENS BACHMANN - SELBSTERNANNTER BÜROINSPEKTOR DES CAB, ABTEILUNG FÜR KOMFORT UND FEUERSCHUTZ



CLEMENS DER BÜROTESTER HÖCHSTPERSÖNLICH

CAB E 38 (Bastli) Nettigkeit: \*\*\*\* Ordnung: \*\*\*\*\* Couchrating: -USB-C Ladekabel: 🗹 Feuerschutzkonzept: 🟹

Meine Tour begann ich mit einem Besuch im Bastli. Der Bastli ist Teil des AMIV, jedoch offen für alle ETH Studierenden. Hier kann man kaputte Dinge (ausser die eigene Psyche; ich hab nachgefragt) reparieren. Man kann zwar nicht wirklich von einem Büro sprechen, weil der Raum aber sowieso auf meinem Weg lag, dachte ich, ich schau mal rein. Es wurde direkt vorgelegt und der Bastli konnte in allen Kategorien mit einer guten Note abschliessen. Ich wurde beim Betreten sofort freundlich begrüsst und mir wurde Hilfe angeboten. Die Ordnung war auch Pico Bello: Obwohl der Bastli von Maschinen und Material nur so überquillt, hat hier alles seinen Platz. Auch die nicht verwendeten Arbeitsflächen waren aufgeräumt. Ein krisensicheres Feuerschutzkonzept ist ebenfalls vorhanden, was sicher von Nöten ist, da die Wahrscheinlichkeit eines Brandes wohl ziemlich hoch ist. Einziger Negativpunkt: Es hat keine Couch. Im weiteren Verlauf meiner Inspektion wird mir aber auffallen, dass es durchaus schlimmer geht (lieber keine Couch alse eine schlechte Couch).

CAB E 37 (AMIV) Nettigkeit: ♥♥♥♥ Ordnung: ♥♥♥ Couchrating: △ △ △ USB-C Ladekabel: ☑ Feuerschutzkonzept: ☑

Danach bin ich gleich ins AMIV Büro geslidet. AMIV steht für "Akademischer Maschinen- und Elektro-Ingenieur Verein", was mässig sinnvoll ist, da das E fehlt, aber drücken wir mal ein Auge zu. Mir wurde anfangs trotz leuchtender Weste wenig Aufmerksamkeit geschenkt. Das lag wohl daran, dass alle gerade mit der Organisation einer Firmenmesse, der Kontakt.22 beschäftigt waren - dementsprechend sah es auch ordnungsmässig aus. Also setzte ich mich gleich auf die Couch. Positiv hervorzuheben ist, dass drei davon vorhanden sind, jedoch lässt der Komfort zu wünschen übrig. Ich kam dann doch noch ins Gespräch mit einem sehr freundlichen AMIVler, der mir den Grund für die Unordnung erklärte. Das ist zwar schön, ändert aber nichts an meiner Bewertung. Ein Feuerlöscher ist, engegen der Behauptung in vorigen VISIONEN-Ausgaben, offenbar vorhanden (siehe Beweisfoto).



→

### CAB E 33 (VMP) Nettigkeit: •••••• Ordnung: •••••• Couchrating: •••• USB-C Ladekabel: •• Feuerschutzkonzept: ×

Dann setzte ich meine Tour fort im Büro des VMP. das steht für "Verein der Mathematik und Physikstudierenden". Ich vernahm keine Lebenszeichen von drinnen, es wirkte eher ruhig. Trotzdem versuchte ich mein Glück und drückte die Klinke nach unten und siehe da: Zwei VMPler versteckten sich hier. Sie waren sehr freundlich und zuvorkommend, vielleicht werden sie nicht so oft besucht? Das könnte damit zusammenhängen, dass die Couches nicht wirklich bequem sind. Zwar ist das Büro viel ordentlicher als beim AMIV. ein Feuerlöscher ist leider aber nicht zu finden. Dafür gibt's eine Löschdecke und viele Getränke minderer Qualität, die im Notfall für eine Löschung verwendet werden können. Da auch im Kühlschrank Ordung herrschte, sind diese sehr einfach zu finden.

### CAB E 31 (VIS)

Nettigkeit: VVV Ordnung: VVV Couchrating: OOOOO USB-C Ladekabel: V Feuerschutzkonzept: V

Sodann kam ich im Büro des VIS an, des "Vereins der Informatik Studierenden" (es müsste eigentlich "Informatikstudierenden" heissen, steht aber genau so in den Statuten und wir bleiben konsequent)<sup>1</sup>. Hier wurde ich nicht mehr nett gegrüsst, was mich nicht überrascht, da ich eher berüchtigt bin. Das Ordnungsniveau ist vergleichbar mit dem AMIV Büro - auch hier eine Ausrede - das sei wegen der VIScon. Die Couch ist eine Wohltat, deshalb leider oft besetzt. Somit muss ich wegen mangelnder Quantität einen Punkt abziehen.

