deco3850/7385

physical computing & interaction design studio



Week 13: The End (pt 2)

Edward Liao [Rogue Learning] (/students/s4355529) - Fri 2 June 2017, 12:20 pm

13 weeks ago I had no idea what I was getting into. 13 weeks ago I thought this course would be just another design course. 13 weeks ago I didn't know that I would be having an adrenaline-packed panic attack trying to fix up some code 20 seconds from the beginning of an exhibition.

It's been three days since the exhibition and I think I already miss it. Through the contacts, workshops and studio sessions there comes a sense of community. Everyone around you is working towards the same goal, running into the same problems and asking the same people. If you asked them during the weeks, people would probably have told you how tired they were, maybe something about a team member or some piece of technology that was playing up but somehow, there was still that energy behind it. Behind all the late nights, ridiculously early mornings and the empty cups of coffee, they had a drive. And it wasn't just for the marks.

Fast-forward, then, to the exhibition. The code is "working". We have an MVP. The table doesn't collapse. Sigh of relief. 12pm and the floodgates are opened. Nothing at first, then all at once. Children everywhere and all our chocolate and candy disappeared. One girl even decided to put her 20kg bag in the middle of our precious spandex table. Bracing for a tear (in both senses of the word), she raised her bag slowly and—lo and behold—no rips.

Our pitch to the students was two-tiered: I would prep them by opening with a rousing speech on how boring those model solar systems were. To quote: "What can you do with them?—to which I received "f*ck all"—You can look at them, put them on a shelf, they look pretty...sometimes." After my little spiel, I'd pass them onto Mitch who gave them the full brief. And it worked fabulously. Especially for caffeine filled me. For caffeine-crash me? Not so much.

As the students left (finally), the tutors came around. If there are any torturers who are in need of some inspiration, here's an idea. As you're marking exhibition displays, go to one of the areas and mark 30% of them, move to another area, mark 20% of that area. Continue in a seemingly random fashion. This is guaranteed to make your victims/students go nuts. Jokes aside, this was probably a good way to keep students on their toes. My only worry: the projector. (Cue the campfire scary story flashlight). We had heard multiple warnings on projector lamps fizzling out. Naive Rogue Learning thought this could never happen to them. 20 seconds after we were marked, poof. There goes the lamp. Oh, and guess what time it is? Public exhibition time.

So we spent the next 2 hours explaining the situation. Depending on who we were talking to, our responses ranged from "As a result of poor ventilation over an extended period of time, the state of the projector's lamp could be described as dysfunctional" to "Lamp's just crapped itself" to *incoherent mumbling mixed with tears*.

I've just now realised that I don't know how to write blog posts so I'll wrap it up.

As Simon Sinek puts it in his cute "little book of inspiration":

"Fulfillment is not born of the dream. Fulfillment is born of the journey."



Look at all the happy tired people. The best ones aren't even in the shot.

Thanks for a kickass semester.

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Week 12: The End (pt 1)

Edward Liao [Rogue Learning] (/students/s4355529) - Fri 2 June 2017, 11:02 am

I wrote two blog posts which were labeled under week 12 but neither of them were week 12 blog posts. That sounded much more interesting in my head.

Monday: Painting

One coat of primer then two coats of paint

Wednesday: Sawing sor	
	y forgotten to actually put the thing together. Having finally done so, we realised that a lot of stuff didn't quite fit; screws didn't fit,
panels were too wide or Friday : Putting it all bac	
Saturday: A little bit of o Sunday: Stay the night, o	downtime cut your finger trying to make a dovetail joint, finish brochure content
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	Week 11: Creative Differences
100	Edward Liao [Rogue Learning] (/students/s4355529) - Sat 27 May 2017, 9:38 pm
Also known as when all	parties have "really good ideas" that they think are in the companies "best interests". We had our moments.
	g of our film script which was due to be presented the following Thursday. No biggie. "I'll write one up as soon as I can." I said. Given II amount of speeches (PEEL paragraphs weren't my thing, I liked a more free flowing conversational tone), I figured I'd smash it all
Ego: Enter stage left.	
Right) Shooting began o	beech material. I just wanted to write the brochure content. Frankly, I just wanted to write. So I did. (<i>Ego:</i> F*** it. Exeunt Ego Stage on Wednesday on one part of the university and ended on the opposite side. I'm curious as to how we started with our first shot at GP GP North for our final shot. Different lighting I suppose. Editing was done the same night with no small amount of effort. I don't know parently it takes a long time.
Feedback: "Surreal but i	not in a good way".
No one looked into the o	camera lens and I think the angles and lighting were shifting a lot. We'll re-shoot soon. Will the script change? Nah. Why should it.
Todo: paint the panels a	nd the box, fix the table to the box, re-shoot, write content, print posters.
1 Comment(s)	
inspiring	
– Ellen Long [Felicia	a and the Felines] - Sun 28 May 2017, 5:04 pm
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Week 10: Bunnings and Building

