Star Discovery and Distance

# Mini Project 1

Link: <http://allv28.all.cs.stonybrook.edu:8080/shsinghal/>

## Project Capabilities

1. The project can show data in the form of a bar chart, a pie chart and a force directed graph
2. The user can switch between three variables when in bar chart mode. This capability is disabled in pie chart and in force directed graph, though a user can still switch the variable in bar chart and then switch to pie chart of the corresponding data
3. User can switch back to bar chart by clicking the respective button again.
4. Bin sizes are adjustable and can be achieved by moving to the left and right edges of the webpage
5. Any change in bin size of a bar chart will also be reflected in the pie chart when a switch is made, though there is an early threshold for pie chart such that it will only represent 20 bins at a time. This was done to prevent the data in pie chart for becoming completely illegible.
6. In the bar chart, if mouse is taken over a bar it is highlighted as well as its value is displayed on the top of the bar chart.

## Data Interpretation

1. The aim of this project is to represent the number of stars discovered against their distance from the Solar System (and thus us).
2. To achieve this, I used HYG 3.0 database which has almost catalogues almost 110 thousand stars.
3. Bar charts and pie charts represents three variables:
   1. Numbers of stars discovered in a distance range. The distances range from 0 parsecs (our sun) to 1000 parsecs. The data for distances above this range did not have accurate distance measurement.
   2. Volume of space in each distance range. By creating a equi-width graph the distance (difference between outer and inner radius) in ranges is same. Thus it was important to show that though the distance is same, the volume increases very rapidly
   3. Log (a/b) The main aim of their project was to find if there was a mathematical pattern that best defined how distance affected the numbers of discovered stars. Surprisingly **a smooth pattern was found between the log of star discovered/volume available in that range and the distance of those ranges**.