Questions to ask interviewer:

1\ the real feeling about what the day-to-day life is like at the company.

Project NI:

1\ what did you do?

When I joined NI, most of people were working on the development of graph programming IDE called LabVIEW. My team works on a function libraray called MathScirpt in LabVIEW. It includes some signal processing and math computation functions.

My work include two parts: the first part is competitive test. This is like requirement analysis before actual development that we compare our function library with other similar products. The second part is I developed 16 functions inside this library.

2\ The difference between current gen and next gen?

There are many differences between these two generations. As for our function library, we used to develop functions in graph code level and some other team is responsible to translate graph code to the underlying level. But in current generation, we directly code in underlying level because of more flexibility and extension. For example, in graph code, a line connecting two ports can only stand for one data type. So if a function supports vector and matrix input, we have to develop two copies of function: one support vector and another supports matrix. But in non-gragh coding, we can be more flexible.

2\ what did you learn?

I think by working with a big team and developing some code that will really be used in product, I become more skilled in programming. But what’s more important is that I realize that there are some knowledge you may not know, it does not matter that much. What’s really matters is the way you do things, the way you solve problems. Your thinking habits is very important.

For example, when I design a function, you should take a lot of time to fully understand this function. What the input type it supports, what the output type corresponding to each input. If you miss something, it may take you a lot more time afterwards to fix it. So take more time to think and design and build a solid basic for programming. That’s very important.

3\ the most challenging? An detail example?

I think the most interesting time is in National Instruments, This is the first industry experience where I helped to develops some coding which will be used in real product. Also the most difficult.

NI: work with big system, learn from examples how to use helper function

Vmware: how to design the project. How different parts connect? Easy to maintain and ensure extensibility. Python packages.

The most difficult is fimilar with the environment. Because the whole project already has million lines of coding. I need to add some features to the big system. I must learn to use what’s already been developed, add something new. Make sure it work well with the original system and not change the other parts unintended.

Like I remember there is helper function for multi-dimensional inputs. If you want to apply a function to a specific dimension, you only need to clarify the function about how you do it in one dimension and specify which dimension you want to do it, then pass to the helper function, it will do it. Learning to use this helper function takes me a lot of time. Because I have to look at all the other places where this function being used and learn how they use it.

Design is also difficult, especially how to make it more elegant and concise. Learn from past experience and examples. Like rotation.

VMWare

The main project I do is automated log analysis. There are three parts: main program, configuration files and handlers for different rules.

In configuration files, you describe what’s you rule is, the parameters, threshold and so on. Then different rules can share the same handlers. When you change some parameters of a rule, you only need to edit the configure files and it won’t influence the other parts while still get the right answer.

Make handler work for multiple rules because you will find some rules share a similar handler, you just need to do some abstraction.

Difficulty: design. How many parts are in your project? What’s the responsibilities of each part, how do they connect with each other. How you can make it easier to maintain and ensure extensibility.

Find the right python packages and learn to use it

The differene with NI. In NI, you work in a a big system. In vmware, it’s all small projects but you need to build it up from the very beginning. You have to design your structures, design you own class and so on.

4\ the most interesting?

5\ hardest bug?

6\ enjoyed most?

7\ conflict with teammates?