Wow, this looks fancy. I am very curious. Oh, I read that too late.

Okay, do not change the window size, oh, before starting. I already opened it. Before starting, in this assignment you will go through a series of tasks.

One of these tasks is creating zoned designs for, oh, zoning is a method for searching for geometrically relevant shapes that represent a bigger picture of a building. Zoned designs can be used to get, okay, important definitions, building spatial design, collection of spaces, space, corner of a room, zone, combination of spaces, zoning, the search for individual zones and combining these into a zoned design, okay, zones should be as large as possible, so a zone can never be a subset of another larger zone, zones should maintain spatial continuity, therefore zones can only be a cuboid, 3D rectangular, zones may not intersect or divide spaces, so only combine spaces, a zoned design consists of BSDs from, example of zoned design solutions in 2D, a BSD consisting of 3 spaces is zoned, the spaces are grouped into zones represented by different colors, thus for this BSD, 2 zones designs exist, space 2 could never be a zone by itself, since combining it with either one, they always lead to a bigger zone, okay, how structural design is made from a zoned design, flatshells are placed at the boundaries of zones, resulting in stiff connections, compliance can be used as a measure for structural design, it is essential, essentially a measure of stiffness where lower compliance equals higher stiffness, note how a zone can consist of a single space if needed to complete a zoned design, an artificial intelligence tool is able to find all zones and zoned designs for a BSD, then why are we doing it ourselves.

Okay, let's go, welcome to this experiment for structural engineering and design graduation project, we are glad to have you here and hope you will have a nice experience, thank you, selected assignment 3, human AI zoning assignment, expected duration 25 minutes, read the following instructions carefully, you will in a moment go through a design task, it is important that you say aloud everything that you think or do in designing, so in every step explain what you do and why you do it, try to keep speaking constantly and not be silent for longer than 20 seconds, please speak English, okay, are you sure you want to continue, once you continue the next step, you cannot go back to this step, yes.

Okay, step 1, the visualization on the left shows a BSD, AI found all zones and zoned designs for this BSD, you can continue to the next step, please refer to the information sheet for more information on zoning, okay.

All right, so now it is zoning. Please wait, it can take a minute, it would be cool to actually see it zoning, hmm, it takes a bit longer, I am just going to read the assignment in the meantime once again, oh, it has zones, can I move around, oh, I can move around, that's nice.

Okay, pick one zone design you would like to continue with, say aloud what you think, please refer to the information sheet for more information about the concept of zoning.

Zoning is the search for individual zones and combining these into a zoned design, which is a combination of zones, and a zone is a combination of spaces.

Hmm, well, in the zone design 4, there is a complete slab sort of on top, and in zone 5 as well, and 1, 2, 3, they are split up, I think zone 4 has a really large zone on top, which could help with cantilevering, yeah, I am going to go with zone design 4, yeah, zone design 4, and why, because the complete roof sort of is one big plate, which I think could be beneficial for the cantilever, zone design 4.

Next step, from every zone design a structural design can be made, this time pick one zone design based on the expected structural performance, oops, I already did that the previous time, that's okay, then it's the same reasoning, oh no, it's a different structure, wait, oh, I think, oh, I had it upside down in the first assignment, yeah, I flipped it, so I thought it was a cantilever, but it wasn't a cantilever, okay, that really makes the structure behave different in terms of the structural design, then it might not be too useful to have this huge open area as in, or as, yeah, the plate as in zone design 4, then you want some sort of walls on the bottom floors, where you have the zones on top, actually, zone design 1 might be nice, because zone 3 there goes all the way up, so you have, yeah, no walls on top of an empty space, but does that, is it also not the case for the others? No, that also goes well in zone design 3, but nowhere the box on top, which is room, what was it, space number 9 in the base picture, that's never supported halfway the space with number 3 in the base picture, so yeah, I'm going for zone design number 1, because of, yeah, the zones with the number 3, zone design 1.

Next step, pick one of the zone designs and say out loud what your reasoning is, if you want, you can use the given structural mass and compliance of the structural design that would result from each zone design. Okay, so we now have some more information about each of the zone designs, which is the structural mass and the compliance.

Compliance, what was compliance again? Compliance can be used as a measure for structural design, it's essentially a measure of stiffness, where a lower compliance equals higher stiffness. Okay, so then I'm curious if the zone design that I picked has indeed a low compliance. Yes, it has, so that makes sense.

And the structural mass actually is the lowest as well. Then I was slightly distracted by some people around me, but then I actually, I'm going to do zone design 1 still. Pick one.

