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The first proper game engine I used was godot. I tried to do something different everytime I made a game.

Pong: learned the game engine.

Magical Marshmellow: Used audacity to record and edit a sound effect, drew all the sprites.

Conway's Game of Life: Implemented the algorithm by copying from wikipedia.

Meme Invaders: Made the whole game by myself without watching tutorial.

Minesweeper: Implemented the flood fill algorithm without knowing the flood fill algorithm.

Pop The Lock: Used Krita's Vector layers for first time.

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Originally, the game was supposed to have 4 characters but due to time constrains, we weren't able to do it.

The judge feedback is pretty positive, they mentioned that they were unsure about what caused them to change between the characters.

My partner and I had decided that the character changing mechanic was going to be explained during the presentation, but we weren't given the chance to show our presentation.

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My biggest contribution to the game was the changing character mechanic. My aim was to have low coupling and high cohesion.

Lets call the outermost shell, the character and the switching character, that is, the dwarf, and the elf, sub-characters. Coming from Godot I thought it would be easy, just create signals and connect them, and run function at a certain animation frame to spawn projectile. But, Unity was less friendly than I expected.

The PlayerController script handled the movement, switching between the sub-characters, and sending "signals" for the animation, and attack to the sub-character.

I wanted to use Unity events, however, I decided that it was more important to complete the game, than to do it the proper way.

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Years ago I heard somewhere about how Terraria handles weapons.

They spawn a projectile with an initial position, and an initial speed. Everything else was handled by the projectile script. So, thats exactly how I did it.

Another problem I encountered was spawning the attack projectiles at the correct frame during animation. I ended up using a janky way to detect if the animation time has reached a certain percentage and then spawning the projectile.

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Cosmos Conquerors was my first game jam game. In the game, you are the swarm of enemies, and your objective is to survive against ever more powerful heros.

I had quite a few ideas but I decided to first make the core game and then focus on the aesthetics and tweaks.
I wanted to have a procedurally generated background but due to health problems I was unable to complete it.

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The twist was that you couldn't control which invader shoots when you press spacebar. The bullet was shot from a random invader. This made it so more invaders equals more health, but you're less likely to shoot from the invader you want.
The hero gains more and more speed everytime it dies, eventually, it will catch up to the invaders and kill them all.

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Bevy is a game engine in rust which uses ECS architecture. I am interested in high performance compute, so, I wanted to learn how to use ECS. I had also heard good things about bevy, like, how its great at progressive disclosure of complexity. Like you can replace the renderer (check out: Tiny Glade). There's also some render graph thing going on but I don't know what it is.
Bevy uses WGPU, an implementation of WebGPU standard in rust. I find WGSL easier to read.

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I originally wanted to add online multiplayer via websockets but while building proof of concept for the websocket, I encountered problems with the websocket library and I don't have the skills to troubleshoot it. I will revisit and continue it later.
Also, it took me 3 tries to learn how to use ECS. I also want to use bevy to write compute shaders in WGSL.
Godot's signals instantly clicked with me because of how they decouple scripts. Bevy's EventWriter<T> and EventReader<T> do the same for me.

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Coming from rust, where I rely a lot on tools like Clippy to reduce cognitive load, catch errors, use idiomatic code, dodge potential issues, etc, the tooling for C++ was not helpful at all. I tried to use CLang's lsp and CLion IDE, but they weren't anywhere as helpful as Clippy. I also couldn't explore and learn the way I do in Rust, by reading the documentation by hovering on the functions.

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I made this project as I often wanted to pick colors from an image, but due to the shading and jpeg compression artifacts, it was hard to choose a representative color. I checked if Rosetta Code had the algorithm, and it didn't. I checked other languages, and Java was the most readable one, so I ported the java code almost line to line, and then contributed

the code.
I wanted a program which helped me pick distinct colors, while reducing the number of actual colors which are similar. Turns out, the algorithm isn't suitable for my usecase, but I still manage to use it.

