### What is a Class?

A class is a user-defined blueprint from which objects are created or instances of the class. Creating a new class creates a new type of object and defines those objects' properties and behaviors. Properties are attributes of an object, and behaviors are methods that modify the object. For example, the class I created, `Graphs`, has four attributes, two quantitative variables and two qualitative variables, and has ten methods, which two are shown under the sample code section.

Overall, classes provided a simplistic way of keeping attributes and methods together, which helps keep the program organized and allows for reusability. Another functionality of a class is inheritance, or when a defined class inherits all the methods and attributes from another class.

### Why My Code Matters

The class was developed to be completely reproducible and a simplistic experience for the user. All the user has to do is import a cleaned dataset, create an object of the class, pass the desired attributes to the object, and apply a method to the object. The sample code to the left displays two methods and creating an object. The first method calculates the bin width for a histogram, and the second method creates a stacked histogram of a variable with the combination of two other variables. Allowing another method, `bin_width()`, to calculate the bin width means the user does not have to calculate or define how the bins will increment. The user can simply pass any quantitative variable, and the method will do all the work. Having the `bin_width()` method be its own method allows other methods to use it as well. The method `stacked_histogram()` first calculates the possible combinations of two variables. It then calls the method `bin_width()` to calculate the bins for the graph. Lastly, it creates the histogram by iterating through all possible combinations. Meaning, the user does not have to specify the number of combinations.

### Why My Code Matters

Even though data science's impressive side is the more advanced methods like XG Boost and multilayered neural networks, classes are a significant part. Classes allow code to be more readable and reproducible. They also can help users build dashboards to quickly and easily see results and be a part of automated pipelines. The class I developed could be a part of an automated report system for a company with a certain number of standard graphs they want to use to check performance. Using and developing classes, methods, and for loops are all essential parts of a data scientist's job.