**Module 1 Individual Assignment – Data Analytics Mindset**

**Business Decision That Has Become More Data Driven**

One Business Decision in my workplace that has become more data-driven includes the use of predicting the failures of test reports on the production floor. I work at Northrop Grumman, a defense contractor, as a software engineer testing the modules that go on-board the F-22 fighter jet. Many of the reports that get generated are often overlooked when they are stored in a shared drive on the shopfloor. One way we can utilize the test report results is aggregating the data based on the failures for each test block in order to figure out what tests need to be updated so that the software engineers can figure out what part of the software needs changed or if it is a hardware issue.

**How a System 2 Mindset Was Used to Employ Data to Make the Decision More Automated**

A system 2 mindset can be employed by using a slow, effortful, analytical approach in sorting out the data for each test report and module. One way we can improve the process is automating the allocation of data by reading in each test report for a specific module and then exporting the data into a combined table for sorting out based on each specific serial number that was tested. Once we have a data base with all of the report results, we can aggregate the data based on pass/fail criteria for each test block and calculate the results of the pass/fail status. This would give insights into how the modules are performing over the lifetime in order to predict anomalies in the modules to point out where there needs to be improvements in the software/hardware design. Once we have the structure of sorting out the data, we can use a System 1 mindset to quickly learn from the data and understand the overview of how the tests are behaving.

**How a System 2 Mindset Is Needed to Correct Failures or Automate the Next Step**

During the testing life cycle, after the modules go through Development Version, the modules are updated to Performance Version 1 (PV1) which is when the software is released to shop floor. Then once the new modules for PV2 come in, the software is updated by adding in new tests or limits to the software. This can cause the PV1 data to be obsolete if we are adding new features to the tests. In this case, we would need to create separate data frame for each version of modules in order to be consistent with the test being run. So there needs to be a way to update how the data is stored from each test report. Then need to aggregate the data based on Performance Versioned modules. This would allow the test engineers to gain an overview in evaluating the performance for each module version and predicting which parts of the test need to be updated or what part of the module needs improvement allowing for a system 2 mindset.

1. (3 points) Identify a business decision that has become more data-driven, such as evaluating loan applications or trading stocks. You can use an example from your own experience, or one that you learned about from your own investigation. You may also consider a business decision that has not yet become more data-driven, but that you would like to become more data-driven. In 100-300 words describe how this decision is made without the help of data analytics.
2. (4 points) Consider how a system 2 mindset was used, or could be used, to employ data to automate the decision so that it requires more of a system 1 mindset. In 100-300 words describe the process of using data to automate the decision. You may consider describing aspects related to accessing and assembling data, analyzing the data, upgrading the technology and human capital, and necessary changes to the organizational culture so that the output from the data analysis acted upon.
3. (3 points) Consider how the automated business decision has or might require a system 2 mindset either through a failure in the automated version of the decision, or the desire to automate a related business decision. In 100-300 words please describe the factors that require a system 2 mindset to be brought to bear on the automated decision described in step 3.