CAB E 23 (VSETH) Nettigkeit: ♥♥♥♥ Ordnung: ♥♥♥♥ Couchrating: △ USB-C Ladekabel: ☑ Feuerschutzkonzept: ×

Dann ging es weiter zum VSETH, dem "Verband der Studierenden an der ETH". Dies ist der Dachverband von allen Studierendenvereinen (VIS, VMP, AMIV etc.). Die Leute waren mehr oder weniger freundlich und Ordnung war kind of ok. Da hier jeder seinen persönlichen Arbeitsplatz hat, liegt auch dementsprechend mehr Zeugs rum. Wir müssen aber über die Couch reden. Ich kann mich nicht erinnern, je auf einer unbequemeren Couch gesessen zu haben - will man einfach keine Gäste? Auf die Frage nach einem Feuerlöscher wird mir entgegnet, dass dieser sich im Gang befindet... ich glaube das mal. CAB E 11.1 (VIAL) Nettigkeit: ♥♥♥♥ Ordnung: ♥♥♥♥ Couchrating: △ △ △ Harte Lehne, sonst ok. Eignet sich zum schlafen. USB-C Ladekabel: ☑ Feuerschutzkonzept: ×

Hier gibt es nicht so viel zu sagen. Nettigkeit und Ordnung war da. Die Couch ist eher Durchschnitt. Ein Highlight gab es jedoch: Dies ist das einzige Büro mit Waschbecken.

### CAB E14 (Challenge/The Alternative/SPOD) Nettigkeit: ♥♥♥♥ Ordnung: ♥ Couchrating: △ △ △ USB-C Ladekabel: ★ Feuerschutzkonzept: ★

So, jetzt kommen wir in ein Kommissionsbüro. Kommissionen des VSETH sind Organe, die für den VSETH Services anbieten oder Events organisiseren. In diesem Büro befindet sich die Challenge (ein Winter<del>sauf</del>sportevent), dieAlternative (Linux<del>sekte</del> Installationshilfe und Support) und der Students Place of Design (selbsterklärend). Beim Betreten des Büros wird man am Eingang von kryptischen Memes Begrüsst. Couches gibt es viele, sie sind aber nicht wirklich das Gelbe vom Ei. Ob es einen Feuerlöscher gibt, konnte mir niemand sagen. Wenn es einen gäbe, würde man ihn in diesem Chaos bestimmt sowieso nicht finden. CAB E 13 (GECo/ExBeKo/PapperlaPub/MUN) Nettigkeit: ♥♥♥♥ Ordnung: ♥♥♥♥ Couchrating: △ △ USB-C Ladekabel: ☑ Feuerschutzkonzept: ×

Das E13 ist auch ein Kommissionsbüro. Hier befinden sich gleich 4 Kommissionen: Die GECo (zuständig für (Video-)Spiele), die ExBeKo (organisiert die ExBeerience, ein SaufDegustationsevent), das PapperlaPub (wöchentliche Bar im CAB) und die MUN (Model United Nations aka Dungeons and Dragons für Grössenwahnsinnige). Man versuchte mich hier mit Maronnis zu bestechen. die Nettigkeit war ansonsten aber eher so im Mittelfeld. Folgendes zählt zwar nicht in die Wertung, aber die Anzahl der Katzenmemes an den Wänden ist prächtig. Allein hierfür lohnt sich ein Besuch. Die Couch ist nicht unbedingt unbequem, aber absolut abstossend. Des Weiteren ist die Auswahl an Kabeln, welche die GECo hat, aber nicht rausgibt, überwältigend und wenn es einen Leiternvergleich im CAB geben würde, dann würde die GECo den gewinnen.

[1] Anmerkung der StatutenrevisorInnen: Das wurde bereits im neuen Entwurf der Statuten geändert. Der Entwurf wurde im HS22 an alle VIS-Members gesendet, so auch an Hern Bachmann. Dieser muss nur noch an einer MV angenommen werden. I asked my friends what their favorite pen was and I am not disappointed. I might keep asking that question in the future. I really liked the conversations it led to. Maybe this is the "What's your favorite animal?/ What's your favorite color?" for students<sup>1</sup>.

Since I forgot to ask most of them to use their name, I will just put some labels on them. I will use she/her for them no matter what their personally preferred pronouns are to keep them more anonymous.

### The Sponsored One

When asked for her favorite pen she starts listing companys that don't produce pens. At first I was confused, but then I got it: she never buys pens. She rates the companies considering the pens they give you at Kontaktparty and VIScon. But that doesn't help me too much because I have no idea what the pen of company X looks like. She shows me and it's a thick pen, very comfy to hold and there's a lot of ink coming out which makes it very smooth to write with. Then we rant about these white and blue Caran d'Ache pens which are just to thin. "You will for sure get a cramp at the exam writing with these.."

