Home Work Assignment – 5

*The Power of Plots*

**Data Analytics and Visualization**

**Rice University**

Dr. Sailendra Mahapatra

The following are observations based on analysis done in Pymaceuticals Inc dataset in Python by utilizing pandas and numpy libraries (attached file “Pymaceuticals.jpynb” details the analysis sts in jupyter notebook).

The effect of four drugs (Capomulin, Infubinol, and Ketapril along with a Placebo) on metastatic cancer growth on mice are analyzed. The results of the present analysis are plotted (see the figursbelow)

* The metastatic growth in case of the administered drug “Capomulin” shows the slowest growth rate over the entire time period (20%) other than the drug “Ramicane” which is not considered for the analysis at 19%. The growth rate is maximum in case of Ketapril vs with no actual drug (Placebo) administered.
* The standard error of measurement for the drug “Infubinol” (31%) is observed to be maximum over the entire period of treatment for the four drugs that we are discussing.
* As expected, the survival rate for the administered drug “Capomulin” (21%) is much better than that of the other drugs. In fact, for the first ten (10) days of the treatment, the survival rate for this drug was 100%. The survival rate in case of the drug “Infubinol” declined rapidly to merely 9% over 45 days of treatment, and exceeded that of the mice who were not administered with a Placebo in over 30+ days of treatment.
* The tumor volume increased to the maximum (57%) for the drug “Ketapril”, whereas, for the drug “Capomulin”, it decreased by 19%.
* Based on the analysis of the four drugs, it is observed that the drug “Capomulin” is the most effective one to slow the metastatic cancer growth.