Yeah, it has the lowest structural mass and the lowest compliance, so I'm going to zone design 1. Are you sure you want to continue? Once you continue to the next step, you can not go back to this step.

Oops, sorry. Step 5, adapt the BSD to create a new BSD you desire with max 10 modifications.

Okay, adapt the BSD to create a new BSD you desire with max 10 modifications. You can do this by adding, deleting, moving, and resizing spaces. In the next step, AI will create zones, designs for your new BSD.

Say it out loud, everything you think and do. The first thing I think is cool. I am very curious what the AI tool will come up with.

I'm going to try to make a cantilever somewhere if the structure or if the tool allows me to do so. I'm going to either move a space or add a space. I can also resize a space.

I'm going to resize space 9, so space 9, and then I have to give it a new size. I think this tool works really well. Good job.

Make sure the space do not overlap and are not detached. Okay, so I'm going to make it a larger, I have to say a new size, but is it going to, where do I put, oh yeah, I can first resize it and then move it. Okay, so I'm first going to give it a new size.

It was 120, 120, 30. I'm now going to say, let's see, it's 120, so maybe 180, 180, 120, 30. I'm going to make one direction longer and then I have to press enter to submit it.

Yeah, now we have a cantilever. Okay, that's cool. Do I want to do more? Yes, I do want to do more.

I'm going to add some small spaces on top of 8, 5, and 4. I'm going to do them the same size as 4, so that's 60, 60, 30, and then a location. How does it work? 60, 30, does it say for XYZ? Yeah, so start at 60, zero, then 30, no, 60 high, 60, zero, 60 high. Yeah, now let's just do one next to it.

So I want twice the size now, which I created. It's basically 11. So the size is going to be twice as big into the X direction.

Yes. So it's 120 and then 60, no, actually 120 for the X. Oh, no, this is the size, I'm sorry. So the Y is the same as 11, that's also 60, and then the height, well, let's do it a bit higher, 60 as well.

Location is 120 for X, zero for Y, and 60 for Z. Enter. Yeah. Architecture.

Okay. I think I'm going to do it like this. Actually, I'm going to do 10 things right now.

I'm just going to keep it like this. Yeah. Next step.

Okay. I'm just going to do one more check that they're not overlapping and not detached. I don't see any overlap.

They're not detached. I'm going to come to the next step. Preferring zoning.

All right. Curious what it's going to say now. I am just going to take a sip of water.

It's still preferring zoning. I'm just going to have a peek at Wout's screen. Oh, I might not be allowed to say that, sorry.

I'm not sitting next to Wout, don't worry. Oh, it's done making the zoned designs, and only the two most diverse zone designs are shown. All right.

I'm going to pick one zone design that I would like to continue with, and I have to say aloud what I think. Okay. Oh, it's upside down again.

Upside down again. Okay. So, in both designs, it has the cantilever and the, let's say, large hull structure of three below it.

Yeah. Both these structures are a zone on its own. So, for the cantilever, it's not really that interesting yet.

Every time I tap it, it flips upside down, which is a bit annoying, sorry to say. Then the real difference is where it's more busy with zones. What is the difference? Oh, yeah.

So, in zone design three, it made a really large, what's it called, zone of all the smaller rooms. Oh, yeah, that's zone design three, and zone design one is a bit more separated in smaller zones. Hmm.

What to pick? I'm actually going for zone design one because of a more direct loan transfer from the zones higher up downwards. So, zone design one. Next step, if I'm sure, yes.

All right. AI found all zone designs for the modified BSD. From all these designs, pick one zone design you would like to continue with.

Say aloud what you think. Okay. Let's see.

Okay. So, with zone design two, there's a really big bottom area, which I don't really like. It's more split up in zone design one or three, and then zone design one is a bit more split up, again, compared to zone design three, and then, once again, I'm going for the zone design that has a slightly more direct loan transfer of the zones higher up.

So, I'll go for zone design one. Step, yes. AI found all zone designs for the modified BSD.

From every zone design, a structural design can be made. Pick one zone design based on the expected structural performance. Of the corresponding structures, Say aloud what you think.

Yeah. I'm going to pick, once again, zone design one for a more direct loan transfer. Yeah.

Zone design one. So, it's a more direct loan transfer of the spaces with numbers 12, 14, if I'm correct. No, 12, 11.

So, the blocks higher up, the spaces higher up. I'm going for zone design one. Yes.

How much did you enjoy performing this assignment? Yeah, I actually really liked it. Oh, no need to speak out loud. Okay.

Next. How would you rate the level of ease in performing this assignment? Yeah.