Edward Liao [Rogue Learning] (/students/s4355529) - Sat 27 May 2017, 9:19 pm

Notes from week 12: At this point It's no surprise that I'm still writing journal entries weeks later. Mainly because everything's bottlenecking like crazy. I know for sure that I have three things due in two days (which is probably nothing compared to other people). Still. It ain't easy. Back to week 10.

Bunnings and building

In a sentence: never underestimate the quality of a bunnings snag. I love myself a good hot dog but Bunnings is on another level. After spending about half an hour deciding what we should use to build the thing. We decided "Screw it let's just figure it out when we got there."

- Step 1: Go there. Don't bother with garmins, just use your smartphone because that's what they're for right?
- Step 2: Get there and spend another 2 hours deciding what kind of wood would be totally right.
- Step 3: Great, you've decided which wood, now determine the perfect dimensions and structure for your build
- Step 4: Ok now start your budget. Yeah that's right. Budget after your structure plan.
- Step 5: Draw about 20 different ways to build it because that one wasn't right.
- Step 6: Discuss the qualities of other internal structures.
- Step 7: Get Mitch to call his dad to decide on a final plan
- Step 8: Buy the stuff, get it cut and get
- Step 9: Don't forget the nails
- Optional and not limited to single use: Get a bunnings snag

Now that we have all the materials, build it. In one day. All of it. Mitch did a pretty solid job of getting it all together. Unfortunately, he didn't get any footage of it so just take my word for it. Seriously though, he did great. Our final design ended up including two short frames with one longer one. Like this:



Cool ideas for spandx aside from its intended purpose:

- $\operatorname{\mathsf{marathon}}$ parks and $\operatorname{\mathsf{rec}}$
- re-enact some horror scene
- see how much you can put on it before some part of the spandex rips

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A Week in Three Days (Week 9)

Edward Liao [Rogue Learning] (/students/s4355529) - Sun 7 May 2017, 11:54 pm

So many things happened in the space of three days, in a good way.

Things that have happened (chronologically):

Wednesday

- Reverse Garbage is a real ode to the quote "One man's trash"
- Totally got off track and started daydreaming about what we could build with all the materials in the shop
- Can't push that enough, this place is pretty much heaven
- Picked up a flimsy table for \$15. Bolts 'n'

We ended up getting a ride from the bus driver who drilled us with questions prior to (reluctantly) letting us on the bus carrying a disassembled table. Having re-assembled the table, we realised that a circular table might not be necessary. I realised how much i missed working with saws and clamps.

- Attached the spandex and left still giddy with excitement about the fact that we now have a table.

Thursday

- Met at the edge, decided where/what/how we needed things to be.
- Realise, while having fun, that there are still appraisals to be written
- Realise that another piece of assessment needs to be done and freak out over that.
- Realise that the assignment was extended! Focus all energy on appraisals
- Work on pin up drafts for poster

Friday

- Appraisals, appraisals
- Nearly blind myself working the projector
- Got the projector to work
- GOT THE PROJECTION OF OUR PROTOTYPE ON THE SPANDEX

In retrospect, the week wasn't so bad. In the moment, everything seemed to rush off in a flurry and drag on all at once. The highlight, of course, was the end, the projection of the prototype. We finally have that working and I can't stress enough how excited we were about it.

