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StatsModels

**Central Purpose**

The last library I chose to work with is the StatsModels library. What this library does is provides easy computations for descriptive statistics and estimation and inference for statistical models. This is similar to what the R programming language does, but using the Python language instead.

**Useful / Interesting Ways to be Used**

This library is for statistical use, so finding some useful and interesting ways to be used should be pretty easy since the possibilities are seemingly endless. For example, a parking lot camera, which takes data from cars parking in the lot all day, would provide an excellent source for some statistical data. This data could show how many spots are open at any given time throughout the week, as well as show how busy the parking lot could get at different times of day or week. This would be very helpful for Kean as stated before, the parking lots have a tendency to fill up quickly and stay filled for long periods of time.

Another interesting way to use StatsModels would be for taking surveys for the Research and Technology class offered at Kean. All students in the course need to take surveys from people where they record the answers to their questions for the topic they are researching. A lot of these students use Google for the statistical analysis of the answers, however a more efficient way could be done using StatsModels.

**Documentation and Functionalities**

Here is a list of some of the functions StatsModels has and what they are for:

1. het\_arch(resid[, nlags, autolag, store, ddof]) - Engle’s Test for Autoregressive Conditional Heteroscedasticity (ARCH)
2. compare\_j(results\_x, results\_z[, store]) - Compute the J-test for non-nested models
3. OLSInfluence(results) - class to calculate outlier and influence measures for OLS result
4. gof\_chisquare\_discrete(distfn, arg, rvs, …) - perform chi square test for random sample of a discrete distribution

The original documentation for this library can be found at this link: <https://www.statsmodels.org/stable/index.html>.