Explain Methods for Dealing with Multiple Testing

The management team at AAVAIL is preparing to deploy a large number of teams each tasked with integration into a different new market. They claim to have optimized the teams fairly with respect to skills and experience. They are asking you to come up with a framework to evaluate the makeup of their teams. They have not finished hiring and creating all of the teams so naturally before you even get the data you wanted to get a head start.

Getting a head start usually involves finding a similar dataset and writing the code in a way that the new data, once obtained can be added with little effort.

When we perform a large number of statistical tests, some will have *p*-values less than the designated level of α (e.g. 0.05) purely by chance, even if all the null hypotheses are really true. This is an inherent risk of using inferrential statistics. Fortunately, there are several techniques to mitigate the risk.

We are going to look at the 2018 world cup data in this example.

The case study is comprised of the following sections:

1. Data Cleaning
2. Data Visualization
3. NHT
4. Adjust NHT results for multiple comparisons

Data science work that focuses on creating a predictive model is perhaps the hallmark of the field today, but there are still many use cases where inferential statistics are the best tool available. One issue with statistical inference is that there are situations where performing multiple tests is a logical way to accomplish a task, but it comes at the expense of an increased rate of false positives or Type I errors.

In this case study you will apply techniques and knowledge from all of the units in Module 2.