# What's your favorite pen?

FIONI - HAS TO WRITE ABOUT PENS SINCE THE ANTS ARE ALREADY IN THE FRIDGE FOR THE WINTER

### The Cheap but Influenced One

"My favorite pen?, one that I have or one that I want?" This answer did not at all surprise me. Of course she has watched too much YouTube and saw a super expensive pen she must have. And it is enough that she saw the video. She never touched it or wrote with it or knows someone who wrote with it. The exclusivity of that video is enough for her to believe that is the best pen in the world. (Yes, this is me slightly judging. Don't worry my friend knows.)

Back to her actual favorite pen. You might guess that it is another somewhat exclusive pen. It's not. "Those white and blue Caran d'Ache pens, because you can buy a whole box very cheap and it will last you forever." Yes, she's talking about the pen I was ranting about with the sponsored one.

### The Engineer

"Why do you want to know that?" Is my question really that suspicious? Or are you playing for time?

Her answer: "2H pencils" What? Dear reader, in case you are not sure how the pencil labelling works, there's HB which most standard pencils are then, the more H's the harder and the more B's the softer. So writing with a 2H pencil will scratch the paper and make it impossible to erase. But since she's an engineer and draws not for fun but for perfection or something like that, this is her favorite pen.

### The Booklover

"The Fülli<sup>2</sup>" I am not at all surprised. Any serious booklover will hopefully say the Fülli is their favorit pen, but let's be honest it is not the most practical one. But suspiciously I have never seen her writing with a Fülli or seen a paper written by her with a Fülli. So maybe she has this favorite pen just for the image. Maybe she is just another pretender like you and me.



"Pilot Dr. Grip, because you know it has a very nice grip" She's a very funny one in case you were wondering. The conversation went on, was quite nice about different pens and how we found them and we lost one and found it again and friends stealing our pens and never giving them back. I would recommend.









### The Surprise (but somehow not)

Listening to me and booklover discussing pens she calls out "I do have an opinion on EVERYTHING as we all know, but I really don't have an opinion on what the best pen is! As long as it writes!" Wow, okay, but as the special snowflake with opinion on everything it is okay to not have an opinion on somethings, that standard people discuss about, I guess.

### The Teacher

"We get them for free at the school. I don't know the brand but they have a thick tip and are available in blue red green and black. The blue one is my favorite." She's talking about the standard teachers pens. Because she's a teacher. One google search and I can show her the right pen, now she thinks I am a pen specialist. As the good teacher she is, she asks what my favorite pen is. "Pliis don't"

### The loyal VIS-member<sup>3</sup>

Ehm, surprisingly I was quite convinced by anyones favorite, maybe that's just who I am, perfectly understanding and supportive<sup>3</sup> with my friends and still I am a little disappointed, because my favorite pen is the VISpen. Isn't that what every good VIS-active (which 90% of my friends are) should answer to this question?



I'd say adults but I'm not too sure 'bout us
 stylograph / fountain pen
 only slightly judging

Sometimes we search the Discord Server for "Visionen" to see the Readers Feedback.

# **Join Visionen**

now having read the new visionen: genuinely the best edition ive read with many very interesting articles
 asking for a friend, how would one proceed if one considered contributing to visionen

Aww, many thanks to this reader. As any magazine we do have our ups and downs, not only in creativity, but especially in time to write and research articles. On the last page of each issue there's a picture of our team. If you see one of them around just talk to us, write an e-mail to visionen@vis.ethz.ch or come by the oVIS<sup>1</sup> and ask for the Visionen Team.

[1] not sure where that is? just look at the cover ;)



make one joke about PH students

### stretch the joke over 5 pages

As you might now, everyone of you has 18 CHF<sup>1</sup> to spend on printing per semester. I rarely was able to spend all of it and I don't encourage you to waste the white cellulose based thin writing material, but I want to lower the entry barrier to the world of printing at ETH with my exquisite printing guide.

# Printing at ETH 101

C<sup> -</sup> - SWITCHED TO DO MOST OF HIS PAPERWORK DIGITALLY, HOWEVER, STILL GETTIN' PAPUUHH

### Locations

As we all know, the most important building at ETH is the CAB, so you might naturally want to look at the plan in Figure 1 to find the easiest way to reach a printer in there. Alternatively, if you are not located near the CAB, it's probably fastest to just google "ETH Location Printer" and you'll be served with a custom ETH-printer-search-engine. Most buildings have printers in them, but there are exceptions such as the CLA or the LEE. One thing I should add here is that there is no printer in CHN D 28.2, so don't go there (see map on next double page).

### Features

Of course, there are the basic features like printing and copying. Another thing that might be of use is scanning and sending it to your e-mail address. To do so, you usually have to write down your e-mail address with this terrible resistive touchscreen, which is extremely tedious. That's where the extendable keyboard (see Figure 2) below comes in place. OMG, yes, there is a keyboard to pull out below the touchscreen, and EVERY printer has it! - you are welcome. Another place where the keyboard comes in handy is when you manage to forget or lose your student card. Logging in with your nethz credentials is a lot easier when equipped with a physical keyboard.

