**Dawid Wozniak:**
OK, let's start, you can see on the screen that is more or less recording what we are saying. Then, I will review it send to you for approval so you can always edit it. So, let's start with the presentation of this tool. This tool is called Git track. I don't know why it's so small. I will try to make it big in the second so you can see that here we have the list of the repositories, and you can choose which one you want to test, so I don't know which one you would like to see NAV or platform call. You can tell me.

**Balázs:**
Um, we can go with NAV.

**Dawid Wozniak:**
OK, let's see. So, I reanalysed that, otherwise it takes a long time to analyse it and for now there is a limitation because we have a problem with the scalability that it takes only 5000 latest commits. So you can see that it's analysing. It's there. Yeah. And we have our repository. So, I'll explain how the layout is structure here. You have the name here, the branch, when it was analysed, the short version of the commit hash, how many files there are. It's some feedback box. It's not important here. We have the chart type. So, there is a bubble chart. So, it means that here you have all files that are represented in this repository and the size of the bubble is meaningful. So, it says that the *„app"* folder is that big compared to like this „eng" folder or some other like „test" folders. So, if you take the ratio, it's like actually the right ratio between sizes that you have in your repository. You have some metrics here. You cannot see it because it's so small and we have so many files, so let's go to „base app" for example, yeah. And then you have some colours. So this colour corresponds to the file extension. We have also other metrics like number of commits. So how often the fact was changed and now it's darker than others. It means that this file was changed more frequently. We have last change so I analysed it today so you can see this fire was changed probably like today and this file was probably not updated for a long time. Single author. Or do we have any file that was just committed by one person and then nothing changed? There are a few files like that, probably they were moved or renamed and it happens to see the single author there. The top contributor, so we calculate the number of commits and how many commits were done by you and by me. And if you have like seven other six authors, which one is the top contributor and then we track factors. So how many people actually contributed to this file? Yeah. And here there is a depth. So now you can see all the files and you can see that it loads very slowly because we have so many files and when it finishes then here you can see actually how many levels you want to see. So if you want just one, then you see all the files that you would see in the normal file explorers. Then, it's faster and you can navigate more easily, but you also lose some information. You can increase it to 2-3 and so on. I would disable the animation for now. Yeah. So, when you select something, let's say this base app, then you have also some detailed view on the right side. So here we can see the metric. So, it's colour coding something, but here you have like the authors. So, it is what I said earlier that we calculate the number of comments, and we say okay how many percent of the comments actually belong to you or some other people? How many files we have, how many folders, if you are on the folder level, you can also go to the file. Let's say to this. And then you can see OK, there was just one commit by someone who did this. Maybe this is more interesting. OK, there is not.

**Balázs:**
Ohh wait, how can that happen?

**Dawid Wozniak:**
It can happen because we have this limitation that take 5000. So that is why. We don't have that many changes here. Then you have size, how many authors were there when it was the last change?

When it's located, you have some options. They are not that important for this master thesis, but this is the part that I'm responsible for this commit stuff. So here by default, it is sorted in the the dates and here you have the latest date to the oldest. You can make it another way around and you can also sort by author so you can say OK, all these commits were done by this person and then you have all these commits done by this person and so on and so on. Let's stay with the dates. Maybe you want to search for some part of the comic message. So, let's say maybe you search for some "fix" so you just type „fix" and you can see you. OK, there are four commits that mention fix in any form and for us, it's also important to search in the description in some cases, so then you can tick this box. That is the list of authors in the whole repository. So, you can also probably find yourself somewhere. It depends when you committed. That's actually me. So you can see OK, there is now any commit from you that mentioned fix to this file, but we might also exclude you. So, you can say all other people commits but yours and then we have the dates. So, you can say okay yeah, I'm just interested what happened in this year. You can also show the merge commits. It is designed for GitHub. So here it's actually not making any difference because we are using the Azure DevOps. So, it is basically what I developed. I was focused around the commit messages. So, my first question to you, when you look at this and you see those commits in the tab and commit information. Do you agree that they are presented in the clear and easy to navigate UI? I prepare the scale so zero it means like it's not usable. You completely not understand what's going on to ten that's like quite like you understand everything is nothing to correct in terms of the UI.