Next Steps:

- Connect the kinect to unity HIGHEST PRIORITY
- Film the kickstarter
- Print the posters (a little closer to the exhibition)
- User Test

All in all, a lot to look forward to and a lot to do. If there's one thing I've learned from the last two weeks it's this:

"Procrastination is like a credit card: it's a lot of fun until you get the bill"

Christopher Parker

I don't know who he is but it was a quote that came up on my Facebook News Feed Eradicator. 10/10 would recommend to stop procrastination.

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	Week 8: Patient Zero Edward Liao [Rogue Learning] (/students/s4355529) - Sun 7 May 2017, 10:35 pm Modified - Sun 7 May 2017, 10:37 pm
How do I know this? I wa the Young Innovators Av ideas for our posters and sick. No matter, I recove the cold. Either way, we which led to me with 179 Unfortunately, Andrea c	p to a team meeting sick. Why? Because everyone will get the virus and no one will be functioning properly for a week and a half. as patient 0. Over the weekend, I took part in a thrilling hackathon at River City Labs. Despite falling prey to a really bad cold, we won ward. Great people, great team. Not a great week being sick. Monday saw the discussion of the presentation, a brainstorming of discusstanter video, and a really great discussion of upcoming events at GoMA. It also involved me breathing. Not ideal when you're red in less than two whole days from Monday only to hear that literally everyone else in my team had also succumbed to the void of finished everything for the presentation. (That means that I stayed up the night before realising that we needed an interaction plan 5492 tabs open with interaction plan inspirations. Yes mostly from pinterest). ouldn't make it to the presentation, Gabby and Mitch were coughing up but lo and behold we weathered it. We lacked the posters and but we ended up with a sick as interaction plan.
We all made a mutual ag Things completed so far: - basic layout of the post - kickstarter storyboard - unity planet simulation	ers planning
Things to be completed in build the damn thing complete posters complete storyboard map the kinect coordinate.	in the next week: ates to the unity simulation
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Playing Catch (Up) - Midsem

Edward Liao [Rogue Learning] (/students/s4355529) - Tue 2 May 2017, 12:38 pm

With the midsemester comes an optional break. Among other things, the backend side of the prototype has proved to be by far the most challenging. Gabby and Mitch have done a stellar job looking for inspiration and other 3rd party libraries which facilitate the gravitational side of the back end. Thankfully, we've found a few solutions. They provide information on the state of the objects on the scene while allowing us to manipulate the density, gravity and velocity on separate sliders. All we have to do now is implement it.

We've spent most of our time on the back end with little attention to the physical aspect. While the dimensions have been drawn up, there is yet to be a physical model made to those dimensions. With the presentation coming up, we're focusing on what we can present for that. The goals for the following weeks are as follows:

- set up the slides for the presentation,
- implement a basic solar system on unity consisting of just the moon, earth and sun and,
- map the values from the kinect to unity.

That last item has proved to be the hardest of the trio. Thresholds are being set to log the values onto the system but at a rate that crashes unity altogether.

