were not going to worry too much about that. Still that’s more of a solution then …

Student: You were saying that the files of the storage might actually be of a greater size so that would effect the performance and effect the actual time advancement. So how would we go about informing the clients about that

Dr. Gates: Again separation of concerns at one level. The separation of concerns is how you deal with large files, and how you do the monitoring. It’s more of a concern when we’re starting to look at near real time. When we’re looking at near real time its streaming--you’re streaming information. Your system is not concerned about storing that information is being streamed and your just pulling it in real time. The data logger system is the one really storing that, or it may be transmitting it to some storage. So I would separate that because we’re not concerned with that side of how it’s storing it. If you start looking at historical data, then that’s a different story. Now we’re saying I’m looking at what I have in real time and I want to compare it against data that was collected last year, so that it’s stored some place. So far we haven’t heard about any requirements that deal with performance. Performance is a quality attribute. It’s important to talk about, and you want to ask the customer if they are concerned about performance. But it all depends on how you implement it. You may have this huge file, but you may just pull out this area/time of interest, which is not as large.

So again we go back to an implementation issue. It’s a good question to ask if performance is an issue; that goes back to the customer/to the scientist.

I like the kind of questions that you’re asking I think they are really probing so I want to hear from more people. Team 4?

Student: I know you touched on if the Rf does not exits, what if the Rl does not exist, do we just not do anything about that and keep moving forward every time?

Dr. Salamah: Your scope is not built, you’re saying Rl the left side of the scope. Until you get that ‘l’, until you get that first condition that builds the left side of the scope, your scope is not built, and you don’t care about the property. Once that happens then you wait for your ‘r’, or the reading corresponding to the ‘r’, and then your scope is complete. But if any one of these, if your ‘l’ is not there your scope is not built. If the ‘r’ for the between ‘l’ and ‘r’ is not there, your scope is not built, and you don’t care about the property anymore. You first have to make sure that your scope is built.

Student: So that’s always determined by ‘r’-’l’?

Dr. Salamah: ‘l’-‘r’ left-right

Dr. Salamah: L,R. Left and Right. But now the question that was asked is if we’re doing real time. You’re not going to wait until the scope is built, right? That’s the harder question.

Dr. Gates: You have to think about that.

Dr. Salamah: You have to think about how that’s going to be done. Do you understand the problem? You’re thinking existing between L and R, well L happened, now I’m looking for existence of some sort of condition. I don’t know, if I really cared about it enough, because I don’t know if the scope has been built yet because of the R. So that’s an issue that you have to resolve.

Dr. Gates: You’re going to be creating use cases out of this problem, right? One use case is near real-time. You have a display-- you’re finding potential anomalies because you reached R but you haven’t gotten to R yet. I mean go to L

Dr. Salamah: You reached L

Dr Gates: And then you don’t know if R is there, but you’re finding that this property is not holding. That’s a scenario right? What does the display look like? Just think about it. This is going more into the prototyping part because you’re going to be looking at potential solutions and you’re going to be presenting them to the user. When you prototype, to say this is what we think we should do, or you don’t do anything, right? There are a lot of decision points here, but [its] part of dealing with complex problems. Are you convinced that this is a complex system that you’re trying to build? I mean it’s not that easy-- you can’t just go out and build it. Maybe originally we thought, oh yeah we can create this, but once you start digging in, there are the different scenarios. That’s the complexity of it and trying to nail that down this semester before you start implementing it next semester.

Dr. Salamah: I’m just going to add something in terms of software engineering. What you’re doing right now is really one of the hardest things, is making sure you understand what needs to be done and whether or not you can do it. Whether it is feasible or not. So one of the things you really have to learn is to push back with the customer, and say you know what this, we just can’t do this. But now, you have to know how to do this and you cannot just say we can’t do this, you have to document why. You have to bring a convincing argument: why this can’t be done. The performance, for example, the customer requires specific performance attributes saying it has to be performed within this second, you have to do some calculations and say you know what, this is just not feasible. You have to learn that not everything the customer says has to be done , preferably yes, but you can push back, that’s part of your job, but you have to say why you are pushing back, why is this not feasible.

Dr. Gates: [Deleted discussion about Amelia Flores]. Okay so what questions do you have?

Student: Going back to that maintenance and change, I don’t know if it’s’ been asked already but, let’s say you have these sensors and they measure W, X and Y. Is it possible that a new sensor will come in and measures [everything plus] Z, is that likely at all?

Dr. Gates: Yeah that’s likely, that’s very likely. They’re adding sensors all the time. I don’t know if you’ve seen it; we’re missing our visualization person, but I can show you a [video] on this wall--you can see robotic trams that are miles long that are out in the arctic and collecting data (reflectance data). Then there's satellite imagery that’s also collecting data. There's a relationship between those two types of information. They have towers up in Jornado that are really high and then there's sensors at all levels of the towers. So they may be adding new sensors to that tower and they may want to say--okay now I want to look at the relationship between this reading with another reading or an historical reading to see if there’s something interesting that I can deduce from that. It’s likely that they could add new sensors, and so when you add new sensors, you still may want to reuse a property, maybe change the threshold. So reuse is going to be real important

Student: It was talked about last time, a little, that the sensor itself will feed data in a specific format, is it our job to turn that format into a unified format that our system can use or will that already be happening? And if a new sensor does show up, we have to somehow give the user the ability to create some sort of conversion?