**Balázs:**
And this is only regarding the comments tab that you have?

**Dawid Wozniak:**
Yeah, it's meant to be like this. But of course, if you think that some other important parts like when I click on this file, this commits changed according to this selection. So, if I change for example to this file, then you see there is one commit and if you think that it's also not clear for you, then it can be included in your grade, so it is what I display here, but the whole mechanistic behind that is also important. So, this is your main focus, but everything else also contributes little to your impression for this particular view.

**Balázs:**
I think it's clear nine or ten. Which one should I go with? It's quite clear, not too many things that over cluttered. Let's go with nine. I think it's, it's understandable and clear the whole UI.

**Dawid Wozniak:**
OK and so if you go with nine, I think that you like more or less that product and it's good. That's a good sign. So now I would like to ask you how beneficial it would be for you to use this product for your work, so you work in this repository, in other repositories as well probably and you might think about this product and use it and now you know some functionalities so if you start with it, for you, it is beneficial? It's also from scale zero that you will never use it by yourself to ten that if you have a chance, you will use it multiple times a day for all your projects. And again, this regarding your additional question, that's for the whole product. So now you can see that you have this product includes my changes, but it also has everything else what you can see on this whole thing.

**Balázs:**
Probably not that much. I'm gonna be honest, for me, I'm not sure how many times. I actually need the information that it kind of shows me. Yeah, your addition is kind of the most useful part as far as I can see the functionalities of this whole application whole product. So in that sense, I'm not sure if the whole thing is useful for me, I would probably give that like a three. OK, your addition would be

like only, so we'll probably higher cause that use case. I do encounter quite a few times that you know I have to look for something and then I have to look through the comments and look for like specific changes or who did one. But the extra information that I get from the file, the sizes of the different, I'm not sure I would actually use that.

**Dawid Wozniak:**
Ohh yeah, so there is still one more thing that might be important in context of the comic view. So when you click on some commit you will get the message. You'll get the description, the hash when it was created by whom and you can see the edited files. So, if I click here, I can see which files were changed and then they are highlighted so you can see it on the screen that this file will change with this commit and all other files are greyed out and here you also have the list. So does it change your grade from three to higher or lower… it is just I forgot to mention.

**Balázs:**
Yeah, maybe maybe this does change… change to a four, let's say. But, generally speaking, I'm not sure if this like really graphical view is needed cause I don't think I spend so much time and like on these looking at the commits themselves and I feel like that DevOps already has quite an easily understandable way of presenting this whole thing. So like yeah searching within commit, your application is probably more useful for me than The other parts of it.

**Dawid Wozniak:**
OK and so you mentioned that your primary usage of this comic staff would be to go here and search for some commits when you need to understand what regrets, what changed something. Is it your primary use for this type or would it be your primary use for this tab or you have some other scenarios that you think also can be fulfilled using the sorting and filtering options in this commit tab?

**Balázs:**
Usually my own commits I do remember so. For that, I probably would not use it, but looking for changes like in a „Broadway" where I'm not sure what was the commit and what files were changed. That's basically my first use case.

**Dawid Wozniak:**
OK, so you said that this not that much useful for you to use this tool as it's now, so do you think that it's still something missing regarding this commit message history view as such here that you would like to have there. So, something that is still not present, but you would like to have this information like out-of-the-box for you when you open this tool. Some other functionality here you can say something regardless of the cost and resources, regardless of anything…

**Balázs:**
yeah, I'd like an AI tool that goes through the message itself, goes through the coder itself and actually categorises different changes in the commit itself. Maybe it's a „bug", „fix", maybe it's a „new feature", maybe it's „refactoring", I don't know exactly what category should be, but that would be kinda cool. Yeah. So, I can come in and see that.

**Dawid Wozniak:**
We try to have this tool not integrated with anything else. So, you can use it on your computer and we are not sending any data anywhere. And if we do that, then we have this privacy policy that we need to have. We need to have some approval. We need to have some kind of GDPR fields if you would like to remove this data.

**Balázs:**
Yeah. So that is why unless you train the AI on the open available data and when you are actually using it, you're not, you know actually taking the data from the users to explore it.

**Dawid Wozniak:**
When you are doing it, it's slow. When you had this data on your local machine, and you are doing some analysis here some people don't have the powerful machines. Yeah. So, it was my last question like predefined question but maybe you would like to say something just about the product, comment or something, ask me some questions about it. It's time for you. if you would like to use it and then we can talk. Otherwise, I have a few questions about you and not about the product.