A lot of research on the	A lot of research on the location mapping as well as depth mapping will be conducted for the next week.				
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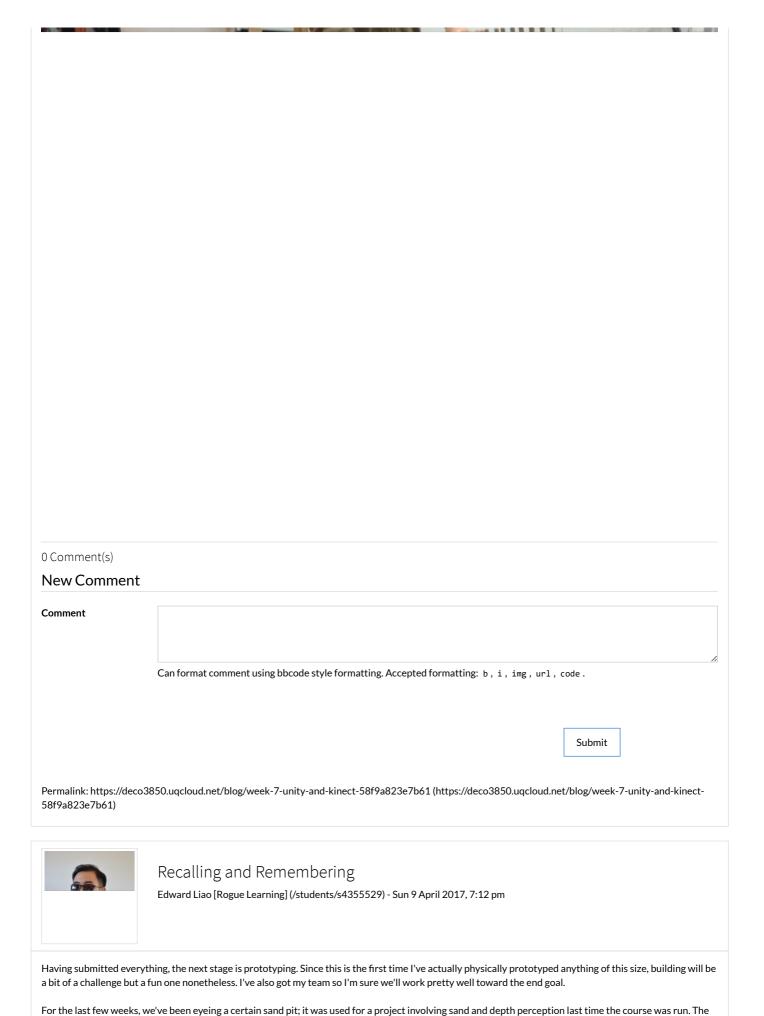
Week 7 - Unity and Kinect

Edward Liao [Rogue Learning] (/students/s4355529) - Fri 21 April 2017, 4:35 pm

Modified - Fri 21 April 2017, 4:35 pm

We've miraculously managed to bring about the kinect, spandex and a frame to build the basis of the physical aspect of our prototype. Note to Self: always ask your tutors if they have spare fabric. They probably do. They did. Lucky for me, the fabric was discounted from its original \$30/m price to a luxurious \$10/m. Super cool.





ring was of a perfect diameter and thickness for our project. The next step was to attach the spandex and we'd be ready to test. With a lot of mouth-covering and ventilation, we managed tediously to empty out the sandpit only to find that the bottom of the pit wasn't able to be removed. This foiled our plans pretty

badly so we took down a few measurements, noted the materials (it was plastic, not wood, surprisingly) and left it at that.

Mitch and I met with an advisor to discuss potential uses and users for SpandX. Having noted the relevant age of the students (8 or 9, so year 3), we've come to the conclusion that SpandX will be a tool to be used by teachers as a way to demonstrate gravitational pull and planetary orbit. Simple as it may seem, not all children understand a concept just by hearing it. Day and night, eclipses and solstices are all important concepts of lunar, solar and geographic nature. Being able to interact with these main objects of the our solar system allows children to learn not only by seeing but also changing how it works. Alongside this amazing artifact, a sort of syllabus will be supplied. One of the core abilities of an 8 year old is "Recalling and Remembering". Through a quiz (physical or digital), the students will be asked to recall what object revolves around what and why. I'm really excited to begin working on this, we just need to get the materials and start building. Look, all clean. 0 Comment(s) **New Comment** Comment Can format comment using bbcode style formatting. Accepted formatting: b, i, img, url, code.

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Week 5: Proposal and Presentation

Edward Liao [Rogue Learning] (/students/s4355529) - Thu 6 April 2017, 8:19 am

These blog entries are beginning to feel a lot like diary entries. Today this happened, at lunch Jimmy stole my lunch but joke's on him I forgot to pack lunch today so HA, suck it Jimmy.

Jokes aside, Rogue Learning really progressed this week. Our head speaker, Mitch, is really confident about the idea for this project and we as a team seem to have both the will and the way to go about the SpandX table. The name is a combination of both SpaceX and this project's primary material: spandex. Quite suitably, the project revolves around the idea of teaching kids the basics of astrophysics: mass, gravitational pull, density, etc. We've since assembled a proposal document outlining what the project entails, what processes are included, and what materials will be used. As a result, the aforementioned idea has been clear but still not yet defined. In the proposal, keywords such as "problem solving", "social" and "self-discovery" were used but still these buzzwords haven't yet helped us clearly define what our idea is.