### How much can you print

Another mind blowing fact is that prices for A3 and A4 are identical. So technically you could double the amount of pages if you print everything on A3 pages and cut them in half. Here, I want to point out that in my years of studying (which are a lot, I'm old) I never managed to use all of my money in one semester.

### Go Big or go Home

If A3 is not large enough, there are also plotters in multiple buildings such as HG D 47. Up to 150 x 500 cm everything is possible. If you print on a budget, you can cut the pages yourself. If you have enough of the other kind of paper, there is also the possibility of letting ETH staff doing that for you. The palette of print services even includes products like brochures, flyers or business cards.



**FIGURE 1 NO PRINTER HERE** 

	Cost per Page (A3/A4)	Pages for CHF 18
B/W	0.02	900
B/W (Double)	0.015	1'200
Colour	0.07	257
Colour (Double)	0.065	276



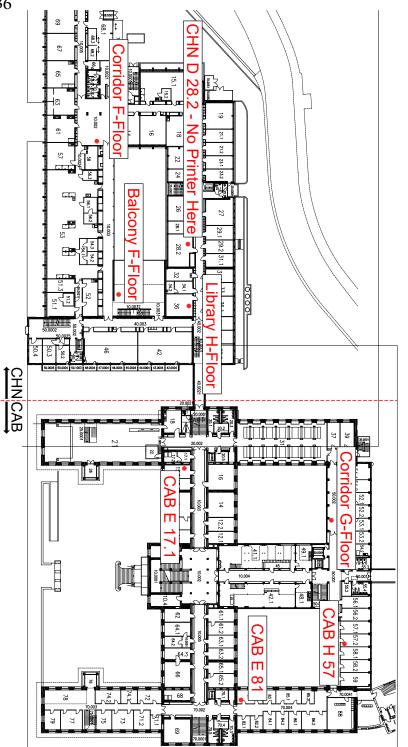
FIGURE 2 EXTENDABLE KEYBOARD

Webprint: webprint.ethz.ch

Self Service plotting: print-publish-sb.ethz.ch

Print service: print-publish.ethz.ch

[1] 18 CHF? Thats 18.5 euros, which is equal to 37 German Mark, which corresponds to 74 East Mark. Or 370 East Mark on the Black Market.



# CHN / CAB **Printer Locations**

X

Welcome



You do not implement textboo RSA Being a student comes with many advantages: getting entry discounts into many public locations, not having the stigma of being an alcoholic whilst drinking Prosecco at 3 o'clock or - depending on which university you study at - having a long summer vacation that is usually spent at some sort of foreign beach or other instagramable location. Therefore, it is not uncommon that a social media application of your choice provides you with said pictures. This was also the case with me. Sadly, I was not sunbathing nor making heart-warming story posts from the toucan rescue station in Brazil, because all this stuff costs money and I am poor. So, I had to use my vacation time to apply for a job and earn some actual cash.

As it turns out, it is surprisingly hard, given my skillset, to find a temporary job with actual fair pay but without the risk of losing actual brain power due to the monotonous task you are doing.

Luckily, a local workshop hired me to operate their heavy machinery while part of their workforce was doing said not-poor-people summer vacations and boom, jackpot: You are paid better having a totally normal day schedule (like waking up at 11 o'clock and not starting your daily work before 15:00). Did I mention that I am poor...

# Solitaire Tier List

RUCKI - HAS A FORKLIFT CERTIFICATE, BUT IS STILL IN DIRE NEED OF A PROCRASTINATION APPLICATION



So, I found myself operating an industrial grade metal laser-cutter during evening and night shifts. My daily schedule kind of looked like this: wake up around noon, do your daily chores, eat "break-lunch", go to work around 15ish, work for around 9 hours, go home, do whatever, sleep, repeat...

Working evening or night shifts comes with a funny side effect: at one point all your superiors and colleagues have already finished their daily workload and you are more or less alone. So, no more colleagues telling you: "Could you please re-laser this or that part, because I've fucked it up", or "We had to reschedule our workflow, so please do not cut the things you spent the last two hours programming but instead this one, which will fuck up your whole pipeline" ... I think you can see where I am heading: when everybody is gone you can actually do your work properly how you planned and scheduled it. Usually there comes a point when all your lasers are cutting on programs that take up to two hours and you have no immediate work to do. This can be boring...

In my case, boredom often leads to creativity. Heavy machinery like a forklift (my younger self would be very proud of me...) paired with creativity... I see absolutely no way how this could lead to costly accidents related to expensive broken machinery. Did I mention that I am not planning on staying poor for life...?

Conclusion: I need a safer way of procrastination which is not dependent on the usage of the internet, because there was none.... May I introduce you to the original 2000's way of it: Solitaire!