**Balázs:**
Yeah, so generally speaking, I think it is a good idea. I'm not sure how, like much inside, this would give me but one of the things that I do spend a lot of time on is usually looking for code or looking for code changes and you know, just trying to search even though I feel like, you know, the way you can look for code, commits, work items, anything in DevOps is is quite nice and it's super fast compared to how big the whole different repositories are. It for sure can be further improved. Looking for commits where and I back in back during my bachelors. I actually did have an idea when we were doing some AI research stuff somehow using the commit messages to figure out like in improve bug fixing from the commit messages or I don't exactly remember how we did it. What we did is that we tried to look for two commits that like one of them introduced about another fixing the bug and then I we actually tried to somehow use some information from the messages themselves and of course from the code to be able to improve it.

**Dawid Wozniak:**
I can tell you that I did some research in the past and there was a paper that I can share with you. Yeah, that was about sentiment in commit messages that introduced the bug and those that fix the bug. Yeah. And actually this companies that fix the bug, they usually have very positive sentiment. So, people say like fix this bug and something works or it's not a problem anymore and the things that introduce the bug they are usually natural, like adding a feature, doing this. So, commits that introduced them back, they are big and people will solve the bug later on.

**Balázs:**
It's really smart. Commit had the positive sentiment okay.

**Dawid Wozniak:**
So, I have it somewhere if you would like to you can read it might be extended. I think that it is from nineties. OK, so now I have a few questions about you. So the first question is how many years have you worked professionally with IT projects, including part time jobs and you don't need to be very precise, you can just say in years.

**Balázs:**
How much time… two years roughly.

**Dawid Wozniak:**
OK and what is your primary role?

**Balázs:**
My primary role, software engineer.

**Dawid Wozniak:**
Yeah, software engineer sounds good sound and during this time you probably were in a few teams.

So how big on average is your team including all roles like developers, QAs, product managers, product owners, but not the high management marketing that kind of people.

**Balázs:**
I feel like quite small around 8 to 10… so nine.

**Dawid Wozniak:**
OK. And if you have your average project how many commits are there and you can say per day, per week, per month, per year. I can scale your answering if I needed.

**Balázs:**
OK well, it depends a lot.

**Dawid Wozniak:**
That's why I said average.

**Balázs:**
Yeah. It's difficult because you know, I worked in a smaller company where people would be just pushing code insane amounts of code and then bug fixing and making sure you know that everything works.

**Dawid Wozniak:**
That's also the process secondary.

**Balázs:**
So here it's, you know, I don't know. Like it's a bigger company and it's a bit more refined in that sense. People take more time to test whatever so… on average, you mean like the whole thing or me personal?

**Dawid Wozniak:**
No, in the project. So, the whole team like here you can see if it is your project you can say for a whole group of people who work on this, how many commits they do in some time and for your average project how many commits would it be?

**Balázs:**
No idea.

**Dawid Wozniak:**
OK, but there's also a good answer. I didn't mention that you can answer like I don't know, but this could be an answer.

**Balázs:**
The thing is, my team, like the engineering systems teams we push into „app" code, we're pushing to the „platform", we're pushing into our own multiple repositories. So for us, it's just like difficult, a lot of repos.

**Dawid Wozniak:**
So maybe another question also about your average project. So, when you have average project how many files are there? Files that actually you will write. It is not npm stuff or it is not auto generated. So here enough we have nearly 37,000 files, is it your project bigger, smaller? How would you say how many files are there?

**Balázs:**
I think a couple thousand smaller than this I've pushed to NAV a few times but the ones that I work

on here and before couple thousand usually so like more like 10 or like 20. Let's go with 10 thousand.

**Dawid Wozniak:**
OK. So it was the last question about you and now I have another question if you would like to be informed about the results. So at the end, I will hopefully write my master thesis in the context of commit messages. So then I can basically send this to you so you can read it and now you can choose some sweet chocolate for your participation so well.

**Balázs:**
First of all, yes, I'd like to hear about it for sure. When is your deadline?

**Dawid Wozniak:**
It's first June. So now I'm basically finishing writing and talking with people. Thank you for the particiaption.