The presentation went extremely well despite the wet weather. Using a stretchy piece of fabric and a few hacky sacks, we demonstrated the 5 degrees of freedom. 5 not 6 because the 6th is the pulling motion.

Honestly, there aren't exactly too many things to mention. We're still working on the proposal which is due on the 6th of April. Something with which we've

made decent progress but with a few stops along the way. Stay tuned for updates. I'm not sure what's coming up. 0 Comment(s) **New Comment** Comment

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Week 4 Rock Climbing, Bombs and Astrophysics walk into a bar.

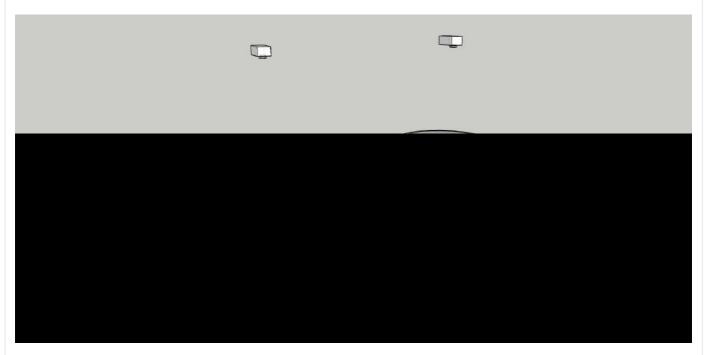
Edward Liao [Rogue Learning] (/students/s4355529) - Thu 23 March 2017, 3:41 pm

There's no punchline here.

If the collective group of ideas from Rogue Learning was a bar then I think Rock Climbing and Astrophysics might want to move to a different bar. Among others, these were the ideas that we attempted to stretch to fit the vast canvas that is future learning. Here's a list of ideas we ran through:

- a bomb that would detonate unless the students could solve all the math problems within two attempts (bomb would detonate on third strike)
- a rock climbing wall that children would climb up to answer quizzes
- wooden blocks to teach programming
- plastic cubes with QR codes and an interactive surface to teach Java
- a Mexican standoff but you load bullets by touch typing
- slowing down Trump's construction of a wall by touch typing words as fast as you could (speed increases as you keep knocking down bits of the wall) [disclaimer I literally just came up with that and I hope someone tries to build it]
- and many more

Each of these were either too hard to implement or not physical/social/collaborative/whatever enough. Internally, I was very *very* biased towards the rock climbing idea because rock climbing is basically life. Regardless, I had to be open. We eventually landed on the idea of teaching children the basics and concepts of gravity and mass through a sheet of spandex spread across a surface (either rectangular or circular) with balls of varying weight and size. The technological aspect of this project are many. Too many to list here (will be mentioned in our proposal so stay tuned). I wasn't (and still am not) sure as to what our direction will be but I drew out a diagram to just get an idea of what it might look like.



They're both variations on a theme really. Left is rectangular, right is circular. The "sheets" on the centre are the sheets of spandex. Above each you'll see a projector, below each you'll see a a flat thing which is meant to be a kinect or any kind of depth-sensor but I have no idea how to draw those so that'll have to do. There's also a step platform for the shorter kids. We designed this with considerations for younger students but of course, teachers should also be able to interact with it without having to bend their backs to an awkward degree. The mini get-together session we had in today's studio was pretty insightful; it was nice to know that everyone had been (or was still in) the same position as we were. Comforting as it was, we couldn't and shouldn't cling onto those all-too-comfortable situations too much because we won't go anywhere.

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Week 3 World Cafe Catch Up

Edward Liao [Rogue Learning] (/students/s4355529) - Thu 23 March 2017, 3:13 pm

Awesome 4-hour experience in meeting a bunch of crazy new people and ideas. Of the three or four categories that I got to talk about, I loved the Augmented Social Awareness the most. I joined and hosted the table, covering nearly every inch of the butcher paper we were given. The vibe at the table was dynamic, vibrant and thriving. It goes without saying that the discussion couldn't have been the way it was without the innovative input of the people involved.