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One of my favorite type of content on youtube is some person optimizing a single aspect of a program until it's limit. I used this project as a testbed to write efficient code.
I was following a tutorial written in some old version of rust. I used my knowledge of rust to write it in modern rust while trying my best to use good and idiomatic rust practices.
I was a fool back then and didn't write down the link to the book I was following, so, I can only put the legendary book by Peter Shirley.

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I made Kait to use as my vtuber persona. My aim was to make a simple countryside girl inspired by cottagecore who has a lot of heart motifs. I made or edited the textures in photoshop.
While I ultimately didn't stream much, I'm still proud of the character I made.

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I made this adorable idiot while learning pixel art from a course I bought

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The pixel art on left is for rust's mascot ferris the crab obtaining a sandwich. It was made for a monthly online rust meetup. I was planning speak in the meetup but the last meetup was december of last year.
The pixel art on right is the logo I made for the Coventry University Summer School Game Jam. It's the elemental powers for the characters. If I wanted to continue the game, I would add the element for the other powers when I add them to the game.

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Scanlation is the act of fan-made scanning, translation, and editing of comics from a language into another language
I have read a lot of manga, and I was always curious about how hard it would be to clean and typeset manga pages. I did it to practice my editing and typesetting skills.
Here you see an example of my work.

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I cannot do the whole scanlation process. I would need to build up good will so artists don't mind me processing their art, learn and practice Japanese, learn about Japanese culture so I can translate more accurately, and then finally I can do what I originally wanted to do, that is, practice my editing and typesetting skills.

So, I joined the "Danke fürs Lesen" scanlation group, and was able to work with people across timezones and be part of an inclusive community.

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There's a concept called six degrees of separation which says that you are connected to any other person on earth by at most six people. One of my friends kept saying that "I know everyone" since I kept bumping into her in unexpected friend circles.

So, I wanted a tool to see how people are connected directly and indirectly when I'm not part of the link. For example, if I know three people: X, Y, and Z, I wanted to see if X and Z are connected through Y. One of the other goals was to identify social circles within the community.

It uses frequency of joining and leaving a room to guess if someone is connected to another person. If people are often in the same room then it's highly likely they're connected.

For a real life example, I had classmates Manish, and Aryan, and underclassmates Divyesh, and Tejas.

Divyesh is the same person who is in the credits for most of my slides.

Aryan, Manish, Tejas, and I were part of the student association. Manish knew Aryan, Aryan knew Tejas, and Tejas knew Divyesh. So, the indirect chain is Manish -> Aryan -> Tejas -> Divyesh.

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I made this project to learn rust by creating a practical project. It uses all the available threads. I learnt how to use AMD uPerf and flamegraph to find out the bottleneck. I also had to learn how to use a debugger for this project. I eventually found out that I keep running into deadlock situations while consolidating data from the threads

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Very dumb name, I know. I just used this project to learn how to use websockets in their quote-on-quote native environment, that is, the web browser.

I chose websockets instead of UDP as it's easier to use in browser and I'm not even sure if you can use UDP sockets directly. Also, I just wanted to use cloudflare's durable objects.

My plan was to make the pong multiplayer, and then create a 2 player chess game and put it up as one of my portfolio piece.

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The only reason this exists is because I wanted to use cranelift and compile code to native.

Aside from creating for the sake of creating, I wanted to have some experience with compilers as I was going to attend a meetup in Banglore hosted by Bosch. One of their lead engineers is creating a the RISC-V compilation target for Cranelift.

I shared my experience of C++ with him and It was validating to hear that he shared a similar experience.

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I wanted to share this quote from Steve Jobs, which beautifully captures my philosophy towards creativity. He talks about how creativity isn't about inventing something entirely new out of thin air, but rather about connecting existing experiences and ideas in new ways.

My project topics are very diverse, but I belive that when the time comes, they will all connect in a beautiful way. It's very exciting when I can apply knowledge I learned in one project helps me in another project.

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People are tired of hearing rust is better due to memory safety, while yes, that's good, it's not the only reason rust is good. For me, rust was better for the reasons on right.