A lot of you guys might have encountered some sort of Solitaire at some point (most Windows computers still come with a preinstalled version of Solitaire). For me, starting up this software is basically a nostalgic trip back to my first interactions with computers. In the early 2000s, the internet wasn't as accessible as today, especially for a 5-year-old like me. My computer go-to was therefore software like MS Paint, Space Cadet Pinball, or the main subject of this article: Solitaire. Now here I am, having spent a considerable amount of time playing the preinstalled version of MS Solitaire, and I can promise you I do now understand why back in the day so many people's choice of procrastination was Solitaire. There is just some sort of extremely weird, probably primal instinct which floods your tiny monkey brain with endorphins when you are sorting chaotic patterns of playing cards into tightly ordered stacks of minimal entropy....

Long story short: Here it is, the result of hours of procrastination, the MS Solitaire tier list:



### Klondike

If you think of Solitaire, the picture you have in mind is probably Klondike. The goal of this game is to clear the board and the stack. You do this by ordering the cards in decreasing order and interchanging colours, whilst dealing through your stack, so that at one point you can discard certain cards and hopefully win the game.

→

Strategy-wise this game is straightforward. Most of the time you are ordering the cards independent of your current situation, but at two to three points in every game you actually have to strategize and therefore use your brain.

As I have written earlier, it is extremely satisfying having a clean bord after the initial chaos of every game, but compared to some other versions of Solitaire, the amount of OCD-satisfaction is only mediocre in Klondike.

All in all, Klondike is quite fun. Sometimes a bit frustrating because you made a mistake earlier which you couldn't possibly have foreseen. Taking this all in, playing Klondike in "casual mode" is a solid B-Tier.

But hold your seat, I give you a single change which will upgrade Klondike into S-Tier: play it in Time-Attack Mode! Try to be as fast as possible and the whole meta of the game changes. Whereas in casual mode it can be a motivation to solve a game without using the "tip function", in Time-Attack the tip button becomes a risky cost-benefit scheme where you pay with costly seconds.

If you are somewhat similar to me, you will find yourself racing yourself for new records (my PB is 2:28 in random btw...). S-Tier for literally hours invested to achieve a sub-3 min game.

### . Spider



Spider was the Solitaire variant that my father usually played when he was playing back in the days. Quite frankly, I don't understand this and neither does he when I ask him why he likes Spider more than Klondike.

The goal of Spider (who would have guessed) is to clear the board. You do this just as in Klondike by stacking cards in decreasing order and, depending on your difficulty level, changing colour. There is no deal-able stack like in Klondike, but when you have sorted a complete set of cards (King to Ace), the cards vanish in quite a satisfying way: bonus brownie OCD points for this.

If at one point there is no further possible move, or you decide to not stack any further, which in my opinion makes no sense, you can use the Spider-feature. The Spider-feature deals a new card onto each stack in the game and the whole procedure starts anew.

Sadly, there is no deeper strategy as far as I have experienced the game. Even worse, if you do really well and you reach a point where some of your stacks are empty, you have to split up your already ordered stacks because you can only use the spider feature when every column has at least a single card. This can be frustrating.

In the end, Spider is just a very casual version of Klondike where I found myself using the tip-function way too often because it's so messy: minus the cool features, but more cards. Bonus points for satisfaction, but still D-tier.

### Pyramid



Ever heard of a Ponzi-scheme, also known as a sort of Pyramid-scheme? Well, that's how much fun you will have with Pyramid... I don't understand how people are actually having fun playing this. All you must do is clear a pyramid-ordered stack of cards. You can discard two cards if their sum is exactly 13 (Jack, Queen and King are labelled 11, 12 and 13), so all you do is look for the pairs 5 and 8, Queen and Ace, you get the idea. Furthermore, you have a deck of cards which you can deal through and use the two topmost cards of the deck to find pairs as well.

There is zero difficulty even in more

challenging difficulty levels, I have not lost a single game of Pyramid Solitaire, it's just whack. F-Tier

### Free Cell



Well, Free Cell has grown on me. At first, I really didn't like it. I didn't get the rules, I was stuck almost every game and in the end I found myself playing Klondike again after all...

Sadly, at this point I still can't tell you exactly what the rules of Free Cell are, because sometimes the game still does stuff I do not understand. In a nutshell, you have to stack the cards in the game, but this time you don't have some sort of deck you can deal through but instead four trading spots where you can temporarily stash unwanted cards until you need them.

# **Ω**bsi

Free Cell is more like a puzzle game, urging you to actually think about what to do next before executing your plan. Because it is actually possible to fuck up in this version. Therefore, you actually feel smart after having solved a game of Free Cell, something no other version of Solitaire is able to do frequently. Every few games you even come to a point where, against your expectation, a huge chunk of the board clears itself in the most satisfying way possible. Free Cell lives off these moments....

