Internship Reflection Paper

Gus Lipkin

Table of Contents

Company Description

Draken International, LLC (Draken) is a an American defense contractor that provides adversary air support (Red Air) for the United States and allied governments with its fleet of tactical fighter aircraft including the Douglas A-4K/N Skyhawk, Aero L-159E ALCA, MiG-21BIS, Atlas Cheetah, and Dassault Mirage F1M/B (*Draken International*, 2013). Draken was formed out of the members of the Black Diamond Jet Team on November 8, 2011 "to fight elite pilots from the Air Force, Navy and Marine Corps" with the goal of helping to prepare "those warfighters for aerial combat, to punish their mistakes, and hone their skills so they can defend the sovereignty of the United States of America" (*Draken International :: Documentary*, 2019). Since then, they have become the largest private air force in the world (*Draken International :: Documentary*, 2019).

Since the company headquarters moved to Texas, the Lakeland location has become the restoration and maintenance hub for the company. Because the jets they purchase from other countries are last generation or earlier, they need to be retrofitted with modern equipment and everything needs to be taken apart and documented to make sure the jets are flight ready. All of this happens at the Lakeland location.

Work Description

I am part of the Mirage F1 team and my official title is *F-1 Critical Parts Verification Intern.* On every plane there are parts that are life-limited. Life-limited parts are usually limited by flight hours, landings, time since manufacture, or any combination thereof. All of this information is documented on part maintenance log cards which are required by the FAA. I was given a list of critical parts, those with life limits, for the Mirage F1, and have to find each part and its log card, scan and upload it to FlightDocs, our maintenance and inventory tracker, and

then translate it from French or Spanish to English and enter the data into the correct fields on FlightDocs.

I understand this all needs some more explaining, but before that, a quick note. Throughout this reflection I may use serial number or part to refer to a specific physical part. There are many serial numbers for each part, but simply saying part gets the point across and is easier to say.

Let's say you have a part called "MLG actuator (R)". This part is the right main landing gear actuator. However, I do not have to find just one, I have to find the log card for every Mirage F1 right main landing gear actuator that we have in stock anywhere in the company, whether it's in a pallet of 100 other parts, installed on an aircraft, or in storage in Texas, or anywhere else.

The Mirage F-1s that we currently have were all purchased from either the Spanish or Jordanian governments. The Spanish F-1s were all maintained by either Spanish or French workers so their log cards are in Spanish or French, but thankfully never a combination of the two. I have yet to see a Jordanian log card and as such am not sure if they are in English or Arabic.

In order to ensure that I have found every serial number for every part on the critical parts list, I created a database program that merges three separate spreadsheets every morning. The first is the complete inventory export for the company. The second is the list of parts that I need to find. The third is my own spreadsheet that I use to track whether or not I have looked for a part and if I did find the part, if I found its log card. Using this method enabled me to greatly speed up the process because instead of looking for each serial number for a part as it is listed in FlightDocs, I can search a specific location for any parts that I may need. If I am unable to find a

part, this program will also tell me if the serial number is moved in which case I would search the new location for that serial number. I also have a few more programs which help me track parts listed as installed on aircraft which another employee is digitizing, parts that I have been unable to find log cards for, and another one that gives me metrics on my project completion percentage, the number of parts I have found and my success rate, and the number of log cards found and my success rate.

Work Described Meets Learning Outcomes

Before working at Draken, I had only ever worked in retail or what I will call "semi-professional environments." This lead to a severe deficiency in knowledge of proper office comportment. Not that I did anything wrong, per se, but rather that I did not fully realize the level of independence I was expected to have. That was, however, no longer an issue after my supervisor pointed it out to me.

As you have seen and will see later on in this reflection, I was able to appropriately and effectively apply what I learned in my Database and Data Science classes to make my work more efficient and effective. What I did not mention and will not mention again is the amount of time it took me to construct these programs. In keeping with the earlier paragraph, I had to learn to balance my time spent on writing the programs and producing tangible outputs in the form of found and uploaded log cards.

My third learning objective was to "learn to better recognize areas that business analytics can be used to simplify and expedite business processes." As I will mention again later on, I would like to continue at Draken past my project end date so that I can assist the company in addressing its business practices so that they are simpler and more efficient.

Project/Design/Work Results

While, at the time of my writing this, I am nowhere near the completion of my project, I am well on my way. Over winter break when I was working forty hours a week, I was able to reach an all-time personal best record of over 300 serial numbers found, scanned, and uploaded. While that does break down to only 7.5 serial numbers per hour and definitely does not seem like a lot, one must consider that I had to find each serial number, scan it, and upload it. Each of these processes, especially those on the computer, take an exceptionally long time, even for just one part. I expect that I will be able to finish the entire project long before the end of the semester but I am unsure of how long the translation process will take because I have not started that yet, instead focusing on finding the log cards before they become too scattered and it is difficult to find them.

Coursework Connection

Because my position is largely unsupervised and I am able to go at my own pace so long as I am being productive, I have been able to dedicate large amounts of my time to making my actual work more efficient so that I am able to work more slowly and at a more relaxed pace while still producing the same outputs as if I had not optimized it and had to work very quickly.

I was able to do everything I did with the three spreadsheets because of what I learned in my Database I and Intro to Data Science courses and, if I am ever able to, will also use some extracurricular learning to make my programs run as smoothly as possible.

Because I spend so much time using FlightDocs, I have noticed a list of features that are missing that I think would make company employees who frequently use FlightDocs much more productive. Using my Business Analytics skills, I was able to distill this information into a

slideshow presentation for the main contact points with FlightDocs at Draken so that these features can be put high up on our company's feature request priority list.

Outside of my project, there are many functions that people serve that do not fully make sense to someone with a Business Analytics background. When my project arrives at its natural conclusion, I would like to stay on longer to help the company address these efficiency shortcomings.

Lessons Learned

I am not really sure what else I have to say about lessons learned besides what I have said already in the Work Described Meets Learning Outcomes and Coursework Connections sections. I think it would be unfair for me to try and distill my entire time at Draken into just a few lessons learned, but I will do my best to single out a few of my favorites.

- No matter how old you are, jets are super cool.
- If you see a button that says "bomb," just press it. What's the worst that could happen?
- So long as you're productive and meeting or exceeding targets, no one really cares what you do.
- Even if a project only requires one person, it never hurts to ask for help in areas that someone knows more than you.
- Just because you're an intern doesn't mean you don't have value.

Bibliography

Draken International. (2013, January 24). Wikimedia Foundation, Inc. https://en.wikipedia.org/wiki/Draken_International

Draken International :: Documentary. (2019, June 19). https://www.youtube.com/watch?v=nqZxihMgXB0