**Describe a situation in which you were able to use persuasion to successfully convince someone to see things your way.**

* If I strongly believe I’m right, I will stand firm and push back.
* I try to communicate with data if possible, if not possible, I go through the pros and cons
* IBM is a fabless company so we contract out our chip fabrication work to another company. When there is some kind of defect impacting our yield, it is my job to narrow down the root cause and communicate that to the other company in order to drive some kind of fix. In most cases the two teams would be pretty collaborative to fix the issue but if we suggest the root cause to be something like a tool issue, putting the tool out of commission and fixing that tool can be costly to the other company and there will usually be pushback.
* In the realm of semiconductor devices, there is usually a trade off between yield and device performance. For example, a taller gate height would result in less leakage and better performance, but the process of getting the gate height taller would open us up to more possibilities of shorting the gate to a metal contact, therefore, reducing yield. As part of my job, I have to weigh whether the yield implications is worth the performance improvement.
* We had one change that was supposed to drive our device performance up significantly. We ran a small sample with this change and it showed a 5% degrade in SRAM yield which was quite significant. Everyone in my team was convinced that this change is too detrimental to yield and therefore should not be considered. I wasn’t convinced because the sample was so small, there can be other factors that can lead to the yield difference, purely through unlucky sampling. I requested a couple more days to look into these lower yielding wafers. On one hand, we aren’t losing anything by putting a little bit more time before we scarp this change. And on the other hand, we might be losing out on a very beneficial change to device performance. Within a day, I found that these poor yielding wafers were sent through a tool that none of the baseline wafers went through. The tool itself is completely independent of the change we are making. Therefore, I requested a few more wafers with this device change. And the results showed no statistically significant impact on yield. Through this, not only did I recommend a performance improvement with no yield impact, I also found a tool that needed maintenance.

**Describe a time when you were faced with a stressful situation that demonstrated your coping skills.**

* I was working full time while also taking classes at UC Berkeley at night to get my Data Science/Machine learning degree. More than once, I’ve had multiple final projects coincide with busy work weeks where I felt overwhelmed by all I had to do.
* Focus on what you can control, break the problem down into small achievements, time management, good communication with teammates and manager and prioritize tasks.

**Give me a specific example of a time when you used good judgment and logic in solving a problem.**

* There are many times I’ve done this because it is a core responsibility of mine at IBM which is to use data and diagnose defects impacting our chip yield. But I’ll talk about one of the first and biggest impact problem I’ve contributed to solving.
* There was a systematic defect that was hitting our SRAM yield consistently reducing our yield by 5 to 10%. We know exactly what it looks like on our SRAM monitoring metrics but we can’t find the root cause. I have just started at UC Berkeley and decided to apply what I’ve learned to the task. I built a classification model with our SRAM parametric data which was able to accurately identify these defects on all our historical and new wafers (I even accounted for false positives and false negatives while tuning my model to get the best possible results). With this new data, I was able to run mass correlations against lots of other parameters and explore different ways to look at the data. Eventually, I was able to find a slot order dependence on a specific RIE process step and that the vast majority of bad wafers went through a certain tool. As a result, we were able to decommission that tool, and implement a FOUP purge before that step and the defect went away.

**Give me an example of a time when you set a goal and were able to meet or achieve it.**

* After my first year working for IBM, I realized that a lot of the work we do as a team revolves around driving value out of data. Since my career was still very young at the time, I set a goal for myself to grow my knowledge in the realm of data science and machine learning because it will not only benefit my own technical growth, but also bring a lot of unexplored value to the team. To achieve my goal, I approached my manager about me pursuing my second master’s degree in data science and Machine Learning and luckily he thought it was a wonderful idea. He even went as far as getting IBM to pay for the tuition under the condition that my work performance did not drop and I maintain a good grade at school. It was very challenging at times, balancing 3 classes a semester as well as full time work, but I was able to do it by focusing on time management and good prioritization. I ended up graduating with a perfect GPA and contributed a lot of new techniques and value to my work that I was previously unable to.