Free Cell plays almost in the same league as Time-Attack Klondike, almost... The only decision I can make with good conscience is a well-established A-Tier. If at one point I am able to completely understand the rules, an S-Tier ranking is definitely within reach. Dear Reader, as you have now procrastinated for a few minutes with an article whose sole purpose of creation was to provide me with some hours of procrastination based on many hours of procrastination, I must say I somewhat achieved my goal and am now not obliged to pay forklift-related debt for the rest of my miserable existence. Would I recommend you to do the same? I don't think so... While in the Solitaire tier list there are members in the prestigious S-class, Solitaire itself is only a proper D- to C-tier procrastination tool, depending on your levels of OCD. So, most of the time I think you'd do better with more common procrastination tools such as Reddit, memes, or my personal favourite: writing a somewhat funny or poetic Visionen article in the hope that at least some people read mental brain farts.

So, if you made it this far: Thanks and cheers.

Ruckischnuggi

\*

**PS:** Since the day I have written this article, Microsoft has released an update to the Solitaire Collection (or maybe the one used at my worklocation was just really old). There is now a fifth gamemode called Tri Peaks. I have tried it once, it isn't that much fun: D-Tier.

**PPS:** I might have mentioned multiple times in this article that I am poor. This was obviously a joke, so don't feel sorry for me...

If you do so anyway, message me so I can provide you with my banking details.

# Praxiseinblicke mit Aussicht in die Zukunft

Sichere dir jetzt dein IT-Praktikum bei BSI! www.bsi-software.com/karriere



This is your sign to make an advent calendar for your brother, sister, friend, cousin, mother, father, just anyone you think deserves one and will be happy to get one. It is not about the materialistic aspect, the presents don't have to cost a lot, it is more about the thought and the time you invested for them.

Also this is your sign to start thinking about Christmas presents and start hinting your loved ones to what they could get for you ;)

1. Just get 24 little presents	1.	Just get 24 little presents
--------------------------------	----	-----------------------------

- 2. write a small note with a funny thought or idea what they can use this for.
- 3. pack the presents with the notes in paper
- 4. write the number for the day on every small packet.
- 5. put them all in a box or bag and bring them to your chosen person.

# Secret Santa

FIONI - LOOKING FORWARD TO ALL THE SELF-MADE ADVENT CALENDARS YOU WILL GIVE HER

### Some ideas for the presents:

- a clementine or an orange, but make sure it is a packet for one of the first 5 days so it won't go bad.
- little chocolate
- picture of the two of you
- small candle
- a lighter (maybe first the lighter, then the candle)
- a joke written on a paper
- a nice magnet
- a can of mate (with a silly pun "mate for my mate")

- a can of beer
- a bag of your favorite tea (or two)
- some cookies
- a naked lady (I am suggesting a flower with this name here..) (also pack it for one of the first 7 days, so they can watch it grow)
- another picture of you or your cat
- a printed out meme
- a qr code to a cool video you found
- an envelope to write you a letter already with a stamp and your address;)
- cozy socks
- a VIS-beanie
- a VIS-cup
- some glitterglue to design their Christmas cards
- some nailpolish
- a cool pen
- some post it's

- a pack of ice tea pouder
- a pack of orange juice for some vitamins
- a peanut disguised as santa
- bubble bath
- another chocolate
- a recipe for your favorite Christmas cookies
- the ingredients, that don't have to be "fresh" for your favorite Christmas cookies
- a picture of me
- a poem you wrote
- a poem you like
- a picture frame without a picture
- some more glitter
- a permanentmarker you can never have enough of those
- a personally crafted coupon for some muled wine together with you.

[1] could be your old notes or old newspapers for an ecological aspect ;)

# ESW & Pumpkin Carving



Up until just recently the only way how VIS could identify you when you tried to get coffee or beer was a simple mapping from rfid numbers and eth usernames. Incidentally this was also why you were required to enter the number on the back of your legi after completing the infamous "Coffee Quiz" ;). Because whenever you got a new legi this number would change, there was of course also an internal tool for board members to update this mapping when someone lost or destroyed their legi and arrived at the oVIS to complain about no longer getting their beer.

After this quick introduction let me recount a tale about the magical events of one legendary evening in CAB, which started out laptop, looked his friend in the eve, and like so many others...

It is said that on this evening some VIS actives and board members where enjoying their cold evening beer(s) when suddenly, something horrible happened: Everyone present in oVIS at this very calm and peaceful evening had run out of free beers for the day. As despair spread throughout the room, it suddenly felt a lot colder.

# Identity Theft ät **Bierautomat**

iiinoj (would like to remain anonymous) - When long-unseen alumni turn up at just the correct moment



But then, when all hope seemed lost, one heroic board member looked up from their spoke "Go and check the beer machine again. Maybe you will meet someone that could save us...". Confused but hopeful, his friend got up and left.

