# CMP 142 - Programming Assignment #5
## *Drawing Conclusions and Deploying the Model*

You are to work in your teams to solve the following problem.

**PROBLEM DESCRIPTION**

Over the course of the semester, your team will carry out a large-scale data science project. You will perform the following steps:

1) Analyze a real-world data science problem,
2) Collect and prepare data,
3) Explore the data using current tools and techniques,
4) Build machine learning models to analyze the data,
5) Analyze the models to select the best models, and
**6) Draw conclusions about the problem based on the data model and deploy the model.**

Using your previous assignment, your team will create a final model that is trained on the entire dataset. Once trained, the model will be saved into a file (called **`model.joblib`**). The steps needed to save a model to a file will be given in class.

Your team will then create a Python program (titled **`Program05.py`**) that will prompt the user to enter sample data for your features. Once entered, the data will be passed to the model to make a prediction for the target variable. The program will then display the prediction to the user in a nicely formatted nicely statement. The saved model and the Python program that accepts user input, sends the data to the model, and then prints the model's prediction will be called from a Notebook cell in the way we normally call Python programs. Your team will run your program twice, once entering data from a data instance in your dataset and once entering *new* data that your team deems appropriate for your dataset. Save the runs of your program in a Jupyter notebook (titled **`Program05Run.ipynb`**).

**ADDITIONAL NOTES**

As always, specific instructions will be given in class. These instructions are required even if they do not appear in this description.

**WHAT TO TURN IN**

Upload copies of your program files (**`Program05.py`**, **`model.joblib`**, and **`Program05Run.ipynb`**) using to the Program #5 - Drop Box on Moodle. Make sure you include the names of the files and the names of your team members in comments at the top of each of your files. Turn everything in by **5pm on Friday, May 13**.