**Reflections – As of February 7, 2021**

The GWU Data Analytics Bootcamp course spans everything one might need to begin a career in data analytics. It is also a good introduction toward a career in data science. Particularly if you’re not nearing the twilight of your career.

At its core, we are learning to get at data no matter whether it is in the public domain or proprietary (providing proper access privileges are allowed, of course), capturing and storing data if it is transitory, manipulating and storing refined data, discovering meaning in data, and serving up data and insights and ways of dynamically interacting with the data at a serious, professional level, whether through public portals, or informing decision making through internal dashboards, or even connecting the intelligent enterprise end-to-end and beyond (including trading partner ecosystems, consumer interaction systems, content on the web, etc.).

In short, it is a course intent on teaching and training students on the equivalent of full-stack programming specific to data analytics, with significant emphases on professional-level capture, analysis, and presentation. And at the very tail, maybe a smattering of machine learning tech. The goal seems to be to arrive at a base level of capability such that we can survive professionally using what we have learned for both immediate use and as a base from which we can build as needed. Essentially learn enough so that we can learn on our own beyond the bootcamp course.

This in mind and given the timeframe available, the course necessarily entails a mouth-over-the-fire-hydrant experience. It has aspects reminiscent of the movie The Matrix. We are, in effect, uploading programs into our cerebral cortex. I can just picture the Keneau Reeves character Neo saying, “I know Python.” Some of it feels like a blur because of the course pace. Some of it feels incomplete (and obviously is), but it’s the feeling I’m focused on. The course work builds on pre-existing knowledge. And in that regard, the course is well structured to do so.

Like a machine gun, we’ve dived into programming and procedural languages: Visual Basic, Python, SQL, NoSQL, JavaScript, R. We’ve been exposed to test and/or operating environments like Flask, Python Simple Server, Cloud Infrastructure (Salesforce, AWS, Heroku). Various integrated development environments and collaboration management tools. We’ve embraced seemingly many libraries (data access, data analytics, data shaping, math, datetime, conversion, graphics, mapping <both meanings>, etc.). So many methods. So many nomenclatures. We practically need a Rosetta Stone to comprehend them all. So many ways of generating errors. So many outstanding tools and methods for hunting down and fixing bugs. So many necessary ways of structuring your code and code blocks (functions, loops, etc.) for basic functioning. So many ways of failing logically even if the code executes.

What do I love? I love the learning. I love the difficulty level. I love the challenges, even when I feel like I am flailing. I am becoming more confident – somehow. Really, somehow. I am shocked that I seem to be able to execute. I have experienced significant imposter syndrome. I can barely believe my good grades. How can I possibly be keeping track of it all? Who is this person who seems to be doing alright? Is this really me? Some part of me really didn’t believe I had it in me. And I’m ridiculously glad to be proving that part of me flat out wrong. But even then, the doubting side doesn’t relent without making me feel terrible first. So, I just deal with it the best I can. Sometimes with tremendous support from instructor, administrator, and staff. A lot of the time on my own.

What else do I love? As a technology research analyst and information technology investment banker, I have seen many technology presenters and trainers in my career. And I have never experienced anyone as facile or exuberant in presenting as Dartanion Williams. Dart’s presentation and teaching capability is outstanding and really rare. His ability to teach and communicate and demonstrate and debug live is on par with some of the great technology teachers and evangelists.

What do I not like? Reasonable or otherwise, I seem to be regularly struggling with the material, which raises concerns that I may not achieve sufficient competence to pursue a successful career that incorporates my new learnings. I know this: data analytics / data science presents phenomenal opportunities, but I have no idea whether I will I blow myself out of the water on the job or head down a dead end career path (for me, I mean). Often enough (at least at this point), I seem to exhibit poor retention; I hope it improves. My experience does not seem to jibe with what former students described about their progression: that by this point in the course, their major self-doubts were long behind them. For me at this point, self-doubt is considerable and quite possibly justified.

What would I have liked to spend more time on? In a word (but not literally), more machine learning / artificial intelligence, more modeling, more forecasting, more forensic analysis. Is that a legitimate critique, however? No. There is just such truly limited time to teach this course, even given the incredible amount of time the instructor has devoted to the class. I use the term “incredible” because there have been so many extra review and specialty sessions on top of the standard 3-day/week program. I have never experienced such investment by an instructor in any class I have taken, undergraduate or graduate. Ever. That’s why I think my critique is not really legitimate relative to the already months long time allotted. However, perhaps the time allotted should allow for a few extra weeks to better cover ML/AI.

What are some things I plan to do with my new “superpowers”? Honestly, I don’t know. Probably because I haven’t reached the point where I have trained up on what I need to know to do what I think I might want to do professionally. I am pretty sure I want to tackle something really hard. I am interested in building AI teams to parachute into companies and radically transform and optimize their business processes. Ultimately, I want to do this end-to-end inside the enterprise and beyond (supplier and partner chain, consumer touching, and social media). As I understand it, doing AI right requires asking the right questions. It also requires competent practitioners to truly understand the differences (both strengths and vulnerabilities) in the various AIs. Some AIs are capable of finding relationships in datasets with less pre-defined domain knowledge than others. From my research, I believe the best AIs are proprietary, so getting access to them can require luck, trust, and considerable investment. I don’t even know if I have sufficient mathematical and programming background to appreciate these differences. So, I am far from feeling confident that I will be equipped to pursue this “dream”. Failing that, I would love to use my data analytics training in the area of astrophysics (or maybe quantum physics?). These sciences are overflowing with new data at the moment. However, I am unsure that could ever happen given my background. (Acing an undergraduate astronomy course is not the same thing.) Something tells me I’m being highly unrealistic, but I have the fire and intestinal fortitude to pursue dreams. Irrespective of the above considerations, I don’t think I’m going to be sufficiently prepared when I’m done with this course. There are probably some number of interim steps to get to these goals that I haven’t begun to map out. I literally could run out of time professionally given my age. And age-ism is likely to put the final nail in the coffin. Who knows? I could even encounter transphobia again, which subverted my career as an investment banker and devastated my self-confidence not long after I came out to my partners and clients. At this point, there is a real chance I will end up doing nothing worthwhile or at least nothing interesting to me after all this effort. C’est la vie.