Minutes passed, the wait started to feel like an eternity. But then suddenly, the door swung open and there he was. Without a scratch. His arms full with bottles of beers. "You will never guess who I just met outside! MAX SCHRIMPF!" he proclaimed. Doubtful of this very improbable scenario, a board member checked the log of the 'Drinks API'. And incredibly enough, there it was: 5 beers had been dispensed for the legendary former SysAdmin. Joy spread throughout the room, faces lit up with happiness again and the evening could continue.

There was only one thing to be sad about, Max couldn't join the party as apparently he had been in quite a hurry and had already disappeared again...

Many of my friends are not able to watch "The Office" due to it making them too uncomfortable. However if you are an enjoyer of cringe humour there are levels way beyond that and i want to make some suggestions where you can expand your horizon. So I will present you three shows starting at a similar cringe level as the office and escalating it.

### **Parks and Recreation**

Similar style, similar level of cringe. There ist still people that you can identify. A mockumentary about a team within a government department that try to achieve a task. However in the team there are people of It's always sunny in philadelphia varying levels of motivation and competence so most of the time, things don't go as planned...

### **Arrested Development**

It's about a dysfunctional family of selfish rich people. At first you might get fooled and think that sometimes some persons have noble intentions to find out in the end

# Uncomfortable **TV** shows

C<sup>6</sup> - Speedrunned cringe humour

that most actions are just motivated by pure self interest. Cringe level is above the office however it is still manageble to binge some episodes in a row.

This show is about a bunch of guys that are just morally rotten. They don't even posture as good guys. The cringe level is off the charts, so bad that i'm only able to watch one episode in one sitting. For some episodes I needed multiple attempts to be able to finish them.

Nachdem sich ihr Sugardaddy Ehemann Manfred Keller, der sich in einem ungenannten anderen Fachvereinsmagazin den Sorgen von Studierenden angenommen hat, offenbar klammheimlich pensionieren liess, übernimmt Manuela Estrich den Laden. Da sie aber diejenige mit Geschmack in dieser Beziehung ist, hat sie sich ihr Medium etwas sorgfältiger ausgesucht.

# Was dich nachts wach hält

Prof. Dr. Manuela Estrich - führende Expertin in visualized Machine Learning for hyper elipsoid Block-Chains.



### Lieber D.B.L.

Das tönt ein bisschen nach einem klassischen HSG-Scam aus dem Textbuch. Dabei verkauft dir ein Kind von reichen Eltern eine Scheiss-Idee für Gold, übertreibt masslos mit den eigenen Fähigkeiten und Beiträgen zum Projekt und lässt dich gleichzeitig die undankbare Drecksarbeit machen. Hast du dir mal überlegt, ob du Maximilian für das ganze Unterfangen überhaupt brauchst? Vielleicht wäre es eine viel bessere Idee mal in die Vorlesung zu gehen, mit einigen deiner unbeholfenen Mitstudierenden zu interagieren und ein neues Konzept auszuarbeiten, das vielleicht sogar erfolgversprechend sein könnte. Professorin Estrich ist am D-INFK in der Smart Software Group tätig. Dort verwendet sie Blockchain, Vitual Reality und Artificial Intelligence, um automatisch API's für ERP-Systeme im Metaverse zu generieren. Sie engagiert sich ehrenamtlich bei der Suppenküche Zürich und ist Teil der Keller-Kind-Foundation. Bei den Visionen hilft sie verzweifelten Studierenden und bereitet sie auf die böse Welt da draussen vor.

Alternativ könntest du dich auch etwas aktiver deinem Studium widmen und nebenbei so um die 20% bei Domino's jobben. Einerseits wird sich dein künftiges Ich höchstwahrscheinlich dafür bedanken und andererseits wäre das auch finanztechnisch die bessere Entscheidung, denn 20% vom Mindestlohn ist immer noch viel mehr als 10% von nichts, was Maximilians Aktien gegenwärtig wert sind und vermutlich auch bleiben.

Liebe Grüsse Prof. Dr. Manuela Estrich

\*

### Hast du eine Frage?

Schreibe noch heute an visionen@vis.ethz.ch und wir leiten sie der vielbeschäftigten Professorin anonym weiter!

### Sehr geehrte Frau Prof. Dr. Estrich

Neulich wurde ich vom HSG-Studenten Maximilian kontaktiert, mit einem genialen Business-Konzept für ein Start-Up, für dessen Umsetzung er nur noch einen Programmierer braucht. Ich darf nicht allzu viel verraten, aber es geht dabei um eine völlig neuartige Dating-App, in der man die Gesichter von potenziellen Matches rauf- oder runterwischen kann. Diese einmalige Chance musste ich sofort packen! Glücklicherweise habe ich mich – obwohl gemäss Anforderungen mindestens 5+ Jahre Erfahrung in Javascript, HTML, CSS, PHP, Java und .Net gewünscht waren – gegen alle anderen Bewerber durchgesetzt. Maximilian hat mir nach eingehender Beurteilung sogar 10% Aktienanteil am Start-Up zugesichert. Inzwischen ist er aber überhaupt nicht mehr zufrieden mit mir. Er meint, ich programmiere zu langsam und meine Resultate würden nicht seinen Erwartungen entsprechen. Was soll ich machen?

