**TractorTEK** is a regional reseller of agricultural equipment based on the US West Coast. Their utility division unfortunately had their Sales Tracking System crash, leaving them with only back-up data. The system had a Web UI that was used for entry of weekly sales data by the sales teams, and a database for storing that data. It came with some Excel Dashboards for the sales manager to track sales performance and enhance decision making. You’re responsible for restoring the TractorTEK Sales Team by implementing a Store Sales Decision Support System.

The margins for sale of equipment are slim, so the main *profit-maker* is in the sale of Extended Service Plans (ESPs). There are 8 products sold by 5 sales teams (identified by their Team Lead) across 2 regions. Weekly data for 2 years is available in Excel format, with the bulk of it denormalized.

# Core Functionality

This is a summary of the core functionality – for greater detail, check the Capstone Rubric spreadsheet. When in doubt, ask.

* Create a web application to capture “real-time” sales order data entries using Python Flask.
* Create a database to capture and store all sales data (historical & real-time) using MySQL
* Batch load to MySQL database using a relevant Python library (such as SQLAlchemy)
* Although only 1 database is required, demonstrate OLTP & OLAP concepts via:
  + Facts
  + Dimensions
  + Denormalization for reporting
  + Aggregations for reporting
* Provide a Jupyter Notebook that returns a range of figures and tests about the database tables that the team can run to confirm the database is as it should be
* Create an Excel dashboard for the Sales manager that helps them to reach some insights. Examples of some reports could be as follows:
  + Sales Data by Region
  + Sales Data by Salesperson
  + Top Ranking Salesperson by period
  + Sales by Category, Brand
* Share insights from your own analysis of the data reached using Excel. Take care to consider what are the most likely business drivers.

**Stretch Functionality**

If time permits, you may wish to incorporate one or more feature enhancements, inspired by a favorite topic from class, a Udemy lecture or elsewhere.

Examples include, but are not limited to:

* more advanced analysis using Pandas and Matplotlib
* BASH scripting (could be in an executable script or Jupyter Notebook)
* Administrative features for the web app, such as adding new product codes

However, *do not* do this at the expense of core functionality - the requirements come first.

**Submission Deadline**

All assignment deliverables are due no later than 8:30am CT on Thursday, May 19.

**Presentation Formats**

Students will be required to submit their PowerPoint slides **no later than 8:30am CT** on the morning of first day of Capstone Presentations (scheduled for Thursday, May 19). All presentations will be downloaded by boot camp staff and no other changes will be accepted. Each student presentation will last for a total of 20 mins with 12 minutes of presentation time and 8 minutes of questions from attendees.

The following order is suggested student presentations:

* Web App UI – Data Entry Functionality
* Database schema and configuration
* Sales Dashboard, and Analysis Findings

The focal points for presentations should be:

* Design choices and justifications
* Value to the customer