The world cafe format ran as follows:

- Sit down and discuss the idea at hand for 30 minutes
- write down the flow of discussion, keywords, etc.
- at the end of 30 minutes, designate a "host" who will stay for the next round of 30 mins

The idea of hosts (accompanied by, I think, travellers) is that the host remains at the table to explain the ideas constructed by the travellers who came before. It's kinda like explaining an inside joke that went too far or coming back up through the rabbit hole only to have to go back down it again, but this time you go deeper. As a result, the writing on the butcher paper became a sort of organized chaos. Explaining how one thing led to another.

Two days after, on a sunny Thursday morning, groups were formed. I, and a bunch of others, had the pleasure of sitting in anxiety waiting to have the groups formed. About half an hour later, Rogue Learning was formed. Deliberately (or at least I think so), it was originally (mis)spelled Rogue Learning. Debatable. Tackling the juxtaposingly-titled Future/Early Learning area of physical interaction will be challenge and one we look forward to.

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Augmented Reality Climbing Wall

Edward Liao [Rogue Learning] (/students/s4355529) - Thu 9 March 2017, 11:19 am

If you saw me stumbling over my words bright and early Thursday morning then you probably heard me talking (at near minimum length) about supporting kinesthetic early learning through a bouldering/climbing wall as a platform to pose questions for children to answer. Perhaps you didn't hear me say that at all because I'm generally terrible at public speaking. Nevertheless, that's the beside the point.

The Augmented Reality Climbing wall uses a python-based library (OpenCV) to detect and display activity on the wall. Teachers select or type their questions for the students to answer by climbing to the correct answer. These questions are projected at the top of the climbing wall for students to see while the answers are projected onto the actual climbing holds. To answer, the students climb to the given answer(s) and tap the highlighted area. For example:

Ms Smith selects the 'Math' category and selects the question "Tap the numbers to add up to 6". Johnny hops on over to the wall and eagerly and taps 1 then 3 then 2. As the bell dings "success", Johnny climbs back down to a suitable height and lands softly on the boulder mats.

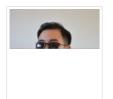
Best-case scenario, I know.

Developing problem solving skills early in childhood takes many forms. They can do math questions, they can read books and various other activities. Rock climbing and bouldering are known not only for their physical challenges but also for their mentally challenging climbs or "routes". They can be challenging in one aspect or the other, both or neither. In this case, it's quite clear that making the route easy in both aspects helps the child focus on the question at hand rather than deciding whether to use a heel hook or a figure-four to reach the next hold.

What this post really boils down to is a physical platform for kids to answer questions on as opposed to pencil and paper. It's Easily configurable and customisable and it doesn't rely on the printer or kids forgetting their stationery. As Malcolm Gladwell has famously put it, one needs 10,000 hours of practice to become an "expert" at something. As such, starting something young is something of a prerequisite. This format is engaging in a very physical and visual way but it holds potential to spark an interest for young climbers or professionals-to-be. For the teachers, it's a break from the sterile classroom environment and an easy way to quiz kids on topics.

This isn't my only idea related to climbing, I'm also super keen on another idea which will be outlined in a separate post so stay tuned.

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Hi I'm Eddie

Edward Liao [Rogue Learning] (/students/s4355529) - Tue 28 February 2017, 12:30 pm

Modified - Thu 2 March 2017, 9:19 am

Hey I'm Eddie or Edward, either one works for me. I'm a 3rd year IT student majoring in Human Computer Interaction. I'm really looking forward to a lot of team work and working on both hardware and software. I've done HTML, CSS, JavaScript, Java and a bit of Android Programming.

In no particular order, I love coffee, bouldering and photography among other things so my ideas are sort of geared mainly towards these three things. Not only am I looking to get some awesome experience out of this - in both a design and group work sense - but also to really experience the design ideas and methods of other people.

If you see me around, give me a shout, I'm super keen to meet all of you.

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