Freundliche Grüsse D.B.L.

# Algorätsel

TECTRIXER – THE FOLLOWING PROBLEM WAS SHAMELESSLY STOLEN FROM AN OLD CODEFORCES CONTEST AND THEN REWRITTEN, PLEASE DON'T SUE US CODEFORCES :)

### Problemstatement

Jim has a little Problem in the office. He wants to prank someone like he always does. But over the time it got boring to always prank Dwight so he wants to expand the targets.

In order to do that he wants to let randomness decide who should be the next one. The problem is that each day there are a different number of people (n) in the office because some just stay home or think it's Saturday already.

Jim only has one coin, which flips heads or tails with an equal probability. He wants to minimize the number of throws he needs to choose uniformly between the nnn targets. But he notices that in the worst case he needs infinite throws. This is why he only wants to know the average number of throws needed to choose randomly between the nnn possible prank targets if he uses the optimal strategy.

Your task is to find out the optimal strategy for this problem and to then calculate the expected number of throws this strategy needs.

### Input

As an input you will get one positive integer.  $(1 \le n \le 10000)$ , the number of persons in the office besides Jim.

### Output

As an output give the average number of throws of a two-sided coin needed to uniformly choose between the nnn targets when using the optimal strategy. As a challenge you can try to give the result as a fraction "a/b" where gcd(a,b) = 1.

### Examples

Input: n	Output
2	1/1
3	8/3
4	2/1

### **Further information**

To test your solution you can use the contest on Codeforces<sup>1</sup>. If you want to see why the stategy for the solution is optimal you can look up the proof in a paper by Knuth and Yao published in 1976.



# **Transform data into breakthrough insights –** Transform the Everyday

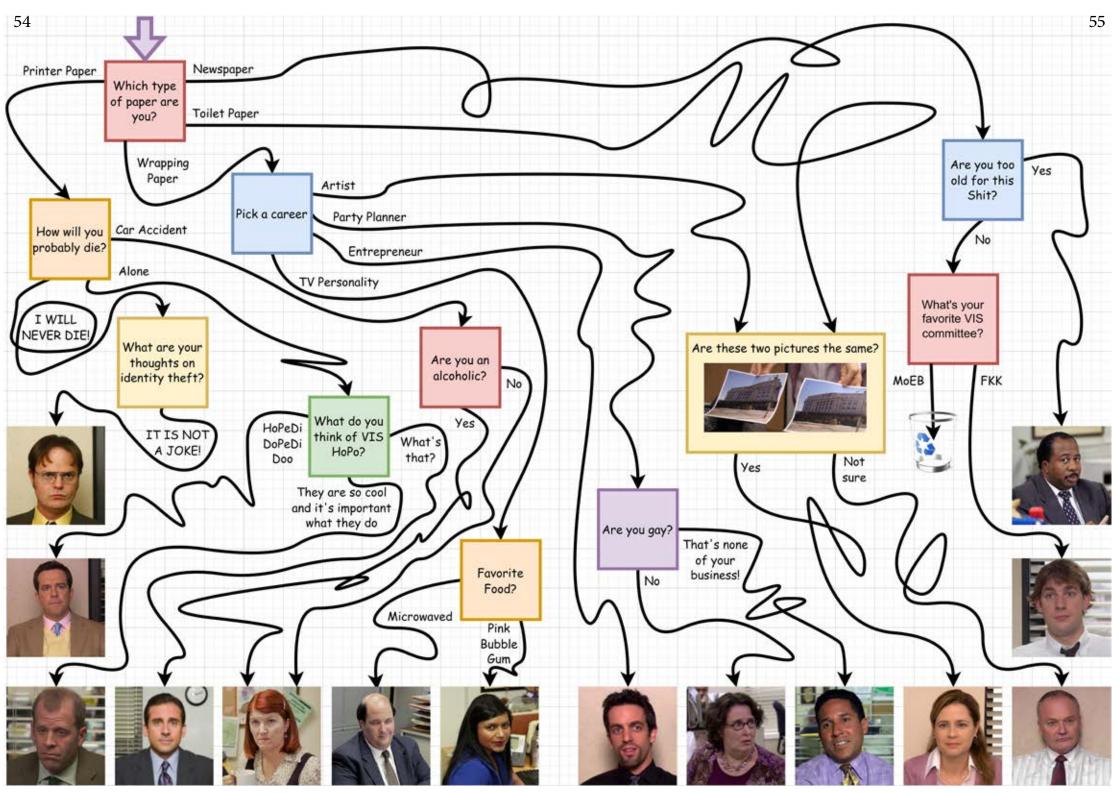
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