**Tell me about a time when you had to use your presentation skills to influence someone's opinion.**

* Shortly after I started my degree at Berkeley, I created my first machine learning model to classifying a certain defect. It was the first time anyone has done this and my manager was so impressed he tasked me to present my model to the VP of the Systems team at IBM. With a lot of guidance and preparation, I did my presentation for my manager, his manager, his manager’s manager and upwards and everyone gave me a lot of support because they all wanted me to do well. I had to focus on making my presentation result driven, clearly stating what the problem was, what I did and why it was novel, and what value my model brings. I also had to be careful not to include too many technical details because that will overwhelm my audience. After my presentation the VP of the Systems group was so impressed, there was a big push to utilize machine learning in hardware development and it kickstarted the “transformation” project.

**Give me a specific example of a time when you had to conform to a policy with which you did not agree.**

* During the transformation era, management made a push for all our engineers to learn python and create dashboards to automate their work.
* I felt like this is unfair to a lot of engineers who have their own way of doing things and either aren’t able to, or don’t want to learn a skill like python and dashboard creation.
* However, once the policy has been set, I did my best to help my coworkers. I held education session to help people get set up and I went over the basics. I also opened my doors as the expert of the team for whoever needs any help.
* In the end our engineers gained a valuable new skill and some of them actually became very good at creating dashboards and generated a lot of value for themselves and IBM.

**Please discuss an important written document you were required to complete.**

* Patent application

**Tell me about a time when you had to go above and beyond the call of duty in order to get a job done.**

* Shift detection or clustering analysis

**Tell me about a time when you had too many things to do and you were required to prioritize your tasks.**

* I was working full time while also taking classes at UC Berkeley at night to get my Data Science/Machine learning degree. More than once, I’ve had multiple final projects coincide with busy work weeks where I felt overwhelmed by all I had to do.
* Focus on what you can control, break the problem down into small achievements, time management, good communication with teammates and manager and prioritize tasks.

**Give me an example of a time when you had to make a split second decision.**

* I used to run a department meeting for my second line manager. This meeting was for senior engineers and various other managers and the idea was for me to take care of showing the presentations and take notes so that I can get exposed to a lot of higher level decision making conversations that I wouldn’t be exposed to otherwise. One day my second line manager was running late and after 5 minutes waiting for her to show up, I had the make the decision to start and run the meeting myself. I was nervous but I’ve been to enough of these meetings already to know the usual topics so I took charge of the meeting until my second line manager arrived. After the meeting she told me she really appreciated me taking the lead for the meeting and that I did a good job.

**What is your typical way of dealing with conflict? Give me an example.**

* Never had any personal conflict with a coworker or boss. But I have had conflicts regarding decisions.
* Using data to thoughtfully explain counter-arguments
* Weigh pros and cons of choices
* I’m open to being convinced but if I believe the data points one way, I will stand my ground
* Once we were implementing a change in our device parameters that would improve our device performance but we needed to make sure the change wont negatively impact yield. A coworker of mine saw that the yield is negatively impacted and immediately called for the change to be scrapped. However, I knew that the sample size was way too small to make that decision at the time. So I strongly recommended that I personally take some time to look into this issue and come back with a result. Through my analysis, I found that these few wafers were all part of the same lot that went through the same tool at a certain process step. This lot was not yielding well overall therefore our sample was biased. I told my coworkers that we should run this split lot analysis again and this time have both A and B groups be from the same lot. I argued that the pros of doing this is we can be sure of the impact of this change instead of just throwing away a beneficial parametric change. The cons would be potentially having a few more wafers with 5% lower yield. I was able to convince my coworkers and it turns out the change had no significant impact on yield.

**Tell me about a time you were able to successfully deal with another person even when that individual may not have personally liked you (or vice versa).**

* I didn’t dislike any of my coworkers and I’m pretty sure they didn’t dislike me either. But there is one higher up who is not my direct manager but he was a tech leader who would have a lot of big project ideas that were not carefully thought out that he would always come to me for which I found a little annoying. However, I realized that it’s because this guy has a lot of project ideas that he has this senior position to begin with and he has a high evaluation of my capabilities which is why he would specifically come to me. From him, I learned to be patient, and communicate when I think an idea is too vague or unfeasible, or if I’m too swamped with other work to take on a new project. I also learned that when there is a good idea, I can sit down with him and plan it out in more detail which can lead to something beneficial to the company.

**Tell me about a difficult decision you've made in the last year.**

* There was a process change that made our pfet devices slightly hotter. One impact of this change that we didn’t expect was significant Logic Vmin yield degrade. We had run experiments before and this never showed up. I was charged with the difficult task of figuring out why this is the case and if we need to roll back the process change. This was a business critical decision and an urgent one because the yield degrade may significantly impact the cost. I did a lot of analysis and digging and found that the yield lose mainly came from the hottest regions of the wafer and there is strong correlation between the yield degrade and the idd standby current as well. This all pointed towards rolling back the change. However, I dug even deeper into the problem and found that the yield loss were coming from blocks 1,2,3 and 26,27,28 which were at the far ends of the chip. They were not the same types of latches either so it made no sense that they were failing together. There must’ve been a pattern there. I talked to a test expert about any differences between the far edges of the macros and learned that there is no voltage boosting at the edges. This means we are hit by some kind of voltage droop at the edges of these logic macros at lower yield corners. However, this isn’t an issue later down the line because at later metal layers, we will have the proper voltage boosting across all our logic. To confirm this I tested one of the bad wafers later down the line and it showed no issue.

**Give me an example of a time when something you tried to accomplish and failed.**

Clustering project. I gave it my best shot, it was a personal project I took on in my free time. I even talked to the engineer who wrote the paper who was at MIT at the time and currently works for google. I got the algorithm to work but the results were not as promising for complex data as the paper suggested. Worked for simple data but that was not what I was hoping for.

**Give me an example of when you showed initiative and took the lead.**

Fin Res, clustering project, change point detection.

**Tell me about a recent situation in which you had to deal with a very upset customer or co-worker.**

Coworker vented to me about another coworker that he was upset with. I listened to him and let him get all his grievances out. I offered some suggestions about having an open communication with that coworker and try to work together to fix the issue.

Reliability Vmax Dashboard, Greg

**Give me an example of a time when you motivated others.**

I started the data science, python in our team. I held weekly education sessions on python and machine learning and data science topics. It wasn’t a mandatory meeting but I can tell when these coworkers are motivated to learn about these new topics and improve on their skills.

**Tell me about a time when you delegated a project effectively.**

I was in charge of interns a few times in my career at IBM. The way it’s set up is I have a project I’m working on and I would guide the interns in assisting me on the projects. Each of these times, I would hold daily meetings with the interns, we would go over the progress they made the previous day and what they plan on working on next. I let them choose what they were comfortable doing but encouraged them to take on a little bit more and know that I’ll be there to assist them if they have any trouble. In the end they delivered a very successful project and one of the interns even ended up joining the team after graduation.

**Give me an example of a time when you used your fact-finding skills to solve a problem.**

Vmin Yield Loss

**Tell me about a time when you missed an obvious solution to a problem.**

Change point detection (obvious issue arriving) not taking the potential customer’s input into consideration.

**Describe a time when you anticipated potential problems and developed preventive measures.**

Building Greg’s Reliability Vmax dashboard, I sensed that he wasn’t happy with the idea and he felt like I was taking his responsibilities away. So I made sure to have meetings with him and made him a active part of building the dashboard with a lot of his input. Then during the presentation for the dashboard I would make sure to keep giving him credit so that he feels appreciated and he can take pride as being a part of the project.

**Tell me about a time when you were forced to make an unpopular decision.**

Transformation decision by upper management. It was unpopular because a lot of people didn’t want to change how they did things.

**Please tell me about a time you had to fire a friend.**

**Describe a time when you set your sights too high (or too low).**

I always try to set my sights too high than too low. Clustering project. Even though I ended up failing by my criteria, I did learn a lot along the way and I did achieve something no one else on the team has achieved before.